



TERMS OF SPECIFICATIONS FOR THE PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE) REBID

I. RATIONALE

The Philippine Science High School – Zamboanga Peninsula Region Campus (PSHS-ZRC), being one of the fastest-growing campus in the PSHS System and racing towards the top producers of globally competitive Filipino Science and Technology leaders and professionals, continues to grow, improve and expand. Facing yet another challenge to provide a better-quality service, it is on track to bring its scholars closer to the internet by using their faster and more secured ICT facilities.

To respond to this, PSHS-ZRC has embarked on the acquisition of a new and responsive cabling infrastructure, which install new network equipment, install IP Phones for the IP PBX System. This will also ensure reliability and improve longevity of the network, all its servers and attached devices and equipment.

Through the allocation in the National Expenditure Plan (NEP) for the capital outlays for the General Appropriations Act 2022, PSHS-ZRC intends to apply the sum of **ONE MILLION FOUR HUNDRED TWENTY-NINE THOUSAND FOUR HUNDRED PESOS (P1,429,400.00)** to be Approved Budget for the Contract (ABC) for the PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE) REBID for PSHS-ZRC inter-building communication system.

II. OBJECTIVES

The project aims to:

- (a) Design and install Structured Cabling in Admin Building;
- (b) Design install, and configure IP Phones for the IP PBX System;
- (c) Design and renovate the electrical system of the Server Room;
- (d) Install Wireless Connectivity in Admin Building of PSHS-ZRC.

The structured cabling system and communication facility shall:

- 1. Provide user friendly environment with efficient, less technical support and open to performance upgrade/future expansion and can accommodate efficiently all data transmission service to the workstations;
- 2. Facilitate efficient communication;
- 3. Provide high-speed network connectivity (Wireless and LAN) to Admin Building; and
- 4. Install IP Phones for the IP PBX System to provide efficient telephone switching system.

III. QUALIFICATION REQUIREMENTS

- a.) The Bidder should have at least two (2) years experience in System Integration or in similar project. Must attach proof of experience.
- b.) Should have personnel who have valid licenses or certifications relevant for the implementation of the project, issued by authorized licensing or training agency/authority:
 - A registered electrical engineer or;
 - Registered electronics/electronics and communication engineer;Shall sign on the "As Built" cabling plan.



Must attached certification.

- c.) Should have own equipment and tools to be used in the project.

Other documentary requirements to be submitted by bidder:

1. List of professional or trained employees to implement the project and their licenses or certifications relevant for the implementation of the project, issued by authorized licensing or training agency/authority, i.e., licensed for registered electrical engineer or registered electronics/electronics and communication engineer.
2. Brochures or Technical Data Sheet or equivalent document for the following items/equipment showing compliance with the required Technical Specifications:
 - Ethernet Manage Switches with PoE
 - UTP Cable (CAT 6)
 - IP PBX Digital Terminal Phones
 - Access Points
 - Enterprise Back up Battery/Uninterruptable Power Supply Unit (up to 6 hours back up time)
3. Proposed cabling plan and design for Data outlets to the offices of Admin Building, Wi-Fi System, cabling for CCTV System, and IP PBX System, and implementation schedule for the Project covering the whole period.
4. Prospective Bidders are required to conduct site inspection and secure a certification from PSHS-ZRC. This is to ensure the reliability, security and efficiency of the required services that the contractor shall perform.
5. Timeframe should be specified for each activity to be done and shall include Gantt Chart Summary.
6. Documentation (for both components)
 - Final Cabling Plan as built plan for Wi-Fi System
 - Final Plan as built for Network/Structured Cabling
 - Final Plan as built for Electrical Layout of Server Room
 - Design CCTV Cabling System
 - Final Topology and Design as built for IP PBX System.

Documents mentioned in "1" to "5" are to be submitted as part of the Technical Documents requirement. Documents mentioned in "6" shall be submitted upon completion of the project.

The Contractor shall complete the delivery and installation of work within one hundred fifty (150) calendar days from the date of receipt of Notice to Proceed.

