

Request for Proposal

For

Data Center

Design and Construction

at Bank's Corporate Office,

Keshar Mahal, Kathmandu.

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INTRODUCTION

Nepal SBI Bank Ltd (NSBL) is a foreign subsidiary of State Bank of India (SBI) having 55 percent of ownership. The local partner viz. Employee Provident Fund holds 15% equity and General Public 30%.

The Bank proposes to invite Request for Proposal (RFP) to construct the Data Center at its head office located at Keshar Mahal, Kathmandu, Nepal. The proposal should also include training, support and maintenance of the data center.

The eligible and selected vendors are requested to submit their proposal for supply, installation and commissioning of the data center. The RFP should comprehend all the terms and conditions and specification mentioned in the standardized form of RFP document.

PURPOSE

The RFP is intended to design and construct the physical infrastructure required for converting existing space into the fully functional data center. The proposed data center infrastructure should function on 24(hrs) X 7(days) basis.

Moreover RFP is intended to develop the ICT infrastructure required for creation of new Data Center. The data center construction activities includes various civil, electrical, mechanical, and all other related works required for creation of state of art data center at KesharMahal, Kathmandu, Nepal.

The RFP, of others includes supply, delivery, installation and commissioning of detection and suppression devices and equipments needed for establishing state of art interior of Data Center suited for quality driven 'A' class commercial Bank. The RFP also includes various methods to secure the data center including installation and commissioning of environmental monitoring devices.

RFP intends to integrate all the above mentioned activities into single infrastructure monitoring system. All the proposed devices should be integrated to central infrastructure monitoring system with remote monitoring and operational functions.

The successful supplier will also be responsible for executing additional activities that would be required but may not necessarily mentioned in the RFP for Data Center Design and construction. The successful vendor should supply, install, test and commission any materials or equipments including civil works that may not specifically mentioned in the RFP document but are required for successful completion of project from technical as well as security point of view.

PROJECT OVERVIEW

- Nepal SBI Bank Limited (Bank) intends to construct the data center at its office at KesharMahal, Kathmandu, Nepal.
- The new data center will have separate server room and electric room with provision of 6 racks. The electrical design and construction should be in such a way that each rack density should be of 8 KVA.
- Bank proposes to build new data center with approx. 250sq.ft area for data center infrastructure and approx. 150 sq. ft. area for electrical room and setup all server racks, network racks in the new data center with minimum network downtime.
- The successful vendor has to undertake Design and Construction of the Data Center at proposed location as per the internationally accepted standard Data Center design practices. Detail technical requirements have been specified in the concerned section of this document for the guidance of the vendors. Moreover the solution from vendor as per the practice and experience of the data center construction is also solicited, if preferred.
- Interested vendors may visit site of the data center.
- The vendor must also design and provide the required infrastructure design with redundancy of critical components like UPS, Battery Cooling System etc.
- Since the new proposed data center is proposed to be setup in the Bank premises and Data Center setup would be during working hours, care must be taken that the existing structure of the building and working condition of the organization is not disturbed.
- The successful vendor will have to submit the preliminary plans and other options as required for design of Data Center. The structural plan, data center diagram, cabling diagram and layout plan should be submitted to bank along with 2D and 3D presentation.
- The vendor should possess the adequate experience, strength and capabilities in design and construction of data center infrastructure and providing the services necessary to meet the requirements as described in the bid documents. The vendor must also possess technical knowledge and financial capability that would be required for execution of the project.

EVALUATION AND COMPARISON OF TECHNICAL PROPOSAL

Upon the receipt of technical proposals, the Bank's Financial Direction Committee will evaluate the technical proposals taking into account the following factors:

Evaluation Factors

Past Experience [35 Marks]

- Number of design and construction of Data Center project in Class A financial institution or Dept/office of Govt. of Nepal/public sector of Nepal along with past project details.
- Marking criteria has been given in Annex-I

Design and quality of Data Center [25 Marks]

Vendors shall submit design of both Data Center and Electrical room along with 3D and 2D presentation. The Bank shall evaluate the designs and presentation and assign marks to the vendors based on the following:

- Understanding of key issues, requirements, constraints and opportunities in the refinement of the project framework. (Marks: 10)
- Compliance to requirements; achievement of the task objectives/deliverables .(Marks: 10)
- Appropriateness of the proposed methodology and work plan to address project conditions; demonstration of compatibility of the methodologies with the proposed work plan. (Marks: 5)

Company Capability [20 Marks]

- Timely availability of DC components for replacement/repair.
- Net worth of the company/firm.
- Turnover of the company/firm related to DC design/construction/Annual Maintenance Contract (AMC) etc.
- Number of Personnel having practical experience of design/construction/AMC of Data Center in Nepal.
- Number of AMC/call based service related to DC.
- Marking criteria has been given in Annex-II

Proposed Project Team [15 Marks]

- Project leader along with list of project personnel which will be assigned the job for NSBL and their qualification.
- Average experience of the project team members.
- Marking criteria has been given in Annex-III.

Affiliation with the manufacturer, regional distributor or supplier [5 Marks]

- Authorization letter from key manufacturer
- Past collaboration with the manufacturer, distributor and suppliers
- Marking criteria has been given in Annex-IV.

Note: Company/Firm shall submit documents evidencing information/declaration/claim provided/made in their proposal.

TECHNICAL SPECIFICATION FOR THE DATA CENTER

Data Center Design

- The data center shall be designed based on the best industrial practices and standard of the data center construction. The entire component used in the construction of the data center shall conform to the data center best practices and industrial standard. Priority will be given to those vendors whose products and services have record of prior installation in the data center.
- The vendor shall be responsible from the commencement to handover of the project.
- The vendor is required to provide the detail architectural diagram and other required diagrams and illustrations like conceptual plan, electrical layout, airflow plan, network diagram etc.
- All the components and equipment should be tested and commissioned in the presence of the authorized personnel of Bank, before the final handover.
- Upon the completion of the project detail operating manual and training manual is to be submitted to Bank. Moreover, detail operation training shall be provided to the Bank officials on the various installed components.
- Construction of the data center shall be undertaken based on the mutually agreed upon data center layout.

