BANK OF BARODA

Baroda Apex Academy

TENDER FOR SUPPLY OF L.E.D LIGHT FITTINGS & FIXTURES AT BANK OF BARODA, BARODA APEX ACADEMY, LAW GARDEN, AHMEDABAD.

Technical Specifications

Section- 2

MATERIAL SPECIFICATION

SUMMARY PAGE

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SECTION-1
ELECTRICAL MATERIAL SPECIFICATION

1.1 Scope :

The scope covers Supply, testing and commissioning of different types of LED light fixtures.

1.2 Standards :

Applicability of Standards:

Except where more explicit or stringent requirements are written into the Specifications, applicable construction industry standards have the same force and effect as if found in or copied directly into the Specifications.

A. Light Levels & Recommended Practices:

B. All lighting specifications and installations to conform to the recommended practices outlined in the IS cods, IESNA ANSI/IES RP-1-12, IESNA lighting Handbook, National / International Lighting Code, and GAISF standards for sports areas

C. Publication Dates:

Except as otherwise indicated, where compliance with an industry standard is required, comply with the latest standard in effect as of date of final issue.

1.3 Type of fixtures:

1.3.1 General Requirement: All the light fixtures shall be with LED source only unless specified otherwise.

1.3.1.1 All fixtures shall be complete with accessories necessary for installation whether so detailed under fixture description or not.

1.3.1.2 Fixture housing, frame or canopy shall provide a suitable cover for the fixture outlet box or fixture opening.

1.3.1.3 Fixtures and/or fixture outlet boxes shall be provided with adequate support to take the complete weight of the fixture. Design of hangers and method of fastening other than shown on the drawings or herein specified shall be submitted to the Architect/Consultant for approval.

1.3.1.4 Flush mounted and recessed fixtures shall be installed so as to completely eliminate light leakage within the fixture and between the fixture and adjacent finished surface. If

required, necessary arrangement to be made above false ceiling to cover the light fixture to restrict the light spread inside the ceiling as suggested by architect/Consultant.

1.3.1.5 Fixture mounted on outlet boxes shall be tightly secured to a fixture stud in the outlet box. Extension pieces shall be installed where required to facilitate proper installation.

1.3.1.6 Fixture shall be completely wired and constructed to comply with the regulations and standards for Electric Lighting Fixtures, unless otherwise specified. Fixtures shall bear manufacturer's name and the factory inspection label unless otherwise approved.

1.3.1.7 Wiring within the fixture and for connection to the branch circuit wiring shall be not less than 1.0/1.5 sq.mm. copper for 250 volt application. Wire insulation shall suit the temperature conditions inside the fixture and wires bypassing the choke shall be heat protected with a heat resistant sleeve.

1.3.1.8 Metal used in lighting fixtures shall be not less than 22 SWG or heavier if so required to comply with the specification or standards. Sheet steel reflectors shall have a thickness of not less than 20 SWG. The metal parts of the fixtures shall be completely free from burrs and tool marks. Solder shall not be used as mechanical fastening device on any part of the fixture.

1.3.1.9 Ferrous metal shall be bowdlerized and given a corrosion resistant phosphate treatment or other approved rust inhibiting prime coat to provide a rust-proof base before application of finish.

1.3.1.10 Non-reflecting surfaces such as fixture frames and trim shall be finished in baked enamel paint.

1.3.1.11 Fixture with visible frames shall have concealed hinged and catches. Pendant fixtures and lamp holders shall be provided with ball type Algiers or similar approved means. Recessed fixtures shall be constructed so as to fit into an acoustic tile ceiling or plaster ceiling without distorting either the fixture or the ceiling plaster rings/flanges shall be provided for plaster ceiling. Fixtures with hinged diffuser doors shall be provided with spring clips or other retaining device prevent the diffuser from moving.

1.3.1.12 Detailed catalogue cuts for all fixtures, and sample fixtures shall be submitted for approval to the Architect/Consultant before orders for the fixtures are placed. Shop drawings for non-standard fixture types shall be submitted for approval to the Architect/Consultant. Moke-up/sampling to be done at site for each typical installation by contractor for approval prior to order. No separate charge will be paid for nay such sampling at site.

1.3.1.13 Recessed fixtures shall be constructed so that all components are replaceable without removing housing from the ceiling.

