



Ref: FF /17-18/LED/01

Specification for Requirement & installation of High bay Wide beam 100 W & Column LEDs 40W

Sl. No.	Details	Requirement from vendor	Vendor Response
	Vendor must confirm/specify details as demanded against each clause of this specification. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.		
1.0	OBJECTIVE:		
1.1	This specification governs the requirement of compact Industrial Integral Wide beam (90 deg & with optical spread lens) High bay & Column LED light with complete wiring & operational electrical components on SITC basis (Supply, Installation, Testing & Commissioning) in CFFP. The scope of work includes Supply of High bay & Column LED Light & all electrical components including cable. Electrification ie. Mounting of MCB in MCB box, laying of conduits and wire, making terminal connections, making arrangement for mounting of LED lights on Truss/Column, making electrical connections with connectors. Installation/erection testing and commissioning of High bay & Column LED lights.	Vendor to confirm	
2.0	PRE-QUALIFICATION CRITERIA:		
2.1	1. Experience, of having successfully completed industrial electrification work (experience of working at heights) during last 7 years ending on tender opening date (Completion date shall only be considered) , as falling under one or more categories of the following: a) Three (3) completed electrification works costing not less than 15 Lacs. OR b) Two (2) completed electrification works costing not less than 19 Lacs.	Vendor to confirm. (Purchase orders copy/ies)	

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	OR c) One (1) completed electrification works costing not less than 30 Lacs Note: <i>*Contractor's offer for only one out of the two LED lights installation work will not be acceptable.</i> <i>*In case of technically or otherwise rejected offer, for any one LED light installation work, due to any reason as per specification, will lead to rejection of complete offer.</i>		
2.2	Bidder has to submit copy of following certificate, of LED High bay & Column LED Light Model quoted, from NABL approved laboratories only, for Luminaire: LM 79 (IS 16106:2012) having values for. The qualifying values should be as mentioned in Clause 4.1 to 4.15 (4.1A to 4.15A) - Measured total luminous flux (lm) - Input Voltage (V) - Current (A) - Power (W) - Luminous efficacy, - Luminous intensity distribution, - Correlated Colour Temperature CCT - Colour Rendering Index CRI, & - Chromaticity Coordinates (x,y) Make accepted: Philips, Wipro, Osram, Cree, Trilux, Panasonic (At-least 60% cost wise, manufacturing portion should be from India.)	Vendor to confirm (Attach test report of model quoted)	
3.0	<u>SCOPE OF SUPPLY</u>		
3.1	Wiring for High bay & Column LED fixture light point, fitting/mounting of conduits, clamps, joints and bends, laying of cables, making terminal connections with connectors, making arrangement for mounting of LED High bay & Column LED Light on Truss ,Carrying of LED High bay & Column LED Light to top, erection/installation and	Vendor to confirm	

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	commissioning of Led High bay & Column LED light on Truss The height of Truss will be between 12-16 meters		
3.2	Supply of material (MCB, Conduit, 2C 2.5 sq. mm Cu Wire, MCS Box, clamps, joints, hooks, connectors etc) for electrification of one LED Light circuit point.	Vendor to confirm	
3.3	Supply of COMPLETE LED HIGH BAY & COLUMN LED LIGHT as per specification and technical requirements	Vendor to confirm	
4.0	<u>TECHNICAL REQUIREMENTS:</u> For High Bay Wide beam Industrial LED Light		
	<u>Parameters</u>	<u>Desired Values for PQC</u>	
4.1	Rated input power (in W)	$\leq 100W$	Vendor to specify
4.2	Rated System luminous flux (in lm)	≥ 10000	Vendor to specify
4.3	LED luminaire efficacy (in lm/W)	≥ 120	Vendor to specify
4.4	Correlated Colour Temperature (CCT in K)	5000-7000K	Vendor to specify
4.5	Rated Colour Rendering Index (CRI)	> 70	Vendor to specify
4.6	High Colour Consistency SCDM (Standard Deviation of Color Matching)	< 5	Vendor to specify
4.7	R9 Colour Rendering Value	+ve (> 0)	Vendor to specify
4.8	Rated life (in h) of the LED module (≥ 50000 burning Hr) and the associated rated lumen maintenance (Lx) $> 70\%$	≥ 50000 Hr $> 70\%$	Vendor to specify
4.9	Total Harmonic Distortion (THD)	$\leq 20\%$	Vendor to specify
4.10	Ambient temperature for a luminaire in Centigrade	1 deg C to 50 deg C	Vendor to specify