Scope of work for vendor

The design of the data center has to comply with the data center standard and design and the vendor has to:

- Design the DC layout plan.
- Undertake civil work for data center, erection of the dry wall partition, access floor system, false ceiling.
- Demolition of the existing partitions/ structure in the proposed DC premises.
- Supply delivery and installation of Raised access flooring system with necessary accessories and thermal insulation.
- Supply, delivery, installation and commissioning of Precision Air Conditioning System for cooling required for the data center.
- Design, supply, installation and commissioning of Environmental protection system for Bank's Data center.
- Design, supply, installation and commissioning of monitoring and access control system for Bank's data center.
- Install redundant power distribution system for supplying power to Data Center.
- Supply and installation of redundant UPS Power Supply System with power backup.
- Redundant CAT 6 Network wiring of the data center as per requirement.
- The vendor shall provide Standard Operating Procedure (SOP) documents for each and every component delivered and installed at data center.
- The vendor should be able to provide the periodical and regular preventive maintenance of Datacenter's components as per the Bank's requirement.
- The proper Service level Agreement (SLA) shall be devised by both the parties during construction and post-construction (Maintenance) phases covering the uptimes of data center components, and penal clause associated with respective components. The vendor will have to put up the compliance status vis a vis SLA between the Bank and the Vendor, to the bank at fortnightly intervals during construction phase.
- The vendor itself shall carry out the data center operations during handholding period, i.e., upto 2 months; adequately educate and train NSBL team during that period; and handover the operation to NSBL thereafter.
- The above scope of the work is only illustrative, not exhaustive. The vendor shall be responsible to design, construct and commission the data center to confirm to the best international industry standard and practices.

COMPONENTS OF DATA CENTER CONSTRUCTION

Physical Infrastructure	
1	Raised Access Floor
2	Fire Resistant Partition Wall
3	Fire Resistant Door
4	Fire Resistant Acoustic Ceiling
Power and Network Management	
5	Separate Power Cabling for Data Center
6	Basic Electrical System for Data Center
7	Power Distribution Modules for PDUs
8	Data Center Lightings
9	Cable Trays
10	Automatic Transfer Switch
Data Center Cooling	
12	Precision Air Conditioning
Fire Detection and Automatic Suppression	
13	Fire Detection System
14	Fire Suppression System
Environmental Monitoring System	
15	Temperature and Humidity Detection System
16	Water Leak Detection System
17	Rodent Repellent System
DATA CENTER Security	
18	IP Surveillance System
19	Access Control System
Data Center Remote Monitoring	
20	Data Center Infrastructure Monitoring

RAISED ACCESS FLOORING SYSTEM

General work description:

Supply and installation of access floor system (raised floor system) to house bank's data server and networking related equipment racks.

Summary

Data Center Area	Approx 250 sq.ft
Finished Floor Height (FFH)	Up to 600mm (max)
Under Floor Structure	Bolted Pedestal and stringers
Under floor	13mm Nitrile Insulation with proper adhesive

System Description

- The raised access floor installation shall consist of 600 mm x 600 mm modular and interchangeable steel panels, supported by a steel understructure, in accordance with this specification.
- The finished raised access floor surface shall be free of exposed metal edges and shall be sturdy, rigid, firm and free of vibration, rocking panels, rattles, squeaks, echoing sounds and other noises to render a quiet and aesthetically pleasing floor.

Company/Material Standards

- ASTM F – 150 / NFPA 99 / ANSI S7.1
- BS 476: Part 6
- ISO 9001

FIRE RESISTANT PARTITION WALL

General work description:

Design, supply, installation and commissioning of Fire Resistant Partition wall to cover the proposed Data Center. The proposed partition should have non permissible air tight, thermally insulated under floor. For data center rigid floor to ceiling partition wall having 2 hours fire proof rating are to be considered. Opening in the wall partition shall be provided for the doors, electric cabling and LAN cabling. All the holes in the opening area are to be sealed properly.

Installation Area:

- Data Center Complete Area: 250 Approx.
- Wall area (including windows): Approx.
- Board Thickness : 9 mm or higher

Detailed general requirement:

- The fire resistant should be capable of resisting passage of fire and smoke and providing insulation as defined in accordance with British Standard 476.
- The fire resistant partition should prevent or slow the spread of fire from the room of origin to other building space or vice versa.
- Fire Proofing material preferably Phenolic Board/ Calcium Sulfate / Tricalcium Silicate Board or equivalent.
- All the windows in the server room should be closed with fire resistant material. Prior to closing glass of the windows shall be covered from inside with appropriate sun control sticker in glass.
- Partition should be finished with suitable color for server room.

FIRE RESISTANT DOOR

General Work Description:

Appropriate door sizes (as per the layout) to be supplied, delivered and installed at the site. Proper access has to be provided to allow for service or replacement of UPS, PAC and other large items.

The server room shall be provided with a main access door manufactured from high quality galvanized steel and having fire rating up to 2 hours (conforming to BS 476 part 22 and IS 3614 part 2 standards). The doors shall be 1000 x 2100 mm or higher size single leaf with SS ball bearing butt hinges, mortise lock, heavy duty door closer and all other accessories. The door shall be painted with etch primer and finish painting of approved color to match the color scheme of the area.

Detailed Description:

- The door should be 2 hr Class B fire rated with a minimum thickness of 45 mm fully insulated steel composite lightweight material.
- The door and all associated parts should be coated with fire retardant, anti corrosive and material with anti fungal and microbial protection. The color of the door should be matching with the installation location surroundings.
- The door assemblies and components should be built as per the normally accepted international standard for given system and it should be properly labeled for the same.
- All the edges of the door hinges and assembly should be fire rated by use of necessary gaskets, fire proof sealants; in tumescent strips etc so that the total assembly meets the final requirement safely.
- The final installation should be compliant to NFPA80 or equivalent standard.
- The door assembly should be compatible to electronic /magnetic door lock / dead bolt compatible to open the door with access control system.
- The installed door should open full wide to give maximum available area for the use.
- The Installed system should be long life type.

FIRE RESISTANT ACOUSTIC CEILING

General work Description

The false ceiling shall be of Mineral fibre board modular and grid type (600x600 tiles type). All the ceiling tiles with grid shall be supported on suitable powder coated galvanized steel/hot dipped galvanized steel white shade suspension as per manufacturer specification. The ceiling shall be provisioned with cut-outs for lighting, AC grills, Fire detectors, nozzles etc.

- Datacenter complete area: about 250 sq.ft
- Ceiling size: 600mmX600mm

Detail Description

- The false ceiling should be horizontally leveled using hot dipped galvanized steel section grids pre finished in baked polyester paint
- The grid should consist of rotary stitched main tee 24 x 38 x 0.33mm at every 1200 mm C/C max and supported by 2.5 mm GI wire fixed horizontally parallel to each other. The main tee should be joined by rotary stitched Cross Tee of size 24 x 30 x 0.254 mm at every 600 mm C/C max and rotary stitched Sub Cross Tee of size 24 mm x 25 x 0.254 mm at every 1200 mm C/C max to form 600mm X 600mm grid.
- The 600mm X 600mm grid should be fitted with 600mm X 600mm X 15mm thick mineral fiber tiles having minimum RH 80 %, NRC of 0.55 and CAC of 34 dB in the above grid.
- The section grid should be fixed in the RCC slab with GI hook and Raw Plug.
- The wall angle should be 15 x 15 x 0.457 mm fixed in all around the perimeter of the room.