1.3.1.14 Lighting fixtures shall be manufactured as per IS 10322.

1.3.1.15 Shop Drawings: Submit dimension drawings of lighting fixtures. Submit fixture shop drawings assembled in order of luminaire "Type" designation with proposed fixture and accessories clearly indicated on each sheet. Shop drawings may be submitted for review before fabrication. Fabrication details may vary slightly from those shown on drawings provided those changes do not adversely affect ease of installation, durability, performance, or appearance of fixture.

1.3.1.16 Manuals: Prior to final inspection, provide complete set of operating and maintenance manuals. Include technical data sheets and parts ordering information. Include testing and maintenance requirements and instructions for emergency lighting equipment.

1.3.1.17 Shop drawings of all special or modified standard lighting equipment shall be submitted in reproducible form. Fixture fabrication details shall be drawn at either full size or half size scale. Fixture fabrication details shall illustrate a minimum of three (3) critical views indicating all fabrication, and assembly methods, materials, material gauge and finishes to be employed.

1.4 LED Light Fixtures Specifications:

1.4.1 General Purpose Led Luminaires should be suitable for indoor/outdoor installation for Office applications. The Fixtures should be Operational for 220-240 V Single Phase 50 HZ AC , and operational from 170-280 V without significant variation in output .The LED modules should be from approved make list Only with efficiency of a min 130 lm/watt and efficacy of fixtures should be greater than 80 lm/w for both indoor and outdoor fixtures.

1.4.2 Luminaries should be with built in Integral driver only. The Min degree of Protection for Indoor Fixtures should be IP20 and IP66 Special case / Outdoor Fixtures. The THD of fixtures should be strictly <10 % and drivers should be compulsorily provided with overload, short circuit and over voltage protections. Power factor should be >0.90.

1.4.3 For Indoor applications the housing should be made of die cast/ Metal Housing and diffuser should be as per BOQ , outdoor fixtures should be with die cast aluminium / extruded aluminium housing only .The Fixtures should be pre wired up to the terminal block and easy to mount and Install and maintain.

1.4.4 The fixture should comply LM79-08 certification criteria and also module should be backed with LM80-08 Certificate from the OEM. The fixtures should be guarantee for minimum period of 5 years from the date of Installation. The fixtures should have some kind of embossing/ engraving to identify the brand name. The manufactures should provide all kind of test report, technical details as and when called for. If required contractor have to provide test certificate from Government approved NABL Lab for Claimed parameters by the manufacturer without any extra cost.

1.4.5 **Acceptable Light Emitting Diode Manufacturers**

The following manufacturers of diodes shall be considered acceptable provided that the LED fixtures are properly designed (i.e. correct drive currents and voltages are maintained, proper heat sinking is used, etc.)

- CREE
- Nichia
- Osram
- APT
- Lumiled
- LG
- Samsung
- Bridgelux

The manufacturer shall submit the proof of procurement of LEDs from above OEMs.

Technical specification of Lighting Fixtures :

Sr. No.	Description	Value
1	Site Parameters	
1.1	Ambient Temperature	0°C to 50°C

2	Electricity Efficiency Management/Electronic Driver	
2.1	Input Operating Voltage	110 to 280Volts, AC 50Hz±2
2.2	AC Power Factor	Not Less than 0.9
2.3	Efficiency of driver	More than 85%
2.4	THD (AC current 110V to 280V)	Not more than 10%
2.5	LED Drive Current	Not more than 500mA
2.6	Led Efficacy	≥130lm/watt
3	*Optical Management*	
3.1	Colour Temperature	2700°K to 6500°K
3.2	LED life with L70 criteria	Above 50,000 operating hours
3.3	CRI	More than 70
4	*Thermal Management*	
4.1	Jn. Temperature of LED at 25°C	≤65°C
4.2	Heat Sink temperature rise above ambient	≤30°C
5	*General parameters*	
5.1	Mounting Arrangement	Mounting Angle Adjustment facility should be provided
5.2	IP Clause & Environment Protection	Minimum IP 20 for indoor and IP66 Special case / Outdoor Fixtures
5.3	Overall system efficiency	As per BOQ

Successful Contractor has to submit test report of similar LED light fixture for following parameters from any NABL Approved Test Laboratories for approval. However, test certificates of the lot to be supplied are required to be produced before supply of material at site.

