

INSTITUTE FOR STEM CELL SCIENCE AND REGENERATIVE MEDICINE (inStem)
(An Research Institute under BRIC, Dept of Biotechnology, Government of India)
inStem, GKVK Campus, Bellary Road, Bengaluru-560065
Phone: 61948095/ 61948038.



Tender for
“Upgradation of Building Management System-
inStem, Bengaluru-560065”

BRIC - INSTEM

2026



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NOTICE INVITING TENDER

Tender Notice No: 003/2026-2027 Dated 16 Jul 2026

Sealed item rate tenders in Two-Envelope System are invited on behalf of The Director, inStem from the eligible contractors who have executed similar nature and magnitude of works, in respect of the work as detailed below up to 06/08/2026.

1. **Name of the work:** "Upgradation of Building Management System - inStem, Bengaluru-560065"

2. **Details of Tender:**

a.	Estimated cost (ECPT)	Rs.160.00 lacs (inclusive of GST and exclusive of Annual Maintenance Contract value in BOQ SI 8).
b.	Earnest Money Deposit	Rs.3.2 Lakhs (Firms registered as MSE are exempted and they are to submit Valid Registration Certificate)
c.	Completion period	Six months.
d.	GeM-tender uploading date and time	16/07/2026
e.	Date of Tender Submission Closing	06/08/2026
f.	Opening of the Technical Bid	06/08/2026
g.	Date of Pre-bid Meeting	11.30 Hours on 23/07/2026
h.	Opening of Price bid	Will be communicated separately

Note: It is the responsibility of the participating bidders to be fully aware of the qualification criteria mentioned in the tender and be satisfied with their eligibility. Further, the bidder shall frequently visit website and find any update relates to this work.



3. The site of the work is located at GKVK Campus, Bellary Road, Bengaluru, Karnataka.
4. The Technical Bid shall contain the following:
 - a. Duly signed Technical Bid Tender Document Comprising N.I.T, Letter submitting the tender, FORMS, General conditions of contract, Special conditions of contract and Approved make's list etc. complete.
 - b. EMD in the form of Banker's Cheque or Demand Draft or Bank Guarantee from any scheduled bank with the period of validity for 6 months from the date of submission of tender.
 - c. Documentary evidence for Eligibility as per eligibility criteria.
 - d. Other Information / document as indicated in NIT.
 - e. Any other information, tenderer may like to submit reflecting their credentials.

5. **Eligibility Criteria**

The Bidder shall meet the following eligibility criteria and submit the documentary evidence in the technical bid. The bid received without documentary evidence shall summarily be rejected.

- a. Tenderers should submit the Copies of valid registration details, if any, with Government Organizations / Semi-Government Organizations of State or Central Government or Public Sector Undertakings or Autonomous bodies of State or Central Government.
- b. Copies of attested IT returns submission for the last three financial years.
- c. The tenderer should be OEM of BMS or authorized channel partner of existing BMS OEMs M/s Schneider Electric Ltd or M/s Honeywell. Any other reputed OEM or their channel partner may also participate, and their eligibility will be evaluated during technical evaluation subject to their technical proposal to integrate with existing system. Documentary proof shall be submitted.
- d. **Similar Nature of Work Experience**: The tenderer should have satisfactorily completed in the last seven years in his own firm name at least one similar nature of work cost not less than Rs.128 lakhs or two similar works of each cost not less than Rs. 96 lakhs or three similar works costing not less than Rs. 64 lakhs.

Similar Nature of Work Means: The tenderer should have satisfactorily completed Supply, Installation, Testing, Commissioning of Building Automation System which should include the HVAC system. If required, this may be inspected by the competent authority of inStem. Tenders shall be submitted with all supporting documents i.e. formal contracts and completion certificate received from the clients.

- e. The tenderer should submit copy of EPF and ESI Registration certificates issued by appropriate authority.



- f. Certificate of Registration for Goods Services Tax (GST).
- g. Bank Solvency certificate from any scheduled banks for a Minimum Value (40% of the ECPT) of Rs.64 lakhs OR Net worth certificate of minimum 10% of the estimated cost put to tender (Rs.16 Lakhs) issued by certified chartered accountant with UDIN. Date of solvency certificate shall not be more than one year from the last date for submission of tender.
- h. **Turnover**: Average annual financial turnover should be at least 30% of the estimated cost (i.e. Rs. 48 Lakhs) during the immediate last 3 consecutive financial year i.e. 2022-23, 2023-24, 2024-25.
- i. **Profit/Loss**: The bidder should not have incurred any loss (profit after tax should be positive) in more than one year during available last three consecutive balance sheet, duly audited and certified by the Chartered Accountant.
- j. **Completion Certificates**: Similar type of service's satisfactory completion certificates as per eligibility shall be attached. The completion certificate should clearly indicate the scope of work and issuing authority.
- k. Undertaking in Company's Letter head as under:

"I/ We undertake and confirm that we have not been blacklisted/ debarred by Government Organizations / Semi-Government Organizations of State or Central Government or Public Sector Undertakings or Autonomous bodies of State or Central Government. Further, I/We undertaken and confirm that eligible similar work(s)/ service(s) has/ have not been got executed through another contractor on back-to-back basis. Further that, if such a violation comes to the notice of the inStem, then I/we shall be debarred for bidding in inStem works in future forever. Also, if such a violation comes to the notice of the institute before or after start of work, the Institute shall be free to forfeit the entire amount of Earnest Money Deposit/ Performance Guarantee.

- 6. **Earnest Money Deposit** Tenders received without EMD will not be considered. Micro Small Enterprises Registered contractors are exempted from submitting EMD on submitting valid registration certificate. EMD shall be submitted in the form of Banker's Cheque/ or DD or Bank Guarantee from any scheduled bank for the period of validity for 6 months from the date of submission of tender.
- 7. **Security Deposit** 3% of total value of the work done will be withheld as security deposit. The recovery on this account will be made from the running bills and final bill. The security deposit so recovered will be released after successful completion of work and Defect Liability Period.
- 8. **Performance Guarantee (Kindly refer to Annexure-E, checklist for BG to this document)**, The successful tenderer must submit the performance guarantee for an amount of 5% of his/ their tendered amount in the form of Banker's Cheque/ or DD or Bank Guarantee from any scheduled bank for the period including 6 months from the



date of scheduled completion of work. This I guarantee will be returned to the contractor after due date from the satisfactory completion of the work, providing the work has been carried out in accordance with agreement provision and the same is not forfeited for any reason.

9. The Director, inStem does not bind himself/ herself to accept the lowest or any other tender and reserves the authority to reject any or all tenders without assigning any reason. All the tenders, in which any of the prescribed conditions are not fulfilled or incomplete, in any respect, are liable to be rejected.

10. **Validity Period of Tender** 180 days from the last day of receipt of technical bid.

11. This Notice Inviting Tender (N.I.T) shall forms part of the Contract Document.

12. The Director, inStem reserves the right to postpone the tender issue date, submission/ opening date and to accept or reject any or all tenders without assigning any reasons.

13. Tender completed in all respects shall be submitted as per the instructions given in the "Notice Inviting Tender" forming part of the tender document.

14. Award of the work will be based on the bidder whose offers are found to be responsive and lowest. Evaluation shall be done as per Eligibility Criteria indicated in SI.5 as 'pass' or 'fail' system. If two or more bidders quote the same price, inStem reserves the right to select the bidder based on their technical proposal which suits the Institute most.

15. The successful tenderer, on the acceptance of his tender by the inStem shall within **Ten** days from the stipulated date of start of the work, shall sign the formal contract. The cost of stamp paper (as per the prevailing Government Guidelines) for the agreement shall be borne by the contractor as per the state stamp act.

16. The tenderer should ensure that amounts quoted should appear only in the price schedule document and nowhere else, otherwise, the tender is liable to be rejected.

17. The Director, inStem reserves the right to accept the whole or part of any tender and tenderer shall be bound to perform the same at the rate or amount quoted.

18. The rates shall be quoted inclusive of all taxes for complete item work as nothing extra shall be payable. Necessary Income tax/ statutory deductions shall be deducted as per rules of Govt of India in force.

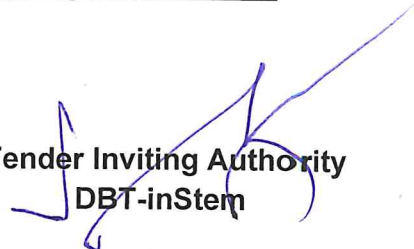
19. EMD of unsuccessful bidders shall be returned, without interest, at the earliest, after the expiry of the final tender validity period but not later than 30 days after conclusion of the contract. EMD of the successful bidder should be returned after receipt of performance guarantee as called for in the contract.

20. **Site Visit:** The bidder, at the Bidder's own responsibility and risk, is encouraged to visit at their own cost and examine the Site of required Services and its surroundings and



obtain all information that may be necessary for preparing the Bid an entering into a contract for the Services. For site visit and for any queries please contact: 080-61948095/98.

21. **Pre-bid Meeting**: All the bidders are requested to attend the pre-bid meeting without fail and send the queries at least 2 working days prior to scheduled date of the meeting in the email address of sreenathba@instem.res.in or thiyagarajan@instem.res.in.


Tender Inviting Authority
DBT-inStem



Section II– Scope of Work & Design Brief

1. General

The specifications given hereunder relate to the **Upgradation of existing Building Management System (BMS) at inStem** and shall be read in conjunction with the appropriate Indian Standard Specifications and industry wide accepted standards.

2. Site

The work shall be carried out in Institute for Stem Cell Science and Regenerative Medicine (inStem), GKVK Campus, Bellary Road at Bengaluru 560065.

3. Brief on Existing System

inStem has two standalone, operational, BMS systems, as under:

- a. inStem Lab Building have M/s Schneider StruxureWare building operation version 1.8 system.
- b. BSL3 lab has M/s Honeywell's Niagra WEB-S1-N4 system which has recently been constructed in 2024.
- c. Upgradation work pertains to inStem Lab Building system having around 3000 IO Points including standby/ spare IO points and AMC contract post upgradation. Upgradation work pertains only to management/ supervisory level including field controllers. Field devices like sensors, VAVs, VFDs, actuators etc. are not to be considered for upgradations as existing devices are to be retained.
- d. BSL3 Lab (constructed in 2024) has around 400 IO Points and it is to be included for only AMC contract with Lab Building BMS system after upgrading.
- e. Hence, the brief scope of work is to upgrade the inStem Lab Building BMS using either M/s Schneider system or M/s Honeywell system or any other reputed make with the suitable latest software & hardware as mentioned in the scope of work & BOQ and Annual Maintenance Contract is to be concluded for both the system.

3.1 Details of inStem Lab building Schneider BMS System:

Schneider Electric StruxureWare Building Operation is a comprehensive building management system (BMS) that provides integrated monitoring, control, and management of building systems such as HVAC, lighting, power, fire safety, and security. StruxureWare Building Operation (often abbreviated as SBO) provides a **centralized platform** to manage various building systems efficiently, with an emphasis on **energy efficiency, comfort, and operational performance**. Detailed IO Summary with DDC Panels, which need to be upgraded, are given in Annexure to this scope of work.



Architecture of Lab building BMS:

- **Enterprise Server:** Top-level controller that manages multiple automation servers across sites. **Schneider Building operation version is 1.8.1.79.** The enterprise server operates in the windows OS using StruxureWare Building operation server that collects site data for aggregation and archiving. It is supervisory level control.
- **Automation Server-P:** Local controller at the building level managing I/O modules and field devices. AS-P performs key functionality, such as control logic, trends logging, and alarm supervision AND supports communication and connectivity to the I/O and field buses. AS-P has numerous ports that enable it to communicate with a wide range of protocol, devices and servers. ***Including third party integration*** of the devices. There is total 6 ASPs installed & works on Lon.
- **Field Controllers:** Field controllers used for specific equipment like AHUs, VAVs, etc.
 - **TAC XENTA 302 Controller:** - Make: Schneider electric, I/O POINTS: DI-4, DO-4, AI-4, AO-4, UI-4, Supply voltage :24v AC 50hz, power consumption max: 2 W
 - **TAC XENTA 401 Controller:** - Make: Schneider electric, TAC XENTA 401 belongs to a family of freely programmable controller and up to 10 I/O modules can be connected to the TAC Xenta401 controller.
 - **TAC XENTA 421 Controller:** - Make: Schneider electric, I/O Points:4UI AND 5 DO, Supply voltage :24v AC 50hz
 - **TAC XENTA 411 Controller:** - Make: Schneider electric, I/O Points:10 DI, Supply voltage :24v AC 50hz
 - **TAC XENTA 451 Controller:** - Make: Schneider electric, I/O Points:8UI AND 2AO, Supply voltage :24v AC 50hz
- **WorkStation:** Windows-based software client for configuration and monitoring.
- **Web Station:** Browser-based interface for remote access.
- **Field Devices/ Sensors:** Measurement of parameters and providing control signals for operation such as Actuators, Pressure sensors, temperature sensors, RH sensors, potential free NO/NC contacts etc. They either give signals or operate using the signals given by the controllers using 0-10V or 4-20mA or linear/non-linear resistance values. Field devices/ sensors shall have to be retained.

3.2 **Details of BSL3 BMS:** It consists of M/s Honeywell's Niagra WEB-S1-N4 network connection work bench system having around 400 IO points with the following components:



SI	Part Code	Description	Qty
a.	WEB-8025-U	WEB-8000 AND NC-8025,25 DEV/1250 Points	1
b.	PUC6002-EM2	IO Extension Module, 6xUI,2XDO	16
c.	PUC5533-EM2	IO Extension Module, 5xUI,5xDI,3XAO,3	16
d.	PEC8445-PB1-SO	BACnet IP Controller, MODBUS devices	11
e.	SMA-8025	JACE 8025	1

4. Upgradation Scope of Work

4.1 Upgradation of Building Management System for the control/ monitoring of HVAC system which includes climate control using AHUs, Pumps, Cooling Towers, VFDs, Exhaust Fan Control, Monitoring of Cold Rooms, Unitary Air Conditioners, HEPA Filters, Tank levels, Chiller Plants, -80 Freezers & UPS DB etc.

4.2 Field devices & sensors, DDC Panels are to be retained, and new controllers are to be installed in the existing DDC panels. Necessary mounting arrangements for new controllers in DDC shall be arranged by the vendor if existing mounting is found unsuitable.

4.3 The general character and the scope of work to be carried out under this contract is to complete the said work in every respect in conformity with the contract documents and with the directions of and to the satisfaction of the in-stem.