- The ceiling shall be accessed frequently for cabling, maintenance work and emergency needs. The false ceiling structure and grid shall be erected at height of 9 feet from the Access floor

ELECTRICAL SYSTEMS

- This specification shall be applicable to all equipments to be supplied and erected under this package in accordance with detailed scope of work and accompanying electrical sections. Vendor shall provide fully compatible electrical system, equipments, accessories and services for entire area under his scope as well as those specially required by Bank if any.

Design Criteria

- The equipment shall be used in medium voltage system having characteristics as listed in this specification.
- The equipment shall be installed in a hot, dusty, humid and tropical atmosphere.
- The equipment shall be capable of withstanding the dynamic and thermal stresses of listed short circuit current without any damage or deterioration.
- The safety clearances of all live parts of the equipment shall be as per relevant standards.
- All equipment/components of identical rating shall be physically and electrically interchangeable.
- Wherever single core cables are terminated in any equipment, gland plate shall be of aluminum (3-4 mm thick).
- There shall be no straight through joints in power & control cable.
- All cable terminations shall be with double compression cable gland with armor holding system.
- The lighting fixture shall have loop in & loop out facility.

Electrical Distribution Board Panels

1. **Modular type Panel:** The panels shall be modular type meaning that the panels are of compartmentalized design so that circuit arc/ flash products do not create secondary faults and be fabricated out of high quality CRCA sheet, suitable for indoor installation having dead front operated and wall mounting type.
 - The Panels shall be designed to withstand a heaviest condition at site, with maximum expected ambient temperature of 50° c., 95% humidity.
 - Gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust proof.
 - All doors and covers shall be with foam rubber gasket and /or rubber strips and shall be lockable.
 - All panels and covers shall be properly fitted and secured with the frame and holds in the panel correctly positioned. Fixing screws shall enter into holes, taped -into an adequate thickness of metal or provided with bolts and nuts.
 - Self-threading screws shall not be used in the construction of Panels. A base channel of 75 mm. x 40 mm. x 6 mm. thick shall be provided at the bottom.
 - The Panels shall be designed to facilitate easy inspection, maintenance and repair. The Panels shall be sufficiently rigid to support the equipment without distortion under normal and under short circuit condition. They shall be suitably braced for short circuit duty.
2. **Painting:** The painting shall be powder coating process with epoxy paint.
3. **Instrument Compartments:** Separate adequate compartment shall be provided for accommodating instruments control contactors / relays etc. These components shall be accessible for testing and maintenance without any danger of accidental contact with live parts, bus bar and connections.
4. **Busbars:** The Busbar shall be air insulated and made of high quality, high

conductivity, high strength Aluminum.

- The busbar shall be of 3 phases and neutral system
- The busbar shall be of rectangular cross-section designed to withstand full load current for phase busbars and half rated current for neutral busbars in case of MCC panels only and shall be extensible on either side.
- The busbar shall have uniform cross-section throughout the length. The busbars and interconnections shall be insulated with Heat Shrinkable Insulation Sleeve. The busbar shall be supported on bus insulators of non flammable type with high creep age and high anti tracking property and non-hydroscopic SMC / DMC insulated supports at sufficiently close intervals to prevent busbars sag and shall effectively withstand electromagnetic stresses in the event of short circuit.
- The busbar shall be housed in a separate compartment. The busbar shall be isolated with 2-mm thick FRP sheet to avoid any accidental contact.
- All connections between busbars and circuit breakers / switches and cable terminals shall be through aluminium strips of proper size to carry full rated current. These strips shall be insulated with insulating tapes or Heat Shrinkable Insulation Sleeve.
- Panel to panel entry of busbar shall be effectively sealed by electrical and thermal insulation barriers so that products of flashover do not travel from one panel to another panel creating multiple faults.
- Busbar calculated on 50 deg. C. ambient temp and 85 deg. C. for continuous and short time rating. Busbar surrounded air temp shall be considered 70 deg. C. for busbar calculation.

5. Electrical Power and Control Wiring Connection: Terminal for both incoming and outgoing cable connections shall be suitable for 1100 V grade, aluminum / copper conductor XLPE insulated and PVC sheathed,

armored cable and shall be suitable for connections of solder less sockets for the cable size as indicated in the Bill of Material.

- Power connections for incoming feeders of the main Panels shall be suitable for 1100 V grade aluminum conductor (AYFY) cables.
- Both control and power wiring shall be brought out in cable alley for ease of external connections, operation and maintenance. Both control and power terminals shall be properly shrouded.
- 10% spare terminals shall be provided on each terminal block. Sufficient terminals shall be provided on each terminal block, so that not more than one outgoing wire is connected per terminal.
- Terminal strips for power and control shall preferably be separated from each other by suitable barriers of enclosures.
- Wiring inside the modules for power, control, protection and instruments etc. shall be done with use of 660 / 1100 V grade, FRLS PVC insulated copper Conductor cables conforming to IS. For current transformer circuits, 2.5 sq.mm. Copper conductor wire shall be used. Other control wiring shall be done with 1.5 sq.mm. PVC insulated copper conductors. Wires for connections to the door shall be flexible.
- Control power wiring shall have control fuses, (HRC fuse type) for circuit protection. All indicating lamps shall be protected by HRC fuses.
- Particular care shall be taken to ensure that the layout of wiring is neat and orderly. Identification ferrules shall be fitted to all the wire termination for ease of identification and to facilitate checking and testing.
- Final wiring diagram of the Panels power and control circuit with ferrules numbers shall be submitted along with the Panels as one of the documents against the contracts.

6. **Terminals:** The outgoing terminals and neutral link shall be brought out to a cable alley suitably located and accessible from the panel front.

7. **Wireways :** A horizontal / vertical metal wire way with screwed covers shall be provided at the top to take interconnecting control wiring between different

vertical sections.

8. **Labels:** Engraved PVC labels shall be provided on all incoming and outgoing feeders. Single line circuit diagram showing the arrangements of circuit inside the distribution board shall be pasted on inside of the panel door and covered with transparent laminated plastic sheet.

