Cost of RFP: Tk.25,000/-
(Taka Twenty-Five Thousand)

Dutch-Bangla Bank Limited

IT Procurement, Innovation, Reconciliation & Monitoring Division
47, Motijheel Commercial Area (Level-18)
Dhaka-1000

Re-Tender

Request For Proposal (RFP)

Data Center infrastructural equipment for Dutch-Bangla Bank Limited located at Baipail, Savar, Dhaka

(a) Power Equipment (UPS, ATS & Power Distribution etc.)
(b) Precision Air-Conditioning (Cooling System)
(c) Network equipment (Network cabling system, rack & Containment)
(d) Passive equipment (Data center setup equipment with Security & Monitoring system and other related device)
(e) Tier-4/Rated-4 Design Validation and Certification

RFP Ref: DBBL/100/55/2022/Tender/257
Tender floating date: 29th November, 2022
Last date of submission: 10th January, 2023 2:30 PM

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1. PREFACE

1.1 Brief Overview:

1.1.1. Dutch-Bangla Bank Limited hereinafter called "Dutch-Bangla Bank Limited" issues this Request for Proposal (RFP) to seek appropriate partner for the supply, installation and implementation of infrastructure equipment of Dutch-Bangla Bank Limited Data Center at Baipal, Savar, Dhaka.

1.1.2. Through this RFP, Dutch-Bangla Bank Limited invites bidders to propose a contractual arrangement for the Supply, Design, Installation, Implementation, testing, training and support of technology solutions for the mentioned hardware and software as described in this document.

1.1.3. This RFP is not an offer by Bank, but an invitation to receive bidder response. No contractual obligation whatsoever shall arise from the RFP process unless and until a formal contract is signed and executed by duly authorized officers of Dutch-Bangla Bank Limited and the Bidder.

1.1.4. The RFP document can be collected from the website (https://www.dutchbanglabank.com/tender/tender.html) of the Bank. However, bidders must make the payment towards cost of RFP, as the amount mentioned in the cover page while submitting the proposal for the RFP in the form of Pay Order in favor of Dutch-Bangla Bank Limited. RFP response without this payment will be rejected outright. Alternatively, bidders can collect hard copy of the RFP from IT Procurement, Innovation, Reconciliation & Monitoring Division after submitting the Pay Order of Tk 25,000/- (non-refundable) favoring Dutch-Bangla Bank Limited as the RFP cost. The vendors who have collected the previous tender schedule after paying schedule price, need not to pay the tender schedule price this time.

1.1.5. Technical proposals will be opened in the presence of the bidder's representatives on the specified date and time. Technically qualified proposals will be taken up for further processing for commercial terms. No further discussion/interface will be granted to bidders whose technical proposals have been disqualified.

1.1.6. The decision of the Bank would be final and binding on all bidders to this document. Dutch-Bangla Bank Limited reserves the right to accept or reject in part or full any or all offers without assigning any reasons whatsoever.

2. Tender notice

Dutch-Bangla Bank Limited

IT Procurement, Innovation, Reconciliation & Monitoring Division
47, Motijheel C/A (Level-18), Head Office, Dhaka-1000
Web: www.dutchbanglabank.com/tender/tender.html

Re-Tender Notice

Sealed tenders are hereby invited in two envelope systems from renowned vendors/ authorized suppliers/ dealers for procurement of the following items for Dutch-Bangla Bank Limited:

Category-1: Power Equipment (UPS, ATS & Power Distribution etc.)

Category-2: Precision Air-Conditioning (Cooling System)

Category-3: Network equipment (Network cabling system, rack & Containment)

Category-4: Passive equipment (Data center setup equipment with Security & Monitoring system and other related device)

Category-5: Data Center Tier-4/ Rated-4 Design Validation and Certification

The tender schedule with detailed requirements and terms & conditions will be available from the IT Procurement, Innovation, Reconciliation & Monitoring Division of the bank during office hours from December 4, 2022 (10:00 a.m. to 4:00 p.m.) up to January 8, 2023 at a cost of Tk. 25,000.00 (Non-refundable) in the form of Pay Order favoring Dutch-Bangla Bank Limited. The vendors who have collected the previous tender schedule after paying schedule price, need not to pay the tender schedule price this time.

The quotations to be submitted in the tender box at level-6 of Head Office on or before January 10, 2023 by 2:30 p.m. and will be opened on the same day at 2:40 p.m. in presence of the bidders or their authorized representatives, if any. The technical and financial evaluation of the offers will be made later on.

The authority reserves the right to accept or reject any or all the offers, in part or in full without assigning any reason.

Head of the Division

3. BACKGROUND & SCOPE

BACKGROUND

3.1. For a brief overview, Dutch-Bangla Bank Limited is Bangladesh's most innovative and technologically advanced bank. Dutch-Bangla Bank Limited is the first bank in Bangladesh to be fully automated.

Dutch-Bangla Bank currently has 232 branches,1396 FTs, 4934 ATMs, 602 CRMs, more than 6,000 Agent Banking outlets and 14,000 POS machines all over the country. The Bank provides securing banking service for the customers and already certified as PCI DSS compliant. The Bank is establishing a new data center located at Baipail, Savar, Dhaka.

The requirement is provided in details in the technical specification section.

SCOPE

3.2. The scope of work includes but not limited to design, engineering, supply of the items, installation, commissioning, testing, integration and post implementation support and certification (where applicable) of all the products offered in the solution infrastructure for new data center.

3.3. The Bidder should have its office at Dhaka, Bangladesh for local onsite support.

3.4. The bidder must have the capacity with adequate & experienced engineers and parts availability in Bangladesh to support immediately.

3.5. The Bidder shall provide original licenses for all the supplied hardware, software and subscription etc. in the name of Dutch-Bangla Bank Limited.

4. EXPERIENCE

4.1 Bangladesh Bank Compliance

Participating Vendor should have permission from Bangladesh Bank for marketing foreign products in Bangladesh as per the guideline of Foreign Exchange Regulation Act 1947, Section 18A

(Section 18A: 1[18A (1) Notwithstanding anything contained in any other law for the time being in force, no person shall, except with general or special permission of the Bangladesh Bank, act or accept an appointment to act as an agent in the trading or commercial transactions, or as a technical or management adviser or any other employee, in Bangladesh (whether or not a citizen of Bangladesh) of a person resident in Bangladesh under any law in force in Bangladesh. (2) A person acting or holding an appointment to act as agent or as an adviser or any other employee in Bangladesh of a person or company referred to in sub-section (1) immediately before the commencement of the Foreign Exchange Regulation (Amendment) Ordinance, 1976 (Ord. No. LXXVI of 1976), may continue to so act for a period not exceeding six months such commencement unless the Bangladesh Bank has an application made in this behalf in such form and containing such particulars as the Bangladesh Bank may direct, granted him permission to continue to so act thereafter.

4.2 Reference Site

List of major customers with successful implementation of proposed system or solution in last 05 (three) years and their references:

Sl. No.	Name and complete Address of the Customer	Name, Designation, Telephone, Fax, e-mail address of the contact person	Brief Scope of work (Project Summary) Bidder can attach separate paper if required.	Capacity of the system	Attach reference Letter
1					
2					
3					
4					
5					

(Enclose necessary documentary proof)

Provide Information in respect of at least 05 (Five) major customers who fulfill the qualification criteria. References should be enclosed from these customers.

I/we solemnly declare that the statements made above are correct. I/We agree that any misstatement made by us, if detected later on, shall render our application unacceptable to the Bank.

(Signature)
(Name & designation of Authorized Signatory)
(Name & Address of the Bidder with Seal)

5. SUBMISSION OF PROPOSALS

5.1. Sealed Proposals will be received at Level-6 of the head office by the **IT Procurement, Innovation, Reconciliation & Monitoring Division** of Dutch-Bangla Bank, Dhaka until 2:30 PM on January 10, 2023.

Sealed Proposals must include:

a. Technical Proposal: Hard copy and electronic copy on a Flash Drive in MS-Word Format.
b. Earnest Money (PO/BG)
c. Financial Proposal: Only Hard copy

5.2. All proposals must be accompanied by proposal price sheet and signed by proper official in all pages with page numbers of the firm. Proposals will not be accepted by FAX or email.

5.3. Proposal information is restricted and not publicly available until the award of the Contract by the Bank.

6. GENERAL TERMS AND CONDITIONS

6.1. ***The participating company must submit the offer in two envelope systems. One envelope will contain the technical offer & Pay Order/BG for earnest money and the other envelope will contain the financial offer. The two envelopes must be covered in a large envelope. All the envelopes will contain the full name and address of the participant company. The name, address and telephone number of the contact person should be mentioned in the forwarding letter submitted with the technical offer***.

6.2. The participating vendors may participate in any number of Categories/Sub-Categories. There are 05 (Five) categories in this RFP i.e.

1) **Category-1:** Power Equipment
   Sub-Category-1.1: Modular online UPS & ATS including implementation.
   Sub-Category-1.2: Power Distribution and electric cabling system including implementation.
2) **Category-2:** Precision Air-Conditioning
3) **Category-3:** Network Equipment
   Sub-Category-3.1: Network Cabling & Raceway system including implementation.
   Sub-Category-3.2: Containment & Distribution Rack including implementation.
4) **Category-4:** Passive Equipment
   Sub-Category-4.1: Raised Floor & floor insulation including implementation.
   Sub-Category-4.2: Controlling and Monitoring system including implementation.
   Sub-Category-4.3: IPSS & ACS including implementation.
   Sub-Category-4.4: Fire detection and controlling system including implementation.
   Sub-Category-4. 5: Interior including implementation.
   Sub-Category-4.6: NOC & SOC system including implementation.
   Sub-Category-4.7: Miscellaneous including implementation.
5) **Category-5**: Tier-4/Rated-4 Design Validation and Certification

Any bidder can submit offer for one or more categories/Sub-categories. All items and technical requirements for the quoted categories/Sub-categories have to be addressed by the bidder. However, partial offer for a Category/Sub-category would not be accepted.

6.3. Sealed proposals have to be submitted in the tender box at level-6 of the Head office on or before January 10, 2023 by 2:30 p.m. The technical offers will be opened at 2:40 p.m. on the same day in presence of bidders, if any. The evaluation of the technical offers will be made later on. Financial offer will be opened after technical qualification.

6.4. Alternate offer within an offer will not be considered. If any participating vendor desires to offer alternate products for any category, they have to submit completely separate offer for that alternative product.

6.5. Bidder should submit BOQ of proposed device/application/subscription including detailed part numbers.

6.6. Technical offer should be submitted through PO/BG in favor of "Dutch-Bangla Bank Limited" as earnest money for the period of minimum 01 (one) year from the last date of submission which may be extended for further periods.

6.7. Category/sub-category wise earnest money furnished as under:

Sl. No.	Category/Sub-Category	Amount in BDT.
1.	**Category - 1:** Power Equipment	10,00,000.00 *
	Sub-Category-1.1: Modular online UPS & ATS including implementation.	5,00,000.00
	Sub-Category-1.2: Power Distribution and electric cabling system including implementation.	5,00,000.00
2.	**Category - 2:** Precision Air-Conditioning	10,00,000.00
3.	**Category - 3:** Network Equipment	10,00,000.00 *
	Sub-Category-3.1: Network Cabling & Raceway system including implementation.	5,00,000.00
	Sub-Category-3.2: Containment & Distribution Rack including implementation.	5,00,000.00
4.	**Category - 4:** Passive Equipment	12,00,000.00 *
	Sub-Category-4.1: Raised Floor & floor insulation including implementation.	2,00,000.00
	Sub-Category-4.2: Controlling and Monitoring system including implementation.	2,00,000.00
	Sub-Category-4.3: IPSS & ACS including implementation.	2,00,000.00
	Sub-Category-4.4: Fire detection and controlling system including implementation.	2,00,000.00
	Sub-Category-4.5: Interior including implementation.	1,00,000.00
	Sub-Category-4.6: NOC & SOC system including implementation.	2,00,000.00
	Sub-Category-4.7: Miscellaneous including implementation.	1,00,000.00
5.	**Category -5:** Tier-4/Rated-4 Design Validation and Tier-4/Rated-4 Certification	1,00,000.00

* If the bidder participates in all sub-categories under a category, a single BG might be submitted for the total amount, instead of sub-categories BG.

If successful supplier fails to deliver, install and commission the equipment within the stipulated time, the earnest money will be forfeited. **The pay order/ bank guarantee will have to be put in the technical offer**.

6.8. The earnest money of the awarded vendor will be released after successful installation, configuration, testing and implementation of the items. However, the earnest money of other bidders will be released after evaluation & decision.

6.9. All quoted price should include delivery, installation, testing and training cost including VAT, Tax, and all other Govt. Duties, if any.

6.10. Should provide unrestricted license for all sites and offices and for any number of users for applicable cases.

6.11. Warranty period of any product will start after successful implementation and testing of the project. The AMC will start after the end of the warranty period. The product support must be

for a period of minimum 10 (Ten) years including warranty and AMC period. Both the warranty and AMC should be backed by a similar back-to-back warranty/ AMC between the bidder and the manufacturer/OEM for Dutch-Bangla Bank Limited project. Bidder should submit supporting document for back-to-back warranty/ AMC with OEM. Support portal should be provided to view, manage and case log facility of the products. If any training/certification required for this purpose, OEM and bidder should provide it without any cost.

6.12. Winning bidder should sign the SLA before implementation.

6.13. The successful company must submit original technical and user manuals of the hardware/software at the time of delivery of the hardware/software to the Bank.

6.14. Bidder & OEM shall ensure that offer product / service should sustain at least ten (10) years. If any licensing mode change or any performance issue occurs during the warranty and AMC period, OEM & bidder must change the product and license without any additional cost.

6.15. For proper installation and configuration of all the equipment, if any additional item is required, please add in the offer creating additional line item and quote for the same. No additional payment will be made beyond the quoted value.

6.16. Must perform mandatory health check of the appliance/application/product in every three (03) months or required by the system and submit the formal report and tune or change the necessary configuration along with major, minor upgradation including necessary training and table-top exercise by OEM/Service Integrator (SI).

6.17. Photocopy of all the relevant documents should be submitted with the offer including:

- Up to date Trade License
- Up to date GIR/TIN certificate
- Proof of experience as desired in the earlier section of this schedule
- Proof of OEM authentication
- Solvency Certificate
- Profit/Loss Statement

6.18. The offers should have validity for at least 01 (one) year.

6.19. All the prices should be mentioned in BDT.

6.20. The Bank shall not be under any obligation to accept the lowest quotation.

6.21. The Bank reserves the right to increase/decrease the quantity, make changes in the specifications etc.

6.22. The bidder is suggested to visit the proposed building at Baipail, Savar before submitting offer.

7. EVALUATION METHODOLOGY

EVALUATION COMMITTEES:

The Bank will conduct a comprehensive, fair and impartial evaluation of proposals received in response to this RFP. Proposals will be evaluated by the Technical Committee of the Bank. The Technical Committee is made up of members representing the project subject expertise. The Technical Committee will review and score (if needed) all proposals and will make the final recommendation to the Purchase Committee.

The Competent authority of the Bank will receive recommendations from the purchase committee and make the final decision.

8. PAYMENT TERMS

TIME SCHEDULE/INVOICING:

The terms of payment will be as under:

a) 50% of the total awarded value will be paid after issuing the work order and subsequent acceptance by the bidder, against Bank Guarantee of the same amount with a validity of one year. BG will be released after supply and successful installation. Otherwise, 50% will be paid after successful installation.
b) Another 30% is payable after UAT
c) Remaining 20% is payable 3 months after successful completion of installation, setup configuration, training etc.

9. Submission Form

(To be submitted on the pad of the bidder)

Head of IT Procurement, Innovation, Reconciliation & Monitoring Division
Date:
Dutch-Bangla Bank Ltd.
47, Motijheel C/A (Level-18)
Dhaka-1000

Subject: Submission of proposal for Data Center infrastructural equipment for Dutch-Bangla Bank Limited located at Baipail, Savar, Dhaka.

Dear Sir,

With reference to your Tender Notice published in the Daily ……. Dated ……., I/We, being agreed to the rules/conditions as contained in the relative schedule # **DBBL/100/55/2022/Tender/257** of Dutch-Bangla Bank Limited, hereby submitted our proposal for **"Data Center infrastructural equipment for Dutch-Bangla Bank Limited located at Baipail, Savar, Dhaka."** Which includes the Technical Proposal and Financial Proposal sealed under separate envelopes.

I/we would also like to provide the following information of our company:

1.	Company Name, Address	:	……
2.	Name of the Proprietor/ Partner/ Director	:	……
3.	Date of commencement of Business	:	……
4.	Nature of the business	:	……
5.	Total number of permanent employees	:	……
6.	Particulars of identical projects with other Bank/ financial Institution (related papers are attached with the Technical Proposal)	:	……
7.	Relevant papers mentioned in the schedule are enclosed herewith	:	a) …… b) …… c) …… d) …… e) ……

I/we solemnly declare that the statements made above are correct. I/We agree that any misstatement made by us, if detected later on, shall render our application unacceptable to the Bank.

(Signature)
(Name & designation of Authorized Signatory)
(Name & Address of the Bidder with Seal)

10. FINANCIAL OFFER

10.1 Name of the Company :
10.2 Quoted price :

The full specification of the item is as per Technical Offer
Quoted price is in BDT and inclusive of all govt. duties, VAT, Taxes, AIT etc.

Category		Items	Qty	Unit Price	Total Price	AMC (%) per Year
Category-1: Power Equipment		**Sub-Category-1.1: Modular online UPS & ATS including implementation.**				
	a)	Modular Online UPS (IT Load) (250 KW upgradable to 500 KW)	04 units			
	b)	1:1 Ratio 1000KW Isolation Transformer (IT Load)	02 units			
	c)	Modular Online UPS (Utility Load) (30KW upgradable minimum 50KW)	02 units			
	d)	Rack Automatic Transfer Switch	14 units			
	e)	Others				
		Sub-Total				
		Sub-Category-1.2: Power Distribution and electric cabling system including implementation.				
	a)	Power Distribution and electric cabling				
		i. Distribution Board (DB) including Circuit Breaker	01 set			
		ii. Bus-Bar Mounted Power Distribution System	01 set			
		iii. Power Cabling and Others Related works	01 set			
	b)	Others				
		Sub-Total				
		Total				
Category-2: Precision Air-Conditioning	a)	Air-cooled/Water cooled based chiller precision air- conditioning system including implementation a) Outdoor: 300TR b) Indoor: 290TR	01 set			
	b)	Gas/refrigerant-based precision air-conditioning system including implementation.				
		Type-1: Under Raised floor Cooling (290TR)	01 set			

Category		Items	Qty	Unit Price	Total Price	AMC (%) per Year
		Type-2: Over the Raised Floor (Front-flow) Cooling (60TR)	01 set			
	c)	Others				
		Total				
Category-3: Network Equipment		**Sub-Category-3.1: Network Cabling & Raceway system including implementation.**				
	a)	Network Cabling System				
		i. Copper Cable with Accessories	01 set			
		ii. Fiber Cable with Accessories	01 set			
	b)	Overhead hanging Cable Raceway (Copper)	01 set			
	c)	Overhead hanging Cable Raceway (Fiber)	01 set			
	d)	Label Printer	02 units			
	e)	Others				
		Sub-Total				
		Sub-Category-3.2: Containment & Distribution Rack including implementation.				
	a)	Cold-aisle containment System	11 units			
	b)	Network & Server Rack	80 units			
	c)	Others				
		Sub-Total				
		Total				
Category-4: Passive Equipment		**Sub-Category-4.1: Raised Floor & floor insulation including implementation.**				
	a)	Type-1: 2 Ft. high steel understructure (Apx. 6,208 sft.)	01 set			
		Type-2: 6-inch-high steel understructure (Apx. 2,500 sft.)	01 set			
	b)	Floor insulation (12000 sft.)	01 set			
	c)	Others				
		Sub-Total				
		Sub-Category-4.2: Controlling and Monitoring system including implementation.				
	a)	Data Center infrastructure Monitoring Software (DCIM)	01 set			
	b)	Building Management System (BMS)	01 set			
	c)	Others				
		Sub-Total				
		Sub-Category-4.3: IPSS & ACS				

Category		Items	Qty	Unit Price	Total Price	AMC (%) per Year
		including implementation.				
	a)	IP Surveillance System	01 set			
	b)	Access Control with Visitor Management System	01 set			
	c)	Others				
		Sub-Total				
		Sub-Category-4.4: Fire detection and controlling system including implementation.				
	a)	Addressable 1 & 2 Inlet Very Early Smoke Detection Aspirating System (VESDA)	01 set			
	b)	Fire Detection & Suppression System	01 set			
	c)	Water Hydrant System	01 set			
	d)	Water Detection System (WDS)	01 set			
	e)	Others				
		Sub-Total				
		Sub-Category-4.5: Interior including implementation.				
	a)	Civil work, Furniture, fixture & Related Interior Work	01 set			
		i) Common interior work from basement to roof top				
		ii) NOC & SOC Room	01 set			
		iii) Conference, Office, Dinning, pantry, Reception area & etc.	01 set			
	b)	Others				
		Sub-Total				
		Sub-Category-4.6: NOC & SOC system including implementation.				
	a)	i) Type-1: Video Wall (NOC)	01 Set			
		ii) Type-2: Video Wall (SOC)	01 Set			
		iii) Work-station	15 units			
	b)	Others				
		Sub-Total				
		Sub-Category-4.7: Miscellaneous including implementation.				
	a)	Pest control system	01 set			
	b)	Portable KVM				
		i) Portable KVM with Single Display	03 units			
		ii) Portable Laptop Stand	03 units			
	c)	Automatic Shoe Dispenser	02 units			
	d)	Industrial Vacuum Cleaner	04 units			
	e)	Hand Trolley Wheels Folding	02 Unit			

Category		Items	Qty	Unit Price	Total Price	AMC (%) per Year
		Stainless Steel Handle				
		Others				
		Sub-Total				
		Total				
Category-5: Tier-4/Rated-4 Design Validation and Certification	a)	Tier-4/Rated-4 Design Validation and Certification	01 set			
	b)	Training	01 set			
	c)	Others				
		Total				
Grand Total						

Note: Technical and Financial evaluation will be done sub-category wise.

Grand Total in Taka ……

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14.3 Unit Cost for Future procurement: Price will be Valid for minimum 3 Years.

Category		Items	Qty	Unit Price	Total Price	AMC (%) per Year
Category-1: Power Equipment		**Sub-Category-1.1: Modular online UPS & ATS including implementation.**				
	a)	Power Module (25/50KW)	01 unit			
	b)	Power Module (30KW)	01 unit			
		Sub-Category-1.2: Power Distribution and electric cabling system including implementation.				
	a)	Power Distribution and electric cabling				
		ACB Breaker (3200amp)	01 unit			
		ACB Breaker (2000 amp)	01 unit			
		ACB Breaker (1600 amp)	01 unit			
		MCCB Breaker (800 amp)	01 unit			
		Tapoff unit (400 amp)	01 unit			
		Tapoff unit (250 amp)	01 unit			
		Tapoff unit (32 amp single phase)	01 unit			

		Tapoff unit (32 amp 3 phase)	01 unit			
		Tapoff unit (63 amp 3 phase)	01 unit			
Category-2: Precision Air-Conditioning	a)	Air-cooled/Water cooled based chiller precision air- conditioning system including implementation c) Outdoor: 150TR d) Indoor: 30TR and 10TR	01 unit			
	b)	Gas/refrigerant-based precision air-conditioning system including implementation.				
		Type-1: Under Raised floor Cooling (30TR and 10TR)	01 unit			
		Type-2: Over the Raised Floor (Front-flow) Cooling (10TR)	01 unit			
Category-3: Network Equipment		**Sub-Category-3.1: Network Cabling & Raceway system including implementation.**				
	a)	Label Printer	01 unit			
		Sub-Category-3.2: Containment & Distribution Rack including implementation.				
	a)	Cold-aisle containment System	01 unit			
	b)	Rack	01 unit			
		PDU	01 unit			
		Temperature and humidity Sensor	01 unit			
Category-4: Passive Equipment		**Sub-Category-4.1: Raised Floor & floor insulation including implementation.**				
	a)	Type-1: 2 Ft. high steel understructure (Per sft.)	01 unit			
		Type-2: 6-inch-high steel understructure (per sft.)	01 unit			
	b)	Floor insulation (per sft.)	01 unit			
		Sub-Category-4.2: Controlling and Monitoring system including implementation.				
	a)	Data Center infrastructure Monitoring Software (DCIM) License	01 unit			
		Data Center infrastructure Monitoring Software (DCIM) Temperature and Humidity sensor	01 unit			
	b)	Building Management System (BMS) Controller	01 unit			
		Sub-Category-4.3: IPSS & ACS including implementation.				
	a)	PTZ Camera	01 unit			
		Bullet Camera (indoor)	01 unit			

		Bullet Camera(outdoor)	01 unit			
		License	01 unit			
	b)	Controller	01 unit			
		Reader	01 unit			
		magnetic Lock	01 unit			
		Sub-Category-4.4: Fire detection and controlling system including implementation.				
	a)	Addressable 1 & 2 Inlet Very Early Smoke Detection Aspirating System (VESDA)	01 unit			
	b)	Water Detection System (WDS) Controller	01 unit			
		Water Detection System (WDS) sensor	01 unit			
		Sub-Category-4.6: NOC & SOC system including implementation.				
	a)	Video Wall Display	01 unit			
		Video Wall Controller	01 unit			
						Recertification
Category-05: Tier-4/Rated-4 Design Validation and Certification	a)	Tier-4/Rated-4 Design Validation and Certification	01 set			
	b)	Training	01 set			

11. Technical Specification

Category-1: Power Equipment

There are two (02) sub-categories under this category. The bidder may participate in any number of sub-categories. However, the bidder must submit offer for all items under a sub-category.

