

Sr No	Parameter	Description of Items	Details to be filled by Vendor / Bidder of offered services /	Details to be filled by Vendor/Bidder (Comply/ Not Comply)
<b>TABLE NO. 4.1.1</b>				
<b>False Suspended Ceiling</b>				
Sr No	Parameter	Minimum Specification		
1	Panel Material	Galvanized Steel (GI) , 0.50 MM		
2	Panel Size	595mm x 595mm (Square, Beveled Edge).		
3	Perforation Details	1.8 to 2.5 mm Diameter circular hole size, regular pattern. Opening area must be less 20%.		
4	Finish	Powder coating with polyester paint. - 60 Micron		
5	Suspension System	Spring Steel Butterfly clip, GS/Aluminum Edge Profile and 'T' grid system.		
<b>TABLE NO. 4.1.2</b>				
<b>Raised Access Floor</b>				
Sr No	Parameter	Minimum Specification		
1	Raised Floor Height and Panels:	Height: The raised floor should have a height range from 300mm to 600 mm.		
		Panel Size: The false floor panels should have dimensions of 24" x 24" inch		
		Panel Thickness: Each floor panel should have a thickness between 30 mm to 35 mm.		
		Top finish:- Galvanized Iron Sheet with epoxy conductive paint / High-Pressure Laminate		
		Bottom finish :Galvanized Iron Sheet		
2	Panel Finish:	Laminate: Panels should be finished with 1.5 mm thick antistatic high-pressure laminate for durability and static protection. Trim: All panel edges should have PVC trim around the perimeter to prevent damage.		
3	Fire Retardant and Anti-Fouling:	The panels must meet Class 0/1 fire retardant standards and should have		
4	Panel Interior:	The interior of the panels should be filled with a <b>non-combustible lightweight cementitious compound/Calcium Sulphate compound.</b>		
5	Load Bearing Capacity:	The raised floor system should have a load-bearing capacity of at least 1500 kg per square meter Uniformly Distributed Load (UDL). The system must support a point load of at least 450 kg.		
6	Pedestal Head and Flanges:	Pedestal head flanges should have holes for screws to securely fasten the G.I. stringers.		
		G.I. Rod: Fully threaded G.I. rods should be used, locked into the pedestal head for stability.		
7	Stringer System:	The stringer system should be constructed from <b>hot-dipped galvanized sheet</b> with a channel design.		
		The stringers should have pre-punched counters and holes at both ends to securely attach the stringers to the pedestal heads using screws, ensuring maximum lateral stability.		
<b>TABLE NO. 4.1.3</b>				
<b>Fire rated Doors and Fire Rated Emergency Doors</b>				
Sr No	Parameter	Minimum Specification		
1	General Description	All metal doors shall be 2-hour fire-rated, constructed from galvanized iron (GI) sheets. Door dimensions: single Leaf <b>1200 mm x 2400 mm , Double leaf 2400 mm X 2400 mm ,2200 mm x 2400 mm</b>		
2	Compliance Standards	Tested as per: IS 3614 Part 2. Testing authorities: CBRI or equivalent certified. Test certificate shall be submitted for the provided doors		
3	Door Leaf	Flush construction design with a total thickness of 46 to 60 mm. Constructed using Minimum 1.2 mm thick skin-pass GI sheet conforming to IS 277. Infill material: Honeycomb or rock wool for a structurally flat surface and enhanced fire resistance		
4	Vision Panel	Fire-rated glass with a thickness of 5-6 mm. Vision panel size: 200 mm x 300 mm.		
5	Edge Design	No welding joints or sharp edges; interlocking stiles for clean construction.		
6	Door Frames	Constructed from GI sheet conforming to IS 277. Door frame bending radius: 1.4 mm (0.0014 m).		
7	Finish	Finishing with Powder Coating minimum 50 micron thickness		

8	Accessories and Hardware	All accessories to be fire-rated, including: Door closers, shutters, hinges, vision panels, locks, handles, intumescent strips, and smoke seals.		
		Door should be factory prepped to accommodate all mortise hardware.		
		Mortise hardware: Mortise sash lock with lever handles. Mortise deadbolt and latch. Applicable Panic devices for emergency Doors		
9	Fire Resistance and Sealing	Intumescent strips and smoke seals integrated into the door to enhance fire and smoke resistance.		
TABLE NO. 4.1.4				
Fire Retardant Paint				
Sr No	Parameter	Minimum Specification		
1	Type	Water-based Intumescent		
2	Application	Interior walls and ceilings		
3	Fire Retardant Rating	Flame retardant for 1 hour		
4	VOC Content	Low VOC (<50 g/L)		

Sr No	Parameter	Description of Items	Details to be filled by Vendor / Bidder of offered services / deliverables	Details to be filled by Vendor/Bidder (Comply/ Not Comply)
<b>TABLE NO. 4.2.1</b>				
<b>Low Voltage Main Panel</b>				
Sr No	Parameter	Minimum Specification		
1	Panel Type	Indoor type 415V AC Low Voltage Panel		
2	Standards Compliance	IS:8623/IEC:61439 -1 and 2		
3	Dimensions	Working Height: Min 450 mm to Max 1800 mm		
4	Material	Sheet Steel (CRCA), 2 mm thick, powder-coated.		
5	Busbar	AS per Incoming Breaker		
6	Incoming MCCBs			
7	Outgoing MCCBs			
8	Faults/protection	Short Circuit. Over load, Earth Fault		
9	Multifunction Meter	digital meter RJ45 connection to integrate to into BMS		
10	Interlocking Logic	Electrical interlocking for ACBs for two incoming feeder and dg set		
11	Trip indication Lamps	On, Off, Trip with led lamps		
12	Phase indicator Lamps	RYB led indicators voltage (phase to phase) and (phase to neutral)		
13	Internal Wiring	XLPE insulated stranded copper wire.		
14	Cable Glands	Dust-tight, screwed brass double compression type.		
15	SPD	Surge Protection Device Type 2		
16	Current Transformer	configurable with primary and multifunction meter		
<b>Table 4.2.3</b>				
<b>125A 4P Thermal Magnetic type MCCB</b>				
Sr.No	Parameter	Minimum Specification		
1	Rated Current (In)	125 A		
2	Number of Poles	4		
3	Trip Position	Clear Indication of ON/OFF./TRIP positions		
4	Breaking Capacity (Icu)	36 kA at 380/415V AC		
5	Service Breaking Capacity (Ics)	36 kA at 380/415V AC		
6	Rated Voltage (Ue)	415/440V AC (Operational)		
7	Insulation Voltage (Ui)	690V AC to 800 V		
8	Impulse Withstand Voltage (Uimp)	8 KV		
9	Durability (Mechanical)	15,000 operations		
10	Durability (Electrical at In)	3,000 operations		
11	Thermal Protection (Ir)	Adjustable (0.7 to 1 x In)		
12	Magnetic Protection (Ii)	Adjustable (6 to 10 x In)		
13	Earth Leakage Protection	Inbuilt or internal Auxilary of same make		
14	Compliance	IS/IEC 60947-2		
<b>Table 4.2.4</b>				
<b>Multifunction Meter</b>				
Sr.No	Parameter	Minimum Specification		
1	Voltage measurement	Phase-to-neutral and phase-to-phase (RMS)		
2	Current Measurement	Per phase and neutral		
3	Active Power (kW) measurement	Per phase and total		
4	Reactive Power (kVAR) Measurement	Per phase and total		
5	Apparent Power (kVA) Measurement	Per phase and total		
6	Power Factor (PF) Measurement	Per phase and average power factor		
7	Energy Measurement	Active (kWh).		
8	Frequency	System frequency		
9	Harmonics (Optional)	Total Harmonic Distortion (THD) for voltage and current		
10	Voltage and Current	Class 1 accuracy or higher, IEC 62053-21		
11	Active Energy	Class 1 accuracy or higher, IEC 62053-21		