The completion schedule provided shall be considered extended under the following:

1. Delays caused by force majeure events;
2. In all cases, the period or number of days of extension shall be agreed upon with the PSHS-ZRC in writing;
3. Claims for time extension of the contract period due to force majeure shall be subject to approval by the PSHS-ZRC. Force majeure includes events such as Earthquake, Flood, Typhoon, Cyclone, Revolution, War and other cataclysmic phenomena of nature and misfortune which are beyond human prudence and foresight.
4. The Contractor shall guarantee that the entire structured cabling and networks are free from all defective workmanship and materials, and will remain so for the period of:
 - 3 Years of Product Warranty from the Cabling Manufacturer of the Product Offered for CAT 6 cable.
 - Minimum One (1) year warranty on workmanship.



- 2 Years Warranty on the entire hardware products.
- The Contractor shall provide warranty service within the warranty period. Provision of upgrades and patches to be installed free of charge during the warranty period. The contractor shall be responsible for all the cost related to the warranty period for hardware products.

IV. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR

A. Scope of Work and Activities

- The contractor shall furnish all labor, materials, tools and equipment, and perform all operations necessary to complete the supply, delivery, installation, testing and commissioning of Structured Cabling (integrated voice and data) and Network Switches, Electrical System of PSHS-ZRC Server Room, IP PBX System, and Wi-Fi System.
- The contractor must provide demonstration and training for IT Personnel for the Network Equipment (switches and access points), basic trouble shooting for the Structured Cabling, IP PBX operation.
- The Contractor shall provide warranty service within the warranty period. Provision of upgrades and patches to be installed free of charge during the warranty period.
- Bidder shall be responsible for all the cost related to the warranty period for hardware products.

A.1 Scope of Work: Structured Cabling, Wi-Fi System, Cabling CCTV System, IP PBX System

1. Supply of materials, labor, delivery, installation, and configuration of Structured Cabling, Wi-Fi System, Cabling CCTV System, and IP PBX System.

Structured Cabling/Cable Management System

- Shall install cable tray from ceiling to network racks to Admin Building (Server Room).
- There should be a separate cable tray system for data cable and CCTV cables.
- Should install data outlets (data and voice) as follows:

| Location | Office | Data Outlet (Data) | Data Outlet (Voice) |
|-----------------------|-------------------------------|--------------------|---------------------|
| Ground Floor | | | |
| Admin Building | Conference Room | 4 | |
| | HR Office | 4 | 1 |
| | Cashier and Accounting Office | 6 | 2 |
| | Admin Aide Office | 2 | |
| | SAO/FAD Office | 5 | 1 |
| | Admin Assistant Office | 2 | 1 |
| | Supply Office | 4 | 1 |
| | Registrar Office | 5 | 1 |
| | DO Office | 2 | 1 |
| | Union Office | 3 | 1 |
| | Alumni Office | 2 | 1 |
| | QM Office | 3 | 1 |
| | COA Office | 4 | 1 |
| TOTAL | | 46 | 12 |



| Second Floor | | | |
|----------------|------------------------------------|----|----|
| Admin Building | Server Room | 4 | 1 |
| | MIS Office | 5 | 1 |
| | BAC Office | 3 | 1 |
| | Printing Room | 5 | |
| | Technical Office | 5 | 1 |
| | Mini Conference Room | 4 | |
| | Campus Director's Assistant Office | 2 | 1 |
| | Campus Director's Office | 4 | 1 |
| | Display Room | 4 | |
| | Record Office | 2 | 1 |
| TOTAL | | 38 | 7 |
| Third Floor | | | |
| Admin Building | Conference Room | 8 | |
| TOTAL | | 8 | 0 |
| OVERALL TOTAL | | 92 | 12 |

Wi-Fi System

- The contractor shall design and configure Wi-Fi system that can filter web contents and limits user access.
- Configuration should include:
 - Creation of Users/Guests and Groups
 - Creation of vouchers for Users
 - Creation of Wi-Fi Scheduling
 - All Access Points must be in VLAN
- Installation of Access Points should be in the ceiling.
- Access points must be PoE (Power over Ethernet) type.
- Must be compatible with the PSHS-ZRC installed network equipment.
- Coordinate with the IT Personnel of PSHS-ZRC for labelling and placing of the Access Points.
- Proper label after installation.
- Should install cablings and access points as follows:

| Location | Office | Access Point |
|----------------|-------------------------------|--------------|
| Ground Floor | | |
| Admin Building | Conference Room | 1 |
| | Cashier and Accounting Office | 1 |
| | SAO/FAD Office | 1 |
| | Supply Office | 1 |
| | Registrar Office | 1 |
| | QM Office | 1 |
| | Hallway (Center) | 1 |
| TOTAL | | 7 |
| Second Floor | | |
| | MIS Office | 1 |
| | Technical Office | 1 |
| | Campus Director's Office | 1 |
| | Record and Archive Room | 1 |



| | | |
|-----------------------|------------------|-----------|
| | Hallway (Center) | 1 |
| TOTAL | | 5 |
| Third Floor | | |
| Admin Building | Conference Room | 2 |
| | Hallway (Center) | 1 |
| TOTAL | | 3 |
| OVERALL TOTAL | | 15 |

