

**REQUEST FOR EXPRESSION OF INTEREST (EOI)  
DSITC OF EXTRA LOW VOLTAGE (ELV) AND INFORMATION AND  
COMMUNICATIONS TECHNOLOGY (ICT) WORKS FOR IMSF AT IISc  
CAMPUS, BANGALORE**



**EOI DOCUMENT  
DSITC OF EXTRA LOW VOLTAGE (ELV) WORKS  
No: IMSF ON BEHALF OF IISc/EOI – DSITC OF EXTRA LOW VOLTAGE (ELV) WORKS**

**Director,  
IISc Medical School Foundation, Bangalore – 560012.**

|                       |
|-----------------------|
| <b>EOI : OVERVIEW</b> |
|-----------------------|

The scope of work is Design, Supply, Installation, Testing, Commissioning and Handing Over of Extra Low Voltage (ELV) and Information and Communications Technology (ICT) works. The Proposed ELV works are suitable for operation below 50V for Alternating Current & 120V for Direct Current or as required having all features and requirement and complying with relevant IS / NBC / BS codes, standards & requirement of local regulations / authorities, including all liaisoning works to obtain approval / License from concerned State / Central Government authorities for Installation and Operation. The Proposed Rate shall include above said scope of works, packing, transport, all type of handling likes loading, unloading, lifting, storing, scaffolding etc., to complete the job considering all activities of Coordination with other agencies and components etc. All systems have to be supplied with 5 years on-site comprehensive warranty with an option to extend the same by another 2 years at mutually agreed prices (at the contract stage itself). The warranty has to be with 24 x 7 with a 6-hour Call To Response resolution (CTR) and Service Level Agreement (SLA)

**1. PROJECT BRIEF:**

The Proposed IMSF project is being constructed at Indian Institute of Science Campus, Bangalore - 560 012. The said Project is a combination of RCC and Steel Structure Building and it is 02 Basements + Ground + 9 Storeys + Helipad. Both basements are in RCC - Concrete Structure, but columns and roof framing works are in Structural Steel. The DSITC of ELV works are to be executed in co-ordination with all other services. The project details are listed below.

- Total number of Beds : 832 Nos.
- Type of Structure: RCC + Structural Steel.
- Total site area : 14.35 Acres.
- Total built up area : 14,67,478.62 Square feet.
- Total number of basements(B) : 02
- Building overall length (outer to outer) : Length 239.58mtrs x Breadth 90.41 Mtrs.
- Total height of the building : 49.85 Mtrs. (Including Helipad)
- Total number of blocks : 05 along with Core and Atrium areas etc., (A, B, C, D and E)
- Block A and Core areas (2B + GF + 03 upper floors + terrace) @ Height of 17.55 Mtrs
- Block B and Core areas (2B + GF + 09 upper floors + terrace) @ Height of 41.85 Mtrs
- Block C and Core areas (2B + GF + 09 upper floors + terrace) @ Height of 41.85 Mtrs.
- Block D (2B + GF + 07 upper floors + terrace) @ Height of 33.75 Mtrs
- Block E (GF + 05 upper floors + terrace) @ Height of 25.65 Mtrs.
- Atrium and Core areas.
- Basement 2 and 1 Parking Area – Partial areas.

**2. CONDITIONS OF EoIs:**

The Conditions of EoIs are the conditions upon which IMSF on behalf of IISc shall receive and evaluate EoIs. Failure to strictly observe these conditions may result in a EoI being rejected without evaluation. These are provided below.

**3. EoI FORM:**

The EoI Form is a form that is mandatory to be completed. You are advised to not separate the EoI Form from this RFP document. A EoI is likely to be rejected if the EoI Form is not used. A EoI must contain (or be accompanied by) all the information and details required by this RFP. EoI form is provided as Annexure-I.

The requirements & scope of SITC of ELV and ICT works are provided in Annexure-II.

#### 4. TECHNICAL PARAMETERS:

The EoIs must be submitted as per the format given in this EoI along with Confirmation on Technical Parameters by the prospective Contractor/agency on or before **05 February 2025**.

Enquires, and requests for further information about this E o I , should be directed to the Contact Officer as follows:

Contact Officer : Mrs. Dhanyasree S., Admin Executive  
IISc Medical School Foundation / Office of Admin, Deans Main Building  
IISc, Bangalore – 560 012  
Contact No 08022933584  
Email Id : [office@iiscmedicalschoolfoundation.org](mailto:office@iiscmedicalschoolfoundation.org)

#### 5A - TECHNICAL INFORMATION OF PARTICIPANT

- 5.1 COMPANY/FIRM REGISTRATION:** - The applicant/Company/Contractor should submit registration information under any one of CPWD, State PWD, MES, AAI and Municipal Corporations of any state of India or Any Government/Semi Government bodies of India.
- 5.2** The participant must possess valid License (Electrical Contractor or as applicable) from Karnataka State or Any State Licensing Board of India. (Copy of License must be attached along with tender).
- 5.3** Participant should have authorized/registered branch office, service centers, and service staff in Bangalore. Participant should provide supporting documentation.
- 5.4** The participant should submit experience document of successfully completed similar nature project list and supporting documents along with EOI as per clause 5.5.
- 5.5** Work completion certificate and work done detail like Work order, agreement number and date, the value of work, the date of commencement, the stipulated date of completion, the actual date of completion of the work and reason for delay (if any) should be provided. In case of any confirmation/verification of the data provided by the bidder, IMSF / PMC, may physically visit at site to verify for confirmation including detailed BOQ.
- 5.6** Definitions of Similar nature of work means, the bidder should have successfully completed in high-rise buildings. The Rates for ELV and ICT system Works shall be inclusive of all the work like Intelligent Addressable Fire Alarm System, TV and Signage Displays with Digital signage software, CCTV System, PA System, , Nurse Calling System, Access Control System, Firewall, , Video Conferencing System, Active and Passive networking, Wi-Fi System, Main server room–DATA center, IPBX System, Q–Management system, Entrance automation, Control cabling from / to control panel and associated sensors works, Parking Management system, Integrated building management system etc., for Healthcare building / Educational buildings/Institutional buildings / commercial building works.
- 5.7** The participant must be registered with the following statutory authorities and must furnish attested

copies of supporting documents of registration and latest return documents along with Govt. of Karnataka /Any other state of In India.

- a) ESIC
- b) EPFO
- c) Income Tax Department/ PAN
- d) Labour License and Electrical Contractor License
- e) GST

## 5 B - FINANCIAL CRITERIA

- 5.8** The participant should submit the average annual financial gross turnover for the last five years. It must be duly certified by the Chartered Accountant copy to be submitted as a Supporting document.
- 5.9** The participant should submit the annual financial turnover for any two consecutive years. It must be duly certified by the Chartered Accountant copy to be submitted as a Supporting document.
- 5.10** The participant should submit information of incurred any loss in consecutive two years with in last 05 financial years. It must be duly certified by the Chartered Accountant copy to be submitted as a Supporting document.
- 5.11** The participant should submit Income Tax Return copy for last five financial years, i.e. 2019-20, 2020-21, 2021-22, 2022- 23 and 2023-24. It must be duly certified by the Chartered Accountant copy to be submitted as a Supporting document.
- 5.12** The average net worth of the participant as of 2023-24 duly certified by the Chartered Accountant to be submitted.
- 5.13** Any State / Central Govt. Departments / BBMP / PSU / Central PSUs / Autonomous bodies/ Institutions should not have blacklisted the bidder in the last 05 Years. As a supporting document, an undertaking on stamp paper should be submitted by Bidder.
- 5.14 EXISTING COMMITMENTS AND ON-GOING WORKS:**

| Description of work | Place and State | Contract number and date | Name and address of the customer | Value of Contract in Lakhs | Stipulated period of completion | Value of work remaining to be completed in Lakhs | Anticipated date of completion |
|---------------------|-----------------|--------------------------|----------------------------------|----------------------------|---------------------------------|--|--------------------------------|
| 1                   | 2               | 3                        | 4                                | 5                          | 6                               | 7  | 8                              |
|                     |                 |                          |                                  |                            |                                 |  |                                |
|                     |                 |                          |                                  |                            |                                 |  |                                |

[Details to be furnished with necessary work order signed from concerned project in-charge not below the rank of Executive Engineer or Competent Authority. The Work order/Testimonials will be verified, if required].

**5.15 WORKS FOR WHICH TENDERS ALREADY SUBMITTED:**

| Description of work | Place and State | Name and address of the customer | Estimated value of work in lakhs | Stipulated period of completion | Date when decision is expected | Remarks, if any |
|---------------------|-----------------|----------------------------------|----------------------------------|---------------------------------|--------------------------------|-----------------|
| 1                   | 2               | 3                                | 4                                | 5                               | 6                              | 7               |
|                     |                 |                                  |                                  |                                 |                                |                 |
|                     |                 |                                  |                                  |                                 |                                |                 |

Certificate from Chartered Accountant stating turn over for the last five years also to be uploaded.

| Sl. No | Year    | Turnover amount | Remark |
|--------|---------|-----------------|--------|
| 1      | 2019-20 |                 |        |
| 2      | 2020-21 |                 |        |
| 3      | 2021-22 |                 |        |
| 4      | 2022-23 |                 |        |
| 5      | 2023-24 |                 |        |

All the Financial Criteria – Related documents must be attested/Certified by Chartered Accountant.

**5.16 LITIGATION AND ARBITRAL ISSUES:**

The participant should submit information of Net pending litigations history. As a supporting document, an undertaking letter to be submitted by bidder. Authorized Legal person / Advocate must certify the undertaking.

