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 will replace the old network connectivity, install new network equipment, install outdoor and indoor close circuit television (CCTV) cameras, install IPPBX System. Likewise, it is also imperative for PSHS-ZRC to renovate its existing Server Rooms/IDF and relocation of Intermediate Distribution Frame (IDF)/data cables which will house the active equipment adhering with the new connectivity standards and best practices. 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 **FOUR MILLION SIX HUNDRED TWENTY-FIVE THOUSAND SIX HUNDRED PESOS (₱4,625,600.00)** 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 fiber Optic Cables in Computer Laboratories and Guard House,
(b) Design and install CCTV cameras
(c) Design and install IPPBX System,
(d) Design and renovate the existing Server Rooms/IDF,
(e) Relocation of Intermediate Distribution Frame (IDF)/data cables,
(f) Install and Configure Network Attached Storage, and
(g) Install Copper Structured Cabling and Wireless Connectivity in existing buildings 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 to academic buildings, dorms, activity center, and laboratories;
4. Install IPPBX system to provide efficient telephone switching system;
5. Provide Indoor and Outdoor Close Circuit Television (CCTV) and Install Network Attached Storage;

PSHS-ZRC
Office of the Campus Director
APPROVED
For Posting on Official Website
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DATE/TIME: 20 APRIL 2022 9:36 AM

The Server Room renovation shall:

1. Align the PSHS-ZRC server room with global standards and best practices and should specifically address the following:

    a. **Structural Considerations**
        i. PSHS-ZRC IDF's equipment layout/arrangement should provide for adequate clearance around computing racks (about 3-4 inches).
        ii. Door frame size should be sufficient to allow for easy introduction and removal of equipment
    b. **Power**
        i. Should have sufficient dedicated circuits for all equipment (at least 10), plus one or more additional circuits, as needed for flexibility in the event a circuit fails.
        ii. All systems must be properly grounded.
        iii. General power shutdown feature should be installed
        iv. There should be an emergency lighting system to provide for life safety in the event of a power outage
        v. The new server room should also have provisions for at least four duplex power outlet for future expansion.
    c. **Temperature Control**
        i. The server room should have dedicated air conditioning sufficient to maintain temperatures between 15 and 21 degrees

2. Meet PSHS-ZRC's communication facilities requirements

    The engagement shall also meet the required technical training/briefing for the operations, troubleshooting, and maintenance of structured cabling on the safety rules and management of Server Room within 180 calendar days from receipt of the Notice to Proceed, under the duration of Project implementation.

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;
- A fiber optic licensed technician

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, and a fiber optic licensed technician.

2. Brochures or Technical Data Sheet or equivalent document for the following items/equipment showing compliance with the required Technical Specifications:
   - LAN Switches with PoE
   - Fiber Cable
   - UTP Cable (CAT 6)
   - HD IP Cameras (Indoor & Outdoor)
   - HD Analog Cameras
   - Network Video Recorder
   - IPPBX Server and IP Phones/Digital Terminal Phones
   - Access Points (Indoor & Outdoor)
   - Enterprise Solid State Drive (must be compatible with the Network Attached Storage equipment of PSHS-ZRC)
3. Proposed cabling plan and design for fiber cabling of Computer Laboratories and Guard House, Wi-Fi System, CCTV System, and IPPBX 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 for Fiber Optic Cabling for Computer Laboratories
   - Final Cabling Plan as built plan for Wi-Fi System
   - Final Plan as built for Network/Structured Cabling and Electrical Layout of Server Rooms/IDF
   - Final Plan as built for CCTV System
   - Final Topology and Design as built for IPPBX 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 Eighty (180) 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:
   - 20 Years of Product Warranty from the Cabling Manufacturer of the Product Offered (for fiber optics) and 3 years 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 Fiber Optic Cabling, Structured Cabling (integrated voice and data) and Network Switches, Renovation of PSHS-ZRC Server Rooms/IDF, CCTV Cameras, IPPBX System, Wi-Fi System, and relocation of Intermediate Data Frame/data cables.
- The contractor must provide demonstration and training for IT Personnel for the Network Equipment (switches and access points), CCTV operation, basic trouble shooting for the Structured Cabling, IPPBX operation, and Network Attached Storage 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 Detailed Scope of Work: Structured Cabling, Fiber Optic Cabling, Wi-Fi System, CCTV System, IPPBX System, and Network Attached Storage.

1. Supply of materials, labor, delivery, installation, and configuration of Structured Cabling, Fiber Optic Cabling, Wi-Fi System, CCTV System, IPPBX System, and Network Attached Storage.

