



شركة الحوسبة الصحية

Electronic Health Solutions

REQUEST FOR PROPOSAL

**Structured Cabling Solution
for
Rwaished Hospital**

RFP Reference Number: RFP-EHS-PROC-21-2023

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QF-PRO-01-04

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Transmittal Letter

Date: 26-APR-2023

Dear Sir / Madam,

Electronic Health Solutions “EHS” is in the process of tendering “RFP-EHS-PROC-21-2023” for Supply, Installation, Configuration, Testing and Implementation of **structured cabling system solution in Rwaished Hospital**.

Interested companies are encouraged to submit their technical and financial proposals as per the details provided in this RFP. EHS appreciates your timely and accurate response, meanwhile, shall you have any questions please do not hesitate to contact us.

Procurement Department

Tel: +962 6 580 0461 | Ext. 3050, 3071,3074 & 3067

Email: procurement@ehs.com.jo

Yours sincerely,

Electronic Health Solution

Confidentiality Statement

This Request for Proposal (RFP) contains information proprietary to Electronic Health Solutions, hereafter referred to as "EHS". Each recipient is entrusted to maintain its confidentiality. The information contained in this RFP is provided for the sole purpose of permitting the Bidder to respond to the RFP. This information may not be reproduced in whole or in part without the expressed written permission of EHS.

The recipient shall hereby agree to keep all the information in this RFP confidential and shall not, without prior written permission of EHS, disclose this information to any person other than the employees, agents, subcontractors, and advisors who are required in the course of their duties to execute proposal preparation activities. The recipient shall undertake the responsibility that all such persons are informed of the confidential nature of the information.

No recipient of this RFP shall, without the prior consent of EHS, make any public statements to any third parties in relation to this RFP or the subsequent short-listing of any prospective implementer or the subsequent awarding of any order. Unauthorized release of information or public statements will result in immediate disqualification.

Information provided by each Bidder will be held in confidence and will be used for the sole purpose of evaluating a potential business relationship with the respective Bidder's company.

There will be no obligation to maintain the confidentiality of any information that was known to EHS, prior to the receipt of a proposal from the Bidder, or due to becoming publicly known through no fault of EHS, or if received without obligation of confidentiality from a third party owing no obligation of confidentiality to the Bidders.

Company Abstract

Company Profile

Electronic Health Solutions (EHS) was founded in 2009 as a non-profit company. EHS is owned by the main stakeholders in health and technology sectors in the Kingdom including Ministry of Health (MoH), Ministry of Information and Communication Technology (MoICT), Royal Medical Services (RMS), King Hussein Cancer Center, King Hussein Institute for Cancer and Biotechnology, Royal Health Awareness Society and Private Hospitals Association.

Hakeem is Jordan's National Electronic Health Records (EHR) initiative by which the healthcare sector will be computerized. The program was inceptioned in October 2009.

The company's mandate is to implement Hakeem in public hospitals, Royal Medical Services sites, Universities Hospitals and King Hussein Cancer Center, in addition to healthcare centers including comprehensive clinics and primary clinics.

Vision, Mission, Goals, and Objectives

Vision

Transform and sustain a continuously improving healthcare system in Jordan by leveraging information technology.

Mission

Provide a secure and accessible platform that enables the storing and sharing of electronic patient health records at all healthcare facilities enrolled in Hakeem.

Objectives

EHS main objectives are the following:

- 1- Improve Healthcare
- 2- Reduce the Cost of healthcare services.
- 3- Provide Data for Research and Decision Making

Benefits

- Raising healthcare quality and outcomes by enhancing the accuracy of diagnoses, medication administration, and patient information management;
- Boosting health facilities' efficiency and workflow by saving time and reducing errors in information retrieval;
- Supporting research, scientific studies and, decision-making by supplying the necessary patient data, history and statistics;
- Reducing operating costs by optimizing resource utilization and, preventing lab test repetition.

1. Contact Information

Any questions regarding this RFP shall be directed to the following email address in writing:

Name:	Procurement Department
Company:	Electronic Health Solutions
Address:	King Hussein Business Park, King Abdullah the second street. 4408 Amman 11952
Telephone / Fax:	Telephone +962 (6) 5800461 EXT3050, 3071Fax +962 (6) 5800466
Email:	Procurement@ehs.com.jo

The bidder should receive a response from the procurement department, if not please call the following number +962 79 668 1595 Or Tel: +962 6 5800461 | Ext: 3050, 3071.

2. General Conditions

Upon participation, the bidder agrees to the following:

1. All costs incurred by Bidder in the preparation of this proposal shall be borne by the Bidder.
2. "EHS" will assume that all statements in writing, made by persons submitting Proposals are true, accurate, complete and, not misleading.
3. "EHS" reserves the right to cancel, at any time, this RFP partially or in its entirety. No legal liability on the part of "EHS" for payment of any kind shall arise and in no event will a cause of action lies with any bidder for the recovery of any cost incurred in connection with preparing or submitting a proposal, in response hereto all efforts initiated or undertaken by the bidder shall be done considering and accepting this fact.
4. Bidder's proposals shall be based on full compliance with the terms, conditions and, requirements of this RFP and its future clarifications and/or amendments.
5. "EHS" shall not be under any obligation to return or save either the original or any copies of any Bidder's Proposals (technical and/or financial), and all documents submitted to "EHS", whether originals or copies, shall be kept or disposed of by "EHS".
6. This Request for Proposal doesn't constitute an offer. "EHS" shall not be under obligation to enter into any agreement with any Bidder in connection with this RFP and responses received.
7. The Bidder's proposals (technical and financial) shall comply with the laws and regulations of the Hashemite Kingdom of Jordan.
8. The Bidder's proposals (technical and financial) shall be compatible with international standards and best practices.
9. As a part of the RFP response, the Bidder is requested to fill out the compliance sheet included in this RFP.
10. The bidder must include in his technical proposal a detailed Bill of Quantity "BOQ" for all proposed and priced items and services. Accordingly, this should be reflected and included in the financial offer with itemized quoted prices for all proposed items.
11. The bidder must commit to providing EHS with the same prices and terms for a period of (1) year starting from the Awarding Letter date for the purpose of Variation Orders
12. The quantities requested in this RFP are subject to increase, decrease or, cancellation as per the actual requirements in the awarding date. In case the quantities decrease the vendor is responsible to install the available materials from the EHS warehouse.

3. Bidder Qualifications

1. Bidder should be a Company registered under the Jordanian Ministry of Industry and Trade for more than three years or represented by a company abiding by the aforementioned condition; otherwise, any international or regional bidder must present the formal documents which prove the financial capacity of the company in addition to its commercial registration documents at the country of origin
2. Bidder should have at least three references of similar projects preferably in the health care sector and to be accepted by EHS.
3. The Bidder shall have at least 2 live installations with support as of the date of submission of this bid.
4. The Bidder shall have specialized and certified engineers with relevant technical certification for at least two engineers.
5. The bidder must submit Up-To-Date official documents of registration issued from the Companies Control Department at the Jordanian Ministry of Industry and Trade.
6. The bidder shall be an authorized Top Level Partner of the mother company he represents in this bid. An up-to-date valid official letter/certificate from the mother company shall be submitted by the bidder as part of the bidder's qualification documents, to prove the level of partnership for the bidder.
7. The bidder must have at least (2) two engineers certified by the mother company for the implementation and technical support of the proposed solution.
8. All proposed and supplied equipment\solutions\items\services must be original, brand new (not refurbished) and, licensed by the manufacture (mother company) to be supplied and installed for this project at EHS.
9. All proposed and supplied equipment / solution / items / appliances / hardware must be newly manufactured with manufacture valid warranty and support duration for not less than (7) years from the date of delivery. This implies that supplied products must not be obsolete, phased out of production, out of sales, and support.
10. All proposed and supplied equipment\solutions\items\services must be original, brand new (not refurbished) and, licensed by the manufacture (mother company) to be supplied and installed for this project at EHS.

