



PHILIPPINE HEART CENTER
East Avenue, Quezon City

SUPPLEMENTAL BID BULLETIN No. 051-2023

SUBJECT : Additional Technical Specifications in the Bidding Documents

PROJECT : 1 Lot Supply of Labor and Maerials for the designs, planning and contract documentation for the proposed Twelve (12) -storey Hospital Annex Building with Carpark, Roofdeck under Multi-Year Obligation (MYOA) Fund - ITB No. 064.23

To ensure that the transactions are comparatively advantageous to the interests of the PHC, the originally pre-issued bidding documents as mentioned above, revised technical specifications is hereby introduced.

Attached - Additional Technical Specifications - **Annex "A"**

This Supplemental Bid Bulletin is hereby issued to modify the original parameters as stated therein. All other requirements previously stated on the bid documents must be complied.

Please be guided accordingly.

Approved. Done this 10th day of August 2023, BAC Office, PHC.

RANULFO B. JAVELOSA, JR., MD.
Chairman, BAC for Infrastructure, Med Supplies & Services

Project: **1 LOT – SLM FOR THE DESIGN, PLANNING & CONTRACT DOCUMENTATION FOR THE PROPOSED TWELVE (12) STOREY HOSPITAL ANNEX BUILDING WITH CARPARK, BASEMENT & ROOFDECK UNDER MULTI-YEAR OBLIGATION AUTHORITY (MYOA) FUND. (ABC = P25,000,000.00)**

BID BULLETIN #1

10.4.1	Upon passing the eligibility requirements of the technical component, each bidder will be given 5 to 10 minutes to present their design concept. Presentation shall be done individually.		
10.4.2	<p>The design firm shall have at least one (1) <u>Single Largest Completed Contract</u> with similar project contract and scope such as Design of Hospital Building with architectural, electrical, mechanical, sanitary, fire-protection and electronics & communication works within 10 years from date of bidding.</p> <p>The value of the contract amount must be at least fifty percent (50%) of the ABC supported by the Design Team’s Performance Evaluation System rating or a certificate of acceptance and completion issued by the owner of the completed project.</p>		
10.4.3	The key personnel must meet the required minimum years of experience set below:		
	Key Personnel	General Experience	Relevant Experience
	1. Principal Architect	Licensed Architect	At least 10 years of work experience in design of hospital-related projects
	2. Structural/Civil Engineer	Licensed Structural Engineer	At least 5 years of work experience in structural design of high-rise structures
	3. Professional Mechanical Engineer	Licensed Professional Mechanical Engineer	At least 5 years of work experience in mechanical design &/or fire protection of hospital-related projects
	4. Professional Electrical Engineer	Licensed Professional Electrical Engineer	At least 5 years of work experience in electrical design of hospital-related projects
	5. Licensed Sanitary Engineer	Licensed Sanitary Engineer	At least 5 years of work experience in sanitary design &/or fire protection of hospital-related projects
	6. Licensed Professional Electronics and Communication Engineer	Licensed Professional Electronics Communication Engineer	At least 5 years of work experience in electronics and communication design of hospital-related projects


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ARCHITECTURAL DESIGN PARAMETERS

I. Codes and Standards

The Architectural Works shall be in accordance with the following Laws, Codes and Standards.

- Laws and Codes:
 - PD 1096 or the National Building Code of the Philippines and its Latest & Amended IRR
 - RA 4226 or Hospital Licensing Act and its Latest and Amended IRR
 - BP 344 or Accessibility Law and its Latest and Amended IRR
 - AO 35, s. 1994 or AO Pertaining to the Control of Radiation Hazards
 - RA 9514 or the New Fire Code of the Philippines
 - RA 9184 or the Government Procurement Reform Act and its IRR
 - Green Viability Assessment / Green, Safe & Resilient Health Facility Practice
 - Existing Local Codes and Ordinances
 - And other Laws that applies to the projects

- Standards:
 1. Bureau of Product Standards (BPS)
 2. Underwriters Laboratory (UL) or CE Listed or approved equivalent
 3. DOH Technical Guidelines for Hospital & Health Facilities Planning and Design

II. General Drawing Guidelines

1. General
 - All drawings shall be computer-drafted. Drawings shall be submitted both in printed and electronic copies.
 - Keep the same orientation for all plans. The north orientation shall be indicated in all architectural floor plans. The orientation of the architectural plans shall be consistent with all the engineering plans.
 - Existing buildings and new works shall be clearly indicated and labeled in the site plans.
 - Detailed plans, elevations and sections shall have a scale not smaller than 1: 100 meters.
 - Spot detailed plans shall have a scale not smaller than 1: 50 meters.
 - Avoid notes such as 'see architectural detail' or 'see structural'. Always refer with a callout to the specific detail drawing and sheet number.

2. Site Plans
 - The site plans shall have a scale not smaller than 1: 400 meters.

3. Floor Plans

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- All plans shall be 1: 100 meters. The same scale shall be used for the rest of the architectural, structural, sanitary, plumbing, electrical, electronics & communications, fire protection, FDAS and mechanical plans, except for each trade's site plan, detailed plans and spot details.
 - Elevation callouts shall be indicated on the floor plans and shall be consistent with the elevation drawing.
 - Section line callouts on the floor plans shall be consistent with the section drawing.
 - Floor plans shall be indicated with boxed room callout numbers, including the callout for floor finishes and wall finishes.
 - Floor elevations shall be indicated in the floor plans. This shall be in reference to the natural grade line or the established finished floor lines of the adjoining existing buildings.
 - The location of mechanical equipment, e.g. air conditioning shall be indicated in the floor plans. This shall be consistent with the mechanical and electrical plans.
 - Window callouts shall be hexagons with the proper numbering, e.g., W-01.
4. Elevations and Sections
- Finish floor lines and top of truss and roof deck lines shall be consistent in all the elevations, sections and structural plans and details.
5. Reflected Ceiling Plans
- Reflected ceiling plans shall be indicated with boxed room callout numbers, including the callout for ceiling finishes and lighting fixtures.
 - Ceiling height relative and in reference to the finish floor line shall be indicated in the reflected ceiling plans in each room with boxed dimensions. This is to ensure that the ceiling heights of all rooms are established whether or not reflected in the sections. Ceiling heights indicated herein must be consistent in all elevation/section drawings.
 - The description and location of the fixtures, e.g. lighting, smoke detectors, air-condition vents, exhaust fans, in the reflected ceiling plans shall be consistent with the electrical and mechanical plans.
6. Roof Plans
- Location of all downspouts shall be indicated in the roof plans.
 - Indicate the material finishes to be used.
7. Doors and Windows
- Door and window schedules shall indicate the type of door or window, the number of sets, the location/s of the door or window, the materials and accessories included and other special specifications, e.g. color or finish.
8. Details