Structured Cabling/Cable Management System

- Shall install cable tray from ceiling to network racks to Academic Building – II 3rd Floor, Control Room.
- There should be a separate cable tray system for data cable and CCTV cables.
- Cable tray should be mesh type.
- Should install data outlets (data and voice) as follows:

Location	Office	Data Outlet (Data)	Data Outlet (Voice)
Guard Entrance	Guard House	2	1
Academic Building – II	Campus Director's Office	2	1
Academic Building – II	Clinic	1	1
Academic Building – II	SSD Chief's Office	1	1
Academic Building – II	Registrar's Office	1	1
Dorm – I	Secretary CID Office	1	1
Dorm – I	Supply Officer's Office	1	1
Dorm – I	Information Systems Analyst Office	1	1
Dorm – II	Accounting Office	3	1
TOTAL		13	9

Fiber Optic Cabling

- Shall design and Install Fiber Optic Cables to Academic Building – I (Computer Laboratory 1 & 2).
- Installation of Fiber Optic Cables should be from Server Room to Computer Laboratory 1 & 2 data cabinets.
- Proper label after installation.

Wi-Fi System

- The contractor shall design and configure Wi-Fi system that can filter web contents and limit user access.
- Installation of Access Points should be in the ceiling.
- Access points must be PoE (Power over Ethernet) type and capable of handling 250-500 users.
- Proper label after installation.

Location	Access Point (Indoor)	Access Point (Outdoor)
Guard House/Entrance	1	
Academic Building – I	9	
Academic Building – II	9	
Dorm – I	9	
Dorm – II	9	
Activity Center	3	
Perimeter		4
TOTAL	40	4

CCTV System

- The contractor shall design a centralized CCTV System for the Campus.
- HD Analog Camera should be installed in Academic Building – I where the provision of coaxial cables is.
- Coordinate with the IT Personnel of PSHS-ZRC for labelling and placing of the cameras.
- Smart TV/Monitors should be installed at Academic Building – II 3rd Floor, Control Room and Guard House.

IPPBX System

- Shall design and install IPPBX System to PSHS-ZRC.
- The IP Phones should be installed to offices as follows:

Location	Office	IP Phone
Guard Entrance	Guard House	1
Academic Building – II	Campus Director's Office	1
Academic Building – II	Clinic	1
Academic Building – II	SSD Chief's Office	1
Academic Building – II	Registrar's Office	1
Dorm – I	Secretary CID Office	1
Dorm – I	Supply Officer's Office	1
Dorm – I	Information Systems Analyst Office	1
Dorm – II	Accounting Office	1
TOTAL		9

- Should have own address to every office.
- Proper label after installation.

Network Attached Storage

- Installation and configuration of Network Attached Storage to the Academic Building – II where the Network Sever is.
- Configuration should include:
    - Creation of Users and Groups with access levels
    - Creation of storage folders accessible to all users
    - Creation of storage folders accessible only to specific users/groups/departments
    - Automatic backup/failover if one solid state drive malfunctions
    - Automatic backup and cloud backup

2. Supplied equipment must be compatible with the PSHS-ZRC installed network equipment.
3. Conduct of site survey and provisions of appropriate site specifications for the supplied equipment.
4. Submission of the Bill of Materials for the project including software and hardware and its related network architecture.
5. 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.
6. Supply delivery and pulling of Category 6 UTP cable and Fiber optic cable
7. Supply, delivery and installation of metal support for Cable Gutter, PVC conduits and other consumables
8. Submission of Project Management Plan
9. Provision of Technical documentation
10. Continuity Testing
11. End to end Tagging and Labelling
12. Coordinate with the Resident Engineers in PSHS-ZRC for the Engineering works.

A.2 Renovation of Server Rooms/IDF: Scope of Work and Technical Specifications

1. Provision of Floor Plans, Electrical Plan and Working Drawings

The proponent 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.

2. Supply, delivery, installation, set-up and commissioning of the following equipment and materials:
    - Cable Tray (to be installed at Academic Building – II 3rd Flr, Control Room)
    - Required Cables and other materials/accessories
    - Switches
    - IPPBX Server (to be installed at Academic Building – II 3rd Flr, Control Room)
    - Electrical Circuit Components which include but not limited to the following:
        - Circuit Breakers
        - Power Outlets
        - PVC Conduits
        - Power Outlets for Server/Computers, Air Conditioner, Emergency Lights and;
        - 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
   - The contractor shall be responsible for the transfer of the existing Fiber and Copper cables (data, voice, and coax) including all devices such as network switches and CCTV DVR to the new Server Room of Academic Building – I & II, Dorm – I & II, Activity Center, and Guard House.