11. تلتزم الشركة المحال عليها بتحديد نسبة الصيانة و الدعم الفني في العرض المالي للأجهزة المحال عليها للسنوات التي تلي فترة الصيانة المجانية شاملة قطع الغيار و الأيدي العاملة علماً بأن هذا البند سيكون جزء من التقييم المالي للعرض المقدم

The winning bidder is obliged to determine the percentage of maintenance and technical support including spare parts and manpower for the years following the free maintenance duration. This has to be specified clearly in the financial offer for the supplied devices\solutions as per this RFP and will be part of the financial evaluation of the bid.

4. RFP Guidelines

a. RFP Issuance & Submission

Event	Date
1. RFP distribution to vendors	26-APR-2023
2. Questionnaire Session	N/A
3. Proposal due date Closure Date	21-MAY-2023

b. Queries and Responses

All inquiries during the questions and answers session (Bidder Conference) if conducted must be documented., Verbal clarifications, inquiries or communication are not permitted, and only written communication is accepted.

c. RFP Acknowledgement

1. Award of the contract resulting from this RFP will be based upon the most responsive vendor whose offer will be the most advantageous to "EHS" in terms of cost, functionality, and other factors as specified elsewhere in this RFP.
2. Vendor has a period of (5) days to acknowledge and accept the awarding letter with its terms and conditions. Delay of acceptance will yield into consideration of rejection.
3. EHS" reserves the right to:
 - a) Accept other than the lowest-priced offer.
 - b) Award a contract on the basis of initial offers received, without discussions or requests for best and final offers.
 - c) Award the RFP contract on a partial basis (i.e. not all requirements requested from a single vendor.)
 - d) Not declare the name of the winning bidder, and awarding details.

d. Proposal Format Requirements

1. The financial and technical proposals must be submitted separately. Each proposal must be sent in a separate (PDF) electronic file (PDF). **(If the proposal file document size is bigger than 9 Megabyte (MB), you may send the document through a secured file hosting service and an internet-based computer file transfer service company such as Dropbox, WeTransfer, etc.)**
2. The proposals must be sent to the Procurement Department email namely; (Procurement@ehs.com.jo). A password divided into (3) portions and not to be less than (9) nine digits must be set on the financial offer.
3. The passwords must be sent through a text message (SMS) to relevant mobile numbers which will be cellular mobile numbers that will be provided to the bidders at a later stage.

4. Pricing must be per site with a breakdown itemized pricing for each item, component, product and services included in the submitted Financial Proposal.
5. The Financial Proposal must specify clearly the compliance with the (5) five years' warranty duration required in the Technical Specification section.

5. RFP Terms & Conditions

a. Evaluation Criteria

1. "EHS" will evaluate each response. Responses will be evaluated on many criteria deemed to be in EHS's best interest, including but not limited to, technical offering, price, warranty, delivery duration, Bidder certification, accreditation, schedule, bidder's capabilities, compliance with bonding, and any other factors that "EHS" determine. The order of these factors does not denote relative importance.
2. "EHS" reserves the right to consider other relevant factors as it deems appropriate in order to obtain the best value.
3. This RFP does not commit "EHS" to select any firm, enter into any agreement, pay any costs incurred in preparing a response or procure or contract for any services or supplies. "EHS" reserves the right to request additional information from the bidders whose response meets "EHS" needs and business objectives without requesting such information from all respondents.

b. Rejection of Proposals

"EHS" reserves the right to reject any or all offers and discontinue this RFP process without obligation or liability to any potential Vendor.

c. Proposal Costs and Expenses

No legal liability on the part of "EHS" for payment of any kind shall arise and in no event will a cause of action lie with any bidder for the recovery of any cost incurred in connection with preparing or submitting a proposal. In response hereto all efforts initiated or undertaken by the bidder shall be done considering and accepting this fact.

d. Bid, Performance, Advance payment, and Warranty Bonds

1. Unconditional Bid Bond valid for (3) three months with an amount of (JoD 1,500.00) One Thousand Five Hundred Jordanian Dinar to be renewed automatically must be submitted by every participating bidder.
2. Advance payment LG, is to be submitted against any required advanced payment.

3. Unconditional Performance Bond for (10%) of the total amount of the awarded value shall be submitted by the winning bidder and within (5) working days from the date of the award. The Performance bond must remain valid for the total duration of the implementation of the project and until the delivered solution is finally received and accepted by EHS. This Performance Bond will be replaced by the Maintenance LG after items delivered installed and finally accepted duly. The Maintenance Bond will remain valid until the end of the warranty duration. In case the winning bidder fails to submit the performance bond, EHS reserves the right to cancel the contract and liquidate the bid bond without reverting to the bidder.

e. Penalties

In the event, the bidder fails to deliver according to the agreed time (for either the initial agreed delivery date or any of the subsequent delivery dates). The Bidder must pay EHS a delay penalty of (1%) of the total contract amount for each calendar week of delay. The maximum penalty for delays shall not exceed (10%) of the total contract value. The payment or deduction of such penalty shall not relieve the winning bidder from its obligations to complete the services or from any other obligations and liabilities under this bid.

f. Payment Terms

1- Payment terms:

- 20% Advance Payment against "Advance Payment LG"
- 20% upon items delivery
- 20% upon installation or implementation
- 40% on final EHS acceptance.

In case the winning bidder fails to comply with the "Advance Payment LG" term set for the first payment, hence, the winning bidders will be entitled to receive (40%) of the total contract value after the fulfillment of the delivery and initial receiving conditions "إستلام توريد" set forth in this RFP.

- 2- Payment currency shall be in Jordanian Dinar (USD and Euro exchange rate will be calculated at the currencies exchange rate issued by Central Bank of Jordan at the payment date).

g. Terms of Delivery

- Delivery, Installation and, Implementation within (8-12) Weeks from the date of the purchase order at the EHS HQ offices or any of "Hakeem" Project sites. Final acceptance is required by EHS, and penalties for delays will be imposed as per the condition specified in clause (5.e) of this RFP.

h. Offer Expiry Date

The validity of the Proposal shall be no less than (90) days unless clearly mentioned differently.
The prices must remain fixed and valid for (90) days from the date of the invitation for bid closing date and shall be clearly stated in the technical and commercial bids.

