

# PROJECT REQUIREMENTS

## DESIGN AND BUILD

### For the Project - **IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE) (NEGOTIATED PROCUREMENT)**

of Philippine Science High School, Central Mindanao Campus  
located at Nangka, Balo-i, Lanao del Norte

#### A. BACKGROUND

The Philippine Science High School, Central Mindanao Campus (PSHS-CMC) is a 5-hectares campus consisting of academic buildings, dormitories, gymnasium, administrative building, and Science research facility among others.

The project approved budget for construction is Six Million Seven Hundred Twenty Seven Thousand (Php 6,727,000.00) inclusive of taxes.

#### B. MAIN OBJECTIVE

This project would provide PSHS-CMC with a fiber optic backbone connecting all major campus buildings, to include all necessary structured cabling to deliver (wired and wifi) network connectivity to all rooms and offices, IPPBx system, power backup system, and fault protection system.

Furthermore, it shall include the supply and installation of a network firewall appliance which can support web content filtering, threat management on multiple VLAN.

The project shall improve PSHS-CMC's current Internet bandwidth.

Shown herewith is the scope of coverage;

No.	Location	Description
1	Academic Building 1	
	9-Classrooms	1 LAN port per classroom
	1-Clinic	1 LAN port + 1 IP Phone port
	1-Registrar	2 LAN ports + 1 IP Phone port
	1- CID/SSD Office	3 LAN port + 1 IP Phone port
	9-Other Offices	1 LAN port per office
	Faculty Office 1	20 LAN ports, 1 per cubicle + 1 IP Phone port
	Faculty Office 2	20 LAN ports, 1 per cubicle + 1 IP Phone port
	2-Biometric Station	1 LAN port per station
	Library	30 LAN ports
		Entire Building Wifi
		Distribution Facility (Cabinets ,Switches ,Patch Panel, Patch Cables-Category 6A patch cord – 28AWG, 0.185in (4.7mm))
		Cooling System
2	Academic Building 2	
	12-Classroom	1 LAN port per classroom
		Entire Building Wifi
		Distribution Facility (Cabinets ,Switches ,Patch Panel, Patch Cables-Category 6A patch cord – 28AWG, 0.185in (4.7mm))
		Cooling System
3	Academic Building 3	
	14- Classrooms/Labs	1 LAN port per classroom
	9-Faculty/SRS Office	2 LAN ports per Office
	9-Faculty/SRS Office	1 IP Phone port + 1 device, per office
	2-Biometric Station	1 LAN port per station
		Entire Building Wifi
		Distribution Facility (Cabinets ,Switches ,Patch Panel, Patch Cables -Category 6A patch cord – 28AWG, 0.185in (4.7mm))
		Cooling System
4	Supply Office / Storage	3 LAN ports + 1 IP Phone port + 1 device Wifi
5	Dorm Girls	
	1-Dorm Manager Office	2 LAN ports + 1 IP Phone port
	1-Study Room	2 LAN ports
		Wifi - Lobby and Study Room
6	Dorm Boys	
	1-Dorm Manager Office	2 LAN ports + 1 IP Phone port

	1-Study Room	2 LAN ports
	1-Computer Center	20 LAN ports, 1 per computer
		Wifi - Lobby, Study room and Computer Center
		Distribution Facility (Cabinets ,Switches ,Patch Panel, Patch Cables-Category 6A patch cord – 28AWG, 0.185in (4.7mm))
		Cooling System
7	Dormitory 3	
	Offices	2 LAN ports, 2 IP Phone port, 1 per office
		Entire Building Wifi
8	Gymnasium	
	1-AV Room	4 LAN ports, + 1 IP Phone
	1-Faculty Office	6 LAN ports, 1 per cubicle
	1-Biometric Station	1 LAN
		Entire Building Wifi
9	Function Hall	
	3-Offices	1 LAN per office
	3-Offices	1 IP Phone port + device per office
	1-Stage	1 LAN
		Entire Building Wifi
10	Administration Building	
	25-Offices	1 or 2 LAN per office
	13-Offices	1 IP Phone port + device per office
	1-Biometric Station	1 LAN
		Entire Building Wifi
		Main Distribution Facility Cabinets ,Switches ,Patch Panel, Patch Cables-Category 6A patch cord – 28AWG, 0.185in (4.7mm), Firewall appliance with 2 yrs subscription Upgrade existing server memory to 32Gb, 18.5” 8port KVM console w/ LED display mountable Temperature Monitor
		Cooling System
11	Student Learning Resource Center	
		Entire Building Wifi
		Switch, Patch panel, Patch Cables-Category 6A patch cord – 28AWG, 0.185in (4.7mm),
12	Main Gate/Back Gate	
	1-Biometric Station	1 LAN

	2-Guard house	2 IP Phone port+2 device
		Wifi -waiting area
13	Canteen	2 IP Phone port
		Entire Building Wifi
14	Student Kiosk/Lounge	Wifi
15	Campus grounds	Wifi

### C. SCOPE OF WORK AND SERVICES

#### 1. Design Phase

- a. Prepare the Network Physical & Logical design.
- b. Prepare drawings, plans, Technical Specification to be used during the implementation of the project.