4.4 Following shall be the scope of work in brief to be carried out under this Contract:

- a. Supply, Installation, Testing and Commissioning of BMS Workstation and Enterprise Server as supervisory control consists of GUI, Graphics of all equipment & parameters, Scheduling, Trends, Warning/ Alarms, User Groups, Alerts/ notification for all equipment & system as per IO Summary attached.
- b. Supply, Installation, Testing and Commissioning of IP based Field Controllers with IO Modules as necessary which shall replace the existing TAC-XENTA controllers in the existing DDC Panel. Removal of existing TAC Controllers shall have also been undertaken by vendor.
- c. Soft & hard binding of all IO points with new controllers, making Logics, testing & commissioning to prove the automatic control of temperature, RH, pressure differentials, interlocks and safety mechanism for all equipment & system as per BMS strategy indicated by Engineer in-charge.
- d. 3rd Party equipment/ system integration such as chillers, VFDs, VAVs, UPS, Pumps, Cooling Towers, -80/-20 freezers, motorized valves etc. including linear & non-linear IO points.
- e. SITC of associated works such as Network Switches, cabling works for LAN/ Power/ Control Cabling etc. as per specifications and BOQ.
- f. Submission of relevant documents of the executed scope of work with reports/As Built Drawings/ manuals/ warranty certificates etc.



- g. The supplied equipment/ software shall have minimum 10 years support for spares/ services.
- h. Permanent Licenses for User License, Workstation license and/ Edit Licenses which shall be scalable in nature. At least 6000 IO points license shall be provided.
- i. Buback of old TAC Controllers and AS-Ps.
- j. Annual Maintenance contract as per terms and conditions.

4.5 Upgradation Consideration Building Management System

- a. All existing services equipment shall have to be upgraded to latest IP based controllers with necessary supervisory control which should be scalable in nature.
- b. The upgradation of the system should include necessary software and modem/ Integrator to allow transfer of the 3rd party data to BMS module using open communication protocols such as BACnet, Modbus, Lon Works, SNMP etc.
- c. User Grouping/ User level log-in, workstation log in, web log-in, all permanent licenses such as working, network, workstation, editing licenses etc. shall be part of the upgradation.
- d. AMC of both BMS system under single AMC contract.
- e. Scalability for future projects.

5 Technical Submittals

The successful Vendor after award of work shall furnish submittals for various items incorporating complete technical details prior to procurement of equipment/ materials, for the approval of the Engineer-in charge. The submittals for items mentioned in the tender document but not restricted to the following:

- a. BMS System Components – Workstation, Software, Controllers, 3rd Party Integrator, Network switches, cables etc.
- b. Test certificates for various items shall also be submitted by the contractor.

6 Technical Data

The Vendor shall submit a comprehensive schedule of technical data and complete manufacturer's specifications for all items of equipment and material including the manufacturer's name. The technical data shall be furnished in the pro-forma indicated in Form-D.

7 Shop Drawings

- 8.1 The contractor shall furnish one set of detailed shop drawings of all equipment, electrical work and materials of work, for the approval of inStem and allow inStem at least a week time for scrutiny and approval. These drawings shall contain details of construction, size, arrangement, operating clearances, performance characteristics and capacity of all items of equipment, as also the details of all related items of work



by other Contractors. Each item of equipment proposed shall be a standard catalogue product of an established manufacturer as per specifications/ approved makes.

8.2 No demands for extension of time shall be entertained because of any delay in the work due to Contractor's failure to produce shop drawings at the right time, in accordance with the timelines stipulated.

8.3 Approval rendered on shop drawings shall not be considered as a guarantee of measurements of building conditions. Where drawings are approved said approval does not mean that drawings have been checked in detail nor does it any way relieve the Contractor from his responsibility or necessity of furnishing material or performing work as required by the contract.

8.4 If the Contractor proposes to use an item of equipment other than that specified or detailed on the drawings which requires any redesign of the structure, partitions, foundations, piping, wiring or any other part of the mechanical, electrical or architectural layout, all such redesign and all new drawings and detailing required thereof, shall be prepared by the Contractor at his own cost and approved by inStem.

8.5 If the work of the Contractor has to be installed in close proximity to, or interferes with work of other trades, he shall assist in working out space conditions to make satisfactory adjustments. If the Contractor installs his work before coordinating with other trades, or so as to cause any interference with work of other trades, he shall make all the necessary changes without extra cost to the inStem.

8 Construction Programme & Schedule of Operations

A tentative execution program indicating the scheduling of various activities shall be submitted by the contractor within one week of acceptance of work. and shall be treated as a baseline schedule to monitor, determine delays in individual activities, work milestones or the overall duration of the work. inStem may suggest an alternative scheduling of operations, should they find it necessary to accomplish the targets and the Contractor shall accordingly mobilize additional resources at no extra cost to the Owner. It is to be noted that the upgradation work is involved in operational labs, hence, planning of all activities shall be put up to EIC for clearance as there may be need to execute the work in off working hours or holidays.

Installation and Cabling

9 The cabling work related to the upgradation of system shall be carried out in full knowledge and with complete co-ordination of the inStem's other technical verticals like IT/ Electrical/ Civil etc. It is to be clearly understood that the final responsibility for sufficiency, adequacy, and conformity to the performance of the BMS shall be with the Contractor.



10 System Design (BMS)

A comprehensive integrated Microprocessor based Building Management System shall be employed for upgradation to facilitate intelligent control of various services. The BMS shall use dedicated Controllers for various equipment, located at various levels of the building to perform the following functions:

- a. Control and Monitoring the low side HVAC equipment and maintain design inside conditions/ climate control in all areas.
- b. Integration of third-party data like chillers, VFDs, VAVs etc.
- c. Monitor temperature of (-) 80 deg C lab equipment.
- d. Monitor electrical Distribution Board breakers using NO/NC potential free contacts.
- e. Monitor tank levels.
- f. Scheduling of equipment
- g. Alarms/ Warnings with hierarchical setup.
- h. Trends/ data archiving of all parameters
- i. Push notification as email to various user groups.
- j. User Group based secure access/logins.

11 System Functions

12.1 General

The proposed system shall perform all the functions which are listed herein. It shall carry out all such other tasks, as may be found necessary to fulfill the operational requirements and the intent and purposes as defined whether specified or not.

12.2 Control of Sub System

- a. The proposed system shall be configured to provide completely automatic and "HANDS FREE" of all the system being controlled.
- b. The system shall be capable of monitoring Historical performance and fault data for preceding 90 days period
- c. The system shall use the Historical data to generate, weekly, monthly, quarterly and schedules and guides. These guides shall be based on the maintenance requirement provided by the Contractor/ Manufactures of various connected systems.

12.3 HVAC Functions

- a. Sequential start/stop of the whole HVAC System.



- b. Duty cycling to operate all the equipment including standby equipment if any for equal duration
- c. Automatic startup of standby equipment if any in case of failure of operating unit and displaying fault alarm status of the tripped unit.
- d. Programmed start/stop of individual AHU as per operation requirements.
- e. Maintaining design inside conditions within specified limits as per designated programs by operating necessary controls and 2-way motorized valves.
- f. Automatic change over from the heating to cooling cycle & vice versa.
- g. Automatic change over from the day cycle to night cycle.
- h. Start/Stop of ventilation fans associated with labs and other areas as per requirement.

12.4 Control Logics

The Building Management System shall be capable of performing the entire functions as listed under Data Point Summary but not restricted to the following:

- a. Automatic and Sequential Start/Stop of the various HVAC equipment, based on agreed time schedule.
- b. There shall be provision to reschedule time, if required in a part or whole of the Building.
- c. It shall be possible to initiate the Startup of the operating Cycle on Holidays by simple startup of any of the Air handling units.
- d. All the air handling units and fan coil units shall be started at the designated time as per the requirement and shut down at the designated time as required, if not 24x7.
- e. A signal from the fire panel shall be utilized to close the Fire Dampers and the AHU.
- j. When the fire alarm is cleared all the AHUs shall be restarted automatically.
- l. However, it shall be flashed on the PC to reset the Fire Damper and thereafter the AHUs shall be restarted automatically from the PC.
- m. Each AHU shall have a return air temperature sensor.
- n. The sensor shall modulate the flow of water to the coil through two way modulating control valve.
- o. A differential pressure switch shall indicate the operating status of the fan and dirty filter status of air filter.
- p. Room negative pressure shall be maintained by VAVs as per set value without much deviation/ peaks.



q. VFD shall be able to ramp up/ ramp down based on the inputs like temperature/ pressure or inputs from users.

12.5 Other Essential Functions

The system comprises the supply and installation of an integrated building management system by a specialist manufacturer. The essential functions of the system are as follows:

- i) Centralized operation (remote control)
- ii) Accepted Communication protocol ASHRAE's-BACnet, MODBUS and Echelon-Lon works i.e. Open Software.
- iii) Contractor shall provide protocol translator if they are using their proprietary protocol.
- iv) Dynamic Graphic details of Plant and building.
- v) Early recognition of faults
- vi) Faults statistics for identification
- vii) Trend register to identify discrepancies, energy consumption, etc.
- viii) Preventive maintenance and plant servicing
- ix) Optimum support of personnel
- x) Control optimization of all connected electrical and mechanical plant
- xi) Prevention of unauthorized or unwanted access
- xi) Own error diagnosis integrated system

12 System Topology

The BMS shall be hierarchical in structure. Each level within the hierarchy shall be capable of functioning autonomously and shall be operated independently. The system shall be divided into the following 3 levels:

a. The management level:

Personal computer with BMS software, for graphic-based operation, data storage and reporting which shall act as supervisory control/ Enterprise Server.

b. The communication level:

The field controller(s) shall be provided for manipulation of data from the field outstations (DDC level) for onward communication to the PC. It shall also perform the management functions and event-related communication. The interface card shall be provided for the data traffic between the field controller and the DDC level controllers.



c. **The processing level:**

- i. IP based Controllers and/ or communication between the DDC modules must be used which ensures a peer to peer communication with a fast and secure data transmission. The communication between the individual DDC units must stay fully operational even when the upper levels and/or individual DDC units fail. Controllers requiring the help of a central network controller for communicating with other DDC controllers will not be acceptable.
- ii. The connection to a data bus must be provided as standard and correct operation of the unit must be ensured even when the data bus connection fails.
- iii. Local operation: Each DDC unit and communication and control unit for individual room controllers must be connectable, to an operator terminal directly and/or remotely via the data bus. The operating concept must be structured such that data can be accessed at the individual operating levels in accordance with the associated access authority. Each DDC unit should have service port for plugging in the Portable Operator Terminal.

13 Management system

The Management Station shall be a man/machine interface to the processing level via the system controller. The building and mechanical plant shall be displayed on the PC in numerical form and graphically in a way which shall be both easy to understand and to use. The specification of Management Station shall be as follows:

- Intel Pentium 16 GB RAM Minimum
- 1 TB hard drive
- 32" colour TFT monitor and 3 button USB mouse
- Serial interface port
- Printer port
- Graphics software
- Colour graphics adaptor (SVGA)
- HDMI port
- USB Ports
- 4GB Graphics Card

14 BMS software

- a. The software shall include operating system Windows 11 or latest version.
- b. The Management Station Software shall provide all the necessary functions for managing application software packages within a pre-emptive multitasking environment. The software shall be fully compatible with and operate under a pre-emptive multitasking operating system. Software designed exclusively for cooperative multitasking environments shall not be acceptable.

- c. Online programming of the Field Controller, reports configuration should be possible.
- d. The BMS application programs shall be specifically developed for the management of building installation.
- e. It shall be possible to create graphics, modify them and store them without any specialist programming knowledge.
- f. The software shall be open architecture & support based for industry standard integration with Third party. It shall be capable of supporting multiple protocols over a TCP/IP Network allowing many equipment items to be connected directly to maintain backbone IT protocol.

15.1 Operating functions

The following user programmes must be processed by the management station:

- a. Graphic management schematics with dynamic display of actual status information.
- b. Manual control of parameters and status variables of the electrical and mechanical plant
- c. Manual switch of programs which are not part of process routines.

15.2 Monitoring functions

- a. Automatic monitoring of connected plant
- b. Automatic monitoring of the system

15.3 Data evaluation functions: for the individual processing of operating data for building management

15.4 Data Reports/ Handling

- a. Trend reports – SAT, RAT, RH, ON/OFF, Pressure for individual equipment.
- b. Consumer statistics
- c. Faults statistics
- d. Maintenance management

15.5 Display functions: for the representation and display of operating data and management information in alphanumeric and graphic form

15.6 Access control functions: different operating levels for all information and all data by way of code word or user key

15.7 Commissioning functions:

- a. for system specific software of the field stations and the management system
- b. downloading the system specific software of the DDC units
- c. testing of the software in connection with electrical and mechanical plant

- d. automatic and periodic storage of all system data

15.8 Test functions

- a. automatic and continuously running test functions for system tests (hardware and operating software) and management system configuration (communication)
- b. test tools for individual hardware and software components which can be activated manually
- c. Self-test functions for individual system components which can be activated manually.

15.9 Graphics

A wide range of colour graphics shall be displayed on the screen, as under:

- a. overall building site layout, building elevation, system topology, floor plans, pipe and ductwork plans, installation diagrams, system schematic diagrams, plant symbols, etc.
- b. tables
- c. curves
- d. Various diagrams (line drawings, bar charts, pie charts, etc.)

15.10 Operating the system

- a. The BMS software shall be operated interactively, primarily with the mouse, and to a lesser degree with the keyboard. No specialized computer knowledge should be required.
- b. In order to ensure a fast operation and evaluation of all display, it must be possible to graphically display all connected systems on the screen in the form of principle diagrams. The principle diagrams must be structured hierarchically in form of a menu tree.
- c. It must be possible to create, amend and store the plant diagrams with the mouse and keyboard without specific programming knowledge. Alarm and fault messages must be highlighted by change of colour and flashing.

15 The Communication Level

The field controller of the BMS shall be an intelligent module which can be operated autonomously and does not need to be located centrally. In information technology terms, it may be described as a network node.

16.1 System design

- a. As a decentralized module with autonomous intelligence, the System Controller shall be able to process, store and handle a large volume of data. In this way all the demands placed on an advanced control and management system shall be met in full.

- b. The management station shall be a standard personal computer.
- c. Tasks shall be shared by the management station, the System Controller and the locally operating DDC Module, all of them shall be able to process the data simultaneously so that the overall processing time is reduced. At the same time queues of data are minimized by event and priority related bus administration. As a result, the fast response time required for optimum operation are achieved.