12	Reactive Energy	Class 2 accuracy or higher , Conforming to IEC 62053-24 or Higher IEC		
13	Display Type	LCD or LED with backlight		
14	Parameters Displayed	Toggle or simultaneous display of key parameters		
15	User Interface	Push-buttons for navigation and configuration		
16	Interface	RS-485 or Ethernet		
17	Data Logging	Built-in memory for historical data storage		
18	Pulse Output	Configurable for energy or alarms		
19	Operating Temperature	0°C to +50°C		
20	Humidity	5–95% non-condensing		
<b>TABLE NO. 4.2.5</b>				
<b>Automatic Power Correction Panel</b>				
<b>Sr No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	<b>Rated Capacity</b>	As per requirement to achieve 0.95 PF		
2	<b>Operating Voltage</b>	415V ± 5%, 3-phase, 50 Hz		
4	<b>Step Configuration</b>	4 to 8 steps (modular design for fine adjustments)		
5	<b>Capacitor Type</b>	APP (All Polypropylene)/Heavy duty		
6	<b>Switching Device</b>	Contactors/Tyristors as per requirements		
7	<b>Detuned Reactors (Optional)</b>	7% or 14% Detuning for Harmonic Protection as per requirement		
8	<b>Controller</b>	Microprocessor-based APFC Relay		
9	<b>Protection</b>	Over-voltage, Under-voltage, Overload, Short Circuit		
10	<b>Enclosure Material</b>	CRCA Sheet Steel (2.0 mm thickness)		
11	<b>Ingress Protection (IP Rating)</b>	minimum IP40 (Indoor).		
12	<b>Display</b>	Digital Display for PF,V,I		
<b>Table 4.2.6</b>				
<b>LT cables</b>				
<b>S no</b>	<b>Parameter</b>	<b>Minimum specification</b>		
1	Type of Conductor	stranded copper conforming to IS:8130		
2	Number of cores and sizes	As per standard wiring size calculations		
3	Outer sheath material	FRLS		
4	Inner Sheath Material	FRLS		
5	Insulation material	XLPE with standard colors like Red, Blue, Yellow and Black		
6	Armored type	Galvanized steel single layer conforming to IS 3975		
7	Standard conformance	IS 7098 PART -1, IEC 60502-1		
<b>TABLE NO. 4.2.7</b>				
<b>Redundant DC panels</b>				
<b>Sr No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	<b>Panel Type</b>	Indoor type 415V AC Low Voltage Panel		
2	<b>Standards Compliance</b>	IS:8623/IEC:61439 -1 and 2		
3	<b>Dimensions</b>	Working Height: Min 450 mm to Max 1800 mm		
4	<b>Material construction</b>	Sheet Steel (CRCA), 2 mm thick, powder-coated.		
5	<b>Busbar</b>	AS per Incoming Breaker		
6	<b>Incoming MCCBs</b>			
7	<b>Outgoing Breakers</b>			
8	<b>Multifunction Meter</b>	digital meter with RJ45 connection.		
9	<b>Trip indication Lamps</b>	On, Off, Trip with led lamps		
10	<b>Phase indicator Lamps</b>	RYB led indicators		
11	<b>Internal Wiring</b>	XLPE insulated stranded copper		
12	<b>Cable Glands</b>	Dust-tight, screwed brass double compression type.		
13	<b>SPD</b>	Surge Protection Device Type 2		
14	<b>Current Transformer</b>	configurable with primary and multifunction meter		
<b>Table 4.2.8</b>				
<b>Distribution board Dedicated for UPS, AC, LIGHTING, 6 KVA UPS, Raw Power</b>				
<b>Sr.No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	<b>Material Thickness</b>	minimum 14 SWG Sheet steel clad (Fabricated / ready made).		
2	<b>Mounting Type</b>	Concealed/Recessed		
3	<b>Coating</b>	Rust proof coating and top coat paint		