**5.17 Participant must fill all information in annexure -1 given in the EOI document.**

## Annexure-I

| <b>Scope of Work</b> |   | <b>To be filled by the participant</b> |  |  |  |  |
|----------------------|---|--|--|--|--|--|
| <b>Sr. No</b>        | <b>NAME OF SERVICES</b>   | <b>APPROX. QUANTIT Y</b>               | <b>SCOPE OF WORK</b>   | <b>Project Name where already completed the Work as stated in Name of services</b> | <b>Please specify which Service is part of WO (Yes/NO)</b> | <b>Value of Completed Work Value in Lakh</b> |
| <b>1</b>             | <p><b>PASSIVE, ACTIVE NETWORKING &amp; WIFI</b></p> <p>The Passive, Active, and Wi-Fi Networking System should ensure the smooth, reliable, and secure operation of a hospital's IT infrastructure. This system will serve as the foundation for all hospital network services, including patient data management, medical systems, and communication platforms. The scope of work includes the installation of fiber cables, CAT6, CAT6A cables, along with all necessary hardware and software to support a high-performance network throughout the hospital.</p> |  | <p>Design, Supply, Installation, Testing and Commissioning of Passive, Active &amp; WI-FI Networking System Including Cable Networking System (Fiber, CAT6, CAT6A) &amp; Associated Hardware &amp; Software works.</p> |  |  |  |

|   |   |   |  |  |  |  |
|---|---|---|--|--|--|--|
| a | <p><b>Passive Networking</b></p> <ul style="list-style-type: none"> <li>i. All Data Points for IT (HiS / PACS-RIS / Lab Equipment / Tele Medicine / OT etc.)</li> <li>ii. All Data Points for ELV (CCTV, ACS, NCS, PA, FAS)</li> <li>iii. All Data Points for Medical Equipment</li> <li>iv. All Voice Points</li> <li>v. For AV Points</li> <li>vi. Specific Needs for Research &amp; Data Sciences (All Simulation Labs &amp; All Research Labs)</li> <li>vii. RTLS (All)</li> <li>viii. Smart Cafeteria</li> <li>ix. WiFi</li> </ul> | <p><b>25000<br/>DATA<br/>POINTS</b></p> |  |  |  |  |
| b | <p><b>Active Network Components</b></p> <ul style="list-style-type: none"> <li>i. Core Switches (100Gig Auto Sensing)</li> <li>ii. Server Farm Switches (25 / 40Gig Auto Sensing)</li> <li>iii. Distribution Switches (40 / 100Gig Auto Sensing)</li> <li>iv. Edge Switches (1 / 10Gig Auto Sensing, Combo of PoE, PoE+ and Regular)</li> </ul> <p>for ALL the Passive Cabling as above</p>   | <p><b>500</b></p>                       |  |  |  |  |
| c | <p><b>Enterprise Class Wireless</b></p> <ul style="list-style-type: none"> <li>i. on-premises controllers</li> <li>ii. With Way Finder</li> <li>iii. AP Cum Beacon for RTLS</li> </ul>  | <p><b>800</b></p>                       |  |  |  |  |

|   |  |                           |  |  |  |  |
|---|--|---------------------------|--|--|--|--|
| d | <p><b>Network Monitoring Software for wired and wireless &amp; Hardware</b></p> <p>The Network Monitoring Software for wired and wireless networks is designed to provide comprehensive visibility and control over the entire network infrastructure, ensuring optimal performance and security. This system monitors both wired and wireless connections in real-time, allowing for quick identification and resolution of network issues.</p>   | As per Design             |  |  |  |  |
| e | <p><b>Network Access Control Software &amp; Hardware with AAA Server</b></p> <p>The Network Access Control (NAC) software and hardware, integrated with an AAA (Authentication, Authorization, and Accounting) server, provide a comprehensive solution to manage and secure access to the network. This system ensures that only authorized users and devices can connect to the hospital's network, safeguarding critical data and infrastructure.</p>   | As per Design             |  |  |  |  |
| 2 | <p><b>INTELLIGENT ADDRESSABLE FIRE DETECTION AND FIRE ALARM SYSTEM</b></p> <p>The Intelligent Addressable Fire Alarm and Fire Detection System should be a comprehensive, fault-tolerant, and highly reliable solution for ensuring fire safety in critical environments. With features like intelligent redundancy and 99.99% system availability, the system is designed to provide continuous protection. The equipment complies with the latest Electromagnetic Compatibility (EMC) directives, including EN, VdS, and UL certifications, ensuring the system meets stringent standards and prevents interference with other hospital systems.</p> <p>This system is well-suited to meet the complex needs of hospitals and similar facilities. The Intelligent Addressable Main Fire Alarm Control Panel will be equipped with 10 loop modules, each capable of supporting minimum 250 devices (detectors and modules), ensuring scalability to handle the diverse fire detection and alarm requirements of the facility.</p> | 11000 DETECTORS & DEVICES | Design, Supply, installation, testing, and commissioning of Intelligent addressable fire detection and fire alarm system works to ensuring hospital's infrastructure safety. This will ensure the safety of patients, staff, and visitors in a hospital. |  |  |  |



|                 |   |                    |  |  |  |  |
|-----------------|---|--------------------|--|--|--|--|
| <p><b>3</b></p> | <p><b>IP PUBLIC ADDRESS SYSTEM</b><br/> The IP Public Address and Voice Alarm System shall be designed to serve the purposes of making general announcements, playing music or to announce the fire tone under fire condition. These different signals are to be transmitted through the same set of speakers. Hence different levels of priorities shall be allotted to different signals. The music shall be with the least priority and fire tone having next priority and the emergency announcement having the highest priority level. The Public Address and Voice Evacuation System shall comprise of IP Enable Amplifier, Loudspeakers, High quality speakers, Audio rack all mounted on a Suitable Rack and fully connected and integrated with Fire Alarm System.</p> | <p><b>3000</b></p> | <p>Design, Supply, installation, and testing, and commissioning of IP Public address and voice alarm system works to serve the purposes of making general announcement, playing music or to announce the fire tone under fire condition. Different level of priorities shall be allotted to different signals.</p> |  |  |  |
|-----------------|---|--------------------|--|--|--|--|

|                 |   |  |   |  |  |  |
|-----------------|---|--|---|--|--|--|
| <p><b>4</b></p> | <p><b>IP SURVEILLANCE SYSTEM WITH VIDEO MANAGEMENT SYSTEM</b></p> <p>A comprehensive approach to the CCTV system design in a hospital requires a detailed understanding of the project requirements, including camera placement, coverage areas, camera types, network infrastructure, and storage solutions. Below are key considerations for the design, compliance, and selection of camera systems:</p> <p><b>1. Design Basis</b><br/> Coverage Area: Identify areas for effective camera placement.<br/> Resolution: Use appropriate resolution, such as 4K, for detailed monitoring.<br/> Storage: Ensure adequate capacity for video retention.<br/> Network Bandwidth: Ensure the network can handle high-resolution data.<br/> Privacy Compliance: Adhere to local laws and privacy regulations.</p> <p><b>2. Legal &amp; Regulatory Compliance</b><br/> GDPR &amp; Local Laws: Ensure compliance with data privacy laws.<br/> Signage: Place clear signage in monitored areas.<br/> Standards: Follow ISO/IEC 62676, BS EN 50132-7, and ONVIF standards.</p> <p><b>3. Camera Specifications</b><br/> Resolution: Choose cameras with 720p, 1080p, or 4K resolution.<br/> IR &amp; WDR: Select cameras with Day/Night mode and Wide Dynamic Range.<br/> Compression: Use H.264 or H.265 for efficient storage.<br/> Features: Include PoE support, motion detection, and intrusion alerts.</p> <p><b>4. Compliance &amp; Security</b><br/> Certifications: Ensure cameras meet certifications like NDAA, ROHS, and UL.<br/> IP Ratings: Use cameras with IP66/IP67 and IK10 ratings for durability.<br/> Encryption: Implement firmware encryption and HTTPS protocol for secure data.</p> <p><b>5. ONVIF Profiles</b><br/> Ensure cameras support ONVIF profiles (S, G, Q, T) for interoperability.</p> <p><b>6. Region Restrictions</b><br/> Ensure cameras are compliant with regional standards. For example, avoid cameras with components adhering to Chinese standards (e.g., GB 28181, GB/T-28181-2011). <b>Cameras should not be compliant with ROC (Region of China) requirements.</b></p> | <p><b>1400<br/>CCTV<br/>CAMERA</b></p> | <p>Design, Supply, installation, testing, and commissioning IP surveillance system works Including Hard ware and Software to maintaining the safety and security of a hospital. Its shall provide high-quality, real-time monitoring of critical areas helps protect patients, staff, and assets while ensuring compliance with safety regulations.</p> |  |  |  |
|-----------------|---|--|---|--|--|--|

|   |  |     |   |  |  |  |
|---|--|-----|---|--|--|--|
| 5 | <p><b>ACCESS CONTROL SYSTEM</b></p> <p>The Access Control System (ACS) should be an advanced, robust, and adaptable security solution designed to provide comprehensive protection for sensitive areas within a hospital or any critical facility. The system must be highly flexible, feature-rich, and scalable to meet the current and future needs of the facility, ensuring security is effectively managed across various departments and locations. It should provide a seamless security experience with enhanced event management capabilities, efficient monitoring, and a responsive security framework to address any evolving threats.</p>  | 500 | <p>Design, Supply, installation, testing, and commissioning of Access Control system works to ensuring access to authorized individuals to specific areas, protecting patients, staff, and sensitive information, and enhancing overall operational efficiency.</p> |  |  |  |
| 6 | <p><b>NURSE CALL SYSTEM</b></p> <p>The Nurse Call System should be designed to assist in emergency situations, ensuring quick responses to save lives and prevent risks. These systems can range from basic call functions to advanced systems that are tailored to meet the needs of modern healthcare, while complying with standards such as VDE 0834, ANSI/UL-1069, and EN 60950. The system includes hardware such as VoIP nurse consoles, network controllers, patient stations, battery backup power supplies, dome lights, controllers, annunciator panels, call cords, emergency push buttons,</p> <p>All necessary equipment, whether explicitly listed in the specifications or not, will be provided and installed to ensure a fully operational and integrated nurse/patient communication network.</p> | 850 | <p>Design, Supply, installation, testing, and commissioning of Nurse Call systems works specifically to help patient in emergency situations, to save lives and to prevent dangers.</p>   |  |  |  |