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- Provide a minimum of one (1) bay section of a scale not smaller than 1:50 meters for each major building preferably cut along the area with special construction design.
- Provide spot detail plans, elevations and sections of a scale not smaller than 1:30 meters for special designs with aesthetic treatment and ornamentation.
- Provide detail plans of a scale not smaller than 1:50 for all areas needing tile pattern, e.g. lobby, corridor, entrance walk, showing the position and pattern of tiles.
- Centerline location of plumbing fixtures shall be indicated in detail plans with lines of reference and its corresponding dimensions. This is to indicate the exact locations of the plumbing/sanitary roughing-ins.

III. Site Works

1. The Master Site Development Plan of the Hospital shall include the following:
 - Contour and survey of the lot, including bearing and distance of the property line
 - Road network and curbs and sidewalks
 - Parking spaces
 - Reference location of existing trees
 - Reference location and footprint of existing buildings, with the corresponding building names and dimensions, including distances between adjacent buildings, and distances between buildings and the nearest property line
 - Reference location of utilities, e.g. water reservoirs, septic tank and/or holding tank, powerhouse, transformers, waste storage area, security outposts and waiting sheds
2. There shall be a separate road entry for vehicles going to our Emergency Department.
3. There shall be a separate road entry/exit for vehicles going to the Hospital Lobby.
4. Ramps shall be provided in all main entrances of the buildings and other access openings to walkways leading to other buildings.

IV. Building Architectural Works

1. Floor Plans
 - The structural, sanitary, plumbing, electrical and mechanical designs are required to refer to the architectural plans and specifications in case of discrepancies. If an engineering design will have any possible conflict or interference on the architectural design, the latter may be adjusted provided that the aesthetic value will not be compromised.
 - The architectural and engineering plans shall be consistent all throughout in terms of dimensions and locations of columns, beams, walls, roof line, conduits, ducts, pipes, and fixtures, among others. Column and beam grid lines shall also be consistent in all the architectural and engineering plans.

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- Verify and coordinate floor plans with the mechanical, electrical and sanitary design with regard to the requirements for mechanical rooms, AHU rooms, electrical rooms, pipe chase, and other engineering requirements.
- Public toilets shall have provisions and fixtures for persons with disability as required by BP 344. If enough space allows, toilets specially made and designated for persons with disability is preferable.

2. Walls

- Exterior walls shall be 200mm. thick, while interior walls shall be 150mm. thick. This is indicative of the finished wall thickness including the plastering and tile works. Interiors walls forward, offices shall be 6mm thick fiber cement board (two-face) with glass/rock wool insulation on metal framing, extend to bottom of beam.
- Toilet wall tiles shall be 300mm. x300mm. for areas of six (6) square meters or below. Toilet wall tiles shall be 600mm. x600mm. for areas above six (6) square meters.
- Layout and work on wall and floor tiles must be aligned, plumb, level, and square.
- All edges, corners and intersections of toilet tiles, including the top-most tile not reaching the ceiling shall be provided with polyvinyl chloride tile trims.
- Tile color and design shall be approved first before installation.

3. Floors

- Surgical Intensive Care Units and Operating Room floor finish shall be non-directional roll-form anti-static anti-bacterial homogenous vinyl with welded joints. It shall cover upwards to the sides of the wall up to a minimum of 150mm from the floor, terminated by capping strips.
- If floor tiles in two adjacent rooms with different material, color or design meet at the door opening, the cut shall be located middle of the door thickness when in a closed position. Provide details in the floor pattern design.
- Floors at the openings of toilets for persons with disability shall be sloping. Indicate in the plans and sections.
- The size of the toilet floor tiles shall be 300mm. x300mm. for areas of six (6) square meters or below. Toilet floor tiles shall be 600mm. x600mm. for areas above six (6) square meters. Indicate the tile pattern.
- The size of vinyl floor tiles of the offices and wards shall be 300mm x 300mm, or bigger depending on the proportion to the size of the room. Indicate the tile pattern.
- Layout and work on wall and floor tiles must be aligned, plumb, level, and square.
- Tile color and design shall be approved first before installation.

4. Ceiling Works

- The following rooms shall have a minimum ceiling height:
 - a. Wards of 4 beds and up – 2500mm, to provide better natural ventilation
 - b. Ceiling height for areas with special aesthetic treatment, e.g. lobby, major conference room, executive office, shall be proportional to the area of

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room or as required by the designer. However, this shall not be lower than 2700mm. Provide details.

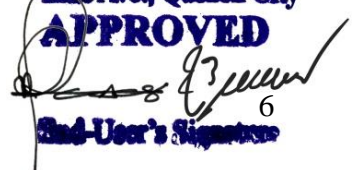
- c. If acoustic boards on aluminum T-runners would be used for the ceiling, layout should be on center and avoiding cut pieces. If the remaining perimeter of the ceiling is less than 600mm. wide, it shall be designed complimentary with fiber cement boards on light gauge metal furring. Likewise with acoustic boards in big areas, e.g. offices, and wards, shall be designed in a way to break the redundancy. Provide details.
- d. Soffit of exterior beams and slabs shall have drip moulds to prevent damage due to water sipping into the eaves or ceiling. Section details shall be required to show the drip mould.

5. Doors and Windows

- Major rooms that require security shall have aluminum framed glass doors.
- Minor rooms that do not require security shall at least have wood panel doors.
- Toilet doors shall be flush type 4.5mm ficem board on wood frames with aluminum louvers and toilet cubicle doors shall be compact high-pressure laminate (black core) phenolic door.
- Operating rooms shall have automated sliding aluminum framed glass doors.
- Fire escape doors, should be provided with panic hardware and door closers, and shall conform to the requirements of the Fire Code of the Philippines.
- Aluminum frames of glass doors and windows shall be powder-coated.
- Door finish and color shall be approved first before application.
- Window sills shall be slightly sloped outwards to prevent damage to windows and paint due to water sip page. Section details shall be required to show this slope.
- All doors of a high-occupancy room shall swing outwards and as required by the Fire Code of the Philippines. Panic Doors.
- Doorjambs with no moulding/casing installed on concrete walls shall have construction grooves all around. Provide details.
- All doors and windows shall have reinforced concrete lintel beams. Provide details.