Sub-Category-1.1: Modular online UPS & ATS including implementation

a) Modular Online UPS (IT Load)
Quantity: 04 units

Descriptions	Required Specification	Quoted Specification
Brand	Please specify	
Model	Please specify	
Country of Origin	USA/EU/UK/Switzerland	
Country of Manufacture	Please specify	
Type	Fully modular On-line double conversion	
Transfer Time	Zero	
Capacity	250 KVA/KW	
Capacity Upgradeable up to	500 KVA/KW	
No. of power module	If Power module size 25KW(n+2) If Power module size 50KW (n+1)	
Capacity of each Power Module	Please specify	
Efficiency of the power module	Please specify	
Control unit	Must be Redundant for CPA / DPA	
Input Voltage Range	360-460 V	
Input Power Factor	Please specify	
Input Harmonics	Please specify (Preferred <5-7%)	
Input Short circuit withstand	65 kA Icw	
Input back feed protection	Input back feed protection: Included. Bypass back feed protection: External or internal with kit.	
Output Voltage	380-415V, 3P (configuration as per requirement)	
Output Voltage regulation	+/- 1% (symmetrical load)	
Output Frequency	50/60Hz +-0.1% free running	
Output Power Factor	Unity at 40 °C temperature	
Efficiency Double conversion mode	Minimum 96% (higher is preferable)	
Output Wave	Sinusoidal (Pure Sine Wave)	
UPS Form Factor	OEM factory made cabinet system (full covered)	
Backup Time	20 Minutes at 250KW Load (Specify battery KVAH)	
Total no of Battery Module quoted	Please specify (describe the backup time calculation in details)	
Battery type	Must be Li-ion battery	
Battery Characteristic/Life time	Battery life time at least 10 years	
Battery Brand	SAMSUNG/LG	
Battery charger	All the power module should have the battery integrated charging functionality.	
Maximum charging power (0-40% load)	80%	
Maximum charging power (100% load)	20%	

Descriptions	Required Specification	Quoted Specification
Maximum short-circuit level for Battery	30KA	
Battery test	Manual/automatic (selectable)	
Maintenance Bypass with Distribution	Should be present	
Static Bypass	Should be present up to 500KW	
Accessibility of the UPS	Everything should be front accessible	
Modular Element	Power module, control module, power supply unit	
Hot swappable	Power module	
Fans	Should be redundant and field replicable	
Fan Speed	Regulated fan speed should be present in the system	
Fan Noise	Reduces noise capability should be present	
Redundancy	Please specify the redundant component inside the proposed UPS	
LCD display for operating information	Color touch screen, Minimum 7 inches, mimic diagram on display	
Predictive maintenance	Should be present in the proposed system	
Output distribution unit	Factory installed output distribution unit should have to be provided	
Parallel configuration and installation	• Two (02) units will be installed in parallel for load sharing. If sudden increase in load occurs or one of the UPS fails, the system should provide continuous required power without any hardware or configuration change. • Vendor must consider all the arrangement for UPS parallel configuration	
Software and Interface	UPS Monitoring and Management Software and Ethernet interface from ups. Provided software's functions should include monitoring and Controlling the UPS remotely through TCP/IP. Should be capable to integrated with DCIM and BMS for monitoring	
Integration	Should be capable to integrate with DCIM and BMS	
Firmware upgrades	On-the-fly firmware upgrades should be possible	
Event logging	Event logging with graphs should be possible in the proposed software	
Dust Filter	Supports harsh environments Pollution degree 2 (IEC 62040). Air filter included	

Descriptions	Required Specification	Quoted Specification
Conformance coating	On PCBA	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full Warranty	

b) 1:1 Ratio 1000KW Isolation Transformer (IT Load)
Quantity: **02 units**

Descriptions	Required Specification	Quoted Specification
Brand	Please specify	
Model	Please specify	
Country of Origin	USA/EU/UK/Switzerland	
Country of Manufacture	Please specify	
Capacity	1000KW	
General features	Features: ➢ Isolation transformer provides isolation physically and electrically between two circuits. ➢ Transformer ratio 1:1 ➢ Generate neutral for IT load ➢ Ensure pure sine wave ➢ Ensure feedback protection ➢ Consider for two UPS units' parallel upgradable capacity. ➢ Same OEM make Isolation Transformer should be preferable ➢ Maintain Bypass should be present ➢ Should be capable to integrate with DCIM and BMS	
Maintenance Bypass with Distribution	Should be present	
Dust Filter	Supports harsh environments Pollution degree 2 (IEC 62040). Air filter included	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full Warranty	

c) Modular Online UPS (Utility Load)

Quantity: **02 units**

Descriptions	Required Specification	Quoted Specification
Brand	Please specify	
Model	Please specify	
Country of Origin	USA/EU/UK/Switzerland	
Country of Manufacturing	Please Specify	
Type	On-line double conversion	
Capacity	**30 KW/ KVA**	
Efficiency	Minimum 96% (higher is preferable)	
Capacity Upgradeable up to	Minimum 50 KW	
Input Voltage	Please specify (Preferred 360-460V, 3P)	
Input Voltage Range/ tolerance	±10% (higher is preferable)	
Input Harmonics	Please specify (Preferred<5-7%)	
Rated conditional short-circuit current Icc	Please Specify	
Protection	Built-in back feed contactor. Input phase reversal detection and correction also	
Inrush Current	Less than nominal input current for less than one cycle.	
Output Voltage	Please specify (Preferred 380-415V, 3P)	
Frequency	50Hz±5%	
Wave	Sinusoidal (Pure Sine Wave)	
Output Power Factor	Unity at 40 °C temperature	
Output wave	Sinusoidal (Pure Sine Wave)	
Maintenance Bypass	Should be present	
Backup Time	10 Minutes at full Load	
Battery Type	inbuilt Modular VRLA Battery	
Total no of Battery Module quoted	Please specify	
Battery Characteristic/Life time	Battery life time at least 7 years	
UPS Form Factor	OEM factory made cabinet system (full covered)	
Software and Interface	UPS Monitoring and Management Software and Ethernet interface from ups. Provided software's functions should include monitoring and Controlling the UPS remotely through TCP/IP.	
Integration	Should be capable to integrate with DCIM and BMS	
Firmware upgrades	On-the-fly firmware upgrades should be possible	
Event logging	Event logging with graphs should be possible in the proposed software	

Descriptions	Required Specification	Quoted Specification
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full Warranty	

d) Rack Automatic Transfer Switch

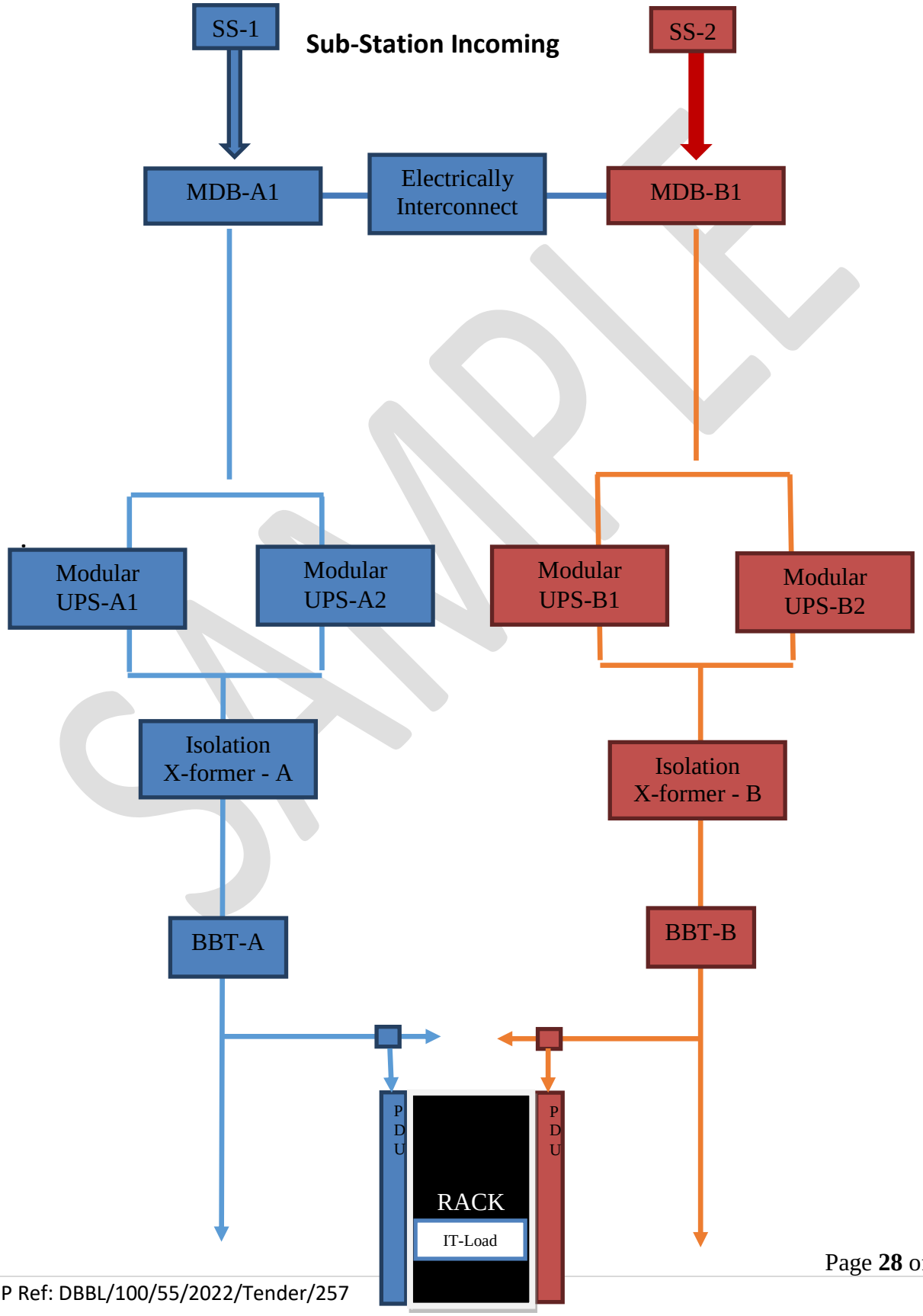
Quantity: 14 Units

Descriptions	Required Specification	Quoted Specification
Brand	Please specify	
Model	Please specify	
Country of Origin	USA/EU/UK	
Country of Manufacture	Please specify	
Type	Automatic switching power redundancy to single corded equipment	
Form factor	Rack mountable horizontal 1U or 2U solutions	
Manageability	Network manageable through TCP/IP	
Transfer Time	Please specify (lower is preferred)	
Capacity	At least 6 kW or higher	
LCD display for operating information	Should be inbuilt with the system.	
Outlet	ATS must have at least 2 C19-20 and 14 C13-14 outlets	
Software and Interface	ATS Monitoring and Management Software and Ethernet interface from ups. Provided software's functions should include monitoring and Controlling the ATS remotely through TCP/IP.	
Firmware upgrades	On-the-fly firmware upgrades should be possible	
Event logging	Event logging with graphs should be possible in the proposed software	
Cables	Power cable should be provided with each ATS to connect the servers/network/PDU equipment with the quoted ATS. ➢02 units of C20 to industrial female (32A)	
Integration & Monitoring	Should be Capable to integrate with DCIM	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

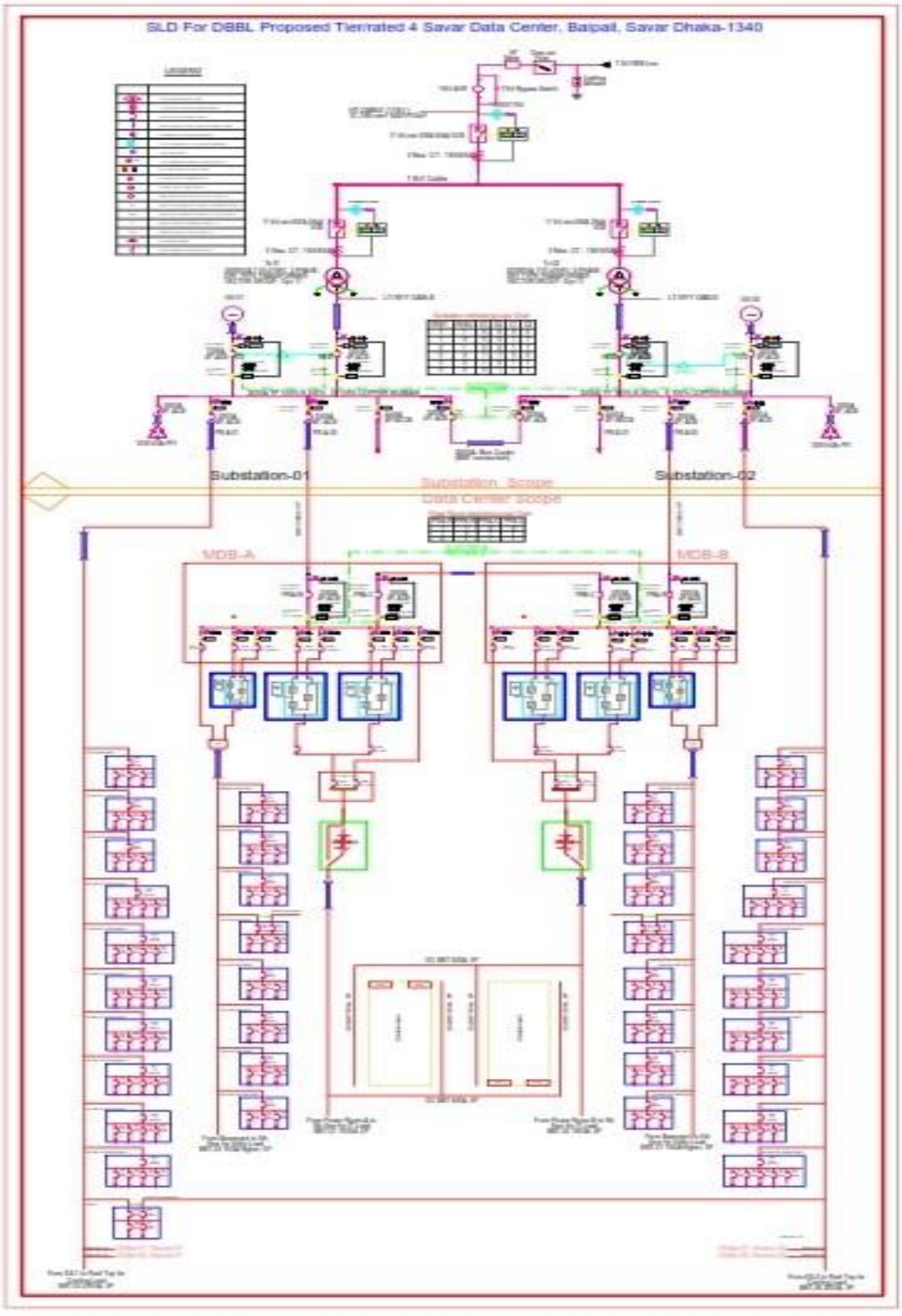
Sub-Category-1.2: Power Distribution and electric cabling system including implementation

a) Power Distribution and Electric Cabling

i) High-level design (IT Load)



ii) Single Line Diagram (SLD)



iii) Distribution Board (DB) including Circuit Breaker

General	Required Specification	Quoted Specification
Distribution Panel		
Brand	Please Specify	
Model	Please Specify	
Country of Origin	Please Specify	
Country of Manufacture	Please Specify	
Common Features	All DB Board may be local Type Tested	
	The distribution board should be made as per the guide line of fire and safety rule.	
	The busbar and neutral links in distribution board should be shrouded. So, there's no chance of accidental contact with live parts, and no possibility of shock during use.	
	The distribution board should be compact and fully shrouded busbar assembly which ensures streamlined dimensions and complete safety.	
	The distribution board should be provided with corner shields, with their smooth edges which ensures the most vulnerable part of the panels are protected against physical damages like bending, peeling of paint etc. and prevent rusting.	
	Door earthing in the distribution board, which provide the entire panel safety against shock.	
	The busbar of distribution board should have a withstand capacity of 65 kA.	
	The distribution board should cubicle type, compartmentalized and suitable for floor/wall mounting.	
	Bas bar should be copper	
	Phase + 100%, **200% Neutral** + 100% Internal Earth.	
	All DB should consider with type 2 Surge Protective Device (SPD).	
	All Surge Protective Device (SPD) should connect with BMS through Modbus.	
Specification for MDB ACB Circuit Breaker		
Brand	ABB/SE/Siemens/Legrand	
Model	Please Specify	
Country of Origin	Please Specify	
Country of Manufacture	Please Specify	
Breaker Type	ACB, Breaker rating Should be Adjustable	
Pole	Only the DB Main incoming must be 4 pole	
Breaker Quantity	As Per Single Line Diagram (SLD)	
Breaker Rating	As Per Single Line Diagram (SLD)	
MFM	Each Breaker one MFM	
Interlocking	Interlocking as Per Single Line Diagram (SLD), considering best security aspect	

General	Required Specification	Quoted Specification
Feature	For Breaker automation required accessories like under voltage coil, shunt coil (on/off), auto motor charging coil, Trip coil, digital control unit, CT, NO/NC Contact, push button, indication lamp should be present .	
Integration	MFM & Breaker Should be capable to integrate with BMS.	
Specification for MDB MCCB Circuit Breaker		
Brand	ABB/SE/Siemens/Legrand	
Model	Please Specify	
Country of Origin	Please Specify	
Country of Manufacture	Please Specify	
Breaker Type	MCCB, Breaker rating Should be Adjustable	
Breaker Quantity	As Per Single Line Diagram (SLD)	
Breaker Rating	As Per Single Line Diagram (SLD)	
Feature	Indication lamp, NO/NC contact should be present	
	To operation the breaker Rotary handle should be present.	
	Consider Type B for lighting and resistive, Type C for Inductive load applications and Type D for Inductive, capacitive load applications (Pumps, motor, large winding motors etc.)	
Integration	Breaker should be capable to integrate with BMS	
Specification for Cooling (Indoor DX & AHU) DB Circuit Breaker		
Brand	ABB/SE/Siemens/Legrand	
Model	Please Specify	
Country of Origin	Please Specify	
Country of Manufacture	Please Specify	
Breaker Type	MCCB & MCB. MCCB Breaker rating Should be Adjustable	
Breaker Quantity	As Per Single Line Diagram (SLD)	
Breaker Rating	As Per Single Line Diagram (SLD)	
MFM	One MFM for each DB	
Feature	Main incoming should be present indication lamp, NO/NC contact, CT should be present for DB monitoring and BMS integration	
	Each DB on/off/trip/phase monitoring Lamp should be present	
	Consider Type B for lighting and resistive load, Type C for Inductive load applications and Type D for Inductive, capacitive load applications (Pumps, motor, large winding motors etc.)	
	PAC must be connected with MCB	
Integration	MFM & Main incoming Breaker Should be capable to integrate with BMS	
Specification for Utility DB Circuit Breaker		
Brand	ABB/SE/Siemens/Legrand	
Model	Please Specify	
Country of Origin	Please Specify	
Country of Manufacture	Please Specify	

General	Required Specification	Quoted Specification
Breaker Type	MCCB & MCB. MCCB Breaker rating Should be Adjustable	
Breaker Quantity	As Per Single Line Diagram (SLD)	
Breaker Rating	As Per Single Line Diagram (SLD)	
Feature	Breaker indication lamp, NO/NC contact should be present for DB monitoring and BMS integration	
	Consider Type B for lighting and resistive, Type C for Inductive load applications and Type D for Inductive, capacitive load applications (Pumps, motor, large winding motors etc.)	
	Only the NOC Room both utility DB should be mechanically interlock as per SLD	
Integration	Main incoming breaker should be integrated with BMS	
Specification for Lift DB		
Brand	ABB/SE/Siemens/Legrand	
Model	Please Specify	
Country of Origin	Please Specify	
Country of Manufacture	Please Specify	
Breaker Type	MCCB, Breaker rating Should be Adjustable	
Breaker Quantity	As Per Single Line Diagram (SLD)	
Breaker Rating	As Per Single Line Diagram (SLD)	
Feature	Breaker indication lamp, NO/NC contact should be present for DB monitoring and BMS integration	
	Consider Type B for lighting and resistive, Type C for Inductive load applications and Type D for Inductive, capacitive load applications (Pumps, motor, large winding motors etc.)	
	Main source coming from dual utility UPS which should be mechanically interlock	
Integration	Breaker should be capable to integrate with BMS	
Specification for AC DB		
Brand	ABB/SE/Siemens/Legrand	
Model	Please Specify	
Country of Origin	Please Specify	
Country of Manufacture	Please Specify	
Breaker Type	MCCB & MCB. MCCB Breaker rating Should be Adjustable	
Breaker Quantity	As Per Single Line Diagram (SLD)	
Breaker Rating	As Per Single Line Diagram (SLD)	
Feature	Breaker indication lamp, NO/NC contact should be present for DB monitoring and BMS integration	
	Consider Type B for lighting and resistive, Type C for Inductive load applications and Type D for Inductive, capacitive load applications (Pumps, motor, large winding motors etc.)	
Integration	Main incoming breaker should be capable to integrate with BMS	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	

General	Required Specification	Quoted Specification
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

iv) Bus-Bar Mounted Power Distribution System

Description	Required Specification	Quoted Specification
Brand	Please specify	
Model	Please specify	
Country of Origin:	USA/EU/UK/Switzerland	
Country of Manufacturer:	Please specify	
Busway Material	Cast Resin, Continuous /Non-Continuous type	
Busway Type:	Continuous type (anywhere plugin option for rack) is preferable	
Ingress Protection	Plug-in opening= IP3X with finger protection	
	Complete Installation= IP54	
	Feeder Busway & Rack Power Continuous Busway should be from same OEM	
General Requirements	The busway system shall be cast resin busway, with voltage and current ratings as indicated on the contract drawings.	
	Rated voltage: below 1000V	
	Busway configuration: Phase + 100%, **200% Neutral** + 100% Internal Earth	
	all conductors shall be fully enclosed within the busway trunking/housing	
	Dielectric withstand: 3500V, for 1 minute	
	The plug-in busway system shall comply to IEC 60529 with an Ingress protection rating of IP20 (finger safe).	
	The minimum short-circuit rating (RMS symmetrical) of the busway system shall be: 65 kA (1 sec.) for 600-1250A busway	
Construction	The busway and the necessary fittings shall consist of copper conductors encapsulated in epoxy resin material. Indoor feeder and plug-in busway shall be interchangeable for the same rating without the use of adapters or special splices. The busway sections shall consist of standard lengths of 1M, 2M, or 3M with the other associated sections and fittings.	
	Bus Bars & Housing	
	The bus bars shall be fabricated from high strength, 99.9% conductivity copper and tin-plated over the entire surface to ensure good electrical contact at all joints and plug-in tap-off points.	
	The bus bars shall be encapsulated and insulated by the epoxy resin material; and the resin material shall serve the purpose as the bus bar insulation and as the busway housing. Air-insulated bus bars are not acceptable.	
	The cast resin insulation material shall be rated at a minimum of Class F (155°C).	
	The busway housing and plug-in unit casing shall be	

Description	Required Specification	Quoted Specification
	protected against corrosion. Plug-in units with plastic casings are not accepted.	
	The busway shall allow for the plug-in units to be attached from both sides (front & back).	
	The busway shall be capable of carrying the rated current continuously without exceeding a temperature rise of 55 Kelvin on each surface, based on a maximum ambient temperature of 40°C.	
	Bus bars for Neutral shall be full-sized and be rated to either 100%, 150%, or 200%. Oversized Neutral bus bars (150% or 200%) shall be internal to the busway housing.	
Joints	Each busway section shall be furnished complete with the joint pack to connect the adjoining busway sections.	
	Joint connections shall be made without special installation tools, housing couplers or bus connectors.	
	[If necessary, the busway joint shall be capable of dismantling without any special tools].	
Plug-In Busway & Plug-In Unit	Plug-in busway sections shall be available up to 3M lengths, and providing continuous plug-in openings along the busway sections.	
	The plug-in busway shall be capable to meet IP20 Ingress protection (finger safe).	
	The plug-in units shall be interchangeable without alteration or modification on all ratings of plug-in busway.	
	The plug-in units shall be equipped with MCB for branch feeder circuit protection and Ceeform connectors. Options for either Single or Double feeder circuits shall be available.	
	The plug-in units shall be customizable to meet the specific requirements of the products. Additionally, the plug-in units shall be capable of current/voltage/power monitoring, by means of a local meter display; with an option for remote monitoring function via wired and/or wireless connection for Branch Circuit Monitoring System (BCMS).	
End Feed Unit / End Cable Tap Box	factory installed junction box for direct connection to the busway shall be available for cabling in. Optional MCCB main breaker for circuit protection shall be available. End Feed Unit shall be capable for local or remote monitoring as well.	
Busway Mounting/Support	The busway shall be capable of being mounted flatwise, edgewise, or vertically without derating.	
	The manufacturer's standard hanger/clamp shall support busway sections and fittings. The standard hangers/clamps provided shall be capable to ensure the installed busway system is seismic qualified.	
	Horizontal hanger spacing for the busway installation shall be in accordance to the manufacturer's recommendation.	
Related standards	For the equipment specified herein, the manufacturer shall be ISO 9001:2008 and ISO 14001:2004 certified.	

Description	Required Specification	Quoted Specification
	The busway shall be constructed and tested to comply with the minimum requirements of the latest revisions of applicable industry standards and codes:	
Certification	IEC 60439-1, IEC 60439-2, IEC 61439-6, IEC 60331, IEC 60332, IEC 60529, CNS 14286, CNS 11174, CNS 11359, JIS 8364	
Reference Project	OEM should have minimum 1 (One) Similar installation in Bangladesh	
List of Reference Project	Please Specify	
Busway Metal Type	Must be Copper	
Busway	Power BBT & Data Center BBT same OEM are preferable	
	Should be supplied and installed as per SLD.	
End Feed	Should be supplied and installed as per SLD.	
Hanger	Should be supplied and installed as per SLD.	
Tap-off unit for Cooling, Utility, Lift & etc.	As Per SLD	
Plug-in Unit for Rack	32A-1P for Single feeder Circuits – C.W. 32A-SP MCB, IEC309 angled sockets (3 pin): 330 units	
	32A-3P for Single feeder Circuits – C.W. 32A-3P MCB, IEC309 angled sockets (5 pin): 200 units	
	63A-3P for Single feeder Circuits – C.W. 63A-3P MCB, IEC309 angled sockets (5 pin): 06 units	
Integration & Monitoring	Should be Capable integrated with DCIM & BMS	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

v) Power Cabling and others related works:

Descriptions	Required Specification	Quoted Specification
Electric Cabling		
Brand	BRB/ BBS	
Certification	Should be BUET tasted certification	
Cable Requirements	Bidder has to provide required cable for complete solution as per SLD.	
Cable feature	Supply Cable Supply cable should be FRLS NYY	
	Ground cable should be FRLS BYA (Green)	
	Cooling indoor cable Should be 04(four) Core FRLS NYY	
	AC cable Should be 03(three) core FRLS BYN	
	Lift cable Should be FRLS NYY	
Earthing & Lighting Arrester		
Earthing (UPS, Isolation Transformer, Equipment, Cooling, Lift, VRF etc.)	➢ Minimum 17 Units to be required (if required more please specify • Power LT panel: 2+2 Units • Isolation Transformer :2+2 Units • All Cooling (Indoor & Outdoor): 2+2 units • SPD: 2 units • Floor (Rack, Raised floor, Light DB & others):	

Descriptions	Required Specification	Quoted Specification
	3 units ➢ Resistance must be less than 1 ohm ➢ Mesh type separation should be provided ➢ Cable should be minimum 300RM BYA(Green) from pit to Floor distribution.	
Lighting Arrester	➢ 2 Units Earthing to be required for Lighting Arrester. ➢ Resistance must be less than 1 ohm ➢ 1 node appx. 100M radius coverage certified Lighting Arrester. ➢ Installation should be Roof top tower. ➢ Earthing should be Mesh type. ➢ Counter should be present & capable to integrate with BMS ➢ Sample Lighting Arrester 	
Intelligent Controlled Electric Lighting System		
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
Amount of Lux	To Achieve 600 Lux as per TIA 942 Guide Line Vendor, Provide BOQ and Design	
Emergency Lighting Control	Two light sources come from two separate **30KV utility UPS.** Not required any emergency light inside Data center. Bidder will provide necessary sensor, switch, socket etc. All the accessories must be renewed brand (Like as BRB/ BBS/ Schneider/ ABB/Legrand)	
Cable type	Cable should be FRLS BYA	
Integration, Monitoring & Controlling	Should be Capable to Integration, Monitoring & Controlling with BMS	
Power Cable Ladder		
Brand name:	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
Features	1. The cable tray should be of Metal steel (MS). (color option if any) 2. Should be industrial grade powder coated. 3. It should have clips/hole to hold the cables. 4. It should have the mechanism of holding the cable 5. The cable tray placement should be as per design	

Descriptions	Required Specification	Quoted Specification
Sample Cable Ladder		
Quantity	As per Design	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Category-2: Precision Air-conditioning System

The bidder must submit offer for all items under this category.

a) Air-cooled/Water cooled based chiller precision air- conditioning system including implementation.

Descriptions	Required Specification	Quoted Specification
Chiller Information		
Brand name	Please specify	
Model	Please specify	
Country of origin	USA/EU/UK	
Country of Manufacture	USA/EU/UK	
No. of chiller unit	02 (Two)	
Unit Capacity	150 TR	
No. of Refrigerant Circuit	02 (Two)	
Compressor Type	Please Specify	
Refrigerant Gas	R134A	
Number of Pump per unit	02 (Two)	
Pump Type	Variable speed Driver onboard Pumps (Factory Fitted)	
Sensible Capacity	Please specify	
Ambient temperature	Please specify	
Per unit Power Consumption	Please specify	
Total Power Consumption	Please specify	
Weight	Please specify	
Dimension	Please specify	
Refrigerant related performance issue	Please explain with details	
Power source	Must have dual power source	
Placement	The chiller/outdoor should be placed at the rooftop of adjacent 5- storied building. Total available space for Chiller installation is 700 sft. (Apx.)	
Indoor/Distribution Unit Information		
Brand name:	Please specify	
Model:	Please specify	
Country of origin	USA/EU/UK	
Country of Manufacture	Please specify	
Technical Requirement of the total System		
	The PAC should be air cooled/water cooled chiller-based system.	
	Required floor-wise cooling is mentioned below: • 1st Floor: Min 20 TR unit capacity min 10TR • 3rd Floor: Min 90 TR unit capacity min 30TR • 4th Floor: Min 90 TR unit capacity min 30TR • 5th Floor: Min 90 TR unit capacity min 30TR	
	The system should be capable to dynamically start and stop according to the required cooling.	
	The proposed set of PAC should be capable of keeping cool from under the raised floor.	
	Should be capable of maintain uniform temperatures throughout the datacenter.	

Descriptions	Required Specification	Quoted Specification
	LCD Screen display (at least 7 inch) should be present in all the outdoor units. LCD Screen display should be present in all the indoor units.	
	Dehumidification functionality should be built-in with the proposed system.	
	Water sensor kit should be included.	
	Should must dual Power feeds	
	After power fail system should be stable at full cooling load within 2 minutes	
	Phase monitoring relay should be present for avoiding unexpected phase change.	
	Provided software's functions should include monitoring and Controlling the Cooling units remotely through TCP/IP.	
	Bidder Should be provided extra Dehumidifier as per calculation of Temperature each floor.	
Per unit Power Consumption	Please specify	
Required Power for total solution	Please Specify	
Integration & Monitoring	Should be Capable integrated & monitoring with DCIM	
Integration, Monitoring & Control	should be capable to Integration, Monitoring & Control with BMS	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

b) Gas/refrigerant based precision air-conditioning system including implementation.

i) Type-1: Under Raised Flow Cooling (290 TR)

Descriptions	Required Specification	Quoted Specification
Brand name	Please specify	
Model	Please specify	
Country of origin	USA/EU/UK	
Country of Manufacture	Please specify	
Other features	Compressor: Please specify	
	Number of Compressor: Two (02) per unit	
	Refrigerant Gas – R410A	
	Three-phase power supply 400 V/3 Ph+N/50 Hz for all the units with a double power supply	

Descriptions	Required Specification	Quoted Specification
	Required floor-wise cooling is mentioned below: 1st Floor: Min 20TR unit capacity min 10TR 3rd Floor: Min 90TR unit capacity min 30TR 4th Floor: Min 90TR unit capacity min 30TR 5th Floor: Min 90TR unit capacity min 30TR	
	Heat exchanger coils designed for high sensible heat ratio (SHR) and reduced pressure drops	
	High-tech compound material impellers with optimized flow control High efficiency Green Tech EC motors Low power consumption High part-load efficiency Regulate airflow based on actual thermal load Easy serviceability with quick removal kit	
	LCD display interface Integrated management of the EEV and refrigerating circuit parameters Integrated Unloading logic Full management of the condenser status including single fan status Grouping logic integrated RS485 and TCP/IP card bus integrated targeting the main communication protocols	
	Should be capable of maintain uniform temperatures throughout the datacenter.	
	Refrigerant Circuit: Double	
	Dehumidification functionality should be built-in with the proposed system.	
	Water sensor kit should be included.	
	Must have Dual Power feeds.	
	After power fail system should be stable at full cooling load within 2 minutes	
	Phase monitoring relay should be present for avoiding unexpected phase change.	
	Provided software's functions should include monitoring and Controlling the Cooling units remotely through TCP/IP.	
No. of outdoor unit	Please Specify (30TR unit) Please Specify (10TR unit)	
Per unit Power Consumption	Please specify	
Required Power for total solution	Please Specify	
Integration & Monitoring	Should be Capable integrated & monitoring with DCIM	
Piping length related performance issue	Please explain with details	
Refrigerant related performance issue	Please explain with details	
Integration, Monitoring & Control	should be capable to Integration, Monitoring & Control with BMS	

Descriptions	Required Specification	Quoted Specification
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Certificates	Must comply tier-4/rated-4 compliance (Uptime Institute/epi) in all aspects	
Warranty	Three (03) years full warranty	

ii) Type-2: Over the Raise Floor (Front-Flow) Cooling (60 TR)

Descriptions	Required Specification	Quoted Specification
Brand name	Please specify	
Model	Please specify	
Country of origin	USA/EU/UK	
Country of Manufacture	Please specify	
Other features	Compressor: Please specify	
	Number of Compressor: Two (02) per unit	
	Refrigerant Gas – R410A	
	Three-phase power supply 400 V/3 Ph+N/50 Hz for all the units with a double power supply	
	Required cooling is mentioned below: 2nd floor: Min 60TR unit capacity 10TR	
	Heat exchanger coils designed for high sensible heat ratio (SHR) and reduced pressure drops	
	➢ High-tech compound material impellers with optimized flow control ➢ High efficiency Green Tech EC motors ➢ Low power consumption ➢ High part-load efficiency ➢ Regulate airflow based on actual thermal load ➢ Easy serviceability with quick removal kit	
	➢ LCD display interface ➢ Integrated management of the EEV and refrigerating circuit parameters ➢ Integrated Unloading logic ➢ Full management of the condenser status including single fan status ➢ Grouping logic integrated ➢ RS485 and TCP/IP card bus integrated targeting the main communication protocols ➢ USB and Service port integrated in the display interface	
	Should be capable of maintain uniform temperatures throughout the datacenter.	
	Dehumidification functionality should be built-in with the proposed system.	
	Water sensor kit should be included.	
	Must have dual Power feeds.	