4	Door Type and design	Hinged, gasketed door and Double door		
5	Standards Compliance	IS8623-1&3, IEC61439-1&3		
6	IP and IK rating	minimum IP43 and IK09		
7	Environmental Compliance	ROHS Compliant		
8	Earthing	(per phase earthing strip)		
9	Chassis	Removable		
10	Wiring Kit	Cable ties, Sticking saddles, Blanking plates		
11	Shield Cover	Front shield cover with knockouts and locked screws		
12	Locking Mechanism	Padlock facility		
13	Marking	Mark for insertion on DB		
14	Neutral bar	Shrauded neutral bar		
15	phase isolation	per phase isolation		
16	Busbars	AS per Incoming Breaker		
17	Incoming and outgoing breakers for 8 WAY TPN Lighting DB			
18	Incoming and outgoing breakers for 8 WAY TPN Raw Power DB			
19	Incoming and outgoing breakers for 8 WAY TPN Air Conditioner DB			
20	Incoming and outgoing breakers for 8 WAY V TPN UPS DB			
21	Incoming and outgoing breakers for 12 WAY 6 KVA SPN DB			
Note:- In the event if bidder proposes a Rack PDU with a rating higher than 16A, the bidder shall ensure the provision of appropriately rated outgoing MCBs in the same quantity as specified under Serial No. 19.Bidders also provide suitable incoming MCCB for UPS Distribuiton board as per OEM recommendations				
<b>Table 4.2.9</b>				
<b>125A/200A 4P Thermal Magnetic type MCCB</b>				
<b>Sr.No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Number of Poles	4		
2	Trip Position	Clear Indication of ON/OFF./TRIP positions		
3	Breaking Capacity (Icu)	25kA at 380/415 AC		
4	Service Breaking Capacity (Ics)	25kA at 380/415 AC		
5	Rated Voltage (Ue)	415/440V AC (Operational)		
6	Insulation Voltage (Ui)	690V AC to 800 V AC		
7	Impulse Withstand Voltage (Uimp)	8 kV		
8	Durability (Mechanical)	Minimum 15000		
9	Durability (Electrical at In)	Minimum 5000		
10	Compliance	IS/IEC 60947-2		
<b>Table 4.2.10</b>				
<b>Miniature Circuit Breakers (All current Ampere ratings)</b>				
<b>Sr.No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Breaking Capacity	10 kA		
2	Tripping Curve	B/C as per scheme requirement		
3	Poles	SP/DP/TPN as per Scheme requirement		
3	Standard Compliance	IS/IEC 80898-1		
4	IP rating	IP20		
<b>TABLE-4.2.11</b>				
<b>Automatic Transfer switch 32A, 40A, 63A</b>				
<b>Sr No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Operation Mode	Automatic		
2	Switchover	Automatic Source Transfer		
3	Phase Monitoring	3-phase voltage monitoring, operating at 415 V , 50/60 Hz		

	Utilization category	AC23 A		
4	Status Indication	LED indicators for source/load		
5	Cotroller display	LCD (voltage, status, alarms)		
6	User Configuration	4 programmable I/Os		
7	Alarm Notifications	Audible/Visual Alarms		
8	Remote Communication	RS485		
9	Voltage Protection	Over/Under-voltage, Phase Loss/Reversal		
10	Programmable Timers	Delay timers for transfer		
11	Event Logging	Fault/Transfer event records		
12	Compliance Standards	IEC 60947-6-1, IEC 60947-3		
<b>Table 4.2.13</b>				
<b>Recessed LED Luminaires</b>				
<b>Sr.No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	<b>Luminous Flux</b>	Minimum 3000 lumen		
2	<b>Color Temperature</b>	6000 K		
3	<b>CRI (Color Rendering Index)</b>	>79		
4	<b>Power Consumption</b>	30 W to 40 W		
5	<b>Voltage</b>	120-277 V, 50 Hz		
6	<b>CRI</b>	≥80		
7	<b>Beam Angle</b>	120 degrees		
8	<b>Power Factor</b>	≥ 0.9		
9	<b>Driver Included</b>	Yes		
10	<b>Surge Protection</b>	4 kV		
11	<b>Housing Material</b>	Steel/Aluminum		
12	<b>Optic/Optical Cover Material</b>	Polycarbonate		
13	<b>Mounting</b>	Recessed, approx. (595 x 595 mm)		
14	<b>Service Life (L70B50)</b>	50,000 hours		
15	<b>Ambient Temperature</b>	0 to +45 °C		
16	<b>Standard Compliance</b>	BIS		

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<b>Table 4.4.1</b>				
<b>20 KVA UPS</b>				
S. no	Description	Technical Specifications		
1	<b>General</b>			
1.1	UPS Capacity	20KVA UPS with IGBT technology		
1.2	Redundancy	N+1 Redundancy		
1.3	Architecture	Modular, hot-swappable		
1.4	Efficiency	Up to 96% (Double Conversion); ECO Mode: 98%		
1.5	Noise Level	≤ 65 dBA		
1.6	Output Power Factor	≥ 0.95		
1.7	Operating Temperature	0°C to 40°C		
1.8	Relative Humidity	0% to 95%, non-condensing		
2	<b>Input Characteristics</b>			
2.1	AC Input Voltage	305-478 V AC (Full Load)		
2.2	Input Frequency	50/60 Hz (40-70 Hz range)		
2.3	Input Power Factor	≥ 0.95		
2.4	Harmonic Current Distortion	≤ 3% (linear load)		
3	<b>Output Characteristics</b>			
3.1	Output Voltage	380/400/415 V, three-phase		
3.2	Voltage Regulation	±1%		
3.3	Overload Capacity	≤ 125% for 10 min; ≤150% for 1 min		
3.4	Harmonic Distortion	<1% (linear load); <3% (non-linear load)		
3.5	Transfer Time	4 ms (Dynamic Online Mode)		
3.6	Output Wave Form	Pure Sine Wave		
3.7	Crest Factor	3:1 on full load		
4	<b>Battery System</b>			
4.1	Battery Type	SMF VRLA		
4.2	Battery Chemistry	Lead Acid cell		
4.3	Battery capacity	1 Hour backup at rated capacity		
4.4	Battery Management System	Shall be provided.		
4.5	Battery cabinet	Shall be provided		
4.6	Standard compliance	UL 1973, UL 1642		
5	<b>Compliance Standards</b>			
5.1	Safety	IEC 62040-1		
5.2	EMC	IEC 62040-2		
5.3	Performance requirement	IEC 62040-3		
6	<b>Monitoring Parameters</b>			
6.1	Input Monitoring	Voltage (line-to-line), Current (per phase), Frequency, PF		
6.2	Battery Monitoring	Voltage, Charge/Discharge Current, SOC, Temperature		
6.3	Bypass	Voltage(Line to Line )Frequency		
6.4	Output Monitoring	Voltage (line-to-line), Current, Power (kW/kVA), Load %		
6.5	Alarms to shown on Display	Mains Failure / Battery Low Alarm / UPS Overload / Fault / Short circuit/Rectifier fail/Bypass fail/Fan Fail		
6.6	Event Log	Stores up to 500 events		
7	<b>Switch Protections</b>			
7.1	Rectifier	Overcurrent.		
7.2	Inverter	Overload protection		