6. Stairs, Ramps and Corridors

- Ramps for persons with disability shall have a slope not higher than 1:12. Handrails and clearances shall conform to the requirements of BP 344.
- Regular stairs shall have risers at 150mm. high and treads at 300mm. wide. Fire stairs could have a maximum riser at 200mm. and tread at 250mm. Handrails shall be 1100mm. high. Clearances shall conform to the requirements of the Fire Code of the Philippines.
- Corridors shall have a minimum unobstructed width of 2500mm. This shall be measured clear from the surface of the finished wall and not on- center of the rough CHB wall.

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- Corridors shall not be areas for temporary or permanent storage of stretchers, wheelchairs, trolleys, food carts, oxygen tanks or other movable hospital equipment. Storage or parking spaces shall be provided for these.
 - Corridors and exit doors shall conform with the requirements of the Fire Code of the Philippines.
7. Fixtures and Accessories
- Three-way electrical light switches shall be provided at the foot and the top of the stairs per floor. Likewise, at both ends of along corridor.
 - The knob side of the door shall locate electrical light switches.
 - Electrical switches and outlets shall be installed plumb and level.
 - Patient toilets shall always be provided with stainless steel handrails in conformity to the requirements of BP 344.
 - A drainage line shall be provided for air conditioners. Likewise, split-type air conditioners located in the interior part of the building shall be so located adjacent to areas with drainage lines, e.g., toilets, downspouts, balconies.
8. Roof Deck Works
- Steel roofing shall not be allowed in the roof deck part of the building. Roof decks shall be slab with sufficient roof dome drains connected to rain water harvesting system.
 - Parapets, designed as a roof protection from the winds, must be designed to satisfy the preceding parameters. Provide details.
9. Painting
- Painted ceiling shall be in flat latex finish. Shadow coves is encouraged
 - Painted interior walls shall be at anti-bacterial semi-gloss latex finish for all rooms, unless specified to a higher type of paint.
 - All patient rooms, operating rooms and laboratory shall also be in anti-bacterial and odor-absorbent paint finish.
 - Painted exterior wall shall be at least in moisture-resistant/water-repellant solvent-based paint finish, textured or smooth, unless otherwise specified.
 - Paint color and shade shall be approved first before application.

V. Specific Requirements

1. Provide spot detail plans and sections of the following:
 - Gutter, eaves, and parapet
 - Ceiling - coverlight, special connections and design, mouldings, valances
 - Stairs - handrail, and baluster design
 - Ramps - handrail design and floor pattern
 - Doors, windows and gates - grille works,

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- Special Architectural Treatment and Design, e.g., façade design, special window and door, counter/nurse station counter / kitchen & pantry counter.
 - Special Carpentry Works, e.g., partitions, cabinets
 - Other details as may be required
2. Provide Room Data Sheets, including detail floor plan, ceiling plan and sections of the following rooms, in coordination with the requirements of the electrical, sanitary and mechanical designs:

VI. Summary of Materials

- Materials to be used shall be fire-resistant, non-toxic, moisture-resistant and termite-resistant, e.g. fiber cement board, light-gauge steel frame, polyvinyl chloride ceiling panels, metal spar.
- Wet areas, e.g. toilets, shall use non-skid/non-slip vitrified ceramic floor tiles.
- Heavy traffic areas, e.g. lobby, and corridor shall use metal heavy-duty homogeneous tile or porcelain tiles or a higher type of floor material.
- Vinyl floor tiles for areas like offices shall be homogenous and not less 2mm. thick. Ramps and stairs shall use non-skid/non-slip floor tiles, materials as specified.
- Aluminum T-runners shall be powder coated.
- Metal rod hangers with adjustable clips, and not galvanized iron wires, shall be used to support and suspend the aluminum T-runners and light gauge metal furring.
- Roofing sheets shall be Ga.# 24 aluminum-coated, pre-painted, and pre-formed.

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SUBJECT : STRUCTURAL/CIVIL WORKS DESIGN PARAMETERS

I. Codes and Standards

The Civil/Structural Design shall be in accordance with the following Codes and Standards

- Laws and Codes:
 1. National Structural Code of the Philippines (NSCP) - Latest
 2. National Building Code of the Philippines and its revised IRR
 3. Accessibility Law
 4. Local Codes and Ordinances

- Standards:
 1. Bureau of Product Standards (BPS)
 2. Philippine National Standards (PNS)
 3. DPWH Blue Book
 4. American Concrete Institute (ACI)
 5. American Society for Testing Materials (ASTM)
 6. American Welding Society (AWS)

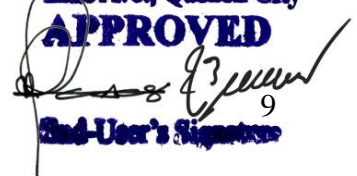
II. Site Works

Based on Master Site Development Plan of the Hospital, provide where applicable complete design and details of hospital road (concrete with curb and gutter, including drainage) network, walkways parking areas and fencing.

1. The main hospital road shall be capable of two-way traffic (at least 6mts. width) with a minimum thickness of 150mm (6 inches). Concrete strength should be at least 3000psi. Interior road (leading to support facilities) shall be so designed to accommodate delivery vehicles, and fire trucks in case of emergency.
2. Walkway should be at least 100mm thick with concrete strength of 2500psi. Ramps should be provided, instead of steps, for any change in elevations.
3. Parking area slabs should be at least 150mm thick with concrete strength of 3000psi.
4. Fences should be see through in front of the hospital while the three (3) other sides should be concrete hollow blocks with minimum height of 2 meters and to be provided with perimeter lighting. See-through fence design will be made of 32mm square bars spaced at 100mm on center and provided with three (3) concrete hollow blocks (45mm high) zocalo wall.

III. Buildings

1. The hospital buildings should be designed using seismic importance factor of 1.25 for immediate occupancy category. Buildings should be designed in accordance with NSCP Requirements from Magnitude 7 to 8.5 for those near seismic source Type A. Seismic gaps between buildings (old and new) should be properly observed.