Descriptions	Required Specification	Quoted Specification
	Load should be viewed by KW metering.	
	After power fail system should be stable at full cooling load within 2 minutes	
	Phase monitoring relay should be present for avoiding unexpected phase change.	
	➢ Provided software's functions should include monitoring and Controlling the Cooling units remotely through TCP/IP. ➢ Should be capable to integrated with DCIM and BMS for monitoring and also Controlling should be present through BMS	
No. of outdoor unit	Please Specify	
Per unit Power Consumption	Please specify	
Required Power for total solution	Please Specify	
Integration & Monitoring	Should be Capable integrated & monitoring with DCIM	
Piping length related performance issue	Please explain with details	
Refrigerant related performance issue	Please explain with details	
Integration, Monitoring & Control	should be capable to Integration, Monitoring & Control with BMS	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Category-3: Network Equipment

There are two (02) sub-categories under this category. The bidder may participate in any number of sub-categories. However, the bidder must submit offer for all items under a sub-category.

Sub-Category-3.1: Network Cabling and Raceway system including implementation

a) Network Cabling System

i) Copper Cable with Accessories

Descriptions	Required Specification & Quantity	Quoted Specification
Brand name	CommScope/Panduit/Corning	
Country of origin	USA/EU/UK	
Country of Manufacture	USA/EU/UK	
UTP Cable		
CAT 6A/CAT 7 10G UTP Cable, LSZH, Frequency at least 500 MHz (1000 ft. per Box)	350 Box	
CAT 6 UTP Cable, LSZH, Frequency at least 250 MHz (1000 ft. per Box)	150 Box	
Colour Scheme	Please Specify	
Patch Panel		
CAT 6A/CAT 7 10G UTP Patch panel (24 Port loaded)	450 Units	
CAT 6 UTP Patch panel (24 Port loaded)	100 Units	
Patch Card (CAT6A/CAT7)		
CAT 6A/CAT 7 Small Diameter Patch cord 03 feet	500 Units	
CAT 6A/CAT 7 Small Diameter Patch cord 05 feet	800 Units	
CAT 6A/CAT 7 Small Diameter Patch cord 07 feet	1000 Units	
CAT 6A/CAT 7 Small Diameter Patch cord 10 feet	500 Units	
Colour Scheme	Please Specify	
Patch Card (CAT6)		
CAT 6 UTP small diameter Patch cord LSZH 02 feet	500 Units	
CAT 6 UTP small diameter Patch cord LSZH 03 feet	1000 Units	
CAT 6 UTP small diameter Patch cord LSZH 05 feet	1000 Units	
CAT 6 UTP small diameter Patch cord LSZH 07 feet	500 Units	
CAT 6 UTP small diameter Patch cord LSZH 10 feet	500 Units	
CAT 6 UTP small diameter Patch cord LSZH 25 feet	100 Units	
Colour Scheme	Please Specify	
Cable lay/labeling	**All cable lay/Panel labeling has to be done as per requirement**	

Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

ii) Fiber Cable with Accessories

Descriptions	Required Specification & Quantity	Quoted Specification
Brand name:	CommScope/Panduit/corning	
Country of origin	USA/EU/UK	
Country of Manufacture	USA/EU/UK	
Fiber Patch Panel		
Modular 4U Fiber Shelf (High Density) (288 duplex LC port Loaded)	12 Units	
Modular 2U Fiber Shelf (High Density) (144 duplex LC port Loaded)	16 Units	
Modular 1U Fiber Shelf/Panel (48 duplex LC port Loaded)	120 Units	
MPO-MPO/equivalent OM4 Trunk cable 8m (12 Fiber core)	60 Units	
MPO-MPO/equivalent OM4 Trunk cable 10m (12 Fiber core)	180 Units	
MPO-MPO/equivalent OM4 Trunk cable 15m (12 Fiber core)	330 Units	
MPO-MPO/equivalent OM4 Trunk cable 20m (12 Fiber core)	150 Units	
MPO-MPO/equivalent OM4 Trunk cable 25m (12 Fiber core)	20 Units	
MPO-MPO/equivalent OM4 Trunk cable 35m (12 Fiber core)	20 Units	
MPO-MPO/equivalent OM4 Trunk cable 50m (12 Fiber core)	20 Units	
Patch Cord		
LC/UPC – LC/UPC Uniboot OM4 Patch cord 5 feet (10G connection)	1500 Units	
LC/UPC – LC/UPC Uniboot OM4 Patch cord 7 feet (10G connection)	1000 Units	
Colour Scheme	Please Specify	
Cable lay/labeling	**All cable lay/panel labeling has to be done as per requirement**	

Descriptions	Required Specification & Quantity	Quoted Specification
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Required features and implementation activity:

- **<u>UTP Cabling Components</u>**

UTP Cable (CAT6A/CAT 7)

- CAT6A / CAT7 U/UTP Cable 23 AWG, solid copper, with pair separator as well as conductor separators for enhanced A-NEXT performance
- Must be Intertek 4 connector certified for CAT6A performance as per ANSI/TIA 568-C.2 for 100m (long channel) as well as 15m (short Channel). Both reports must be submitted.
- Sheath shall be LSZH compliant to IEC 60332-3-22, 61034-2, 60754-2 and EN50575 EuroClass Fire rated as Dca.
- Max DC resistance 7.61Ohm/100m, ETL verified, Cable OD not more than 7.3mm.

UTP Cable (CAT6)

- CAT 6 UTP 23 AWG Cable compliant to ANSI/TIA 568.2-D, IEEE 802.3bt (Type 4) 4PpoE, ETL verified, LSZH IEC 60332-3, 61034-2 and EN50575 Dca complaint, DC resistance < 7.61Ohm/100m, Intertek 4 connector channel certified for 100m (long channel) and 15m (short channel).

Patch Panel (CAT6A/CAT7)

- 24 Port CAT6A / CAT 7 Panel with rear cable bundle manager
- Shall be intelligent ready / enabled is preferable.
- Shall be certified for IEC 60603-7 performance by Intertek labs.
- Shall support min plug retention force of 130N

Patch Panel (CAT6)

- 24 Port CAT6 Panel with rear cable bundle manager
- Shall be intelligent ready / enabled is preferable
- Shall be certified for IEC 60603-7 performance by Intertek labs.
- Shall support min plug retention force of 130N

CAT6A / CAT 7 Small Diameter Patch Cords

- Small diameter patch cords compliant to IEEE 802.3bt Type 4 | ISO/IEC 11801 Class EA | TIA/EIA-568 Cat 6A.
- Max Cordage OD shall be <5.0mm.
- Cordage shall be 26-28 AWG solid for maintaining performance at CAT6A level.
- LSZH – CM Dual rated jacket
- Shall be available in multiple color and lengths for better administration.
- Plug insertion life min 750 cycles, Retention force min 90N, Safety as per UL 1863.
- Shall support intelligent port detection is preferable.

CAT6 Small Diameter Patch Cords

- Small diameter patch cords compliant to IEEE 802.3bt Type 4 | ISO/IEC 11801 Class E | TIA/EIA-568 Cat 6.
- Max Cordage OD shall be <4.0mm.
- Cordage shall be 26-28 AWG stranded.
- LSZH, UL 94V-0 rated.
- Shall be available in multiple color and lengths for better administration.
- Plug insertion life min 750 cycles, Retention force min 90N.
- Shall support intelligent port detection is preferable

UTP Cabling Installation

- CAT 6A and CAT 7 cables should be laid up to the rack level in the Data Centre
- Dedicated raceways / cable-trays should be used for laying LAN as mentioned in cable raceway part.
- Along with Fiber cabling, cables for Storage Area Network (SAN) up to the racks in the Data Centre should also be implemented.
- Cabling for KVM switches on the racks should also be done.
- Additional cabling requirements on an on-going basis will also need to be catered.
- All the cable raceways shall be adequately grounded and fully concealed with covers.
- The cables should be appropriately marked and labeled.

➢ **Fiber Cabling Components**

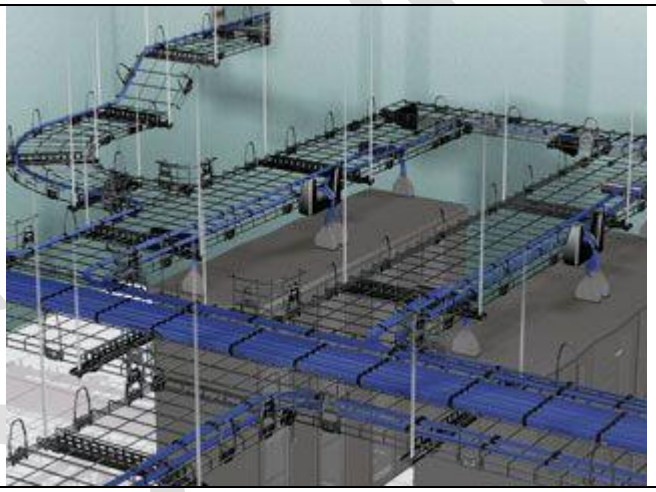
MPO Trunk & Modules

- Pre-terminated low loss MPO OM4 Trunk Cable
- Trunk cables designed with OM4, Bend Insensitive Multimode Fiber
- Polarity of the Trunk / MPO modules must enable same modules being used any where within the link. Should be Method B enhanced.
- All Trunk /patch cables sheath shall be Aqua colored with LSZH IEC 60332-3, 61034-2, 60754-2 and UL 1685 rated.
- Modules shall have 2x12F MPO ports rear and 12LC duplex front ports.
- Modules shall have translucent external dust caps on each port
- Modules should be intelligent
- Modules Shall be UL1863 compliant.
- LC-LC OM4 Patch cords shall be with Uniboot construction for ease of access in high density panel ports.
- Uniboot patch cords shall support field adjustable polarity reversal, without cord damage.
- MPO and LC connectors must have UPC end face.

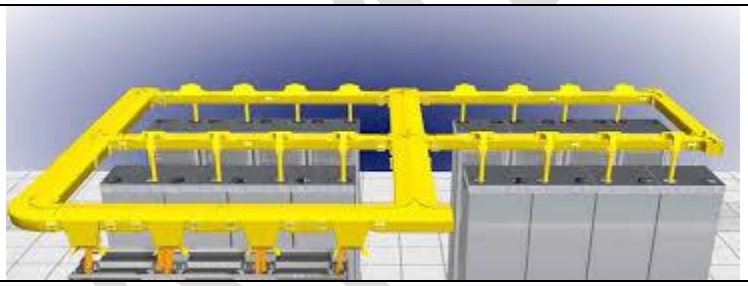
Fiber Panel & Shelves

- 1U Modular Fiber Panels with sliding access, integrated front patch cord management with admin labeling window.
- 2U/4U High Density Modular Fiber Shelf enclosure, with sliding front access, with integrated front patch cord management, with admin labeling window.
- High density 2U/4U Shelves shall support half-tray pull out feature for easy management
- The 2U/4U high density shelf shall support upto 144 /288 duplex LC ports respectively to be used in Network racks / SAN racks.
- Shelves shall be intelligent ready / enabled is preferable.
- Shelves shall support both rear and side entry of trunk cables.

b) Overhead hanging cable raceway (Copper)

Descriptions	Required Specification	Quoted Specification
Brand name:	Please Specify	
Country of origin	USA/EU/UK	
Country of Manufacture	Please Specify	
Built Material	• Galvanized Coating MS Steel mesh type min 8mm thickness • Material must be environmental hazard free.	
Features for overhead hanging cable Raceway	1. It should have clips/hole to hold the cables. 2. It should have the mechanism of holding the cable, which comes out from the top of the Racks. 3. The cable tray should be hanged from the rooftop. 4. The tray should pass over all the Racks in the datacenter, so that cable can be routed from any rack to other. 5. The cable dropper should be hanged from the Raceway to Rack.	
Load Capacity	Please Specify (higher is preferred)	
Raceway width	At least 2.5 ft. (As per site Requirement)	
Sample structure for UTP cable Raceway		
Area to be covered	As per site Requirement	
Colour Scheme	Please Specify	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

c) Overhead hanging cable raceway (Fiber)

Descriptions	Required Specification	Quoted Specification
Brand name:	Please Specify	
Country of origin	USA/EU/UK	
Country of Manufacture	Please Specify	
Built Material	• ABS Plastic. • Material must be environmental hazard free.	
Features for overhead hanging cable Raceway with cover	1. It should have clips/hole to hold the cables. 2. It should have the mechanism of holding the cable, which comes out from the top of the Racks. 3. The cable tray should be hanged from the rooftop. 4. The tray should pass over all the Racks in the datacenter, so that cable can be routed from any rack to other. 5. The cable dropper should be hanged from the raceway to Rack. 6. Material shall be fire rated as per UL 94V-0 & UL2024	
Load Capacity	Please Specify (higher is preferred)	
Raceway width	At least 4 x 12 inches (As per site Requirement)	
Sample structure for fiber raceway		
Area to be covered	As per site Requirement	
Colour Scheme	Please Specify	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

d) Label Printer

Quantity: 02 Units

Descriptions	Required Specification	Quoted specifications
Brand name:	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
Feature	LS8E printer, one cassette of S100X150VAC self-laminating labels, six AA alkaline batteries, LS8-CASE, LS8-PCKIT, LS8-IB, LS8-WS, quick reference card, and operator's manual.	
Label for UTP cable and patch cord	White print-on area, vinyl label for 10 – 6 AWG wire/cable, Category 5e/6/6A UTP and Category 5e FTP cable, 200/cassette	
Labels for UTP Patch Panel	Pre Laminated Labels Cassette water proof White, non-adhesive polyester label, 75/cassette, 4-port identifier.	
Labels for Faceplates	hite adhesive polyolefin label 200/cassette, Mini-Com 2 port identifier	
Label for Fiber Cable	White print-on, self-laminating vinyl label 175/cassette. For use with NWSLC-2Y and NWSLC-3Y.	
Printer Cartridge	Quantity: 50 units (Per Unit)	
Product Brochure & Data Sheet	To be attached	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
Warranty	Three (03) years full warranty	

Sub-Category-3.2: Containment & Distribution Rack including implementation

a) Cold-aisle Containment System

<table>
<tr><th>Descriptions</th><th>Required Specification</th><th>Quoted Specification</th></tr>
<tr><td>Brand name</td><td>Please specify</td><td></td></tr>
<tr><td>Model</td><td>Please specify</td><td></td></tr>
<tr><td>Country of origin</td><td>USA/EU/UK</td><td></td></tr>
<tr><td>Country of Manufacture</td><td>Please specify</td><td></td></tr>
<tr><td>No. of Containment</td><td>11 Units</td><td></td></tr>
<tr><td>Door Opening</td><td>Automatic Sliding</td><td></td></tr>
<tr><td>Floor-wise Containment</td><td>Required floor-wise Containment distribution is mentioned below:
<table>
<tr><th>Floor</th><th>Double Row Containment</th><th>Rack Quantity</th></tr>
<tr><td>1st Floor</td><td>2</td><td>2x(5+5)</td></tr>
<tr><td>3rd Floor</td><td>3</td><td>2x(9+9) & 1x(6+6)</td></tr>
<tr><td>4th Floor</td><td>3</td><td>2x(9+9) & 1x(6+6)</td></tr>
<tr><td>5th Floor</td><td>3</td><td>2x(9+9) & 1x(6+6)</td></tr>
</table></td><td></td></tr>
<tr><td>Intelligent lighting</td><td>Factory made intelligence lighting Inside containment is required</td><td></td></tr>
<tr><td>Fire Protection</td><td>Top of the Containment should open automatically during fire (rotary type roof)</td><td></td></tr>
<tr><td>Features</td><td>The cold aisle zone is the space between two rows of IT equipment racks with cold air being supplied between the two rows of racks (or one row of racks and an architectural wall) and the IT equipment exhausts hot air away from the aisle. In this enclosed space cooling unit supply air is collected inside of the Containment. The cool air is supplied to the IT equipment while the IT equipment exhaust air is pushed outside the Containment and returned to the cooling unit.</td><td></td></tr>
</table>

Descriptions	Required Specification	Quoted Specification
	By preventing mixing of cool supply air and hot exhaust air, this self-contained configuration is capable of supporting a complete range of low, medium and high power/heat density loads, and can be deployed in multiple environments without affecting the surrounding area.	
	Production Facility shall be certified as suitable for this data center environment by documentation supporting European Conformity, ROHS and ISO 9001 Certifications and compliances	
	Ceiling panels shall be minimum 5.0 mm or more thick Lexan clear-ribbed panels or 2.36 mm thick V0 clear panels with SPCC framing.	
	Minimum Light Transmission per ASTM D1003 equal to 82% or greater.	
	Ceiling panels shall be designed to be supported by the frames of the IT Equipment racks. Ceiling Panel frames sizes shall be suitable to match up with various rack widths, row width, and aisle widths.	
	The ceiling system shall be designed to permit removal of the ceiling panel from within the contained zone without the use of tools for service access to the space above the Aisle.	
	Proposed containment should be modular features for smooth adjustment of Racks	
	Containment & Rack Should be Preferable of same OEM	
Door Frames and Door	Metal door frames and doors shall be provided to establish air containment at the end of two rows of racks. The door frame system shall match the height of the rack-based equipment and match the design width of the contained aisle.	
	Doors shall be Sliding, to permit access into the contained aisle for maintenance or servicing.	
	Doors shall be provided with a window, handles and latches.	
	Coding basic access control for each containment door	
Frames and Component Seal	Foam Rubber gaskets or metal/composite, brush, or plastic air blocks shall be installed at Aisle joints to minimize open gaps between containment system components, such as door frames, ceiling and duct panels, and IT Equipment racks and rack-based equipment. Gasketing and/or air blocks may include, but not be limited to, the following.	
	Joints between adjacent ceiling/duct panels	
	Joints between ceiling/duct panels and top of racks, if not metal to metal.	

Descriptions	Required Specification	Quoted Specification
	Joints between door frames and ceiling/duct panels, if not metal to metal.	
	Joints between door frames and racks at the end of the row(s).	
	Joints between rack bottom rear frame and floor.	
	Joints between duct panel and ceiling/roof of room	
LED Light in each Rack Front	Two Side True color LED Light in Each Containment	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

b) Network & Server Rack:

Quantity: 80 Units

Items	Required Specifications	Quoted specifications
Brand	Please specify	
Model	Please specify	
Country of origin	USA/EU/UK	
Country of Manufacture	Please specify	
Height	42U EIA-310-D compliant Closed Rack	
Width	**750 mm or higher**	
Depth	At least 1200 mm depth	
Features		
Perforated door	▪ All doors should be Perforated (Front & Rare) ▪ All door should have locks	
Integrated electrical grounding	The roof, side panels and front and rear doors are grounded to the frame of the enclosure. Eight additional electrical grounding inserts are located on the frame for external grounding.	
Weight Capacity (Static load)	Minimum 1300 Kg (Higher is preferable)	
Weight Capacity (Dynamic load)	Minimum 900 Kg (Higher is preferable)	
Certification	Rack must be EIA-310E, UL 2416, UL 60950-1	
U Positions	Should be numbered	
Rack Rail	Should be auto adjustable	
Lighting	Automatic LED lighting on rack door opening.	
Leveling Feet and Casters wheel	Should be Pre-installed and easily adjustable	
Cable access on the roof of the rack.	▪ Multiple cable access slots ▪ Multiple mounting holes for overhead cable troughs	
Rear Cabling Channels	▪ Multi-purpose cable management ▪ Tool less mounting for Rack PDUs	

Items	Required Specifications	Quoted specifications
	▪ Tool less mounting of cable management accessories ▪ Side access holes for cross- connecting between adjacent racks with sides removed	
Vertical cable Manager with Cover	Four (04) units Vertical cable managers should be provided with cover for each Rack.	
Fixed trays	One (01) Fixed trays capable of caring at least 50 kg load, depth of at least 900 mm should be provided with each rack	
Colour Scheme	Please Specify	
Tool less Airflow Management Blanking Panels	At least 20 unit 1U blank panel should be provided with each rack	
Power Distribution Unit (PDU)	Metered Rack PDU, **32A** – At least 24 ways, three (03) units each rack: ▪ Total number of iPDU per rack 3 unit, 25 Units iPDU will be Universal and rest of iPDU will be IEC Type. ▪ IEC type PDU must have at least 4 C19-20 and rest of socket will be C13-14 ▪ Active monitoring and alarms to warn of potential overloads. ▪ iPDU must have cable locking. ▪ iPDU must have at least one temperature and humidity sensor port. ▪ If the iPDU not support third party sensor, then vendor must provide two temperature and humidity sensor per rack ▪ iPDU must support DCIM system.	
Software	Software should be provided to Monitor and control the Metered PDUs	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Category-4: Passive Equipment

There are seven (07) sub-categories under this category. The bidder may participate in any number of sub-categories. However, the bidder must submit offer for all items under a sub-category.

Sub-Category-4.1: Raised floor & floor insulation including implementation.

a) Raised Floor

i) Type-1: 2. Ft. high steel understructure

Descriptions	Required Specification	Quoted Specifications
Brand	Please specify	
Model	Please Specify	
Country of origin	US/EU/UK/Switzerland	
Country of Manufacture	Please Specify	
System	Access floor system to be installed will provide a maximum finished floor height of 600 mm from the existing floor level. The system will provide for suitable pedestal and under-structure designed to withstand various static loads and rolling loads subjected to it in an office / server / DCS / panel / rack area. The entire Access floor system will provide for adequate fire resistance, acoustic barrier and air leakage resistance.	
Panels	Panels will be made up of inert material Calcium sulphate. The bottom of the panel shall be of 0.5 mm(min) steel to create a fire and humidity barrier and this should provide floor's electrical continuity. Panels will remain flat through and stable unaffected by humidity or fluctuation in temperature throughout its normal working life. The Panels will be UL listed/ FM/DM approved.	
	Panels will provide for impact resistance top surfaces minimal deflection, corrosion resistance properties and shall not be combustible or aid surface spread of flame. Panels will be insulated against heat and noise transfer. Panels will be 600 x 600mm x 30 mm (min) height fully interchangeable with each other within the range of a specified layout. Panels shall rest on the grid formed by the stringers which are bolted on to the pedestals. Panels shall be finished with anti-static 0.9 mm Laminate and 0.45 mm thick plastic edge material that is self-extinguishing and will be PVC free	
Panel Loading	Concentrated point load: 600 Kg as per European standard EN 12825*. Uniformly Distributed Load (UDL): 3000 Kg/M2.	

Descriptions	Required Specification	Quoted Specifications
Fire Rating	The Panels will confirm to class O and Class 1 Fire Ratings tested as per CIRC 91/61 or BS 476 Part 6 & 7 (30 min).	
Pedestals	Pedestal installed to support the panel will be suitable to achieve a finished floor height of 600 mm. Pedestal design will confirm speedy assembly and removal for relocation and maintenance. Pedestal base to be permanently secured to position on the sub-floor. Pedestal assembly will provide for easy adjustment of leveling and accurately align panels to ensure lateral restrain. Pedestals will support an axial load of 1500 Kgs, without permanent deflection and an ultimate load of 3000 Kgs. Pedestal head will be designed to avoid any rattle or squeaks.	
Pedestal for heavy structure Assembly	The structure is made entirely of galvanized steel consisting of hexagonal shaped, 90 mm diameter, and 2.5 mm thick base plate, with 6 shaped stiffening ribs with niches that improve adhesion and with 5 holes' mechanical fastening to the ground. The assembly will provide a range of height adjustment up to 100 mm, with the help of check nuts.	
Heavy Understructure	Understructure system consists of Long stringer of size 1800 x 50x 25 x 1.0 mm & Short Stringer of size 550 x 50 x 25 x 1.0 mm to form a grid of 600 x 600mm. These stringers are locked into the pedestal head and run both ways. The US system will provide adequate solid, rigid and quiet support for access floor panels. The US system will provide a minimum clear, uninterrupted height of 600 mm between the bottom of the floor and bottom of the access floor for electrical conducting and wiring.	
Stringer for heavy under structure	Stringer system is composed of a special frame, made of pressed galvanized steel plate and with a section Long stringer of size 1800 x 50x 25 x 1.0 mm & Short Stringer of size 550 x 50 x 25 x 1.0. The longitudinal ribs and flaps in the lower part should be designed to increase flexion resistance. The grid formed by the pedestal and stringer assembly will receive the floor panel.	

Descriptions	Required Specification	Quoted Specifications
Panel	Total: 6208 sft Solid panel -6032 sft. Glass panel-176 sft	
Lifter	• 06 nos. for solid tiles • 06 nos. for perforated tiles	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

ii) Type-2: 6-inch-high steel understructure

Descriptions	Required Specification	Quoted Specifications
Brand	Please Specify	
Model	Please Specify	
Country of origin	US/EU/UK/Switzerland	
Country of Manufacture	Please Specify	
System	Access floor system to be installed will provide a maximum finished floor height of 150 mm from the existing floor level. The system will provide for suitable pedestal and under-structure designed to withstand various static loads and rolling loads subjected to it in an office / server / DCS / panel / rack area. The entire Access floor system will provide for adequate fire resistance, acoustic barrier and air leakage resistance.	
Panels	Panels will be made up of inert material Calcium sulphate. The bottom of the panel shall be of 0.5 mm (min) steel to create a fire and humidity barrier and this should provide floor's electrical continuity. Panels will remain flat through and stable unaffected by humidity or fluctuation in temperature throughout its normal working life. The Panels will be UL listed/ FM/DM approved.	

Descriptions	Required Specification	Quoted Specifications
	Panels will provide for impact resistance top surfaces minimal deflection, corrosion resistance properties and shall not be combustible or aid surface spread of flame. Panels will be insulated against heat and noise transfer. Panels will be 600 x 600mm x 30 mm (min) height fully interchangeable with each other within the range of a specified layout. Panels shall rest on the grid formed by the stringers which are bolted on to the pedestals. Panels shall be finished with anti-static 0.9 mm Laminate and 0.45 mm thick plastic edge material that is self-extinguishing and will be PVC free.	
Panel Loading	Concentrated point load: 450 Kg as per European standard EN 12825*. Uniformly Distributed Load (UDL): 2000Kg/M2.	
Fire Rating	The Panels will confirm to class O and Class 1 Fire Ratings tested as per CIRC 91/61 or BS 476 Part 6 & 7 (30 min).	
Pedestals	Pedestal installed to support the panel will be suitable to achieve a finished floor height of 450 / 600mm. Pedestal design will confirm speedy assembly and removal for relocation and maintenance. Pedestal base to be permanently secured to position on the sub-floor. Pedestal assembly will provide for easy adjustment of leveling and accurately align panels to ensure lateral restrain. Pedestals will support an axial load of 1500 Kgs, without permanent deflection and an ultimate load of 3000 Kgs. Pedestal head will be designed to avoid any rattle or squeaks.	
Pedestal Assembly	The structure is made entirely of galvanized steel consisting of hexagonal shaped, 89 mm diameter, and 1.5 mm thick base plate, with 6 shaped stiffening ribs with niches that improve adhesion and with 5 holes' mechanical fastening to the ground. The assembly will provide a range of height adjustment up to 25mm, with the help of check nuts.	