|                 |   |   |  |                |  |  |
|-----------------|---|---|--|----------------|--|--|
| <p><b>7</b></p> | <p><b>IP PBX System</b></p> <p>IP PBX System shall support with redundancy in hot/standby mode to accommodate 2,000 IP users from day one, with the flexibility for centralized or distributed architecture based on customer requirements, and the capability to upgrade to 10,000 IP users in the future. It should include a trunk line interface, a media gateway with survivability to support all types of terminals and applications as per specifications and should be fully complete.</p> <p>The offered system shall be modular in design and must support network resilience feature for IP Equipment's. The Architecture of the IP-PBX shall be capable of seamless migration to its maximum capacity by simply adding peripheral cards on the gateways without compromising on any function, features of this system or any degradation of service. The system shall support IP distributed architecture. IP access points shall be centrally administrable from the host system. Peer to Peer connectivity shall be possible on IP access points. The system should provide 19" rack mountable chassis. System should be ROHS complied as green product with power saving.</p> | <p><b>2000 IP<br/>TELEPHO<br/>NES &amp;<br/>COMMU<br/>NICATION<br/>SYSTEM</b></p> | <p>Design, installation, testing, and commissioning of IPBAX system works including cables (fibre, Cat 6, Cat 6a) &amp; associated hardware &amp; software</p> | <p>Supply,</p> |  |  |
|-----------------|---|---|--|----------------|--|--|

|   |  |                   |   |  |  |  |
|---|--|-------------------|---|--|--|--|
| 8 | <p><b>SERVER ROOM SAFETY COMPONENT</b></p> <p><b>Addressable Water Leak Detection System:</b><br/> An addressable water leak detection system is recommended to provide continuous protection against the risk of water and other conductive liquid leaks in the server room. This comprehensive system will include a digital monitoring unit, addressable sensing cables, and all necessary auxiliary equipment. The system should simultaneously detect and locate leaks and cable break faults.</p> <p><b>Ultrasonic Rodent Repellent System:</b><br/> To safeguard the server room voids, an ultrasonic rodent repellent system is proposed. This system uses high-frequency sound waves (above 20 kHz), which are inaudible to humans but irritate rodents, effectively driving them away. This will protect cables beneath the floor, above the ceiling, and within room voids from rodent damage.</p> <p><b>Very Early Smoke Detection Aspiration System:</b><br/> A very early smoke detection aspiration system, similar to the VESDA Laser System, is recommended for the server room. This system will feature highly sensitive laser-based smoke detectors with aspirators connected to a network of sampling pipes, ensuring prompt detection and protection against potential fire hazards.</p> | <p><b>LOT</b></p> | <p>Design, Supply, installation, testing, and commissioning of Very early smoke detection aspiration system, Rodent repellent system, Water leak detection system works including cables (Fiber, Cat6, Cat6a) &amp; associated hardware &amp; software for server room.</p> |  |  |  |
|---|--|-------------------|---|--|--|--|

|                 |  |  |   |  |  |  |
|-----------------|--|--|---|--|--|--|
| <p><b>9</b></p> | <p><b>IoT &amp; INTEGRATED BUILDING MANAGEMENT SYSTEM</b></p> <p>The Intelligent and Integrated Building Management System (IBMS) is a unified and comprehensive solution for managing HVAC, electrical, plumbing, and other technical systems within buildings.</p> <p>The IBMS will incorporate industry-standard communication networks, protocols, and operating systems, as illustrated in the figure below. The system will be designed to be fully modular, with the flexibility for expansion at any stage.</p> <p>To ensure fault-tolerant operation and a robust system design, the IBMS will incorporate distributed control techniques and apply principles of distributed intelligence wherever applicable. The software, controllers, sensors, and switches should all be sourced from the same manufacturer. The controllers and sensors must be EN/UL approved and comply with the requirements of the Electromagnetic Compatibility (EMC) Directive 2014/30/EU. The IBMS should be capable of integrating with security systems, as shown in the figure below. It will also enable remote monitoring, connectivity, and provide value-added services.</p> <p><b>System Components:</b></p> <ul style="list-style-type: none"> <li>HVAC System</li> <li>Electrical System</li> <li>PHE System</li> <li>IPBAX System</li> <li>Fire Suppression Systems (Monitoring only)</li> <li>All Types of Lifts, Dumbwaiters, Scissor Lifts, Escalators</li> <li>OT Environment Monitoring</li> <li>OT Isolation Panel</li> <li>Lighting Control System</li> <li>MGPS Plant</li> <li>LMO &amp; PSA Oxygen Generator Plant</li> <li>CSSD</li> </ul> | <p style="text-align: center;"><b>ALL SERVICES</b></p> | <p>Design, Supply, installation, testing, and commissioning of Integrated Building Management System (IBMS) works with centralized system that monitors and controls the complete Mechanical, Electrical, PHE, Firefighting, Lifts, Pneumatic tube system, STP, WTP, ETP, RO plant, kitchen equipment, laundry equipment, MGPS systems, all it equipment, medical equipment with necessary control &amp; monitoring along with helpdesk tools and third party software integration.</p> |  |  |  |
|-----------------|--|--|---|--|--|--|

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| WLDS / Rodent / Central Clock System<br>Queue Management System / Digital Signage<br>Parking Management System<br>Visitor Management System<br>RTLS / Wayfinding / Instrument Tracking System<br>High-end Medical Equipment Devices<br>Helipad Control System<br>Solar System<br>Nurse Call System<br>Kitchen & Laundry Equipment<br>OT Operating Panel |  |  |  |  |  |
|---|--|--|--|--|--|

|                  |   |                   |  |  |  |  |
|------------------|---|-------------------|--|--|--|--|
| <p><b>10</b></p> | <p><b>AUDIO AND VIDEO FOR AUDITORIUM, BOARD ROOM &amp; LECTURE HALLS</b></p> <p>The AV systems are designed for communication in auditoriums, meeting rooms, and lecture halls, supporting video conferencing and presentations.</p> <p><b>Audio Components</b></p> <p>Ceiling Mic: Automatic beamforming, certified for MS Teams and Zoom.DSP: Digital Signal Processor with network and USB channels, Dante support.</p> <p>Microphones: Lavalier, handheld, and gooseneck mics, wireless with UHF transmission and long battery life.</p> <p>Speakers: Beam-steering line arrays for targeted sound and ceiling speakers for background sound.</p> <p>Amplifier: 4-channel digital amplifier for clear sound.</p> <p><b>Video Components</b></p> <p>BYOD PC: Thin client PC with HDMI connectivity.</p> <p>Cameras: Audience and presenter tracking cameras with AI, 1080p video, and 20x zoom.</p> <p>Recording/Streaming: Multi-input hardware supporting live streaming, recording, and webcasting.</p> <p><b>Switching &amp; Interfaces</b></p> <p>AVoIP Encoder/Decoder: For high- quality video over IP with 4K support.</p> <p>Wireless Presentation: Device for wireless HDMI output.</p> <p>Power Supply: 24VDC wall mount power supply.</p> <p><b>Control System</b></p> <p>Processor: High-performance control processor with network protocols.</p> <p>Touch Panel: 10.1-inch PoE-powered touch screen.</p> <p>Button Panel: Wall-mounted control with customizable buttons.</p> <p>This system is designed for seamless, high-quality audio and video integration in the facility</p> | <p><b>LOT</b></p> | <p>Design, Supply, installation, testing, and commissioning of Audio and Video System works for auditorium, board room &amp; lecture room involves a detailed approach to ensure high-quality performance.</p> |  |  |  |
|------------------|---|-------------------|--|--|--|--|



|                  |   |                     |  |  |  |  |
|------------------|---|---------------------|--|--|--|--|
| <p><b>11</b></p> | <p><b>RTLS</b><br/> Our hospital seeks advanced RTLS solutions to improve efficiency, patient safety, and asset management. We invite vendors to submit proposals for an RTLS system that integrates with existing IT and clinical workflows, tracks assets, and supports up to 100,000 tags.<br/> Key Requirements:<br/> Hybrid Infrastructure: Use IoT-enabled Wi-Fi and Bluetooth gateways for coverage.<br/> Location Positioning: Healthcare-grade tags with RFID/Bluetooth and antimicrobial coating.<br/> Server Infrastructure: On-premise servers with failover and disaster recovery. The system should track 100,000 tags and provide 6 years of data storage.</p> | <p><b>10000</b></p> | <p>Design, installation, testing, and commissioning of RTLS system including cables (Fiber, Cat6, Cat6a) &amp; associated hardware &amp; software.</p> |  |  |  |
| <p><b>a</b></p>  | <p><b>Asset Management &amp; Tracking</b><br/> Efficient asset management and tracking are crucial for the smooth operation of hospitals. RTLS technology can monitor the location and status of various assets, including medical equipment, beds, wheelchairs, and other supplies. By tracking these assets in real-time, hospitals can optimize inventory management, reduce equipment downtime, and prevent loss or theft. Additionally, RTLS can help identify equipment that is overdue for maintenance or calibration, ensuring patients receive the highest quality care.</p>   |                     |  |  |  |  |