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2. The hospital buildings should be designed also using wind importance factor of 1.16 – 1.81 (especially for design of trusses/roofing system). Concrete gutters and parapet walls should be provided as additional protection to the roofing system during strong typhoons.
3. The structural designer should verify with Philippine Volcanology and Seismology (PHIVOLCS) the distance of the proposed hospital to nearest active fault lines and with the DENR for geo-hazard mapping.
4. Soil investigation (at least three bore holes) should be conducted to determine soil bearing capacity and recommended foundation design (applicable even for one storey structure).
5. The structural designer is encouraged to use fire-resistive and non-toxic materials.
6. Installation of Earthquake Recording Instrument (ERI). IV.

IV. Details – the following shall be provided:

1. Connection details of beams & columns following the requirements of NSCP on confined areas.
2. Connection of trusses to beams and columns.
3. Splicing details of reinforcing bars on columns and beams and the required bar cut-off points.

V. Summary of Materials

- Concrete shall be Portland cement and conforming to ASTM Specification C150, Type I to Type II
- Coarse Aggregates shall consist of washed gravel, crushed stone or rock or a combination thereof conforming to ASTM C33
- Concrete Hollow Blocks shall be a standard product of recognized manufacturer conforming to PNS 16 with at least 350psi strength.
- Reinforcing Bars shall conform to PNS Grade 60 for 16mm dia. and above and PNS Grade 40 for 12mm dia and below.
- Structural steel shall conform with ASTM A36/A6M
- Bolts and Studs shall conform with ASTM A 325
- Welding electrodes shall be E60 or E 70 and conform with AWS VI.

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SUBJECT : SANITARY/PLUMBING DESIGN PARAMETERS

I. Codes and Standards

The Sanitary/Plumbing Design shall be in accordance with the latest adopted edition of the following Codes and Standards.

- Codes:
 1. National Building Code of the Philippines and Its New IRR
 2. Fire Code of the Philippines
 3. Uniform Plumbing Code of the Philippines (UPCP)
 4. Sanitation Code of the Philippines
 5. Existing Local Codes and Ordinances.

- Standards:
 1. Bureau of Product Standards (BPS)
 2. Philippine National Standards for Drinking-Water
 3. Underwriters Laboratory (UL) or CE Listed or approved equivalent
 4. DOH National \ Laboratory (NRL)
 5. DOH Health Care Waste Management Manual
 6. National Water Resources Board (NWRB)
 7. National Plumbers Association of the Philippines (NAMPAP)
 8. Philippine Society of Sanitary Engineers, Inc. (PSSE)

II. Site Works

- Based on the Master Site Development of the Hospital, the Site Works shall provide complete layout of the following:
 1. Storm Drainage Network, indicating Drainage Manholes and Pipe Culvert;
 2. Sewerage Pipe Network, indicating Sewage Manholes, Sewage pipes and the location of the proposed Sewage Treatment Plant; and
 3. Water Supply Network, indicating the location of Water Service entrance, Cisterns, Elevated Water Tank and proposed Pump House and main water lines.
- The Storm Drainage Network shall accommodate the magnitude of peak rates of surface run-off including drainage coming from the buildings. The system shall be capable of handling the design flows routing to the designated outfall;
- For rainfall calculation and sizing of drainage pipes, refer to Table-D2, Appendix-D, National Plumbing Code of the Philippines and current rainfall record from PAGASA.
- The Sewerage Pipe Network design shall accommodate all sewage coming from all the facilities, conveyed by gravitational flow leading to the proposed sewage Treatment Plant; er capita wastewater demand: 250 gal/capita/day per bed.
- The Water Supply Network shall include the provision of Fire Hydrants, accessible Faucet that will serve as testing point for safe and potable water supply; Per capita water demand 315 gal/capita/day per bed.

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III. Building Facilities Sanitary/Plumbing System

- Sewerline and Vent System
 1. Provide complete Sewerline and Vent System from all (Domestic) plumbing fixtures and floor drains; laid by gravity flow or pumping from lift or transfer station leading to the Septic Tank (DENR Administrative Order Series 2018-08 compliant).
 2. For Drainage Fixture Units; refer to Chapter 7, Table 7-2, NPCP
- Wastewater line and Vent System
 1. For all Areas dealing with Laboratory activities and generating infectious wastes, provide separate Waste line and Vent System routing into a proposed Neutralization Tank prior to discharge to the Sewage Treatment Plant ;
 2. For all Wash Areas dealing and generating with oil/grease at the Dietary provide separate Waste line and Vent System and solely tap to the proposed Grease Trap and then connect its effluent to the Sewage Treatment Plant.
 3. For Estimated Demand Weight of Fixtures in Fixture Units; refer to Chapter 7, Table 7-2, UPCP
- Waterline System
 1. Provide complete cold water supply pipes to all plumbing fixtures. From the main water source to cistern, the water shall be pumped to the Elevated Water Tank (EWT) and conveyed to the fixtures by gravity system and or distributed to fixtures by transfer pumped with constant pressure through a Pneumatic Storage Tank to plumbing fixture, whichever is feasible.
 2. Provide complete Hot water system with portable water heaters for selected Areas as required and or specified by the Owner.
- Storm Drainage System
 1. Complete Storm Drainage System shall be provided for all roofs, canopies, concrete ledges and balconies including condensate drains laid for gravity flow connected to a leader/pipe line leading to the natural ground level storm drainage network.

IV. Specific Requirements

- Provide details of the following:
 1. Toxic Waste Trap
 2. Neutralization Tank
 3. Cistern Tanks and Elevated Water Tanks (c/o Mechanical)

V. Summary of Materials

- Sewer and Vent pipes; Unplasticized Polyvinyl Chloride (uPVC) extra series 1000 (Conforming to ISO 4435 ASTM D2729 including Trims and Fittings)

