Technical Specifications for PR no: 1600014390

Lightpipe - Hybrid Daylighting system Specifications(Daylighting integrated with Electrical light)

S.No	Parameters	Specification	Vendor to Confirm	Remarks
1	**Sunlight Capture System – Sunlight Collector Cover**			
1.1	Sunlight Collector dome	The Transparent, Clear dome should allow light to be collected across the sky from all directions.		
1.2	Shape	It should be moulded, Single Piece, dome		
1.3	Material	Clear, transparent polycarbonate (or equivalent).		
1.4	Thickness	To be formed out of minimum 3mm thick clear polycarbonate sheet.		
1.5	UV coating thickness for Raw material sheet	80 Microns for high UV resistance.		
1.6	UV Block	Upto 99% (UV A&B)		
1.7	Impact Strength	600-800 J/M (ASTM D256)		
1.8	Flame Retardancy	Limiting Oxygen index LOI -25(ISO 4589 ASTMD 2863)		
1.9	Light Transmission	83% Test Standard		
1.10	Heat Resistance Temperative	45°C - 150°C (DIN 53460)(VICAT VST/B)		
1.11	Thermal Conductivity	0.21 /m°C (DIN 52612)		
1.2	**Light management System:**			
1.21	Light deflection panels	Transparent, clear, PMMA with light deflecting angles more than light incidence angles.		
1.22	Light Transmission	90%		
1.23	Panels Fastening	Mechanical polymer push buttons system.		
2	**Light Transfer System - Extension Pipes:**			
2.1	Diameter	530 mm		
2.2	Shape	Cylindrical Shape		

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2.3	Material	Aluminum		
2.4	Total Reflectivity	more than 98%		
2.5	Material Thickness	Not less than 0.4 mm		
2.6	Protection Film	PE foil not UV Resistant		
2.7	Bends	As per the requirement. Vendor may visit the plant and confirm		
2.8	Universal Roof adopter	Two piece, adjustable, universal roof adopter of standard length.		
2.90	Diameters	To match LPR 530 mm		
3	**Light Diffuser:**			
3.1	Shape	It should be moulded, single piece flat/ Dome Shape		
3.2	Material	Polycarbonate Clear Bright Prismatic bright or Pigmented opal White [soft white]		
3.3	Thickness	To be formed out of 2mm Thick material.		
3.4	Light Transmission	Not less than 80%.		
3.5	Diffuser Ring	Injection molded ABS plastic ring - white color		
3.6	Glazing	Double glazed		
3.7	Second Glazing	Diffuser double glazed with 1.0mm thick clear polycarbonate with		
3.8	Diffuser to pipe fixing	Locking button provision of pipe into the diffuser ring with silicon seal.		
4	**Roof Kerb**			
4.1	Construction	Two piece metal roof kerb; factory made.		
4.2	Material	Entire roof kerb made of 0.5mm bare galvalume sheet of 240 MPA.		
4.3	Top Cover	Galvalume sheet. It holds the lightpipe and light collector.		
4.4	Bottom Kerb	Galvalume sheet. It fits on to roof with complete water proof arrangement.		
4.5	Surface finished	Colour coated		

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4.6	Water splash protection	Kerb top side pointed arrow design with water breaker arrangement.		
4.7	Water proofing method	Two seal system; Primary Seal – Butyl Rubber sealant and Secondary seal–Dow corning 789 high coefficient expansion silicon sealant.		
4.8	Roof Crest blocking caps	Factory made bare galvalume sheet metal caps.		
5	**Fixing Accessories:**			
5.1	Light Collector dome fixing gasket	Self-adhesive 10mm thick cushion EPDM rubber gasket.		
5.2	Light collector to roof kerb fixing	Bolting system is followed. (Direct drilling of screws into the Dome is prohibited).		
5.3	Aluminum Tape	50mm width to cover all circumference joints and longitudinal joints of pipes.		
5.4	Rivets	Aluminum		
5.5	Flashing plate to roof screws	Self-driving screws with EPDM gasket washer or aluminum riveting.		
6	**Daylight Sensor**			