6. Financial Compliance Sheet

#	Description	Comply (Yes/No)	Reference in the proposal
1	The bidder shall comply with all points included in the general conditions section		
2	The bidder shall comply with all points included in the bidder qualifications section		
3	The bidder shall comply with all points included in the RFP guideline section		
4	The bidder shall comply with all points included in the RFP terms and conditions section		

7. Objectives

EHS invites technically complete and commercially competitive bids from reputed bidders for the Supply, Installation, Configuration, Testing, and Implementation of the structured cabling system solutions in the Rwaished Hospital:

8. Bill of Quantity (BOQ) and Sites Names

A. Communication Room

#	Site Name	Floor	C.R. Location	Integrated data center solution cabinet	Earthing for all cabinets	IP Camera	Electrical breaker (63A)
1	Rwiashed Hospital	GF	Main Building	2	1	1	2
TOTAL				2	1	1	2

B. Copper and Fiber Quantities.

#	Site Name	Building Name	Floor/department	Cabinet Type	Existing Network Cabinet	Cabinet size Units	# of 16 U Cabinets per floor	# of MDC Cabinets	Single Node	Dual Node	Wireless nodes	Patch Panels	RJ-45 Connectors	Cable organizer	copper Patch cords. 1.m	copper patch cords 3m	copper patch cords 5m	Copper cable length (m)	Faceplate & Back-box 70*70*35 mm	No. of MM fiber uplinks	Aerial Fiber Optic cable SM (m)	F.O. P.P. SM	F.O. SM Pigtail	F.O.P.C SM (3m) SC-LC	Poles 3 meter + accessories	Bracket + accessories	Fiber Optic cable MM (m)	F.O. P.P. MM	F.O. MM Pigtail	F.O.P.C MM (3m) SC-LC	Plastic Trunk 16*25 (m) + accessories	PVC conduit Pipe 32mm (m)	Flexible pipe (19mm) (m)	Flexible pipe (32mm) (m)	Flexible pipe (50mm) (m)	Basket Tray (25cm width)	Heavy Duty Metal Cable Tray with Cover	Electricity for floor cabinets (LS) average 50 meter	UPS 1.5 KVA	Re-arrangement for the existing network cabinets		
1	Al-Rwaished Hospital	المبنى الرئيسي	GF	Communication Room	0	42	0	2	0	0	0	0	0	2	10	10	0	0	0	0	0	1	4	2	1	0	0	2	24	6	0	100	0	0	0	1	1	2	0	0	0	1
			GF	Floor Cabinet	42	0	0	0	6	3	10	1	44	2	22	63	2	880	19	0	0	0	0	0	0	0	150	1	8	2	76	50	200	200	200	200	0	0	0	0	1	
			1st	Floor Cabinet	24	0	0	0	0	14	1	28	2	14	32	2	532	14	2	0	0	0	0	0	0	0	150	1	8	2	56	50	200	200	100	0	0	0	0	1		
			2nd	Floor Cabinet	16	0	0	0	0	0	8	1	16	2	8	23	2	272	8	2	0	0	0	0	0	0	200	1	8	2	32	50	200	200	100	0	0	0	0	1		
			مبنى العيادات/المركز الشامل	GF	Floor Cabinet	0	16	1	0	8	13	4	2	76	3	38	38	2	1520	25	0	250	1	4	2	1	1	0	0	0	100	50	200	200	100	0	0	1	1	0	1	
Sub-Total							1	2	14	16	36	5	164	11	92	166	8	3204	66	4	250	2	8	4	2	3	500	5	48	12	264	300	800	800	500	1	1	3	1	3		
Total							1	2	14	16	36	5	164	11	92	166	8	3204	66	4	250	2	8	4	2	3	500	5	48	12	264	300	800	800	500	1	1	3	1	3		

9. Business Requirements

From a business perspective, the new architecture must address the following key points:

1. Install structured cabling solution as per EHS needs
2. Provide continuous support for Hakeem systems.

10. Related International Standards

The cabling infrastructure shall be used to carry the Data and Telecommunications Network Communications across all levels and floors. The following information below shows the compliance and standard to be used in the design and building of this infrastructure.

All Low Current Systems main components and installation shall be certified by third-party laboratories and are compliant with the latest International Standards and Regulations for cabling infrastructure:

- Structured Cabling System components and installation must comply with the following main recommendations of the Electronic Industries Association (EIA) and International Electro-Technical Commission (IEC):
 - ISO/IEC 11801 latest edition regarding Structured Cabling System performance levels and design rules.
 - ISO/IEC TR 14763-2 regarding Structured Cabling System sizing in premises.
 - EIA/TIA 568 Standard on Commercial Buildings for Telecommunication Wiring.
 - EIA/TIA 569 Standard on Commercial Buildings for Telecommunication Cable Trays and Areas.
 - EIA/TIA 606 Standard on Telecommunications Infrastructure. This document provides the document user with guidelines and choices for administration classes for maintaining telecommunications infrastructures.
 - EIA/TIA 607 Standard on Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications (ANSI/J-STD-607-A-2002).
 - IEC 60754-1 & 2 Standard on Tests on gases evolved during combustion of materials from cables and Tests on gases evolved during combustion of electric cables.
 - IEC 61034-1 & 2 Standard on Tests and Measurement of smoke density of cables burning under defined conditions.
 - IEC 60331 Standard, parts 11 & 12, on Tests for electric cables under fire conditions.
 - IEC 60332 Standard on Tests on electric cables under fire conditions.
 - IEC 60364-1 Standard on Electrical installations in Buildings, Fundamental principles, Assessment of general characteristics, definitions.
 - IEC 60794, 60874, 61073, and 61300 Standards on fiber-optical connecting hardware.
 - IEC 60603 Standard on wired connecting hardware used with balanced cabling.

- ISO 8877 Standard (sockets, RJ45-type plugs).
- ISO: International Standardization Organization. Promotes the development of international standardization for scientific, technological, and economic activities. The Technical Committee 97 (Information Processing) has developed a seven-layer communications reference model that allows multiple-protocol and multiple-vendor environments to interconnect and interoperate.
- CCITT: International Telegraph and Telephone Consultative Committee. CCITT recommendations have the status of law in most European countries, and the USA follows CCITT recommendations. Study groups are responsible for data communications interfaces, services, and transmission.
- NEC: National Electrical Code. Many local building codes are based on NEC practices, which must be followed by those responsible for providing a safe communication system implementation. Articles 700-800 of the NEC handbook address communications cabling issues.
- BICSI: Building Industry Consulting Service International. This organization publishes the Telecommunications Distribution Methods Manual (TDMM), which is a comprehensive collection of accepted practices in communications-system design and methodology. BICSI provides a competency examination for the professional designation of Registered Communications Distribution Designers (RCDD). This manual should be used as a reference only.
- The above points, originating from standard organizations, are incomplete. Additional considerations may have to be taken into account for protecting communications equipment and data-processing equipment and for the protection of data from intrusion, induced noise, or other events that may disrupt vital operations.
- Structured Cabling System components and installation must also be compliant with Jordanian standards and rules.

11. Submittals

The bidders' proposal shall include the following:

1. Compliance sheets (for both technical and financial).
2. Data sheets for all items.
3. Accept Procedure Test (ATP) document.
4. Project Implementation plan.
5. Service level agreement (SLA)
6. Project team details.
7. Network test equipment valid calibration certification
8. Structured Cabling System application performance warranty
9. Test all copper and fiber network nodes using a Fluke network tester.

12. Structured Cabling System Components Specifications

12.1 System Components Structure

The structured cabling system shall be a modular-based solution.

12.1 Network Cabinets

12.1.1 Integrated data center solution cabinet

Pre-assembled plug-and-play IT infrastructure solution that will be used as Main Distribution Frame (MDF), 42U high-quality cabinet; the cabinet width shall be 800 mm. The Cabinet shall contain the following components and with the minimum technical specifications as below:

1. 42U Cabinet:

- a. Front glass door with keypad access control
- b. Two rear sheet metal closed doors
- c. Blind fillers 1U
- d. Emergency ventilation system
- e. Lighting & Visual Alarm
- f. IT equipment's Space: Minimum 24 U
- g. Two front 42U vertical cable channels for cable organization.
- h. Earth bar sufficient to earth relevant equipment within the cabinet.
- i. Internal earthing from cabinet earth bar to all doors, panels, and vertical struts.