For LED

- LM 80 report of the LED chip being used

For Fixtures

- Endurance Test
- Thermal Test
- IP rating test
- Power factor, efficiency
- Harmonic test
- Surge test
- Mechanical strength test

- Dielectric test
- IR test
- Goniophotometer Reading for the LED Light

Contractor have to give five year unconditional guarantee for replacement for each light fixture.

The electronic components used shall be as follows: -

a) IC (Integrated circuit) shall be of industrial grade or above.

b) Metallic film / Paper/Polyester Capacitor shall be rated for a sustained operating temperature of 105°C.

c) The resistors should be preferably made of metal film where suitable, of adequate rating. The actual rating versus loading shall be by a factor of >2.

d) The junction temperature of the Switching devices such as transistors and MOSFETs etc. shall not exceed 125°C (allowing thermal margin of 25 °C).

e) The protective cum adhesive coating used on PCBs should be clear and transparent and should not affect color code of electronic components or the product code of the company.

f) The construction of PCBs and the assembly for components for PCBs should be as per relevant Indian / international standards.

g) The electronics covered for this equipment shall pass all the tests covered under relevant Indian / International standards specification.

h) The infrastructure for Quality Assurance facilities must be available at the manufacturing facility. In house testing facility for Quality Assurance should be present.

i) The connecting wires used inside the luminaries, shall be low smoke halogen free, fire-retardant e-beam cable and fuse protection shall be provided in input side.

j) For outdoor fixtures, Care shall be taken in the design that there is no water stagnation anywhere. The entire housing shall be dust and waterproof having IP66 or above protection and the light shall pass driving rain test/jet water test.

k) The LED Module(s), Driver gear, etc. shall be designed in such a way so that temperature of heat sink shall not exceed 30°C above the ambient temperature.

l) All the material used in the luminaries shall be halogen free and fire retardant confirming to UL94.

m) The LED Luminaries shall have an input connector which shall be made of fire-retardant material & its construction shall be waterproof

n) The Contractor shall submit all the necessary support documents along with the compliance statement of all technical requirements w.r.t. Electrical, Optical, Thermal & environmental performance, including the technical specification mentioned herewith.

o) Each LED should have necessary lens /reflector for better distribution of light at surface.

p) All the applicable test reports for complete fixtures and spare parts have to be submitted.

q) The manufacturer should have in house testing facilities within the India for the fixtures intending to supply.

Replacement / Repair

1. The LED's shall be repaired/replaced st service center by modular means without any possible risk to maintaining luminaire photometry for sake of future upgrading/maintenance requirements.

2. As in the case of other new technologies, it is possible that replacement products may not be available in the long term since technological advances may render older designs obsolete. Therefore, it is essential that the manufacturer guarantees availability of same or relatively similar products over at least a ten-year period.

3. It is recommended to keep spare from all lighting system components as suggested in this document within the final order for prevention reasons.

Glare Control

Polar plots given in photo metric reports depict the pattern of light emitted through the 90° (horizontal) plane and 0° (vertical) plane. In general, fixture must provide a reduction in luminous intensity in the 70° to 90° vertical angles to avoid glare. Wherever glare-control is not sufficient in luminaire additional anti-glare accessories shall be provided for the given application.

Optical Control

1. The optical system should provide adequate light distribution and minimize disabling glare.

2. All outdoor in ground luminaire lenses must shall have adequate thickness for walk over application and shall be supplied with anti-slippery treatment.

3. All outdoor lenses shall be clear or satin as specified in BOQ and made of safety or toughened glass unless otherwise specified.

4. The luminaire shall be fitted with optical refractor, diffuser and/or reflectors.

2 External Lighting

1.0 Scope:

1.1 The scope of work covers the supply, installation and testing of lighting poles and installation and testing weather proof light fixtures, wiring to the fixtures, cable laying, earthing as specified and shown on drawings.

2.0 Standards:

As per Applicable standard

3.0 Light Fixtures:

All the light fixtures shall be with LED source only unless specified otherwise.

3.1 The LED light fixture construction shall be of **IP 66. Die** cast / Extruded aluminium with a separate compartment for integral ballast equipment, with driver /with dimmable driver wherever required.