Sensor logic

S.No	Parameters	Specification	Vendor to Confirm	Remarks
1	Open loop	Not closed loop		
2	Mounting Positions	To be mounted in daylighting system		
3	Operating Voltage	11.5V DC -13V DC		
4	Current Consumption	150- 200 mA		
5	Communication Interface	RS-485		
6	Communication Range	100-1000 Meters		
7	Lux Measuring Range	Low level 0-1000 Lux		
8	Lux Measuring Range	High level 1000 -100000 Lux		

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7	**Lighting Controller**			
S.No	**Parameters**	**Specification**	**Vendor to Confirm**	**Remarks**
1	Operating Voltage	230-270 V AC		

2	Current Consumption	200-400 mA		
3	Operating frequency	50/60 Hz		
4	Communication Interface	Rs-485		
5	Communication Range For Rs-485	100-1000 Meters		
6	Number Of Output Channels	3 Numbers		
7	Each Channel Load Switching Capacity	Max. 15A @230V AC (With Inrush Currents)		
8	Each Channel Load Switching Capacity	3.4 K watts		
9	Total Load Switching Capacity	Max, 45A@230V AC (With Inrush Currents)		
10	Total Load Switching Capacity	10 K Watts		
11	Over Voltage Cutoff	270V AC		
12	Under Voltage Cutoff	160V AC		
13	Over Load Cutoff Per Channel	above 15 Amps		
14	Mode Of Operation	Auto / Manual		
15	Energy metering enabled	Yes		
16	Type of energy metering enabled	3- phase , 4 wire system		
17	Class of Accuracy of energy meter	±0.5 %		
18	Dimming option enabled	No		
19	Communication Interface	wireless (XBEE)		
20	Operating frequency band	(863-870) M HZ		
21	Communication Range	100 Meters (indoor)		
22	Communication Range	640 Meters(outdoor ,LOS)		
23	UART Data rate	(9600 -230400) baud		

8	**Lighting Control Panel**			
S.No	**Parameters**	**Specification**	**Vendor to Confirm**	**Remarks**
1	Operating Voltage	11.5-13V DC		
2	Current Consumption	250 mA @ 3.3VDC		
3	Communication Interface	Rs-485		
4	Communication Range For Rs-485	100-1000 Meters		
5	Number Of communication ports	2		
6	Number Of controllers/unit	2 x 32 no's		
7	Ethernet interface	Yes		
8	Configuration protocol	DHCP		

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9	Data transfer protocol	HTTP		
10	Network interface	10/100Base-T RJ-45 connector		
9	**Installation and Commissioning**	The installation and commissioning of the equipment are under the scope of the vendor. The vendor needs to quote single price for the installation of all the hybrid daylight units. All the tools and materials required for the installation including transport activities are under the scope of the vendor. Vendor needs to confirm the dates of installation atleast three days prior to the date of visit. All the civil works - shitfting of materials, scaffolding are under the scope of the bidder.		
10	**Prequalification criteria**			
1	The supplier should be manufacturer or an authorized dealer of manufacturer.	Letter of the same should be attached.		
2	The supplier should have supplied Hybrid Daylighting System to other firms(atleast one firm) and supporting performance certificate needs to be submitted	Performance certificate needs to be submitted		
3	Vendor should submit the technical details of the system i.e. Sensor Control, Panel, Controller, Light pipe and Prismatic skylights			
4	In case of non submission of any of the above mentioned the bidder will get technically disqualified.			

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	The following areas are to be lit with a luminance of 200 lux:	
S. No	**Location**	**Area in sq.m**
1	Logistics	17
2	Subcontract store	154
3	Spare Packaging section	450
4	Office space	450
5	Central work shop	192.9
6	Logistics bay	64
7	Rejection cell CMM store	154
8	CDC store I	154
9	CDC store II	154
10	56 Store TC Spares	93
11	Site Return Store	141

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