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Sl. No.	Details		Requirement from vendor	Vendor Response
4.11	Power Factor	>0.95	Vendor to specify	
4.12	Drive Current	<0.9A (900mA)	Vendor to specify	
4.13	Driver Efficiency	>=85%	Vendor to specify (Drega Certificate is to be attached)	
4.14	Optical Risk (Risk on eyes and skin from the exposure to LED radiation) Risk Group 0 Exempt Risk Group 1 Low Risk Group 2 Moderate Risk Group 3 High	Risk group 0	Vendor to specify (Photo Biological Report is to be submitted)	
4.15	IK Rating Protection against mechanical Impact (2 joules).	>=IK 05	Vendor to specify	
4.16	Heat Sink Arrangement for appropriate heat dissipation	Must be provided	Vendor to confirm	
4.17	Arrangement of LEDs	SMD (Surface Mount Diode)	Vendor to confirm	
4.18	LED Fixture	Aluminum Die Casted	Vendor to confirm	
4.A	TECHNICAL REQUIREMENTS: For Column Wide beam Industrial LED Light			
	Parameters	Desired Values for PQC		
4.1A	Rated input power (in W)	<=40W	Vendor to specify	
4.2A	Rated System luminous flux (in lm)	>=3500	Vendor to specify	
4.3A	LED luminaire efficacy (in lm/W)	>=100	Vendor to specify	
4.4A	Correlated Colour Temperature (CCT in K)	5000-7000K	Vendor to specify	
4.5A	Rated Colour Rendering Index (CRI)	>70	Vendor to specify	
4.6A	High Colour Consistency SCDM (Standard Deviation of Color Matching)	<5	Vendor to specify	
4.7A	R9 Colour Rendering Value	+ve (>0)	Vendor to specify	

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Sl. No.	Details		Requirement from vendor	Vendor Response
4.8A	Rated life (in h) of the LED module (≥ 50000 burning Hr) and the associated rated lumen maintenance (Lx) $> 80\%$	≥ 50000 Burning Hr $> 70\%$	Vendor to specify	
4.9A	Total Harmonic Distortion (THD)	$\leq 20\%$	Vendor to specify	
4.10A	Ambient temperature for a luminaire in Centigrade	1 deg C to 50 deg C	Vendor to specify	
4.11A	Power Factor	> 0.95	Vendor to specify	
4.12A	Drive Current	$< 0.90A$ (900mA)	Vendor to specify	
4.13A	Driver Efficiency	$\geq 85\%$	Vendor to specify (Drega Agency Certificate is to be attached)	
4.14A	Optical Risk (Risk on eyes and skin from the exposure to LED radiation) Risk Group 0 Exempt Risk Group 1 Low Risk Group 2 Moderate Risk Group 3 High	Risk group 0	Vendor to specify (Photo Biological Report is to be submitted)	
4.15A	IK Rating Protection against mechanical Impact (2 joules).	$\geq IK 05$	Vendor to specify	
4.16A	Heat Sink Arrangement for appropriate heat dissipation	Must be provided	Vendor to confirm	
4.17A	Arrangement of LEDs	SMD (Surface Mount Diode)	Vendor to confirm	
4.18A	LED Fixture	Aluminum Die Casted	Vendor to confirm	
5.0	<u>GENERAL REQUIREMENTS:</u>			
5.1	Protection	IP65 or greater	Vendor to specify	

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5.2	Mounting	Roof mounting with Single point mounting arrangement With eye bolt / J-Hook/vertical hangers. All items required for Mounting to be supplied by the party.	Vendor to specify	
5.3	Optics	Wide beam suitable optics	Vendor to specify	
5.4	Protection	Short Circuit, Over voltage, Under voltage	Vendor to confirm and specify	
5.5	Operating voltage range	180V to 240V , 50Hz,Single Phase AC	Vendor to specify & confirm	
5.6	Working Temperature (Ambient temperature at shops)	0 to 50 deg. C	Vendor to note	
5.7	Wire	PVC insulated, 2.5Sqmm,2 core, copper wire of Finolax, Polycab, Lapp, Igus make only	Vendor to specify	
5.8	Conduit	18 Gauge, MS pipe.	Vendor to confirm	
5.9	MCB	2pole, 2A of Schneider, Siemens, and Legrand make only.	Vendor to specify	
6.0	<u>Special Terms & Conditions of Supply , Installation and commissioning</u>			
6.1	The wiring will be of Phase and Neutral control through 2P MCB, of 2A each such that each MCB will control maximum two Led High bay & Column LED lights.		Vendor to confirm	
6.2	The MCB along with boxes have to be mounted appropriately at the base of column for operating the LED lights as per requirement and suitability of site.		Vendor to confirm	
6.3	There should not be electrical joints (wire joints) between the LED High bay & Column LED light and the control MCB, except the tapping for second LED light which is being controlled from this common MCB.		Vendor to confirm	