16.2 Networking Facilities

- a. The BMS should allow networking of workstations and the system controllers on an Ethernet TCP/IP.
- b. At the processing level, the BMS shall allow to integrate all the system controllers on LAN
- c. The BMS must allow for the following upgradation in the future:
 - The BMS offered must be capable of being extended with controllers on the BACnet protocol and any third-party protocol.
 - The BMS must allow to integrate future BACnet controllers on the process level and provide inter-process communication with existing controllers.

16 System Integration

All the above systems shall be integrated together, to display data on a single monitor of the master PC and displaying parameters in BMS/ Plant Room through 32" LED Display. The data of other Services shall be used by the BMS to take necessary corrective steps to reduce danger to the occupants and buildings.

17 Network Access

18.1 Remote Access

For Local Area Network installations, provide access to the LAN from a remote location, via the Internet. The CLIENT shall provide a connection to the Internet to enable this access via high-speed cable modem or via the customer's Intranet to a corporate server providing access to an Internet Service Provider (ISP).

18.2 Network Area Controller (NAC)/ Router

The BMS contractor shall supply one or more Network Area Controllers (NAC)/Router as part of this contract. Number of area controllers required is dependent on the type and quantity of devices provided in IO Summary. The NAC/Router shall be BTL & UL Listed.

The Network Area Controller (NAC)/ Router shall provide the interface between the LAN



or WAN and the field control devices and provide global supervisory control functions over the control devices connected to the NAC /Router. It shall be capable of executing application control programs to provide:

- Calendar functions
- Scheduling
- Trending
- Alarm monitoring and routing
- Time synchronization
- Integration of LonWorks controller data and BACnet controller data
- Network Management functions for all LonWorks based devices

The Network Area Controller must provide the following hardware features as a minimum

- Two Ethernet Port -10/100 Mbps
- One RS-232 port
- One LonWorks Interface Port-78KB FTT-10A
- One RS-485 ports
- Battery Backup
- Flash memory for long term data backup (if battery backup or flash memory is not supplied the controller must contain a hard disk with at least 1 gigabyte storage capacity)
- The NAC/Router must be capable of operation over a temperature range of 32 to 122°F
- The NAC /Router must be capable of withstanding storage temperatures of between 0 and 158 F
- The NAC / Router must be capable of operation over a humidity range at 5 to 95% RH, noncondensing

18 Direct Digital Control and Interlock System

19.1 Control for setting parameters/structuring and programming

It must be possible to enter and/or amend all parameters (setpoints, control algorithms, time. etc.) and the structure diagrams (control and interlock programs) into the lower levels system controllers and DDC units-centrally from the management station and/or the operator terminal from the system controller with a download function. The system manager must be able to read and write all data centrally.

DDC unit

- Direct Digital Controllers shall be 32 bit microprocessor based IP Controllers.
- The Network Area Controller (NAC) / Router will provide all scheduling, alarming, trending. and network management for the devices.

- The DDCs shall communicate with the NAC / Router at a baud rate of not less than 78.8K baud. The DDC shall provide LED indication of communication and controller performance to the technician, without cover removal.
- All DDCs shall be fully application programmable. Controllers offering application selection only (non-programmable), require a 20% spare point capacity to be provided for all applications. All control sequences within or programmed into the DDC shall be stored in non-volatile memory, which is not dependent upon the presence of a battery, to be retained.
- The BMS contractor supplying the DDC's shall provide documentation for each device, with the following information at a minimum:
- Network Variable Inputs (nvi's); name and type Network Variable Outputs (nvo's); name and type
- Network configuration parameters (nci, nco); name and type
- It is the responsibility of the contractor to ensure that the proper Network Variable Inputs and Outputs (nvi and nvo) are provided in each DDC, as required by the point charts.
- The supplier of any programmable DDC shall provide one copy of the manufacturer's programming tool, with documentation, to the CLIENT.
- The controller shall have an internal time clock with the ability to automatically revert from master time clock on failure.
- Operating Range: 24 hour, 365 day, multi-year calendar including day of week and configuration for automatic day-light savings time adjustment to occur on configured start and stop dates.
- Accuracy: ± 1 minute per month at 77° F (25° C).
- The controller shall have Significant Event Notification, Periodic Update capability, and Failure Defect when network inputs fail to be detected within their configurable time frame.
- Rated voltage: 20-30 VAC, 50/60 Hz
- The controller shall have an internal DC power supply to power external sensors.
- Power Output: 20 VDC $\pm 10\%$ at 75 mA.

The controller shall have a visual indication (LED) of the status of the device:

- a. Controller operating normally.
- b. Controller in process of download.
- c. Controller in manual mode under control of software tool.
- d. Controller lost its configuration.



- e. No power to controller, low voltage, or controller damage.
- f. Processor and/or controller is not operating.

The minimum controller Environmental ratings:

- a. Operating Temperature Ambient Rating: -40° to 150° F (-40 to 65.5° C).
- b. Storage Temperature Ambient Rating: -40 to 150° F (-40° to 65.5° C).
- c. Relative Humidity: 5% to 95% non-condensing.

The controller shall have the additional approval requirements, listings, and approvals:

- a. ULICUL (E87741) listed under UL916 (Standard for Open Energy Management Equipment) with plenum rating.
- b. CSA (LR95329-3) Listed
- c. Meets FCC Part 15, Subpart B, Class B (radiated emissions) requirements
- d. Meets Canadian standard C108.8 (radiated emissions)
- e. Conforms requirements European Consortium standard EN 61000-6-1 2001(EU Immunity)
- f. Conforms requirement European Consortium standard EN 61000-6-3 2001 (EU Emission)
- g. The controller shall have minimum three analog outputs (AO) & six Universal Inputs (UI)
- h. Analog outputs (AO) shall be capable of being configured as digital outputs (DO).
- i. Input and Output wiring terminal strips shall be removable from the controller without disconnecting wiring.
- j. Input and Output wiring terminals shall be designated with color coded labels

The controller shall provide for **"user defined"** Network Variables (NV) for customized configurations. For the generation of the application programs, the following function elements are required as a minimum.

- Reset functions
- Setpoint jump
- Positioning time
- P-controller (reverse or direct acting)
- P1-controller (reverse or direct acting)
- PI-controller with 1-deletion (reverse or direct acting)
- PID controller (reverse or direct acting)
- 2-point controller (reverse or direct acting)
- Proportional additional sequences (reverse or direct acting)



- Data transmitter (digital or analogue)
- Data converter (analogue-digital or digital-analogue)
- Ring Counter
- Timer (switch on or switch off)
- Logic operations:
 - logic "AND" (2,3 or 4)
 - logic "OR" (2,3 or 4)
 - logic "EXOR "
 - logic "NOT"
- Comparative operations:
 - Maximum values (2,3 or 4)
 - Minimum values (2,3 or 4)
 - Average values (2,3 or 4)
- Enthalpy calculation
- Optimizer
- Mean value calculation
- Hysteretic
- Output steps (digital or analogue) - Digital outputs shall be potential free outputs. Analog outputs shall be true analog outputs (0-10 V DC, 0-20V DC, 0-20 mA & 4-20 mA)
- Above blocks shall be resident in the DDC Controllers and independent of any high-level interfaces/ controllers.
- Linear as well as non-linear inputs.

Further, the DDC unit software must have the following additional functions.

- Free selection of range and unit (dimension) of all signals (measured values, accumulated values, calculated values, etc.)
- Free allocation of access protection in accordance with operating priorities, Free definition of manual override priorities (software) from operator terminal and/or management station.

Construction

The DDC units must be designed in **existing** housing for installation in standard racks on top hat rails or direct installation on base plates. For installation of several units on one control panel a plug-in communication connection must be provided so that hard wiring is not required. The transmission of signals from the process interface must be carried out via universal (analogue or digital) and digital in/outputs.

Each DDC Controller shall have a resident real time clock with a battery back-up for a minimum of 5 years. The DDC should be UL listed & peer to peer communication between each other.



Portable operator's terminal

Each DDC Controller shall have a dedicated service port to plug in the portable operator's terminal (POT) It shall be possible to read, write and change any parameters on a bus by plugging the POT to any one of the Controllers on the communication trunk. The portable operator's terminal shall have a visual and audible alarm with mute facility on its fascia. The POT shall have minimum three password levels.

Documentation

To have a clear system documentation, the following documents have to be provided:

- system diagram
- wiring diagram
- lists of parameters
- Detailed IO summary with used & unused points

For hand-over all documents must be up to date and provided with the date.

Services

The type and scope of the required services are for engineering, commissioning and adjustment and must contain all services required to ensure optimum operation of the facility.

Engineering/Planning

In addition to the required, complete documentation, the service must include:

- analysis of all functions together with the user
- binding information about conditions of connection
- scheduling and coordination with the user

Commissioning/Adjustment

Function-oriented commissioning includes the following services, which are to be provided

BMS specialist:

- verification of the external connections of the equipment
- verification of the data transfer channels of the system
- loading and testing of all basic and user programs belonging to the equipment
- optimization of the control parameters

19 Electric and Electronic Controls Related Equipment

20.1 Ambient Conditions

All controls shall be capable of operating in ambient conditions varying between 0-50 °C and 90% RH, non-condensing.

20.2 Conduit Entry

All control devices shall, unless provided with a flying lead, have a 20 mm conduit knockout. Alternatively, they shall be supplied with adaptors for 20 mm conduit.

20.3 Ancillary Items

When items of equipment are installed in the situations listed below the BMS/ Control Specialist shall include the following ancillary items:

20.4 Weather Protection

All devices required to be weather proofed shall be to IP 65. All controls, peripherals and associated accessories serving Floor/ Ceiling Mounted Air Handling Units and other equipment which are exposed shall be protected from Dust, Rain and Solar Radiation.

20.5 Accuracy

Control and measuring devices shall have the following limits of accuracy.

- Temperature: $\pm 1^{\circ}\text{C}$ over the range of -50 to $+150^{\circ}\text{C}$
- Pressure: $\pm 1.5\%$ of measured value
- Humidity: $\pm 3\%$ RH over the range of 10 to 90% RH

20 Exclusions

The following items of works shall be provided through other agencies:

- a. Provision of main single phase, 50 Hz. 230 volts AC supply up to the different control panels from nearest AC panel.
- b. Provision of single phase, 50 Hz, 230 volts UPS supply up to the DDC panel.

21 Permits and licenses

The contractor shall be responsible for obtaining all necessary permits and license servers/ Enterprise servers like permanent Networking license & permanent local licenses from OEM/ competent authorities, wherever required, for installing various equipment and ancillaries. The License Policy shall include Client station license, Client tool licenses, Enterprise Server, License Service Maintenance/ transaction licenses without any additional cost. It shall also be arranged to have the installations inspected, and approved by OEM, wherever required. All dues involved in the above shall be borne by the contractor.

22 Test Data

The system shall be tested and made fully functional as per specifications given elsewhere and complete test and performance data shall be furnished on prescribed data sheet.



23 Details in Tender

The tender shall include the details indicated in the Form-D with the proposal.

24 Testing of System

- a. The contractor shall demonstrate the proper functioning of the devices and control logic as specified and offered.
- b. The contractor shall generate various types of data and record of previous 30 days to demonstrate system capabilities.
- c. The integration of various services with the BMS shall also be demonstrated to the satisfaction of concerned authorities.

25 Training

Training for the user shall be arranged by the contractor and shall utilize specified manuals and As-Built Documentation. Operator training shall include seven, six-hour sessions encompassing:

- Modifying text and graphics
- Sequence of operation review
- Selection of all displays and reports
- Use of all specified OS functions
- Use of portable operator terminals
- Trouble-shooting of sensors (determining bad sensors)
- Repair & Maintenance of Equipment & sensors
- Password assignment and modification
- Building of logical blocks

26 AMC Scope of work

- i. Health check/ servicing the BMS equipment should be undertaken quarterly in the time slot allotted by the Institute. Prior approval shall be obtained by the contractor from the Institute to carry out such work.
- ii. Unlimited breakdown calls shall be attended within 24 hours of intimation for critical facilities and within 48 hours for non-critical facilities.
- iii. Complete service report shall be submitted on completion of each Preventive Maintenance schedule.
- iv. The Contractor shall try to operationalize the system at the earliest possible time after system rendered non-operational/ inefficient due to all minor nature of defects which may arise during the operation of the system such as communication



failure, commissioning issues, software malfunctions, log-in issues, alarm/warning issues etc.

v. The maintenance of BMS System includes regular checkup of DDC Panels, software, hardware, back up and graphics etc. Providing spares for replacement of defective components shall be with inStem's scope.

vi. Creation of graphics, binding of IO points for addition of 8 nos. of new equipment during AMC per annum shall be under AMC scope. Time to time requirement of adding new IO points for existing equipment is also under AMC scope.

vii. Any other work not mentioned in the scope of work which pertains to BMS system shall be undertaken by the contractor as per approval of Engineer in-charge by mutually accepted additional reasonable amount.

viii. Payment shall be made quarterly on completion of satisfactory services and submission of service report based on the Engineer in-charge's recommendation.

27 IO Summary

Details of IO summary for upgradation is given below. At least 15% spare IO point shall be ensured in each field DDC Panels for future use or spare.