#### 2. Pre-Construction Phase

- a. Preparation of the PERT-CPM / Gantt chart of the construction phase.
- b. Provide all other necessary documents that shall be required by PSHS-CMC.

#### 3. Construction Phase

- a. The contractor shall furnish all the construction materials needed for the execution of the work to include manpower, equipment, tools and other incidentals necessary to complete the works in accordance with the construction drawings, technical specifications as enumerated herein;
- b. Installation of IPBPX System that will supply 15 stations (offices in buildings) which is compatible for integration with the existing IP PBX System of PSHS-CMC.
- c. Improve the network link from ISP to PSHS-CMC network with at least 500Mbps throughput.
- d. Install a network security system that supports the entire network infrastructure to include a network firewall appliance which can support web content filtering, threat management on multiple VLAN and physical security of network devices (eg. server cabinets, cooling systems, biometric server room locks) .

- e. Install a system that can support the integration of the existing CCTV system of the campus.
- f. Install structured cabling including server cabinets, roughing materials (PVC pipes, plastic moldings, boxes), including all supports, brackets, hangers, hangers, fittings, connectors, conduits, cable ducts that supports connectivity to existing and future offices, laboratories and classrooms.
- g. Provide a system that supports wireless connectivity for the entire campus using the latest mesh technology.
- h. Installation of fiber optic backbone/line from the main data center connecting major campus buildings / structure (Administration building, SLRC, Academic Buildings 1,2 & 3, Residence Hall 1,2 &3).
- i. Install Hybrid Power Back-up System for all wireless access points and stations, network servers, routers & switches, IP PBX and CCTV Systems that supports at least 4 hours of continuous power.
- j. Install Fault Protection System / Surge protector (Transient Voltage Surge Suppressor) for network servers against lightning and power surge.
- k. Install mobile phone signal booster per building to cover all offices and or the entire campus.

#### D. SUBMITTALS AND OTHERS

The Contractor shall prepare and submit the following reports:

- a) Submission of as-built plans (3-copies) and digital copy.
- b) Submission of all technical manuals, brochures, diagrams, etc.

#### E. MINIMUM REQUIREMENTS

##### 1. Personnel

- a) ECE or related course (with corresponding Networking Certification) experience in similar project
- b) Registered Electrical Engineer- Licensed with at least one (1) year experience in power distribution works.

- c) Safety Officer – Should be a Construction Occupational Safety and Health (COSH) or BOSH Certified.
2. Equipment
    - a) Network Tools
    - b) Civil Works -1 unit Jackhammer , Compactor, Concrete Mixer, Concrete Vibrator
  3. Experience – The contractor should have at least designed and built a similar project.

F. DATA, LOCAL SERVICES AND FACILITIES (Provided by PSHS-CMC)

- a) Campus Master Plan
- b) Building plans

G. CONTRACT DURATION– One hundred-eighty (180) - calendar days

H. MODE OF PAYMENT

- a) Design Phase in the amount of Php 245,000.00

Payment Schedule	Gross Amount (Php)	Cumulative gross amount of Payment (Php)
Upon submission of preliminary drawings, design 15% of the lump-sum amount. Upon submission/presentation of preliminary design, drawings and acceptance by PSHS-CMC.	36,750.00	36,750.00
70% of the lump-sum amount. Upon submission of the final drawings, design and specifications.	171,500.00	208,250.00
15% of the lump-sum amount. Upon completion for rendering project management and supervision services during the project implementation phase.	36,750.00	245,000.00

b) Construction Phase in the amount of Php 6,482,000.00

Payment Schedule	Advance Payment	1st	2nd	3rd	4th
Projected Billing Schedule  (Upon completed percentage of accomplishment)	Advance Payment, 15%  After receipt of NTP and submission of Surety Bond	First Billing  After 25% completion (Less advance payment)	Second Billing  After 50% completion	Third Billing  After 75% completion	Fourth Billing  After 100% completion
Projected Accomplishment	Advance payment based on GPPB Resolution no. 08-2011 dated 7 Oct 2011, Paragraph 4 (needs submission of Surety Bond)	25%	50%	75%	100%
Equivalent Payment (in Php)	972,300.00	648,200.00	1,620,500.00	1,620,500.00	1,620,500.00
Cumulative Payment (inPhp)	972,300.00	1,620,500.00	3,241,000.00	4,861,500.00	6,482,000.00

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