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- Storm Drainage pipes; Downspouts, Unplasticized Polyvinyl Chloride (uPVC) extra series 1000(Conforming to ISO 3633, ISO 4435 ASTM D2729 including Trims and Fittings, BPS Certified)
- Drainage Pipes; 250mm dia. and below, Non-Reinforced Concrete Pipe (NRCDP) 300mm dia. and above, Reinforced Concrete Pipe (RCDP)
- Drainage Manholes; Street Inlet, Curb Inlet, Traffic Type Reinforced Concrete Area drain/Catch Basin, Reinforced Load Bearing CHB
- Sewage Manholes; Traffic Type Reinforced Concrete with Standard Cast Iron Cover
- Wastewater pipeline; wash area/dietary (same as sewer and neat pipes)
- Cleanouts; High Quality Stainless steel, Laboratory HPDE & Filling PN16/Brass with counter sunk plug screw locks (BPS Certified)
- Floor Drains/Deck Drains; High Quality Stainless Steel Brass (BPS Certified)
- Gutter Drains; Cast Iron Dome Type Brass/High Quality Stainless Steel (BPS Certified)
- Cold Waterline pipes; for buildings, Polypropylene Random (PPR) Pn16/Pn20 Fusion Weld Pipes including Trims and Fittings (BPS Certified)
- Hot Waterline System; for buildings, Polypropylene Pn20 Fusion Weld Pipes including Trims and Fittings (BPS Certified)
- Trench Grating; Galvanized/Stainless Steel Iron grates
- Plumbing Fixtures including Trims, fittings and accessories; (BPS certified)
 1. Water Closet-Tank Type Lever Flush
 2. Lavatory- (Pedestal/Counter Type)/semi-pedestal with C-spout spray faucet
 3. Kitchen sink-Ga#16 Stainless Steel seamless bowl with gooseneck faucet
 4. Urinal-Wall Hung Flush valve/lever/push button or green building standard type
- Plumbing Fixtures at Sterile Areas;
 1. Scrub-Up Sink-Ga#16 stainless Steel (single/double bowl) compartment with knee operated and or censor controlled spay faucet
 2. Surgical Soap Dispenser-Ga#16 Stainless Steel knee operated
 3. Medical Acid Resistant Sink with gooseneck faucet.
 4. Deep sink, acid resistant with gooseneck faucet with lever and nozzle.

VI. Drawing Requirements: See attached DOH checklist standards based on Revised IRR of the National Building Code of the Philippines (PD 1096)

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SUBJECT : MECHANICAL WORKS DESIGN PARAMETERS

I. Codes and Standards

The Mechanical Design shall be in accordance with the latest adopted edition of the following Codes and Standards.

- Codes:
 1. National Building Code of the Philippines and Its New IRR
 2. New Fire Code of the Philippines
 3. Mechanical Engineering Code of the Philippines (ME Code)
 4. Existing Local Government Codes and Ordinances.

- Standards:
 1. Bureau of Product Standards (BPS)
 2. Philippine National Standards (PNS)
 3. Underwriters Laboratory (UL) and Factory Mutual (FM) or CE Listed or approved equivalent
 4. International Electrotechnical Commission (IEC) 1988
 5. National Fire Protection Association (NFPA)
 6. National Fire Protection Association (NFPA) 99 Standard for Health Care Facilities.
 7. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
 8. Center for Disease Control and Prevention (CDC) Manual.

II. Automatic Fire Sprinkler System

The automatic fire sprinkler system shall be composed of complete plans and drawings of the following:

1. Site Development Plan and Vicinity Map, indicating the location of the buildings, firewater reserve tank, firewater line, yard loop and private fire hydrant.
2. General Notes, Legends and Symbols including Schematic Diagram of the Fire Sprinkler System and Schematic Diagram of Alarm Monitoring System.
3. Floor Layout and Isometric Layout of the Automatic Fire Sprinkler System indicating pipe sizes and the location of the pipes, valves, sprinkler heads, riser nipples, fire hose cabinets, sprinkler main riser, drain pipes, cross mains, branchlines, inspector's test connections, hangers and sway braces.
4. Equipment Schedule, Detail drawings, fire pump and jockey pump layout.
5. Architectural, Structural, Electrical and Plumbing drawings of the Firewater tank and Pumphouse.
 - a. An automatic fire sprinkler shall be provided in all hospital buildings.
 - b. Hazard Classification shall be Light Hazard Occupancy.

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- c. Area of coverage shall be 146 square meters and water density shall be 4.07 lps/sq.
- d. Protection area per sprinkler head shall be 20 square meters at 2.2 meters minimum distance between sprinklers and 4.2 meters maximum spacing.
- e. All floor control valves shall be equipped with supervisory switch, water flow detector and drain system.
- f. Water supply shall be horizontal split case centrifugal fire pump with diesel engine or AC motor and a vertical in-line jockey pump with controller.
- g. Firewater reserve tank shall be ground level monolithic concrete tank sized for a minimum of 30 minutes.
- h. Hydraulic calculations report shall be based on NPFA-13 format.

III. Ventilation and Air Conditioning System

The ventilation and air conditioning system shall be composed of complete plans and drawings of the following:

- 1. General Notes, Legends and Symbols including Schematic Diagram of the Ventilation and Air Conditioning System.
- 2. Floor Layout of the Ventilation and Air Conditioning System indicating the capacity and location of the air conditioners and fans.
- 3. Duct layout indicating duct sizes, route and location of the dampers, diffusers, return air register, hangers and sway braces.
- 4. Refrigerant piping layout indicating pipe sizes, location of valves, hangers and sway braces.
- 5. Equipment Schedule and Detailed drawings and calculations for Air Conditioning and Ventilating System
 - a. Air conditioning system shall be provided in all patients private rooms, radiologic and imaging area, operating rooms, laboratories, critical care areas, offices and other areas where conditioned air is necessary.
 - b. Cooling Load calculations report shall be manual or computer generated, hourly analysis program which includes heat transmission coefficients, solar heat gain factors and corrected cooling load temperature difference calculations.
 - c. Split type air conditioners will be used at areas with larger capacities.
 - d. Window type air conditioners shall be used in areas with exterior wall exposure.
 - e. Design of all critical areas shall be laminar or positive pressure, wherein the supply air is 10% more than exhaust air.
 - f. Maintain an air change rate greater than or equal to 12 air changes per hour or 145 liters per second per patient.
 - g. Ceiling cassette type exhaust fans with integral air diffuser shall be provided to all toilets.

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- h. Ceiling fans, orbit type with 360° oscillation shall be provided in all non air-conditioned rooms, such as patient wards, work areas, nurse station, etc.