Descriptions	Required Specification	Quoted Specifications
Understructure	Understructure system consists of stringers of size 525 x 30x 25 x 0.8 mm thick to form a grid of 600 x 600mm. These stringers are locked into the pedestal head and run both ways. The US system will provide adequate solid, rigid and quiet support for access floor panels. The US system will provide a minimum clear, uninterrupted height of 150/ 200 mm between the bottom of the floor and bottom of the access floor for electrical conducting and wiring.	
Stringers	Stringer system is composed of a special frame, made of pressed galvanized steel plate and with a section 25mm wide, 30 mm high and 0.8 mm thick. The longitudinal ribs and flaps in the lower part should be designed to increase flexion resistance. The grid formed by the pedestal and stringer assembly will receive the floor panel.	
Panel	Solid Panel – 2500 sft.	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

b) Floor Insulation

Descriptions	Required Specification	Quoted Specification
Brand	Please Specify	
Model	Please Specify	
Country of origin	USA/EU/UK	
Country of Manufacture	Please Specify	
Total Floor area	12,000 Sft	
	Should be Electricity resistive	
	Dust and fiber-free construction	
	An in- built water vapour barrier	
	Ease of cutting and fitting	
	Durability and maintenance	
	Thickness minimum 19 mm	
Special Condition	If any other thing required providing the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Sub-Category-4.2: Controlling and Monitoring system including implementation.

a) Data Center infrastructure Monitoring Software (DCIM)

Descriptions	Required Specification	Quoted Specification
Brand	Please Specify	
Model	Please Specify	
Country of origin	USA/EU/EU	
Country of Manufacture	Please Specify	
No of device license required	At-least 1100 node license (If more no. of license is required to cover the full Data Center as per given requirement, have to be included.) If the proposed system is an appliance based, the appliance should be provided.	
Rack Monitor	Minimum 164	
Temperature and Humidity Sensor without display	402 units (should be compatible with rack iPDU)	
Design Requirement	All material and equipment used shall be standard components, regularly manufactured, available and not custom designed especially for this project. The data center infrastructure system, including the DCIM, shall previously be thoroughly tested as a system, and proven in actual use prior to installation on this project	
	The DCIM shall be installed on a physical server, or as a virtual appliance, with a specified HTTP or HTTPS connection to access the user interface (DCIM client), and standard TCP protocol connections for communications with the monitoring system	
	The DCIM shall enable vendor-neutral inventory management with real-time device failures and data shown within a data center physical layout. Graphical floor layout and rack elevation view shall be supported from Day 1	
	The DCIM tool shall provide location-based drill-down views providing a structured overview of data center locations, from a global to local view down to single assets.	
	A Power Usage Effectiveness (PUE) dashboard will provide information on daily energy use	
	Inventory report provides structured information on all rack-mount devices, organized by device type, age, manufacturer, and properties for quick overview of all current devices within a particular data center	
	The DCIM tool shall have a search capability to allow data center operations to quickly locate a piece of equipment in the rack layout and floor layout.	

Descriptions	Required Specification	Quoted Specification
	The DCIM tool shall provide public web services API to allow third-party applications to access the inventory database, alarms and events, capacity and cooling analysis data, and PUE information	
	The DCIM shall provide provisions to predict the optimal location for physical infrastructure and rack-based IT equipment based on the availability and requirements of physical infrastructure capacity and user defined requirements such as redundancy, network, and business use grouping	
	The DCIM shall provide provisions to reduce stranded capacity and enable informed decision making and planning by proactively analyzing the impact of future moves, adds, changes before they occur, ensuring that the physical infrastructure provides the required space, power, and cooling capacity for current and future needs	
	The DCIM shall be capable of hosting additional add-on modules that allow a user to perform energy efficiency and energy cost management, inventory management, power and cooling capacity management, change management, IT optimization, IT power capping, server access (software Keyboard Video Mouse or KVM), dynamic cooling control and mobile data center management	
	The DCIM shall provide read-only smart phone applications to get a high level status of the data center operations and KPI	
	The DCIM shall be capable of integrating with additional plug-ins that supports Cisco UCS Manager, HP OneView, Vigilent dynamic cooling control, BMC Remedy ticketing system, Microsoft System Center Virtual Machine Manager 2008/2012, HP Ucmdb, and VmwarevCenter, etc.	
DCIM Operation	The DCIM software shall provide the methodology to create visual view of the data center floor layout, and the racks view and the equipment within, and manage network connectivity. This module shall also map the alarms to the appropriate device on the floor layout. The DCIM software shall support the following capabilities –	
	1. **Floor Layout**	
	A. The DCIM tool will have the capability to add locations and rooms of different types to the data center model to represent the actual physical enterprise infrastructure.	
	B. The DCIM tool will have the capability to configure a bird's eye view of the room layout to ensure the layout in the data center model accurately represents the real-world physical environment of the room. This includes any physical attributes of the room such as size, shape, doors, windows and walkways.	
	C. The DCIM tool will have the capability to see multiple rooms in a layout pane at the same time allowing a user to compare or drag equipment between them – for modeling.	

Descriptions	Required Specification	Quoted Specification
	D. The DCIM tool will have the capability to export the complete or filtered data center inventory into a delimited file (.csv file).	
	E. The DCIM tool will have the capability to render the floor layout in both 2D and 3D view.	
	F. Ability to import an AutoCad (.dwg) floor drawing and display the floor layout. Each layer can be toggled on or off. Rooms can be created based on wall detection on the AutoCad drawing.	
	G. Ability to export the Floor Layout to AutoCAD format (.dwg). Each overlay and the information in the overlay must be stored in individual layers.	
	H. Ability to export the Floor Layout to the following picture formats: BMP, JPG, PNG and SVG.	
	I. Ability to export the Rack View to the following picture formats: BMP, JPG, PNG and SVG.	
	J. Ability to copy/paste equipment on the floor, such as racks, PDUs, UPS and cooling units as well as equipment in the racks, such as servers and patch panels. You can	
	K. copy/paste individual pieces of equipment or multiple items, such as a rack and its contents.	
	2. **Multi-tenant Data Center Support**	
	A. Ability to create cages and auto-detect cage area in square meters or square footage.	
	B. Ability to create cages automatically from AutoCAD drawing through cage selection and wall detection.	
	C. Ability to assign customer to data center asset including rack mounted equipment's, racks, cages, etc.	
	D. Cages, racks and servers are color coded based on sales status (closed, reserved, internal, and open).	
	E. Ability to assign Contracted Power value to each cage, rack or server.	
	F. Ability to add power receptacles to each cage.	
	G. Show a legend on the floor view with information about how many racks are open, closed, reserved and internal.	
	H. Show a legend on the floor view with information about how much space is open, closed, reserved and internal.	
	I. Show a legend on the floor view with information about total room area, sellable space and space efficiency.	
	3. **Rack elevation View**	
	A. The DCIM tool will identify how much weight has been placed in a rack / room compared to the predefined load bearing capability settings of the rack.	
	B. Illustrate the weight of the equipment added to the rack in the rack layout compared to the maximum equipment loading capability of the rack.	
	C. Visualize status of network ports on equipment (used vs. not used).	

Descriptions	Required Specification	Quoted Specification
	D. Visualize network cables.	
	4. **Network Management**	
	A. The DCIM tool will be able to model the configured network connections and allows a user to setup new network routes between the configured equipment.	
	B. Network port properties will have the capability to be imported from a product catalog and/or will be user configurable.	
	C. Ability to configure network routes for selected network equipment in the layout, for example between a server and a switch or a switch and a switch. A route is defined as a connection from a piece of equipment (communication endpoint, such as a server or layer 2/3 network gear, such as a switch) to the first piece of equipment that is a communication endpoint or layer 2/3 network gear.	
	D. Ability to configure cable types and color code each cable type.	
	5. **Product Catalog**	
	A. The DCIM tool will be able to provide a product catalog that contains up-to-date floor and rack mounted data center equipment.	
	B. The DCIM tool will be able to allow a user to add floor and rack-mountable equipment to a rack, server room, electrical room or store room.	
	C. Ability to create an inventory bundle that combines multiple pieces of equipment in one building block.	
	6. **Dashboard Key Performance Indicator (KPI) View**	
	A. Provide a map view to monitor the data center operations in a quick overview, including any alarms in different locations and rooms.	
	B. From the map overview, one can drill down to locations > rooms > racks > servers for details or troubleshooting.	
	C. Display capacity KPIs for each data center in the map view. The KPIs should include the status of the Power, Cooling, U-space and Network utilization.	
	D. Power is represented as the percentage of the available load (Kw) that is utilized by the IT equipment in the location or room.	
	E. Cooling is represented as the percentage of the available load (Kw) that is utilized by the IT equipment in the location or room.	
	F. U-space is represented as the percentage of the available U-positions (U-pos) that is populated with equipment in the location or room.	
	G. Network is represented as the percentage of the available Network ports (ports) that is utilized by networking equipment in the location or room	

Descriptions	Required Specification	Quoted Specification
Data Center Operation: Capacity	The DCIM software shall provide capabilities to perform capacity planning, create capacity groups, perform power and cooling analysis as per the following details:	
	1. **Capacity Planning**	
	The DCIM software will provide provisions to recommend the best location for a server in the rack layout, utilizing available space, cooling, network and power capacity to optimize capacity utilization and avoid stranded capacity:	
	A. Impact simulation: Generates a list of equipment that would be impacted if the selected piece of equipment, e.g. a UPS or cooling unit, was to fail.	
	B. Measured Load: Display measured load data for UPS and racks in the floor layout that identify how much of each UPS or rack's maximum Kw power is in use. This requires communication to power monitoring devices or servers.	
	C. Measured Load: Displayed measured load data for cages in the floor layout that identify how much of a cage's contracted power is in use. This requires communication to power monitoring devices or servers.	
	D. Power Capacity: Ability to assign planned capacity for each rack and illustrates rack capacity consumption compared to the planned recommended values for that rack. Provide information such as remaining power, the amount exceeding the recommended capacity.	
	E. Power Path: Ability to model power connections between the equipment supplying and delivering power and the equipment requiring power. This includes power path from switchgear, UPS, main PDU with modular circuit breaker mapping, rack RPDU and to individual servers.	
	F. Power Path: Ability to export the power path to a comma separated file.	
	G. Rack U Space: Ability to monitor and display rack U space utilization of each rack.	
	2. **Capacity Groups**	
	Ability to model capacity groups that allows a user to group equipment's, placing it in groups of racks with similar power capacity requirements to match the IT equipment with availability needs and avoid stranded space, power, and cooling capacity. For example, group a set of high-density racks together for optimized power and cooling configuration.	
	3. **Power Analysis**	
	Ability to detect the following list of configuration issues regarding data center power configuration and provide recommended actions:	
	A. Connection has not been configured between PDU and power supply: A power connection is missing in the data center model from this PDU to the power supply from which it should receive power.	

Descriptions	Required Specification	Quoted Specification
	B. Equipment connected to this PDU draws more power than is supported by the power supply breaker: The breaker does not provide sufficient power to cover the power requirements of the equipment connected to that PDU.	
	C. Equipment is connected to a rack PDU outside this rack: The power connection setup for this equipment is not optimum as it is setup to be supplied by a rack PDU that is not positioned in the same rack as the equipment.	
	D. Internal redundancy setup for UPS and group must match: The internal redundancy setup for the UPS and group does not match, for example N and N+1.	
	E. Rack is without rack PDU or a rack PDU is not powered: The rack is without rack PDUs or its rack PDUs are not connected to a PDU, remote distribution panel (RDP) or power panel.	
	F. The breaker configuration does not support rack's estimated load: The equipment in the rack draws more power than the breaker supports. In case of 3 phase equipment, the problem shall be indicated even if only one of the phases is overloaded.	
	G. The input voltage setting required by the equipment is not available in current rack: In the data center model, the server's input voltage requirement cannot be supplied by the rack PDU in the rack.	
	H. The measured load exceeds the estimated load per phase designed for the rack: Connected devices in the rack use more power than the estimated load per phase in the rack shall be indicated in the data center model.	
	I. The measured load exceeds the total estimated load configured for the rack: Connected devices in the rack that use more power than the total estimated load in the rack shall be indicated in the data center model.	
	J. The measured load of the UPS exceeds the total estimated load of the connected equipment: Devices connected to the UPS use more power than design capacity or they have not been assigned to the correct UPS in the data center model layout to correctly represent the physical infrastructure. In case of 3 phase equipment, the problem shall be indicated even if the measured value is only too high for one of the phases.	
	K. The phase configuration for the connected server is not supported by the rack PDU: The phase connection configured for this server is not valid. This message will occur if a power connection had been configured to this server but subsequently changes have been made to the phase configuration.	
	L. The server must be supplied from the same phase from both distribution units: The redundancy setup requires identical phase distribution setup for A and B feed.	

Descriptions	Required Specification	Quoted Specification
	M. The UPS in the layout does not supply enough power to match the configured load of connected equipment in the layout: The load of the equipment connected to the UPS is higher than the load that the UPS can supply. In case of 3 phase equipment, the problem shall be indicated even if only one of the phases is overloaded.	
	4. **Cooling Analysis**	
	A. The DCIM software shall be able to calculate cooling performance of data centers in real-time with CFD-like simulation, provide calculated inlet and exhaust temperatures per rack plus capture index (percentage of heat captured by cooling devices) per rack.	
	B. Ability to present the calculation results visually in the floor layout.	
	C. Ability to alarm cooling configuration issues and provide recommended actions. For example, a room has no perforated tiles for the Computer Room Air Conditioning (CRAC) unit airflow (one or more CRACs have been added to the floor but no perforated tiles have been added), or there is no perforated tile airflow (one or more perforated tiles have been added to the room but no CRACs have been provided to supply any airflow).	
	D. 2D plenum airflow and pressure view: Provide a 2D under-floor plenum view that shows airflow vectors and Cubic Feet per Minute (CFM) based on the height of the raised floor, the placement and type of perforated tiles and cooling devices. When a cooling unit or a perforated tile is moved around, the flow vectors and airflow CFMs shall update instantly.	
	E. 3D temperature and airflow view: Provide a 3D view showing max/average inlet/return temperature and airflow above the raised floor. Calculate velocity vector and temperature in real-time (seconds) to allow customers to try what-if scenarios. Ability to slide the temperature and velocity plane in all three dimensions.	
	F. Ability to simulate failure of one or more cooling units and examine impacts to IT equipment.	
	G. Ability to map temperature sensors to rack elevation or anywhere in the data center 3D space and draw the 3D measured temperature map based on the measured data.	
	5. **Integration with 3rd Party Software**	
	A. The DCIM software shall support integration with Cisco UCS manager to retrieve real-time power measurement data for blade servers and display them. In addition, it should support automatic power capping Cisco UCS chassis based on rack PDU breaker setting to safe guard rack PDU breakers.	
	B. The DCIM software shall support integration with Vmware vCenter and Microsoft System Center Operations Manager (SCOM), Virtual Machine manager to retrieve virtual machine information and map them to physical	

Descriptions	Required Specification	Quoted Specification
	servers.	
	C. The DCIM software shall support integration with HP Universal Configuration Management Database (Ucmdb), pushing IT asset data such as network, server devices and properties to the DCIM software.	
	D. Ability to support two-way data exchange between the DCIM software and a broad range of systems, such as CMDBs, asset management systems, and building management systems using Extract, transform and load (ETL). Based on the ETL system, it is possible to develop custom solutions, integrating DCIM with a broad range of data sources.	
Data Center Operation Energy Efficiency	The DCIM shall provide the following functionality from the data center Energy Efficiency point of view	
	A. The DCIM tool will provide current and historical Power Usage Effectiveness (PUE) values and full insight into current and historical energy efficiency.	
	B. It will present how much power is devoted to driving the installed IT-equipment compared with the total facility consumption.	
	C. Identify efficiency losses and enables improved PUE at the subsystem level.	
	D. Provide insight into energy losses and cost of energy at the subsystem level, providing details of which subsystem draws the most costs.	
	E. The DCIM tool will have a web-based dashboard view which includes efficiency data on current and historical PUE, as well as detailed subsystem cost analysis.	
	F. The DCIM tool will provide a report on current and historical PUE values.	
	G. The DCIM tool will provide energy efficiency analysis, PUE and DciE (Data Center infrastructure Efficiency) reporting.	
	The DCIM shall provide the following change management functionality to keep track of additions, movements, maintenance or deletions in a data center:	
	A. The DCIM tool will enable operators to gain control over the data center environment by implementing organized moves, adds, and change work processes by providing an automated workflow system that can develop and assign work orders, reserve space, track status, and provide a historical audit trail.	
	B. Ability to assign deadline and person to each work order.	
	C. Ability to create multiple tasks and track task status for each work order.	
	D. Ability to track completion date for a work order and provide information about work orders that are completed	

Descriptions	Required Specification	Quoted Specification
	after the deadline.	
	E. Ability to create work order templates that can be used for recurring work types like maintenance activities or standard procedure for installation of a certain type of server.	
	F. Support workflow management that will allow for easy implementation and tracking of organized moves, additions, and changes.	
	G. Support device catalogs of floor and rack-mountable equipment.	
	H. Support audit trail reporting that would show asset moves, additions, and changes by date/time, owner, and work orders.	
	I. Support high-level single "glass pane" report of changes done to the data center in specified time period.	
	J. Ability to integrate with BMC Remedy server to import Remedy tickets and associate them with internal work orders. Update Remedy ticket status when work order status changes or finishes.	
Data Center Operation: Change	A. Data Center Operation: IT Power Control is powered by Intel® Data Center Manager (DCM) and provides insight into the IT layer of the data center. The data retrieval is handled by the IT Power Control module through IPMI or SSH. You can retrieve and monitor power and temperature data from Intel DCM in StruxureWare Data Center Operation.	
	B. Support rack-level power capping functionality powered by Intel DCM for increasing power usage accuracy and delay physical equipment investment. Power capping allows you to limit how much power your IT equipment can use and helps you free UPS capacity.	
	C. Ability to support different rack-level power capping strategy including: Simultaneous server peak (sum of all server peak loads), historic rack peak, Rack peak sharing (20% of rack peak value), and manual input	
Data Center Operation: IT Power Control	The DCIM software shall support a report design tool that has the ability to:	
	A. Configure and design custom reports in addition to the standard built-in reports.	
	B. Define new data sources including other JDBC, Web Services, XML or Text–based databases for data integration.	
	C. Define customized report layout and provide a comprehensive list of report elements for users to choose: Text, Label, Image, Table, List, Chart, etc.	
	D. Support customized equation and calculation.	
	E. Save a finished report design as a template for other users to use.	

Descriptions	Required Specification	Quoted Specification
	F. Output reports to the following formats: HTML, Word Doc, PowerPoint PPT, PDF, POSTSCRIPT or Excel file.	
Data Center Operation: Insight	The DCIM software shall be able to support the following standard report templates out-of-box:	
	Audit Trail report: The DCIM software shall generate an Audit Trail report that lists actions recorded in the application, whether those actions were in response to work orders, or changes made to the data center model. The audit trail also provides information about user login/logout.	
	Capacity History: The DCIM software shall generate a capacity history report that shows the capacity change history for one or more data centers over a user-specified period of time. Allow users to choose data from various capacity categories including power, cooling, space, network and energy efficiency, etc	
	Contiguous Free U-Space: provides information about contiguous free u-space per rack.	
	Cooling Optimize Benchmark: provides an overview of the energy usage during two configurable time periods. This can be used to verify the energy savings by installing Cooling Optimize by comparing energy usage before and after the installation. The energy savings are also converted into cost savings and annual greenhouse gas reduction.	
	Customer Inventory Report: report all customer inventory (server, rack DPU, racks, cages, PDUs, etc) for one or multiple customer accounts. Customer names and accounts can be selected at the time of report generation	
	Energy Cost: The DCIM tool will provide an Energy Usage Report, which shows energy consumed within the data center by the kWh and cost per kWh, detailed to the rack level. The report will include data based on the filter selections of time period, Rooms, Organization, the entered kWh price, the entered overhead factor or Power Usage Effectiveness (PUE). The calculations are based on measured load values, if the IT devices have been setup to report live measured data. Otherwise, the estimated load value will be used.	
	Network Summary: The DCIM software shall generate a network report that lists the usage of network ports on each server and network devices. It shall also present all network routes in the data center	
	Panel Schedule: The DCIM software shall generate a report showing the configuration of the breaker panels including breakers and power consumers	
	Panel Schedule Customer: The DCIM software shall generate a report showing the configuration of the breaker panels including breakers, power consumers and customer	
	Power Capacity: The DCIM software shall generate a Power Capacity report with power data, i.e. available estimated load and planned estimated load.	

Descriptions	Required Specification	Quoted Specification
	Rack U-Space: The DCIM software shall generate a rack space report that displays the amount of available positions in specified racks for equipment that takes up one or more U positions	
	Server Energy Cost: The DCIM software shall generate a report with information about the cost per server based on power usage.	
	Server Power Consumption: A Server Power Consumption report can be generated to identify the servers with the highest average power usage. You can use this list to evaluate likely server candidates for upgrades, load sharing, or retirement	
	Server Utilization report: A Server Utilization report can be generated to identify performance indicators on power cost, server utilization and retirement candidates	
	Temperature Compliance: provides a graphical representation of Cooling Optimize sensors and how they are aligned with a configurable low and high threshold. The report also provides information about how many hours during the selected period sensors have been above or below the predefined thresholds.	
	Underutilized Servers: An Underutilized Servers report can be generated to identify non-utilized and underutilized servers in the data center	
	Work Order Details: The DCIM software shall generate a work order detail report that shows all the tasks associated with the work order and the status of each task	
	Work Order List: The DCIM software shall generate a work order list report that shows work order number, deadline, status, priority, summary and assignee information for user selected work order number ranges	
	Work Order Project: The DCIM software shall generate a report showing all the work orders with a specified project code. The information shown per work order is: Order number, Summary, Needed by, Comments, Assignee, Status and priority	
Manageability Features		
Centralized management	Simplify management of the physical infrastructure using a centralized repository accessible from anywhere on the network through a powerful and easy-to-use console application.	
Real-time monitoring	Immediate visibility to entire physical infrastructure through centralized, real-time device monitoring and notification enabling quick assessment of events as they occur.	
Fault notification	Real-time event notification minimizes response times to critical physical infrastructure situations. Enables IT Administrators to reduce mean time to repair, improve efficiency, and maximize uptime.	

Descriptions	Required Specification	Quoted Specification
Multi-vendor device support	Extensive multi-vendor support for monitoring networked SNMP devices. Enable visibility of existing SNMP devices through threshold alert notifications, data trending and reporting.	
Unified console	Customizable Windows and Linux client application enables instant access to the Central application from anywhere on the network.	
NMS Integration	Integrate SNMP traps into an Enterprise Management System, allowing users to view alerts generated by devices managed by the proposed Central system.	
Free text search	Quickly locate devices and alerts through the free search field.	
Alarm filters	Customize the user interface to display devices in critical, warning or normal device statuses.	
Agility		
Auto-discovery	Reduces the time needed to install and deploy physical infrastructure devices by automatically detecting manageable devices on the network.	
Mass Configuration	Provides a comprehensive mass configuration capability, allowing users to create, save, and push configurations or specific device settings to all supported devices with a Network Management Card.	
Mass firmware update	Decrease set-up time and complexity of managed devices by simultaneously upgrading firmware for multiple supported devices.	
Custom mapping	Custom backgrounds, unique user-assignable icons, and drag-and-drop device placement make it easy to identify problem devices at a glance, minimizing downtime, errors, and cost.	
Private networking	Reduce IP addresses needed on the public network to manage devices, by placing them on an isolated secure network.	
Advanced device grouping	Define user access and viewing capabilities to individual groups. Control access to devices by administrator-defined user accounts. Additional user access can be managed by using the built-in LDAP and Active Directory Support.	
Protection		
Customizable user access	Define user access and viewing capabilities to individual groups. Control access to devices by administrator-defined user accounts. Additional user access can be managed by using the built-in LDAP and Active Directory Support.	
Encrypted communications	128 Bit, SSL encrypted communications between client and server, as well as encrypted user IDs and passwords stored on the server to help protect your resources	
Remote monitoring support	Web-based service that serves as a second set of eyes into the health of a company's physical infrastructure. Experienced professionals work non-stop to provide 24-hour monitoring and to help diagnose problems before they become critical.	
Availability		

Descriptions	Required Specification	Quoted Specification
Graphical trending analysis	Access current and historic data for any device or group of devices. Plot and graph multiple data points in a logical correlation to visualize potential hazardous trends.	
Custom reporting	Create, save and schedule user-defined reports for ease of data collection, distribution and analysis.	
Centralized Alert Repository	Access historical alerts from several appliances through one central database. Sort alerts by type, date, appliance, and/or device group.	
Integrated data storage	The system should ships with internal storage for data and video collection.	
	The capacity for the storage should be 1 TB usable.	
	Additional storage should easily be made available using the built-in Network Attached Storage server support for long-term storage and archiving.	
Adaptability		
Extendable architecture	The proposed system should be capable to meet the changing business needs.	
Change Manager add-on application	Easily track and execute moves, adds and changes of equipment in the data center via the shared data center model.	
Capacity Manager add-on application	Planning and optimizing actual power, cooling and rack capacities via shared data center model, enabling efficient equipment provisioning and right-sizing of your data center.	
Surveillance add-on application	Enhance visibility of your critical assets with physical threat management to monitor and record all activity in secured areas. A centralized repository allows the user to review, search and tag surveillance events for future needs.	
Add-on module TCP output module	Integrates data and select events from devices managed by the system into an existing Building Management Systems through Ethernet transmission	
Hardware		
	Related Hardware, software & related license (perpetual) must be provided by the bidder for successful installation.	
Hardware & Software	Server must be considered dual power source	
Integration	Same OEM should be preferable for DCIM & EMS Sensor to avoid any integration hazard and Integration with DBBL Existing System is preferable.	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Certificates	Must comply tier-4/rated-4 compliance (Uptime Institute/epi) in all aspects	
Warranty	Three (03) years full warranty	

b) Building Management System (BMS)

Description	Required Specification	Quoted Specification
Brand	Please specify	
Model	Please specify	
Origin	USA/EU/UK	
Country of Manufacturing	Please specify	
Architecture	The intent of this specification is to provide a peer-to-peer networked, stand-alone, distributed control system with the capability to integrate both the ANSI/ASHRAE Standard 135-1995 BACnet, and Modbus technology communication protocols in an interoperable system	
	All components and controllers supplied under this contract shall be true "peer-to-peer" communicating devices. Components or controllers requiring "polling" by a Master / Global / Host to pass data shall not be acceptable.	
	The supplied computer software shall employ object-oriented technology (OOT) for representation of all data and control devices within the system. In addition, adherence to industry standards including ANSI / ASHRAE™ Standard 135-1995, BACnet TCP to assure interoperability between all system components is required. For each BACnet device, the device supplier must provide a PICS document	
	showing the installed device's compliance level. Minimum compliance is Level 3; with the ability to support data read and write functionality. Physical connection of BACnet devices shall be via Ethernet at all levels.	
	Structured Query Language (SQL) or Java Database Connectivity (JDBC) or ORACLE compliant server database is required for all system database parameter storage. This data shall reside on a server for all database access. Systems requiring proprietary database and user interface programs shall not be acceptable.	
	Two (2) level hierarchical topology is required to assure fast system response times and to manage the flow and sharing of data. Systems Requiring Router, Gateways are not acceptable	
Web browser clients	The system shall be capable of supporting an unlimited number of users using a standard Web browser such as Internet Explorer™ or Netscape Navigator™. Systems requiring additional software (to enable a standard Web browser) to be resident on the DDC / client machine, or manufacture-specific browsers shall not be acceptable. The Web browser software shall run on any operating system and system configuration that is supported by the Web browser.	
	The Web browser shall provide the same view of the system, in terms of graphics, schedules, calendars, logs, etc., and provide the same interface methodology as is provided by the Graphical User Interface. Systems that require different views or that require different means of interacting with objects such as schedules, or logs, shall not be permitted.	

Description	Required Specification	Quoted Specification
	The Web browser client shall support at a minimum, the following functions:	
	User log-on identification and password shall be required. If unauthorized user attempts access, a blank web page shall be displayed. Security using Java authentication and encryption techniques to prevent unauthorized access shall be implemented.	
	Graphical screens developed for the GUI shall be the same screens used for the Web browser client.	
	HTML programming shall not be required to display system graphics or data on a Web page. HTML editing of the Web page shall be allowed if the user desires a specific look or format.	
	Storage of the graphical screens (Static) shall be stored in DDC directly and should not depend on any other hardware.	
	The Web page shall get automatically refreshed without any user intervention.	
	Users shall have administrator-defined access privileges. Depending on the access privileges assigned, the user shall be able to perform the following:	
	Modify common application objects, such as schedules, calendars, and set points in a graphical manner. Schedule times will be adjusted using a graphical slider, without requiring any keyboard entry from the operator and set holidays	
System description & input output summary	View logs and charts	
	View and acknowledge alarms	
	The system shall provide the capability to specify a user's (as determined by the log-on user identification) home page. Provide the ability to limit a specific user to adjust their defined home page. From the home page, links to other views, or pages in the system shall be possible, if allowed by the system administrator.	
	Graphic screens on the Web Browser client shall support hypertext links to other locations on the Internet or on Intranet sites, by specifying the Uniform Resource Locator (URL) for the desired link.	
	The proposed system shall be a Direct Distributed Digital Control (DDC) system. It shall be a PC based system and shall combine latest state of the art technology with simple operating techniques. The entire Monitoring of Building Management System (BMS) shall be comprised of a network of interoperable, stand-alone digital controllers communicating on an open protocol communication network to a host computer within the facility and communicating via the Internet to a host computer in a remote location. The BMS shall communicate to third party systems such as Chillers, VAVs, Energy meters, UPS, DG, Lifts, VFDs & HT/LT circuit breakers, access control systems, fire-life safety systems and other building management related devices with open, interoperable communication capabilities.	
	The BMS framework shall utilize built-in Internet connectivity to	

Description	Required Specification	Quoted Specification
	a broad range of distribution partners in the building automation, energy services, power/utility, and industrial sectors. The Framework shall bring together the ongoing computerization of control applications under single integrated system architecture.	
	The features shall be distributed both physically and functionally over the field controllers. Microprocessor based Direct Digital Distributed Controllers (DDC) shall interface with sensors, actuators and environmental control systems (i.e. HVAC units, chillers, pumps, fans, lighting etc.) and carry out followings functions:	
	Individual input/output point scanning, processing and control.	
	Centralized operation of the plant (remote control).	
	Static / Dynamic graphic details of plant and building.	
	Energy Management through optimization of all connected electrical and mechanical plants.	
	Alarm Detection and early recognition of faults.	
	Time, event and holiday scheduling as well as temporary scheduling.	
	Prevention of unauthorized or unwanted access.	
	Communication interface and control.	
	Suggestive preventive maintenance for all equipment as well as own error diagnosis.	
	Report generation.	
	Optimum support of personnel.	
	Data Visualization Tool	
	These Controllers shall be capable of functioning on a stand-alone mode i.e. in case of loss of communication with the central control station / Server, these shall function independently. DDC shall have microprocessors built-in as standard, which control the respective operation centers based on the required logic and also offer fast communication of data via the network communication system. The local access to these shall be either through an in-built display with keypad for each outstation or through a portable operator's terminal. The controllers shall be capable of executing advanced control algorithms like Optimum Start stop, PID control, auto PID tuning and schedule management. They shall also execute logic functions based on time and/or event. Totalization and averaging functions shall be an inherent feature of the controller.	
	Each stand-alone intelligent DDC Controller shall have a **dual 32-bit processor**, on board Ethernet connectivity. These shall also control any other operations on the floor and shall be sized to suit the operation centres or system requirement. This shall help in reducing the site electrical installation	
	The number of controllers for central plant room equipment's shall be decided by the contractor. Overall, the system shall be	

Description	Required Specification	Quoted Specification
	provided with 15% spare capacity, with spare of at least 15% points on each controller	
	There shall be one BMS control station located in Control Room. The Operator Station should use a simple Web Browser in conjunction with the BMS Server software. The computer shall be sized to cover the graphic display memory, planning information, software & data storage requirement. The display shall be in the form of dynamic color graphics and text format with menu driven pop-up windows and help facility.	
	The following software packages shall be loaded into the system as minimum standard: -	
	Complete system operational software	
	Site specific data manipulation software	
	Graphics software	
	Alarm indication software	
	Internet Enabled Remote Monitoring Package.	
	Central server, located at Control Room, shall be provided. The server shall support all DDC's connected to the customer's network whether local or remote	
	Local connections shall be via an Ethernet LAN. Remote connections can be via ISDN, PSTN or dial-up connection	
	It shall be possible to provide access to all DDC & 3rd party integration units via a single connection to the server. In this configuration, each DDC can be accessed from the Graphical User Interface (GUI) or from a standard Web browser (WBI) by connecting to the Local Area network	
	The server software shall provide the following functions, at a minimum:	
	Complete control and monitoring of IBMS system from colour graphics pages on the machine, or from a remote web browser.	
	Full client-server operation.	
	SQL/ JDBC/ ORACLE Database.	
	Comprehensive alarm handling with alarm retransmission and logging.	
	Scheduled recording of logged data from DDC.	
	Management of multiple controller occupation times.	
	Multilevel security system.	
	International language support	
	Display of HTML pages from company Intranet, or Internet.	
	Display of live, logged, or recorded data in multi-trace graphs.	
	Simple engineering path using drag and drop operations.	
	Self-learning of all local networks.	
	Help file in PDF format for viewing or printing.	
	Access to the configuration mode of devices.	
	Display all devices on the system connected via LANs, internet works, autodialed links and Ethernet Network connections.	