7.3	Bypass	Back-feed Protection, Overload		
7.4	Battery Protection	Over-temp Disconnect, EOD Voltage Monitoring		
8	<b>Network Management</b>			
8.1	SNMP	Yes		
8.2	Relay Card	Yes(dry contacts for alarms)		
8.3	Remote Monitoring	Centralized Management shall be provided		
9	<b>Load Transfer</b>			
9.1	Transfer Time (Mode of operation)	Nil from Mains mode to Battery Mode, Nil from Battery Mode to Mains mode		
9.2	Transfer Time (Inverter to Bypass/Bypass to Inverter)	< 1 ms (Synchronized Mode), < 20 ms (Asynchronized Mode)		
9.3	Automatic & Bi-directional static bypass (In-built)	Uninterrupted transfer of load from Inverter to bypass (under overload / fault conditions) & automatic retransfer from bypass to inverter (on removal of overload /fault conditions)		
<b>table 4.4.2</b>				
<b>6 KVA UPS for security system</b>				
<b>S. no</b>	<b>Description</b>	<b>Technical Specifications</b>		
1	<b>General Features</b>			
1.1	Nominal Power (VA)	6000		
1.2	Active Power (W)	6000		
1.3	Technology	Double Conversion Online		
1.4	Waveform	Sinusoidal		
1.5	UPS Architecture	Rack mount		
1.6	ECO Mode Efficiency (%)	>= 94%		
2	<b>Input</b>			
2.1	Voltage	220/230/240 V		
2.2	Frequency	50/60 Hz		
2.3	THD (Input Current)	<3%		
2.4	Power Factor	> 0.96		
3	<b>Output</b>			
3.1	Voltage	220/230/240 V		
3.2	Frequency (Nominal)	50/60 Hz		
3.3	Crest Factor	03:01		
3.4	THD (Linear Load)	< 2%		
3.5	THD (Nonlinear Load)	< 5%		
4	<b>Battery</b>			
4.1	Battery Type/Voltage	VLRA and 12 Volts		
4.2	Number of Batteries	12V for 30 mins backup on full load		
5	<b>Communication &amp; Management</b>			
5.1	Display and Signals	LCD Panel		
5.2	Remote Management	Yes		
5.3	Network Interface Slot	SNMP/INTELLGENT CARD		
6	<b>Environmental Conditions</b>			
6.1	Operating Temperature (°C)	0 to 40		
6.2	Relative Humidity (%)	5-95%		
6.3	Noise Level (at 1 m)	< = 58 dBA		
7	<b>Standard Compliance</b>	IEC 62040-1/IEC 62040-2/IEC 62040-3		



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<b>Table: 4.7.1</b>				
<b>2MP Camera with mounting accessories</b>				
S.No	Parameter	Minimum Specifications		
1	General	IP Dome, True Day/Night,		
2	Image sensor	1/2.8" or higher size CMOS Sensor		
3	Resolution	Min 2MP @25fps or better		
4	Video Streaming	Minimum Two streaming		
		(i) Primary streaming :- Full HD @ 25fps &		
		(ii) Secondary streaming:- HD @ 25fps		
		Adaptive Streaming and Smart Streaming		
5	Day/night mode	IR cut filter up to 50 Meter Range		
6	Lens	Auto Focus, IR Corrected,		
7	focal length	2.8-12 MM		
8	Angle of View	75 degree Horizontal coverage, 35 degree vertical coverage		
9	WDR	Min 120 dB or higher		
10	Video compression	H.265/H.265+		
11	ONVIF Compliance	profile s, profile G		
12	Network Protocols	TCP/IP, UDP/IP, RTSP/RTP/RTCP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, DNS, uPnP, HTTPS, SNMP, Multicast		
13	Security Access	User Authentication, HTTPS, IEEE 802.X, IP Filtering, AES 256 bit encryption		
14	power supply	12v DC , Power Over Ethernet (PoE) 802.3af		
15	Protection	IP66, Ik10		
16	Operating temperature	0°C to 50° C		
17	Operating Humidity	90% RH or better		
18	Cyber Security Compliance	ISO/IEC27032.IS13252, DSIR Approved Lab and Class 1 Manufacturer, BIS and STQC -ER		
19	Make In India	The CCTV products should qualify under CLASS- I LOCAL SUPPLIER as per Preferential Market Access (PMA) and Public Procurement Policy (PPP) Make In India (MII) scheme of the Govt. of India dated. 04.06.2020 with 50% or latest applicable local content as per the Govt. norms.		
<b>Table: 4.7.2</b>				
<b>32 Channel NVR</b>				
S.No	Parameter	Minimum Specifications		
1	General	Sufficient number of channels and interfaces to accommodate 32 cameras.		
2	Supported Resolution and Features	1920 x 1080; 1280 x 1024; 1280 x 720; or better		

2	Storage	18TB Per slot HDD Support for 180 days backup @ 25 fps with inbuilt or extended HDD storage		
3	Onvif	Support required		
4	Live Display	VGA/ HDMI		
5	Video Codec	H.264, H.265 or better		
6	VMS	Preinstalled with Cyber Security Complied and Certified from Third Party		
7	Calendar / Event / Bookmark / Smart Search	Support required		
8	Playback	Fast/Slow Forward/Backward, Move one step up/down		
9	Recording Mode	Normal, Schedule (Continuous / Event), Event (Pre / Post).		
10	Event Trigger	Alarm out		
11	Camera Features	Automatic device IP scan, Profile edit, Resolution, Brightness / Contrast, Device setup page, Exporting / Importing devices settings, Device firmware update		
12	Date & Time Sync	NTP server		
14	Protocol Support	TCP/IP, UDP/IP,IPv4/IPv6, RTP/RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, DNS, DDNS, uPnP, HTTPS.		
16	Security	IP filtering, User access log, Password protected.		
17	Viewer Software	Web Viewer and software shall be provided.		
19	Interface	RJ 45, USB		
20	Power Supply	230VAC 50 Hz		
	Display Mode	1/4/9/16/25/32 channel display mode.		
21	Operating Temperature / Humidity	+0°C ~ +40°C		
22	Convenient, Flexible Storage Options:	(i)Store to external storage such as the client's PC through the LAN/WAN,(ii) to an external network storage server such as an FTP site or to a USB memory device. (iii) Cascading Feature in NVR		
<b>Table:4.7.3</b>				
<b>24 Port PoE Switch</b>				
<b>S.No</b>	<b>Parameter</b>	<b>Minimum Specifications</b>		
1	General	Minimum 24 port 10/100/1000 Mbps full duplex ports		
2	PoE	All access ports shall deliver PoE (IEEE 802.3af) to support connected 2MP camera devices.		
3	LED Indicators	Per port: Link/Activity/Speed Per device : Power Status, PoE Max		
4	Protocols	IEEE 802.3, IEEE 802.3ab, IEEE 802.3af, IEEE 802.3u, IEEE 802.3x, IEEE 802.3az.		
5	Operating Temperature	0°C to 40°C or better		
<b>Table: 4.7.4</b>				
<b>55 Inch LED Display</b>				