BMS IO Summary

AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
SI	Location	Ground Service												
1	DDC No 1	Old DDC No 2					Critical	☐	Standby	☐	Sharing	☐		
14	AHU 1	7	2	7	1	0	17	2	2	0	8	0	12	29
2	DDC No 2	Old DDC No 1					Critical	☒	Standby	☐	Sharing	☐		
14	AHU 2	3	2	14	1	0	20	2	2	0	3	0	7	27
3	DDC No 3	Old DDC No 13					Critical	☒	Standby	☒	Sharing	☒		
13	AHU 3A	3	0	3	2	0	8	1	0	0	2	0	3	11
13	AHU 3B	3	1	3	1	0	8	0	0	0	0	0	0	8
4	DDC No 4	Old DDC No 15					Critical	☐	Standby	☐	Sharing	☐		
12	AHU 4	2	3	13	1	0	19	4	4	0	4	0	12	31
5	DDC No 5A	Old DDC No 14					Critical	☒	Standby	☐	Sharing	☐		
11	AHU 5A	3	2	3	1	0	9	2	2	0	3	2	9	18
6	DDC No 5B	Old DDC No 13					Critical	☒	Standby	☐	Sharing	☐		
11	AHU 5B	3	2	3	1	0	9	2	2	0	3	2	9	18
SI	Location	First Service												
7	DDC No 10	Old DDC No 5					Critical	☐	Standby	☐	Sharing	☐		
22	AHU 10	3	2	14	1	0	20	2	2	2	3	1	10	30
8	DDC No 11	Old DDC No 6					Critical	☒	Standby	☐	Sharing	☐		
22	AHU 11	3	2	8	1	0	14	2	2	7	3	1	15	29
9	DDC No 12	Old DDC No 7					Critical	☐	Standby	☐	Sharing	☐		
21	AHU 12	3	2	8	1	0	14	2	2	8	3	0	15	29
10	DDC No 13	Old DDC No 9					Critical	☒	Standby	☐	Sharing	☐		
20	AHU 13	3	2	8	1	0	14	2	2	7	3	1	15	29
11	DDC No 14	Old DDC No 8					Critical	☒	Standby	☐	Sharing	☐		
20	AHU 14	3	2	15	4	1	25	2	2	0	0	0	4	29
12	DDC No 15	Old DDC No 10					Critical	☐	Standby	☐	Sharing	☐		
19	AHU 15	11	1	6	1	0	19	2	3	2	3	1	11	30



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
13	DDC No 16	Old DDC No 12					Critical ☒	Standby ☐	Sharing ☐					
17	AHU 16	3	2	14	1	0	20	1	0	2	3	1	7	27
14	DDC No 17	Old DDC No 13					Critical ☒	Standby ☐	Sharing ☐					
16	AHU 17	3	1	3	1	0	8	2	2	3	3	1	11	19
15	DDC No 18	Old DDC No 14					Critical ☐	Standby ☐	Sharing ☐					
15	AHU 18	3	1	6	1	0	11	2	2	1	3	0	8	19
16	DDC No 19	Old DDC No 11					Critical ☒	Standby ☐	Sharing ☐					
18	AHU 19	3	2	14	1	0	20	2	2	1	3	1	9	29
17	DDC No 20	Old DDC No 18					Critical ☐	Standby ☐	Sharing ☐					
24	AHU 20	3	2	8	1	0	14	2	2	0	3	0	7	21
18	DDC No 21	Old DDC No 17					Critical ☒	Standby ☐	Sharing ☐					
25	AHU 21	3	2	8	1	0	14	2	2	0	3	1	8	22
19	DDC No 22	Old DDC No 16					Critical ☐	Standby ☐	Sharing ☐					
25	AHU 22	3	2	14	1	0	20	2	2	1	3	0	8	28
20	DDC No 23	Old DDC No 19					Critical ☒	Standby ☐	Sharing ☐					
26	AHU 23	3	2	8	1	0	14	2	2	8	3	1	16	30
21	DDC No 24	Old DDC No 21					Critical ☒	Standby ☐	Sharing ☐					
26	AHU 24	3	2	8	1	0	14	2	2	8	3	1	16	30
22	DDC No 25	Old DDC No 22					Critical ☐	Standby ☐	Sharing ☐					
26	AHU 25	8	2	8	1	0	19	2	2	0	5	0	9	28
23	DDC No 26	Old DDC No 20					Critical ☐	Standby ☐	Sharing ☐					
26	AHU 26	3	2	13	1	0	19	2	2	2	3	1	10	29
24	DDC No 6	Old DDC No 1					Critical ☒	Standby ☐	Sharing ☐					
23	AHU 6	4	2	15	1	0	22	2	2	0	3	0	7	29
25	DDC No 7	Old DDC No 3					Critical ☐	Standby ☐	Sharing ☐					
23	AHU 7	3	2	7	1	0	13	2	2	0	3	0	7	20
26	DDC No 8	Old DDC No 2					Critical ☒	Standby ☐	Sharing ☐					
23	AHU 8	7	2	8	1	0	18	2	2	0	7	0	11	29
27	DDC No 9	Old DDC No 4					Critical ☐	Standby ☐	Sharing ☐					
23	AHU 9	6	2	3	1	0	12	2	2	0	3	0	7	19



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
28	DDC No 98	Old DDC No 15					Critical	☐	Standby	☐	Sharing	☒		
17	FFU 13	0	0	2	1	0	3	0	0	0	0	0	0	3
17	FFU 14	0	0	2	1	0	3	0	0	0	0	0	0	3
17	EFS 7	0	0	18	0	0	18	2	4	0	4	0	10	28
17	EFS 19	0	0	1	1	0	2	0	0	0	0	0	0	2
17	EFS 20	0	0	1	1	0	2	0	0	2	0	0	2	4
SI	Location	Upper Basement												
29	DDC No 101	Old DDC No 26					Critical	☐	Standby	☐	Sharing	☒		
52	EFS 15	1	1	7	2	0	11	0	0	0	0	0	0	11
52	EFS 16	1	1	6	3	0	11	0	0	0	0	0	0	11
52	EFS 17	1	1	6	3	0	11	0	1	2	0	13	16	27
52	EFS 18	1	1	6	3	0	11	0	0	0	0	0	0	11
30	DDC No 62A	Old DDC No 3					Critical	☒	Standby	☒	Sharing	☐		
8	AHU 62A	3	2	6	1	0	12	2	2	1	3	0	8	20
31	DDC No 62B	Old DDC No 4					Critical	☒	Standby	☒	Sharing	☒		
8	AHU 62B	2	2	6	1	0	11	0	0	0	2	0	2	13
8	AHU 63B	3	1	6	1	0	11	2	2	1	3	0	8	19
32	DDC No 63A	Old DDC No 5					Critical	☒	Standby	☒	Sharing	☐		
8	AHU 63A	0	1	6	1	0	8	3	3	0	3	0	9	17
33	DDC No 64	Old DDC No 6					Critical	☐	Standby	☐	Sharing	☐		
8	AHU 64	3	1	3	1	0	8	2	3	2	3	2	12	20
34	DDC No 65A	Old DDC No 7					Critical	☒	Standby	☒	Sharing	☐		
8	AHU 65A	2	1	3	1	0	7	2	3	0	3	2	10	17
35	DDC No 65B	Old DDC No 8					Critical	☒	Standby	☒	Sharing	☐		
8	AHU 65B	3	1	3	1	0	8	2	3	2	3	2	12	20
36	DDC No 66	Old DDC No 9					Critical	☐	Standby	☐	Sharing	☐		
8	AHU 66	3	2	3	1	0	9	2	2	2	3	2	11	20
37	DDC No 67	Old DDC No 9					Critical	☒	Standby	☐	Sharing	☒		
51	AHU 67A	3	2	3	1	0	9	2	2	2	3	2	11	20
51	AHU 67B	0	0	0	0	0	0	0	0	0	0	0	0	0



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
51	AHU 68A	3	2	3	1	0	9	2	2	2	3	2	11	20
51	AHU 68B	0	0	0	0	0	0	0	0	0	0	0	0	0
51	AHU 69A	3	2	3	1	0	9	2	2	2	3	2	11	20
51	AHU 69B	0	0	0	0	0	0	0	0	0	0	0	0	0
SI	Location	Second Service												
38	DDC No 27	Old DDC No 3					Critical	☐	Standby	☐	Sharing	☐		
36	AHU 27	2	2	7	1	0	12	2	2	0	3	0	7	19
39	DDC No 28	Old DDC No 3					Critical	☐	Standby	☐	Sharing	☐		
36	AHU 28	3	2	17	1	0	23	2	2	0	3	0	7	30
40	DDC No 29	Old DDC No 1					Critical	☐	Standby	☐	Sharing	☐		
36	AHU 29	9	2	7	1	0	19	2	4	0	3	2	11	30
41	DDC No 30	Old DDC No 7					Critical	☒	Standby	☐	Sharing	☐		
49	AHU 30	3	2	4	1	0	10	2	2	1	3	2	10	20
42	DDC No 31	Old DDC No 4					Critical	☐	Standby	☐	Sharing	☐		
49	AHU 31	3	2	7	2	0	14	2	2	1	3	2	10	24
43	DDC No 32	Old DDC No 6					Critical	☐	Standby	☐	Sharing	☐		
35	AHU 32	3	2	7	1	0	13	2	2	0	3	0	7	20
44	DDC No 33	Old DDC No 5					Critical	☒	Standby	☐	Sharing	☐		
35	AHU 33	3	2	7	1	0	13	2	2	0	3	0	7	20
45	DDC No 34	Old DDC No 8					Critical	☐	Standby	☐	Sharing	☐		
34	AHU 34	3	2	7	1	0	13	2	2	0	3	0	7	20
46	DDC No 35	Old DDC No 10					Critical	☒	Standby	☐	Sharing	☐		
33	AHU 35	7	2	7	1	0	17	2	4	0	3	3	12	29
47	DDC No 36	Old DDC No 22					Critical	☒	Standby	☐	Sharing	☐		
33	AHU 36	3	2	7	1	0	13	2	2	0	3	0	7	20
48	DDC No 37	Old DDC No 9					Critical	☐	Standby	☐	Sharing	☐		
32	AHU 37	8	1	3	1	0	13	2	4	0	3	3	12	25
49	DDC No 38	Old DDC No 12					Critical	☒	Standby	☐	Sharing	☐		
30	AHU 38	3	2	16	1	0	22	2	2	1	3	0	8	30
50	DDC No 39	Old DDC No 11					Critical	☒	Standby	☐	Sharing	☐		



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
29	AHU 39	4	1	14	2	0	21	2	2	0	2	0	6	27
51	DDC No 40	Old DDC No 23					Critical	☒	Standby	☐	Sharing	☐		
28	AHU 40	2	1	8	4	0	15	0	0	0	0	0	0	15
52	DDC No 41	Old DDC No 13					Critical	☒	Standby	☐	Sharing	☐		
31	AHU 41	3	2	6	1	0	12	2	2	0	3	1	8	20
53	DDC No 42	Old DDC No 16					Critical	☐	Standby	☐	Sharing	☐		
37	AHU 42	3	2	7	1	0	13	2	2	0	3	1	8	21
54	DDC No 43	Old DDC No 14					Critical	☐	Standby	☐	Sharing	☐		
38	AHU 43	3	2	6	1	0	12	2	2	1	3	1	9	21
55	DDC No 44	Old DDC No 15					Critical	☒	Standby	☐	Sharing	☐		
38	AHU 44	3	2	6	1	0	12	2	2	1	3	1	9	21
56	DDC No 45	Old DDC No 17					Critical	☐	Standby	☐	Sharing	☐		
50	AHU 45	3	2	3	1	0	9	2	2	2	3	3	12	21
57	DDC No 46	Old DDC No 18					Critical	☒	Standby	☐	Sharing	☐		
50	AHU 46	3	2	3	1	0	9	2	2	2	3	3	12	21
58	DDC No 47	Old DDC No 21					Critical	☐	Standby	☐	Sharing	☐		
39	AHU 47	3	2	7	1	0	13	2	2	0	2	0	6	19
59	DDC No 48	Old DDC No 19					Critical	☒	Standby	☐	Sharing	☐		
39	AHU 48	3	2	7	1	0	13	2	2	0	3	0	7	20
60	DDC No 49	Old DDC No 20					Critical	☐	Standby	☐	Sharing	☐		
39	AHU 49	5	2	7	1	0	15	2	2	0	8	1	13	28
SI	Location	Lower Basement												
61	DDC No 68	Old DDC No 34					Critical	☐	Standby	☐	Sharing	☐		
	EFS 7	0	0	18	0	0	18	2	4	0	4	0	10	28
62	DDC No 69A	Old DDC No 35					Critical	☐	Standby	☐	Sharing	☐		
	EFS 9	0	0	25	0	0	25	2	4	0	4	0	10	35
63	DDC No 69B	Old DDC No 36					Critical	☐	Standby	☐	Sharing	☐		
	EFS 11	0	0	27	0	0	27	2	4	0	4	0	10	37
64	DDC No 70	Old DDC No 4					Critical	☐	Standby	☐	Sharing	☐		
1	AHU 70	3	2	3	1	0	9	2	2	2	3	2	11	20



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
65	DDC No 71A	Old DDC No 3					Critical ☐ Standby ☐ Sharing ☐							
1	AHU 71A	1	1	7	1	0	10	2	3	0	3	0	8	18
66	DDC No 71B	Old DDC No 2					Critical ☐ Standby ☐ Sharing ☐							
1	AHU 71B	3	1	7	3	0	14	2	3	0	1	0	6	20
67	DDC No 72A	Old DDC No 21					Critical ☐ Standby ☐ Sharing ☐							
4	AHU 72A	1	1	7	1	0	10	3	3	0	3	0	9	19
68	DDC No 72B	Old DDC No 25					Critical ☐ Standby ☐ Sharing ☐							
4	AHU 72B	2	1	7	3	0	13	2	3	0	1	0	6	19
69	DDC No 73A	Old DDC No 24					Critical ☐ Standby ☐ Sharing ☐							
4	AHU 73A	3	1	7	1	0	12	3	3	0	3	0	9	21
70	DDC No 73B	Old DDC No 23					Critical ☐ Standby ☐ Sharing ☐							
4	AHU 73B	1	1	7	3	0	12	3	3	0	1	1	8	20
71	DDC No 74	Old DDC No 20					Critical ☒ Standby ☒ Sharing ☐							
4	AHU 74	3	2	3	1	0	9	2	2	2	3	2	11	20
72	DDC No 75	Old DDC No 22					Critical ☒ Standby ☒ Sharing ☐							
4	AHU 75	3	2	3	1	0	9	2	2	2	3	2	11	20
73	DDC No 76	Old DDC No 28					Critical ☒ Standby ☒ Sharing ☐							
4	AHU 76	3	2	3	1	0	9	2	2	2	3	2	11	20
74	DDC No 77	Old DDC No 26					Critical ☒ Standby ☒ Sharing ☐							
4	AHU 77	3	2	3	1	0	9	2	2	2	3	2	11	20
75	DDC No 78	Old DDC No 30					Critical ☒ Standby ☒ Sharing ☐							
4	AHU 78	3	2	3	1	0	9	2	2	2	3	2	11	20
76	DDC No 79	Old DDC No 27					Critical ☒ Standby ☒ Sharing ☐							
4	AHU 79	3	2	3	1	0	9	2	2	2	3	2	11	20
77	DDC No 80	Old DDC No 19					Critical ☐ Standby ☐ Sharing ☐							
3	AHU 80	3	1	6	1	0	11	2	3	0	3	1	9	20
78	DDC No 81	Old DDC No 17					Critical ☒ Standby ☐ Sharing ☐							
3	AHU 81	3	1	7	2	0	13	2	3	0	2	0	7	20
79	DDC No 82A	Old DDC No 18					Critical ☐ Standby ☐ Sharing ☐							
3	AHU 82A	1	1	7	2	0	11	3	3	0	2	1	9	20