2. UPS:

- a. Rack mounted
- b. lithium batteries
- c. **6KVA** Capacity
- d. True online double conversion
- e. Power factor at 0.9 pF
- f. UPS is equipped with an LCD screen
- g. Include one additional battery pack to increase the backup time to 20 min at full load at a minimum
- h. Equipped with external bypass

3. Power Distribution:
 - a. 230V/ 50Hz, 60+A input
 - b. Surge protection
 - c. Rack mounted
4. PDUs (**Two for each cabinet**):
 - a. Vertical PDU 12 X C13, 4 X C19 ,32 A
5. Fire Alarm and Fire Fighting System
 - a. Impeded Fire Fighting System FM200 or Novec 1230
6. Water Leakage Detection System
7. In-Rack Cooling System:
 - a. In-Rack cooling unit
 - b. Precise air supply
 - c. **3.5kW** sensible cooling capacity.
 - d. Vertical air distribution
8. Environment Monitoring System
 - a. Integrated with All system components
 - b. Real-time data monitoring
 - c. Alarm Management and Notification through email
 - d. Touch screen
 - e. Doors status sensor
 - f. Temperature and Humidity Sensor
 - g. Smoke Sensor
 - h. Water Detection with water Detection Line
 - i. management software to collect, monitor, manage, and control data related to the above sensors and the cabinet's power system including IT load
 - j. Monitor all parameters from the upstream level to the rack level including temperature, humidity, water leak detection sensor, etc.

The bidders have the option to propose a solution to combine the two micro-cabinets into a single system that shares the monitoring, management, and fire distinguisher. Also to provide redundancy utilizing the UPSs and cooling systems within the two cabinets.

The proposed single system shall include two cabinets, minimum 50U available space, and the same features mentioned in section (4.1.1.1).

12.1.2 Intermediate Distribution Frame (IDF) Cabinet Equipment

Each cabinet in the IDF shall contain the following components:

1. Wall Mount (for 20U and smaller cabinets) or 24U free stand.
2. Lockable side panels.
3. The bidder shall propose floor cabinets depending on the size given in the BOQ, the cabinet dimension shall be 800 mm x 800 mm.
4. A pair of 19" front cabinets adjustable from the front face.
5. The cabinet shall be Glass front door, with a lock.
6. A roof blanking plate fitted with two fans.
7. One Fused Power Distribution Units which shall contain 6 standard UK-type female and industrial socket inputs.
8. Earth bar sufficient to earth relevant equipment within the cabinet.
9. Internal earthing from cabinet earth bar to all doors, panels, and vertical struts.

12.2 Patch panels

12.2.1 Fiber optic patch panel

The fiber optic patch panel shall include the following items:

1. Mount to standard 19" racks.
2. The sliding tray removes completely from the enclosure to facilitate field terminations and splicing.
3. The sliding tray glides forward and backward providing accessibility to the front and rear of the bulkhead after installation.
4. SC duplex adapters.
5. Each optical fiber patch panel(s) shall contain at least 12 SC adapter duplex in a 1U enclosure.

12.2.2 CAT6A shielded patch panel

The RJ-45 shielded patch panel shall include the following items:

1. Mount to standard 19" racks.
2. 1U-high patch panel 24 quick ports (Unloaded Module jack connectors).
3. A cable-holder back plate.

4. Earthing bonding port.

12.3 Patch cords guide panel

The Patch cord guide panels shall include the following items:

1. Mount to standard 19" racks.
2. A 1U-high patch cord guide panel.
3. A front panel is set back from the rack frame to avoid door-opening problems.
4. Cover on the front.
5. Patch cord guide panels shall be installed in the racks for cable management, between each set of two 24-port patch panels and between each set of two edge switches.

12.4 Network Cables

12.4.1 HORIZONTAL copper Cables

The 4 twisted pair Category 6A F/FTP or S/FTP cables used in this project to make up the Horizontal Cabling and to connect telecommunication outlets with the intermediate distribution frame and the cable must support 10G on 90 Meter length base on ISO & EIA/TIA Standards.

12.4.2 Vertical Fiber-Optical Cable

12.4.2.1 Multimode fiber cable

1. 6 core Fiber-optical cables OM3 multimode Loose Tube - LSZH
2. Shall be used to provide a 10G connection based on ISO & EIA/TIA Standards.
3. Nonmetallic, water resistant, rodent protected.
4. Indoor/outdoor fiber cable.

12.4.2.2 Single-mode fiber cable

1. 24-core Fiber optic cable OS2 Single Mode Loose Tube - LSZH
2. Shall be used to provide a 10G connection based on ISO & EIA/TIA Standards.
3. Nonmetallic, water resistant, rodent protected.
4. Indoor/outdoor fiber cable.

12.4.3 Aerial fiber cable

1. 24-core Fiber optic cable OS2 Single Mode Loose Tube - LSZH
2. Minimum tensile strength 2000N
3. Minimum crush resistance 2500N
4. UV-resistant
5. Certified for outdoor use
6. Shall be used to provide a 10G connection based on ISO & EIA/TIA Standards.

12.5 Aerial fiber poles

12.5.1 9m metal poles

1. 9m high.
2. Mounted on cement base by screws.
3. Shall be galvanized.

12.5.2 3m metal poles

1. 3m high.
2. Mounted on the building's wall.
3. Shall be galvanized.

12.6 Connectors

12.6.1 FIBER-Optical pigtail

1. Fiber-optical pigtails shall comply with ISO & EIA/TIA standards.
2. Shall be directly integrated into the SC duplex adapters in an optical patch panel.

12.6.2 Shielded RJ45 Connectors/ Jacks

1. CAT6A RJ45 Shielded connectors shall comply with ISO & EIA/TIA Standards.
2. Shielded cap to ensure 360° cable-screen contact continuity.
3. Connectors shall be connected without using any simple tool (Tool less).

12.7 Patch cords

12.7.1 Fiber-Optical Patch cords

1. Optical fiber patch cords shall be factory-terminated using 50/9 micron MM/SM patch cords.

2. The fiber-optical type shall be visually recognizable according to the ISO & EIA/TIA standard color connectors.
3. Low-Smoke Zero-Halogen outer sheath.
4. Metric marking indicating the type of cable, year, ref., and number.
5. SC-LC duplex connectors.
6. Lengths of 2 meters.
7. Protection by a sleeve at each end.

12.7.2 Rj-45 shielded patch cords

1. Patch cords shall be factory-assembled by the manufacturer of the cabling system.
2. CAT6A S/FTP patch cords shall comply with ISO & EIA/TIA.
3. All patch cords shall be straight connected.

12.8 Trunks and conduits

1. The trunks shall be paintable
2. Trunks must-have accessories during the cable path, accessories shall be from the same vendor/brand.
3. The trunks and conduits shall contain horizontal (F/FTP or S/FTP) and vertical (Fiber) cables during the entire cable path.
4. The Trunks and conduits shall include flexible pipes, PVC pipes, and trunks of different sizes depending on the actual needs and any related accessories.
5. The accessories shall include the following types:
 - COUPLER FITTING (EK).
 - INSIDE CORNER (ID).
 - OUTSIDE CORNER (DIS).
 - T CORNER.
 - L CORNER.
 - End Cup (END).

12.9 Heavy-Duty Metal Cable Tray with Cover

1. The minimum thickness of the metal trays and its covers shall not be less than 2 mm
2. The metal trays shall have a solid bottom
3. The metal trays' dimensions (H = 5 cm), (W = 30 cm). The tray length shall be defined by the bidder based on the site's survey.