9. **Name Plate:** A nameplate with the Panels designation in bold letters shall be fixed at top of the central panel. A separate nameplate giving feeder details shall be provided for each feeder module door. Inside the feeder compartments, the electrical components, equipments, accessories like switchgear, control gear, lamps, relays etc shall suitably be identified by providing stickers. Engraved nameplates shall preferably be of 3 ply, (Red-White-Red or Black-White-Black) lamincoid sheet. However, black engraved perplex sheet name plates shall also be acceptable

10. **Danger Notice Plates:** The danger notice plate shall be affixed in a permanent manner on operating side of the Panels. The danger notice plate shall indicate danger notice both in Nepali and English and with a sign of skull and bones. The danger notice plate, in general, meets the requirements of local inspecting authorities. Overall dimensions of the danger notice plate shall be 200 mm. wide x 150 mm. high.
 - a. The danger notice plate shall be made from minimum 1.6 mm. thick mild steel sheet and after due pre-treatment to the plate, the same shall be painted white with vitreous enamel paint on both front and rear surface of the plate. The letters, the figures, the conventional skull and bones etc. shall be positioned on plate as per recommendation of IS: 2551-1982. The said letters, the figures and the sign of skull and bones shall be painted in signal red color as per IS: 5-1978. The danger notice plate, if possible, is of ISI certification mark.

11. ***Internal Components*** :The Panels shall be equipped complete with all types of required number of Air circuit breakers, soft starters, switch fuse units, contactors, relays, fuses, meters, instruments, indicating lamps, push buttons, equipment, fittings, busbars, cable boxes, cable glands etc. and all the necessary internal connections / wiring as required. Components necessary for proper complete functioning of the Panels but not indicated on the drawings shall be supplied and installed on the Panels. All part of the Panels carrying current including the components, connections, joints and instruments shall be capable of carrying their specified rated current continuously, without temperature rise exceeding the acceptable values of the relevant specifications at the part of the Panels. All units of the same rating and specifications shall be fully interchangeable.

Components

The type, size and rating of the components shall be as indicated on the relevant drawings. While selection of the capacity of the components resulting from the prevailing conditions like ambient temperature shall be allowed for. The thermal and magnetic trip rating shall be compensated for the ambient temperature.

Moulded Case Circuit Breaker(MCCB): The moulded case circuit breaker (MCCB) shall be air break type and having quick make - quick break with trip free operating mechanism. Housing of the MCCB shall be of heat resistant and flame retardant insulating material. Operating handle of the MCCB shall be in front and clearly indicate ON/OFF/TRIP positions. The electrical contact of the circuit breaker shall be of high conducting non-deteriorating silver alloy contacts. The MCCB shall be provided with overload and short circuit protection device.

1. ***Current Transformer:*** Where ammeters are called for C.T.s shall be provided for current measuring. Each phase shall be provided with separate current transformer of accuracy Class I and suitable VA burden for operation of associated metering and controls. Current transformer shall be in accordance with IS: 2705 -1964 as amended up to date.
2. ***Indicating Lamps:*** Indicating lamps assembly shall be screw type with built in resistor having non-fading color lens. LED type lamps are required.

PRECISION AIR CONDITIONING

Technical requirement of Precision Air Conditioning are:

- Precision air conditioners complete with all controls, indoor and outside units, with Direct driven Motors and Backward curved blowers, multiple scroll compressors preferably in tandem circuit, electronic expansion valve, hydrophilic fins for IDU Coil complete installation and commissioning for server room.
- The vendor is expected to include all auxiliary works like ducting, inlet and drain piping, piping between indoor and outdoor, cabling, acoustic and thermal insulation (Duct and floor for server room), etc with related civil works etc as per the site requirements.
- Automatic monitoring and control of cooling, heating, humidification, dehumidification, air-filtration, etc. should be installed
- The PAC solution shall support N+1 configuration
- These equipment should be compliant to the following :
 - Cabinet conforming to Class 1 BS 476 Part 6&7 standards
 - Air filtration conforming to EU4 standards for Data centre and EU2 for Command and Control Center.
 - Humidifier should have an adjustable capacity control ranging from 40%-100%. Immersible electrode and Bottle type humidifier.
 - Visual and audible alarm indication
 - Real time logging of the last 100 events/alarms.

Heat, Ventilation, Air Conditioning (HVAC)

1. Air conditioning for direct expansion air conditioning is used then condensers should be located outside the building
2. Criteria in determination of the air conditioner placement should be its effectiveness in addressing the current planned load, and their adaptability to change in configuration.
3. Consider the air flow patterns of the hardware being installed. Take care units are not laid out in a fashion that exhausts air from one unit into the intake of the next.
4. Optimal temperature range for system reliability and operator comfort levels should be between 21 deg C + or – 1
5. For safe data processing operations ambient relative humidity should be between 50+/-5% RH.
6. Server room requires precision air conditioning with a sensitivity of +/-1.5 C and +/- 5% RH or closer. Ideally a Server Hall cooling system should have sensible ratio of 1: 1, most precision systems have between 85% to 100% sensible cooling.
7. To deliver the air to the areas in need of air conditioning, the sub floor pressure differential should be maintained at an optimal level of 2 mm hg.
8. Server Hall should be isolated from contaminants. Inside server Hall airborne dusts, gases and vapours should be maintained in the defined limits to minimize their potential impact on the hardware. Server Hall should be free from water ingress

Microprocessor controller Panel

The display panel should be located on the front of the unit with LCD display for monitoring and alarm indication. The panel should be used for:

Status detection (whether on or off)

- a. Temperature controller
- b. Humidity controller

The main control panel should make an audio visual alarm in case of:

1. Power failure
2. Fan overload
3. Humidifier power fault
4. Humidifier control fault
5. Heater fault
6. Airflow failure
7. Change filter
8. Control circuit trip
9. Return air temperature / RH out of range
10. Supply air temperature out of range
11. Return air humidity sensor alarm
12. Return air temp. Sensor alarm
13. Data Error
14. Service alarm
15. Electric heater alarm
16. Microprocessor fault
17. Humidifier flood
18. Water leakage alarm
19. Smoke alarm

Other functions of the control panel:

Self-diagnostic functionality

An automatic changeover for duty / standby unit based on time interval setting and any failure of duty unit.

An automatic restart function with sequence start program to prevent power surge during start-up on multi-system installation.

Comprehensive event storage system by date and time of occurrence.

Simple user-friendly operating guidance.

Remote monitoring of the Precision AC unit using desktop PC with SNMP interface.

FIRE DETECTION SYSTEM

The vendor should install smoke detection system in the data center for detecting smoke in the data center. The smoke detection system should have multi zone detection system for fail proof wiring.