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
80	DDC No 82B	Old DDC No 31					Critical	☐	Standby	☐	Sharing	☐		
3	AHU 82B	3	1	6	2	0	12	2	3	0	2	0	7	19
81	DDC No 83	Old DDC No 29					Critical	☐	Standby	☐	Sharing	☐		
3	AHU 83	3	1	6	1	0	11	2	3	0	3	1	9	20
82	DDC No 84	Old DDC No 16					Critical	☐	Standby	☐	Sharing	☐		
3	AHU 84	3	1	6	1	0	11	2	3	0	3	1	9	20
83	DDC No 85A	Old DDC No 32					Critical	☐	Standby	☐	Sharing	☐		
5	AHU 85A	3	1	3	1	0	8	2	3	0	3	1	9	17
84	DDC No 85B	Old DDC No 33					Critical	☐	Standby	☐	Sharing	☐		
5	AHU 85B	1	1	3	1	0	6	3	3	0	3	1	10	16
85	DDC No 86A	Old DDC No 29					Critical	☒	Standby	☒	Sharing	☐		
7	AHU 86A	3	1	6	1	0	11	2	3	0	3	1	9	20
86	DDC No 86B	Old DDC No 30					Critical	☒	Standby	☒	Sharing	☐		
7	AHU 86B	3	1	6	1	0	11	2	3	0	3	1	9	20
87	DDC No 87A	Old DDC No 28					Critical	☐	Standby	☐	Sharing	☐		
7	AHU 87A	4	2	14	7	0	27	2	0	0	3	0	5	32
88	DDC No 87B	Old DDC No 27					Critical	☐	Standby	☐	Sharing	☐		
7	AHU 87B	4	2	14	7	0	27	2	0	0	2	0	4	31
89	DDC No 88A	Old DDC No 15					Critical	☐	Standby	☐	Sharing	☐		
6	AHU 88A	3	1	7	2	0	13	2	3	0	2	0	7	20
90	DDC No 88B	Old DDC No 16					Critical	☐	Standby	☐	Sharing	☐		
6	AHU 88B	1	1	7	2	0	11	2	3	0	2	0	7	18
91	DDC No 89A	Old DDC No 17					Critical	☐	Standby	☐	Sharing	☐		
6	AHU 89A	3	1	7	2	0	13	2	3	0	2	0	7	20
92	DDC No 89B	Old DDC No 18					Critical	☐	Standby	☐	Sharing	☐		
6	AHU 89B	1	1	7	2	0	11	3	3	0	2	1	9	20
93	DDC No 90	Old DDC No 19					Critical	☐	Standby	☐	Sharing	☐		
6	AHU 90	3	1	6	2	0	12	2	3	0	2	1	8	20
94	DDC No 91	Old DDC No 20					Critical	☐	Standby	☐	Sharing	☐		
6	AHU 91	3	1	6	2	0	12	2	3	0	2	1	8	20



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
95	DDC No 92	Old DDC No 21					Critical ☐ Standby ☐ Sharing ☐							
6	AHU 92	3	2	3	1	0	9	2	2	0	3	2	9	18
96	DDC No 93	Old DDC No 22					Critical ☒ Standby ☐ Sharing ☒							
6	AHU 93A	3	1	7	1	0	12	2	1	5	2	0	10	22
6	AHU 93B	0	2	7	1	0	10	0	0	0	0	0	0	10
97	DDC No 94	Old DDC No 26					Critical ☒ Standby ☐ Sharing ☒							
6	AHU 94A	3	1	7	1	0	12	2	1	5	2	0	10	22
6	AHU 94B	0	2	7	1	0	10	0	0	0	0	0	0	10
98	DDC No 95	Old DDC No 24					Critical ☒ Standby ☐ Sharing ☐							
6	AHU 95	3	2	3	1	0	9	0	0	4	2	0	6	15
99	DDC No 96	Old DDC No 24					Critical ☒ Standby ☐ Sharing ☐							
6	AHU 96	3	2	3	1	0	9	0	0	0	0	0	0	9
100	DDC No 97	Old DDC No 25					Critical ☐ Standby ☐ Sharing ☒							
6	AHU 97A	3	2	3	1	0	9	2	0	4	2	0	8	17
6	AHU 97B	0	2	3	1	0	6	0	0	0	0	0	0	6
101	DDC No 99	Old DDC No 1					Critical ☐ Standby ☐ Sharing ☒							
2	FAU 1	0	0	2	1	0	3	0	0	0	0	0	0	3
2	FAU 2	0	0	2	1	0	3	0	0	0	0	0	0	3
SI	Location	Third Service												
102	DDC No 50	Old DDC No 3					Critical ☐ Standby ☐ Sharing ☐							
46	AHU 50	3	2	8	0	0	13	2	2	0	3	0	7	20
103	DDC No 51	Old DDC No 2					Critical ☐ Standby ☐ Sharing ☐							
46	AHU 51	3	2	13	0	0	18	3	2	0	5	0	10	28
104	DDC No 52	Old DDC No 1					Critical ☐ Standby ☐ Sharing ☐							
45	AHU 52	3	2	8	0	0	13	2	2	0	3	0	7	20
105	DDC No 53	Old DDC No 6					Critical ☐ Standby ☐ Sharing ☐							
44	AHU 53	3	2	7	0	0	12	2	2	0	3	0	7	19
106	DDC No 54	Old DDC No 4					Critical ☒ Standby ☐ Sharing ☐							
44	AHU 54	3	2	7	0	0	12	2	2	0	3	1	8	20
107	DDC No 55	Old DDC No 5					Critical ☐ Standby ☐ Sharing ☐							



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
44	AHU 55	8	1	4	0	0	13	2	5	0	3	5	15	28
108	DDC No 56	Old DDC No 8					Critical	☒	Standby	☐	Sharing	☐		
41	AHU 56	7	2	8	0	0	17	2	2	0	8	0	12	29
109	DDC No 57	Old DDC No 7					Critical	☐	Standby	☐	Sharing	☐		
40	AHU 57	3	1	17	0	0	21	2	2	4	0	0	8	29
110	DDC No 58	Old DDC No 9					Critical	☒	Standby	☐	Sharing	☐		
42	AHU 58	3	2	8	0	0	13	2	2	0	3	0	7	20
111	DDC No 59	Old DDC No 10					Critical	☐	Standby	☐	Sharing	☐		
47	AHU 59	3	2	8	0	0	13	2	2	0	3	0	7	20
112	DDC No 60	Old DDC No 11					Critical	☐	Standby	☐	Sharing	☐		
48	AHU 60	3	2	8	0	0	13	2	2	1	3	0	8	21
113	DDC No 61	Old DDC No 12					Critical	☒	Standby	☐	Sharing	☐		
48	AHU 61	3	2	8	0	0	13	2	2	1	3	0	8	21
SI	Location	Terrace												
114	DDC No 103	Old DDC No 14					Critical	☐	Standby	☐	Sharing	☐		
	SEF 1	0	0	3	3	0	6	4	4	3	1	2	14	20
SI	Location	Plant Room												
115	DDC No 104	Old DDC No 200					Critical	☒	Standby	☐	Sharing	☐		
	WCC 1	0	0	1	1	0	2	0	0	0	0	0	0	2
	WCC 2	0	0	1	1	0	2	0	0	0	0	0	0	2
	WCC 3	0	0	1	1	0	2	0	0	0	0	0	0	2
	ACC 4	0	0	1	1	0	2	0	0	0	0	0	0	2
	PRPP 1	0	0	3	1	0	4	0	0	0	0	0	0	4
	PRPP 2	0	0	3	1	0	4	0	0	0	0	0	0	4
	PRPP 3	0	0	3	1	0	4	0	0	0	0	0	0	4
	PRPP 4	0	0	3	1	0	4	0	0	0	0	0	0	4
	SECPP 1	0	0	3	1	0	4	0	0	0	0	0	0	4
	SECPP 2	0	0	3	1	0	4	0	0	0	0	0	0	4
	SECPP 3	0	0	3	1	0	4	0	0	0	0	0	0	4
	SECPP 4	0	0	3	1	0	4	0	0	0	0	0	0	4



AHU Room No	Unit No	USED IO Points						SPARE IO Points						Total
		AI	AO	DI	DO	UI	Total 1	AI	AO	DI	DO	UI	Total 2	
	CONPP 1	0	0	3	1	0	4	0	0	0	0	0	0	4
	CONPP 2	0	0	3	1	0	4	0	0	0	0	0	0	4
	CONPP 3	0	0	3	1	0	4	0	0	0	0	0	0	4
	CTFAN 1A	0	0	2	1	0	3	0	0	0	0	0	0	3
	CTFAN 1B	0	0	2	1	0	3	0	0	0	0	0	0	3
	CTFAN 2A	0	0	2	1	0	3	0	0	0	0	0	0	3
	CTFAN 2B	0	0	2	1	0	3	0	0	0	0	0	0	3
	CTFAN 3A	0	0	2	1	0	3	0	0	0	0	0	0	3
	CTFAN 3B	0	0	2	1	0	3	0	0	0	0	0	0	3
	MISC	6	0	79	3	0	88	15	14	10	24	13	76	164
116	DDC No 105	Old DDC No 300					Critical	☒	Standby	☐	Sharing	☐		
	CWCAC 1	2	0	6	0	0	8	0	0	7	8	7	22	30
Total		376	193	1051	182	1	1803	247	273	137	367	121	1145	2948



Section-IIIFORM 'A'Financial Information

11. **Financial Analysis** - Details to be furnished duly supported by figures in balance sheet/ profit and loss account for the last three years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (copies to be scanned & uploaded).

Particulars	Financial Years		
	2022-23	2023-24	2024-25
i) Gross Annual Turnover			
ii) Profit / Loss (Standalone)			
iii) Certified by			

2. Financial arrangements for carrying out the proposed work.
3. The following certificates are to be submitted:
 - a. Profit & Loss account certified by CA & as submitted to Income Tax Department.
 - b. Solvency Certificate from Banker in the Form 'B'.

Signature of Chartered Accountant with seal



FORM "B"

FORM OF BANKER'S CERTIFICATE FROM A SCHEDULED BANK

This is to certify that to the best of our knowledge and information that M/s.

_____ (with address) a customer of our
Bank are / is respectable and can be treated as good for any engagement up to a limit of
Rs. _____
(Rupees _____).

This certificate is issued without any guarantee or responsibility on the Bank or any
of the officers.

(Signature)
For the Bank

Note:

- a. Bankers certificates should be on letter head of the Bank.
- b. In case of partnership firm, certificate should include names of all partners as recorded with the Bank.



FORM 'C'**STRUCTURE & ORGANISATION**

1.	Name & Address of the applicant:		
2.	Telephone No./Telex No./Fax No		
3.	Legal status of the applicant (attach copies of original document defining the legal status) i. An individual ii. A proprietary firm iii. A Firm in Partnership iv. A limited company or Corporation		
4	Particulars of registration with various Government bodies (attach attested photocopy)	Place of registration	Registration No.
5	Names and Titles of Director & Officers with designation to be concerned with this work:		
6	Designation of individuals authorized to act for the organization		
7	Was the applicant ever required to suspend assignment for a period of more than six months continuously after you commenced the assignment? If so, give the name of the project and reasons of suspension of work.		
8	Has the applicant or any constituent partner in case of partnership firm, ever abandoned the awarded work before its completion? If so, give name of the project and reasons for abandonment.		
9	Has the applicant, or any constituent partner in case of partnership firm, ever been debarred / black listed for tendering in any organization at any time? If so, give details.		
10	Has the applicant, or any consultant partner in case of partnership firm, ever been convicted by a court of law? If so, give details		
11	In which fields of Consultancy assignment, the applicant has specialization and interest?		
12	Any other information considered necessary but not included above.		

Signature of bidder with seal



FORM 'D'**Proposal for Upgradation**

The tender shall include the following details as proposal for upgradation:

- Write up describing the scheme.
- Diagram and design brief about the proposed system architecture.
- The limits of DDC capabilities being offered and nature of scalability.
- Any deviation from the descriptions in the schedule of quantities, if any, should also be brought out.
- It is to be noted that technical specification/ quality of work mentioned in this tender is minimum expected from the contractor. If the contractor proposes anything superior to the said specifications without any cost implications, it will be considered with approval of competent authority:

SI	<u>Description of system</u>	
	<u>As laid by inStem in this tender</u>	<u>Proposed design consideration & Technical Specs</u>
i.	Enterprise Server (Version, year of launch, technical details about the software etc.). Note: Minimum version should be recent or should not be older than two year from launch.	
ii.	3 rd Party Integrators (BACNet, Modbus, LonWorks, SNMP, Honeywell to Schneider or Schneider to Honeywell)	
iii.	Controllers (Make, model, technical specification/ Quantity, requirement of additional system such as power, LAN point etc.)	
iv.	Architecture of system (Complete system operation involving supervisory/ server level to field devices for Operation, Monitoring of all equipment under the BMS system)	
v.	Communication Protocol and IO compatibility wrt linear/ non-linear, control voltage, current and resistance details.	
vi.	Licenses (Pls refer scope of work section)	
vii.	Controller Mounting arrangement in the existing DDC Panels.	

Note: The bid will not be evaluated if the bidder fails to submit his proposal with above details

Signature & Seal of Tenderer



Section IV - General Conditions of Contract

Definitions

1. The Contract means the documents forming the tender and acceptance thereof and the formal agreement executed between the Director, inStem and the Contractor, together with the documents referred to therein including these conditions, the specifications, design, drawings and instructions issued from time to time by the Engineer-in Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.
2. In the contract, the following expressions shall unless the context otherwise required have the meanings, hereby respectively assigned to them.
 - i) The expression "works" or "work" shall unless there is something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent and whether original, altered, substituted or additional.
 - ii) The "Site" shall mean the land / or other places on, into or through which work is to be executed under the contract, or any adjacent land, path or street which work is to be executed under the contract or any adjacent land, path or street through which may be allotted or used for the purpose of carrying out the contract.
 - iii) The "Contractor" shall mean the individual or firm or company, whether incorporated or not, undertaking the work and shall include the legal personal representatives of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignee of such individual or firm or firms or company.
 - iv) The "Director" means the Centre Director, inStem, Bangalore and his successors.
 - v) The "Engineer-In-Charge"/ Technical Officer means the Officer or the appropriate competent authority declared by the Director, inStem and who shall supervise and be in charge of the work and who shall sign the contract on behalf of the Centre Director.
 - vi) "inStem" shall mean the Institute Director.
 - vii) Accepting Authority shall mean the Director, inStem



viii) Excepted Risk means risks due to riots (other than those on account of contractor's employees), war (whether declared or not), invasion, act of foreign enemies, hostilities, Civil war, rebellion revolution, insurrection, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting authority or causes solely due to user or occupation by inStem, the part of the works in respect of which a certificate of completion has been issued or a cause or a cause solely due to inStem faulty design of works.

ix) **Department** means inStem which invites tenders on behalf of Director/inStem.

x) **Tendered value** means the value of the entire work as stipulated in the letter of award.

xi) **Date of commencement of work:** The date of commencement of work shall be 7days from the issuing of work order.