CCTV System

- The contractor shall design a CCTV Cabling System for the Admin Building of PSHS-ZRC.
- Coordinate with the IT Personnel of PSHS-ZRC for labelling of cables.
- Proper label after installation.

| Location | Office | Data (Network Cable) |
|-----------------------|--|----------------------|
| Admin Building | Conference Room | 1 |
| | Stairs (Up) | 2 |
| | Registrar Office (Inside and Outside of Office) | 2 |
| | Cashier and Accounting Office (Inside and Outside of Office) | 3 |
| | Storage Room | 3 |
| | Entrance and Exit | 2 |
| | Side Exit (Hallway) | 2 |
| | Center Hallway | 2 |
| | TOTAL | 17 |
| Admin Building | Side Exit (Hallway) | 2 |
| | Center Hallway | 2 |
| | Stairs (Up) | 2 |
| | Server Room | 1 |
| | Stock Room | 1 |
| | Storage Room | 3 |
| | Records/Archives Room | 3 |
| | TOTAL | 14 |
| Admin Building | Conference Room | 4 |
| | Open Area | 1 |
| | Hallway | 2 |
| TOTAL | | 7 |
| OVERALL TOTAL | | 38 |

IP PBX System

- Shall design and install IP PBX System for the Admin Building of PSHS-ZRC.
- Coordinate with the IT Personnel of PSHS-ZRC for labelling and placing of the terminal phones.
- Should have own address to every office.
- Proper label after installation.



- The IP Phones should be installed to offices as follows:

| Location | Office | IP Phone |
|-----------------------|------------------------------------|-----------|
| Ground Floor | | |
| Admin Building | HR Office | 1 |
| | Cashier and Accounting Office | 2 |
| | SAO/FAD Office | 1 |
| | Admin Assistant Office | 1 |
| | Supply Office | 1 |
| | Registrar Office | 1 |
| | DO Office | 1 |
| | Union Office | 1 |
| | Alumni Office | 1 |
| | QM Office | 1 |
| | COA Office | 1 |
| TOTAL | | 12 |
| Second Floor | | |
| Admin Building | Server Room | 1 |
| | MIS Office | 1 |
| | BAC Office | 1 |
| | Technical Office | 1 |
| | Campus Director's Assistant Office | 1 |
| | Campus Director's Office | 1 |
| | Record Office | 1 |
| TOTAL | | 8 |
| OVERALL TOTAL | | 20 |

- Supplied equipment must be compatible with the PSHS-ZRC installed network equipment.
- Conduct of site survey and provisions of appropriate site specifications for the supplied equipment.
- Submission of the Bill of Materials for the project including software and hardware and its related network architecture.
- Provision of the in-house wiring, including the Telco lines, from the cable entrance to the network rack where the routers and network switches are located.
- Supply delivery and pulling of Category 6 UTP cable.
- Supply, delivery and installation of metal support for Cable Gutter, PVC conduits and other consumables
- Submission of Project Management Plan.
- Provision of Technical Documentation.
- Continuity Testing.
- End to end Tagging and Labelling.
- Coordinate with the Resident Engineers in PSHS-ZRC for the Engineering works.

A.2 Scope of Work: Renovation of Server Room

- Provision of Floor Plans, Electrical Plan and Working Drawings
 - The contractor shall submit a blue print of General Perspective that includes other working drawings such as Floor Plan, Equipment Arrangement, Electrical Computation design for review and evaluation if the existing electrical system will suffice.
 - Should have sufficient dedicated circuits for all equipment as needed for flexibility in the event a circuit fails.
 - All systems must be properly grounded.