Description	Required Specification	Quoted Specification
	Customized program creation environment	
	The BMS software shall be simple, flexible and convenient to use such that an operator with minimal programming knowledge can use it to perform control / monitoring and to build programs for control applications, graphics to generate management information systems (MIS) reports. As well, on higher end it shall be possible to create customized programs to suite the site requirement by a software programmer. All necessary documents required to make customization possible should be available along with the software without any additional charge.	
	The operating system shall be the Microsoft Windows XP / Windows 7 / Windows 2008 Server / Enterprise /Professional 32 / 64 bit multitasking environment. The networking software shall use the TCP / IP LAN protocol. The system shall be capable of supporting unlimited users.	
Monitoring	The system shall support data acquisition using periodic scanning, exception reporting or on operator request. The system shall support a range of scan intervals, ranging from less than 5 second up to several minutes as desired / required. The system shall allow certain selected points to be scanned more often / faster than other points.	
	The communication techniques shall be optimized to minimize network traffic while providing good system response and reliability. The system shall also provide utilities to compile aggregate statistics on communication link usage	
Control	Control transactions issued by the operator shall be communicated to control devices using a write followed by read to ensure the integrity of the transaction. If the read following the write to the device indicates that the control action has failed, the operator shall be informed by means of a control failure alarm. The priority of the control failure alarm shall be configurable by the user.	
System Database	The system shall provide a real-time database incorporating data from analogue, logical or pulse inputs. The database shall be configurable by the end user without the need for any programming and shall be able to modify on-line without interrupting operation of the system. In addition to point based information, the database shall also provide historization capabilities for analogue, digital, pulse; event based information and calculated values. This information shall be accessible by all facilities of the system such as custom displays, reports, trends, user written application, etc.,	
	The real-time database shall use suitable data structures to collect and store the following categories of data, as minimum	
	Access points	
	Analogue points	
	Status points	
	Accumulator points	
	Historical data	

Description	Required Specification	Quoted Specification
	Event data	
	The facility shall also exist to accommodate user defined data structures.	
	Each of the point database structures shall be comprised as a composite point with a number of associated parameters that may be referenced relative to a single tag name. Specifically, each of these parameters shall be accessible by various sub-systems such as the graphical operator interface, report generation system and application program interface in a simple format without the need to know any internal storage mechanism.	
	The system shall maintain portions of the data base requiring frequent high-speed access as memory resident information and other less frequently accessed data as disk resident data	
	Database backup shall be possible with the system on-line including backup of historical based data. The database backup shall be part of GUI software & shall be possible to configure automatic backup at regular interval without any user interference / attention. All other backup such as graphic pages / drawing etc can be windows based where simple copy & paste should be enough for taking backup other than database. Long term storage of this data shall be possible using the zip drive. The system shall have the provisions for importing this data at later date for analysis and long terms MIS reports.	
	Point data shall be stored in a composite point database structure that provides a wide range of configurable information including but not limited to:	
	Point name and description	
	Multiple locations for data storage and device scanning addresses.	
	Scan period	
	Multiple dead-band or hysteresis settings	
	Monitoring and control access restriction information.	
	Location of operator alarm handling instructions	
	Location of ancillary information associated with the point.	
Historical Data Storage	Collection of historical point data shall be configurable as part of the point definition. Once configured, this data shall be collected automatically. Historical data collection shall be provided for both snapshots and averages with intervals ranging from 5 seconds to several hours.	
	The system shall provide the necessary means to easily locate the particular value of interest for any of the historical points. The graphical operator interface, trend, report generation and application interfaces shall be able to access historical data.	
Trending	The system shall provide flexible trending allowing real-time, historical or achieved data to be trended in a variety of formats. In addition, trend data types shall be able to combine to allow for comparisons between data e.g. current real-time data versus archived data. The system shall provide trending capability with	

Description	Required Specification	Quoted Specification
	following functions	
	Real time trending	
	Historical trending	
	Archived history trending	
	Trend scrolling	
	Trend zoom	
	Export option / Copying of currently displayed trend data to the clipboard for pasting into spreadsheet or document.	
Alarm Management	The software shall include a well-organized alarm management facility to enable the operator to react quickly and efficiently to alarm conditions. Apart from the specific points identified for alarm annunciation in the I/O points schedule, the alarm types supported shall included	
	Very high value alarm	
	Very low value alarm	
	Large deviation alarm	
	Rate of change alarm	
	Unreasonable value alarm	
	Delay to avoid nuisance alarm / short time change in value	
Reporting	The system shall support a flexible reporting package to allow easy generation of report data. The reports provided shall include pre-configured standard reports for common requirements such as alarm / event reports and custom report generation facilities that are configurable by the user.	
Alarm/Event Report	The following pre-formatted reports shall be available on the system:	
	Alarm / event report	
	Operator trail report	
	Point trail report	
	Alarm duration report	
	All point report	
	Point attribute report	
	Lockout summary	
	Over-ride summary	
	This report shall be summary of all events of a specified type for nominated points occurring in a time period. The time period may be specified as an absolute start and end date and time, or as a period to the current time.	
Operator trail report	This report shall be a summary of all operator actions relating to a specific operator in a specified period	
Point trail report	This report shall be provided to produce a summary of all events of a specified type occurring in a period on nominated points.	
Alarm duration report	This report shall be provided to calculate the total amount of time a nominated point or group of points has been in an alarm condition over a given time period.	
All point report	A report shall be provided to produce a list of point information,	

Description	Required Specification	Quoted Specification
	including point name, description, point type, engineering units, and current values	
Point attributes report	A report shall be provided for summaries of the points selected as per the following criteria:	
	Out of service	
	Alarm suppressed	
	Abnormal input levels	
	In manual mode.	
Over-ride summary	This report shall be used to provide the summary of all points / commands that have been over-ridden by the operator	
Time Schedule	The system shall include the facility for time scheduling activities on both a periodic and one-off basis. All time schedules shall be configurable via the Operator workstation. Each time schedule entry shall consist of:	
	Date	
	Time	
	Point name	
	Point Parameter	
	Target Value	
	Type of scheduling	
	The available time schedule type shall include:	
	Daily – to be executed everyday	
	Workday – to be executed on the week days	
	Holidays – to be executed on holidays	
	Individual days – to be executed on a particular day	
	The system shall also have the provision for programming temporary schedules that over-ride the normal schedule.	
Energy Monitoring & Analysis	Energy Monitoring & Analysis should be integral part of GUI. It shall support minimum of 50 Energy points for analysis purpose. The software shall provide the following feature but are not limited to,	
	a) It shall be possible to generate & view detailed Daily, Weekly & monthly graphs of the energy meter / point identified.	
	b) It shall be possible to see and analyze the total energy usage in a building and also shall be possible to identify by which system is major user of the energy.	
	c) It shall be possible to compare the energy points week against week, day against day in a month, identify Maximum, Minimum & average daily values & Energy usage for different periods of time of the day.	
	d) It shall be possible to make cost and consumption analysis or CO2 reports on consumption.	
	e) Based on the energy consumed it shall be possible to rank the systems or building (in case of multi location buildings)	

Description	Required Specification	Quoted Specification
	f) Software shall allow the user to compare the predicted / forecasted energy or based on historic performance with current performance.	
	g) It shall be possible to create energy signature with respect to ambient / outside temperature of the day	
	h) Software shall allow the user to identify the exceptions happened in the system due to which energy consumption was increased.	
	i) It shall be possible to compare the energy consumption after introducing a energy saving strategy for further fine tuning or to visualize the savings achieved.	
Command partitioning	It shall be possible to assign to each operator a set of allowed commands / operating for each assigned area. With this feature, it shall for example be possible to configure an operator to set a digital point to On, but to disallow the same operator from setting the same digital point to OFF.	
Standard system displays	The following displays shall be included as part of the system:	
	Alarm summary display	
	Event summary display	
	Point detail template displays	
	Trend set template displays	
	Communication status displays	
	System status displays	
	Operator scratch-pad display.	
System Status Display	These shall display the following information	
	Points in alarm condition pending acknowledgement	
	Points which remain in an alarm condition state but which have been acknowledged.	
	Communication failure	
	Printer Status	
	Operator workstation status	
	Controller status	
Administrator Displays	The system shall provide the following full screen display	
	Master system menu	
	Report summary	
	Alarm summary	
	Event summary	
	Display summary.	
	Area assignment	
	Holiday assignment	
	History assignment	
	Push-button assignment	
	Operator definition	

Description	Required Specification	Quoted Specification
	Operator message board	
	Events archive and retrieval	
	Time period summary	
Other Requirements	It shall be possible to launch any windows-based applications, such as Microsoft word or Microsoft excel, from within the operator interface	
	The 3rd party Integration unit shall provide the interface between Ethernet LAN and the 3rd party field control devices such as DDC or PLC or any other devices which need to be integrated. These shall also provide supervisory capability of functions over the devices connected to it. The purpose of using these units should be limited to integrate devices only, not for any DDC interface with GUI, provided by others	
	The Unit must provide the following hardware features as a minimum:	
	One no. on board RS-232 port	
	One No. on Board RS-485 port	
	Provision to include / add additional communication card	
	Battery Backup	
	Minimum RAM of 128 MB & Flash of 64MB	
	The Unit must communicate over TCP/IP with communication speed of 10/100MBPS.	
	The Integration unit shall have built in drivers for open protocol such as	
	Bacnet over MSTP	
	Bacnet over IP	
	Modbus over MSTP	
	Modbus over IP	
	Lon FTT	
	Lon IP	
	Mbus over TCP	
	Mbus Serial	
	SNMP	
	The Integration unit shall provide flexibility of adding communication ports (RS485) by adding communication cards, minimum one slot, when required rather than adding additional unit itself.	
	The Integration unit shall have inbuilt JAVA engine and it shall be possible to configure the IO, if required, of the 3rd party devices.	
	The Integration unit should be capable of handling multiple protocol simultaneously and should not be restricted to single protocol.	
	The Integration unit should have inbuilt memory for program storage.	

Description	Required Specification	Quoted Specification
	The Integration unit should automatically backup its database for the user defined interval.	
	User authentication should be integral part of the unit.	
	All vendors are required to provide the documentation highlighting the capabilities mentioned above.	
	All units shall have LEDs for fault / status identification such as	
	LAN active (one per port in case of multiport units)	
	LED to display proper functionality / Status of the unit.	
	LED to display healthiness of CPU of the unit.	
Direct digital controller (ddc) hardware requirement	DDC controllers shall be capable of fully "stand- alone" operation i.e. In the event of loss of communication with other DDC's or Control Station, they shall be able to function on their own	
	The controllers shall consist of single 32	
	bit microprocessors for reliable throughput,	
	with EEPROM based operating system on	
	BACNET	
	The controllers shall be UL listed and conforming to CE.	
	The controller shall have support programs	
	built in RAM for minimum of 120 hours in the event of a power failure and it shall be possible to fit any battery thus expanding	
	the time limit to 5 years. An alarm shall be generated on low battery voltage. The	
	battery shall not be required to supply	
	power to actuators, valves, dampers etc.	
	DDC shall have embedded TCP/IP connectivity so that it can be hooked into the Local Area Network (LAN) provided by the client / can	
	be on dedicated network created by the	
	vendor. Each DDC can be accessed from the Graphical User Interface (GUI) or from a standard Web browser (WBI) by connecting to the server	
	Each controller shall have RS232 port built on	
	to it so that any trouble shooting required at	
	field level can be carried out without removing the controller from the network (LAN)	
	All controllers shall accept 230V, 50Hz	
	Uninterrupted power supply, provided by end user, directly so that the in between	
	hardware such as transformers and SMPS are avoided.	
	All controllers shall have capability to provide	
	24V DC auxiliary power supply for the sensor which requires power, however the same shall not be required to high power consuming devices / equipment's such as actuators, dampers	

Description	Required Specification	Quoted Specification
	etc.	
	The microprocessor based DDC's shall be provided with power supply, A/D and	
	D/A converters, memory and capacity to accommodate a maximum of 128 input/	
	output (I/O) hardware points (with or without	
	an expansion board).	
	All DDC controllers shall have 10 / 12-bit A/D resolution and be capable of handling voltage, milli-ampere, resistance or open and closed contacts inputs in any mix, if required.	
Direct digital controllers' capabilities	The Controllers shall have a self-analysis feature and shall transmit any malfunction messages to the Control Station. For any failed chip the diagnostic tests, printout shall include identification of each and every chip on the board with the chip number/location and whether the chip "Passed" or "Failed" the diagnostic test. This is a desired requirement as it would facilitate trouble-shooting and ensure the shortest possible down time of any failed controller. Controllers without such safety feature shall be provided with custom software diagnostic resident in the EEPROM. The tenderer shall confirm in writing that all controllers are provided with this diagnostic requirement	
	Controllers must be able to perform the	
	following energy management functions	
	as a minimum	
	Time & Event programs	
	Holiday Scheduling	
	Maximum and Distributed power demand	
	Optimum start and stop program	
	Night purge	
	Load reset	
	Zero energy band	
	Duty cycle	
	Enthalpy analysis and control	
	Run Time Totalization	
	Sequencing and Optimization	
	Exception scheduling	
	All DDC shall have trend / log storing capacity in built into it. It shall be possible to have stored the data for at least 40 days @ 1 hour sampling time for all the points of the DDC (used or unused).	
	Minimum communication should be 10MBPS for each of the controller.	
	The DDC's shall have 15% spare capacity for each type of point (digital/analog input/output) to give flexibility for	

Description	Required Specification	Quoted Specification
	future expansion.	
	All DDC controllers shall have 10 / 12 bit A/D resolution and be capable of handling voltage, milli-ampere, resistance or open and closed contacts inputs in any mix, if required.	
	Analog inputs/outputs of the following minimum types shall be supported: a. 4-20 Ma. b. 0-10 volts. c. 2-10 volts. d. Resistance Signals (either PTC or NTC such as PT 100, PT 1000, PT 3000, NTC20K)	
	Digital input/output types to be supported shall be, but not limited to the following: i) Normally-open contacts. ii) Normally-closed contacts. iii) Pulse inputs	
	The Controllers shall have a self-analysis feature and shall transmit any malfunction messages to the Control Station. For any failed chip the diagnostic tests, printout shall include identification of each and every chip on the board with the chip number/location and whether the chip "Passed" or "Failed" the diagnostic test. This is a desired requirement as it would facilitate trouble-shooting and ensure the shortest possible down time of any failed controller. Controllers without such safety feature shall be provided with custom software diagnostic resident in the EEPROM. The tenderer shall confirm in writing that all controllers are provided with this diagnostic requirement.	
	Operating system (O.S.) software for controllers shall be EPROM resident. Controllers shall have resident in its memory and available to the programs, a relevant library of algorithms, intrinsic control operators, arithmetic, logic and relational operators for implementation of control sequences	
	Controllers must be able to perform the following energy management functions as a minimum,	
	a. Time & Event programs b. Holiday Scheduling c. Maximum and Distributed power demand d. Optimum start and stop program e. Night purge f. Load reset g. Zero energy band h. Duty cycle i. Enthalpy analysis and control j. Run Time Totalization k. Sequencing and Optimization l. Exception scheduling	
	All DDC shall have trend / log storing capacity in built into it. It shall be possible to have stored the data for at least 40 days @ 1 hour sampling time for all the points of the DDC (used or	

Description	Required Specification	Quoted Specification
	unused).	
	Minimum communication should be 10MBPS for each of the controller	
Portable operators' terminal (pot)	POT shall be provided to allow operator readout of system variables, override control and adjustment of control parameters. The POT shall be portable and plug directly into individual controllers for power and data.	
	The minimum functionality of POT shall include : • Set points to a fixed value or state. • Display diagnostic results. • Display sequentially all point summary and sequentially alarm summary. • Display/change digital point state, analog point value. • Display/change time and date. • Display/change analog limits. • Display/change time schedule. • Display/change run time counts and run time limits. • Display/change time and/or event initiation. • Display/change programmable offset values. • Access DDC initialization routines and diagnostics. • Enable/disable points, initiators and programs. • Display/change minimum ON/OFF and maximum OFF times.	
	The POT shall be complete with command keys, data entry keys, cursor control keys or liquid crystal display (LCD). Access shall be via self-prompting menu selection with arrow key control of next menu/previous menu and step forward/backward within a given menu.	
Data communication	1) Every DDC must be capable of communicating with all DDC's on its own. 2) Network connected devices shall be capable of sending message after successive retries shall constitute a communication or device failure. 3) Each controller is to be provided with a communication watchdog to assure that the failure is reported to central station. 4) Error recovery and communication initialization routines are to be resident in each network connected device. 5) The communication protocol shall incorporate CRC (Cyclic Redundancy Check) to detect transmission errors.	
Electric and electronic controls related equipment	All controls shall be capable of operating in ambient conditions varying between 0-55 deg. C and 90% R.H. non-condensing. All Control devices shall have a 20 mm conduit knockout. Alternatively, they shall be supplied with adaptors for 20 mm conduit.	
	Ancillary Items When items of equipment are installed in the situations listed below, the BAS contractor shall include the following ancillary items: (i) Weather Protection	

Description	Required Specification	Quoted Specification
	All devices required to be weatherproofed are detailed in the Schedule of Quantities. IP ratings for the equipment are mentioned in the respective section. (ii) Pipework Immersion Corrosion resisting pockets of a length suitable for the complete active length of the device, screwed ½" (13 mm) or ¾" (20 mm) NPT suitable for the temperature, pressure and medium. (iii) Duct Mounting (Metal or Builders Work) Mounting flanges, clamping bushes, couplings, locknuts, gaskets, brackets, sealing glands and any special fittings necessitated by the device.	
Temperature sensor	Temperature sensors for space, pipes and ducts, shall be of the Resistance Temperature detector (RTD) type or thermistor. These shall be two wire type and shall conform to the following specifications: 1) Immersion sensors shall be high accuracy type with a high resistance versus temperature change. The accuracy shall be at least ± 1.33 deg C. 2) Immersion sensors shall be provided with separate Brass hermos well. These shall be manufactured from bar stock with hydrostatic pressure rating of at least 10 kgf/cm2. 3) The connection to the pipe shall be screwed type. An aluminum sleeve shall be provided to ensure proper heat transfer from the well to the sensor. Terminations to be provided on the head. Flying leads shall not be acceptable.	
	4) The sensor housing shall plug into the base so that the same can be easily removed without disturbing the wiring connections. 5) Duct temperature sensors shall be with rigid stem and of averaging type. These shall be suitable for duct installation. 6) Outdoor air temperature sensor shall be provided with a sun shield. 7) The sensors shall not be mounted near any heat source such as windows, electrical appliances etc. The temperature sensors may be of any of the following types : 1) PT 100, PT 1000, PT 3000 2) Thermistor	
Humidity sensor	Space and duct humidity sensors shall be of capacitance type with an effective sensing range of 10% to 90% RH. Accuracy shall be + 3% or better. Duct mounted humidity sensors shall be provided with a sampling chamber. Wall mounted sensors shall be provided with a housing. The sensor housing shall plug into the base so that the same can be easily removed without disturbing the wiring connections. The sensors shall not be mounted near any heat source such as windows, electrical appliances etc.	

Description	Required Specification	Quoted Specification
Differential pressure switch for air systems	These shall be diaphragm operated. Switches shall be supplied with air connections permitting their use as static or differential pressure switches. The switch shall be of differential pressure type complete with connecting tube and metal bends for connections to the duct. The housing shall be IP 54 rated. The pressure switches shall be available in minimum of 3 ranges suitable for applications like Air flow proving, dirty filter, etc. The set point shall be concealed type. The contact shall be SPDT type with 230 VAC, 1A rating. The switch shall be supplied suitable for wall mounting on ducts. It should be mounted in such a way that the condensation flow out of the sensing tips. Proper adaptor shall be provided for the cables. The set point shall fall within 40%-70% of the scale range and l has differentials adjustable over 10%-30% of the scale range.The switches shall be provided with site adjustable scale and with 1 NO/NC contacts.	
Air flow switches	Air flow switches shall be selected for the correct air velocity, duct size and mounting attitude. If any special atmospheric conditions are detailed in the Schedule of Quantity the parts of the switches shall be suitably coated or made to withstand such conditions. These shall be suitable for mounting in any plane. Output shall be 1 NO/NC potential free. Site adjustable scale shall also be provided.	
Air velocity sensor	Air Velocity Sensor shall be integrated Surface / Duct mounted type on the field. These shall work on 24V AC/DC supply with +/- 10% variation the output being standard type i.e. 4-20 Ma / 0-10 Volts etc with an accuracy of +/- 3%. It shall be possible to select the different ranges by changing the jumpers on the sensor. At least 3 selection ranges on the sensors are required.	
Hardware & Software	Related Hardware, software & related license (perpetual) must be provided by the bidder for successful installation.	
	Sever must consider dual power source	
IO Summary based on below requirement		
Basement	Diesel Generator 2 units Controlling, Status and Power Monitoring	
	Reserved Tank 2 units: Monitoring fuel level	
	Day Tank 2 units: Monitoring fuel level	
	Day Tank Fillup Pump 4 units: Controlling , Status and Monitoring	`
	VCB with Controller & Meter: Status and Power Monitoring	
	HT AVR : Status and Power Monitoring	
	Transformer: monitoring if possible	
	Incoming ACB 3200A with MFM: Status and Power Monitoring	
	Coupler ACB 3200A with MFM: Status and Power Monitoring	
	ACB 2000A with MFM: Status and Power Monitoring	
	MCCB 63A with MFM: Status and Power Monitoring	

Description	Required Specification	Quoted Specification
	Lighting system: Controlling , Status and Monitoring	
	Basement Utility DB-01 Tapoff 1 unit: Status Monitoring	
	Basement Utility DB-02 Tapoff1 unit: Status Monitoring	
	Basement Utility DB-01 with 1 unit MFM: Status and Power Monitoring	
	Basement Utility DB-02 with 1 unit MFM: Status and Power Monitoring	
Ground floor	Ground Floor Utility DB-01 Tapoff 1 unit: Status Monitoring	
	Ground Floor Utility DB-02 Tapoff 1 unit: Status Monitoring	
	Ground Floor Utility DB-01 with 1 unit MFM: Status and Power Monitoring	
	Ground Floor Utility DB-02 with 1 unit MFM: Status and Power Monitoring	
	Lighting system 6 units: Controlling , Status and Monitoring	
	Hydrant system 1 unit: status and monitroing	
1st floor	1st Floor NOC DB-01 Tapoff 1 unit: Status Monitoring	
	1st Floor NOC DB-02 Tapoff 1 unit: Status Monitoring	
	1st Floor NOC DB-01 with 1 unit MFM: Status and Power Monitoring	
	1st Floor NOC DB-02 with 1 unit MFM: Status and Power Monitoring	
	1st floor DX Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	1st floor DX Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	1st floor CW Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	1st floor CW Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	1st floor DX Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	1st floor DX Cooling DB-02 with 1 unit MFM: Status and Power Monitoring	
	1st floor CW Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	1st floor CW Cooling DB-02 with 1 unit MFM: Status and Power Monitoring	
	Gas Based PAC 2 units: Controlling, Status and Cooling Monitoring	
	Chilled water based AHU 2 units: Controlling, Status and Cooling Monitoring	
	Lighting system 6 units: Controlling , Status and Monitoring	
	shaft BBT power BBT and Floor Power BBT 2 joint: Status and Power Monitoring	
	Floor Power BBT joint and Data Center BBT 8 joint: Status and Power Monitoring	
	Fire suppression and detection system integration	
	VESDA integration: status and monitoring	
2nd floor	ACB 2000A 3200A with MFM 4 units: Controlling ,Status and Power Monitoring	
	ACB 1600A, with MFM 6units: Status and Power Monitoring	

Description	Required Specification	Quoted Specification
	MCCB 800A with MFM 8 units: Status and Power Monitoring	
	MCCB 100A with MFM 6 units: Status and Power Monitoring	
	2nd Floor Utility DB-01 Tapoff 1 unit: Status Monitoring	
	2nd Floor Utility DB-02 Tapoff 1 unit: Status Monitoring	
	2nd Floor Utility DB-01 with 1 unit MFM:	
	2nd Floor Utility DB-02 with 1 unit MFM:	
	2nd floor DX Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	2nd floor DX Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	2nd floor DX Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	2nd floor DX Cooling DB-02 with 1 unit MFM: Status and Power Monitoring	
	Gas Based PAC 6 units: Controlling, Status and Cooling Monitoring	
	UPS 6 units: Status and Power Monitoring	
	Isolation Transformer 2 units: Status and Power Monitoring	
	Lithium ion battery bank 16 units: Monitoring	
	Lighting system 6 units: Controlling , Status and Monitoring	
3rd floor	3rd Floor Utility DB-01 Tapoff 1 unit: Status Monitoring	
	3rd Floor Utility DB-01 Tapoff 1 unit: Status Monitoring	
	3rd Floor Utility DB-01 with 1 unit MFM: Status and Power Monitoring	
	3rd Floor Utility DB-01 with 1 unit MFM: Status and Power Monitoring	
	3rd floor DX Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	3rd floor DX Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	3rd floor CW Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	3rd floor CW Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	3rd floor DX Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	3rd floor DX Cooling DB- 02 with 1 unit MFM: Status and Power Monitoring	
	3rd floor CW Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	3rd floor CW Cooling DB-02 with 1 unit MFM: Status and Power Monitoring	
	Gas Based PAC 3 units: Controlling, Status and Cooling Monitoring	
	Chilled water based AHU 3 units: Controlling, Status and Cooling Monitoring	
	Lighting system 6 units: Controlling , Status and Monitoring	
	shaft BBT power BBT and Floor Power BBT joint 2 units: Status and Power Monitoring	
	Floor Power BBT joint and Data Center BBT joint 12 units: Status and Power Monitoring	
4th floor	4th Floor Utility DB-01 Tapoff 1 unit: Status Monitoring	
	4th Floor Utility DB-01 Tapoff 1 unit: Status Monitoring	

Description	Required Specification	Quoted Specification
	4th Floor Utility DB-01 with 1 unit MFM: Status and Power Monitoring	
	4th Floor Utility DB-01 with 1 unit MFM: Status and Power Monitoring	
	4th floor DX Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	4th floor DX Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	4th floor CW Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	4th floor CW Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	4th floor DX Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	4th floor DX Cooling DB- 02 with 1 unit MFM: Status and Power Monitoring	
	4th floor CW Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	4th floor CW Cooling DB-02 with 1 unit MFM: Status and Power Monitoring	
	Gas Based PAC 3 units: Controlling, Status and Cooling Monitoring	
	Chilled water based AHU 3 units: Controlling, Status and Cooling Monitoring	
	Lighting system 6 units: Controlling , Status and Monitoring	
	shaft BBT power BBT and Floor Power BBT joint 2 units: Status and Power Monitoring	
	Floor Power BBT joint and Data Center BBT joint 12 units: Status and Power Monitoring	
5th floor	5th Floor Utility DB-01 Tapoff 1 unit: Status Monitoring	
	5th Floor Utility DB-01 Tapoff 1 unit: Status Monitoring	
	5th Floor Utility DB-01 with 1 unit MFM: Status and Power Monitoring	
	5th Floor Utility DB-01 with 1 unit MFM: Status and Power Monitoring	
	5th floor DX Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	5th floor DX Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	5th floor CW Cooling DB-01 Tapoff 1 unit: Status Monitoring	
	5th floor CW Cooling DB-02 Tapoff 1 unit: Status Monitoring	
	5th floor DX Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	5th floor DX Cooling DB- 02 with 1 unit MFM: Status and Power Monitoring	
	5th floor CW Cooling DB-01 with 1 unit MFM: Status and Power Monitoring	
	5th floor CW Cooling DB-02 with 1 unit MFM: Status and Power Monitoring	
	Gas Based PAC 3 units: Controlling, Status and Cooling Monitoring	
	Chilled water based AHU 3 units: Controlling, Status and Cooling Monitoring	
	Lighting system 6 units: Controlling , Status and Monitoring	