Works to be Carried out

4. The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities shall, unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.

Sufficiency of Tender

5. The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.

Discrepancies & Adjustment of Errors

6. Order of precedence for any ambiguity in the schedule of quantities, general conditions, special conditions and specifications for the Contractor shall be as per the decision of the inStem and the same will be binding on the Contractor, and shall be



read as under in the decreasing order of importance.

- a. Schedule of Quantities.
- b. Special Conditions.
- c. General Conditions.
- d. Technical Specifications of Contract.
- e. GFR/ C.P.W.D - Guidelines.
- f. ISHRAE/ ASHRAE Guidelines
- g. Bureau of Indian Standards/ specifications.

Note: Any ambiguity observed shall be brought to the notice of inStem and be executed after obtaining approval from the inStem. In case of any ambiguity between the above, the most stringent will follow.

8.1 If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority regarding the intention of the document and his decision shall be final and binding on the contractor.

8.2 Any error in description, quantity or rate in Schedule of Quantities or any omission there from shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.

Description of Work

7. The work "**Upgradation of BMS System at inStem, Bengaluru-560065**" consists of supply, installation, testing and commissioning of BMS System equipment & system for existing BMS system as per BOQ & Technical Specifications including integrating it with the existing other system. The contractor shall be responsible for its functioning according to the design criteria and its parameters. Notwithstanding the details furnished, any discrepancies shall be brought out in the technical bid highlighting the shortcomings and suggesting modifications.

8. The successful bidder is responsible for satisfactory installation & successful integration, commissioning of the proposed equipment/ system. **Therefore, any issue in the concept of this tender shall be brought to the inStem notice before bidding/ scheduled time for submission of queries.** Any issue arising during the execution should be resolved at quoted cost by the bidder without attempting to pinpoint the discrepancies in the BOQ/ tender thereafter. inStem decision is final in such matters.

9. No work for which rates are not specifically mentioned in the priced schedule of quantities, shall be taken up without written permission of the inStem. Rates of items



not mentioned in the priced schedule of quantities shall be fixed by the inStem as per prevailing market rates.

10. Regarding all factory-made products, they shall be manufactured as per their respective IS code updated and all tests undertaken at factory.

Facilities to be Provided by the Contractor

11. The contractor shall provide everything necessary for the proper execution of the work according to the intent and meaning of the design parameters, technical specifications, drawings and schedule of quantities. Based on the details furnished in the NIT, the contractors should undertake their own assessment and design the plant and system required. If the contractor finds any discrepancies, it should immediately be brought to the notice of the inStem.

12. The tenderer shall take full responsibility for adequacy, suitability and safety of all the design, works and methods of design/ installation.

13. The inStem shall on no account be responsible for the expenses incurred by the contractor during the progress of work at site, towards any incidental expenditure like medical amenities to the workers at site, security arrangement etc. The inStem shall not be responsible for the safety of the workers at site either on account of the works executed by the contractor or on account of the works executed by any other agency involved at that time.

14. The inStem on no account shall be responsible for storage of materials or loss or pilferage or theft either in respect of the material stored or material already built and paid for by the inStem.

15. All tools, equipment and other required facilities for execution of work shall be provided by the contractor.

16. Any facilities available at site shall be utilized only with prior permission of the in-charge of the site and cannot be taken as granted and for such services and utilities, the inStem is entitled to charge at its discretion.

17. Contractor shall provide and maintain all measuring instruments, including steel tape at all time for properly carrying out the work and for the use of the inStem including employing skilled attendants and site engineer at site.

18. No extra charges shall be paid over and above what has been quoted for any of the above or for similar such services.

Period of Contract

19. The contract period for the said work is 6 months (including testing & commissioning works) from the start of work/ PO issue date. Therefore, the contractor should ensure all orders for equipment are placed timely, especially for field



controllers and sub-contracts if any; to manage the lead time and complete the project within stipulated timelines. Warranty for the system/ equipment, as per format attached, is to be provided for one year from the date of completion of work signed by the inStem. Warranty for Server PC shall be for 5 years which shall be OEM on-site warranty. Since, the building is operational in nature, there may be need to deploy the manpower in off working hours or holidays to execute the work, so that it can be completed with minimal disturbance.

Notice and Patents of Appropriate Authority and Owners

20. The successful bidder shall indemnify the inStem against all claims in respect of patent rights, royalties, and damages to buildings, roads or member of public in course of execution of work and shall defend all actions arising from such claims and shall keep the inStem saved harmless and indemnified in all respects from such actions, costs and expenses.

21. The contractor shall conform to the provisions of any Acts of the Legislature relating to the work, and to the regulations and bye-laws of any authorities, and or other Companies (Indian or International), and/ or Statutory Authorities, with whose system and design or technical knowhow are/were proposed to have connection with this work. Also, the contractor shall before make any variations from the drawings or specification that may be associated to so conform, give the inStem written notices specifying the variations proposed to be made and the reasons for making them and apply for instruction thereon. The inStem on receipt of such intimation shall give a decision within a reasonable time.

Clearing Site and Setting out Works

22. The site of work shown shall be cleared of all obstructions, waste materials, and rubbish of all kinds. All material damages on the place of work on the walls, ceiling or flooring or any other connected equipment, materials or installations shall be re-done to maintain the originality and levelled at the contractor's own cost. Thorough cleaning of work shall be undertaken on completion of everyday work.

Disposal of Dangerous/ Waste Materials

23. All waste materials and other matters of any offensive nature shall be taken out once the works are completed. The contractor shall keep the works free from dangerous materials like industrial gases, welding machines and any such devices or material of toxic and poisonous nature shall not carry within the site or building any material that are explosive in nature. Any such offensive materials which are essentially required in course of work shall be undertaken with due written permission of the inStem provided such materials are permissible under Law.



Access

24. Any authorized representatives of the inStem shall have to be provided free access to the works and/ or to the workshops, factories or other places where materials or equipment are being prepared or constructed for the work and also to any place where the materials are lying or from where they are being obtained, and the contractor shall extend necessary facilities to the inStem or their representatives for inspection, examination & testing of the quality & workmanship of the materials.

Materials, Workmanship, Samples and Testing of Materials

25. All the works specified and provided for in the specifications or which may be required to be done in order to perform and complete any part thereof shall be executed in the best and most workmanlike manner with materials of the best and approved quality of the respective kinds in accordance with the particulars contained in and implied by the specifications and as represented by the drawings or according to such other additional particulars, and instructions as may from time to time be given by the inStem during the execution of the work, and to his entire satisfaction.

26. Should the work be suspended by any reason, the contractor shall take all precautions necessary for the protection of work and at his own expenses shall make good any damages arising from any of these causes.

Removal of Improper Work

27. In case the contractor refuses to comply with the specification, the inStem shall have the power to employ and pay other agencies to carry out the work and all expenses consequent thereon or incidental hereto as certified by the inStem shall be borne by the contractor or may be deducted from any money due to or that may become due to the contractor. No certificate that may be given by the inStem, shall relieve the contractor from his liability in respect of unsound work or bad materials or design.

Contractor's Employees

28. The contractor shall employ technically qualified and competent supervisors for the work who shall be available (by turn) throughout the work and shall participate during site meetings and be available to take and comply with instructions of the inStem.

No Child Labour

29. No labour below the age of eighteen years shall be employed on the work. In case of electrical works, the labour employed by the tenderer or their sub- contractor should be authorized person as permitted by the Chief Electrical Inspectorate office of the respective State Government. The inStem shall not be responsible for any deviation and the tenderers shall indemnify the inStem from any legal action or in any way directly or indirectly.



Labour Legislation

30. The tenderer shall comply with the provisions of the payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefits Act, 1961, and the Contractors Labour (Regulation and Abolition) Act 1970, or the modifications thereof or any other laws relating thereto and the rules made there under from time to time.

31. The tenderer shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work, as if the labour had been immediately employed by him.

32. The tenderer shall indemnify and keep indemnified the inStem against payments to be made under and for the observance of the laws aforesaid and the Contractors' Labour Regulations without prejudice to his right to claim indemnify from his sub-contractors. The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

Compliance of Labour Regulations

33. Dismissal of Workmen: The contractor shall on request of the inStem immediately dismiss or take off from the works, any person employed thereon by him, who may in the opinion of the inStem, be unsuitable or incompetent or who may misconduct himself. Such discharge shall not be the basis of any claim for compensation or damages against the inStem or any of their officers or employee.

Assignment

34. The whole of the works included in the contract shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign or underlet the contract or any part, share or interest therein nor, change in constitution and no subletting shall relieve the contractor from the full and entire responsibility of the contract or from active superintendence of the work during their progress.

Damage to Persons, Workmen and Property

35. The Bidder shall be responsible for all injury to the worker or workmen or persons, animals or things and for all damages to the building /part of the building, materials, equipment, structural and / or decorative part of property/property in the vicinity which may arise from the operations/installation or neglect of himself or employees whether such injury or damage arise from carelessness, accident or any other cause whatsoever in any way connected with the carrying out of this contract/performing the work.

36. The Bidder shall indemnify the inStem and hold harmless in respect of all and any expenses arising from any such injury or damages to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of compensation or damage consequent upon such claim.



37. The Bidder shall reinstate, rectify and remedy all damages of every sort mentioned in this clause so as to deliver the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damages to the property.

Payment Terms

38. 90% of the payment shall be made against delivery; balance 10% payable after installation subject to receipt of PBG for 5% order value, trial run and subject to acceptance by the group head through SAI and all other relevant documents, with Performance Bank Guarantee. The percentage of PBG will be determined based on the prevailing rules as of date of finalization of the tender. All claims shall cease as per the Limitation Act.

Escalation

39. The rate quoted shall be firm throughout the tenure of the contract i.e. for 6 months (including extension of time, if any granted) and till the completion of work and will not be subject to any fluctuation due to increase in cost of materials, labour, GST, etc. unless specifically provided in these documents.

Idle Labour

40. Whatever the reasons may be, no claim for idle labour, additional establishment cost of hire and labour charges of tools and plants would be entertained under any circumstances.

Visit of Site

41. Intending Bidder shall visit the site to understand the scope of work involving for executing the work in the inStem premises and make self thoroughly acquainted with the local site conditions, orientation & functioning of equipment/ systems, nature and requirements of the works, facilities of transport conditions, effective labour and materials, accesses and storage for materials. The successful Bidder will not be entitled to any claim of compensation for difficulties faced or losses incurred on account of any site conditions.

Government and Local Rules

42. The Contractor shall confirm to the provisions of all local Bye-laws and acts relating to the work and to the regulations etc. of the Government and local authorities and of any company with whose purview the work proposed to be governed. The Contractor shall give all notices required by said act, rules, regulations and Bye-laws etc. and pay all fees payable to such authorities for execution of the work involved. The cost if any shall be deemed to have been included in his quoted rates, considering all liabilities etc. He shall indemnify the inStem against such liabilities and shall defend all actions arising from such claims or liabilities.

Disputes and Arbitration

43. All disputes or differences, whatsoever, arising between the parties out of or in



relation to the terms and conditions, meaning and operation or effect of this Tender/Agreement or breach thereof shall be settled amicably as mentioned in Schedule F. Venue for Arbitration shall be Bengaluru.

Safety Measures

44. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.

Relationship Between Parties

45. The engagement of bidder shall not constitute the appointment of either Party as the legal representative or agent of the other Party. This engagement is on a principal to principal basis between the Parties hereto. No Party to this engagement shall have any right or authority to assume, create or incur any liability or any obligation of any kind, express or implied, against or in the name of or on behalf of the other Party to this Tender/Agreement except as may be specifically provided.

Non-Exclusivity

46. It is expressly agreed that the engagement between the parties, shall be on a non-exclusive basis. inStem reserves its right to appoint/engage one or more contractors/agencies/service providers to provide the like services or/and work concurrently during the currency of engagement.

Indemnity Clause

47. Service Provider/Vendor shall indemnify, protect and save the inStem, its directors and employees, and hold them harmless from and against all claims, losses, costs, damages, expenses, action suits and other proceedings, (including reasonable attorney fees), relating to or resulting directly or indirectly from any system failure/ anomaly / defect / shortcoming / unintended consequence in services/goods in breach of the terms of this agreement, or infringement by the Service Provider / Vendor of any patent, trademarks, copyrights etc. or breach of the terms of this agreement or such other statutory infringements in respect of all services rendered / goods provided to fulfill the scope of this Agreement.

Liquidated Damages

48. The contractor is liable to pay Liquidated Damages (as per prevailing Govt directives) of delay beyond the specified date of completion which is half percent of the contract value per week of delay subject to the total amount of Damages not exceeding 10 (ten) per cent of the Contract Price. However, the Contractor is entitled to time extension arising out of delays on account of change of scope and force majeure or delays caused by or attributable to the Procuring Entity due building operational exigencies.



Micro and Small Enterprises (MSEs):

49. a. Micro and Small Enterprises (MSE) must, along with their offer, provide proof of their being registered as MSE (indicating the terminal validity date of their registration) for the item tendered, with any agency mentioned in the notification of the Ministry of Micro, Small and Medium Enterprises (Ministry of MSME)
- b. The MSEs are exempted from payment of earnest money and tender fees subject to furnishing of relevant valid certificate for claiming exemption as per privilege rules of Government of India.
- c. The bidder submits registration of Udyog Adhar Memorandum (UAM) by Ministry of Micro Small and Medium Enterprises (MSME) vendors on Central Public Procurement Portal (CPPP). The bidders who fail to submit UAM number shall not be able to avail the benefits available to MSEs as contained in Public Procurement Policy for MSEs Order 2012 issued by MSME.

FORCE MAJEURE CLAUSE:

50. a) Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable. Such events may include, but are not restricted to the acts of the purchaser either in its sovereign or contractual capacity, wars or revolution, hostility, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lock-outs, and freight embargoes. However, it should not be used by a party to effectively to escape liability for bad performance.