2. Supply, delivery, installation, set-up and commissioning of the following equipment and materials:
 - Required Cables and other materials/accessories
 - Switches
 - Electrical Circuit Components which include but not limited to the following:
 - Circuit Breakers
 - Power Outlets
 - PVC Conduits
 - Other electrical components needed for the renovation
 - Split Type Air Conditioning Unit
 - UPS (Uninterruptable Power Supply) Unit
 - Should provide maximum protection and power quality for mission-critical loads.
 - Should be suitable for a wide range of applications including IT and the most demanding industrial environments.
 - Should have a battery care system that consists of a series of functions designed to optimize battery management and achieve the best performance and operating life possible.
 - Should be of maximum reliability and availability.
3. Carpentry/Masonry works
 - Finishing and paint works
4. Cable Management
 - Coordinate with the IT Personnel of PSHS-ZRC for labelling and placement of the nodes or endpoints of the cables.
 - Proper label and tagging of the network cables.

B. Pre-installation

- a.) Submit Work Plan within five (5) working days upon receipt of Notice to Proceed

C. Installation

- a.) Supply, deliver and install the required components as specified in the Work Plan duly approved by PSHS-ZRC and with the following Technical Specifications of this TOS.
- b.) Coordinate with the Information Systems Analyst (ISA) / MIS Coordinator of the PSHS-ZRC regarding the scheduling of delivery and installation dates of all materials and ICT equipment to be used.
- c.) Implement all works indicated in the approved plans and designs. All revisions and deviations from the approved plans and designs, especially if it must impact the overall cost for the project, must be subject to the approval of PSHS-ZRC.
- d.) Properly groom, tag and terminate cables from end-to-end connection.
- e.) The contractor/supplier must prepare and submit the following:
 - Equipment and Materials Delivery Schedule
 - Weekly Implementation Schedule
 - Weekly Progress Report
 - Final Acceptance Documentary Requirements

D. Post-Installation

- Restore damages to property caused by excavation, installation, maintenance and/or removal of cabling equipment and other procedures conducted by the contractor to accomplish the project.
- The contractor will not restore damages from the ceiling where the cablings are embedded.



- Conduct free training for IT personnel of PSHS-ZRC on the basic maintenance and operational requirements of structured cabling and the equipment.
- Provide at least one (1) copy of the technical manual/documentation (English) in printed hard copy and electronic (soft copy) formats. The documents include Cabling and equipment installation, operation, configuration and testing.
- Render support services to PSHS-ZRC within the warranty period as follow:
 - (a) Technical support will be provided through phone calls or email within regular working hours from Monday to Friday, 8:00AM to 5:00PM
 - (b) If the supplied equipment is found defective and need to be pulled-out, the contractor shall provide replacement with the same or higher specifications.
 - (c) Rectify and or/replace any part that fail to pass any test/inspection or make alteration necessary to meet the specification.
 - (d) Responsible and accountable for any restore caused solely by the Contractor or its agent to the PSHS-ZRC Building as a direct result of the installation maintenance, and removal of any cabling components and devices.

V. DUTIES AND RESPONSIBILITIES OF PSHS-ZRC

- a) Assist prospective bidders during the conduct of site Survey.
- b) Review and approve the work plan submitted by Contractor within five (5) working days.
- c) Grant the contractor and its authorized representative access to its premises and facilities located therein to perform the works. It shall assign personnel to accompany the contractor and/or its representatives, if needed.
- d) Recommend to the contractor any action for a unit or part thereof that fails to pass any test and/or inspection or do not conform to specifications.
- e) Issue a Certification of Inspection and Acceptance upon determination by the PSHS -ZRC Inspectorate Team that the delivered and installed equipment and components are usable and in good working condition.
- f) Pay the Contractor after completion including the training and documentation and acceptance of the project.