|                 |  |  |  |  |  |  |
|-----------------|--|--|--|--|--|--|
| <p><b>b</b></p> | <p><b>Patient Tracking, Staff Safety &amp; Visitor Tracking</b></p> <p>The hospital is deeply committed to ensuring the safety and well-being of its patients, staff, and visitors. The Real-Time Location System (RTLS) solution must play a crucial role in enhancing the safety of all individuals within the hospital premises. This advanced system should provide continuous, real-time tracking of staff, patients, and visitors, allowing for immediate response in the event of emergencies, distress calls, or unusual behaviour patterns.</p> <p>By enhancing the safety of patients, staff, and visitors, the RTLS solution can help the hospital create a more secure, efficient, and responsive environment. The system should be scalable to accommodate future growth and evolving technological advancements, ensuring that the hospital remains prepared for new challenges and opportunities in patient care and safety management.</p> |  |  |  |  |  |
| <p><b>b</b></p> | <p><b>Infant Safety</b></p> <p>The hospital places the highest priority on the safety of our infant patients. The ideal RTLS system will provide real-time tracking of infant locations, ensuring that they are always accounted for and preventing accidental abductions or misplacement. Additionally, the system should integrate seamlessly with our existing hospital information system to provide comprehensive monitoring and security measures for our infant patients.</p>   |  |  |  |  |  |
| <p><b>c</b></p> | <p><b>Operation Theater Utilization ( OT Patient Status Display)</b></p> <p>The hospital has 20 state-of-the-art operating theatres and is dedicated to optimizing the efficiency of our operating complex. We are seeking a cutting-edge Real-Time Location System (RTLS) solution specifically designed to enhance operational efficiency in the OR. The ideal RTLS system will provide real-time tracking of instruments, equipment, and staff within the OR, minimizing delays and improving patient turnover times. Additionally, the system should integrate with our existing hospital information system to provide valuable data for optimizing OR scheduling, resource allocation, and overall efficiency.</p>   |  |  |  |  |  |

|                 |   |  |  |  |  |  |
|-----------------|---|--|--|--|--|--|
| <p><b>d</b></p> | <p><b>Porter GDA Management</b></p> <p>The hospital is seeking to optimize general services operations by implementing a comprehensive, location-aware management system that operates with minimal supervision. The solution should effectively manage various aspects of the hospital’s general services, including housekeeping, maintenance, security, and transportation, ensuring smooth and efficient operations.</p> <p>Key features include:</p> <p><b>Real-Time Tracking:</b> Track assets, personnel, and service requests in real-time.</p> <p>Minimal Supervision: Automated processes reduce the need for constant oversight.</p> <p><b>System Integration:</b> Seamless connection with existing hospital systems.</p> <p><b>Service Management:</b> Streamline housekeeping, maintenance, and security tasks.</p> <p><b>Optimized Transportation:</b> Ensure timely movement of patients and equipment.</p> <p><b>Cost Reduction:</b> Improve resource allocation and operational efficiency.</p> <p><b>Enhanced Patient Satisfaction:</b> Faster, more efficient service delivery.</p> <p>This system will enhance efficiency, reduce costs, and improve patient satisfaction.</p> |  |  |  |  |  |
| <p><b>e</b></p> | <p><b>Facility Management</b></p> <p>The Hospital is seeking to optimize our facility management operations through the implementation of a cutting-edge Computer-Aided Facility Management (CAFM) system integrated with Real-Time Location System (RTLS) technology. The ideal CAFM-RTLS solution will provide real-time tracking of assets, equipment, and personnel within our facilities, enabling us to streamline maintenance schedules, optimize resource allocation, and improve overall facility efficiency. The system should also integrate with our existing building management systems to provide a comprehensive solution for managing our hospital's physical infrastructure.</p>  |  |  |  |  |  |

|   |   |  |  |  |  |  |
|---|---|--|--|--|--|--|
| f | <p><b>Digital Q Management System</b></p> <p>The hospital should provide a seamless and efficient patient experience. The comprehensive queue management system that can effectively manage patient wait times and improve overall patient satisfaction, while minimizing the waiting in front of the service points. The ideal system should utilize advanced technologies like real-time location systems (RTLS) to track patient progress and provide accurate wait time estimates. Additionally, the system should integrate with existing hospital information system to streamline the appointment scheduling process and optimize resource allocation. By implementing a robust queue management system, the aim to reduce patient frustration, improve operational efficiency, and enhance the overall quality of care.</p>                                       |  |  |  |  |  |
| g | <p><b>Wayfinding ( Indoor Navigation )</b></p> <p>The hospital is dedicated to providing a patient-centred and efficient experience for visitors and patients. We are seeking a cutting-edge wayfinding application that can guide individuals seamlessly through our facilities. The ideal application should utilize real-time location systems (RTLS) and advanced mapping technology to provide accurate and up-to-date directions, including information on department locations, amenities, and emergency exits. The application should be easily accessible through mobile devices and integrate with our existing hospital information system to ensure a seamless user experience. By implementing a robust wayfinding application, we aim to reduce confusion, improve patient satisfaction, and enhance the overall efficiency of our hospital operations.</p> |  |  |  |  |  |

|    |  |       |  |  |  |  |
|----|--|-------|--|--|--|--|
| 12 | <p><b>4K OT INTEGRATION, OT to AUDITORIUM &amp; LECTURE HALL</b></p> <p>The hospital seeks to enhance its teaching and learning capabilities by integrating 4K technology within the operating theatres (OT) and extending it to the auditorium and lecture halls. This system will enable high-definition, real-time streaming of surgeries and procedures from the OT to the auditorium and lecture halls for educational purposes. Key features include:</p> <p><b>4K Video Streaming:</b> High-quality, real-time video feeds from the operating theatre to the auditorium and lecture halls for training, conferences, or presentations.</p> <p><b>Remote Learning:</b> Enable medical professionals and students to observe procedures remotely, enhancing education and training opportunities.</p> <p><b>Integration with Hospital Systems:</b> Seamlessly connect the OT to the hospital's IT infrastructure, providing centralized access to recorded surgeries for future reference and analysis.</p> <p><b>Interactive Capabilities:</b> Allow for live commentary, discussions, and Q&amp;A during streaming sessions, facilitating interactive learning.</p> <p><b>Secure Access:</b> Ensure that the video feeds are protected and only accessible by authorized individuals to maintain patient confidentiality.</p> | 21 OT | Design, Supply, installation, and testing, and commissioning of 4k OT integration system works including cables (Fiber, Cat 6, Cat 6a) & associated hardware & software. |  |  |  |
|----|--|-------|--|--|--|--|

|    |   |     |  |             |  |  |
|----|---|-----|--|-------------|--|--|
| 13 | <p><b>DISPLAY(TV, SIGNAGE, Q MANAGEMENT), SMART DIGITAL SIGNAGE &amp; CONTENT MANAGEMENT SYSTEM</b></p> <p>The Bidder shall provide, install, and configure a comprehensive range of display solutions, including active LED screens, IPTV systems, interactive kiosks, and frame standees, to efficiently manage and deliver dynamic digital signage content across the entire hospital network. These display systems will be strategically positioned in high-traffic and key areas within the hospital, such as waiting rooms, lobbies, corridors, and service counters, to enhance communication, provide real-time updates, and improve the overall experience for patients, visitors, and staff.</p> <p>The system shall include all required hardware components, including but not limited to screens, media players, controllers, and related peripherals. Appropriate mounting solutions must be provided to ensure secure, safe, and optimal installation in each designated location, while maintaining aesthetic alignment with the hospital's environment. Additionally, the contractor shall ensure the supply of all necessary software licenses, content management tools, and access to technical support, ensuring that the system runs efficiently, remains reliable, and supports the hospital's ongoing operational needs.</p> | 600 | Design, installation, testing, and commissioning of display including cables (Fiber, Cat6, Cat 6a) & associated hardware & software. | Supply, and |  |  |
|----|---|-----|--|-------------|--|--|

|                  |  |  |  |  |  |  |
|------------------|--|--|--|--|--|--|
| <p><b>14</b></p> | <p><b>SMART PARKING MANAGEMENT SYSTEM</b></p> <p>The Parking Management System is designed to provide a more efficient, secure, and revenue-focused solution for managing parking operations. The system is built to be flexible and cost-effective, helping to reduce operational costs, increase profitability, and enhance security, all while improving the overall parking experience for users. Key features include:</p> <p><b>Revenue Security:</b> Secure management of parking fees with monitoring, reporting, and controlling capabilities.</p> <p><b>Efficient Operations:</b> Smart parking terminals with versatile software to streamline operations and optimize space usage.</p> <p><b>Customizable Configuration:</b> Flexible system configurations to meet the specific needs of different parking facilities.</p> <p><b>Service Integration:</b> Integration with valet parking, online booking, access control, and car finder modules for added convenience.</p> <p><b>Security:</b> Cameras for license plate recognition and driver images, with a 3-layer redundant system to ensure database security.</p> <p><b>Comprehensive Reporting:</b> Provides detailed reports on parking usage, revenue, and performance.</p> <p>This system enhances security, reduces costs, and improves both operational efficiency and user experience.</p> | <p><b>BASEMENT &amp; OPEN PARKING</b></p>              | <p>Design, Supply, installation, testing, and commissioning of Parking guidance system Works. Parking guidance system is designed to assist users to find their parking space easily within the IMSF Campus (indoor and outdoor) parking facility.</p> |  |  |  |
| <p><b>15</b></p> | <p><b>ENTRANCE AUTOMATION</b></p> <p>the entrance automation system, which includes baggage scanners, metal detectors, and hand-held metal detectors, plays a vital role in ensuring the safety and security of patients, staff, and visitors. These systems efficiently screen individuals and their belongings, detecting concealed weapons, explosives, and other prohibited items. By using advanced technology, the system provides a high level of security, preventing threats from entering sensitive hospital areas. This integration of security measures strengthens the overall safety infrastructure, offering reliable protection for both people and property in critical environments in hospitals.</p>  | <p><b>MAIN ENTRY &amp; EXIT PLUS BASEMENT RAMP</b></p> | <p>Design, Supply, installation, testing, and commissioning of Entrance Automation system works including cables (Fiber, Cat6, Cat6a) &amp; associated hardware &amp; software.</p>  |  |  |  |