3.2 Lighting fixtures shall be designed for minimum glare and for continuous operation under specified atmospheric condition.

3.3 **The LED lights system will have to meet the following Specifications**:

Tilting angle	- 0 degree
Maintenance Factor	- 0.8 / As per Design
Protection level	- **IP 66 & IK-08**
Power factor	- > 0.9

Construction	- Die cast Aluminum body with finish to be of colour and with the confirming to the safety of IS 10322 (part - 2) -1982
Heat Sink	- Integrated with in luminaries & The dimensions of luminaries shall be adequate to permit sufficient heat dissipation through the body itself, so as to prevent abnormal temperature rise inside the lantern & consequential damage to cover & gasket materials, LED's, lenses & Electronic Driver.
Application	- Outdoor Use
System efficacy-Lm/W25c amb	- As per BOQ
Guarantee	- 5 years on the LED, Fixture & Driver
Protection	- Overheat, Overload, Short Circuit, HV Surge up to 6 KV
Certification	- LM 79, LM80, RoHS, EMC, EMI, CE
Marking	- Company LOGO Engraving/Embossing on Body, AMC marking
LED life-time (L70)	- > 50000 hrs
Colour Temperature	- As per selection of Architect / Consultant
Driver Life Rating	- > 50000 hrs
Beam angle	- As per requirement / Design
LED	- As per mentioned in 1.4.5
LED junct temp in ℃@	- < 75
Lens material	- Polycarbonate / PMMA
Working humidity	- 10% - 90% RH
Working temp in ℃	- 05 to 50 deg C
LED driver type	- Constant Current

Drive Current	- ≤ 750mA
Driver Efficiency	- >85%
T H D Amp	- < 10%
T H D Volt	- < 10%
Input Voltage range (Vac)	- 170-280 +/- 5%
Input Voltage frequency (Fac)	- 50 Hz +/-3%
CRI Color Rendering Index	- As per BOQ
Lumen Maintenance Factor	- 70% up to 50000 burning hrs
Uniformity ratio U0	- As per design
Uniformity ratio UT	- As per design

Vendor to submit dialux design report stating avg. lux level, Uo, UT, before finalizing the light fixtures as per site measurements.

Gasketing (If Gasketing Is Utilized)

The assembly shall be contoured so as to provide a continuous molded field-replaceable compressible silicone gasket which shall upon the application of appropriate door-latch pressure, provide a continuous sealed environment for the fixture interior, to prevent the entry of dust, grit andwater intrusion. Aweep hole shall be provided to discharge any condensate or similar accumulation of moisture.

All gaskets used shall be silicone and must be resistant to checking, cracking, or disintegration causedby ultraviolet radiation or ozone gas exposure.

3.6 Particulars and Details to be submitted by the bidder:

In order to properly assess and due diligence on submissions, the Proponent should provide following information on the quality and photo metric of proposed luminaries.

3.6.1 General description

Following details of the proposed luminaries shall be submitted as per Annexure I

ANNEXURE I

Sr. No.	Description
1	Luminaries manufacturer
2	Luminaries model name
3	Wattage
4	Stated lumen output
5	IP rating
6	Lumen output (as per LM79 report, mentioning current in mA)
6	Luminous efficacy (as per LM79 report)
7.	Lumen deprecation (L70 mentioning temperature in 0C and current in mA)
8	Correlated colour temperature (CCT)
9	Colour rendering index (CRI)
10	LM 80 report to prove the authentications of LED module
11	Third party NABL accredited LAB report as per relevant IS and for LM79

3.6.2 Electrical specifications

Electrical ratings of the proposed luminaries product for the following criteria shall be submitted in Annexure II

ANNEXURE II

Sr No.	Description
1	Voltage range or rating single phase AC
2	Amperage range or rating
3	Frequency range
4	Power factor
5	Total harmonic distortion
6	Working humidity
7	Working temperature
8	Ingress protection
9	Electrical connector
10	Ability to operate under conditions of unpredictable voltage variations

Submit the information whether and how the proposed luminaries product might accommodate adaptive controls that allow remote dimming or switching on/off, and indicate what types of controls may be integrated into the proposed luminaries product;

3.6.3 LED chip and driver information - details to be filled up by bidder

LED chip and driver information of the proposed luminaries product for the following criteria in Annexure III.