4. Any accessories required shall be provided based on the installation requirements.

12.10 Face Plates and back boxes

5. The face plates shall be mounted on the back box; the back box dimensions (H, W, D) shall be compatible with the vendor's recommendation.
6. Angled faceplate.
7. Single / Dual port configuration based on the site's requirements
8. The back boxes dimensions shall be at least 7x7x3.5 mm

12.11 UPS SYSTEM (FOR THE IDF CABINETS)

1. Each network cabinet shall include UPS inline double conversion system to protect the active components.
2. The proposed UPSs and batteries devices shall fit inside the cabinets; the floor cabinets' dimensions are 800mm x 800mm.
3. VRLA maintenance-free lead-based batteries (8) years lifetime
4. UPS shall be rack mountable and have in/out industrial socket; UPS must fit in the cabinet including electrical wiring from and to the UPS.
5. UPS input and output shall be based on single-phase industrial sockets
6. UPS shall include LCD Screen
7. Include network management interface SNMP

12.12 VIDEO SURVEILLANCE SYSTEM

EHS has an in-place centralized Video Surveillance System. one HIKVision 64 Channel NVR appliance is existing in the EHS data center and is used to manage and record the videos from the HIKVision 1.3 MPX cameras. The new IP cameras shall be integrated with the existing and new NVR solution.

The bidder shall propose a second HIKVision 64 Channel NVR appliance

12.12.1 5 Megapixel indoor dome camera:

1. 1/3" Progressive Scan CMOS or CCD image sensor.
2. Lens: 3 - 9mm varies-focal lens
3. Image Resolution: 1280 x 960 or better
4. Alarm Trigger: Motion detection, tampering alarm, network disconnect, IP address conflict, storage full, storage error.
5. Protocols: TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, RTP, RTSP, RTCP, PPPoE, NTP, SMTP, SNMP, 802.1X, QoS, IPv6
6. Security: User Authentication
7. System Compatibility: ONVIF
8. Communication Interface: 1 RJ45 10M / 100M Ethernet interface
9. Power Supply: 12 VDC \pm 10% (including AC/ DC power transformer), and PoE (802.3af)
10. Edge storage: include an SD card slot with a 16 GB memory card included for emergency recording.
11. IR Range: Approx. 10 meters
12. Motion detection.
13. Dual stream
14. Video Compression: H.264 / MPEG4 / MJPEG

12.5. Electrical Preparations:

12.4.1. MDC Power

1. Main Power Cable (3x16mm) to feed the main distribution panel with the needed power from the main power panel of the site (building main electrical panel – emergency line). A 63A circuit breaker shall be installed in the main power panel for that purpose.
2. One PDU inside the MDC cabinet shall connects to the UPS inside the cabinet and the second PDU shall connects to the UPS in the second MDC cabinet to ensure the redundancy and high availability.

12.4.1. IDF Power Distribution units

One six ways power strip shall be supplied with each cabinet; the power strip shall have the following features:

1. Illuminated power switch
2. The PDU input shall be supplied by a single-phase industrial socket.
3. Industrial sockets (16A) with 3x4 mm power cable to feed the 16A PDUs of the rack with conditioning power (UPS output)
4. The PDU shall contain six standard UK-type outlets.
5. Power cable 3x4 mm shall be pulled from the main control panel to the cabinet with an industrial socket (UPS input).
6. One External electrical breaker 16A for each site shall be installed before the UPS near the cabinet.
7. UPS in/Out Power Cables with industrial sockets.

12.4.1. Earthing & Bonding

1. Shall check and fix the existing building's earthing system and install the new earthing system for the building if it does not exist/functional.
2. Earthing is a must for the entire structured cabling system components.

12.4.1. Drainage

1. Install a drainage point in the Communication Room (CR) room to connect the condensed water pipe.

13. Statement of work

The scope of this RFP covers installing the structured cabling system & Communication room preparations.

12.1 Structured cabling installation guidance

12.1.1 Pre – Cabling

The following requirements shall be met before the cabling work commences:

1. Secure work area.
2. Equipment for supporting cables shall be in place.
3. Any required equipment for supporting cable shall be in place.
4. Correct cable lengths shall be available.
5. Adequate manpower shall be available.
6. Before pulling begins location of access and pulling positions shall be identified.

12.1.2 Site Closure

Before vacating the site, the following practices shall be observed:

1. Dispose of all debris including scrap, drawstrings, tapes, etc.
2. Remove all empty cable reels and boxes
3. Remove any surplus materials and return them to stores
4. Clean the Work Area including personal waste
5. Store tools and equipment properly in an agreed location.
6. Check the containment integrity and continuity.

12.1.3 HORIZONTAL Cabling installation

1. F/FTP or S/FTP 4 pair Cat 6A Cable, 100 ohms, and shall be ANSI/TIA/EIA-568-B.2 compliant for use of Cat6A ISO 11801 Class EA performance.
2. The Cat 6A cable shall be distributed as per the Contract drawings for the use of voice and data services and the 90m rule shall be implemented as per manufacturing and Industry Guidelines and Specifications. Cabling shall be installed in a Star Topology and to be deployed in a Home Run arrangement.
3. Cables shall be installed as per the guidelines specified by the Tender Document and by the product manufacturer e.g. pulling tensions, bend radius, and side wall pressures. Cable shall also be installed to minimize EMC and necessary guidelines shall be followed as per ANSI/TIA/EIA 569-B.

4. All cables shall be installed and secured neatly to trays or other containment with the use of approved fixing and bundling materials e.g. cable ties
5. Should be used VELCRO tie once tying and dressing all copper cables, the **plastic cable tie** is rejected.
6. All jacks/TO shall meet or exceed the ANSI/TIA/EIA 568-B.2-10 requirements for Cat6A and shall be terminated to manufacturer guidelines and the termination guideline is mentioned in each connector bag.
7. Faceplate shall be white or specified differently during the duration of the project and shall facilitate the housing of 2 connectors.
8. Faceplates shall be installed square and plumb with all fixing required.
9. The faceplate shall have an integral labeling and identification capability.
10. The Cable systems shall be labeled, using an approved system decided upon by a client. Labeling shall take place at termination points, Patch Panels, Faceplates, and Jacks and shall conform to the ANSI /TIA/EIA 606-A.
11. Installation shall be based on the vendor's recommendation; the bidder shall provide the application performance warranty from the vendor for (20) years minimum.
12. Patching the copper, fiber, and power patch cords cables inside the cabinets is the bidder's responsibility.
13. Any extra related work requested by the EHS team to complete the project.

12.1.4 Fiber Optic cabling installation

1. Optical fiber cables OS2 single-mode & OM3 multi-mode shall meet or exceed the requirements of ANSI/TIA/EIA 568-B.3
2. FOC shall be installed as per the guidelines and specifications set by Manufacture and by the Industry Standard ANSI/TIA/EIA 568-B.3.
3. The fiber optic cables shall be installed between each Floor Network Cabinet and Main Building Network Cabinet; these cables shall be installed using two different routes.
4. All FOC shall be installed and secured neatly to trays or other containment with the use of approved fixing and bundling materials e.g. Velcro straps.
5. Cables that shall run through underground tunnels or crawlspaces. To keep the cables safe, tidy, and easy to access, they are laid in special trays. Often junction boxes are placed every few hundred feet to facilitate the insertion of new cables and the removable of obsolete cables.
6. Technicians shall walk along the path and plan out every step of the way before they start pulling cable. This can be done the day before the actual cable pull and Looking for places where they shall need special supplies. For example, if the cable is to go under a raised floor, they shall make sure that they have a tile puller when this part of the job is done. If the cable shall be going through a tray located in the ceiling in one room, they shall make sure a step ladder is available in that room. They shall not interrupt the cable-pulling job to hunt for equipment.