|                  |   |                   |  |  |  |  |
|------------------|---|-------------------|--|--|--|--|
| <p><b>16</b></p> | <p><b>COUNSELLING AREA RECORDING SYSTEM</b><br/> The Bidder shall provide and install an on-premises system to manage and record counseling sessions with patients. The system must securely store session details, track patient progress, and be easily accessible by authorized personnel. The system must be designed with user-friendliness in mind, ensuring ease of use for healthcare professionals while maintaining the highest levels of data security and confidentiality, in compliance with relevant data protection and privacy regulations. The solution should integrate seamlessly with the hospital’s existing electronic health record (EHR) or hospital information system (HIS) for a unified approach to patient care.</p>   | <p><b>15</b></p>  | <p>Design, Supply, installation, testing, and commissioning of counselling area recording system works including cables (Fiber, Cat6, Cat6a) &amp; associated hardware &amp; software.</p> |  |  |  |
| <p><b>17</b></p> | <p><b>SMART CAFETERIA</b><br/> The Smart Cafeteria shall integrate advanced hardware and software to automate and optimize cafeteria operations. It will cover every aspect of the dining experience, including meal order processing, billing and payment, food waste monitoring, and inventory management.<br/> Key features include:<br/> <b>Digital Signage:</b> Displays dynamic menus and updates in real time.<br/> <b>Chef Kiosks:</b> Streamlines food preparation by managing incoming orders efficiently.<br/> <b>Self-Service Ordering Kiosks:</b> Enables users to place orders and make payments quickly and independently.<br/> <b>POS Systems:</b> Facilitates seamless billing and supports multiple payment methods.<br/> <b>Smart Mobile App:</b> Allows users to pre-order meals, make payments, and track order status for added convenience.<br/> This system eliminates long queues, enhances operational efficiency, and ensures a seamless dining experience, making it a complete solution for modern cafeteria management.</p> | <p><b>LOT</b></p> | <p>Design, Supply, installation, testing, and commissioning of Smart Cafeteria system works including cables (Fiber, Cat 6, Cat 6a) &amp; associated hardware &amp; software.</p>          |  |  |  |



|                  |   |            |  |  |  |  |
|------------------|---|------------|--|--|--|--|
| <p><b>18</b></p> | <p><b>WIRELESS CLOCK SYSTEM</b> The Wireless Clock System shall be integrated with Windows Active Directory and synchronized through an NTP server, providing hospitals with a secure, scalable, and precise timekeeping solution. This advanced system ensures accurate time synchronization, centralized management, and seamless integration into the hospital’s IT infrastructure, meeting the critical demands of healthcare environments.</p> <p>Key Features</p> <p><b>Integration with Windows Active Directory (AD)</b><br/>Leverages Active Directory for secure user authentication and centralized management.<br/>Ensures role-based access control, allowing only authorized personnel to manage clocks and configurations.<br/>Centralized policies enable efficient deployment and configuration across the hospital network.</p> <p><b>Time Synchronization via NTP Server</b><br/>Synchronizes all clocks with an on-premises or networked Network Time Protocol (NTP) server, ensuring precise timekeeping aligned with Indian Standard Time (IST).The NTP server ensures consistency across all devices, eliminating discrepancies in time-sensitive environments.</p> <p><b>Wireless Communication</b><br/>Wireless technology eliminates the need for hard wiring, offering flexible installation options in diverse hospital areas.<br/>Real-time updates ensure clocks remain synchronized without manual intervention.</p> <p><b>Daylight Saving Time Adjustments</b><br/>Automatically adjusts clocks for Daylight Saving Time (if applicable), ensuring uninterrupted accuracy year-round.</p> <p><b>Scalability and Flexibility</b><br/>The system can easily scale to include additional clocks or new departments as the hospital expands.<br/>Wireless deployment supports installation in any location, including operating rooms, ICUs, and public areas.<br/>Supports centralized control and monitoring of all clocks from a single interface.</p> | <p>100</p> | <p>Design, Supply, installation, testing, and commissioning of wireless clock system Works for time synchronization setup used in hospitals to ensure all clocks display the same accurate</p> |  |  |  |
|------------------|---|------------|--|--|--|--|

|    |   |     |  |  |  |  |
|----|---|-----|--|--|--|--|
| 19 | <p><b>IBS (IN-BUILDING SERVICES) MOBILE NETWORK 4G &amp; 5G</b><br/> In-Building Services (IBS) are essential for enhancing mobile network coverage and capacity within hospitals, ensuring seamless 4G and 5G connectivity for patients, staff, and visitors. With the rapid adoption of mobile-based healthcare applications, reliable indoor coverage is a necessity for operational efficiency, patient experience, and critical communication.<br/> Key Features<br/> <b>Seamless 4G &amp; 5G Coverage:</b> Provides strong signal strength across all hospital areas, including basements and operating rooms.<br/> <b>Distributed Antenna System (DAS):</b> Amplifies signal and ensures connectivity in hard-to-reach areas.<br/> <b>High Capacity &amp; Low Latency:</b> Supports multiple users and real-time data transfer, essential for critical healthcare communication.</p> | LOT | Design, Supply, installation, testing, and commissioning of IBS System with electrical supply for connectivity of IBS.     |  |  |  |
| 20 | <p><b>FIRE STOP/FIRE SEAL AND SMOKE SEAL</b><br/> Fire Stop, Fire Seal, and Smoke Seal systems are critical components in hospital construction and renovation, ensuring fire safety and compliance with building codes. These systems are designed to prevent the spread of smoke, fire, and heat, especially in hospitals where the safety of patients, staff, and visitors is a top priority.'</p>   | LOT | Design, Supply, installation, testing, and commissioning of fire stop/fire seal and smoke seal works.                      |  |  |  |
| 21 | <p><b>MISCELLANEOUS WORKS</b><br/> The miscellaneous works related to pipes, cable trays, junction boxes, and other infrastructure components are essential to the hospital's overall safety, efficiency, and smooth operation. These elements serve as the backbone of the hospital's electrical and mechanical systems, supporting critical functions that affect patient care, staff operations, and hospital management.</p>  | LOT | Design, Supply, installation, testing, and commissioning of miscellaneous works of Pipes, Cable trays, Junction boxes etc. |  |  |  |

## Annexure-II

| ELV SYSTEM SCOPE OF WORK |  |                           |   |
|--------------------------|--|---------------------------|---|
| Sr. No                   | NAME OF SERVICES   | APPROX. QUANTITY          | SCOPE OF WORK   |
| 1                        | <p><b>PASSIVE, ACTIVE NETWORKING &amp; WIFI</b></p> <p>The Passive, Active, and Wi-Fi Networking System should ensure the smooth, reliable, and secure operation of a hospital's IT infrastructure. This system will serve as the foundation for all hospital network services, including patient data management, medical systems, and communication platforms. The scope of work includes the installation of fiber cables, CAT6, CAT6A cables, along with all necessary hardware and software to support a high-performance network throughout the hospital.</p>  |                           |   |
| a                        | <p><b>Passive Networking</b></p> <p>i. All Data Points for IT (HIS / PACS-RIS / Lab Equipment / Tele Medicine / OT etc.)<br/>                     ii. All Data Points for ELV (CCTV, ACS, NCS, PA, FAS)<br/>                     iii. All Data Points for Medical Equipment<br/>                     iv. All Voice Points<br/>                     v. For AV Points<br/>                     vi. Specific Needs for Research &amp; Data Sciences (All Simulation Labs &amp; All Research Labs)<br/>                     vii. RTLS (All)<br/>                     viii. Smart Cafeteria<br/>                     ix. WiFi</p>   | 25000 DATA POINTS         | Design, Supply, Installation, Testing and Commissioning of Passive ,Active & WI-FI Networking System Including Cable Networking System (Fiber, CAT6, CAT6A) & Associated Hardware & Software works.   |
| b                        | <p><b>Active Network Components</b></p> <p>i. Core Switches (100Gig Auto Sensing)<br/>                     ii. Server Farm Switches (25 / 40Gig Auto Sensing)<br/>                     iii. Distribution Switches (40 / 100Gig Auto Sensing)<br/>                     iv. Edge Switches (1 /10Gig Auto Sensing, Combo of PoE, PoE+ and Regular) for ALL the Passive Cabling as above</p>   | 500                       |   |
| c                        | <p><b>Enterprise Class Wireless</b></p> <p>i. on-premises controllers<br/>                     ii. With Way Finder<br/>                     iii. AP Cum Beacon for RTLS</p>  | 800                       |   |
| d                        | <p><b>Network Monitoring Software for wired and wireless &amp; Hardware</b></p> <p>The Network Monitoring Software for wired and wireless networks is designed to provide comprehensive visibility and control over the entire network infrastructure, ensuring optimal performance and security. This system monitors both wired and wireless connections in real-time, allowing for quick identification and resolution of network issues.</p>   | As per Design             |   |
| e                        | <p><b>Network Access Control Software &amp; Hardware with AAA Server</b></p> <p>The Network Access Control (NAC) software and hardware, integrated with an AAA (Authentication, Authorization, and Accounting) server, provide a comprehensive solution to manage and secure access to the network. This system ensures that only authorized users and devices can connect to the hospital's network, safeguarding critical data and infrastructure.</p>   | As per Design             |   |
| 2                        | <p><b>INTELLIGENT ADDRESSABLE FIRE DETECTION AND FIRE ALARM SYSTEM</b></p> <p>The Intelligent Addressable Fire Alarm and Fire Detection System should be a comprehensive, fault-tolerant, and highly reliable solution for ensuring fire safety in critical environments. With features like intelligent redundancy and 99.99% system availability, the system is designed to provide continuous protection. The equipment complies with the latest Electromagnetic Compatibility (EMC) directives, including EN, VdS, and UL certifications, ensuring the system meets stringent standards and prevents interference with other hospital systems.</p> <p>This system is well-suited to meet the complex needs of hospitals and similar facilities. The Intelligent Addressable Main Fire Alarm Control Panel will be equipped with 10 loop modules, each capable of supporting minimum 250 devices (detectors and modules), ensuring scalability to handle the diverse fire detection and alarm requirements of the facility.</p> | 11000 DETECTORS & DEVICES |   |
| 3                        | <p><b>IP PUBLIC ADDRESS SYSTEM</b></p> <p>The IP Public Address and Voice Alarm System shall be designed to serve the purposes of making general announcements, playing music or to announce the fire tone under fire condition. These different signals are to be transmitted through the same set of speakers. Hence different levels of priorities shall be allotted to different signals. The music shall be with the least priority and fire tone having next priority and the emergency announcement having the highest priority level. The Public Address and Voice Evacuation System shall comprise of IP Enable Amplifier, Loudspeakers, High quality speakers, Audio rack all mounted on a Suitable Rack and fully connected and integrated with Fire Alarm System.</p>  | 3000                      | Design, Supply, installation, testing, and commissioning of IP Public address and voice alarm system works to serve the purposes of making general announcement, playing music or to announce the fire tone under fire condition. Different level of priorities shall be allotted to different signals. |