Description	Required Specification	Quoted Specification
	Lift DB Tapoff 2units: status monitoring	
	Lift DB Tapoff with 1 unit MFM and 3 unit MCCB: status and power Monitoring	
	Chilled water outdoor 3 units: Controling, status and cooling Monitoring	
	Chiller outdoor unit tapoff with 6 units MFM: status and power Monitoring	
	Lift ingetration 1 unit: status Monitoring	
	Lift UPS integration 1 unit: status and power Monitoring	
	shaft BBT power BBT and Floor Power BBT 2 unit joint: status and power Monitoring	
	Floor Power BBT joint and Data Center BBT 12 units joint: status and power Monitoring	
	Lighting integration 1 unit: status and power Monitoring	
Misc.	Access control integration: status and power Monitoring	
	Fire detection integration: status and power Monitoring	
	AC integration: status and power Monitoring	
	IP Surveillance System Integration: status and power Monitoring	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Sub-Category-4.3: IPSS & ACS including implementation.

a) IP Surveillance System (IPSS)

Description	Required Specifications	Quoted Specification
HD 2.0 MP IR 20X zoom PTZ camera		
Brand	Please Specify	
Model	Please Specify	
Country of Origin	USA/EU/South Korea	
Country of Manufacturing	Please Specify	
Quantity	**10 Units**	
General Feature	This product shall be manufactured by a firm whose quality system is in compliance with the I.S./ISO 9001: 2008, Quality System	
	All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's system.	
	All systems and components shall have been thoroughly tested and proven in actual use.	
	All systems and components shall be provided with comprehensive repair and spare parts replacement. The manufacturer on warranty and non-warranty warranty items shall guarantee the spare parts and the repair.	
Optic Zoom	20 X or better	
Aperture/Focal Length	6~ 180mm or better	
Image Sensor	½.8" CMOS or better	
Scanning System	Progressive Scanning	
Effective Pixels	2.0MP	
Color mode:	Color mode:0.002 lux @ F1.2 (AGC ON) B/W mode:0.0002 lux @ F1. (AGC ON)	
Focus	Auto, Manual	
Shutter Speed	Auto/Manual (1/6s-1/8000s)	
Noise Reduction	3D	
WDR	120dB	
Compression	H.265+. H.265 , H.264, M-JPEG three simultaneous video streams	
Resolution	1080P@60fps	
Motion detection	Minimum 4 detection areas	
Audio Compression	G.711-A, G.711-U, AAC	
Audio Port	1 input, linear level, impedance: 1kΩ, 1 output, linear level, impedance: 600Ω	
Inbuilt Storage support	Required	
Alarm	1 alarm inputs, 1 alarm output	
Network Port	1 * 10M/100M self-adaptive Ethernet port, RJ-45	
Open Protocol	Shall support Onvif Profile S	

Description	Required Specifications	Quoted Specification
Network Protocol	L2TP, Ipv4, IGMP, ICMP, ARP, TCP, UDP, DHCP, PPPoE, RTP, RTSP, DNS, DDNS, NTP, FTP, UpnP, HTTP, SNMP	
IR Distance	Up to 100 m	
Programmable Presets	254	
Pan Rotation Angle	0~360° continuous	
Tilt Rotation Angle	0~~360°	
Input Voltage	100~240VAC	
Operating Temp.	-40°F~140°F (-40°C~+60°C)	
Relative Humidity	0–95%	
Application Field	For Division 1 and 2 hazardous locations where fire or explosion hazards may exist due to the presence of flammable gases or vapors	
Material	316L stainless steel required	
Environmental Rating	Must have IP68 rating outdoor grade	
Product Certifications	ATEX / IECEx required	
Approved Makes	Axis/Pelco/Infinova / Eynoor, Wisenet/VIVOTEC	
HD 2 MP IR IP Fixed lens Bullet camera		
Brand	Please Specify	
Model	Please Specify	
Country of Origin	USA/EU/South Korea	
Country of Manufacturing	Please Specify	
Quantity	**Indoor type:** 100 Units **Outdoor type:** 20 units with IP68 rating	
General Feature	This product shall be manufactured by a firm whose quality system is in compliance with the I.S./ISO 9001: 2008, Quality System	
	All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's system.	
	All systems and components shall have been thoroughly tested and proven in actual use.	
	All systems and components shall be provided with comprehensive repair and spare parts replacement. The manufacturer on warranty and non-warranty warranty items shall guarantee the spare parts and the repair.	
Image Sensor	1/3" Progressive scan CMOS or better	
Lens Configuration	2.8-4 mm Fixed lens	
Horizontal Field of View	Min 104 degree	
Night Vision Distance	Minimum 30-50 m	
Day/Night Switching	Camera shall have IR-Cut Removable (ICR) filter and provide automatic Day/Night functionality	
Sensitivity	Color mode: 0.01 lux@F1.4; B/W mode: 0 lux (IR ON)	
S/N Ratio	52dB or better	
Exposure	Scene, Manual, Shutter	
Shutter	Auto/Manual (adjustment range 1/1s~1/32000s)	

Description	Required Specifications	Quoted Specification
AGC	Auto/Manual	
White Balance	Auto/Manual	
WDR	120dB	
Video Adjustment	Brightness, contrast, saturation, chroma, sharpness	
Noise Reduction	3D	
Defog	Required	
EIS	Required	
Corridor Mode	Required	
Image Mirror	Horizontal, Vertical mirror	
Video Compression	Camera shall be available with three Simultaneous Video Streams: H.265+, H.265+M-JPEG or H.264+M-JPEG video encoding	
Max. Encoding Capacity	2592×1520@20fps+720P@30fps+M-JPEG1080P@5fps	
Optional Resolution	Major stream: 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240	
	Minor stream: 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240	
Audio Compression	G.711a, G.711u, AAC	
Audio Port	1 linear input, 1 linear output	
Smart Functions	Video anomaly detection, Wire cross, regional invasion detection	
Alarm	2 alarm inputs, 1 on-off output	
Motion Detection	Minimum 4 motion detecting areas	
Privacy Mask	Minimum 4 masks	
Internal Storage	Supports a Micro SD/SDHC/SDXC card (128GB)	
Network Port	One RJ45 10/100M self-adaptive Ethernet port	
Network Protocols	Ipv4, Ipv6, TCP, UDP, IGMP, DHCP, FTP, SNMP (V3), SMTP, NTP, RTP, RTSP, RTCP, HTTP, HTTPS, TSL, SSL, 802.1X, QoS, PPPoE, DNS, DDNS, ARP, ICMP, UpnP	
Open Protocol	Onvif Profile S	
Power Supply	PoE (IEEE 802.3af)/12VDC/24VAC	
Power	<13W	
Operating Temperature	-40°F ~ 140°F (-40°C ~ 60°C)	
Operating Humidity	0%~90% RH (non-condensing)	
Product Certifications	EN- Radio Disturbance Characteristics – Limits and Methods of Measurement for Emission, Immunity Characteristics – Limits and Methods of Measurement, Limits for Harmonic Current Emissions, Limitation of Voltage Changes, Voltage Fluctuations and Limitation of Voltage, FCC Part 15, UL 60950-1, IP67, IK10	
	Copy of all certificates should be produced along with the bid	

Description	Required Specifications	Quoted Specification
Intelligent Network Video Management Software (INVMS) with Analytic.		
General Features	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.	
	VMS shall support IP cameras (all the features & functionalities) from at least thirty (30) major camera brands with API level Integration. Documentary evidence having make detail should be mandatorily submitted.	
	The VMS application shall support all the features & functionalities of the offered cameras (Edge analytics, SD Card Storage, All the streams of camera. Documentary proof should be submitted for same.	
	The offered VMS should have integration with 2500+ devices (Camera, Fire Detection, Access Control, Analytics etc.) with API/SDK level. Documentary evidence having devices make and model detail should be mandatorily submitted.	
	VMS shall have API based integration with the major camera vendors in order to support features such as, up to 3 Multi-streams, SD Card storage sync, Camera based supported Edge Analytics, Camera I/O support, Camera Audio support	
	To ensure openness, VMS and Cameras must not be from the same manufacturer but should be tightly integrated on API level. Documentary Evidence must be provided.	
	VMS shall support installation and ability to run on virtualized windows servers.	
	VMS manufacturer shall provide their SDK (or any other integration means - libraries and documentation) to ensure a seamless integration with any other system	
	VMS shall be open to any standard storage technologies integration.	
	VMS must be capable to store all Video data from all cameras minimum 3 levels (Primary storage, Secondary Storage, Final Control room storage). It must have capability to store data on to cloud from final control room storage.	
	VMS shall be open to any video wall system integration.	
	VMS OEM should be one of the top 5 OEM from Latest Global IHS World Report for Video Management Software	
	VMS must have the possibility to integrate third party Video Analytics systems and camera based edge analytics.	
	VMS should consist of only Base license and Channel Licenses. VMS should be provided with unlimited number of Failover Servers and Failover Camera Licenses.	
	VMS should support Scalable Video Quality Recording to record high-quality video to edge storage, while a	

Description	Required Specifications	Quoted Specification
	low-quality reference video stream can be recorded centrally in the recording servers	
	The VMS system shall be a scalable client – server architecture built using well known operating systems	
	The VMS system shall enable recording to be done at the aggregation sites and shall allow the local Control center to import selected videos on demand.	
	Aggregation site types shall be categorized according to function and size as per the table below.	
	To facilitate the VMS system architecture, the BIDDER shall ensure that sufficient capacity is designed into the data communications & telecommunications infrastructure to deliver the required functionality, along with the ability to allocate and reserve resources (including bandwidth).	
	The Recording server shall have the ability to handle Video Motion detection on Nvidia GPU to optimize the server requirement.	
	The VMS data communications and telecommunications network shall use a suitable transport medium and associated cabling and data transmission infrastructure that will support real-time video display of cameras at the nominated operations centers. The type of transmission network shall be determined by the BIDDER.	
	The VMS system shall be compatible to single and multiple processor servers. The server processor & hardware shall be optimized in all cases.	
	The VMS system shall cluster the processing & memory load across several machines. The failure of any one server in the solution shall not cause a failure in the entire system.	
	The VMS system device drivers shall be stored separately to the central core application to ensure any instability in 3rd party SDKs do not affect the core application.	
	The VMS management server shall be able to intelligently scan an IP network for new devices (cameras or servers) along with automatic model detection.	
	Network infrastructure and installation are the responsibility of the Bidder. Network components both active and required for the successful implementation of the video surveillance detailed in this tender shall be provided by the Bidder. The network infrastructure shall meet the streaming requirement of the project without any bottlenecks. The network infrastructure shall support UDP multicast, UDP unicast and TCP transmission.	
	The VMS system shall provide an integrated secure, scalable and easily accessible software-based solution for the management of the existing & future physical security infrastructure	
	The VMS system shall provide a powerful and efficient management interface for all the security systems across all monitored sites.	
	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple	

Description	Required Specifications	Quoted Specification
	server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.	
	The Video Management System shall contain recording servers used for recording video feeds and for communicating with cameras and other devices. The recording servers shall process the recordings and playback the video streams.	
	The Video Management System shall include a federated architecture allowing clients on the host system with the right user rights to view video sources belonging to multiple independent Video Management Systems simultaneously, as if they were on The Video Management System shall contain a management server that shall be the central manager of the system and control recording servers, cameras, devices and users. The management server shall handle the initial client login, system configuration and logging.	
	The management server shall allow access to a system manager from where the administrator can configure and manage all servers, cameras and users.	
	The system shall allow the management server to be installed on multiple servers within a cluster of servers ensuring that another server in the cluster automatically takes over in case the first server fails.	
	VMS should have the capability to integrate with 3rd party Access Control Systems.	
	The Video Management System shall support installation and ability to run on virtualized Windows servers.	
	The VMS system shall support Device firmware upgrade of single and multiple devices in bulk from within the Management Interface	
	The Video Management System shall allow an unlimited number of cameras to be connected to each recording server and an unlimited number of recording servers to be connected to each management server across multiple sites, if required.	
	The Video Management System shall support high availability of recording servers. A failover option shall provide standby support for recording servers with automatic synchronization to ensure maximum uptime and minimum risk of lost data.	
	The Video Management System shall support a versatile rule system including scheduled or event-driven actions with numerous options including support to time profiles.	
	The Video Management System shall support Microsoft Windows 7, Microsoft Windows Server 2008 R2 STD or higher, Microsoft Windows Server 2012 R2 STD or higher, Microsoft Windows 8.1 (Business/Enterprise/Ultimate) and Microsoft Windows 10 (Business/Enterprise/Ultimate) with	

Description	Required Specifications	Quoted Specification
	the latest patches and service packs installed. The system must use DirectX and .NET Framework.	
	The Video Management System software shall include multicast and multi-streaming support.	
	The Video Management System shall include automatic camera discovery.	
	The Video Management System shall support archiving for optimizing recorded data storage through unique data storage solutions by combining performance and scalability with cost efficient long-term video storage.	
	The Video Management System shall incorporate fully integrated matrix functionality for distributed viewing of any camera in the system from any computer with the client viewer.	
	The Video Management System shall incorporate intuitive map functions allowing for multilayered map environment. The map functionality shall allow for the interactive control of the complete surveillance system, at-a-glance overview of system integrity, and seamless drag-and-drop integration with video wall module option.	
	The Video Management System shall support 56-bit encryption of video for export purposes. The 56-bit encryption shall meet the US Government requirements on export limits for encryption.	
	The Video Management System shall support full two-way audio between clients and remote devices.	
	The Video Management System software shall provide fast evidence export by exporting in video to various formats, including video from multiple cameras in encrypted native database format with an included viewer.	
	The Video Management System shall show full awareness of the system through audit logs and shows user activity through comprehensive logs.	
	The Video Management System shall include support for a frame work data module designed to integrate multiple third party Video Content Analysis (VCA) solutions seamlessly into client viewer environments.	
	The Video Management System shall include a Software Development Kit (SDK) that offers important capabilities for integrating the Video Management System with third party software and applications.	
	The Video Management System shall include a stand-alone viewer application to be included with video exported from the client viewer application. The viewer application shall allow recipients of the video to browse and playback the exported video without installing separate software on their computers.	
	The system shall, after desired retention days, the video feeds will be overwritten unless it is flagged or marked by the authorities for investigation or any other purpose. The video feeds of all relevant cameras capturing the incident in question can be stored until the authorities deem it good	

Description	Required Specifications	Quoted Specification
	for deletion.	
	The Video Management System shall include support for Active Directory to allow users to be added to the system. Use of Active Directory requires that a server running Active Directory, acting as a domain controller, to be available on the network.	
	The Video Management System shall be designed to support each component on the same computer for efficiency in smaller systems, or each component on separate systems for large system deployments.	
	VMS should support ONVIF S, G, T, Q & M Profile supported by IP Devices	
	Video Recording Server should support Recording at different resolution for the same camera enabling to record one stream at Higher resolution at local station for 30 days and the other at minimum resolution of 800 X 600 which will be archived to central storage for predefined days. Bidder shall have option to consider more than one server per station to achieve the same.	
	Video Recording Server should support archiving minimum resolution of 800 X 600 video to Central Unified storage at scheduled hours. Archiving should resume automatically after any disconnection in the WAN link between station and central location.	
	Archived Recordings for predefined days should be deleted automatically after retention period from the central storage as per FIFO policy.	
	In case of non-availability of WAN link, Video recording Server shall save minimum resolution of 800 X 600 data internal to server for up to 7 days to avoid data loss, once the link is established the archiving should happen completely.	
	VMS product must have GDPR-ready (General Data Protection Regulation) certification by EuroPriSe, covering all core VMS functions.	
Edge Storage	Edge storage shall secure that when a lost or broken connection is back up, the data stored on the camera's internal storage shall be retrieved and stored in the media database. Edge storage shall secure that after recovery from a malfunction it shall be possible to play back and view the video, and audio recorded by the device, while the malfunction persisted	
Bookmarking	A bookmarking feature shall be included in the Video Management System, allowing the client viewer users to mark incidents on live and/or playback video streams.	
Optimized Video Archiving	Administrators shall be able to select a storage container for each device and move a device from one storage container to another or move all recordings inclusive archives to the new storage container, or delete them all.	
	Administrators shall be provided with an overview of the	

Description	Required Specifications	Quoted Specification
	defined storage containers, their archives with path, and free and used space on the drives for each device, including the used storage space in the recording database, and in archives.	
	Video management software shall also have ability to optimize bandwidth requirement on cloud based storage solution by Recording at local site recording server for at least 24 hours and archive to cloud on schedule basis from different recording servers at different time profile in order to utilize minimum bandwidth	
Failover Support	The system shall support automatic failover for recording servers. This functionality must be accomplished by a failover server that shall work as a standby unit, which takes over in the event that one of a group of designated recording servers fails. Recordings shall be synchronized back to the original recording server once it is back online.	
	The system shall support multiple failover servers for a group of recording servers.	
	The system shall provide monitoring of all failover servers from the graphical alarm management module.	
	The system shall provide seamless access to recordings on the failover Server for all clients through the same client views once the services are fully started.	
Multicast Support	The system shall support multicasting of video feeds to client workstations in order to conserve network resources. Multicasting should be enabled from the recording servers and not directly from the cameras. Thus the IGMP network would be necessary only for the switches where server and clients are connected.	
	Multicasting shall send a single stream of video to multiple clients, where the stream may be decoded and displayed on all clients simultaneously. This functionality shall support virtual matrix configurations.	
	The infrastructure provided for the system shall support Internet Group Management Protocol (IGMP) for each remote network.	
	The system shall automatically switch to unicast, if the client fails to connect to the multicast stream.	
Multi-streaming Support	The recording server must accept, display and record individual streams of video from each camera that supports it, for example, display a stream in H.264 format and record another stream in MPEG4 format. The intent of this functionality shall be providing independent streams of video from the camera to the server with different resolution, encoding and frame rate.	
	Multi-streaming support shall allow the system to be configured with H.264 with a high frame rate for live viewing and shall allow the system to be configured with high resolution H.264 at low frame rates for recording and playback.	
	The system shall allow recorded video to be recorded at 8fps.	

Description	Required Specifications	Quoted Specification
SNMP Support	The system shall act as an SNMP agent which can generate an SNMP trap as a result of rule activation in addition to other existing rule actions.	
	The system shall be able to utilize Microsoft Windows SNMP Service for triggering of SNMP traps.	
NAT Firewall Support	The system shall support port forwarding, which must allow clients from outside of a Network Address Translation (NAT) firewall to connect to recording servers without using a VPN.	
	Each recording server shall be mapped to a specific port and this port must be forwarded through the firewall to the recording server's internal IP address.	
Management Server Redundancy	The management server shall provide a resilient system solution based on Windows Server Clustering and Native, to secure maximum uptime.	
Centralized Search	The system shall have dedicated tab for searching recording sequences, bookmarks, events, motion, alarms. These Search categories can be combined, also with third party search agent plugins. Save search templates. Visualize location of Search result. Integrates with technology partner solutions	
Motion Detection	The system should have built-in, real-time, camera-independent motion detection with the ability to generate motion metadata for Smart Search.	
	The system should also support motion-based recording feature.	
Alarms Support	The alarm support shall allow for continuous monitoring of the operational status and event-triggered alarms from servers, cameras and other devices.	
	The alarm support shall provide a real-time overview of alarm status, or technical problems, while allowing for immediate visual verification and troubleshooting.	
Matrix Functionality	The system shall include an integrated matrix solution for distributing video to any computer with the client viewer installed. A computer on which the matrix-triggered images can be shown must be known as a matrix recipient.	
	The client viewer shall provide remote users with a comprehensive suite of features:	
	It shall be possible to view live video from cameras on the surveillance system from 1 to 100 per view.	
	It shall be possible to playback recordings from cameras on the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser.	
	It shall be possible to create and switch between an unlimited number of views, each able to display video from up to 100 cameras from multiple servers at a time. The system shall allow views to be created which are only accessible to the user, or to groups of users based on 37 different layouts optimized for 4:3, 4:3 Portrait, 16:9 and 16:9 Portrait display ratios.	
	It shall be possible to access views of cameras on any PC	

Description	Required Specifications	Quoted Specification
	with a client viewer application installed.	
	It shall be possible to use multiple screens as well as floating windows for displaying different views simultaneously.	
	It shall be possible to quickly substituting one, or more of a view's cameras with other cameras.	
	It shall be possible to view images from several cameras in sequence in a single camera position in a view – a so called carousel.	
	It shall be possible to view video from selected cameras in greater magnification and/or higher quality in a designated hotspot.	
	It shall be possible to receive and send video through the matrix functionality.	
	It shall be possible to include HTML pages and static images (for example, maps, or photos) in views.	
	It shall be possible to control PTZ cameras.	
	It shall be possible to use digital zoom on live as well as recorded video.	
	It shall be possible to activate manually triggered events.	
	It shall be possible to activate external outputs (e. g. lights and sirens).	
	It shall be possible to use sound notifications for attracting attention to detected motion.	
	It shall be possible to get quick overview of sequences with detected motion.	
	It shall be possible to get quick overviews of alerts.	
	It shall be possible to quickly search selected areas of video recording for motion.	
	It shall be possible to skip gaps during playback of recordings.	
	It shall be possible to configure and use several different joysticks.	
	It shall be possible to print images, with optional comments.	
	It shall be possible to copy images for subsequent pasting into word processors, email, etc.	
	It shall be possible to export recording (for example, for use as evidence) in AVI, JPEG and database formats.	
	It shall be possible to use pre-configured as well as customizable keyboard shortcuts to speed up common actions.	
	It shall be possible to insert overlay buttons, for example, for activation of speakers, events, outputs, movement of cameras etc.	
	It shall be possible to use a sequence function that lists thumbnail images representing recorded sequences from an individual camera or all cameras in a view.	
	It shall be possible to use a forced playback mode allowing the user to playback recorded video from inside the 'live'	

Description	Required Specifications	Quoted Specification
	mode while viewing 'live' video.	
	The client viewer shall support the use of 3-axis USB joysticks for control of pan, tilt, zoom and auxiliary camera functions.	
	The client viewer shall support the use of multimedia control devices, which are capable of emulating keystrokes, for the efficient review of recorded video.	
	The client viewer shall support the use of keyboard shortcuts for control of standard features. It shall allow the user to program numerical keyboard shortcuts for camera views. The shortcut number shall be displayed with the view description in the live and playback displays. The shortcut shall allow the user to change views with 2 to 3 keyboard entries.	
	The client viewer shall support GPU based video decoding to improve video rendering performance and up to 75% reduction in CPU load of the workstation running Client software. The use of GPU based video rendering shall also make client ready for 4K/UHD camera technology.	
	VMS System should Support to Manage device password on one or multiple devices from within the VMS Client	
	The client viewer shall have the capability to receive multicast streams. The client viewer shall have the capability to detect if the network becomes unreliable and to automatically switch to unicast to ensure that the operator is able to receive video.	
	The operator shall have the ability to use digital zoom where the zooming is performed in the image only on any number of cameras simultaneously. This functionality shall be the default for fixed cameras. The use of digital zoom shall have no affect on recording, or other users.	
Map Functions	Built-in map function in the client viewer shall provide an intuitive overview of the system and shall offer integrated access to all system components.	
	Map function shall be able to use standard graphical file formats including: jpg, gif, png, tif, etc.	
	It shall be possible to use any number of layered maps, and it shall be possible to easily drag-and-drop and point-and-click definition of cameras, servers, microphones, speakers, I/O devices, hot-zones, and PTZ camera presets.	
	Hot zones shall be allowed for intuitive navigation between different map levels.	
	Map function shall support instant camera preview when moving the mouse pointer over a specific camera.	
	Map function shall support central overview of the surveillance system via an alarm list containing alarm indicators of high, medium or low prioritized alarms. Furthermore the alarms shall be categorized by the following states; new, in progress, on hold, or closed. Alarms must be possible to acknowledge by right-clicking elements on maps.	

Description	Required Specifications	Quoted Specification
Remote Client Viewer	The web-based remote client viewer shall offer live view of up to 16 cameras, including PTZ control with joystick, fisheye (360 degrees) cameras and event/output activation. The playback function shall give the user concurrent playback of up to 16 recorded videos with date, alert sequence, or time searching.	
	The web-based remote client viewer shall offer quick overviews of sequences with detected motion.	
	The web-based remote client viewer shall be able to generate and export evidence in AVI (movie clip) and JPG (still image) formats.	
	The system shall support the use of separate networks, VLANs, or switches for connecting the cameras to the recording servers providing physical network separation from the clients and facilitate the use of static IP addresses for the devices.	
	The system shall support H.264,H.265, MPEG-4 (Part 2), MPEG-4 ASP, MxPEG, and MJPEG compression formats for all analog cameras connected to encoders, and all IP cameras connected to the system.	
	The system shall support dual-streaming cameras and shall cover the following compression formats: H.264, MPEG-4 (Part 2) and MJPEG.	
	The recording server shall utilize high performance ISCSI, SCSI, SAS and SSD disk drives for online recording storage and shall allow the use of lower cost SATA drives for the RAID arrays for online archive storage. Use of online archiving shall ensure that data always is readily available. Use of tape-backup systems shall not be acceptable.	
	The system shall allow the frame rate, bit rate and resolution of each camera to be configured independently for recording. The system shall allow the user to configure groups of cameras with the same frame rate, bit rate and resolution for efficient set-up of multiple cameras simultaneously.	
	The recording server(s) shall have the ability to support multiple Network Interface Cards (NIC) and shall support connection to the cameras on a network separate from the client viewer, management server and system manager.	
	The recording server shall have the ability to accept the full frame rate supplied by the cameras, while recording a lower frame rate yet still shall make the higher frame rate available to the clients for live viewing.	
	The VMS should be mandatory provided with unlimited number of Client Licenses. In case of additional Licenses required, extra cost needs to be considered.	
	3rd Party System Integration Access Control should be integrated thru VMS Access Control Module or thru SDK/API integration. FAS System to be integrated thru API/SDK or thru Bacnet Over IP Protocol Plugin with VMS BMS System to be integrated thru API/SDK or thru Bacnet	

Description	Required Specifications	Quoted Specification
	Over IP Protocol Plugin with VMS	
	VMS manufacturer shall provide their SDK without any additional charges (or any other integration means) libraries and documentation) to ensure a seamless integration with any other system.	
Remote Mobile App	Integrated Mobile Application to monitor overall CCTV system and for required coordination during emergency	
	Mobile Client support Native mobile app for smartphone or tablet users, for easy access to live and playback of cameras, and to activate system events and outputs. Additionally, for use as a remote recording device by using the mobile device's built-in camera, whereby video from the device's camera is streamed back to the VMS and recorded like a standard camera.	
	Support Smart Connect: Easy configuration of internet access to the mobile server by automatic configuration of firewalls and internet routers via UPnP, with verification of configuration and operation of internet connection, with option to email connection details to mobile client users. Includes automatic mobile server on LAN via UPnP.	
	Shall support Android as well as Apple IOS software, with respective smart phones	
	Provide mobile client capability for mobile device users to use their mobile device cameras as cameras in the VMS	
Hardware & Software		
Hardware & Software	Related Hardware, software & related license (perpetual) must be provided by the bidder for successful installation.	
	Operating System – INVMS shall support Windows Server Edition 2019/ Linux	
	Network Switch should be preferable Cisco, Juniper etc.	
	Storage OEM should be preferable like DELL EMC, HP, Infortrend, Hitachi, NetApp, IBM. Usable capacity at RAID 6 for the NAS/SAN should be for 130 Camera X 720P resolution X 25 fps X 365 days. Storage calculation should be provided by respective OEM	
	All system(Server, Storage and Network Switch) must be considered dual power source	
Integration	Should have integration capability with BMS, DCIM, fire detection and suppression system , ACS and etc.	
Special Requirement	01 (one) units camera should be install inside the Cargo Lift	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Certification	Must comply tier-4/rated-4 compliance (Uptime Institute/epi) in all aspects	
warranty	Three (03) years full warranty	

b) Access Control with visitor Mmanagement System

Quantity: 1 set

Description	Required Specifications			Quoted Specification
Brand	Please specify			
Model	Please specify			
Country of origin	USA/EU/UK/South Korea			
Country of manufacturer	Please specify			
Quality	The OEM/Manufacturer must have ISO 9001 or ISO 14001 certification			
Environmental requirement	Maintain International Quality Environmental Safety Standard			
Scope of supply in access control system				
	Items	unit	Quantity	
	Master Controller			
	Extension IO Module			
	Finger Print & RFID Reader with keypad			
	RFID Reader with Keypad			
	RFID Reader without keypad			
	Electromagnetic Lock with mounting bracket			
	Emergency break glass			
	Power supply with metal enclosure			
	Web based access management software			
	Installation accessories			
	Suitable cabling and conduits – as per requirement to complete entire project			
	Installation, commissioning, testing, and training of the complete Access control system			
General terms & Conditions.	● The BOQ mentioned above is just indicative and any other item/ hardware / software /cable if required to complete the work will have to be supplied by the vendor ● The vendor shall arrange all labor, cabling, tools & other parts required to install, commission and testing of the access control system ● The vendor shall provide complete documentation i.e. technical catalogue for various components, power/signal diagram, test certificate if any, warranty certificates, user manuals etc. ● The vendor shall carry out complete work of laying, installation, commissioning of all cables, auxiliaries, control software, and hardware as per norms on turnkey basis. The manufacture/installer shall provide minimum 3 years' warrantee on the system. ● The vendor shall provide all tools, testing, and calibration equipment necessary to ensure reliability and accuracy of the system ● The vendor shall be responsible for inspection and Quality Assurance (QA) for all materials and workmanship furnished			