Fire Alarm Control Panel

- UL Listed
- AC Power: 230 VAC, 50 Hz, 3.0 A. or 240 VAC, 50 Hz, 1.5 A.
- Wire size: minimum 14 AWG (2.00 mm²) with 600 V insulation. Non-power-limited, supervised.
- Battery: Two 12 V 18 AH TU SMF batteries.
- Battery Charger Capacity: 7-18AH (cabinet holds maximum of two 18 AH batteries.)

Manual Fire Alarm Pull Stations

1. UL/ FM Approved.
2. Switch contact ratings: gold-plated; rating 0.25 A @ 30 VAC or VDC.
3. Manual Fire Alarm Stations shall be non-code, with a key- or hex-operated reset lock in order that they may be tested, and so designed that after actual Emergency Operation, they cannot be restored to normal except by use of a key or hex.
4. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red colored LEXAN (or polycarbonate equivalent) with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in white letters, 1.00 inches (2.54 cm) or larger.

Photoelectric Smoke Detectors

1. UL Listed FM Approved
2. Voltage range: 15 – 32 VDC (peak).

3. Standby current: 300 μ A @ 24 VDC.
4. LED current: 6.5 mA @ 24 VDC (latched “ON”).
5. Air velocity: 4,000 ft. /min. (20 m/sec.) maximum.
6. Diameter: 6.1" (15.5 cm) installed in B350LP base.
7. Height: 2.1" (5.33 cm) installed in B350LP base.
8. Weight: 3.6 oz. (102 g).
9. Operating temperature range: 0°C to 49°C (32°F to 120°F) or 0°C to 38°C (32°F to 100°F).
10. Temperature: 0°C – 49°C (32°F – 120°F).
11. Relative humidity: 10% – 93%, non-condensing.

HOOTER / Mini-Horns

1. UL and ULC Listed CSFM , MEA and FM Approved
2. Operating Temperature Range: 0°C to 49°C (32°F to 120°F).
3. Mounting: Surface: Deep single-gang backbox (2-3/4” deep)

ELECTRICAL SPECIFICATIONS

- a. Input Terminals: 12 to 18 AWG
- b. Nominal Voltage: Regulated 12DC/FWR or 24DC/FWR
- c. Operating Voltage: 8-33
- d. Operating Voltage with MDL3R/W: 9-33

Control Module

1. UL Listed FM Approved
2. Normal operating voltage: 15 to 32 VDC.
3. Maximum SLC current draw: 6.5 mA (LED on).
4. Average operating current: 350 μ A direct poll (CLIP mode), 375 μ A group poll
5. (Lite Speed mode) with LED flashing.
6. External supply voltage: maximum 80 volts (RMS or DC).
7. Drain on external supply: 2 mA maximum (using internal EOL relay).
8. EOL resistance: 47K ohms.

9. Temperature range: 32°F to 120°F (0°C to 49°C).
10. Humidity range: 10% to 93% non-condensing.

Gas Release Panel

1. Powder coated finish. Operates on 220V, A.C supply Battery backup with built in charging. 16 X 2 LCD Dot Matrix Display.
2. Evacuate and Key pad Enable, Disable Facility. Low battery visual warning with audible tone. Relay output for actuators. Remote fire indication with Audible Tone. Compatible to all types of conventional detectors. Three 24V Hooter Output (Fire, after Cross zone, after gas release). Two mode operation facility (Auto / Manual).
3. Programmable FAP input selection Facility. Programmable Solenoid Output with On and OFF Timer. Main / Standby Cylinder output Facility (Optional). Gas Inhibition and Instant release facility. Manual Gas Release with or without timer. Actuator pressure low sensing facility. Pressures switch facility.

FIRE SUPPRESSION SYSTEM

1. Fire Detection is not the complete Fire Protection Solution.
2. In case of a fire threat sensed, immediate action has to be initiated so as to avoid the impetus of a potential Fire Hazard and most important to maintain Business Continuity.

3. Fire Protection follows the empirical formula:

DETECTION + SUPPRESSION = PROTECTION

4. In the event of a Fire alarm, signal is given to the Control panel, which sounds an audiovisual alarm, and a preset timer circuit is initialized. (Time delay set – 0 to 256 seconds, as per site requirement). Trained Fire fighting Personnel can extinguish the fire in this time delay made available, else, the time delay, signal is given to the gas release module. The gas release module actuates the Electrical Solenoid on the release valve fitted on the NOVEC 1230 Gas cylinder, and gas is released in to the manifold through the high-pressure hose. The gas is further let into the protected area through a properly designed Piping distribution network and nozzles.
5. The entire sequence of operation from the signal to Gas release module to the actual completion of Gas discharge takes less than 10 seconds, and the fire is not allowed to propagate, thus saving the critical assets housed in the protected area.

Purpose

This specification is for procurement of NOVEC 1230 Clean Agent Based Fire suppression system. It shall be used as a standard for the System Equipment, System Installation and acceptance testing.

Mandatory Bidding Requirements:

1. Original Equipment Manufacturers (OEMs) for NOVEC 1230 equipment authorized and certified to install and market NOVEC 1230 Fire protection only can be quoted. Any other product without system approvals shall not be qualified for this RFP.

2. The OEM shall arrange for the storage container required for their respective systems offered.

Specific Technical Requirements:

1. The Storage Container offered shall be of seamless type. Welded cylinders are not permitted.
2. The NOVEC 1230 valve, operating actuators shall be an Electric (Solenoid) type, and should be capable of resetting manually. Provision should be provided on the Electric Control Head for a Manual Lever for over-ride in case of failure of the Electrical components. The Electric Control Head (Actuator) shall operate at 24 VDC. Vendors are required to submit confirmation for the same and provide the technical data sheet for the same. The Electric Control Head should be capable of being functionally tested for periodic servicing requirements, and without any need to replace consumable parts.
3. The system flow calculations shall be carried out on certified software, suitable for the particular container being offered for this project. Such System flow calculations carried out for this project, shall be further vetted by the OEM for its accuracy, and the only such vetted calculations shall be admissible for approval.

General Technical Requirements:

1. The designer shall consider and address possible Fire hazards within the protected volume at the design stage. The delivery of the Novec 1230 system shall provide for the highest degree of protection and minimum extinguishing time. The design shall be as per NFPA standard NFPA 2001.
2. Sub floor and the ceiling void also to be included in the protected volume.
3. The NOVEC 1230 Fire Suppression System shall include a detection and control switch provision for both pre-alarm and automatic agent release.
4. The Novec 1230 System to be supplied by the vendor must be strictly in accordance with OEM's product design criteria.
5. The detection and control system that shall be used to trigger the

NOVEC 1230 suppression shall employ photoelectric and ionization smoke detectors. A single detector in one zone activated, shall cause an alarm signal to be generated.