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.
- 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 damage 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 representatives 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.

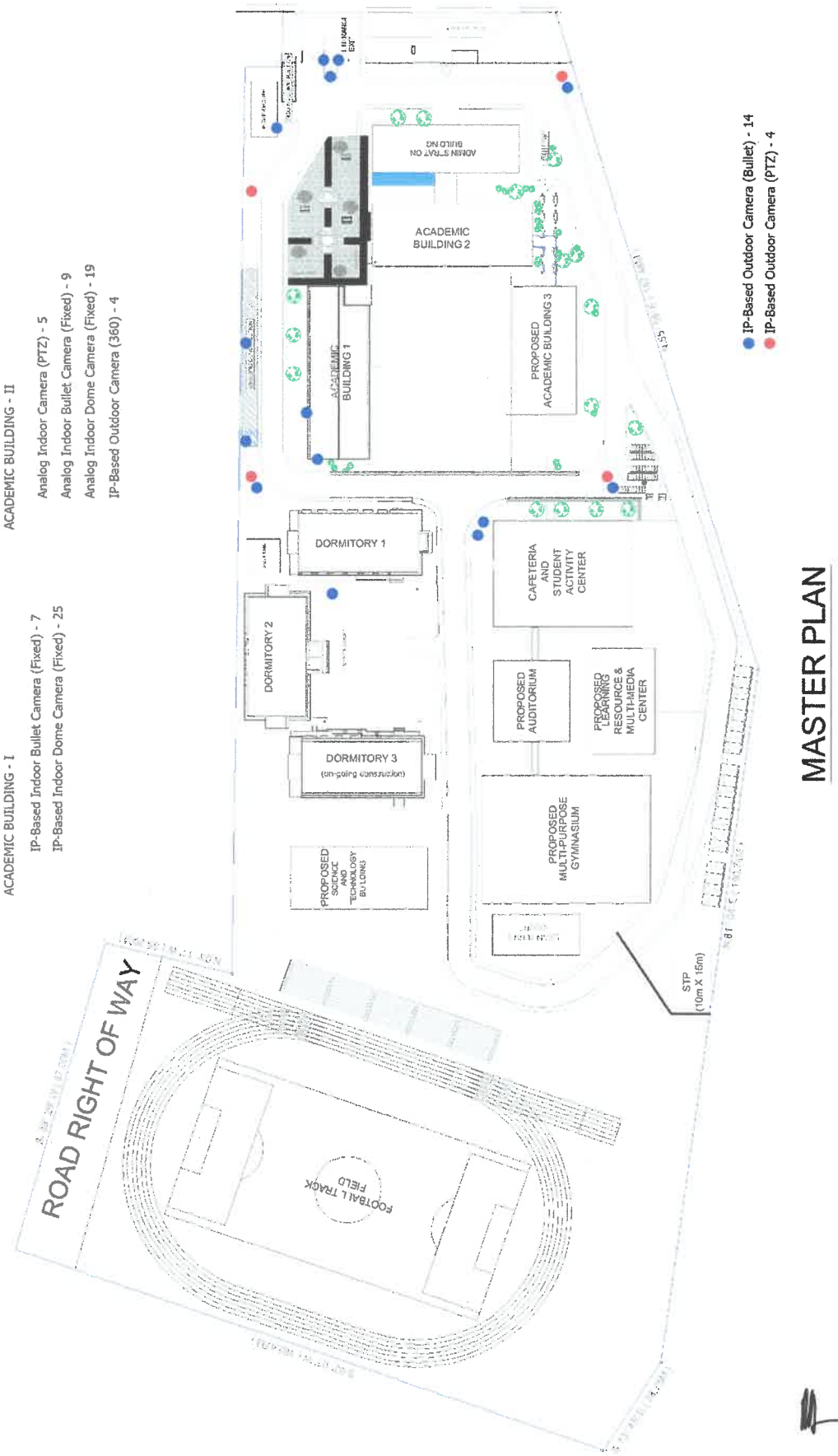
TECHNICAL SPECIFICATIONS

ITEM NO.	DESCRIPTION	QUANTITY/UNIT
1	**PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE) – REBID**	LOT
	I. FIBER OPTIC CABLING SYSTEM FOR COMPUTER LABORATORIES	
	A. Supply, Delivery, Installation of the following Materials:	
	1. FOC 4-core Single mode – at least 400 meters	
	2. FDU 4-core – 1 pc	
	3. Pigtail for FDU – 8 pcs	
	4. Patch cord - 10 pcs	
	5. FOC Closure - 1 pc	
	6. SFP Transceiver Module - 10 pcs	
	7. Digital Clock – 6 units	
	8. PVC Pipe PNS 2"	
	9. PVC long elbow 2"	
	10. PVCC Clamp 2"	
	11. AR5 Clip – pack	
	12. Kim wipes	
	13. U bolt	
	II. STRUCTURED CABLING	
	A. Supply, Delivery, Installation of the following Materials:	
	1. Unshielded Twisted Pair (UTP) CAT-6 cables – at least 6100 meters	
	2. CAT - 6 RJ45 connectors	
	3. Rubber boots for CAT- 6 connectors	
	4. Information Outlet (Data CAT- 6 – 13 pcs and Voice – 9 pcs)	
	5. Face Plates - 22 pcs	
	6. 24-port Patch panel - 21 units	
	7. Patch cords - 240 pcs	
	8. Cable manager 2RU – 10 units	
	9. Cable Manager 1RU – 4 units	
	10. PVC pipes	
	11. Plastic moldings	
	12. Cable tray (mesh type)	
	B. Labor	
	III. INSTALLATION OF ACCESS POINTS	
	1. Indoor Access Point - 40 units	
	• Indoor Access Point for Campus Wide Wi-Fi • High-efficiency 4x4 WiFi 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	
	2. Outdoor Access Point - 4 units	
	• Outdoor Access Point for Campus Wide Wi-Fi • 802.11 a/b/g/n/ac Wi-Fi Standards • 1 x 10/100/1000 Ethernet Port	

	• Range of up to 600' • 2X2 MIMO • IP66-Rated Weatherproof
	IV. INSTALLATION OF NETWORK ATTACHED STORAGE
	1.Installation and configuration of NAS(Network Attached Storage) to ACAD Building II
	2.Supply, delivery, and Installation of Enterprise Solid State Drive 4TB compatible with the Network Attached Storage Equipment – 5 pcs