If there is delay in performance or other failures by the supplier to perform its obligation under its contract due to event of a Force Majeure, the supplier shall not be held responsible for such delays/failures.

If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such conditions and the cause thereof within 21 days of occurrence of such event with reasonable evidence thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means of performance not prevented by the force majeure event.

If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of force majeure for a period exceeding 90 days, either party may at its option terminate the contract without any financial repercussion on either side.

b) There may be a Force Majeure situation affecting the institute only, under which the institute shall have equal rights to claim relief under such Force Majeure situations.

51. Debarment of bidders by the institute for committing of offences or breach of contract will be governed by the provisions of Government of India, Ministry of Finance, Department of Expenditure, Procurement Policy Division OM No. F/1/20/2018-PPD dated 02.11.2021 / relevant GFR provisions and based on approval of Nodal Ministry.



ELIGIBILITY FOR PARTICIPATION: -

52. Eligibility Criteria: This invitation for bids is open to Original Manufacturers (OEM) /Authorized Dealers/Authorized Distributors/Subsidiary Indian Company of the OEM /Indian Agent on behalf of the Foreign Manufacturer or Principals of the tendered equipment. The bidder must be legal entity having a Permanent Account Number (PAN), Certificate of Incorporation, and Valid GST Registration Certificate is to be submitted

- i. This invitation is for "Class - I" and "Class - II" Suppliers as prescribed in "Public Procurement (Preference to Make in India) order 2017 of GOI. Dept of DIPP" (OM No. P-4502/2/2017-PP(BE-II) dated 16th September, 2020. Necessary certification for local content must be submitted by the prospective bidders strictly as per Annexure attached with the tender document.
- ii. For indicating the price, the tenderers may choose any/all of the following: The 'Class-I Local Supplier' / 'Class-II Local Supplier' at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for 'Class-I Local Supplier' / 'Class-II Local Supplier' as the case may be.
- iii. Indigenous manufacturers and their authorized dealers are eligible and they will be considered as Local Supplier Class – I/II for price preference as per GOI Notification vide OM bearing No. F-45021/2/2017-PP(BE-II) dated 04th June, 2020 and again on 16th September 2020 issued by Department of Industry and Internal Trade (Public Procurement Section), Ministry of Commerce & Industry, Govt. of India.
- iv. NON-LOCAL Suppliers are also eligible for participation in the tender as per relaxation on Global Tender Enquiry (GTE) on 354 Medical Devices Equipment as per OM. No.F.4/1/2023-PPD(pt.) dt.28/06/2024 which will be exempted from the Instructions issued vide OMs No. F/12/17/2019-PPD dt.15.05.2020 & 28.05.2020 regarding GTEs.
- v. In pursuant of the clarification vide GOI Notification vide OM bearing No.P-45021/102/2019-PP(BE-II) (E-29930) dated 26.11.2020 issued by Public Procurement Section, Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GOI that bidders offering imported products will fall under the category of Non-Local Suppliers and they can't claim themselves as Class – I Local Supplier / Class – II Local Supplier by claiming profit, warehousing, marketing, logistic, freight etc., as Local Value addition.
- vi. In pursuant of the OM bearing No.F.N.6/18/2019-PPD dated 23.07.2020 issued by Public Procurement Div., Department of Expenditure, Ministry of Finance, Govt. of India the manufacturer/supplier are not eligible for participation if they are from such country which shares the land border with India. Offered items manufactured in such countries will not be considered.

As per O.M No. F.No.6/18/2019-PPD, dt.23/07/2020, the following condition to be fulfilled and the bidder to submit the following declaration on their Letter head.

I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is Registered with the Competent Authority.

II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency



branch or office controlled by such person, participating in a procurement process.

III. "Bidder from a country which shares a land border with India" for the purpose of this Order means: -

- a. An entity incorporated, established or registered in such a country; or
- b. A Subsidiary of an entity incorporated, established or registered in such a country; or
- c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
- d. An entity whose beneficial owner is situated in such a country; or
- e. An Indian (or other) agent of such an entity; or
- f. A natural person who is a citizen of such a country; or
- g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.

53. **RISK CLAUSE**

Notwithstanding the other terms therein, the Institute at its option will be entitled to terminate the contract and to avail from elsewhere; at the risk and cost of contractor; either the whole of the contract or any part which the contractor has failed to perform within the time stipulated or if the same performance is not available, the best and the nearest available substitute thereof. The contractor shall be liable for any loss which the Institute may sustain by reason of such risk contract in addition to penalty.

54. **DISPUTE AND RESOLUTION**

Any dispute or differences that may arise between the parties that cannot be settled by mutual discussion at appropriate levels shall be referred to the sole arbitration of the Director, inStem or his nominee and his decision in the matter shall be final and binding upon the parties to the dispute. The venue for arbitration proceedings shall be Bangalore. In respect of any matters pertaining to such arbitration, the courts of law in Bangalore will have exclusive jurisdiction. This arbitration agreement (hereinafter referred to as this "Agreement") relating to this Contract (hereinafter called the "Main Agreement" for this agreement) is made under the provisions of the Arbitration and Conciliation Act, 1996 as amended from time to time and the rules thereunder (hereinafter called the Arbitration Act).

55. Since we are a public funded research institution, we are exempted from paying Customs Duty (Except advalorem duty of 5% + 10% High Edu. CESS vide Notification No.51/96 Customs dt: 23.07.1996, amended by Notification No. 43/2017 dated. 30.06.2017, further amended by Notification No. 42/2022-Customs dated 13.07.2022, Notification No.07/2024-Customs dated 29.01.2024; Notification No. 38/2024-Customs dated 23rd July, 2024; Notification No. 45/2025-Customs dated: 24.10.2025 as amended from time to time for research purposes only.



Section V - Special Conditions of Contract

1. The specification for the entire work shall be in accordance with latest ASHRAE/ISHRAE/ / CPWD specifications and latest IS codes unless it is mentioned in this tender document. Whenever these codes are silent, the same shall be governed by sound engineering practice and the decision of the inStem in matter of interpretation shall be final and binding on the successful bidder.
2. The contractor shall be responsible for any damage caused to the equipment/building during the execution of the work.
3. In case of any accident during the work leading to injuries/damages to human being equipment and or loss of life, the contractor shall be fully responsible for settling all claims and indemnify the Department against any claims arising out of such accidents.
4. Any break-down call or complaint reported to the contractor verbally or in writing shall be attended promptly during the warranty period.
5. All the material used for the work should be OEM certified material.
6. The tendered rates quoted by the contractor shall be firm and final. Nothing extra will be paid on this account.
7. Contractor is liable to provide all necessary electrical precautionary measure to his staff and all the local safety and security regulations shall be observed strictly.
8. No old/ dismantled material shall be used by the contractor in the work under any circumstances, unless otherwise specified or under instruction of the inStem.
9. Any act of indiscipline/ misconduct/ theft/ pilferage on the part of any employee engaged by the successful bidder resulting in any loss to inStem in kind or cash will be viewed seriously and inStem will have the right to claim damages or levy fine and/ or terminate the Contract forthwith, if necessary.
10. The successful bidder shall obtain adequate insurance policy/ policies in respect of his workmen to be engaged for the work towards meeting the liability of compensation arising out of death/ injury/ disablement at work etc.

Correction of Work before Final Payment

11. inStem shall conduct a final inspection just before the virtual completion of the work and prepare a final list of materials, equipment and item of work which fail to conform to the contract specifications. The Contractor shall promptly replace or re-execute such items in accordance with the contract and shall bear all expenses of making good all work and the cost of all work of the other Contractor, destroyed or damaged by such replacement or removal.

If the Contractor fails to remove and replace above rejected materials, equipment/ or workmanship within a reasonable time, fixed by written notice, the Owner may employ



and pay other persons to amend and make good such defects at the expense of the Contractor. All expenses incurred by the Owner in rectifying the defects including all damages, loss and expense consequent on the defects shall be recoverable from any amount due or which may become due to the Contractor.

Virtual Completion

12. The work shall be considered virtually complete only upon fulfilment of the procedure laid down in the preceding clause and when the inStem has certified in writing that the work has been virtually completed. The defect liability period shall commence from the date of such certificate.

Defects Liability Period

13. Defects Liability Period shall be Twelve calendar months after completion of the works as certified under clause titled "Virtual Completion". Any defects in material or workmanship observed in the entire work during execution or work or within defect liability period shall be notified in writing by the inStem to the Contractor and shall be rectified by him at his own cost within 7 days of time/ as specified by the inStem. Upon such successful completion of DLP, Engineer- in charge shall issue orders for release of the security deposit.

Annual Maintenance Contract

14. Annual Maintenance Contract may be awarded to the bidder whoever quotes L-1 price for the tender including AMC items which is 'Rate Only' item, to undertake the AMC scope of work as mentioned in Scope of Work section. AMC prices will be considered to determine the L-1 bidder for Upgradation work. However, only upgradation work shall be awarded initially. After successful completion of work and warranty period, AMC will be awarded subsequently as per rates quoted in the tender for AMC. The award of AMC work is subject to approval by the Competent Authority. A separate tender may also be undertaken based on the Institute's requirement. AMC items have not been considered in the total estimate value of upgradation work.

15. **RATE ONLY Items:** Items marked as RO (Rate Only) in the SOQ will not be considered for deciding the L1 vendor. However, the Institute reserves the right to place/ procure the items during the contract period based on the requirements of the upgradation work. The contractor should supply the items at the quoted cost. If the RO rates quoted by the contractor is found to be on the higher side, the Institute reserves the right to procure the same from alternate sources.



APPROVED MAKES OF EQUIPMENT & MATERIALS

Sl	Details of Equipment and Materials	Manufacturer's Name
1.	Pre-Approved Vendor	Schneider/ Honeywell
2.	Controllers & Software	Schneider/ Honeywell
3.	Personal Computer	HP/ DELL/ Lenova
4.	Color Monitors	HP/ Samsung/ LG
5.	Signal Cable / Communication Cable	Polycab/ Capital cable/ Fusion Polymer/ Grandley/ Delton
6.	MB Conduits	BEC/ AKG
7.	Network Switch	TP Link/ DLink
8.	CAT6 Lan Cable	DLink/ Avaya/ AMP
9.	1100 V grade PVC insulated copper conductor wires	Finolex/ Skytone/ Havelles/ RR Cables
10.	Armoured Cables including FRLS type	Finolex/ Skytone/ Havelles/ RR Cables
11.	Thimbles & Lugs	Dowells/ Jainsons
12.	Brass Glands	Comet/ Gripwell/ Electromec
13.	Relays	Reputed make with approval

Note:

- Successful bidder to obtain the approval for Make & Material meeting tender specification prior to start of work.
- Make of any other equipment not mentioned above shall be got approved from the Consultants before execution.
- Make of any other equipment/ material not mentioned above shall be got approved from the inStem before execution.
- Relevant catalogue to be submitted along with the offers.
- Relevant Test Certificates to be produced for various equipment & material during billing process.



CHECK-OFF LIST FOR SUBMISSION OF DOCUMENTS

<u>Sl</u>	<u>Document Description</u>	<u>Submitted</u>
<u>Technical Bid Envelope Upload</u>		
1.	Duly signed Technical Bid Tender Document	Yes/ No
2.	EMD - Rs.4,00,000/- (Firms registered as MSE are exempted and they are to submit Valid Registration Certificate) paid as per Nle-T.	Yes/ No
3.	Formal contracts and completion certificates of similar type of service	Yes/ No
4.	Proof to the effect of incorporation along with copy of PAN card & GST	Yes/ No
5.	Valid OEM Channel Partner Certificate	Yes/ No
6.	Copy of ITCC of last 3 years or ITR of last 3 years	Yes/ No
7.	An undertaking in 'Letter Pad' stating not blacklisted by any of the Govt. Depts./Govt. Institutions etc.	Yes/ No
8.	Form-A, Financial Information	Yes/ No
9.	Form-B, Banker's Solvency Certificate or Net worth Certificate	Yes/ No
10.	Form-C, Organizational Structure	Yes/ No
11.	Form -D, (Technical bid without Form-D may not be evaluated)	
<u>Price Bid Envelope</u>		
12.	Price Bid, duly filled in GeM Portal with care by considering Scope of work and RATE ONLY Items, GST & Cess etc are submitted as per procedure	Yes/ No

Signature of bidder with seal



Section VI – Schedule of Quantities

NIT No: 003/2026-2027 Dated 16 Jul 2026							
Name of the work: “Upgradation of Building Management System - inStem, Bengaluru-560065”							
Sl	Description		Unit	Qty.	Unit Price	GST	Amount
1	Building Management Workstation: SITC of Central Computer System: OEM branded Tower desktop computer, Latest 12th Gen core-i7 12C, Base 2.1Ghz 25MB SMART Cache, 16GB 1x16GB DDR4 Non ECC memory, 1TB M.2 PCIe NVMe SSD, Windows 11 pro EN Down gradable to Linux, Additional 1TB SSD Hard Disk Drive, 32" FHD IPS Anti glare LED Monitor with DP/HDMI ports, Height adjustable stand, tilt, pivot, swivel, brightness 250cd/m2, contrast 1000:1, 260W 90 plus efficiency power supply, 4 PCIe Expansion slots, Power Diagnostic Light, Serial/PS2 slot, Dimensions: width: 154mm, depth 292mm, height 324mm, Volume 14.6L, Built in Intel iris xe graphics, USB-3.2gen ports, Type-C ports, USB keyboard and 3button optical mouse, Necessary cable to connect monitor and graphics adapter, 5 years complete onsite OEM warranty.	No.	1				This section is model price bid only. No price shall be quoted in technical bid. Prices shall be quoted in price bid only online.