6. Another detector in the second zone activated, shall generate a pre-discharge signal and start the pre-discharge condition.
7. The discharge nozzles shall be located in the protected volume in compliance to the limitation with regard to the spacing, floor and ceiling coverage etc. The nozzle locations shall be such that the design concentration will be established in all parts of the protected volumes. The final number of the discharge nozzles shall be according to the OEM approved software, OEM Product manual and the OEM vetted programmable pressure loss & flow calculation for this particular project, and the same shall be approved by the
8. The Cylinders shall be equipped with differential pressure valves & No replacement parts shall be necessary to recharge the NOVEC 1230 containers.
9. NOVEC 1230 shall be discharge through the operation of an Electric (Solenoid) operated device which releases the agent through a differential pressure valve. Systems that employ explosive or pyrotechnic device shall not be permitted.
10. All system components shall be New and of Current manufacture and shall be installed in accordance with local codes. The Buyer, or the End user of this system reserves the Exclusive Rights to unconditionally reject any and all such components which may not be, or are suspected not to be of current manufacture; and / or on the grounds of authenticity of the system components and designs.
11. The vendor shall provide IN ORIGINAL all documentation such as Cylinder Manufacturing Certificates, Test and Inspection Certificates & Fill Density Certificates.

The extinguishing system shall include the following components:

1. Agent storage container with cylinder valve.
2. NOVEC 1230 agent.
3. Discharge nozzle (s).
4. Mounting brackets.
5. Discharge hoses.
6. Systems containing component that have a dated life span and must be periodically replaced shall not be acceptable.
7. The releasing device shall also be capable of direct mechanical actuation, providing a means of discharge in the event of total electrical malfunction.
8. Provided with a manual lever and a faceplate with clear instruction of how to mechanically activate the system. In all cases, Novec 1230 cylinders shall be fitted with a manual mechanical operating facility that requires two-action actuation to prevent accidental actuation.
9. Release of NOVEC 1230 agent shall be accomplished by an electrical output from the Novec 1230 Gas Release Panel to the Electric control head release device and shall be in accordance with the requirements set forth in the current edition of the National Fire Protection Association Standard 2001.

RODENT REPELLANT SYSTEM

Introduction

- Ultrasonic Pest Repellent shall be electronic transmitters of high frequency sound waves (well above the 20 KHz frequency which is the upper limit of the hearing range of the human ear.) They should emit intensive sound at high decibel levels (sound pressure) that is audible and painful to pests, but inaudible and harmless to humans.

System

- System shall consist of Master Console with corresponding Satellites/ Transducers. The Master Console shall be installed in the main control room/ server room, and the satellites in the problematic areas i.e. above and below false ceiling and below raised access flooring.

Master Console

- The Master console shall be powered through a 230 VAC, 5 A quality supplies.

Satellites

- Each Satellite shall cover an open area of 300 sq ft given the average height of the ceiling is 10 ft. Installed in the false ceilings or false floorings, it shall be capable of covering an minimum area of 150 sq ft.

TECHNICAL INFORMATION

Crystal: Shall be similar to DM 44T 24V of MAS Germany.

Visible Hexagonal, Triangle exciter – Centre damp horizontal line exciters.

Frequency: Peak frequency responses of the satellites are,

21.6 KHz +/- 3 KHz

31.6 KHz +/- 3 KHz

54.4 KHz +/- 3 KHz

60 KHz +/- 3 KHz

Nature of Sound Waves: The sound waves propagated by the satellites shall be linear sine waves with constantly varying frequencies.

Specifications

Configuration	: One master console with satellites/ transducers
Operating frequency	: Above 20 KHz (variable)
Sound output	: 80 dB to 110 dB
Power output	: 800 mW per satellite
Power consumption	: 15 W approximately
Power supply	: 230 V AC 50 Hz
Mounting	: Wall/ table mounting

1. Rodent Repellent are electronic transmitters of high frequency sound waves above 20 KHz frequency in the upper limit of the hearing range of the human ear. They emit intensive sound at high decibel levels (sound pressure) that is audible and painful to pests, but is inaudible and harmless to humans. The pests usually leave the area being protected by ultrasound. They do not get killed.
2. The system shall be designed for server room and Transducers which emit UHF sound waves are placed in the desired location to cover the entire room including the false ceiling and false flooring area. These transducers are connected to the main controller which controls the entire operation of the system.
3. The system should be as per the PETA approved standard.
4. The system should have test facility to check the functionality of all the installed satellite transducers.

WATER LEAKAGE DETECTION SYSTEM

1. Water Leak detection Module.

Water Leak detection module with Webpage interface for viewing conditions and modifying configurations, Optimal scalability sensing cable Easy integration with existing systems via Modbus, BACnet, SMTP, SNMP and/or dry contact outputs, Highly precise pinpointing and displaying in feet or meters, Logging capabilities of event and trend data, Simple installation with NO calibration required, Compact and light-weight, Supervised system with facility to map with Graphic Display on PC. RoHS compliant, UL-Approved. And SMS / Email alert facility through the DCIM System.

2. WLD sensor cables.

Digital Addressable Water leak detection cable sensor with Non- conductive polymers used in the leak detection cable's construction. This helps eliminate irritating alarms that could result from contact with metal, such as raised floor pedestals. An abrasion resistant polymer core increases the strength of the cable. Pressure on the sensing cable will not create a false alarm, with Pre Connected Connectors, Dries quickly without external drying devices, Complete - Plenum rated, UL listed, & RoHS compliant.

3. Pre laminated Leak detection reference plan / Map

Pre laminated Leak detection reference plan / Map to indentify the actual location of any water leak detection in the protected area. The leak detection plan / map shall identify protected room layout, cable routing and distance shall be marked in feet or meters.