7. The FOC shall be installed in a continuous length with no joints in between and shall be fitted with a heat-shrinkable cable cap at the ends to protect the fiber from being damaged as per ISO 11801.
8. Two meters' service loops shall be left at each end of the link and shall be neatly contained in the containment.
9. The bending radius must be not less than 110mm.
10. Fiber pigtail connectors shall be compliant with TIA/EIA 604-10(LC) and shall meet or exceed ANSI/TIA/EIA 568-B.3 and shall be manufactured by an ISO 11801 company.
11. All fiber strands shall be spliced to the pigtail connector by using a fusion machine.
12. Patch Panels or Distribution Panels shall be 19" rack-mounted metal with removable doors and panel's front and rear and contain fastening at each corner.
13. Panels shall contain all the necessary rings, saddles, and guides to ensure all cables and splices are protected. They shall be dressed in a neat and splice tray to maintain the required bend radii set by manufacture and Industry standards.
14. Panels shall be installed plumb and square.
15. Coupler panels shall be used wherever necessary to adequately support the number of fiber cable cores required for terminations. Wherever there are unused module spaces Blanking plates shall be used.
16. Dust caps shall be replaced on all unused coupler plates and connectors.

12.1.5 Aerial Fiber Optic cabling installation

The bidder shall provide a full fiber optic connectivity solution based on ring topology between the buildings including all the components needed including but not limited to the following: the fiber cable, poles, fiber patch panels, fiber patch cords, etc.

1. The provided solution shall be implemented as a **turnkey** solution.
2. Aerial Fiber Optic Cables (FOC) OS2 single-mode shall meet the requirements of ANSI/TIA/EIA568-B.3.
3. FOC shall be installed as per the guidelines and specifications set by Manufacture and by the Industry Standard ANSI/TIA/EIA 568-B.3.
4. The Aerial fiber shall be terminated to the existing main network rack cabinet in each building (MDF).
5. The fiber cable shall not be exposed inside the shafts and buildings, (U-Guard (external) and fixed PVC pipes (internal) shall be used).
6. FOC outside the building shall be run through transmission line fittings (supports) which shall be located on the columns & buildings.
7. Cables that shall run outside & inside the buildings; to keep the cables safe, tidy, and easy to access, they are laid in PVC conduits 32mm inside the building and on the columns outside the buildings.
8. The FOC shall be installed in a continuous length with no joints in between and shall be fitted with a heat-shrinkable cable cap at the ends to protect the fiber from being damaged as per ISO11801.
9. Five meters' service loops shall be left at each end of the link and shall be neatly contained in the containment.

10. Fiber pigtail connectors shall be compliant with TIA/EIA 604-10 (SC) and shall meet or exceed ANSI/TIA/EIA 568-B.3
11. All fiber strands shall be spliced to the pigtail connector by using a fusion machine.
12. Earthing kit for the metal poles, in the case of using fiber cable, contains metal support materials.
13. Dust caps shall be replaced on all unused coupler plates and connectors
14. The bidder shall ensure a maximum of 0.1 db as a loss result for all fiber connections per link.
15. It is the responsibility of the bidder to provide all the civil work needed.

12.1.6 TESTING

The bidder should have a certified and qualified testing team from the vendor before starting the testing on-site and should submit valid certificates with the technical proposal.

The bidder should declare the type and model of the testing device for both Cables (Copper & Fiber), and this device should be calibrated by the vendor (Valid Calibrated Certificates should be submitted with the technical Proposal).

12.6.1 Copper testing

For field testing of the CAT6A cabling, a calibrated test instrument shall be used to verify that the installation meets or exceeds the applicable requirements in ANSI/TIA 568-B.1 and ANSI/TIA 568-B.2, including their addenda. Copy of test results shall be submitted for approval and shall form part of the final documentation. Calibration of the test machine shall be provided by an Authorized service dealer and it shall be submitted before starting testing on site.

12.6.2 Fiber testing

For field testing of the Fiber cabling, a calibrated OLTS test instrument shall be used to verify that the installation meets or exceeds the applicable requirements, including their addenda. Copy of test results shall be submitted for approval and shall form part of the final documentation. Calibration of the machine shall be provided by an Authorized service dealer.

OLTS device is showing all details by which optical fiber cabling is to be tested. An optical fiber cabling link may consist of fiber or concatenated fibers (spliced, cross-connected, or interconnected) with a connector or adapter on each end. The fiber type, link length, the number and quality of terminations and splices, cable stresses, and wavelength can all affect attenuation measurements.

12.1.7 UPS installation shall be conducted by the contractor including:

1. Installing the UPS in the network cabinets
2. Wiring the UPS systems to the emergency/generator panel (if available) otherwise it should connect to the normal power panel.
3. Insuring installing required electrical connections within cable conduits or trunks to reach the main electrical source within the building/floor, and
4. Install the required electrical protections and circuit breakers.

5. Connect the UPS output to the cabinet's PDU.
6. UPS input and output cables shall be single-phase industrial sockets.

12.1 Communication Room (CR) Site Preparation installation guidance

The bidder is responsible for removing all the unneeded equipment from the CR if existing, this should include heating systems, cooling systems, sinks, ventilators...etc.

12.4.1. Electrical Preparations

1. Provide and install the main power cable between the main distribution board of the building to the new main distribution panel of the communication room including all related work, breakers, and pipes.
2. Provide and install an electrical connection between each edge cabinet with the nearest electrical panel, with the needed socket, breaker, power cable, and pipes.
3. One PDU inside the MDC cabinet shall connects to UPS inside the cabinet and the second PDU shall connects to the UPS in the second MDC cabinet to ensure the redundancy and high availability.
4. Provide and install an earthing kit inside the communication room and bond the communication cabinet, and electrical panel to it.

12.4.1. Video Surveillance

1. Provide and install Cameras in the communication rooms.
2. Configure the installed cameras on the existing NVR in the Hakeem data center.

12.5. AutoCAD drawings, cabinets layouts, and labeling

1. The bidder shall reflect all copper nodes on the building drawings and provide AutoCAD softcopy drawings if available.
2. The bidder shall provide cabinet layouts for all sites that reflect the installed network passive component.
3. The bidder is responsible for the labeling of faceplates, patch panels, cabinets, power preparations, and patch cords based on the related industrial standards mentioned earlier.

12.5. Existing structured cabling system

The Vendor is responsible to review the status of any existing structured cabling system on the site at the beginning of the project and perform any required corrective actions to meet the RFP specification and scope of work. The entire structured cabling system in the site shall be covered under the vendor's SLA.

14. Technical Terms and Conditions

1. The bidder shall have at least two certified engineers according to the manufacturer's recommendations on the proposed solution.
2. The bidder shall be classified as tier 1; the bidder shall provide the required manufacturer's certificates or letters for his qualifications. This condition is applied only on items that aren't mentioned by brand name.

15. Warranty and Support

1. The bidder shall offer a minimum of (5) year's onsite products and system warranty for all components, and 20 years' warranty for the cabling solution.
2. The bidder shall offer a minimum of (5) year's maintenance and support service; Maintenance and support service shall cover all supplied components.
3. During the warranty period, the contractor shall provide all required spare parts free of charge.
4. The bidder shall provide the support approach in the form of a signed and stamped SLA including the escalation matrix, support contacts, and response time.
5. Perform preventive maintenance for the delivered solution based on 2 yearly visits during the warranty and support period.