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Sl. No.	Details	Requirement from vendor	Vendor Response
6.4	More than two cables should not be used in one conduit pipe.	Vendor to confirm	
6.5	All LEDs are to be connected via appropriate rating ISOLATION TRANSFORMER .		
6.6	Minimum acceptable LUX at floor level should be greater than 50 LUX from the height of 16 meter where it will be fitted.	Vendor to confirm	
6.7	The standard guarantee for complete LED High bay & Column LED light fitting will be 36 months from the date of commissioning	Vendor to confirm	
6.8	One sample of quoted LED High bay & Column LED light of L1 vendor may be mounted (at 16meter high roof approx.) and tested for desired LUX level (Minimum 50 Lux). The lights will be technically accepted subject to proving of required LUX at floor level.	Vendor to confirm	
6.9	The L1 vendor who qualifies technical (document verification) will be informed to deliver their LED High bay & Column LED Light sample (one number) for testing . The vendor will have to deliver his sample at BHEL, CFFP through a returnable gate pass within 15 days of information. The sample lights will be returned within a period of one week	Vendor to confirm	
6.10	The cost/mode for delivery and collecting the light will have to be arranged and borne by the vendor . BHEL will not be responsible for cost/damage/defect to the LED light inside the plant or during transit	Vendor to confirm	
6.11	Any delay in delivery/non delivery of sample for testing within the prescribed duration will be sufficient ground for technical rejection of bid	Vendor to confirm	
6.12	PBG: The vendor has to submit Performance Bank Guarantee of 10% of work order value valid for 36 months from the date of commissioning in the format provided.	Vendor to confirm	
6.13	After Sales Service: The defective lights have to be replaced/repaired/made functional within the period of 15 (fifteen days) days of reporting. No response/delayed	Vendor to confirm	

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	response than stipulated period in attending the problem for even one light will be sufficient ground for revoking the complete bank guarantee		
6.14	During the period of guarantee it will be the responsibility of the vendor to dismantle/repair/replace/mount the light fitting from its present mounting location	Vendor to confirm	
6.15	Payment :70% payment of material cost along with taxes and duties against delivery and acceptance of material within 30 days of delivery. 30% material cost and installation/erection and commissioning charges after successful commissioning and completion of project in all aspects.	Vendor to confirm	
6.16	Liquidated Damages: A Penalty of 0.5% of work order value per week will be levied in case of late total work completion in all aspects subject to maximum of 10% of work order value.	Vendor to confirm	
6.17	Contract Period: The total work contract period is 150 Days from the date of work order	Vendor to confirm	
6.18	The work order will only be issued subject to approval of LED High bay & Column LED light sample	Vendor to confirm	
6.19	Vendor should inspect the site before quoting the rates	Vendor to confirm	
6.20	Service tax will be charged on labour charges only	Vendor to confirm	
6.21	Vendor shall have to submit a certificate from the authorised dealer of the LED High bay & Column LED light manufacturer , confirming the quantity and genuineness of the product supplied	Vendor to confirm	
6.22	In case of difference in rates quoted in form of words and numbers, rates in words will accepted as final quoted rates	Vendor to confirm	
6.23	All other terms and conditions as per BHEL works policy	Vendor to confirm	
7.0	<u>PACKING</u>		
7.1	The components should be supplied in suitable packing to avoid any damage during handling, transit and storage.	Vendor to specify and confirm	
8.0	<u>INSPECTION, DEVIATION AND REPLACEMENT</u>		

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9.1	BHEL reserves the right to inspect components at vendor's place before dispatch . The supplier shall be given prior intimation in such case. However inspection at BHEL shall be final . The supplier shall offer BHEL representative all reasonable test facilities without charge to satisfy the latter that the components are being furnished in accordance with this specification.	Vendor to note and confirm	
9.2	The components may be tested at CFFP, BHEL and will be binding on supplier . If the components (Light, wire, connection components) received at CFFP is not found in accordance with the requirements, it shall be rejected.	Vendor to note and confirm	

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