TECHNICAL SPECIFICATIONS

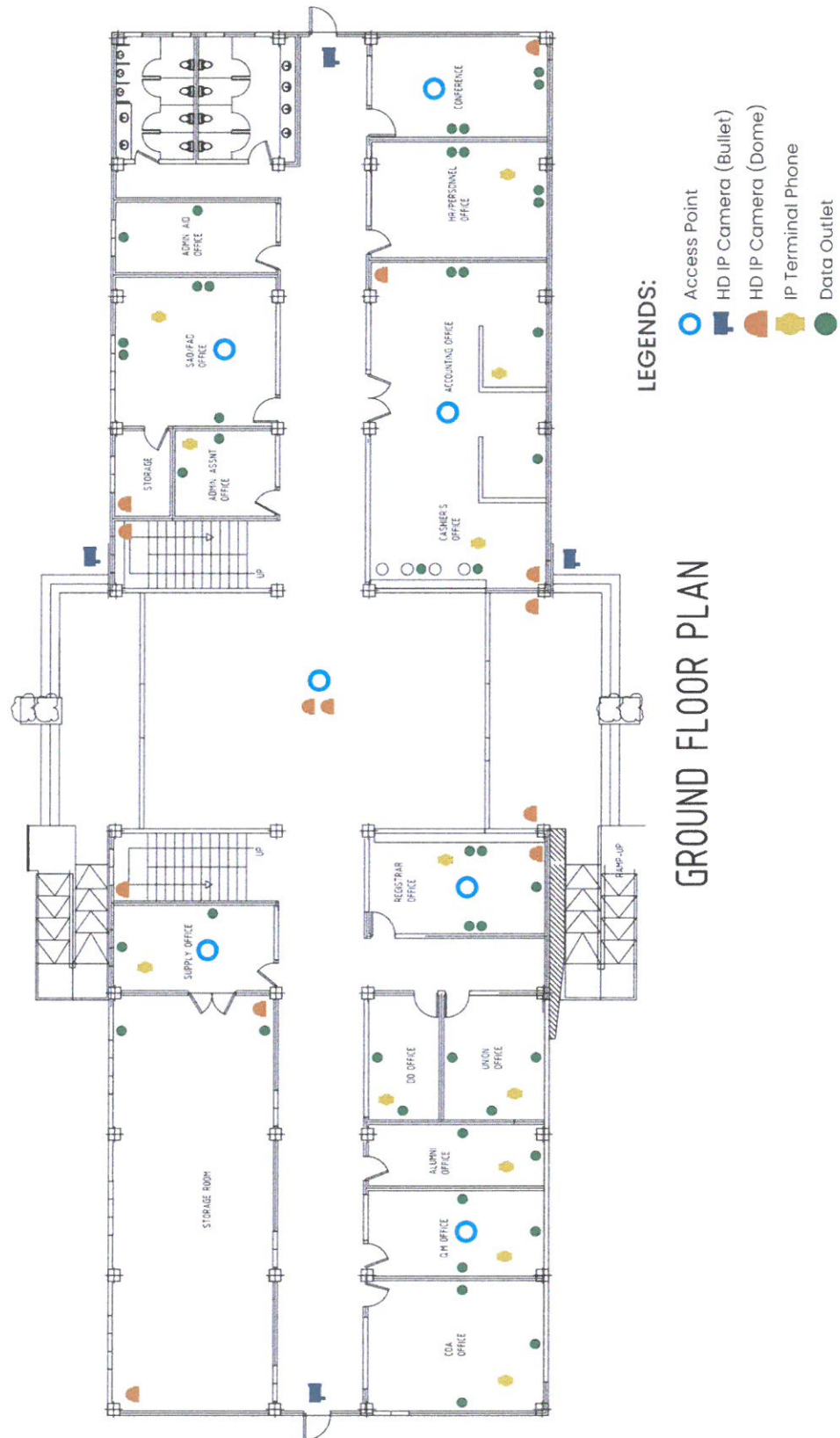
| ITEM NO. | DESCRIPTION | QUANTITY/UNIT |
|----------|--|---------------|
| 1 | PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE) | LOT |
| | I. STRUCTURED CABLING | |
| | A. Supply, Delivery, Installation of the following Materials: | |
| | 1. Unshielded Twisted Pair (UTP) CAT-6 cables | |
| | 2. Patch Cord – 200pcs | |
| | 3. CAT -6 RJ45 connector - 200 pcs | |
| | 4. Rubber boots for CAT-6 connectors - 200 pcs | |
| | 5. Information Outlet (CAT-6) - 170 pcs | |
| | 6. Face Plates - 170 pcs | |
| | 7. 48-port POE Manage Switch - 3 units (for the data) | |
| | 8. 24-port Patch panel - 8 units | |