S. No	Parameter	Minimum Specification		
1	Screen Size	minimum 55 inches (16:9 aspect ratio)		
2	Refresh Rate	60 Hz		
3	Resolution	3840 x 2160 (4K UHD)		
4	Brightness	minimum 400 nits		
5	Contrast Ratio (Dynamic)	minimum 400000:1		
6	Contrast Ratio (Static)	Minimum 1200:1		
7	Response Time	≤ 14 ms		
8	Viewing Angle	178° (Horizontal/Vertical)		
9	HDR Support	Yes		
10	HDMI Input	2 ports		
11	USB	2 ports (USB 2.0)		
12	Audio Input	Yes		
13	Audio Output	Stereo Mini Jack / Optical Output		
14	Video Output	Yes		
15	RS232	Yes		
16	RJ45 (LAN) Input	Yes		
17	Wi-Fi	Yes		
18	Bluetooth	Yes		
19	Power Supply	AC 100-240 V, 50/60 Hz		
20	Accessories	Include Remote , Power receptacle and table TV stand/ Wall mount		
21	Power Consumption (On Mode)	Maximum 170 W		
22	Certifications	BIS		

**Table: 4.7.5**

**8 Zone Water leak detection System**

S. No	Parameter	Minimum Specification		
1	<b>Number of Support zones</b>	Supports up to 8 zones		
2	<b>Power Supply</b>	230V ±10%, 50Hz AC		
3	<b>Panel Display</b>	minimum 2x 16 charaters LCD Display or Higher .		
4	<b>Alarm Indications</b>	Audible through inbuilt buzzer and Visual alarm in LCD display/LED indicator		
5	<b>Event Logging</b>	Minimum 100 event Logs		
5	<b>Relay Outputs</b>	one potential free relay contact for one zone		
6	<b>Communication Interface</b>	RS485 MODBUS or IP gateway		
7	<b>Configurable Zone Names</b>	Shall support configurable for 8 Zone Names		
7	<b>Sensor Cable</b>	Minimum 20 Meters per Zone and cable type shall be as per user manual/data sheet		
8	<b>Keypad Operations</b>	push/touch buttons for display parameters.		
9	<b>Sensing Voltage</b>	AC signal to prevent corrosion in sensing cables		
10	<b>External sounder</b>	compatible with external sounder hooter		
11	<b>Operating Temperature</b>	10°C to 50°C		
12	Certifications	CE/UL/BIS		

**Table : 4.7.6**

**Ultra Sonic Rodent Repellent system**

S. No	Parameter	Minimum Specification		
1	Controller supporting Frequency band	20 khz to at least 50 KHz		
2	Controller supported transducers	minimum 20 transducers per controller		
3	Controller on-board display size	Controller panel shall have display to show configured parameters		
4	Controller on-board menu selection keys	left/down, right/Up, menu, escape/exit		
5	Power supply to controller	230V AC/50 HZ or Maximum 20 volts DC		
6	Controller power consumption	Maximum 16 watts		
7	Area coverage of controller	Minimum 5000 sq feet		
8	Sound output per transducer	50 to 110dB		
9	Number of wave speed options	Minimum 3 (adjustable by using onboard controls)		
10	Number of wave density options	Minimum 3 (adjustable by using onboard controls)		
11	number of frequency bands	Minimum 3 (adjustable by using onboard controls)		
12	Transducer power output	800mW to 1W		
13	Area coverage per transducer in sq feet	Minimum 150 sq feet.		
14	Audible testing of transducers	yes		
15	Modbus RS 485 support	yes		
16	Cables	As per OEM user manual		
17	Certifications	CE/UL/BIS		
<b>Table-4.7.7</b>				
<b>Entry card Reader</b>				
S. No	Parameter	Minimum Specification		
1	Frequency	13.56 MHz		
2	Keypad	Capacitive Touch Keypad or push button keypad		
3	Card Support	HID iCLASS		
4	PIN Authentication	Yes		
5	Communication Protocol	OSDP, Wiegand		
6	Connectivity	RS-485, TCP/IP		
8	User Capacity	2000 users		
9	Event Storage	50000 events		
10	Tamper Detection	Yes		
11	Ingress Protection (IP)	IP55 or Higher		
13	LED/Buzzer	Tri-Color LED with Buzzer Alert		
14	Operating Temperature	0°C to +45°C		
15	Certificate	BIS/CE/UL		
<b>Table- 4.7.8</b>				
<b>EXIT reader</b>				
S. No	Parameter	Minimum Specification		
1	Type	Contactless Exit Reader		
2	Frequency	13.56 MHz		
3	Communication Protocol	OSDP, Wiegand		
5	Ingress Protection (IP)	IP55 or Higher		

6	Power Supply	12V DC		
7	LED/Buzzer	LED Indicator with Buzzer		
8	Operating Temperature	0°C to +45°C		
9	Compatibility	Should compatible with entry reader and access control panel		
10	Applications	Door Exit for Access Control Systems		
11	Certificate	BIS/CE/UL		
<b>Table-4.7.9</b>				
<b>Access control Panel</b>				
<b>S. No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Maximum Number of Doors	4 Doors to be integrated.		
2	Reader Capacity	8 (IN/OUT Readers in OSDP mode)		
3	Reader Compatibility	Wiegand (default), OSDP V2 (configurable)		
4	Communication Interfaces	Ethernet, RS-485		
5	Operating Temperature	0°C to +45°C (Operating),		
6	Humidity	5% to 95% RH, non-condensing		
7	Door Control Modes	Card only, PIN only, Card + PIN, Finger+ card + pin		
8	Anti-Passback	Supported		
9	Card Capacity	2000 cards		
10	Event Buffer	100,000 Events		
11	Web Interface	Embedded Web Browser		
12	Software Compatibility	from same OEM/Third Party		
13	Host Communication Security	256-bit AES and TLS 1.2 Encryption		
14	Reader Communication	128-bit AES (OSDP V2)		
11	Certificate	BIS/CE/UL		
<b>Table-4.7.10</b>				
<b>Electro magnetic LOCK for doors</b>				
<b>S. No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Lock Type	Electromagnetic lock		
2	Holding Force	200 kg		
3	Material	Stainless steel or Aluminum alloy		
4	Mounting Type	Mounts on the door frame or door edge		
5	Max Door Size Supported	single and double doors.		
6	Relay Output	Yes, for alarm and status monitoring		
7	Security Features	Built-in surge protection, Anti-tamper design		
8	Compatibility with Access Control	Yes		
9	Certificate	BIS/CE/UL		
<b>Table – 4.7.11</b>				
<b>Addressable Temperature Detector</b>				
<b>S. No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Detection Method	Addressable Fixed temperature and rate-of-rise detection.		
2	Fixed Temperature Threshold	57 to 60°C		
3	Rate of Raise	8 to 12 Celsius per minute		