IV. Medical Gases and Vacuum System

The pipeline system of medical gases and vacuum shall be composed of complete plans and drawings of the following:

1. Site Development Plan and Vicinity Map; indicating the location of the buildings, medical gases manifold and vacuum housing.
2. General Notes, Legends and Symbols including Schematic Diagram of the Medical Gases and Vacuum System and Schematic Diagram of Alarm Monitoring System.
3. Floor Layout and Isometric Layout of the Medical Gases and Vacuum System indicating pipe sizes and the location of the pipes, valves, zone valves, alarms, outlet stations, cross mains, branch lines, hangers and sway braces.
4. Equipment Schedule, Details drawings and equipment layout.
5. Architectural, Structural, Electrical and Plumbing drawings of the Medical Gases and Vacuum Housing.
 - a. Medical gases and vacuum system shall be provided throughout the hospital. Medical gas supply system shall be provided through manifold system and bulk system.
 - b. The pipeline system shall be equipped with zone valves and alarm system.
 - c. Vacuum pumps shall be duplex type each with a capacity to handle the total load without loss of vacuum in the system.
 - d. Gas outlets shall be single, double, triple or more units for the following services; oxygen, air, nitrous oxide and vacuum.
 - e. Flow calculations shall be based on NFPA 99 Standard for Health Care Facilities.
 - f. Piping shall be of seamless type "K" or "L" hard tampered copper tubing suitable for silver brazing. Joint and fittings for copper tubing shall be cast bronze designated for brazing.

V. Elevator System

The elevator system shall be composed of complete plans and drawings of the following:

1. General Notes, Legends and symbols including Schematic Diagram.
2. Floor Layout, Elevator Shaft Plan and Machine Room Plan.
3. Equipment Schedule, Detail Drawings and equipment Layout.
4. Architectural, Structural, Electrical and Plumbing Drawings of the Elevator System.
 - a. Hospital bed type elevator shall be provided in all multi-storey hospital buildings.
 - b. The minimum car size shall be 1,500mm wide and 2,150mm long.
 - c. The car door opening shall be not less than 1,100mm and 2,100mm high.
 - d. 2 Bed elevators, 1 Service/Passenger Elevator.

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VI. Specific Requirements

Provide details of the following:

1. Cistern Tanks and Elevated Water Tanks
2. Firewater Reserve Tank

VII. Summary of Materials

1. Automatic Fire Sprinkler System
 - a. The fire pump shall be UL Listed/FM Approved or approved equivalent, diesel engine or electric motor driven, designed specifically intended for an automatic water sprinkler protection system.
 - b. The jockey pump shall be UL Listed/FM Approved or approved equivalent, electric motor driven, 220V, 3-phase, 60 hertz, and electric power connection.
 - c. Sprinkler head shall be UL Listed/FM Approved or approved equivalent, pendant, upright or sidewall unit, 83 LPM flow capacity per head and temperature fusing at 57.5° C to 74°C.
 - d. The alarm assembly shall be UL Listed/FM Approved or approved equivalent, constructed and installed that any flow of water from the sprinkler system equal to or greater than that from the single automatic head shall result in an audible and visual signal in the vicinity of the building.
 - e. Alarm and supervision system of the automatic water sprinkler shall include the monitoring water flow switch at each floor of the building, fire pump and jockey pump running condition and power supplies, level of water in the reservoir and control valves.
 - f. Pipes shall be B.I. Schedule 40. Screw fittings shall be used for inside piping.
2. Air Conditioning and Refrigeration System
 - a. Refrigerant pipes shall be copper tubing, type L or K for size of 100mm diameter and smaller. Pipe over 100mm shall be black steel pipe Schedule 40.
 - b. Black steel pipes shall be standard seamless, lap-welded, or electric resistant welded for size of 50mm diameter and larger, screw type for size 38mm diameter and smaller, fittings for copper tubing shall be cast bronze fitting designed expressly for brazing.
 - c. Pipe insulation shall be pre-formed fiberglass or its equivalent. The insulating materials shall be covered with 100mm x 13mm thick polyethylene film, which shall be overlapped not less than 50mm.
3. Medical Gases and Vacuum System
 - a. Medical gas manifold and vacuum plant shall be UL Listed/FM Approved or approved equivalent. b. All gas outlet stations shall be UL Listed/FM Approved or approved equivalent, quick connect type, or DISS type, stainless steel or PVC faceplate mounted on a chrome-plated, zinc die-cast cover plate.

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4. Elevator System

- a. The passenger and service elevator shall be machine room less, or traction type only.

VIII. Drawing Requirements: See attached DOH Standard Checklists based on Revised IRR of the National Building Code of the Philippines (PD 1096)

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SUBJECT : ELECTRICAL AND AUXILIARY DESIGN PARAMETERS

I. Codes and Standards

- Codes:
 1. Philippine Electrical Code
 2. National Electrical Code
 3. New Fire Code of the Philippines
 4. National Building Code of the Philippines and Its New IRR
 5. Existing Local Codes and Ordinances

- Standards:
 1. Bureau of Product Standards (BPS)
 2. Underwriters Laboratory (UL) or CE Listed or approved equivalent
 3. National Fire Protection Association (NFPA)
 4. International Electrotechnical Commission (IEC)
 5. Illumination Engineering Society (IES)
 6. National Electrical Manufacturer's Association (NEMA)
 7. DOH Manual on Technical Guidelines for Health Facilities Planning and Design

II. Site Works

Based on the Master Site Development of the Hospital, the Site Works shall provide complete Electrical layout of the following:

1. Power House to the new proposed structures.
2. KVA rating and other specifications of Transformer.
3. Switchgear requirements
4. Panelboard Layout
5. Electrical Metering Devices / Primary
6. Service Entrance Facility and Main Feeder Layout
7. Grounding System
8. Emergency/Standby Generators
9. Street and Perimeter Lighting System

III. Building Facilities Electrical System

- Lighting System
 1. Provide and install adequate normal/emergency branch circuits for Lighting System to all areas using the standard Lighting Design Analysis. Utilize the standard Illumination requirements per area of concern using the preferred particular type of luminaires.

- Power System

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1. Provide and install adequate normal, emergency & redundant branch circuits for the Power System.
- Standby/Emergency Power System
 1. Provide and install adequate equipment, life safety and critical emergency branch circuits for lighting and utilization equipment connected to the alternate power source, implying an N+1 system.
 - Auxiliary System
 1. Provide and install the following Auxiliary System:
 - a. Communication System
 - i. Telephone System
 - ii. Local Area Network System/Internet connection
 - iii. Public Address & Paging System
 - iv. Private Branch Exchange (PABX)
 - v. Nurse Call System
 - vi. Master or Cable Antenna Television
 - b. Fire Alarm System & Heat and Smoke Detector
 - c. Security System (Intrusion Detection, Access Control & CCTV)
 - Lightning Protection System
 1. The building lightning protection system shall include roof-mounted air terminals grounding conductors, ground rods, conduits, clamps, and auxiliary equipment as required for a complete and operational lightning protection system.