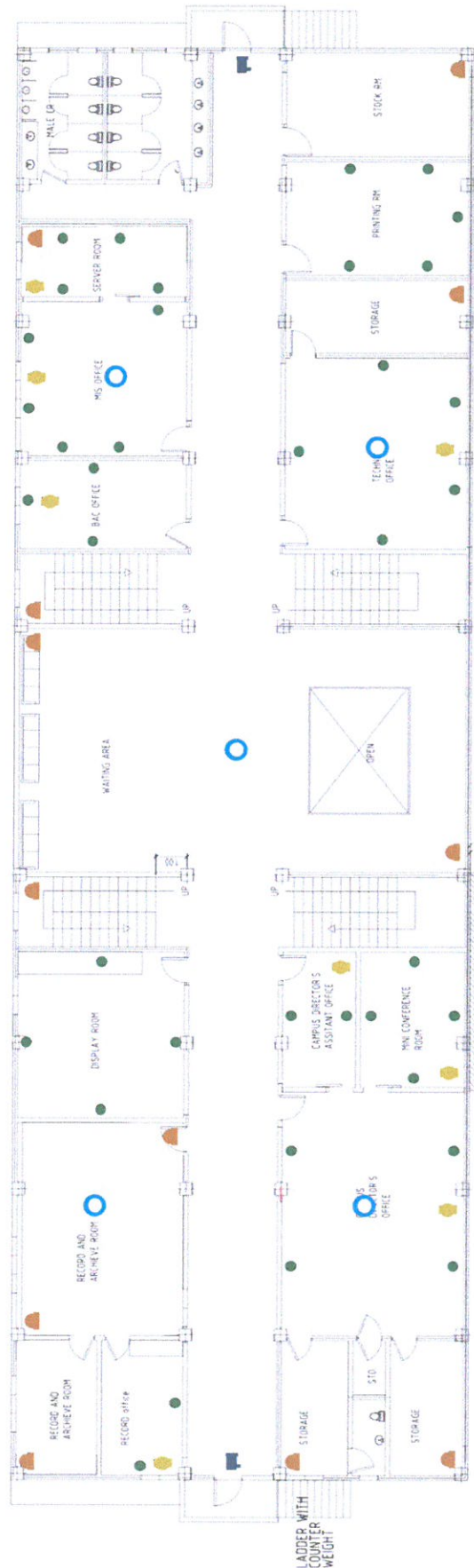


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| 9. Cable manager 2RU - 8 units |
| 10. PVC pipes |
| 11. Plastic moldings |
| II. INSTALLATION OF ACCESS POINTS |
| A. Supply, Delivery, Installation, and Configuration of the following Materials: |
| 1. Indoor Access Point - 15 units |
| <ul style="list-style-type: none"> Indoor Access Point Long Range Wi-Fi6 High-efficiency 4x4 Wi-Fi 6 (802.11ax) 5GHz band (4x4 MU-MIMO and OFDMA) with 2.4 Gbps throughput rate 2.4GHz band (4x4 MIMO) with 600 Mbps throughput rate Powered by 802.3at PoE IP54-rated water and dust protection for indoor/outdoor mounting versatility |
| III. INSTALLATION OF IP PHONES FOR IP PBX SYSTEM |
| A. Supply, Delivery, Installation, and Configuration of the following Materials: |
| 1. Enterprise Back up Battery/UPS (up to 6 hours back up time) – 2 units |
| 2. Digital Terminal Phone - 20 units |
| IV. RENOVATION OF SERVER ROOM |
| 1. Finishing and paint works |
| 2. Supply, Delivery, Installation of the following: |
| <ul style="list-style-type: none"> Split Type Air Conditioner (2.5 HP) – 2 units Electrical Circuits/Wiring/System |
| V. SUPPLY AND INSTALLATION OF CABLE FOR CLOSED CIRCUIT TELEVISION (CCTV Cabling) |
| A. Supply, Delivery, Installation of the following Materials: |
| 1. CAT6 UTP Cable |
| VI. INSTALLATION AND ENGINEERING WORKS |
| 1. Wall Chipping and other Engineering Works |
| 2. Testing & Commissioning |
| 3. Restoration of building damage due to construction, if any |
| 4. Other Procedures necessary to complete the project |
| 5. Labor |



Proposed Data, Voice, CCTV, and Wi-Fi Installation






LEGENDS:

- Access Point
- HD IP Camera (Bullet)
- HD IP Camera (Dome)
- IP Terminal Phone
- Data Outlet

SECOND FLOOR PLAN



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