4	LED Indicators	Dual LEDs providing 360° visibility; blinking in normal operation, steady in alarm condition.		
5	Certifications	BIS/CE/UL		
<b>Table – 4.7.12</b>				
<b>Addressable Multi Sensor Detector</b>				
<b>S. No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Detection Mechanism	analog addressable Photoelectric Smoke Detection and Thermistor-based Heat Detection.		
2	LED Indication	Dual 360° Visibility:		
3	Fixed Temperature Threshold	57 to 60°C		
4	Rate of Raise temperature	Minimum 10 Celsius per minute		
5	Smoke Sensity	minimum 3%/ft		
6	Certifications	BIS/CE/UL		
<b>Table – 4.7.13</b>				
<b>Addressable Smoke Detector</b>				
<b>S. No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Detection Method	Photoelectric smoke sensing using an advanced optical chamber.		
2	Smoke Sensity	Less than 3%/ft		
3	LED Indicators	Dual LEDs providing 360° visibility; blinking in normal operation, steady in alarm condition.		
4	Certifications	BIS/CE/UL		
<b>Table –4.7.14</b>				
<b>Addressable Two Loop Fire alarm control Panel</b>				
<b>S. No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	Panel Type	Addressable Fire Alarm Panel, micro processor/microcontroller based		
2	Display	Minimum 80-character LCD		
3	Event Log	Minimum 1000 events		
4	Number of Loops	Minimum 2 SLC loops		
5	Devices per Loop	Minimum 190 devices per loop		
6	Notification Appliance Circuits (NACs)	Minimum 2 circuits.Class B		
7	Initiating Device Circuits (IDC)	Minimum 1 circuit Class B		
8	Programmable Input Circuits	Minimum 2 inputs		
9	Relays	Minimum 3 relays		
10	Communication	RS-485 and USB		
11	Backup Power	24V DC, minimum 7Ah		
12	LED Indicators	Power, Fire Alarm, Pre-Alarm, Fault LEDs		
13	Alphanumeric Keypad	Alphanumeric entry capability		
14	Cursor Details & Menu Selection	Cursor-based keys menu navigation		
15	Real-Time Clock	Real-time clock with time stamping		
16	Inbuilt Buzzer	Buzzer for local alerting		

17	Detector Sensitivity Setting	Programmable sensitivity		
18	Loop Testing	Loop-wise device testing capability		
19	Low Battery Warning	Visual and audible low battery warning		
20	Walk Test	Walk test mode for device testing		
21	Lamp Test	Lamp test for indicator LEDs		
22	Pre-Alarm	Pre-alarm notification functionality		
23	Construction	Metal sheet with powder coating		
24	Certifications	BIS/UL./CE		

**Table – 4.7.15**

**Repeater Panel**

S. No	Parameter	Minimum Specification		
1	Communication	RS-485 or TCP/IP		
2	Display	graphical LCD display with backlight.		
3	Indicators	LED indicators for <b>Power, Fire, Fault, and Alarm.</b>		
4	Controls	Push-button interface for menu navigation, alarm acknowledgment, and reset.		
5	Power Supply	230V AC $\pm 10\%$ (50Hz) with 24V DC backup (external PSU).		
7	Loop Capacity	Supports fire alarm loops from the main panel for remote monitoring.		
8	Event Logging	Replicates event logs from the main panel (fire, fault, or system events).		
9	Material and Finish	Powder-coated metallic enclosure with IP30 protection.		
10	Operating Temperature	0°C to +45°C.		
11	Humidity	10% to 93% RH (non-condensing).		
12	Wiring Requirements	As per OEM requirement		
13	Features	Mimics the main panel's fire and fault notifications.		
14		Built-in buzzer for audible notifications.		
15	Security Levels	Password-protected menu for authorized access.		
16	Certifications	CE/UL/BIS		

**Table – 4.7.16**

**2 Main agent Release circuit Panel**

S. No	Parameter	Minimum Specification		
1	Type	2 Main agent Release circuit and conventional detection.		
2	Power Supply	Any where between 110 V to 250 V AC, 50 hZ		
3	Initiating Device Circuits (IDC)	Minimum 2 Circuits Class B or higher		
4	Notification Appliance Circuits	Minimum 2 Circuits Class B or higher		
5	Remote Outputs	Fault relay and Timer relay		
6	Display	16x2 LCD Dot Matrix or higher		
7	LED Indications	System, AC, Battery, Fault, Fire, Gas Release.		
8	Controls	Silence, Reset, Gas Inhibit, Manual Release, Menu		
9	Enclosure	metal sheet		

10	Solenoid Output	programmable		
11	Time Delay for Gas Release	(Programmable)		
12	Solenoid Off Time	(Programmable)		
13	Manual Bypass/Override	Yes (Manual Release Key Bypasses Timer)		
14	Gas Inhibit	Yes (Prevents Solenoid Activation)		
15	Pressure Health Check	Yes (Actuator Pressure Low Monitoring)		
16	Zone Capacity of detectors	minimum 10 Detectors per Zone		
17	Cylinder Configuration	Main and Standby Cylinders (Selectable)		
18	Cylinder Type	Main/Standby or Both (Programmable)		
19	Gas Release Input Types	Zone 1, Zone 2, or Both (Programmable)		
20	Integration with Main Fire Panel	<b>Remote Fire Input:</b> Accepts fire signals from external panels. Relay Outputs (Fire/Fault): Connect to main panel for event signaling		
21	Programmable Relay Outputs	Fire, Fault, Manual Mode, Solenoid Activation.		
22	Certificates	NFPA 2001, BIS/CE/UL		
<b>Table – 4.7.17</b>				
<b>Gas release and Abort Stations</b>				
S. No	Parameter	Minimum Specification		
1	Product Type	Manual Call Point for Gas Release and Gas Abort		
2	Color	<b>Green</b> for Gas Release, Yellow for Gas Abort		
3	Material	Plastic or metal		
4	Output	1 Normally Open (NO) and 1 Normally Closed (NC)		
5	Alarm Indication	Red LED		
6	Certifications	BIS/CE/UL		
<b>Table – 4.7.18</b>				
<b>Manual Call Station</b>				
S. No	Parameter	Minimum Specification		
1	Resettable	Yes, via element kit		
2	Addressing	8-way DIP Switches for module addressing		
3	Temperature Range	0 - 45°C		
4	Relative Humidity	0 - 93% (non-condensing)		
5	IP Rating	IP 50		
6	LED Indication	<b>Blinking Red LED</b> – Normal Operation. <b>Steady Red LED</b> – Activation		
7	Certifications	BI/CE/UL		
<b>Table – 4.7.19</b>				
<b>DCIM Software</b>				
S. No	Parameter	Minimum Specification		
1	Software Type	Graphic Software / Data Centre Management.		