16. Product Origin

1. The mother company shall be from the USA, Europe, or Japan. This condition applied to the cabling solution only.

17. Service Level Agreement

During the warranty period the contractor shall meet the below SLA parameters:

1. Severity Levels

Insuring and maintaining full, safe and enhanced performance for all devices and any related items, along with all required support and prevention procedures with the following targets:

a) Severity level 1

Response time: Within 30 minutes

Arrival on site: Within 3 hours

b) Severity level 2

Response time: Within 2 Hours

Arrival on site: Within 6 Hours

c) Severity level 3

Response time: Within 24Hours

Arrival on site: Within 24 Hours

Resolution time: Guaranteed network recovery & repair within 24 Hours.

d) Severity level 4

Response time: Within 48 Hours

Arrival on site: Within 48 Hours

Resolution time: Guaranteed network recovery & repair within 48 Hours.

- Severity level will be determined by EHS upon opening each individual support case.
- Throughout the execution of the SLA, vendors should not rely on system redundancy as a permanent resolution.

Definitions:

- **Severity Level 1:** Site is down or there is a critical impact to End User's business operation.
- **Severity Level 2:** Operation is severely degraded or significant aspects of End User's business operation are negatively impacted by unacceptable Environment performance.
- **Severity Level 3:** Operational performance of the Environment is impaired, although most business operations remain functional.
- **Severity Level 4:** Product Enhancement request or information is required on product capabilities, installation, or configuration. There is little or no impact to End User's business operation.
- **Response time:** the time it takes to send back an acknowledgement of an issue and commence the process of developing a resolution.
- **Resolution time:** the needed time to solve an open case.

2. Terms and Penalties

Additional hours exceeding the allowable downtime will be subject to penalty. The minimum accepted system availability is 99.9% yearly uptime. Under all circumstances, the "resolution time" must not exceed 24 hours for severity level 3 and 48 hours for severity level 4. In addition, the "response time" and the "arrival on site time" must be met with each Severity Level.

The vendor will be subject to penalty if he does not meet the "response time", "arrival on site" and "resolution time". The following table shows all the penalties under this SLA contract.

Penalty condition	Penalty amount per hour JoD			
	Severity 1	Severity 2	Severity 3	Severity 4
Failed to achieve 99.9% availability target	100	50	0	0
Failed to achieve "response time"	50	50	0	0
Failed to achieve "arrival on site time"	50	25	0	0
Failed to achieve "resolution time"	0	0	0	0

Vendor response will be measured and monitored using EHS's Service Management tool.

1. The vendor should submit a preventive maintenance program every three months.
2. The Vendor must provide the support methodology and escalation matrix including contact details.
3. The Vendor should provide manufacturer support for the main components.

4. The Vendor is responsible for maintaining spare parts to meet the “availability” and “resolution time” targets at no additional cost.
5. The Vendor will provide workshops and/or on-site training if necessary or if requested by EHS.
6. The Vendor will support, configure and resolve problems whenever needed and/or if requested by EHS.

18. Technical Compliance sheet

- The bidder shall confirm all points in the below compliance sheet and mention the reference for each point in the proposal

#	Description	Comply (Yes, No)	The reference point in the proposal
1	The bidder proposal shall include all the submittals mentioned in the submittal section		
2	The delivered items must match the proposed technical specifications mentioned in the solution technical specifications section.		

3	The bidder shall propose the quantities based on the BoQ table as mentioned in the Bill of quantities section, or the updated BoQ that will be provided after the site visit.		
4	All quantities shall be considered as re-measured; the unused quantities shall be returned and the extra needed quantities shall be delivered by the bidder. This will be managed through the variation order process to control used/unused quantities.		
5	The bidder shall agree to all points mentioned in the scope of work section.		
6	The bidder shall be committed to all technical terms and conditions mentioned in the technical term and condition section.		
7	The bidder must be committed to all warranty and support points mentioned in the warranty and support section.		
8	During the support and warranty period, the bidder shall be committed and meet all parameters mentioned in the service level agreement section		
9	The bidder shall provide a detailed BoQ including part numbers.		
10	The Aerial fiber solution (if needed) is a turnkey solution, the quantities mentioned in the BOQ are the minimum requirements, and any additional material/accessories should be provided by the bidder.		
11	The mother company shall be from the USA, Europe, or Japan. This condition applied to the cabling solution only.		
12	Integrated data center solution cabinet		
	Pre-assembled plug-and-play IT infrastructure solution that will be used as Main Distribution Frame (MDF), 42U high-quality cabinet; the cabinet width shall be 800 mm. The Cabinet shall contain the following components and with the minimum technical specifications as below:		
	42U Cabinet:		
	Front glass door with keypad access control		
	Two rear sheet metal closed doors		
	Blind fillers 1U		
	Emergency ventilation system		
	Lighting & Visual Alarm		
	IT equipment's Space: Minimum 24 U		
	Two front 42U vertical cable channels for cable organization.		
	Earth bar sufficient to earth relevant equipment within the cabinet.		

	Internal earthing from cabinet earth bar to all doors, panels, and vertical struts.		
	UPS:		
	Rack mounted		
	lithium batteries		
	6KVA Capacity		
	True online double conversion		
	Power factor at 0.9 pF		
	UPS is equipped with an LCD screen		
	Include one additional battery pack to increase the backup time to 20 min at full load at a minimum		
	Equipped with external bypass		
	Power Distribution:		
	230V/ 50Hz, 60+A input		
	Surge protection		
	Rack mounted		
	PDU:		
	One Vertical PDU 12 X C13,4 X C19 ,32 A		
	Fire Alarm and Fire Fighting System		
	Impeded Fire Fighting System FM200 or Novec 1230		
	Water Leakage Detection System		
	In-Rack Cooling System:		
	In-Rack cooling unit		
	Precise air supply		
	3.5 kW sensible cooling capacity.		
	Vertical air distribution		
	Environment Monitoring System		
	Integrated with All system components		
	Real-time data monitoring		
	Alarm Management and Notification through email		
	Touch screen		
	Doors status sensor		
	Temperature and Humidity Sensor		
	Smoke Sensor		
	Water Detection with water Detection Line		
	management software to collect, monitor, manage, and control data related to the above sensors and the cabinet's power system including IT load		
	Monitor all parameters from the upstream level to the rack level including temperature, humidity, water leak detection sensor, etc.		
13	Intermediate Distribution Frame (IDF) Cabinet Equipment		
	Each cabinet in the IDF shall contain the following components:		

	Wall Mount (for 20U and smaller cabinets) or 24U free stand.		
	Lockable side panels.		
	The bidder shall propose floor cabinets depending on the size given in the BOQ, the cabinet dimension shall be 800 mm x 800 mm.		
	A pair of 19" front cabinets adjustable from the front face.		
	The cabinet shall be Glass front door, with a lock.		
	A roof blanking plate fitted with two fans.		
	One Fused Power Distribution Units which shall contain 6 standard UK-type female and industrial socket inputs.		
	Thermostat Adapter to control the Cabinet's fan.		
	Earth bar sufficient to earth relevant equipment within the cabinet.		
	Internal earthing from cabinet earth bar to all doors, panels, and vertical struts		
14	CAT6A shielded patch panel		
	Mount to standard 19" racks.		
	1U-high patch panel 24 quick ports (Unloaded Module jack connectors).		
	A cable-holder back plate.		
	Earthing bonding port.		
15	Patch cords guide panel		
	Mount to standard 19" racks.		
	A 1U-high patch cord guide panel.		
	A front panel is set back from the rack frame to avoid door-opening problems.		
	Cover on the front.		
16	Horizontal copper Cables		
	The 4 twisted pair Category 6A F/FTP or 6A S/FTP cables used in this project to make up the Horizontal Cabling and to connect telecommunication outlets with the intermediate distribution frame and the cable must support 10G on 90-Meter length based on ISO & EIA/TIA Standards.		
17	Shielded RJ-45 Connectors/ Jacks		
	CAT6A RJ45 8-pin shielded connectors shall comply with ISO & EIA/TIA Standards.		