IV. Provide Details of the following:

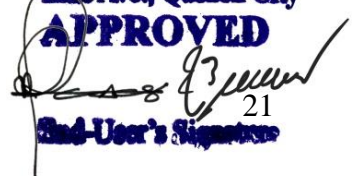
1. Lighting Fixtures/Luminaires
2. Panel board and Circuit Breakers
3. Switchgear and other Metering Devices
4. Electrical and Hospital Equipment
5. Installation and Termination of Auxiliary and other Special Devices and Equipment
6. Power and Telephone Handholes (as may be required)
7. Pedestal and Service Entrance Facility to the Bldg.
8. Grounding and Earthing System Layout
9. Substation/Power Center, Electrical Rooms and Auxiliary Rooms
10. Transformer and Generator Mounting
11. Others as may be required.
12. Design analysis (to include voltage drop and short circuit computation, protection, coordination and arc flash analysis)

V. Summary of Materials

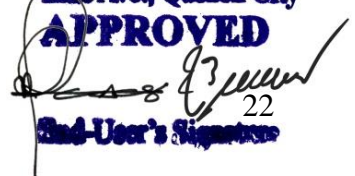
- **General Lighting Luminaries:** Fixtures type shall be as indicated on the Lighting Layout Plan.
 1. LED Light Lamp shall be Linear or circular lamps.


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2. LED light lamps shall be cool and lampholders shall be made of thermosetting plastic.
 3. LED Light Fixture housing shall be steel sheet with high reflectance powder coat paint finish.
 4. Down lights and Pin lights shall be of heavy gauge spun aluminum equipped with lamp as indicated on the drawings.
 5. Other Special Lighting requirements shall be as approved by the implementing agency.
- **Wiring Devices:** Wiring devices shall be non-automatic control devices; the contact is guaranteed by the pressure of the special spiral springs.
 1. Switches shall be of 15A, 250V or 300V except as otherwise noted and approved.
 2. Terminals shall be screw-type or quick-connected type.
 3. General use receptacle shall be 15A, 240V grounding type unless otherwise indicated on the drawings.
 4. Special purpose receptacles outlets shall be as called for on the drawings..
 5. Matching plugs shall be supplied.
 6. Power outlet intended for mobile X-ray must be in separated circuit from standard CO.
 - **Panel boards and Circuit Breakers:** The Panel board and Circuit Breakers shall be equipped with molded-case circuit breakers and shall be the type as indicated in the panel board schedule and details.
 1. Provide molded-case circuit breakers of frame, trip rating and interrupting capacity as shown on the drawings. The circuit breakers shall be quick- make, quick break, thermal-magnetic, trip-indicating and shall have common trip on all multiple breakers with internal trip mechanism.
 2. All current-carrying parts of the panel boards shall be plated. Provide solid neutral (S/N) assembly when required. The assembly shall be isolated from the enclosure.
 3. Panel boards shall be provided with circuit directory.
 - **Electrical Conduits, Boxes and Fittings:** All conduits, boxes and fittings shall be standard rigid steel, zinc coated or galvanized.
 1. Rigid Steel Conduits (RSC)
 2. Rigid Metal Conduits (RMC)
 3. Intermediate Metal Conduits (IMC)
 4. Electrical Metallic Tubing (EMT)
 5. Unplasticized Polyvinyl Chloride (uPVC) if required shall be schedule 40.
 - **Conductors:** Wires and cables shall be of the approved type and unless specified or indicated otherwise, all power and lighting conductors shall be insulated for 600 volts

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1. The conductors used in the wiring system shall be of soft-annealed copper having a conductivity of not less than 98% of that of pure copper and insulated for 60 degrees C Temperatures.
 2. All conduits of convenience outlets and wireways for lighting branch circuit homeruns shall be wired with a minimum of 3.5 mm square in size.
- **Nurse Call System:**
 1. The Nurse Call System shall have the following control panel, bed head panel, ancillary call and annunciating equipment.
 2. Wiring shall consist of data cable and 24V supply to each bed head unit. Two levels of call will be provided by the system:
 - a. Patient to Nurse. A patient to Nurse shall be actuated by means of the wall-mounted or handset mounted call push button of bed head panel.
 - b. Nurse to Nurse. Call of nurse to nurse shall be considered, as emergency call and shall be instigated by operation of the Emergency Pull/Push Switch mounted on call units of bed head panel.
 - c. Bedhead panel shall be of different type depending on the patient bedroom class and as may be required. Multiplexed bedhead panel shall be available to operate sound distribution system.
 - d. Bathroom shall be provided with pull cord unit and reset unit.
 - e. Room indicator lamp shall be installed above the door of each patient's bedroom along the corridor.
 - f. Nurse stations shall be equipped with indicator unit to provide indication (audible and visual) of the zone and type of call.
 - g. Emergency indication shall be included in some acute areas but arranged "for staff use only" in the event of urgent assistance being required.
 - h. The system shall be of solid state switching with all items connected to internal printed circuit boards readily interchangeable for maintenance purpose.
 - i. X-ray light indicators.
 - **Master Antenna Television (MATV) and Cable Television (CATV) System:**
 1. Two sources of TV signals shall be provided to the building. One (1) shall be from a master antenna installed at the roof or within a suitable area of the building and the other will be from a commercial cable television service.
 2. The master antenna system shall consist of FM, VHF and UHF antennas, combiner, distribution amplifier, coaxial cables, splitters, tap-offs and TV outlets.
 3. There shall be individual trunking for master antenna and cable television rising in the building.
 - **Structured Cabling & Telephone System:**
 1. A minimum provision for estimated 300 mixed PABX extension and direct telephone lines shall be required for tertiary hospitals.