2	<b>Point Capacity</b>	500 Points		
3	<b>Email Notification</b>	Built-in Email Notification Capability		
4	<b>Graphics Display</b>	Full graphical interface for real-time data visualization		
5	<b>Trend Data Display</b>	Trend logging and data history visualization		
6	<b>Alarms and Alerts</b>	Alarm notification with real-time alerts		
7	<b>User Interface</b>	Intuitive, user-friendly interface		
8	<b>Web Access</b>	Remote access via web browser		
9	<b>Custom Reports and Analytics</b>	Built-in reporting and analytics tools		
10	<b>Energy Management</b>	Integrated energy management and monitoring features		
11	<b>Platform Compatibility</b>	Compatible with Windows OS		
12	<b>Security Features</b>	Multi-layered security for user roles and permissions		
13	<b>Database Compatibility</b>	Uses SQL Server or Oracle databases		
14	<b>Third-party Integration</b>	SNMP, Modbus RS-485, IP		
15	<b>Visualization Tools</b>	3D graphic tools for advanced visualization		
<b>Table – 4.7.20</b>				
<b>Work station for DCIM</b>				
<b>S. No</b>	<b>Parameter</b>	<b>Minimum Specification</b>		
1	<b>Type</b>	DCIM Workstation for monitoring and control		
2	<b>Display</b>	Minimum 32” LED Display		
3	<b>Resolution</b>	UHD		
4	<b>Processor</b>	Intel Core i7 (or equivalent)		
5	<b>RAM</b>	16GB or higher (Expandable)		
6	<b>Hard Drive</b>	1TB or higher SSD		
7	<b>Operating System</b>	Windows 10 Pro or latest		
8	<b>Graphics Card</b>	Integrated graphics or Dedicated (NVIDIA)		
9	<b>Input Devices</b>	Standard Keyboard and Mouse		
10	<b>DCIM Software Compatibility</b>	Compatible with DCIM software		
11	<b>Data Storage</b>	SSD at least 1TB		
12	<b>Backup Power</b>	Uninterruptible Power Supply (UPS) compatible		
13	<b>Ethernet/Wi-Fi</b>	Ethernet for network connection		
14	<b>Ports and Connectivity</b>	USB, HDMI, VGA, Ethernet, Serial ports		
15	<b>Mounting Options</b>	Desktop Stand		
16	<b>User Interface</b>	mouse/keyboard controlled		
<p>Note: All necessary devices, including wiring, networking equipment, relay modules/control modules/zone interface modules/monitor modules, and any additional components required to ensure the complete functionality of the fire alarm system in accordance with standards, shall be provided. These items, even if not explicitly mentioned, are essential for the seamless operation and compliance of the fire alarm system. The bidder shall obtain prior approval for such components from ERDA during the functional design stage.</p>				

Note:-All interface devices required for the seamless integration of hardware and software, including RJ45 ports, network components, and protocol gateway conversion devices, shall be provided to ensure the complete functionality of the DCIM. The bidder shall obtain prior approval for such components from ERDA during the functional design stage.		
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Sr No	Parameter	Description of Items	Details to be filled by Vendor / Bidder of offered services / deliverables	Details to be filled by Vendor/Bidder (Comply/ Not Comply)
<b>Table:-4.8.1</b>				
<b>42 U Rack</b>				
Sr No	Parameter	Minimum Specification		
1	Material	Metal Sheet with powder coating finish		
2	Dimensions (H x W x D)	42U x 800mm x 1000mm		
3	Front Door	Perforated Metal		
4	Rear Door	Perforated Metal		
5	Side Panels	Removable side panels		
6	Cable Entry	Top and Bottom		
7	Mounting Rails	Adjustable 19-inch Mounting Rails		
8	Mobility	Casters (2 with brakes) and Levelers		
9	Load Capacity	minimum 500kg		
<b>Table:-4.8.2</b>				
<b>CAT6 UTP Cable</b>				
NO	Parameter	Minimum Specification		
1	Conductor Material and Application	23 AWG solid bare copper, 4-pair with full PE cross separator, 500 MHz, supports 10GbaseT up to 100 meters		
2	Outer Jacket	LSZH (Low Smoke Zero Halogen)		
3	Inner Sheath	HDPE (High-Density Polyethylene)		
4	Characteristic Impedance (1 to 250 MHz)	100 $\Omega$ , -15 to +15		
5	Capacitance	$\leq 5.6$ nF/100m		
6	Capacitance Unbalance	330 pF/100m		
7	Delay Skew (1 to 250 MHz)	$\leq 45$ ns/100m		
8	Outer Diameter	max. 7.6 mm		
9	Nominal Velocity of Propagation (NVP)	0.69		
10	Pulling Force	$\geq 11$ kg or min 100 N		
11	Operating Temperature Range	0°C to +60°C		
12	Standard Verification	ANSI/TIA-568-C.2, ANSI/TIA-568.2-D, ISO/IEC 11801, RoHS		
<b>Table:-4.8.3</b>				
<b>24 Port Patch Panel</b>				
Sr No	Parameter	Minimum Specification		
1	Number of Ports	24		
2	Material construction	Metal with powder coating		
3	Compatibility	RJ45		
4	Rack Height	1U		
5	Width	19 inches		
6	Cable Management	Rear cable management		
7	Compliance	ANSI/TIA-568-C.2, ISO/IEC 11801, RoHS		
<b>Table:-4.8.4</b>				
<b>CAT 6A patch cord</b>				
Sr No	Parameter	Minimum Specification		
1	Conductor material	24 AWG, Multi-strands, Bare Copper, pre-terminated with RJ45 connector		
2	Insulation Material	HD-PE (High-Density Polyethylene)		
3	Sheath Material	LSZH		
4	Connector/Plug	RJ-45 8P (Transparent Color)		
5	Gold Plating	50U°		
6	Standards	TIA/EIA 568C.2/TIA/EIA 568D.2 ISO/IEC 11801 Class E		
7	Applications	100BASE-TX, 1000BASE-T, Power over Ethernet (PoE)		