|                 |  |   |  |
|-----------------|--|---|--|
| <p><b>4</b></p> | <p><b>IP SURVEILLANCE SYSTEM WITH VIDEO MANAGEMENT SYSTEM</b></p> <p>A comprehensive approach to the CCTV system design in a hospital requires a detailed understanding of the project requirements, including camera placement, coverage areas, camera types, network infrastructure, and storage solutions. Below are key considerations for the design, compliance, and selection of camera systems:</p> <p><b>1. Design Basis</b></p> <p>Coverage Area: Identify areas for effective camera placement.<br/> Resolution: Use appropriate resolution, such as 4K, for detailed monitoring.<br/> Storage: Ensure adequate capacity for video retention.<br/> Network Bandwidth: Ensure the network can handle high-resolution data.<br/> Privacy Compliance: Adhere to local laws and privacy regulations.</p> <p><b>2. Legal &amp; Regulatory Compliance</b></p> <p>GDPR &amp; Local Laws: Ensure compliance with data privacy laws.<br/> Signage: Place clear signage in monitored areas.<br/> Standards: Follow ISO/IEC 62676, BS EN 50132-7, and ONVIF standards.</p> <p><b>3. Camera Specifications</b></p> <p>Resolution: Choose cameras with 720p, 1080p, or 4K resolution.<br/> IR &amp; WDR: Select cameras with Day/Night mode and Wide Dynamic Range.<br/> Compression: Use H.264 or H.265 for efficient storage.<br/> Features: Include PoE support, motion detection, and intrusion alerts.</p> <p><b>4. Compliance &amp; Security</b></p> <p>Certifications: Ensure cameras meet certifications like NDAA, ROHS, and UL.<br/> IP Ratings: Use cameras with IP66/IP67 and IK10 ratings for durability.<br/> Encryption: Implement firmware encryption and HTTPS protocol for secure data.</p> <p><b>5. ONVIF Profiles</b></p> <p>Ensure cameras support ONVIF profiles (S, G, Q, T) for interoperability.</p> <p><b>6. Region Restrictions</b></p> <p>Ensure cameras are compliant with regional standards. For example, avoid cameras with components adhering to Chinese standards (e.g., GB 28181, GB/T-28181-2011).<br/> <b>Cameras should not be compliant with ROC (Region of China) requirements.</b></p> | <p style="text-align: center;"><b>1400 CCTV CAMERA</b></p>                              | <p>Design, Supply, installation, testing, and commissioning IP surveillance system works Including Hard ware and Software to maintaining the safety and security of a hospital. Its shall provide high- quality, real-time monitoring of critical areas helps protect patients, staff, and assets while ensuring compliance with safety regulations.</p> |
| <p><b>5</b></p> | <p><b>ACCESS CONTROL SYSTEM</b></p> <p>The Access Control System (ACS) should be an advanced, robust, and adaptable security solution designed to provide comprehensive protection for sensitive areas within a hospital or any critical facility. The system must be highly flexible, feature-rich, and scalable to meet the current and future needs of the facility, ensuring security is effectively managed across various departments and locations. It should provide a seamless security experience with enhanced event management capabilities, efficient monitoring, and a responsive security framework to address any evolving threats.</p>  | <p style="text-align: center;"><b>500</b></p>   | <p>Design, Supply, installation, testing, and commissioning of Access Control system works to ensuring access to authorized individuals to specific areas, protecting patients, staff, and sensitive information, and enhancing overall operational efficiency.</p>  |
| <p><b>6</b></p> | <p><b>NURSE CALL SYSTEM</b></p> <p>The Nurse Call System should be designed to assist in emergency situations, ensuring quick responses to save lives and prevent risks. These systems can range from basic call functions to advanced systems that are tailored to meet the needs of modern healthcare, while complying with standards such as VDE 0834, ANSI/UL-1069, and EN 60950. The system includes hardware such as VoIP nurse consoles, network controllers, patient stations, battery backup power supplies, dome lights, controllers, annunciator panels, call cords, emergency push buttons, All necessary equipment, whether explicitly listed in the specifications or not, will be provided and installed to ensure a fully operational and integrated nurse/patient communication network.</p>  | <p style="text-align: center;"><b>850</b></p>   | <p>Design, Supply, installation, testing, and commissioning of Nurse Call systems works specifically to help patient in emergency situations, to save lives and to prevent dangers.</p>  |
| <p><b>7</b></p> | <p><b>IP PBX System</b></p> <p>IP PBX System shall support with redundancy in hot/standby mode to accommodate 2,000 IP users from day one, with the flexibility for centralized or distributed architecture based on customer requirements, and the capability to upgrade to 10,000 IP users in the future. It should include a trunk line interface, a media gateway with survivability to support all types of terminals and applications as per specifications and should be fully complete. The offered system shall be modular in design and must support network resilience feature for IP Equipment's. The Architecture of the IP-PBX shall be capable of seamless migration to its maximum capacity by simply adding peripheral cards on the gateways without compromising on any function, features of this system or any degradation of service. The system shall support IP distributed architecture. IP access points shall be centrally administrable from the host system. Peer to Peer connectivity shall be possible on IP access points. The system should provide 19" rack mountable chassis. System should be ROHS complied as green product with power saving.</p>   | <p style="text-align: center;"><b>2000 IP TELEPHONES &amp; COMMUNICATION SYSTEM</b></p> | <p>Design, Supply, installation, testing, and commissioning of IPBAX system works including cables (fibre, Cat 6, Cat 6a) &amp; associated hardware &amp; software</p>   |