Description	Required Specifications	Quoted Specification
	● The vendor shall be required to train and instruct client's personnel in the correct use, operation and supervision of the system, preferably prior to the handing over of the project.	
Door access management	● Shall maintain total control and surveillance of all door accesses in secure areas directly from connected control and monitoring workstations. ● All door access activities shall be transmitted directly to the workstation. ● Specific commands can be given from the workstation to the doors, such as opening and closing them directly, sealing them off from further access, etc. ● Required high-configuration workstations shall be supplied by the bidder. ● The entire Access control system must have integrated to the BMS, Fire & Video management system ● All necessary cabling shall be done by the bidder. ● The entire Access control system software must have web based and can be monitor from any remote device via web browser and android application ● The software have to be support third party finger print access controller and card reader. Face, Finger and card data must be enrolled and managed with the same software.	
Hardware Specifications		
Master Controller		
Functionality of Master door controller	● Door controller with built-in TCP/IP network ready adapter shall be provided. ● Shall have web browser capable for configuration, monitoring, and maintenance. ● The Controller must have support up to 2 doors locally and support 64 readers for 32 door in total using expansion IO module ● Shall have support OSDP/WIEGAND reader ● Shall have support third party finger & RFID Reader ● Shall have support multifactor factor authentication ● The on-board IO support for up to two access points and two (Wiegand) or four (OSDP) readers ● the controller must have supervised input that can be used to monitor door status, REX, power supply, battery, tamper and general-purpose inputs status, ● Should have support Open Architecture ● Ability to monitor supervised input wiring to help identify system faults or malicious attack ● Monitor the health of the intelligent controller on the network by utilizing SNMPv3 ● Enable access rights or alerts for specific groups of users	
Modes of operation	Finger print (FP), Card, ID+FP, ID+Password (PWD), PWD+Card, and FP+Card. Modes of operation shall be configurable.	
Credential Capacity	10,000	
On-Board Access Point Control	Up to 2 access points with on-board IO	

Description	Required Specifications	Quoted Specification
On-Board Reader Support	Up to 4 (OSDP multi-drop) or 2 (Wiegand) with on-board IO	
IO Module Communication	2-wire RS-485, 2400 to 115K BPS, asynchronous	
Inputs	7 supervised/unsupervised, standard EOL: 1k/1kΩ 1%, 1/4 watt	
Outputs	4 Relays, Form-C with dry contacts	
Standalone operation	Must be available	
Real-time scanning, tamper detection	Must be available	
Communication algorithm	OSDP/WIEGAND, or better	
Connectivity	TCP / IP based	
Max. Doors supported	Minimum 32 doors	
Max. Readers supported	Minimum 64 readers	
Type of readers supported	OSDP/WIEGAND, or better	
Security for door access	Magnetic lock and anti-pass back (software based), or better	
Expansion door controller		
Functionality of Slave door controller	● The slave controller must be support 2 Wigand and 4 OSDP readers which can be control 2 doors in and out. ● Shall have support third party finger & RFID Reader ● Shall have support two factor authentication ● The on-board IO support for up to two access points and two (Wiegand) or four (OSDP) readers ● the controller must have supervised input that can be used to monitor door status, REX, power supply, battery, tamper and general-purpose inputs status, ● Should have support Open Architecture ● Ability to monitor supervised input wiring to help identify system faults or malicious attack ● Monitor the health of the intelligent controller on the network by utilizing SNMPv3 ● Enable access rights or alerts for specific groups of users	
Real-time scanning, tamper detection	Must be available	
Communication algorithm	OSDP/WIEGAND, or better	
Connectivity	2-wire RS-485, 2400 to 115K BPS, asynchronous	
Inputs	7 supervised/unsupervised, standard EOL: 1k/1kΩ 1%, 1/4 watt	
Output	4 Relays, Form-C with dry contacts	
Max. Doors supported	Minimum 2 doors	
Max. Readers	Two (Wiegand) or four (OSDP) readers	

Description	Required Specifications	Quoted Specification
supported		
Type of readers supported	OSDP/WIEGAND, or better	
Biometric Reader for entry use		
Biometric access controller with reader interface unit	● The biometric access control reader shall be connect with the master and slave controller via OSDP/Wigand protocol. ●The biometric reader shall be capable of recognition of the finger print impression. ● The biometric access controller shall be built-in with key pad. ● The biometric access controller shall be capable of recognizing HID Proximity card or better cards with password and also without password in real time. ● Biometric Reader should be able to detect the Fake Fingerprints when placed on the sensor. It should accept only live fingerprint & should not read the fake fingerprints made of any chemical composition such as Rubber, Silicon, Gel, Paper, Thin film etc. ● The Reader should support multi modal authentication like Fingerprint, Card, Password with capacitive Keypad / Touch Screen for providing multi factor authentication by reading the Fingerprints, Cards, Passwords & various combinations. ● It shall be capable to provide a unique tone and / or tonal sequence for various status conditions such as access granted / denied; reader power condition etc. and clear visual LED indications shall be provided for various status conditions ● The readers should operate in industrial environment. Should be rugged to withstand open environment & rough weather conditions. Minimum Requirement is IP 55 Protection.	
LCD display	2.8 inches or better	
Fingerprint capacity	Minimum 500 by default, and must be able to be upgraded to minimum 10,000.	
Card capacity	Shall support at least 1000 compatible card	
RFID Reader for entry & Exit Use		
RFID Reader	● The reader shall have a beeper and multicolor LED which can be hosted/ or locally controlled. ● Enables various beeper and LED configurations, depending on individual site requirements. ● The reader can read 125 Khz HID cards with formats up to 85 bits. ● The reader mounting directly onto metal with no change in read range performance. ● The reader shall have OSDP, Wiegand or Clock-and-Data (magnetic stripe data) output. ● The reader shall compatible with all standard access control systems. ● It shall be capable to provide a unique tone and / or tonal	

Description	Required Specifications	Quoted Specification
	sequence for various status conditions such as access granted / denied; reader power condition etc. and clear visual LED indications shall be provided for various status conditions	
Door Lock	Surface Mount Electromagnetic Lock with built in magnetic read switch vendor should provide U/L/Z brackets based on the site conditions The EM Lock should have following minimum specifications a) It should be suitable for surface mount on double leaf doors. b) Current Draw: 1A / 12V or 500 mA / 24V c) Dual Voltage: 12V / 24 V d) Holding Force: Minimum 1200** lbs. e) Built-in magnetic read switch and Voltage Spike Suppressor f) Backup of min. 3 hours should be able to control EM locks in the event of power failure. **For metallic doors vender has to provide EM lock of sufficient holding force, if 1200 lbs is not sufficient)	
Break glass	Shall have break Glass with each OUT access control system.	
Design and deployment requirement	● The readers should operate in industrial environment. Should be rugged to withstand open environment Respective bidder also needs to ensure that the final deployment of the solution is done based on the standards design guideline and best practices keeping in mind all the relevant compliance requirements and operational requirements to make sure overall seamless commissioning in the whole server room hardware setup. ● Bidder has to ensure that the final deployment is done by the OEM certified resources to validate design standards and best practices.	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted. Bidder can submit Scope of supply in access control system their own way to meet the specification.	
Manufacturer's part number	Bidder must submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number.	
Integration	Should have integration capability with BMS as well as IPSS	
Additional accessories	If the additional accessories are essential, bidder will provide those additional accessories according to the proposed model.	
Compliance and reference	Bidder must provide the detail compliance report with reference. The reference URL / information of RFP technical specification compliance must be publicly available, referenced, and accessible document.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Sub-Category-4.4: Fire detection and controlling system including implementation.

a) Addressable 1 & 2 Inlet Very Early Smoke Detection Aspirating System (VESDA)

Quantity: 1 Inlet 04 Units & 2 **Inlet** 03 Units

Description	Required specifications	Quoted Specification
Brand	Xtralis / Eurofyre/ any reputed brand	
Country of Origin	Please Specify	
Country of Manufacturing	Please Specify	
Model	Please Specify	
Front Panel	Front Panel LED indicator Plastic Enclosure.	
Pipe	1-2 Pipe require as per zone location.	
Aspirator Setting	5	
Power (Quiescent)	15.4W	
Power (In Alarm)	24 VDC (14 – 30 VDC) 240 mA	
Area Coverage	2,000 m2 (21,520 sq. ft)	
Min. airflow per pipe	20 l/m	
Pipe Length (Linear)	300m (919 ft)	
Pipe Length (Branched)	560 m (1,837 ft)	
Pipe lengths depending on number of pipes in use	1 Pipe 300m & 2 Pipe 560 m	
No. of holes (A/B/C)	The pipe network can be configured with up to 1 x 100 or 2 x 72 aspirating points	
Pipe	Inlet: External diameter 25 mm or 1.05 in (3/4 in IPS) Exhaust: External diameter 25 mm or 1.05 in (3/4 in IPS) via adaptor	
Relays	12 programmable relays (latching or non-latching states) Contacts rated 2 A @ 30 VDC (Resistive)	
IP rating	IP40	
Cable termination	Screw Terminal blocks 0.2–2.5 sq mm (24–14 AWG)	
Dynamic Range	0.000%/m to 32%/m (0.0000%/ft to 10%/ft	
Sensitivity Range	0.005 to 20% obs/m (0.0016% to 6.25% obs/ft)	
Threshold setting range	Alert: 0.005% to 2.0% obs/m (0.0016% to 0.625% obs/ft) Action: 0.005% to 2.0% obs/m (0.0016% to 0.625% obs/ft) Fire1: 0.010% to 2.0% obs/m (0.0031% to 0.625% obs/ft) Fire2: 0.020% to 20.0% obs/m (0.0063% to 6.25% obs/ft)	
Software features	Event log: Up to 10,000 events Smoke level and alarm threshold levels, user actions, alarms and faults with time and date stamp Auto Learn: Detector learns Alarm Thresholds and Flow Fault thresholds by monitoring the	

Description	Required specifications	Quoted Specification
	environment	
Listings / Approvals	UL • ULC • CSFM • FM • VdS • NF-SSI (	
Features	• Sector addressability for up to 2 sectors • Adaptive scan threshold • Flair detection technology delivers reliable very early warning in a wide range of environments with minimal nuisance alarms • Multi stage filtration and optical protection with clean air barriers ensures lifetime detection performance • 2 configurable alarm levels per sector and a wide sensitivity range deliver optimum protection for the widest range of applications • Intuitive LED display provides instant status information for immediate response • Flow fault thresholds per port accommodate varying airflow conditions • Smart on-board filter retains dust count and remaining filter life for predictable maintenance • Extensive event log (10,000 events) for event analysis and system diagnostics • AutoLearn™ smoke and flow for reliable and rapid commissioning • Ethernet for connectivity with SNMP for configuration, secondary monitoring and maintenance • USB for PC configuration, and firmware upgrade using a memory stick • Two programmable GPIs (1 monitored) for flexible remote control • Field replaceable sub-assemblies enable faster service and maximum uptime	
Operating Conditions	Ambient: 0°C to 39°C (32°F to 102°F) Sampled Air: -20°C to 60°C (-4°F to 140°F) Tested to: -20°C to 55°C (-4°F to 131°F) UL: -20°C to 50°C (-4°F to 122°F) Humidity: 5% to 95% RH, non-condensing	
Weight	4.8 kg (10.6 lbs)	
Area covered	1 Network & Server Room – 1 2 Network & Server Room – 2 3 Network & Server Room – 3 4 Meet Me-1 5 Meet Me-2 6 Power Room-A 7 Power Room-B	
Special condition	**If any other thing required to provide the solution it should be mentioned and quoted.**	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
warranty	Three (03) years full warranty	

b) Fire Detection & Suppression System

Description	Required Specifications	UoM	Unit	Quoted Specification
Suppression Agent				
Item	NAFS/NOVEC-1230			
Brand	Please specify			
Country of Origin	Please Specify			
Chemical formula	CF3CF2C(O)CF(CF3)2			
Molecular weight	316.04			
Boiling point @ 1 atm	49.2°C (120.6°F)			
Freezing point	-108°C (-162.4°F)			
Critical Temperature	168.7°C (335.6°F)			
Vapor Pressure	0.404 bar (5.85 psig)			
Heat of vaporization @ BP	88.0 kJ/kg (37.9 BTU/lb)			
Relative dielectric strength @ 1 atm (N2=1.0)	1.61-2.3			
Vapor pressure @25 d	Please specify			
Features	NAFS/NOVEC-1230 fluid has zero ozone depletion potential and the lowest atmospheric lifetime for chemical clean agent alternatives: 5 days. The next closest halon alternative is 29 years.			
	NAFS/NOVEC-1230 fluid has a Global Warming Potential of 1, which is 99.9% lower than any halocarbon agent acceptable for use in occupied spaces.			
	With zero ozone depletion potential, extremely low global warming potential and short atmospheric lifetime, NAFS/NOVEC-1230 fluid is the first chemical halon replacement to offer a viable, long-term, sustainable technology for special hazards fire protection.			
Local Fill and Refill Facility	Bidder Should Submit MOU who have local UL Listed Fill and Refill Facility of NAFS/NOVEC-1230			
Hydraulic calculations	Hydraulic calculations should be submitted by the bidder			
Cylinder Assembly	Cylinder Assembly with label indictor			
	The agent storage cylinder is a Seamless steel pressure vessel manufactured, tested and stamped in accordance with DOT			
Storage Pressure	42 bars (Seamless Cylinder)			

Description	Required Specifications	UoM	Unit	Quoted Specification
Test Pressure	From 250 bar to 300 bar			
Compliance	UL Listed & ULC/FM Approved			
Electric Solenoid				
Brand	Sevo/Tyco/Firetrace /Fike/Siemens/ SHT / Equivalent			
Country of Origin	USA/EU/UK			
Country of Manufacturing	USA/EU/UK			
Model	Please Specify			
Electric Solenoid 24V DC - Stackable	Electric solenoid valve is normally closed and the valve requires electrical energy to remain open.			
Electrical Properties:	24 V.D.C.			
Pneumatic Actuator				
Brand	Sevo/Tyco/Firetrace/Fike/Siemens/ SHT / Equivalent			
Country of Origin	USA/EU/UK			
Country of Manufacturing	USA/EU/UK			
Model	Please Specify			
Pneumatic Actuator	The Pneumatic Actuator Control Head features a pneumatically driven piston that depresses a			
Steel Nozzles				
Brand	Sevo/Tyco/Firetrace/Fike/Siemens/ SHT/ Equivalent			
Country of Origin	USA/EU/UK			
Country of Manufacturing	USA/EU/UK			
Model	Please Specify			
Steel Nozzles	Each nozzle is available with 360°16 port (central), 180° 7 port (sidewall) discharge pattern.			
	360° (central) and 180° (sidewall) nozzles generate a reactive force opposite to the nozzle			
	Orifices; pipe bracing shall be located as close as possible to the nozzle to prevent movement or damage.			
	area of protection when multiple nozzles are discharged into the same hazard the hazard			
	Shall be divided in two equal coverage areas. 360° nozzles shall be centrally located.			
	180° Nozzles shall be centrally located against nearest wall. For protected spaces that			

Description	Required Specifications	UoM	Unit	Quoted Specification
	exceed the maximum nozzle throw of: 22.6 ft. (6.89m) for 360° nozzle or 35.8 ft. (10.9m)			
Compliance	UL Listed			
Agent Storage Cylinder & Agent Calculation				
Brand	Sevo/Tyco/Firetrace /Fike/Siemens/ SHT/ Equivalent			
Country of Origin	USA/EU/UK			
Country of Manufacturing	Please Specify			
Model	Please Specify			
Network & Server Room - 1	NAFS/NOVEC-1230 agent	Kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor (As required)	Lot	1	
Network & Server Room - 2	NAFS/NOVEC-1230 agent	Kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor (As required)	Lot	1	
Network & Server Room - 3	NAFS/NOVEC-1230 agent	Kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor (As required)	Lot	1	
Met Me Room-1	NAFS/NOVEC-1230 agent	Kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor (As required)	Lot	1	
Met Me Room-2	NAFS/NOVEC-1230 agent	Kg	As Per Requirement	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor (As required)	Lot	1	
NOC & SOC Room	NAFS/NOVEC-1230 agent	kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor (As required)	Lot	1	

Description	Required Specifications	UoM	Unit	Quoted Specification
Power Room -1	NAFS/NOVEC-1230 agent	Kg	As Per Requirement	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor	Lot	1	
Power Room -2	NAFS/NOVEC-1230 agent	Kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor	Lot	1	
Substation 01	NAFS/NOVEC-1230 agent	Kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor	Lot	1	
Substation 02	NAFS/NOVEC-1230 agent	Kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor	Lot	1	
HT Room	NAFS/NOVEC-1230 agent	Kg	As Per Requirement with hydraulic calculation	
Agent Storage Cylinder	Capacity Cylinder Assembly with label indictor	Lot	1	
Steel Nozzle	Steel Nozzle Ul Listed 2",1", ½" asper Hydraulic Calculations	Nos	78	
Electric Solenoid 24V DC – Stackable	Electric Solenoid 24V DC – Stackable	No's	10	
Manual Actuator	Manual Actuator	No's	10	
Discharge Pressure Switch	Discharge Pressure Switch	No's	10	
Check Valves	1" through 3" 78FP Check Valves have a maximum working pressure of 500 psi (34.5 bar).	Lot	10	
Cylinder Front Strap	Cylinder Front Strap with Back Rack	Lot	10	
Room Integrity Test	Bidder shall perform room integrity test which is ensure the suppression agent hold minimum 10 minutes after discharge. The test will be all room where will be Suppression	Lot	1	
	Hold Time compliance based on Annex C of NFPA 2001 (2018			

Description	Required Specifications	UoM	Unit	Quoted Specification
	Edition)			
	Bidder Should submit Software Generate report Room Integrity test pass report in accordance NFPA 2001			
Intelligent Addressable Fire Alarm Control Panel				
Supply of 32-bit Microprocessor based Intelligent Addressable 4 Loop Fire Alarm Control Panel. FACP shall have the required 4 nos. of detection Loops, 1 nos of Addressable NAC circuits and accessories to accommodate all Alarm Initiating Devices, Notification Appliances given in this BOQ.				
Brand:	Simplex/ Simense/ FIKE/MIRCOM/ KENTEC/APOLLO or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Model:	Please Specify			
Features	FACP shall accommodate up to 2 nos. of 12V batteries, capable of 24 hrs. Standby time and shall have a battery charging capacity of (up to) 2 nos. of 12V/65 AH housed externally.			
	FACP shall have Color ES Touch Screen Display and at least 5 custom programmable buttons for user-specific programmable functions. The panel should be equipped with sufficient no's of loop with 20% spare provision. Each detection loop of FACP shall accommodate up to 250 detectors and devices in any combination. FACP shall have Dual configuration program CPU, convenient service port access, and capacity for up to 3000 addressable points			
	FACP shall have the facility to connect with the BMS, DCIM and individual graphic Graphical work station (if required).			
	FACP must have the facility to releasing built in Gas suppression system without third party gas releasing controller.			
	FACP shall have facility to monitoring VESDA Air Aspiration Systems.			
	FACP shall have a fire telephone set along with the panel box for			

Description	Required Specifications	UoM	Unit	Quoted Specification
	Emergency Communication (If Required)			
Listings information	FACP shall have following UL listing information. UL 864, Fire Detection and Control (UOJZ), Smoke Control Service (UUKL), Releasing Device Service (SYZV), Emergency Communication and Relocation Equipment (UOQY) • UL 1076, Proprietary Alarm Units - Burglar (APOU) • UL 2017, Process Management Equipment (QVAX), Emergency Alarm System Control Units (FSZI) • UL 1730, Smoke Detector Monitor (UULH) • UL 2572, Mass Notification Systems (PGWM) • CAN/ULC-S527 Control Units for Fire Alarm Systems (UOJZ7), Releasing Device Service (SYZV7) • CAN/ULC-S559 Central Station Fire Alarm System Units (DAYR7) • ULC/ORD-C1076 Proprietary Burglar Alarm Units and Systems (APOU7) • ULC/ORD-C100 Smoke Control System Equipment (UUKL7)			
	One expandable to Nine Intelligent Signaling Line Circuits (SLC)			
	Each SLC Loop is capable of supporting 250 Addressable Analog Sensors and 250 Addressable Modules which can be wired in Style 6 or 7 (Class A) or Style 4 (Class B)			
	• FACP shall have Large easy to use and readable Color ES Touch Screen LCD Display			
	• Four Status Queues for Alarm, Supervisory, Trouble and Monitor			
	Auxiliary relay contacts for Common Alarm, Supervisory and Trouble • Group bypass with built-in false alarm prevention technology • RS-232 output for remote system printer or CRT			
	FACP shall have facility to store Event History Logs; up to 10,000 alarm history log and a up to 10,000			

Description	Required Specifications	UoM	Unit	Quoted Specification
	event log for all events			
	• Conventional Hardwire Adder Module expandability • Built-in Walk Test operation			
	Panel Security to protect site configurations			
	• Provision for two programmable modules • Configurable for Coded Operation • Intelligent Smoke Detector sensitivity levels			
	Graphical monitoring and control using Graphical Monitoring software with 1 Remote licenses.			
	BACnet supported			
	Audio/Voice Evacuation with 520Hz capability			
	Common Control switches and/or indicating LEDs for System Reset, Signal Silence, Fire Drill, Acknowledge, General Alarm, Lamp Test, A.C. On, Pre-Alarm and Ground Fault			
	UL listed for Smoke Control • HVAC Fan and Damper Control			
	• Up to 63 nodes • Peer-to-peer network communications • Supports copper and/or fiber optic network cable			
	Primary Input Power 120V 60Hz / 240V, 50Hz 4 Amps / 2 Amp (primary) Power Supply Ratings 12 Amps. max. (secondary) For NAC Circuits 24VDC unfiltered, 10 Amps. max. Battery Type 24VDC, Gel-Cell/Sealed Lead-Acid Battery Charging Capability 17-65 AH batteries			
	Built-in One Man Walk Test operation			
	Configurable for Coded Operation			
Graphical software	Graphical software with operating station for user interface. Must have 1 remote monitoring license for monitoring from 1 location/User	Nos.	1	

Description	Required Specifications	UoM	Unit	Quoted Specification
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
BacNET Module with Interface	Fire Alarm Network BacNET Single User License.	No's	1	
	Unlocks BacNET port on one network node.			
	A relay all network events to one destination.			
Suppression Release Module	Suppression Release Peripheral (SRP) with Dual Command Control:	Set	13	
Miscellaneous				
Brand	Simplex/ Simense/ FIKE/MIRCOM/ KENTEC/APOLLO or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
	The Gas Release module and addressable Central Control Panel Should are same Brand.			
Working Method	The gas discharge can be automatic using double knock detections or manual using electrical key switch.			
Indicators	Power Source, Power Failure, Zone Fire, Fault and Isolate, Bell Isolate, Auxiliary Trip Isolate, Gas Isolate.			
Switch	Bell Isolate, Auxiliary Trip Isolate, Gas Isolate, Fault Buzzer Mute, Master Reset, Main on/off, Test Battery.			
Delay Discharge Timer	Built-in and Adjustable			
Power Supply Input	240V AC 50Hz			
Operating / System	24V DC			
Charger	Auto / Trickle			
Cabinet	The system is housed in a compact enclosure, finished with signal red epoxy powder paint.			
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Battery	SLA Battery for control panel, 12V each 7.2 ah	Nos	20	
Heat Detector				
Brand	Simplex/ Simense/ FIKE/MIRCOM/ KENTEC/APOLLO or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Supply Voltage	10 to 30V DC			
Alarm Indication	Red LED			
Heat Detector	Intelligent Addressable Heat	Nos	160	

Description	Required Specifications	UoM	Unit	Quoted Specification
	Detector Fixed Temp. & ROR With Base			
Features	ROR With Base			
	Fixed Temperature			
	Intelligent Addressable Rate of Rise cum Fixed Temperature Heat Detector along with base. Rate-of-Rise temperature detection element shall have two selectable settings of 8° C & 11° C (or closer to this value not deviating by 1°C)			
	Intelligent Addressable Rate of Rise cum Fixed Temperature Heat Detector along with base. Rate-of-Rise temperature detection element shall have two selectable settings of 8° C & 11° C (or closer to this value not deviating by 1°C)			
	The detector shall have operating temperature range from 0°C to 50°C and humidity tolerance range up to 95% RH			
	Non-Condensing			
	The detector shall have Manual, Dip-Switch,			
	Hard addressing			
	No factory set address or Hard address shall be allowed			
	These activities shall be carried out with the help of hand-held field diagnostic tool capable of transferring the back-up at the PC for later use at the FACP.			
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Smoke Detector				
Brand	Simplex/ Simense/ FIKE/MIRCOM/ KENTEC/APOLLO or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Supply Voltage	10 to 30V DC			
Alarm Indication	Red LED			
Alarm Current	40mA, at 22.5V			
Smoke Detector	Intelligent Addressable Photoelectric Optical Smoke detector with base	Nos	160	
	Supply, Installation, Testing & Commissioning of Intelligent Addressable Detectors which are			

Description	Required Specifications	UoM	Unit	Quoted Specification
	equipped with a built-in analogue communications module.			
	Smoke detectors are available with Photoelectric detectors are available with additional			
	Dual LEDs indicate communications and activate steady when in alarm			
	Low standby current			
	Rotary address switches			
	Magnetic test feature			
	Superior EMI protection diagnostic tool capable of transferring the back-up at the PC for later use at the FACP.			
Alarm Indication	Red LED, Flashing LED			
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Addressable Alarm Bell with strobe				
Brand	Simplex/ Simense/ FIKE/MIRCOM/ KENTEC/APOLLO or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Flashing Light	Flashing light	Nos	12	
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Brand	Simplex/Honeywell/ Simense/ FIKE/MIRCOM or equivalent			
Country of Origin:	USA/CANADA/AUSTRALIA/JAPAN			
Country of Manufacturing:	USA/CANADA/AUSTRALIA/JAPAN			
Addressable Alarm Bell with strobe	Addressable Notification Appliances (Hooter with Strobe)	Nos	34	
	Hooter with Strobe unit shall sit directly on addressable NAC (Notification Appliance Circuit) of FACP, fully supervised and powered from FACP. Hooter and Strobe elements of the combined unit shall have independent activation & deactivation criteria.			
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Manual Call Point				
Brand	Simplex/ Simense/ FIKE/MIRCOM or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			

Description	Required Specifications	UoM	Unit	Quoted Specification
Manual Call Point	Intelligent Addressable Indoor Application Manual Pull station with Surface Mounting Box, Single Gang Red Finish	Nos	34	
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Control Module				
Brand	Simplex/ Simense/ FIKE/MIRCOM or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Control Module	Intelligent Addressable Control Modules		28	
	Intelligent Addressable Potential-free, Form-C, SPDT contact based Control Module to trigger 3rd party utilities like AHU shut-off, Pressurization fan activation, Special notification activation etc. The contact shall be rated for 2A@24Vdc (Resistive) & 1A@24Vdc (Inductive). The control module shall have operating temperature range from 0°C to 49°C and a humidity tolerance of up to 93% RH, Non-Condensing. Module shall not necessarily require control panel for field diagnostic, trouble-shooting addressing and customer text-feeding. These activities shall be carried out with the help of hand-held field diagnostic tool capable of transferring the back-up at the PC for later use at the FACP.			
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Monitor Modules				
Brand	Simplex/ Simense/ FIKE/MIRCOM or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Monitor Modules	**Intelligent Addressable Monitor Modules**		18	
	Normally Open Dry Contact input. The Monitor Module shall have operating temperature range from 0°C to 70°C and a humidity tolerance of up to 93% RH, Non-			

Description	Required Specifications	UoM	Unit	Quoted Specification
	Condensing. Module shall not necessarily require control panel for field diagnostic, trouble-shooting addressing and customer text-feeding. These activities shall be carried out with the help of hand-held field diagnostic tool capable of transferring the back-up at the PC for later use at the FACP.			
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Addressable Short Circuit Isolator				
Brand	Simplex/ Simense/ FIKE/MIRCOM or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Addressable Short Circuit Isolator	Addressable Short Circuit Isolator		10	
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Abort Station				
Brand	Simplex/ Simense/ FIKE/MIRCOM or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Abort Station	Should Superior EMI protection diagnostic tool capable of transferring the back-up at the PC for later use at the Fire Alarm Control Panel		9	
Compliance Requirement	UL Listed & FM Approved and ULC Listed.			
Sign				
Brand	Simplex/ Simense/ FIKE/MIRCOM or equivalent			
Country of Origin:	USA/EU/UK/Canada/Australia			
Country of Manufacturing:	USA/EU/UK/Canada/Australia			
Exit Sign	Exit Sign	Nos	20	
Gas Discharge Sign	Gas Discharge Sign	Nos	13	
Evacuate Sign	Evacuate Sign	Nos	13	
Caution Sign	Caution Sign	Nos	13	
Mechanical item and Electrical fittings				
Accessories for suppression Channel	Schedule 40 pipe 3" Dia,	Lot	1	
	Seamless Schedule 40 pipe 2.5¼" Dia, Korea			
	Seamless Schedule 40 pipe 2" Dia,			

Description	Required Specifications	UoM	Unit	Quoted Specification
	Seamless Schedule 40 pipe1 ½" Dia,			
	Seamless Schedule 40 pipe1" Dia,			
	Seamless Schedule 40 pipe3/4" Dia			
Hanger Support	Hanger Support	Lot	1	
Fittings	Tees, Socket, ELBOW, UNION, ETC	Lot	1	
Fire resistance cable	Fire resistance cable, UL listed should be renewed brand	Coil	As Per Requirement	
Paint	Best Quality Local Painting, Berger or equivalent	job	1	
Conduit	PVC Pipe ¾" conduit, fittings Others	Meter	As Per Requirement	
Installation	Installation, Detection Testing, Commissioning	Job	1	
Hardware & Software	Related Hardware, software & related license (perpetual) along with the redundant solution must be provided by the bidder for successful installation.			
Special Condition	**If any other thing required to provide the solution it should be mentioned and quoted.**			
BOM	To be attached			
Product Brochure & Data Sheet	To be attached			
Certificates	Must comply tier-4/rated-4 compliance (Uptime Institute/epi) in all aspects			
Warranty	Three (03) years full warranty			

c) Water hydrant system:

Description	Required Specification	Qty	unit	Quoted Specification
Brand	SAFFCO/ Any reputed Brand			
Country of Origin:	USA/EU/UK /UAE			
Country of Manufacturing:	Please specify			
Pump Set	Pump Set, Electrical Motor and Diesel Engine Driven, Horizontal End Suction Type, Capacity500 GPM at 8 Bar with Jockey Pump, Controller Star Delta and Standard Accessories Excel Series, Standard Approved,	1	NO	
6" Get Valve	Valve-Gate, Resilient Wedge OS&Y. 6" Size, Flanged X Flanged Type WP 300 PSI	4	NO	
2" Get Valve	Valve Gate 2" Screw Brass	2	NO	
6" Check Valve	Valve -Check Type 6"DI Body, Bronze Set EPDM Dise.	2	NO	

Description	Required Specification	Qty	unit	Quoted Specification
Flanged	Flanged Type WP 300 PSI			
2” Check Valve	Valve -Check Type 2"DI Body, Bronze Set EPDM Dise. Flanged Type WP 300 PSI	1	NO	
6” Joint Flex rubber	Joint Flex rubber Exp. Type 6"LF Flange	4	NO	
2” Joint Flex rubber	Joint Flex rubber Exp. Type 2"LF Flange	2	NO	
6” Strainer	Strainer. Y Type. Size 6"Cast iron black Painted, Flanged End.	2	NO	
2” Strainer	Strainer. Y Type. Size 2"Cast iron black Painted, Flanged End.	1	NO	
Pressure Gauge	Pressure Gauge,1/4" BSP, 0-250psi Max Dial, Stainless Steel, Pointer Black, size 3 1/2"	3	NO	
Pressure Switch	Pressure Switch, rated working pressure 1.2 Mpa, Joint Thread R 1/2.	3	NO	
EMPTY Hose Reel Cabinet	EMPTY Hose Reel Cabinet with 3/4" x 30M Hose, Angle Valve, Nozzle and Accessories	8	NO	
	Safety BOX	8	No	
Landing Valve	Valve Landing Oblique Type 2.5” Size, Brass, Red Painted. Threaded Inlet and Instantaneous Coupling Outlet, with Hand Wheel, Plastic Cap and Chain	8	NO	
Air Release Valve	Air Release Valve, 1" Q, Standard	1	NO	
	Valve, Breeching Inlet, two Way, 6"X2.5"X2.5", Ductile Iron, Red Painted, Flanged Inlet & Instantaneous Outlet, With Plastic Cap and Chain (Without matching Flange, nut bolt and Washer)	1	NO	
MS PIPE	Supply, installation and fabrication of SCH 40 MS fire hydrant pipe			
	150mm	40	Meter	
	65 mm	10	Meter	
	50mm	10	Meter	
	40mm	10	Meter.	
Pump Installation accessories.	Pump Installation with Accessories for fire pump room (Tee, Elbow, Flange, Gasket, Nut bolt, Supporting martials, etc.	1	Lot.	
Fire hydrant system accessories	Accessories for fire hydrant system : Clamp, Elbow, Socket, Tee, Band, Ground Taping etc.	1	lot	
Paint work	Paint work	1	lot	
installation &testing & commissioning	installation &testing & commissioning of the System	1	lot	
Area covered	1 Basement parking area 2 Ground floor House (inside and outside) area 3 1st floor lift lobby 4 2nd floor lift lobby 5 3rd floor lift lobby 6 4rd floor lift lobby hose relay box			

Description	Required Specification	Qty	unit	Quoted Specification
	7 5rd floor lift lobby 8 Roof Top hose 9 Road side hydrant tower			
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.			
BOM	To be attached			
Product Brochure & Data Sheet	To be attached			
Warranty	Ten (10) years full warranty			

d) Addressable Water detection system (WDS):

Descriptions	Required Specification	Quoted Specification
Brand	Please Specify	
Model	Please Specify	
Country of origin	USA/EU/UK	
Country of Manufacture	Please Specify	
Floor area to be covered (inside)	1 Network & Server Room – 1	
	2 Network & Server Room – 2	
	3 Network & Server Room – 3	
	4 Meet Me Room-1	
	5 Meet Me Room-2	
	6 NOC & SOC Room	
	7 Power Room -A	
	8 Power Room -B	
	9 Substation 01	
	10 Substation 02	
	11 HT Room	
Features	Addressable Water Leak detection system sensor	
	Monitors up to 4,000 feet of E-LDDC-x Liquid Location Detection Sensor Cable.	
	Detects the specific location of liquid presence.	
	Detects if there is a break in the cable	
	Supports up to 1,000 feet of E-4WNSC-x non-sensing cable.	
	Leak location accuracy: 20 to 1,500 feet: ±(1ft + 0.5% of sensing cable length). 1,500 to 4,000 feet: ±1% of sensing cable length.	
	Should be able to detect the moisture bellow the raised floor.	
	It should provide immediate warning after detecting the moisture and water.	
	It should be Micro-Processor Based Control	
	Each floor 01 (one) unit controller should be present (1st – 5th floor).	

Descriptions	Required Specification	Quoted Specification
	The Required system should be able to monitor and detect at least in 12 different locations below the raised floor.	
	Monitors each zone independently.	
	Provides subsequent alarming, no matter how many zones go into ALARM or FAULT.	
	Identifies location, time & date of all ALARM and FAULT conditions.	
	Alarming should be provided at-least via two or more of the below state method • Audible • Visual	
	In-band and out-of-band methods indicating in the software console and/or in the Building management system.	
	Monitoring software should be provided with the system.	
	Detection sensor cable should be addressable.	
	Detection sensor cable length should be 20 feet or higher.	
Integration & Monitoring	should be capable to Integration, Monitoring with DCIM & BMS	
Special Condition	If any other thing required to provide the solution it should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Sub-Category-4.5: Interior including implementation.

a) Civil work, Furniture & Fixture and related interior decoration

i) Conference, office, Dining, pantry, Reception area & etc.

Descriptions	Required Specification	Quoted Specification
Civil Work	If required	
Painting	If required	
Duct/Shaft Door	As per proposed design (should be fire protective)	
Other Works	The work will have to done by the design.	
	Design & quality of the product should be approved by the bank authority.	
	All the power requirement should be addressed and installed accordingly	
	The lighting shades are to be provided	
	All the portion inside the floor should be with 12 mm tempered glass.	
	All the doors inside the floor should be 12mm tempered glass door	
Projector -1 (one Unit)	For Conference Room	
LED Smart TV - 55"	02 Units	
Sample Picture Conference Room with chair (15-seater with table)		
Sample Picture Office Room (as per design)		

Descriptions	Required Specification	Quoted Specification
Sample Picture Sofa Set for Guest Room (As		
Sample Picture Dining Table with 6-chair (02 Sets)		
Sample Picture Reception area (as per design)		
Wall Cabinet (03 set)	Full height wooden Cabinet (10' X 6')	
Wall Cabinet (03 set)	Full height wooden Cabinet (5' X 6')	
Special Condition	**If any other thing required to provide the solution it should be mentioned and quoted.**	
Warranty	Three (03) years full warranty	

ii) NOC & SOC Room

Descriptions	Required Specification	Quoted Specification
Civil Work	if required	
Painting	If required	
Other Works	The work will have to done by the design.	
	Design & quality of the product should be approved by the bank authority.	

Descriptions	Required Specification	Quoted Specification
	All the power requirement should be addressed and installed accordingly.	
	The lighting shades are to be provided	
Sample Picture NOC & SOC Room (15 Personal seating arrangement with curve/ Regular table, should be include drawer)		
Wall Cabinet (03 units)	Full height wooden Cabinet (10' X 6')	
Special Condition	**If any other thing required to provide the solution it should be mentioned and quoted.**	
Warranty	Three (03) years full warranty	

iii) Common work from basement to roof top

Descriptions	Required Specification	Quoted Specification
Total Floor Space	As per Design	
1st floor Door	1800mmx2100mm double shutter swing 12mm tempered glass Door (Lift Lobby entry) with all accessories	
	1800mmx2400mm double shutter swing 12mm tempered glass Door (staging area entry) with all accessories	
	900mmx2100mm single shutter swing 12mm tempered glass Door (conference room entry) with all accessories	
	750mmx2100mm single shutter swing 12 mm tempered glass Door (admin office room entry) with all accessories	
	1800mmx2400mm single shutter automatic sliding metal door (Data Center Main entry door) with all accessories	
2nd floor Door	1800mmx2400mm double shutter with swing 12mm tempered glass Door (NOC & SOC Room entry) with all accessories	
	1800mmx2400mm single shutter automatic-sliding closer sliding 12mm tempered glass Door(lift lobby to inside entry) with all accessories	

Descriptions	Required Specification	Quoted Specification
3rd floor Door	1800mmx2400mm single shutter automatic-sliding closer sliding 12mm tempered glass Door(lift lobby to inside entry) with all accessories	
4th floor Door	1800mmx2400mm single shutter automatic-sliding closer sliding 12mm tempered glass Door(lift lobby to inside entry) with all accessories	
5th floor Door	1800mmx2400mm single shutter automatic-sliding closer sliding 12mm tempered glass Door(lift lobby to inside entry) with all accessories	
Ground floor Glass Partition	Conference room as per design	
	Admin room as per design	
	dining area as per design	
	Prayer area as per design	
NOC & SOC room Glass Partition	NOC & SOC room as per design	
Ground floor fix/false ceiling	Data center main entry area, lift lobby entry, staging entry gypsum board fix ceiling with service point will be 10' above	
	Others area gypsum board fix ceiling with service point will be 8' above	
Civil Work	if required	
Painting	If required	
RAMP (Basement to Roof Top)	As per data center layout	
Painting (Basement to Roof Top)	If required	
Other Works	The work will have to done by the design.	
	Design & quality of the product should be approved by the bank authority.	
	All the power requirement should be addressed and installed accordingly	
Special Condition	**If any other thing required to provide the solution it should be mentioned and quoted.**	
Warranty	Three (03) years full warranty	

Sub-Category-4.6: NOC & SOC system including implementation including implementation

a) NOC & SOC Set-up:

Fig: NOC & SOC with Gallery type seating arrangement

i) Type-1: Video Wall (NOC)

Descriptions	Required Specification	Quoted Specification
Brand	LG, Samsung, Philips, Panasonic	
Model	Please Specify	
Brand Country of origin	USA/UK/EU/South Korea	
Panel Country of Manufacture	Please Specify	
System Country of Assemble	Please Specify	
Website URL of Offered Model	Please Specify	
System Panel Brand Name	Please Specify	
System Panel Manufacturer	Please Specify	

Descriptions	Required Specification	Quoted Specification
General Features	Required Video wall should cover approximately 27 feet x 8 feet wall area, to be mounted on wall. Configuration drawing must be submitted	
	Video wall shall have the capacity to deliver multiple options to connect many sources (minimum 8) with built-in control software.	
	Video wall should have the capacity to be controlled by a single user seamlessly.	
	Necessary civil works to hang the Video Wall Displays should be done within this work scope without any additional charges.	
	System should have the capacity to run by 24x7.	
	Video wall should have the capacity to be connected with Computer and it should support both single screen and multiple screens with Video Wall Controller (PIP, PBP, POP etc.).	
Display		
Number of Panels	Please Specify	
Screen size	Minimum 55 Inch	
Panel Technology (Descriptive)	IPS (In Plane Switching) or better	
Back Light type	D-LED or better	
Native Resolution	Minimum 1920 x 1080p (FHD)	
Brightness (Typ.)	Minimum 500 nits	
Contrast Ratio	Minimum 1,100:1	
Dynamic CR	Minimum 500,000: 1	
Viewing Angle (H/V)	178/ 178 degree	
Response time (typical)	Minimum 8ms (G to G)	
Surface Treatment (Haze)	Haze 3% or better	
Connectivity		
Input	HDMI (Minimum 2), DP, Audio, USB 2.0	
Output	DP, Audio	
External Control	RS232C In/out, RJ45 (LAN) In/out, IR In	
Physical Specification		
Bezel Color	Black	
Bezel Width	Maximum 0.88mm Bezel to Bezel	
Monitor Dimension (W x H x D)	Please Specify	
Weight (Head)	Maximum 15 to 30 kg	
VESA Standard Mount Interface	600 x 400 mm (approx.)	
Mounting on the wall	Side displays should be mounted in a curved manner	
Input	HDMI (Minimum 2), DP, Audio, USB 2.0	

Descriptions	Required Specification	Quoted Specification
Special Features	Proposed solution should have–Temperature Sensor, USB Plug & Play, Fail Over, Background Image (No Signal Image),–Video Wall setup with daisy chain, auto or manual fine color calibration, Video Wall scheduler or please mention, if any others feature.	
Environment Conditions		
Operation Temperature Range	0°C to 40°C	
Operation Humidity Range	10% to 80%	
Power		
Power Supply	100-240V~, 50/60Hz	
Power Type	Built-in Power	
Power Consumption (Typ.)	Please Specify	
Power Consumption (Max.)	Please Specify	
Power Supply	100-240V~, 50/60Hz	
Power Type	Built-in Power	
Software		
Software Control (Optional)	Content Management, Control and Monitoring.	
Media Player Compatibility		
OPS type compatible	Yes (Optional)	
External Media player Attachable	Yes (Optional)	
Miscellaneous		
Certification	Proposed solution should have FCC/CE/ ISO/UL or please mention, if any other certificate.	
Manufacturer Authorization Letter	Must be submitted with local country office and contact details (Name, Designation, Email ID and valid contact number) in Bangladesh.	
Product Brochure	Must be submitted	
Accessories (Included)	Remote Controller, Power Cord, RS232C Cable, LAN Cable, DP Cable, IR Receiver, Guide Bracket, Screws, Manual	
Authentication	The technical specification offered must be available in OEM Website.	
Video Wall —Controller		
Brand	Please Specify	
Model	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
General Features	Min. 12 Inputs and 28 Outputs with built-in software and a separate enclose box.	
	Type of Input/ Output: HDMI	
	Should support 1920x1080 video quality @ 60Hz	
	It can display arbitrary 12 image	

Descriptions	Required Specification	Quoted Specification
	Should have Crossing Smart Synchronous Uniformity of Splicing	
	Controller should be able to combine all screens together to show one image.	
	Controller should be able to show different inputs source in different displays, Make PIP, POP and any picture can freely move anywhere in the video wall.	
	Should have fade out and direct switching availability	
	Pure hardware DSP architecture, CAN bus control technology, professional DSP processing chip, no operating system dependency , no crashes, no black screens, no screens	
	There should have buttons on the chassis panel to quickly switch 30 different scene modes. Cross Point full cross scheduling architecture high-speed data transmission technology to ensure internal high-definition processing and transmission	
	By performing related operations on the control software, the display pixels at the edge of the splicing screen can be precisely adjusted for individual pixels, so that the left and right spliced pictures are completely seamless	
Installations & Training		
Video Wall Mount Kit	It has to be original push and pull system.	
Cabling Work	All cabling should be standard insulation with conduit/ PVC channel where applicable to avoid damaging by external impact and proper cable numbering.	
Training	Must provide necessary user training for 05 Users to operate the system and for basic troubleshooting.	
Installation	Installation, testing & commissioning should be done by the bidder as per tender authority's guideline.	
Electrical and Network	All network and power connections must be provided. All cabling should be standard insulation with conduit/ PVC channel where applicable to avoid damaging by external impact and proper cable numbering.	
Special Condition	If any other components are required to deliver, install and configure the solution, everything should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty.	

ii) Type-2: Video Wall (SOC)

Descriptions	Required Specification	Quoted Specification
Brand	LG, Samsung, Philips, Panasonic	
Model	Please Specify	
Brand Country of origin	USA/UK/EU/South Korea/Japan	
Panel Country of Manufacture	Please Specify	
System Country of Assemble	Please Specify	
Website URL of Offered Model	Please Specify	
System Panel Brand Name	Please Specify	
System Panel Manufacturer	Please Specify	
General Features	Required Video wall should cover approximately 15 feet x 8 feet wall area, to be mounted on wall. Configuration drawing must be submitted	
	Video wall shall have the capacity to deliver multiple options to connect many sources (minimum 8) with built-in control software.	
	Video wall should have the capacity to be controlled by a single user seamlessly.	
	Necessary civil works to hang the Video Wall Displays should be done within this work scope without any additional charges.	
	System should have the capacity to run by 24x7.	
	Video wall should have the capacity to be connected with Computer and it should support both single screen and multiple screens with Video Wall Controller (PIP, PBP, POP etc.).	
Display		
Number of Panels	Please Specify	
Screen size	Minimum 55 Inch	
Panel Technology (Descriptive)	IPS (In Plane Switching) or better	
Back Light type	D-LED or better	
Native Resolution	Minimum 1920 x 1080p (FHD)	
Brightness (Typ.)	Minimum 500 nits	
Contrast Ratio	Minimum 1,100:1	
Dynamic CR	Minimum 500,000: 1	
Viewing Angle (H/V)	178/ 178 degree	
Response time (typical)	Minimum 8ms (G to G)	
Surface Treatment (Haze)	Haze 3% or better	
Connectivity		
Input	HDMI (Minimum 2), DP, Audio, USB 2.0	
Output	DP, Audio	
External Control	RS232C In/out, RJ45 (LAN) In/out, IR In	

Descriptions	Required Specification	Quoted Specification
Physical Specification		
Bezel Color	Black	
Bezel Width	Maximum 0.88mm Bezel to Bezel	
Monitor Dimension (W x H x D)	Please Specify	
Weight (Head)	Maximum 15 to 30 kg	
VESA Standard Mount Interface	600 x 400 mm (approx.)	
Mounting on the wall	Side displays should be mounted in a curved manner	
Input	HDMI (Minimum 2), DP, Audio, USB 2.0	
Special Features	Proposed solution should have Temperature Sensor, USB Plug & Play, Fail Over, Background Image (No Signal Image), Video Wall setup with daisy chain, auto or manual fine color calibration, Video Wall scheduler or please mention, if any others feature.	
Environment Conditions		
Operation Temperature Range	0°C to 40°C	
Operation Humidity Range	10% to 80%	
Power		
Power Supply	100-240V~, 50/60Hz	
Power Type	Built-in Power	
Power Consumption (Typ.)	Please Specify	
Power Consumption (Max.)	Please Specify	
Power Supply	100-240V~, 50/60Hz	
Power Type	Built-in Power	
Software		
Software Control (Optional)	Content Management, Control and Monitoring.	
Media Player Compatibility		
OPS type compatible	Yes (Optional)	
External Media player Attachable	Yes (Optional)	
Miscellaneous		
Certification	Proposed solution should have FCC/CE/ ISO/UL or please mention, if any other certificate.	
Manufacturer Authorization Letter	Must be submitted with local country office and contact details (Name, Designation, Email ID and valid contact number) in Bangladesh.	
Product Brochure	Must be submitted	
Accessories (Included)	Remote Controller, Power Cord, RS232C Cable, LAN Cable, DP Cable, IR Receiver, Guide Bracket, Screws, Manual	
Authentication	The technical specification offered must be available in OEM Website.	

Descriptions	Required Specification	Quoted Specification
Video Wall —Controller		
Brand	Please Specify	
Model	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
General Features	Min. 8 Inputs and 16 Outputs with built-in software and a separate enclose box.	
	Type of Input/ Output: HDMI	
	Should support 1920x1080 video quality @ 60Hz	
	It can display arbitrary 12 image	
	Should have Crossing Smart Synchronous Uniformity of Splicing	
	Controller should be able to combine all screens together to show one image.	
	Controller should be able to show different inputs source in different displays, Make PIP, POP and any picture can freely move anywhere in the video wall.	
	Should have fade out and direct switching availability	
	Pure hardware DSP architecture, CAN bus control technology, professional DSP processing chip, no operating system dependency , no crashes, no black screens, no screens	
	There should have buttons on the chassis panel to quickly switch 30 different scene modes. Cross Point full cross scheduling architecture high-speed data transmission technology to ensure internal high-definition processing and transmission	
	By performing related operations on the control software, the display pixels at the edge of the splicing screen can be precisely adjusted for individual pixels, so that the left and right spliced pictures are completely seamless	
Installations & Training		
Video Wall Mount Kit	It has to be original push and pull system.	
Cabling Work	All cabling should be standard insulation with conduit/ PVC channel where applicable to avoid damaging by external impact and proper cable numbering.	
Training	Must provide necessary user training for 05 Users to operate the system and for basic troubleshooting.	
Installation	Installation, testing & commissioning should be done by the bidder as per tender authority's guideline.	

Descriptions	Required Specification	Quoted Specification
Electrical and Network	All network and power connections must be provided. All cabling should be standard insulation with conduit/ PVC channel where applicable to avoid damaging by external impact and proper cable numbering.	
Special Condition	If any other components are required to deliver, install and configure the solution, everything should be mentioned and quoted.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

iii) Work-Station:
Quantity: 15 Units

Descriptions	Required Specification	Quoted Specification
Brand name	Please Specify	
Model	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
No. of Workstation with high-class revolving chair	15	
PC Configuration	Brand: Lenovo/DELL/HP	
	Display: Dual Monitor (21" each) 	
	Processor: Core Xeon processor with latest Q or Z series chipset motherboard RAM: 16 GB HDD: 1 TB NVME SSD Keyboard, Mouse etc.	
Electrical and Network	All networks, power connections and other related accessories have to be provided.	
BOM	To be attached	
Product Brochure & Data Sheet	To be attached	
Warranty	Three (03) years full warranty	

Sub-Category-4.7: Miscellaneous including implementation

a) Pest Control System

Quantity: 07 Units

Description	Required Specification	Unit	Quoted Specification
Digital Controller			
Brand	MASER/ Internationally Reputed Brand		
Brand Origin:	Please Specify		
Country of Manufacture:	Please Specify		
Model:	Please Specify		
Coverage area:	Please Specify		
General Feature	LCD display with on-board controls		
	Wave Speed: Is an indicator for the number of frequency sweeps per minute. It can have a maximum value of 130 and a minimum value of 60. The incremental size is 5 i.e. 65, 70, 75 and so on.		
	Wave Density: Is an indicator for the number of divisions within a frequency band. It can have a maximum value of 100 and a minimum value of 80. The incremental size is 10 i.e.80,90 and 100.		
	Frequency Band Time: Is an indicator of the time for which the controller would operate in a pre-programmed frequency band. There are 3 bands available: Band A, Band B, and Band C. This parameter can have maximum value of 10 minutes and a minimum value of 1 minute per band. Depending upon the time frame set for each band, the controller will switch the bands automatically.		
	Machine/Controller ID: Is an indicator of the machine/ controller identification number. It can have any value within the range of 0 to 255.		
	Password Protection: Every controller is password protected. To change the parameters mentioned above you have to key in the password. The password can be changed if required. The password can be any 5 digit number.		
	Frequency Testing: This feature will enable the user to test and verify the frequency that is being transmitted from the controller to the transducer. This feature would be particularly useful during systems audit.		

Description	Required Specification	Unit	Quoted Specification
	Transducer Testing: Can drive upto 20 Transducers and all the 20 transducers can be tested in an audible range one at a time by using this feature of this device		
	Inbuilt RS/EIA-485 transmission upto 1.2 kms to protected area (BMS Room).		
	Frequency band of > 20 KHz and <60 KHz is pre-tuned for 100 different frequencies.		
	Each Transducer should cover up to 500 sq. feet of area on true ceiling and below false flooring or up to 400 sq. feet of area.		
	UL and CE approved transformers for power supply.		
Transducer			
Brand	MASER/ Internationally Reputed Brand		
Brand Origin:	Please Specify		
Country of Manufacture:	Please Specify		
Quantity	As Per Design		
	The satellites or Transducers shall be circular on true ceiling mounted low profile units that produce high decibel sound waves at very high frequency not less than 20 Khz. These satellites shall cover an area not less than 300 Sq.ft for Room void application, for ceiling Voids & floor void applications		
Miscellaneous			
Accessories		1 set	
Controller base		1 set	
Cable for transducers (2x .4 rm) (100 meter per coil)	Cable for transducers (2x .4rm) (100 meter per coil)	As Per Design	
Power Cable (100 meter per coil)	Power Cable (100 meter per coil)	As Per Design	
Others (if any)	Conduit with all accessories	1 set	
Tagging and Identification	Tagging and identification of all Equipment, Ducting, Piping, Cabling with Permanent painting	1 set	
Installation	Installation, Testing, Commissioning	1 set	
Floor area to be covered	From Basement to 5th floor including the lobby		
Special Condition	**If any other thing required to provide the solution it should be mentioned and quoted.**		
BOM	To be attached		
Product Brochure & Data Sheet	To be attached		
Warranty	Three (03) years full warranty		

b) Portable KVM

i) Portable KVM with single Display
Quantity: 03 Units

Descriptions	Required Specification	Quoted Specification
Brand name	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
Portability	Must have Wheel to move freely	
Display	21” Full HD (specify Brand)	
USD Key-Board with PS2 converter	01	
USD Mouse with PS2 converter	01	
Power-strip		
Sample Picture		
Warranty	03 (Three) years full warranty	

ii) Portable Laptop Stand
Quantity: 03 Units

Descriptions	Required Specification	Quoted Specification
Brand name:	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
Portability	Must have Wheel to move freely	
Sample Picture		
Warranty	03 (Three) years full warranty	

c) Automatic Shoe Dispenser

Quantity: 02 Units

Descriptions	Required Specification	Quoted Specification
Brand name:	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
Operation	Sensor Based automatic operation	
Sample Picture		
Shoe Cover	2000 Pair (Each)	
BOM & Product Brochure	To be attached	
Warranty	Three (03) years full warranty	

d) Industrial Vacuum Cleaner

Quantity: 04 Units

Descriptions	Required Specification	Quoted Specification
Brand name:	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
Capacity	30L	
Certification	Must be	
BOM & Product Brochure	To be attached	
Warranty	Three(03) years full	

e) Hand Trolley Four Wheels Folding Stainless Steel Handle

Quantity: 02 Units

Descriptions	Required Specification	Quoted Specification
Brand name:	Please Specify	
Country of origin	Please Specify	
Country of Manufacture	Please Specify	
Weight Rearing Capacity	At least 300 KG	
Sample Picture		
BOM & Product Brochure	To be attached	
Warranty	Three(03) years full	

Category-5: Tier-4/Rated-4 Design Validation and Certification

The bidder must submit offer for all items under this category.

a) Tier-4/Rated-4 Design Validation and Certification

Requirement:

i) **Design validation:** Tier-4/Rated-4 from Uptime Institute/*epi*
ii) **Data Center Certification:** Tier-4/Rated-4 from Uptime Institute/*epi*

(Vendors participated in category 1-5):

- Vendor has to quote products (category 1-5) fulfilling the requirements of tier- 4 certification from Uptime Institute/epi in all aspects.
- Detailed drawing with **Tier-4/Rated-4 design certification from Uptime Institute/*epi*** within 15 days from the date of issuance of work-order.
- After completion of Data Center vendor has to take necessary measure to get a **Tier-4/Rated-4 Data Center Certification from Uptime Institute/*epi***.

b) Training

<table>
<tr><th colspan="2">Requirements</th><th>Quoted Specification</th></tr>
<tr><td>1.</td><td>Vendor has to provide training arrangement for the following exams along with exam expenditure: -
<table>
<tr><th>Training</th><th>No. of Participants</th></tr>
<tr><td>Certified Data Centre Professional (CDCP)</td><td>06</td></tr>
<tr><td>Certified Data Centre Specialist (CDCS)</td><td>06</td></tr>
<tr><td>Certified Data Center Facilities Operations Manager (CDFOM)</td><td>04</td></tr>
<tr><td>Certified TIA-942 Design Consultant (CTDC)</td><td>04</td></tr>
</table></td><td></td></tr>
<tr><td>2.</td><td>A detailed training plan with specifications for training courses, schedules, site and requirements must defined.</td><td></td></tr>
<tr><td>3.</td><td>Must be trained by the professional trainer of the specific domain or expertise on that arena.</td><td></td></tr>
<tr><td>4.</td><td>In case of overseas training all cost (including travel fare, hotel, fooding, etc.) will be borne by the vendor.</td><td></td></tr>
<tr><td>5.</td><td>Training documentation have to be provided</td><td></td></tr>
</table>

12. PROJECT MANAGEMENT

12.1. BANK'S PROJECT REPRESENTATIVE:

All project management and coordination for the Bank shall be through the following contact designated as the Project Representative given below:

IT Procurement, Innovation, Reconciliation & Monitoring Division
47, Motijheel Commercial Area (Level-18), Dhaka-1000, Bangladesh
E-mail: osman@dutchbanglabank.com

The Bank will work with the successful bidder at each point of the project.

12.2 Any and all work performed under the resulting contract(s) shall be subject to approval and acceptance by the Bank Representative. In no instance shall the Contractor's staff refer any matters to any Director or owners or any other high official in Dutch-Bangla unless initial contact, both verbal and in writing, regarding the matter has first been presented to the Bank's Representative.

12.3 All correspondence from the Contractor shall be addressed directly to the Bank's project Representative. The Bank's project Representative shall be responsible for corresponding and arranging meetings with Bank personnel and outside Agencies and associations.

12.4 The Banks project representative shall document performance of the Contractor as to the satisfaction of any deliverables required to meet the requirements of the contact.

12.5 The Contractor will be required to perform their work in compliance with Bank technology standards, policies and procedures.