	3. Enterprise Back up Battery/UPS (up to 6 hours back up time) – 1 unit
	V. INSTALLATION OF IPPBX
	A. Supply, Delivery, Installation of the following Materials:
	1. IPPBX Server (Digital IP-PBX Server 30 Ports or Higher) – 1 unit
	2. Enterprise Back up Battery/UPS (up to 6 hours back up time) – 1 unit
	3. Digital Terminal Phone - 9 units
	B. Labor
	VI. RENOVATION OF SERVER ROOMS/IDF
	1. Finishing and paint works
	2. Supply, Delivery, Installation of the following:
	• Fire extinguishers specific to electronic components – 10 units
	• Split Type Air Conditioner (2.5 HP) – 6 units
	• Electrical Circuits/Wiring/System – 6 units
	• Emergency Lights – 10 units
	VII. SUPPLY AND INSTALLATION OF CLOSED CIRCUIT TELEVSION (CCTV)
	A. Supply, Delivery, Installation/Setup and Configuration of the following:
	1. Analog Indoor Camera (PTZ) – 5 units
	2. Analog Indoor Bullet Camera (Fixed) – 9 units
	3. Analog Indoor Dome Camera (Fixed) – 19 units
	4. IP-Based Outdoor Camera (360) – 4 units
	5. IP-Based Indoor Bullet Camera (Fixed) – 7 units
	6. IP-Based Outdoor Camera (PTZ) – 4 units
	7.IP-Based Indoor Dome Camera (Fixed) – 25 units
	8. IP-Based Outdoor Bullet Camera (Fixed) – 14 units
	9. Smart TV 55" (Compatible for networking) – 6 units
	10. PoE Switch – 6 units
	11. CCTV Core Switch – 1 unit
	12. Network Video Recorder (NVR) – 1 unit
	13. Enterprise Back up Battery/UPS (up to 6 hours back up time) – 7 unit
	VIII. RELOCATION OF INTERMEDIATE DISTRIBUTION FRAME
	1. Unshielded Twisted Pair (UTP) CAT-6 cables
	2.CAT -6 RJ45 connector
	3. Rubber boots for CAT-6 connectors
	4. Information Outlet (CAT-6)
	5. Face Plates
	6.Patch cords
	7. PVC pipes
	8.Plastic moldings
	9.Patch panel
	10.Cable manager
	11. Other materials needed to relocate the fiber optic cables, copper cables, coax cables, network equipment and other components installed

	IX. INSTALLATION AND ENGINEERING WORKS	
	1. Testing & Commissioning	
	2. Restoration of building damage due to construction, if any	
	3. Other Procedures necessary to complete the project	
	4. Labor	

Proposed CCTV Installation



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