	Shielded cap to ensure 360° cable-screen contact continuity.		
	Connectors shall be connected without using any simple tool (Toolless).		
18	Rj-45 shielded patch cords		
	Patch cords shall be factory-assembled by the manufacturer of the cabling system.		
	CAT6A S/FTP patch cords shall comply with ISO & EIA/TIA.		
	All patch cords shall be straight connected.		
19	Face Plates and back boxes		
	The face plates shall be mounted on the back box; the back box dimensions (H, W, D) shall be compatible with the vendor's recommendation.		
	Angled faceplate.		
	Singe / Dual port configuration based on the site's requirements		
	The back box dimensions shall be at least 7x7x3.5 mm.		
20	Fiber optic patch panel		
	The fiber optic patch panel shall include the following items:		
	Mount to standard 19" racks.		
	The sliding tray removes completely from the enclosure to facilitate field terminations and splicing.		
	The sliding tray glides forward and backward providing accessibility to the front and rear of the bulkhead after installation.		
	SC duplex adapters.		
	Each optical fiber patch panel(s) shall contain at least 12 SC adapter duplex in a 1U enclosure.		
21	IDF Power Distribution units		
	One six-way power strip shall be supplied with each cabinet; the power strip shall have the following features:		
	Illuminated power switch		
	The PDU input shall be supplied by a single-phase industrial socket.		
	Industrial sockets (16A) with 3x4mm power cable to feed the 16A PDUs of the rack with conditioning power (UPS output)		
	The PDU shall contain six standard UK-type outlets.		
	Power cable 3x4 mm shall be pulled from the main control panel to the cabinet with an industrial socket (UPS input).		

	One External electrical breaker 16A for each site shall be installed before the UPS near the cabinet.		
	UPS In/Out Power Cables with industrial sockets.		
	Multimode fiber cable		
22	6 core Fiber-optical cables OM3 multimode Loose Tube LSZH		
	Shall be used to provide a 10G connection based on ISO & EIA/TIA Standards.		
	Nonmetallic, water resistant, rodent protected.		
	Indoor/outdoor fiber cable.		
	Single-mode fiber cable		
23	24 core Fiber optic cable OS2 Single Mode Loose Tube, LSZH.		
	Shall be used to provide a 10G connection based on ISO & EIA/TIA Standards.		
	Nonmetallic, water resistant, rodent protected.		
	Indoor/outdoor fiber cable.		
	Arial fiber cable		
24	24-core Fiber optic cable OS2 Single Mode Loose Tube LSZH		
	Minimum tensile strength 2000N		
	Minimum crush resistance 2500N		
	UV-resistant		
	Certified for outdoor use		
	Shall be used to provide a 10G connection based on ISO & EIA/TIA Standards.		
	9m metal poles		
25	9m high.		
	Mounted on cement base by screws.		
	Shall be galvanized.		
	3m metal poles		
26	3m high.		
	Mounted on the building's wall.		
	Shall be galvanized.		
	Fiber-Optical pigtail		
27	Fiber-optical pigtails shall comply with ISO & EIA/TIA standards.		
	Shall be directly integrated into the SC duplex adapters in an optical patch panel.		
	Fiber-Optical Patch cords		
28	Optical fiber patch cords shall be factory-terminated using 50/9-micron MM/SM patch cords.		

	The fiber-optical type shall be visually recognizable according to the ISO & EIA/TIA standard color connectors.		
	Low-Smoke Zero-Halogen outer sheath.		
	Metric marking indicating the type of cable, year, ref., and number.		
	SC-LC duplex connectors.		
	Lengths of 2 meters.		
	Protection by a sleeve at each end.		
29	Trunks and conduits		
	The trunks shall be paintable		
	Trunks must-have accessories during the cable path, accessories shall be from the same vendor/brand.		
	The trunks and conduits shall contain horizontal (F/FTP or S/FTP) and vertical (Fiber) cables during the entire cable path.		
	The Trunks and conduits shall include flexible pipes, PVC pipes, and trunks of different sizes depending on the actual needs and any related accessories.		
	The accessories shall include the following types:		
	- COUPLER FITTING (EK).		
	- INSIDE CORNER (ID).		
	- OUTSIDE CORNER (DIS).		
	- T CORNER.		
	- L CORNER.		
	- End Cup (END).		
30	Heavy-Duty Metal Cable Tray with Cover		
	The minimum thickness of the metal trays and it's covers shall not be less than 2 mm		
	The metal trays shall have a solid bottom		
	The metal trays' dimensions (H = 5 cm), (W = 30 cm). The tray length shall be defined by the bidder based on the site's survey.		
	Any accessories required shall be provided based on the installation requirements		
31	UPS System (FOR THE IDF CABINETS)		
	Each network cabinet shall include UPS inline double conversion system to protect the active components.		
	The proposed UPSs and batteries devices shall fit inside the cabinets; the floor cabinets' dimensions are 800mm x 800mm and the communication room cabinets' dimensions are 800mm x 1000mm.		
	VRLA maintenance-free lead-based batteries (8) years lifetime		

	UPS shall be rack mountable and have in/out industrial socket; UPS must fit in the cabinet including electrical wiring from and to the UPS.		
	UPS input and output shall be based on single-phase industrial sockets		
	UPS shall include LCD Screen		
	Include network management interface SNMP		
32	VIDEO SURVEILLANCE System		
	EHS has an in-place centralized Video Surveillance System. one HIKVision 64 Channel NVR appliance is existing in the EHS data center and is used to manage and record the videos from the HIKVision 5 MPX cameras. The new IP cameras shall be integrated with the existing and new NVR solutions.		
	5 Megapixel indoor dome camera		
	1/3" Progressive Scan CMOS or CCD image sensor.		
	Lens: 3 - 9mm varies-focal lens		
	Image Resolution: 1280 x 960 or better		
	Alarm Trigger: Motion detection, tampering alarm, network disconnect, IP address conflict, storage full, storage error.		
	Protocols: TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, RTP, RTSP, RTCP, PPPoE, NTP, SMTP, SNMP, 802.1X, QoS, IPv6		
	Security: User Authentication		
	System Compatibility: ONVIF		
	Communication Interface: 1 RJ45 10M / 100M Ethernet interface		
	Power Supply: 12 VDC \pm 10% (including AC/ DC power transformer), and PoE (802.3af)		
	Edge storage: includes an SD card slot with a 16 GB memory card included for emergency recording.		
	IR Range: Approx. 10 meters		
	Motion detection.		
	Dual stream		
	Video Compression: H.264 / MPEG4 / MJPEG		
33	Electrical Preparations		

Main Power Cable (3x16mm) to feed the main distribution panel with the needed power from the main power panel of the site (building main electrical panel – emergency line). A 63A circuit breaker shall be installed in the main power panel for that purpose.		
Earthing & Bonding		
Shall check and fix the existing building's earthing system and install the new earthing system for the building if it does not exist/is functional.		
Earthing is a must for the entire structured cabling system components.		
Drainage		
Install a drainage point in the Communication Room (CR) room to connect the condensed water pipe.		



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