TEMPERATURE AND HUMIDITY DETECTION SYSTEM

- 1) Temperature and relative humidity Detection system with internal logging with option of data off loading / recycling feature after a reasonable number of stored records for a reasonable number of periods. Capability to get integrated with the infrastructure management system is needed.
- 2) The system should be capable to accommodate one to two numbers of external temperature and humidity probe. The system should be able to take reasonably accurate reading when installed in a PAC air handling unit near air intake / output path.
- 3) Monitoring System must be compatible with Modbus, Bacnet, SNMP, DCIM and Building Management System Compatible.
- 4) The system should be able to display current real time temperature and humidity simultaneously for the target room. The display should indicate average reading if more than one probe is used.
- 5) The temperature range to be monitored shall be -5C to + 50 C with resolution of 0.5C. The humidity monitoring range should be 0 – 100% none condensing.
- 6) Sampling frequency should be user selectable from 1 second to 12 hours. The system should be configurable to raise visual and audible alarm if the temperature and humidity threshold is exceeded then the set level.
- 7) System should allow alarm on / off, data reset, system reset, data off load and system sampling start stop operation. The system should keep record of the temperature and humidity sampling with date and time record. The system date time should be user adjustable and accuracy of 1 min (Plus Minus) in one month when operated between 18-25C.
- 8) The internal memory should be non-volatile type to retain the threshold and operational parameter setting and sampling data during battery outage and replacement situation. A system with minimum power consumption and long battery replacement duration shall be preferred. The system should be able to interface with building / infrastructure management system.

BIOMETRIC ACCESS CONTROL SYSTEM

Technical Specifications

- 500 fingerprints or higher
- 30,000Event buffers or higher
- FAR (False Acceptance Rate) with less than 0.0001% FRR (False Rejection Rate) with less than 0.1%
- Language Support: English,
- Voltage:3A/12V DC Standard Current:50mA Operating Current:400m

General description

1. The access control system should be finger print reader type with built-in key pad for PIN input and programming, with optional proximity card reader. The finger print reader with input keypad shall be installed at the entry point of each of the above doors separately.
2. Biometric Access Controller must be compatible with Modbus, Bacnet, SNMP, DCIM and Building Management System Compatible.
3. The system should have network communication capability to communicate for activity recording, data upload down loaf for system in built register. It would be preferable if the system has direct either net connectivity for communication and external power (PoE).
4. The system should be sturdy, compact and long life manufactured by a good company with ISO certification for their production and quality checking environment. It should have power level indicator, successful read and failure/ error indicator apart from other indicator/display used for programming with beep/ audio indicator.
5. The system should have built in battery backup system to operate. The system centralized software should have user proper authentication (user name and password control). The system should be able to

- support complex passwords and enforce it. The system should allow menu based control for the access of add/modify / enable / disable etc required functions and should have provision to assign specific functionality to specific or group or users.
6. The centralized system should be able to keep log of the access / exit activity by recording in / out activity with date, time stamp and duration. It should be able to generate formatted report for daily / monthly activity along with system audit trails and other relevant required reports.
 7. The access control system should be able to support minimum 100 users and 10000 transactions. The centralized software administration function should allow users with different functionality.
 8. It will be preferable if the system has web based administration interface with some light weight database accepting SQL command. The data base should hold the data in encrypted form.

IP SURVEILLANCE SYSTEM

1. The Network Standalone system to monitor the activities around and inside the data center. The system should have facility to record real time monitoring and recording the activity. The system should play back the footage as and when required

Dome Camera:

The Dome camera unit should be 1/3" CCD type Network Signal Processor Color Camera. The camera must have Auto Gain Control and Back Light Compensation. The complete unit shall be housed in a dome and base unit, both made from the material suitable for required fire grade. The camera should be tamperproof. It shall be possible to adjust the camera head inside the dome in both the planes so that it can be wall or ceiling mounted.

Other important features of the camera should be as follows:-

Product Parameters:

Horizontal Resolution	:	1. 340 TV Lines
Focal Length	:	2. f = 3.6 mm
Sensitivity	:	3. 2.0 lux / F=1.2
Gamma Correction	:	4. >0.45
Back light	:	5. Yes
Auto Gain Control	:	6. On
Auto White Balance	:	7. Yes
IRIS Level	:	8. Adjustable
S/N Ratio	:	12. >48dB

Network Video Recorder (NVR):

The Network Video Recorder (NVR) shall be offering Triplex Operations for Simultaneous Viewing Live, Playback and Recording.

The NVR must be Non-PC based standalone equipment with its own proprietary Non Windows based Software.

- The NVR must have a LAN/ISDN/Modem network connectivity built in with unlimited simultaneous user access for both Live and Play Back Viewing and System configuration settings.

No additional software should be required in order to watch the NVR from a remote location.

42 U SERVER RACK

This includes supply, delivery, and installation of the 42U server rack in the newly constructed data center. The rack should include following specifications.

- The server rack should be compliant with EIA 310 standard.
- The rack should stand on the Raised Access floor
- The rack should be fabricated with heavy duty extruded aluminum/ Steel frame for rigidity.
- The rack should be 42U, 600mm width and 1000mm Depth.
- The rack should be made with UL Certified and ROHS compliant
- Rack should have fully perforated mesh front and rear door for air circulation.
- The server rack should support the cooling, cable management and power system distribution of the data center.
- The server rack should have vendor neutral chassis system that support EIA 310 standard
- The server rack should contain all the necessary equipment and accessories to mount the servers and devices.
- The top and bottom cover should have adequate cable entry gland plates.
- The rack should be fitted with C13 Reverse Cable Power distribution unit with minimum 8 power outlets.
- Vendor should supply 4 units of Metered PDU(C-13) port with Interface to connect with DCIM.
- Power Distribution Module (PDM) should have individual Energy Monitoring of each branch of Electric Circuit. PDM and PDU shall be compatible with DCIM.
- Quick release side panel with locking capability for easy cable management.
- The whole rack, body and side panels should be integrated to grounding system.
- The doors of the rack should be capable to interchange or move to other sides.

DATA CENTER INFRASTRUCTURE MONITORING

The key information of the data center should be remotely visible and controlled by the DCIM system. All the equipment installed in the data center should have DCIM interference and DCIM control. Following are the features of the DCIM requirement.

DCIM Hardware Capability

Power Fail Monitoring

UPS Monitoring

PAC monitoring

Fire Suppression Monitoring

IP Camera Monitoring

Sensor Ports: 8 ports

SMS Based Notification

Automatic Sensor Identification (Plug & Play)

Sensor Supervision

Compatible with existing CAT 5 or 6 wiring

IP Device Monitoring

Voice Call Notification

E-Mail Notification

Built In Battery Backup

Built In Web Server

DCIM Software Capability

Real-time graphic visualization and control

Browse through Standard web-browsers.