<b>Table:- 4.8.5</b>				
<b>RJ 45</b>				
Sr No	Parameter	Minimum Specification		
1	Compatibility	Cat5e, Cat6, Cat6A, Cat7, Cat8 Ethernet cables		
2	Materials	High-impact, fire-retardant plastic (ABS/Polycarbonate), gold-plated contacts		
3	Termination Method	Punch-down or toolless termination		
4	Shielding	Available in unshielded (UTP) and shielded (STP) variants		
5	Compliance	ANSI/TIA-568-C.2, UL 94V-0 (flammability)		
6	Wiring Standards	T568A and T568B		
<b>Table:-4.8.6</b>				
<b>LOADED Patch panel</b>				
Sr No	Parameter	Minimum Specification		
1	Application	Suitable for optical fiber interconnecting ,cross connecting, splicing, loaded with pig tail storage and management		
2	standard type	1U 19 inch port fiber 6/12/24 LIU		
3	Base material	Steel material with power coating		
4	front and top covers	removable to better access		
5	Suitability	Suitable for 6/12/24 SC Simplex or 6/12/24/48 LC Duplex		
<b>Table:-4.8.7</b>				
<b>Multimode LC LC fiber</b>				
Sr No	Parameter	Minimum Specification		
1	Fiber Type	OM4		
2	Wavelength	850 nm / 1300 nm		
3	Insertion Loss	≤ 0.3 Db		
4	Return Loss	≥ 30 dB		
5	Cable Diameter	2.0 mm to 3.0 mm		
6	Polishing Type	UPC (Ultra Physical Contact)		
7	Connector Type	LC-LC (Duplex)		
8	Jacket Material	LSZH (Low Smoke Zero Halogen)		
9	Standards Compliance	ISO/IEC 11801, TIA/EIA-568.3-D, RoHS.		
10	Transmission Speed	10G, 40G, 100G Ethernet		
<b>Table:-4.8.8</b>				
<b>Single Mode LC LC fiber</b>				
Sr No	Parameter	Minimum Specification		
1	Fiber Type	OS2		
2	Wavelength	1310 nm / 1550 nm		
3	Insertion Loss	≤ 0.2 dB		
4	Return Loss	≥ 55 dB (UPC), ≥ 60 dB (APC)		
5	Cable Diameter	2.0 mm to 3.0 mm		
6	Polishing Type	UPC/APC (Angled Physical Contact)		
7	Connector Type	LC-LC (Duplex)		
8	Jacket Material	LSZH (Low Smoke Zero Halogen)		
9	Standards Compliance	ISO/IEC 11801, TIA/EIA-568.3-D, RoHS		
10	Transmission Speed	10G, 40G, 100G Ethernet		
Note: The vendor shall ensure that all RJ45 terminations at patch panels and any other necessary equipment required to complete the works, even if not explicitly mentioned, are provided. Additionally, the vendor must obtain approval from ERDA during the design stage for all such components.				

Sr No	Parameter	Description of Items	Details to be filled by Vendor / Bidder of offered services / deliverables	Details to be filled by Vendor/Bidder (Comply/ Not Comply)
<b>Table 4.9.1</b>				
<b>2 TON Split Air Conditioners</b>				
Sr.No	Parameter	Minimum Specification		
1	AC Type	Wall split, inverter Air conditioner		
2	Tonnage	2 TON		
3	Full Load Capacity(W)	≥6000		
4	Half Load Capacity(W)	≥3000		
5	Full Load Power Input(W)	≤1635		
6	Half Load Power Input(W)	≤575		
7	BEE Star Rating(1st July, 2022 – 31st Dec, 2024)	5		
8	ISEER Value	≥5.05		
9	Rated Power Supply	230V, 50Hz, single phase		
10	Rated Amp	≤7.25		
11	Air Flow Rate	≥590		
12	Indoor Noise Level	≤48		
14	Convertible	4 in 1		
15	Moisture Removal Rate	≥2l/hr		
16	Filters	PM 2.5 filter		
17	Refrigerant	R 32/R410A		
18	Air Direction Control	4 way swing		
19	High Ambient Operation	52 Celsius		
20	Inbuilt Stabilizer	Yes		
21	Piping and accessories	all accessories including remote control		
22	Warranty on compressor	10 years		
23	Condenser type	Blue fin/gold		
<b>Table 4.9.2</b>				
<b>1.5 TON Split Air Conditioners</b>				
Sr.No	Parameter	Minimum Specification		
1	AC Type	Wall split, inverter Air conditioner		
2	Tonnage	1.5 TON		
3	Full Load Capacity (W)	≥ 5000		
4	Half Load Capacity (W)	≥ 2500		
5	Full Load Power Input (W)	≤ 1330		
6	Half Load Power Input (W)	≤ 465		
7	BEE Star Rating	5 (1st July, 2022 – 31st Dec, 2024)		
8	ISEER Value	≥ 5.10		
9	Rated Power Supply	230V, 50Hz, single phase		
10	Rated Amp	≤ 6.2		
11	Air Flow Rate	≥ 550		
12	Indoor Noise Level	≤ 48		
13	Convertible	Minimum 4 in 1		
14	Moisture Removal Rate	≥ 1.8 /Hr		
15	Filters	PM 2.5 filter		
16	Refrigerant	R 32/R410A		
17	Air Direction Control	4-way swing		
18	High Ambient Operation	52°C		
19	Inbuilt Stabilizer	Yes		
20	Piping and Accessories	all accessories including remote control		
21	Warranty on Compressor	10 years		

22	Condenser Type	Blue fin/Gold		
Note: All supporting stands for air conditioners must be made of GI (Galvanized Iron) with powder coating to ensure durability and corrosion resistance. AC piping shall be constructed from copper or OEM-recommended materials to maintain performance and longevity. Sequential logic circuits for air conditioners must be provided as part of the system design. Vendors are required to obtain prior approval from ERDA at the design stage for all equipment and components whose scope and technical specifications were not mentioned any were in document but required to complete the job.				