Ref No: PI/000289/26-27(A)

2	BMS Software/ Enterprise Server software: SITC of Web Based Graphical interface software. The system should be accessible from anywhere on LAN or WAN or Ethernet without additional licenses. The Communication protocol shall be one of the Industry Standard Open Protocols such as IP/ BACNet/ Modbus/ Lonworks etc. Software shall have customizable dashboards for energy management. All functions such as strategy, graphics, alarms, schedules, notification etc. shall be provided as per scope of work/ specifications & directions from Engineer in-charge. Software should be scalable & no extra communication driver license required shall be acceptable. Software shall have permanent Development/ Engineering license (for editing graphics, logics, control blocks etc.), 2 concurrent user/ workstation license, unlimited web user license and network license (as applicable). All licensors should be permanent in nature. BSL3 BMS software shall remain standalone system. Separate software shall be provided for Lab building.	Lot	1		
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3	Third Party Integration: SITC of Network Automation Server BTL/UL listed Required Gateway for integration of DDC controllers. Standard Open Protocols such as BACNet, MODBUS, LonWorks etc having high memory of min 2 GB and Processor speed of min 300 mhz. DDC controller shall have battery backup for at least one day. Gateway shall have 10/100 ethernet ports, RS-485 communication port. Gateways shall be DHCP enabled & have an option of creating whitelisting I/P for cybersecurity. Gateway shall be of same make as software, DDC controller OEMs. Point count licence should have provision to handle 6000 IO Points. Water cooled/ Air Cooled chillers VFDs (AHUs, Pumps, Cooling Towers) VAV System -80/ -20 freezers Energy meter/ Multifunction meters	Lot	1						4
	DDC Field Controller: SITC of Standalone BTL & UL listed BACNet I/P field DDC controller having universal input/ output ports. Controller shall have 2 10/100 ethernet port & can communicate in Star, Daisy chain, RSTP topology & offer path redundancy for communication. DDC controller shall be DHCP enabled to ensure VPN network. All DDC Field controllers should be recently launched products and should have spares/ service support for at least 10 years.								

Ref No: PI/000289/26-27(A)



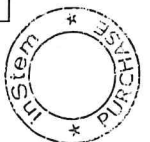
5	The controller shall be independent in operation and the failure of any other device / controller or the operator workstations, shall not cause any disruption to the function of the rest of the system. The DDC controllers shall have the facility to implement user modifiable time schedules as daily, weekly, monthly annual temporary schedules. The DDC Controllers Shall have integration facility with at least 2 ports of integration. The DDC Controllers shall operate on existing 24AC power supply. DDC controllers shall have provision for 15% Spare IO points other than listed IO points in the scope of work IO Summary. Existing DDC Enclosures shall be used and cost for necessary mounting arrangements for new DDC field controllers shall be included if the existing mounting found unsuitable. Job includes dismantling/ removal of existing TAC Xenta Controllers and installation new controllers including IO points connection/ binding. Replacement of all DDC for the AHU's and Chiller Plant (As per Total 116 DDC Panels & 3000 IO Points referred in Section-II scope of work). Binding of new IO points shall also to be undertaken which are presently not in BMS.									
								Lot	1	
	Networking Devices & Accessories:									



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5.1	Supply, installation, testing and commissioning of Layer 2 managed 8-port Gigabit switch. The switch shall have 2 RSTP enabled ports to communicate with other switches to built a star topology network with redundancy on CAT6 armoured UTP cable within the building complete as per specifications and as required for BMS DDC Panel Networking. Each DDC should have one dedicated IO Point from the BMS Network.	No	25			
5.2	Supply, installation, testing and commissioning of Cat-6 IO with Jack, Back/Gang box and Faceplate with 1mtr Patch cord for controller connection.	Nos	120			
6	Cables & Cable Trays					
6.1	Supply, laying, testing & Commissioning of CAT 6 UTP Steel tape armoured cables with required accessories like patch panel, Factory crimp patch cords. Cable shall be installed in existing cable trays or on walls using clamps etc. The price is inclusive of all clamps, screws, end to end RJ-45 jacks etc.	RM	9,000			
6.2	Supply, laying, termination, testing & Commissioning of 2 x 1.5 sq.mm Annealed Tinned Copper Shielded armoured cable for signal and power as per specification. (for I/O points hard wired to DDC). Cable shall be installed in existing cable trays or on walls using clamps etc. The price is inclusive of all like joining, termination, clamps, screws etc.	RM	500			
6.3	Supply, laying, termination, testing & Commissioning of 3 x 1.5 sq.mm Annealed Tinned Copper Shielded armoured cable for signal and power as per specification. (power Cable). Cable shall be installed in existing cable trays or on walls using clamps etc. The price is inclusive of all like joining, termination, clamps, screws etc.	RM	500			



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6.4	Supply, laying, termination, testing & Commissioning of 4 x 1.0 sq.mm Annealed Tinned Copper Shielded armoured cable for signal and power as per specification. (for I/O points hard wired to DDC). Cable shall be installed in existing cable trays or on walls using clamps etc. The price is inclusive of all like joining, termination, clamps, screws etc.	RM	300			
6.5	Supply & installation of 6 Amp surface mount electrical modular box with one 3-pin Socket and one Switch, white box, Polycarbonate for power supply to Network switch.	No.	25			
6.6	Supply, installation of 1.6 mm thick GI cable tray with of the following sizes complete with angle iron supports/hanging arrangement etc. and Cable tray supports shall at every 1 meter. Refer Clause 15 of SCC in Section V.					
6.6.1	300 x 50 x 2 mm	Mtr	RO			--
6.6.2	150 x 50 x 2 mm	Mtr	RO			--
6.6.3	100 x 50 x 2 mm	Mtr	RO			--
7	Supply of Field DDC Controllers as used in BoQ Sl.4, as emergency spares (to use if the installed controllers become defective. If lesser than 4 types are used, it should be quoted only for those types and remaining types may be quoted as zero). Refer Clause 15 of SCC in Section V.					
7.1	Type-1	No.	RO			--
7.2	Type-2	No.	RO			--
7.3	Type-3	No.	RO			--
7.4	Type-4	No.	RO			--



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8	Annual Maintenance Contract (AMC): AMC contract in full scope shall commence after one year of Defect Liability Period (DLP) ie 2nd year onwards for inStem Lab Building and BSL3 Lab. Refer AMC Scope of work in Section-II of technical bid and Clause 14 of SCC in Section V.								
8.1	1st Year AMC cost	Job	1						
8.2	2nd Year AMC Cost	Job	1						
8.3	3rd Year AMC Cost -	Job	1						
8.4	4th Year AMC Cost	Job	1						
8.5	5th Year AMC Cost	Job	1						
	Total Value of Work (A)								
9	Buyback Items								
9.1	Buyback of Automation Servers (AS-P)	Nos	8						
9.2	Buyback of Field DDC Controllers								
9.2.1	TAC Xenta - 302 Controllers	Nos	117						
9.2.2	TAC Xenta - 401 Controllers	Nos	2						
9.2.3	TAC Xenta - 411 Controllers	Nos	43						
9.2.4	TAC Xenta - 421A Controllers	Nos	19						
9.2.5	TAC Xenta - 451A Controllers	Nos	13						
	Total Value of Buyback Items (B)								
	Net Value of Work (Total A minus Total B)								
	Net Value of Work Amount in Words -								



Annexure-A**Declaration of Compliance of Order (Public Procurement No.1, 2 & 3) dtd 23-Jul-2020 & 24 Jul 2020 on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017**

This declaration must form part of all tenders & it contains general information and serves as a declaration form for all bidders. (Before completing this declaration, bidders must study the General conditions, Definitions, Govt Directives applicable in respect of Public Procurement No.1, 2 & 3) dtd 23 Jul 2020 & 24 Jul 2020 on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 & prescribed tender conditions).

DECLARATION BY AUTHORISED SIGNATORY OF THE FIRM

I, the undersigned, (full names), do hereby declare, in my capacity as of M/s. (name of bidder entity), that:

- 1) The facts contained herein are within my own personal knowledge.
- 2) I have read the Order (Public Procurement No.1, 2 & 3) dtd 23 Jul 2020 & 24 Jul 2020 on the subject of Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 regarding restrictions on procurement from a bidder of a country which shares a land border with India and comply to all the provisions of the Order.
- 3) I certify that M/s. (name of bidder entity) **is not from such a country or, is from such a country (strike out whichever is not applicable)**, has been registered with the Competent Authority. I hereby certify that the SUPPLIER fulfills all requirements in this regard and is eligible to be considered. (Where applicable, evidence of valid registration by the Competent Authority is attached).
- 4) I understand that the submission of incorrect data and / or if certificate / declaration given by M/s. (name of bidder entity) is found to be false, this would be a ground for immediate termination and further legal action in accordance with law as per clause 12 of the Public Order on Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017.

AUTHORISED SIGNATURE: _____

DATE: _____

Seal / Stamp of Bidder



Annexure-B

Bid Security Declaration for Order Value > Rs.5 Lakh
(to be submitted on Company's Letter Head)

I/We the undersigned hereby declare that if we withdraw or modify the bids during the period of its validity, or if we are awarded the contract and fail to sign the contract, or to submit a performance security before the deadline defined in the request for bids document or fail to execute the contract, we will be suspended for the period of time specified in the request for bids document from being eligible to submit bids for contracts with the entity that invited the bids.

Name and Signature
of Authorized Signatory
and Company Seal



Certificate for Local Content

“We (name of manufacturer) hereby confirm in respect of quoted item(s) that Local Content is equal to or more than 50% and come under “Class-I Local Supplier” Category. As being “Class – I Local Supplier”, we are eligible for Purchase Preference under “Make in India” Policy vide GOI Order No.P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019 and 04.06.2020).

OR

“We (name of manufacturer) hereby confirm in respect of quoted item(s) that Local Content is more than 20% but less than 50% and come under “Class-II Local Supplier” Category.

The details of the location (s) at which the local value addition made is/are as under:

- 1.
- 2.
- 3.

*Strike out whichever is not applicable

Date:

Seal & Signature of the Bidder

NOTE:

1. Self-certification that the item offered meets the minimum local content (as above) giving details of the location(s) at which the local value addition is made in case the bidder wishes to avail the benefits under the make in India policy, if applicable.
2. In cases of procurement for a value in excess of Rs.10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content to avail the benefits under the make in India Policy, if applicable.



DECLARATION BY AUTHORISED SIGNATORY OF THE FIRM

I, the undersigned, (full names),
do hereby declare, in my capacity as
of M/s (name of bidder entity), that:

- 1) The facts contained herein are within my own personal knowledge.
- 2) I have read the Order and provisions of Government of India, Ministry of Finance, Department of Expenditure, Procurement Policy Division OM No. F/1/20/2018-PPD dated 02.11.2021 and confirm that I/we have not been convicted of an offence and not engaged in any of the acts as mentioned below:

A bidder shall be debarred if he has convicted of an offence-

- (a) under the Prevention of Corruption Act, 1988:

or

- (b) the Indian Penal Code or any other law for the time being in force, for causing any loss of life or property or causing a threat to public health as part of execution of a Public Procurement Contract

AUTHORISED SIGNATURE:

DATE: _____

Seal / Stamp of Bidder



Annexure-E

BANK GUARANTEE
 (TO BE EXECUTED ON THE NON JUDICIAL STAMP OF VALUE NOT LESS THAN Rs.200/- BOUGHT **IN THE**
NAME OF THE BANK)

NAME & ADDRESS OF THE BANK _____

BANK GUARANTEE NO. _____

DATE OF EXPIRY: _____

LIMIT OF LIABILITY: _____

PO/WO NO. & DATE: _____

TO

 INSTITUTE FOR STEM CELL SCIENCE AND REGENERATIVE MEDICINE
 GKV CAMPUS, BELLARY ROAD, BENGALURU -560065

Dear Sir,

1. In consideration of M/s. INSTITUTE FOR STEM CELL SCIENCE AND REGENERATIVE MEDICINE, (hereinafter called the Institute), having agreed to issue PO/WO to M/s. _____ (hereinafter referred to as the Vendor), for having awarded the Supply Contract/works Contract vide PO/WO No. _____ dt. _____ in favour M/s _____ having registered office at _____ (hereinafter referred to as the CONTRACTOR), for the execution of the works on terms and conditions set out in the PO/WO mentioned above as "CONTRACT" documents, valued at Rs. _____ (Rupees _____) the same having been accepted by the CONTRACTOR and the CONTRACTOR having agreed to provide a performance bank guarantee for the obligations/liabilities under the contract equivalent to Rs. _____ (Rupees _____), we hereby undertake to pay to the Company an amount not exceeding Rs. _____ (Rupees _____ only) on a mere demand made by the Company.
2. On a demand being made that the sum is due, the Bank shall pay without demur or contestation the amount covered by the guarantee and any demand by the Company that the money is due shall be conclusive and binding on the Bank.
3. It is hereby expressly agreed and affirmed that the Company shall have the fullest liberty to claim payment of the amount / amounts from time to time under this guarantee upto Rs. _____ and the guarantee shall not become invalid or infructuous because of the partial demand or demands made by the Company.
4. We _____ (Name of Bank), hereby agree that any claim due and arising under this guarantee shall be enforceable against our Bank's branch _____ (Mentioning the name & address of Branch) and they shall honour such demand in any case not later than next working day.
5. It is further agreed that any time given to the Customer or forbearance with regard to performance by the Customer shall in no way affect the liability of the Bank and this Bank Guarantee will be in full force.
6. It is also agreed that we, _____ Bank undertake not to revoke this guarantee during its currency except with the previous consent of the company in writing.



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Notwithstanding anything contained herein above, our liability under this Guarantee is restricted to _____ (Rupees _____). This Guarantee shall remain valid up to _____. Unless a claim in writing is lodged with us within the above mentioned date i.e. on or before _____, all rights under this Guarantee shall be forfeited and we shall be released and discharged from all liabilities under this Guarantee.

We are liable to pay the Guarantee amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before _____.

Dated _____ day of _____ 2026

Important Note:

While purchasing the stamp paper,

The first party shall be the Bank.

The second party shall be "Institute for Stem Cell Science and Regenerative Medicine" (REMARK: NAME OF INSTITUTE SHALL BE TYPED IN FULL UPTO WHICH IT APPEARS ON THE STAMP PAPER)

The signature of the bank employee on all pages of the document along with the employee code may be ensured while submitting the PBG.



CHECKLIST FOR BANK GUARANTEES (BG) FOR EACH BG		
Name of the Party submitting BG:		
Name of the Bank issuing BG:		
Branch issuing the BG:		
BG No.: AND BG Date:		
BG Value:		
BG Validity/Expiry Date:		
SL No.	Particulars	Yes/No
1	Is BG as per approved format	
2	Is the BG issued by the specified category of Banks (Scheduled Commercial Bank/Nationalized Bank etc. as specified in the contract)	
3	Is the BG executed on stamp paper of adequate value i.e., Rs.200 and obtained in the name of Bank issuing the BG?	
4	Is the date of sale of stamp paper prior to the date of the BG?	
5	Is BG referring to the relevant PO/WO/agreement/tender, if any,	
6	Does the BG bear the number, date and seal of the issuing Bank?	
7	Is the BG signed on all pages by the authorized bank officers along with name, designation & code number?	
8	Whether the BG validity period is as per the requirement?	
9	Whether issuing bank has confirmed that SFMS has been sent to the advising bank?	