|    |   |              |  |
|----|---|--------------|--|
| 8  | <p><b>SERVER ROOM SAFETY COMPONENT</b></p> <p><b>Addressable Water Leak Detection System:</b><br/>An addressable water leak detection system is recommended to provide continuous protection against the risk of water and other conductive liquid leaks in the server room. This comprehensive system will include a digital monitoring unit, addressable sensing cables, and all necessary auxiliary equipment. The system should simultaneously detect and locate leaks and cable break faults.</p> <p><b>Ultrasonic Rodent Repellent System:</b><br/>To safeguard the server room voids, an ultrasonic rodent repellent system is proposed. This system uses high-frequency sound waves (above 20 kHz), which are inaudible to humans but irritate rodents, effectively driving them away. This will protect cables beneath the floor, above the ceiling, and within room voids from rodent damage.</p> <p><b>Very Early Smoke Detection Aspiration System:</b><br/>A very early smoke detection aspiration system, similar to the VESDA Laser System, is recommended for the server room. This system will feature highly sensitive laser-based smoke detectors with aspirators connected to a network of sampling pipes, ensuring prompt detection and protection against potential fire hazards.</p>   | LOT          | Design, Supply, installation, testing, and commissioning of Very early smoke detection aspiration system, Rodent repellent system, Water leak detection system works including cables (Fiber, Cat6, Cat6a) & associated hardware & software for server room.   |
| 9  | <p><b>IoT &amp; INTEGRATED BUILDING MANAGEMENT SYSTEM</b></p> <p>The Intelligent and Integrated Building Management System (IBMS) is a unified and comprehensive solution for managing HVAC, electrical, plumbing, and other technical systems within buildings.</p> <p>The IBMS will incorporate industry-standard communication networks, protocols, and operating systems, as illustrated in the figure below. The system will be designed to be fully modular, with the flexibility for expansion at any stage.</p> <p>To ensure fault-tolerant operation and a robust system design, the IBMS will incorporate distributed control techniques and apply principles of distributed intelligence wherever applicable.</p> <p>The software, controllers, sensors, and switches should all be sourced from the same manufacturer. The controllers and sensors must be EN/UL approved and comply with the requirements of the Electromagnetic Compatibility (EMC) Directive 2014/30/EU. The IBMS should be capable of integrating with security systems, as shown in the figure below. It will also enable remote monitoring, connectivity, and provide value-added services.</p> <p><b>System Components:</b><br/> HVAC System<br/> Electrical System<br/> PHE System<br/> IPBAX System<br/> Fire Suppression Systems (Monitoring only)<br/> All Types of Lifts, Dumbwaiters, Scissor Lifts, Escalators<br/> OT Environment Monitoring<br/> OT Isolation Panel<br/> Lighting Control System<br/> MGPS Plant<br/> LMO &amp; PSA Oxygen Generator Plant<br/> CSSD<br/> WLDS / Rodent / Central Clock System<br/> Queue Management System / Digital Signage<br/> Parking Management System<br/> Visitor Management System<br/> RTLS / Wayfinding / Instrument Tracking System<br/> High-end Medical Equipment Devices<br/> Helipad Control System<br/> Solar System<br/> Nurse Call System<br/> Kitchen &amp; Laundry Equipment<br/> OT Operating Panel</p> | ALL SERVICES | Design, Supply, installation, testing, and commissioning of Integrated Building Management System (IBMS) works with centralized system that monitors and controls the complete Mechanical, Electrical, PHE, Firefighting, Lifts, Pneumatic tube system, STP, WTP, ETP, RO plant, kitchen equipment, laundry equipment, MGPS systems, all it equipment, medical equipment with necessary control & monitoring along with helpdesk tools and third party software integration. |
| 10 | <p><b>AUDIO AND VIDEO FOR AUDITORIUM , BOARD ROOM &amp; LECTURE HALLES</b></p> <p>The AV systems are designed for communication in auditoriums, meeting rooms, and lecture halls, supporting video conferencing and presentations.</p> <p><b>Audio Components</b><br/> Ceiling Mic: Automatic beamforming, certified for MS Teams and Zoom.<br/> DSP: Digital Signal Processor with network and USB channels, Dante support.<br/> Microphones: Lavalier, handheld, and gooseneck mics, wireless with UHF transmission and long battery life.<br/> Speakers: Beam-steering line arrays for targeted sound and ceiling speakers for background sound.<br/> Amplifier: 4-channel digital amplifier for clear sound.</p> <p><b>Video Components</b><br/> BYOD PC: Thin client PC with HDMI connectivity.<br/> Cameras: Audience and presenter tracking cameras with AI, 1080p video, and 20x zoom.<br/> Recording/Streaming: Multi-input hardware supporting live streaming, recording, and webcasting.</p> <p><b>Switching &amp; Interfaces</b><br/> AVoIP Encoder/Decoder: For high-quality video over IP with 4K support.<br/> Wireless Presentation: Device for wireless HDMI output.<br/> Power Supply: 24VDC wall mount power supply.</p> <p><b>Control System</b><br/> Processor: High-performance control processor with network protocols.<br/> Touch Panel: 10.1-inch PoE-powered touch screen.<br/> Button Panel: Wall-mounted control with customizable buttons.<br/> This system is designed for seamless, high-quality audio and video integration in the facility</p>  | LOT          | Design, Supply, installation, testing, and commissioning of Audio and Video System works for auditorium, board room & lecture room involves a detailed approach to ensure high-quality performance.  |

|    |  |       |   |
|----|--|-------|---|
| 11 | <p><b>RTLS</b></p> <p>Our hospital seeks advanced RTLS solutions to improve efficiency, patient safety, and asset management. We invite vendors to submit proposals for an RTLS system that integrates with existing IT and clinical workflows, tracks assets, and supports up to 100,000 tags.</p> <p>Key Requirements:</p> <p>Hybrid Infrastructure: Use IoT-enabled Wi-Fi and Bluetooth gateways for coverage.</p> <p>Location Positioning: Healthcare-grade tags with RFID/Bluetooth and antimicrobial coating.</p> <p>Server Infrastructure: On-premise servers with failover and disaster recovery. The system should track 100,000 tags and provide 6 years of data storage.</p>  |       |   |
| a  | <p><b>Asset Management &amp; Tracking</b></p> <p>Efficient asset management and tracking are crucial for the smooth operation of hospitals. RTLS technology can monitor the location and status of various assets, including medical equipment, beds, wheelchairs, and other supplies. By tracking these assets in real-time, hospitals can optimize inventory management, reduce equipment downtime, and prevent loss or theft. Additionally, RTLS can help identify equipment that is overdue for maintenance or calibration, ensuring patients receive the highest quality care.</p>  |       |   |
| b  | <p><b>Patient Tracking ,Staff Safety &amp; Visitor Tracking</b></p> <p>The hospital is deeply committed to ensuring the safety and well-being of its patients, staff, and visitors. The Real-Time Location System (RTLS) solution must play a crucial role in enhancing the safety of all individuals within the hospital premises. This advanced system should provide continuous, real-time tracking of staff, patients, and visitors, allowing for immediate response in the event of emergencies, distress calls, or unusual behavior patterns.</p> <p>By enhancing the safety of patients, staff, and visitors, the RTLS solution can help the hospital create a more secure, efficient, and responsive environment. The system should be scalable to accommodate future growth and evolving technological advancements, ensuring that the hospital remains prepared for new challenges and opportunities in patient care and safety management.</p>  |       |   |
| b  | <p><b>Infant Safety</b></p> <p>The hospital places the highest priority on the safety of our infant patients. The ideal RTLS system will provide real-time tracking of infant locations, ensuring that they are always accounted for and preventing accidental abductions or misplacement. Additionally, the system should integrate seamlessly with our existing hospital information system to provide comprehensive monitoring and security measures for our infant patients.</p>   |       |   |
| c  | <p><b>Operation Theater Utilization ( OT Patient Status Display)</b></p> <p>The hospital has 20 state-of-the-art operating theatres and is dedicated to optimizing the efficiency of our operating complex. We are seeking a cutting-edge Real-Time Location System (RTLS) solution specifically designed to enhance operational efficiency in the OR. The ideal RTLS system will provide real-time tracking of instruments, equipment, and staff within the OR, minimizing delays and improving patient turnover times. Additionally, the system should integrate with our existing hospital information system to provide valuable data for optimizing OR scheduling, resource allocation, and overall efficiency.</p>   |       |   |
| d  | <p><b>Porter GDA Management</b></p> <p>The hospital is seeking to optimize general services operations by implementing a comprehensive, location-aware management system that operates with minimal supervision. The solution should effectively manage various aspects of the hospital's general services, including housekeeping, maintenance, security, and transportation, ensuring smooth and efficient operations.</p> <p>Key features include:</p> <p><b>Real-Time Tracking:</b> Track assets, personnel, and service requests in real-time.</p> <p><b>Minimal Supervision:</b> Automated processes reduce the need for constant oversight.</p> <p><b>System Integration:</b> Seamless connection with existing hospital systems.</p> <p><b>Service Management:</b> Streamline housekeeping, maintenance, and security tasks.</p> <p><b>Optimized Transportation:</b> Ensure timely movement of patients and equipment.</p> <p><b>Cost Reduction:</b> Improve resource allocation and operational efficiency.</p> <p><b>Enhanced Patient Satisfaction:</b> Faster, more efficient service delivery.</p> <p>This system will enhance efficiency, reduce costs, and improve patient satisfaction.</p> | 10000 | Design, Supply, installation, testing, and commissioning of RTLS system including cables (Fiber, Cat6, Cat6a) & associated hardware & software. |
| e  | <p><b>Facility Management</b></p> <p>The Hospital is seeking to optimize our facility management operations through the implementation of a cutting-edge Computer-Aided Facility Management (CAFM) system integrated with Real-Time Location System (RTLS) technology. The ideal CAFM-RTLS solution will provide real-time tracking of assets, equipment, and personnel within our facilities, enabling us to streamline maintenance schedules, optimize resource allocation, and improve overall facility efficiency. The system should also integrate with our existing building management systems to provide a comprehensive solution for managing our hospital's physical infrastructure.</p>   |       |   |