Supports of protocols with Modbus, OPC, Profinet, Ethernet/IP, IEC 60870, SQL, SNMP

Scheduling for Alarms & Notification

SVG (text-based graphics) for fastest delivery of graphics over internet

T.U.V. Rheinland stringent requirements & specifications

NEPAL SBI BANK LIMITED-1

Product List with Brand, Model and Data Sheet

S.No	Description	Brand	Model	Remarks
A	Access Flooring System			
B	Fire Resistant Partition wall			
C	Fire Resistant Acoustic Ceiling			
D	Fire Resistant Door			
E	Electrical System of Data Center			
F	Networking of Data Center			
H	Precision Air Conditioning			
I	Fire Detection and suppression system			
J	Rodent Repellent System			
K	Temperature and humidity Detection			
L	Water Leak Detection System			
M	Bio Metric Access Control			
N	Data Center Management System			

ANNEX-I

MARKING CRITERIA FOR PAST EXPERIENCE (Full Marks 35)

S. No	No of Data Center Design / construction project in Class “A” financial institution/ Govt. of Nepal/ Public sector of Nepal with supporting evidence /documents	Marks
1.	Greater than or equal to 10	35
2.	Greater than or equal to 7 but less than 10	20
3.	Greater than or equal to 3 but less than 6	10
4.	Less than 3	0

ANNEX-II

Marking criteria for company's capability (Full Mark 20)

1) Timely availability of DC components for replacement/repair (Full Mark 10)

Marking is divided into two parts:

a) Site Visit : Full Mark 4

Based on vendor's site survey, Bank will give mark by observing the store size, store place, availability of DC components for replacement/repair.

b) Backup of critical devices for timely replacement/repair of DC components: Full Mark 6

Total Mark = (No of Backup maintained components)/ (Total number of components) * (Full Mark)

S. No	Components	Expected time for replacement	Yes/No
1	Raised Access Floor	Within 1 working Day	
2	Partition wall	Within 1 working Day	
3	Fire Rated Door	Within 1 working Day	
4	PDU	Within 1 hour	
5	ATS	Within 1 hour	
6	Electricals (Component inside Distribution box like busbars, MCCB; sockets; cables etc)	Within 1 hour	
7	PAC	Between 1 and 6 hours	
8	Fire Detection	Between 1 and 6 hours	
9	Fire Suppression	Between 1 and 6 hours	
10	Environmental Monitoring	Between 1 and 6 hours	
11	Access Control	Within 1 hour	
12	IP Surveillance System	Within 1 hour	
13	DCIM	Between 1 and 6 hours	
14	Rodent System	Between 1 and 6 hours	
15	Temperature and Humidity Detection System	Between 1 and 6 hours	

2) Net worth (Full Mark 2)

S. No	Net worth of Company/Firm	Mark
1	Greater than or equal to Rs. 2.5 Millions	2
2	Greater or equal to Rs. 0.625 Millions but less than Rs.1.25 Millions	1
3	Greater or equal to Rs. 0.3125 Millions but less than Rs. 0.625 Millions	0.5
4	Less than Rs. 0.3125 Millions	0

3) Turnover of the company related to DC design/construction/AMC (Full Mark 2)

S. No	Net worth of Company/Firm related to DC	Mark
1	Greater than or equal to Rs. 10 Millions	2
2	Greater or equal to Rs. 5 Millions but less than Rs. 10 Millions	1
3	Greater or equal to Rs. 2.5 Millions but less than Rs.5 Millions	0.5
4	Less than Rs. 2.5 Millions	0

4) No of experienced personnel in the Company (Full Mark 3)

S. No	Number of Personnel having practical experience of setting up Data Center in Nepal.(Personnel with at least 2 years of practical experience will be counted for marking)	Mark
1	Greater or equal to 10	3
2	Greater or equal to 5 but less than 10	2
3	Greater or equal to 3 but less than 5	1
4	Less than 3	0

5) Number of AMC/Call based Service of DC (Full Mark 3)

S. No	Total Number of AMC/Call based Service	Mark
1	Greater or equal to 10	3
2	Greater or equal to 5 but less than 10	2
3	Greater or equal to 3 but less than 5	1
4	Less than 3	0

ANNEX-III

Marking criteria for proposed project Team

a) Team Leader Marking (Full Mark 10)

S. No	Experience of Design and Construction of Data Center (Full Mark: 6)	Global Certification in DC like Certified Data Center professional(CDCP) (Full Mark: 3)	Extra certificate like Certified Information Security Manager (CISM) or Certified Information System Auditor (CISA) (Full Mark: 1)												
	<table border="1"> <thead> <tr> <th>S. No</th> <th>Experiences</th> <th>Mark</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Greater than or equal to 5 years</td> <td>6</td> </tr> <tr> <td>2</td> <td>Greater than or equal to 3 years and less than 5 years</td> <td>3</td> </tr> <tr> <td>3</td> <td>Less than 3 years</td> <td>0</td> </tr> </tbody> </table>	S. No	Experiences	Mark	1	Greater than or equal to 5 years	6	2	Greater than or equal to 3 years and less than 5 years	3	3	Less than 3 years	0		
S. No	Experiences	Mark													
1	Greater than or equal to 5 years	6													
2	Greater than or equal to 3 years and less than 5 years	3													
3	Less than 3 years	0													

b) Team Members Marking (Full Mark 5)

Only those members will be evaluated who possess at least 2 years of experiences in related field.

S. No	Number of Team Member	Mark
1	Greater than or equal to 5	5
2	Greater than or equal to 3 but less than 5	3
4	Less than 3	0

ANNEX-IV

Marking criteria for affiliation with OEM (Full Marks 5)

Total Mark = (Total no of OEM Components)/ (total number of components) * (Full Mark)

S. No	Particulars of the components for which you have affiliation with the manufacturer, regional distributor or supplier?	YES/NO
1	Raised Access Floor	
2	Partition wall	
3	Fire Resistant Acoustic Ceiling	
4	Fire Rated Doors	
5	Electrical System	
6	Precision AC	
7	Fire Detection	
8	Fire Suppression	
9	Environmental Monitoring	
10	Access Control	
11	IP Surveillance System	
12	Rodent System	
13	Water leakage Detection System	
14	Temperature and Humidity Detection System	
15	Network/Server Rack	

ACRONYM KEY

CCTV	Closed circuit television
HVAC	Heating, ventilation and air conditioning
PAC	Precision AC
PDU	Power distribution unit
DCIM	Data center Infrastructure Management
UPS	Uninterruptible power supply
ROHS	Restriction of Hazardous Substances
DC	Data Center
OEM	Original Equipment Manufacturer
SMF	Sealed maintenance free
LAN	Local Area Network
NFPA	National Fire Protection Association
CRCA	Cold rolled close annealed
MCCB	Moulded case circuit breaker
LED	Light emitting diode
SNMP	Simple Network Management Protocol
FRR	False Rejection Rate
NVR	Network video recorded
EIA	Electronic Industries Alliance
PVC	Polyvinyl chloride
FRP	Fiber-reinforced plastic
XLPE	cross-linked polyethylene insulation