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2. Final details of the system shall follow specific requirements, quantity and type of service.
- **Fire Detection and Alarm System:**
 1. The Fire Detection and Alarm System shall be of multiplex, microprocessor-controlled addressable or zonal conventional fire detection, alarm and communication system.
 2. The system shall consist of full integration automatic fire detection, voice alarm communication and fire fighters telephone system.
 3. The system shall consist of control station, mimic panel initiating and indicating devices, control modules and system of wirings.
 4. Actuation of the protective signaling system shall occur by manual pull station, automatic smoke or heat detector, sprinkler flow switch and tamper switch.
 5. Actuation of the protective signaling system shall occur by manual pull station, automatic smoke or heat detector, sprinkler flow switch and tamper switch.
 6. The system shall be able to monitor the status of flow switches and supervisory switches installed at the Sprinkler System risers. These monitoring points are also addressable or the conventional zonal in the same way as the detectors are making them easily recognizable at the control panel.
 7. Occupant notification shall be accomplished automatically. Notification will be general, audible alarm type complying with appropriate section of NFPA.
 8. The system shall be installed with provisions for future connection to the nearest fire services station in the locality
 - **Security System:**
 1. The Security system shall include intrusion detection and alarm, CCTV and access control or as may be required.
 - **Emergency Lights and Exit Signs:**
 1. Installed in the office Exit Sign (Color: Green), hallways, corridors & stairways exits
 2. Battery operated Emergency Lights with 2X 2W LED Lights.

VI. Summary of Materials

Drawing Requirements: See attached DOH Standard Checklists based on Revised IRR of the National Building Code of the Philippines (PD 1096)

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SUBJECT : LOCAL AREA NETWORK (LAN) PARAMETERS

I. Codes and Standards

The Local Area Network (LAN) Design shall be in accordance with the following Standards.

- Standards:
 1. IEEE 802
 - a. IEEE 802.1 Bridging (networking) and Network management
 - b. IEEE 802.2 Logical link control (upper part of data link layer)
 - c. IEEE 802.3 Ethernet (CSMA/CD)
 - d. IEEE 802.4 Token Bus (disbanded)
 - e. IEEE 802.5 Defines the MAC layer for a Token Ring (inactive)
 - f. IEEE 802.6 Metropolitan Area Networks (disbanded)
 - g. IEEE 802.7 Broadband LAN using Coaxial Cable (disbanded)
 - h. IEEE 802.8 Fiber Optic TAG (disbanded)
 - i. IEEE 802.9 Integrated services LAN (disbanded)
 - j. IEEE 802.10 Interoperable LAN Security (disbanded)
 - k. IEEE 802.11 Wireless LAN & Mesh (Wi-Fi- Certification)
 - l. IEEE 802.12 Demand Priority (disbanded)
 - m. IEEE 802.13 Not Used
 - n. IEEE 802.14 Cable Modems (disbanded)
 - o. IEEE 802.15 Wireless PAN
 - p. IEEE 802.15.1 (Bluetooth Certification)
 - q. IEEE 802.15.4 (ZigBee certification)
 - r. IEEE 802.16 Broadband Wireless Access (WiMAX Certification)
 - s. IEEE 802.16e (Mobile) Broadband Wireless Access
 - t. IEEE 802.17 Resilient packet ring
 - u. IEEE 802.18 Radio Regulatory TAG
 - v. IEEE 802.19 Coexistence TAG
 - w. IEEE 802.20 Mobile Broadband Wireless Access
 - x. IEEE 802.21 Media Independent Handoff
 - y. IEEE 802.22 Wireless Regional Area Network
 2. ANSI/TIA/EIA-568
 3. TR-49 (a new TIA Engineering Committee for Healthcare Communications Technology)

II. Site Works

Based on Master Site Development Plan of the Hospital, provide where applicable complete design and details of hospital local area network for voice and data connectivity.

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III. Information and Communication Technology (ICT) Component

1. Installation of structured cabling system for Data and Voice Connectivity and wireless network (LAN)
 - a. 300 data nodes distributed to Hospital's office area
 - b. 300 voice nodes distributed to Hospital's office area
 - c. Cabling for CCTV security system
 - d. Packaged technical implementation and training services
 - e. LAN main distribution should be fiber optic technology

2. Structured Cabling System for Data and Voice Connectivity
Data Connectivity
 - a. 300 data nodes distributed to the Offices
 - b. Category 6, 4-pair UTP cable shall be 23AWG, 100-Ohm, 4-pair UTP
 - c. Category 6 Patch Panel
 - i. Shall be 1RU and provide 24 modular jack ports, with universal wiring that maybe terminated to T568A or T568B
 - ii. Shall terminate the building cabling on 100-style insulation displacement connectors
 - d. Category 6 Information Outlet/Modular Jack shall be terminated using a 100-style pc board connector, color-coded for both T568A and T568B wiring.
 - e. Category 6 Patch Cord:
 - i. Equipment patch cable assemblies, 4 ft. in length, must be factory-manufactured with stranded CMR UTP cable and color-matched snag less rubber boots.
 - ii. Work area patch cord shall be 5 ft. in length
 - iii. One patch cord per user outlet and equipment connectivity must be provided
 - f. For Category 6 cabling installation – it shall all pass the following end-to- end Testing Parameters using Level III Cable Tester:
 - i. Attenuation
 - ii. Attenuation to Crosstalk Ration (ACR)
 - iii. Power Sum Attenuation to Crosstalk Ratio (PSACR)
 - iv. Near End Crosstalk (NEXT)
 - v. Power Sum Near-End Crosstalk (PSNEXT)
 - vi. Equal Level Far-End Crosstalk (ELFEXT)
 - vii. Power Sum Equal Level Far-End Crosstalk (PSELEXT)
 - viii. Return Loss
 - ix. Propagation Delay
 - x. Delay Skew
 - xi. Transfer Impedance

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Voice Connectivity

- a. Voice backbone and horizontal cabling shall be Category 6, 4-pair UTP which are 24 AWG, 100-Ohm, and shall meet or exceed the performance requirements of ASI/TIA/EIA-568-B.2
 - b. Category 6 Information Outlet/ Modular Jack
 - c. Telecommunication Terminal Cabinet shall be wall-mounted and has sufficient space or dimension to accommodate required wiring components
 - d. Wiring blocks shall be 100-pair count, wall mountable, with legs and shall fit traditional cross-connect backboard space and layout.
4. Cabling for CCTV Security System
 5. Other Requirement/s
 6. Supply of Communication cabinets (Intermediate Distribution Frame) for each floor of the building

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