|    |  |                         |   |
|----|--|-------------------------|---|
| f  | <p><b>Digital Q Management System</b><br/>The hospital should provide a seamless and efficient patient experience. The comprehensive queue management system that can effectively manage patient wait times and improve overall patient satisfaction, while minimizing the waiting in front of the service points. The ideal system should utilize advanced technologies like real-time location systems (RTLs) to track patient progress and provide accurate wait time estimates. Additionally, the system should integrate with existing hospital information system to streamline the appointment scheduling process and optimize resource allocation. By implementing a robust queue management system, the aim to reduce patient frustration, improve operational efficiency, and enhance the overall quality of care.</p>   |                         |   |
| g  | <p><b>Wayfinding ( Indoor Navigation )</b><br/>The hospital is dedicated to providing a patient-centred and efficient experience for visitors and patients. We are seeking a cutting-edge wayfinding application that can guide individuals seamlessly through our facilities. The ideal application should utilize real-time location systems (RTLs) and advanced mapping technology to provide accurate and up-to-date directions, including information on department locations, amenities, and emergency exits. The application should be easily accessible through mobile devices and integrate with our existing hospital information system to ensure a seamless user experience. By implementing a robust wayfinding application, we aim to reduce confusion, improve patient satisfaction, and enhance the overall efficiency of our hospital operations.</p>   |                         |   |
| 12 | <p><b>4K OT INTEGRATION, OT to AUDITORIUM &amp; LECTURE HALL</b><br/>The hospital seeks to enhance its teaching and learning capabilities by integrating 4K technology within the operating theatres (OT) and extending it to the auditorium and lecture halls. This system will enable high-definition, real-time streaming of surgeries and procedures from the OT to the auditorium and lecture halls for educational purposes.<br/>Key features include:<br/><b>4K Video Streaming:</b> High-quality, real-time video feeds from the operating theatre to the auditorium and lecture halls for training, conferences, or presentations.<br/><b>Remote Learning:</b> Enable medical professionals and students to observe procedures remotely, enhancing education and training opportunities.<br/><b>Integration with Hospital Systems:</b> Seamlessly connect the OT to the hospital's IT infrastructure, providing centralized access to recorded surgeries for future reference and analysis.<br/><b>Interactive Capabilities:</b> Allow for live commentary, discussions, and Q&amp;A during streaming sessions, facilitating interactive learning.<br/><b>Secure Access:</b> Ensure that the video feeds are protected and only accessible by authorized individuals to maintain patient confidentiality.</p>                               | 21 OT                   | Design, Supply, installation, testing, and commissioning of 4k OT integration system works including cables (Fiber, Cat 6, Cat 6a) & associated hardware & software.  |
| 13 | <p><b>DISPLAY(TV, SIGNAGE, Q MANAGEMENT), SMART DIGITAL SIGNAGE &amp; CONTENT MANAGEMENT SYSTEM</b><br/>The Bidder shall provide, install, and configure a comprehensive range of display solutions, including active LED screens, IPTV systems, interactive kiosks, and frame standees, to efficiently manage and deliver dynamic digital signage content across the entire hospital network. These display systems will be strategically positioned in high-traffic and key areas within the hospital, such as waiting rooms, lobbies, corridors, and service counters, to enhance communication, provide real-time updates, and improve the overall experience for patients, visitors, and staff.<br/><br/>The system shall include all required hardware components, including but not limited to screens, media players, controllers, and related peripherals. Appropriate mounting solutions must be provided to ensure secure, safe, and optimal installation in each designated location, while maintaining aesthetic alignment with the hospital's environment. Additionally, the contractor shall ensure the supply of all necessary software licenses, content management tools, and access to technical support, ensuring that the system runs efficiently, remains reliable, and supports the hospital's ongoing operational needs.</p> | 600                     | Design, Supply, installation, testing, and commissioning of display including cables (Fiber, Cat6, Cat 6a) & associated hardware & software.  |
| 14 | <p><b>SMART PARKING MANAGEMENT SYSTEM</b><br/>The Parking Management System is designed to provide a more efficient, secure, and revenue-focused solution for managing parking operations. The system is built to be flexible and cost-effective, helping to reduce operational costs, increase profitability, and enhance security, all while improving the overall parking experience for users. Key features include:<br/><b>Revenue Security:</b> Secure management of parking fees with monitoring, reporting, and controlling capabilities.<br/><b>Efficient Operations:</b> Smart parking terminals with versatile software to streamline operations and optimize space usage.<br/><b>Customizable Configuration:</b> Flexible system configurations to meet the specific needs of different parking facilities.<br/><b>Service Integration:</b> Integration with valet parking, online booking, access control, and car finder modules for added convenience.<br/><b>Security:</b> Cameras for license plate recognition and driver images, with a 3-layer redundant system to ensure database security.<br/><b>Comprehensive Reporting:</b> Provides detailed reports on parking usage, revenue, and performance.<br/>This system enhances security, reduces costs, and improves both operational efficiency and user experience.</p>       | BASEMENT & OPEN PARKING | Design, Supply, installation, testing, and commissioning of Parking guidance system Works. Parking guidance system is designed to assist users to find their parking space easily within the IMSF Campus (indoor and outdoor) parking facility. |

|    |  |                                      |   |
|----|--|--------------------------------------|---|
| 15 | <p><b>ENTRANCE AUTOMATION</b></p> <p>The entrance automation system, which includes baggage scanners, metal detectors, and hand-held metal detectors, plays a vital role in ensuring the safety and security of patients, staff, and visitors. These systems efficiently screen individuals and their belongings, detecting concealed weapons, explosives, and other prohibited items. By using advanced technology, the system provides a high level of security, preventing threats from entering sensitive hospital areas. This integration of security measures strengthens the overall safety infrastructure, offering reliable protection for both people and property in critical environments in hospitals.</p>  | MAIN ENTRY & EXIT PLUS BASEMENT RAMP | Design, Supply, installation, testing, and commissioning of Entrance Automation system works including cables (Fiber, Cat6, Cat6a) & associated hardware & software.                    |
| 16 | <p><b>COUNSELLING AREA RECORDING SYSTEM</b></p> <p>The Bidder shall provide and install an on-premises system to manage and record counseling sessions with patients. The system must securely store session details, track patient progress, and be easily accessible by authorized personnel. The system must be designed with user-friendliness in mind, ensuring ease of use for healthcare professionals while maintaining the highest levels of data security and confidentiality, in compliance with relevant data protection and privacy regulations. The solution should integrate seamlessly with the hospital's existing electronic health record (EHR) or hospital information system (HIS) for a unified approach to patient care.</p>  | 15                                   | Design, Supply, installation, testing, and commissioning of counselling area recording system works including cables (Fiber, Cat6, Cat6a) & associated hardware & software.             |
| 17 | <p><b>SMART CAFETERIA</b></p> <p>The Smart Cafeteria shall integrate advanced hardware and software to automate and optimize cafeteria operations. It will cover every aspect of the dining experience, including meal order processing, billing and payment, food waste monitoring, and inventory management.</p> <p>Key features include:</p> <p><b>Digital Signage:</b> Displays dynamic menus and updates in real time.</p> <p><b>Chef Kiosks:</b> Streamlines food preparation by managing incoming orders efficiently.</p> <p><b>Self-Service Ordering Kiosks:</b> Enables users to place orders and make payments quickly and independently.</p> <p><b>POS Systems:</b> Facilitates seamless billing and supports multiple payment methods.</p> <p><b>Smart Mobile App:</b> Allows users to pre-order meals, make payments, and track order status for added convenience.</p> <p>This system eliminates long queues, enhances operational efficiency, and ensures a seamless dining experience, making it a complete solution for modern cafeteria management.</p>  | LOT                                  | Design, Supply, installation, testing, and commissioning of Smart Cafeteria system works including cables (Fiber, Cat 6, Cat 6a) & associated hardware & software.                      |
| 18 | <p><b>WIRELESS CLOCK SYSTEM</b></p> <p>The Wireless Clock System shall be integrated with Windows Active Directory and synchronized through an NTP server, providing hospitals with a secure, scalable, and precise timekeeping solution. This advanced system ensures accurate time synchronization, centralized management, and seamless integration into the hospital's IT infrastructure, meeting the critical demands of healthcare environments.</p> <p>Key Features</p> <p><b>Integration with Windows Active Directory (AD)</b></p> <p>Leverages Active Directory for secure user authentication and centralized management. Ensures role-based access control, allowing only authorized personnel to manage clocks and configurations.</p> <p>Centralized policies enable efficient deployment and configuration across the hospital network.</p> <p><b>Time Synchronization via NTP Server</b></p> <p>Synchronizes all clocks with an on-premises or networked Network Time Protocol (NTP) server, ensuring precise timekeeping aligned with Indian Standard Time (IST). The NTP server ensures consistency across all devices, eliminating discrepancies in time-sensitive environments.</p> <p><b>Wireless Communication</b></p> <p>Wireless technology eliminates the need for hard wiring, offering flexible installation options in diverse hospital areas.</p> <p>Real-time updates ensure clocks remain synchronized without manual intervention.</p> <p><b>Daylight Saving Time Adjustments</b></p> <p>Automatically adjusts clocks for Daylight Saving Time (if applicable), ensuring uninterrupted accuracy year-round.</p> <p><b>Scalability and Flexibility</b></p> <p>The system can easily scale to include additional clocks or new departments as the hospital expands.</p> <p>Wireless deployment supports installation in any location, including operating rooms, ICUs, and public areas.</p> <p>Supports centralized control and monitoring of all clocks from a single interface.</p> | 100                                  | Design, Supply, installation, testing, and commissioning of wireless clock system Works for time synchronization setup used in hospitals to ensure all clocks display the same accurate |
| 19 | <p><b>IBS (IN-BUILDING SERVICES) MOBILE NETWORK 4G &amp; 5G</b></p> <p>In-Building Services (IBS) are essential for enhancing mobile network coverage and capacity within hospitals, ensuring seamless 4G and 5G connectivity for patients, staff, and visitors. With the rapid adoption of mobile-based healthcare applications, reliable indoor coverage is a necessity for operational efficiency, patient experience, and critical communication. Key Features</p> <p><b>Seamless 4G &amp; 5G Coverage:</b> Provides strong signal strength across all hospital areas, including basements and operating rooms.</p> <p><b>Distributed Antenna System (DAS):</b> Amplifies signal and ensures connectivity in hard-to-reach areas.</p> <p><b>High Capacity &amp; Low Latency:</b> Supports multiple users and real-time data transfer, essential for critical healthcare communication.</p>   | LOT                                  | Design, Supply, installation, testing, and commissioning of IBS System with electrical supply for connectivity of IBS.  |



|                  |  |                   |   |
|------------------|--|-------------------|---|
| <p><b>20</b></p> | <p><b>FIRE STOP/FIRE SEAL AND SMOKE SEALN</b><br/> Fire Stop, Fire Seal, and Smoke Seal systems are critical components in hospital construction and renovation, ensuring fire safety and compliance with building codes. These systems are designed to prevent the spread of smoke, fire, and heat, especially in hospitals where the safety of patients, staff, and visitors is a top priority.'</p>                           | <p><b>LOT</b></p> | <p>Design, Supply, installation, testing, and commissioning of fire stop/fire seal and smoke seal works.</p>                      |
| <p><b>21</b></p> | <p><b>MISCELLANEOUS WORKS</b><br/> The miscellaneous works related to pipes, cable trays, junction boxes, and other infrastructure components are essential to the hospital's overall safety, efficiency, and smooth operation. These elements serve as the backbone of the hospital's electrical and mechanical systems, supporting critical functions that affect patient care, staff operations, and hospital management.</p> | <p><b>LOT</b></p> | <p>Design, Supply, installation, testing, and commissioning of miscellaneous works of Pipes, Cable trays, Junction boxes etc.</p> |