ANNEXURE III

Sr No.	Description.
1	Name of the LED chip manufacturer
2	LED chip model name and number
3	LM 80 report from the LED chip manufacturer on the lumen depreciation characteristics of the specific LED chip employed in the proposed luminaries product
4	Junction temperature (0C)
5	Information on drivers employed in the Proposed luminaries
6	Name of the manufacturer
7	Model name and number
8	Expected life time of the LED driver used in the proposed luminaries
9	Estimated cost of driver replacement by your company, including component and installation cost
10	Name of the LED chip manufacturer

3.7 Bidder shall have to offer the following minimum guarantee:

a. Provide a five-year on-site replacement guarantee covering material fixture finish and workmanship, to include transportation, removal, and installation of new products.

b. Provide five-year replacement guarantee for defective or non-starting LED source assemblies and all drivers.

c. Provide a five-year guarantee for luminaries exhibiting inadequate lumen maintenance at the end of the warranty period in compliance with the following table:

L70 lifetime claim	Min. lumen maintain@ 5 years
35,000 hours	92.50%
50,000 hours	85.50%
1,00,000 hours	80.00%

d. A luminaries dirt depreciation (LDD) factor may be included in the above calculation, such a value be determined by mutual agreement between Client and the manufacturer, consistent with local ambient environmental conditions and practice.

f. A monitoring program to implement will be determined by mutual agreement between Client and the Bidder. The costs of the monitoring program over the five-year guarantee period will be borne by the Bidder, unless agreed otherwise by Client and the Bidder.

g. The guarantee shall cover all LED light sources (packages or modules/arrays) including but not limited to the LED die, enclosure, and phosphor. If the expected life of the luminaire system is not maintained net of LDD, then the Bidder shall replace the light source(s) and/or luminaries as needed.

3.8 Photo metric information

The proponent needs to submit the following photo metric information:

1) Photometric modeling results, preferably within a LM79 report, from an Third Party NABL accredited laboratory showing generic candlepower traces and ISO foot candle plots for the proposed luminaries product.

2) Photometric information, data and diagrams that model the luminance flux distribution

of the proposed luminaries referencing the site characteristics. The proponent should consider the following during the modeling exercise.

3.9 Lumen maintenance statement

1) The proponent must submit a lumen maintenance statement that estimates how many operating hours can be expected from the proposed luminaire product until its light

output declines to 70% of its initial output (L70), given the specific climactic character, including extremes of temperature and high humidity, associated with the local condition.

2) The lumen maintenance statement should also clearly explain that how or what method was used to determine the rated lifetime.

3) Describe in details the thermal management: how the physical and thermal design of the luminaire will prevent the LED chips from overheating on extremely hot days.

4) Other trials or pilot projects: submit information and contacts for other relevant trials in which the proponent's proposed luminaire product, or similar products sold by the agency, have been tested in the field.

5) Such information should include: LM 80 report for the LED chip package employed in the proposed luminaire product Illuminance or luminance measurements, if available,

taken over a minimum of two years of operation from pilot projects that have tested the proposed luminaire product, or a similar luminaire product, in the field.

3.10 Luminaire specifications -

The proponent shall provide information and certifications

1) Luminaries: General Requirements, Tests, and Certifications specified in IS 10322

2) Electrical safety certifications such as ISI and CII

3) Ingress Protection - Certification IP66

3.11 DRAWINGS AND DATA OF LIGHTING FIXTURES:

As per proposal, the bidder shall furnish relevant descriptive and illustrative literature of the lighting fixtures and accessories along with drawings/ data for the respective lighting fixtures :-

i) Dimensional Drawings.

ii) Mounting details cable entry facilities and weights.

SAMPLES

Bidder shall submit for review at least one representative sample for each type of lighting fixture required under this Contract In some cases more than one sample may

be required as well. Bidder shall ensure that adequate number of samples is provided to complete the sample selection effectively. Samples shall be presented with the data sheet, photometry file and comparative data sheet report. After sample acceptance, the fixture shall be sent to the project for use as a standard for mock up. In the event the submission is rejected, the fixture will be returned to the manufacturer who shall immediately make a new submission which meets the contract requirements. All fixtures shall be supplied with complete accessories and mock samples must be installed with full accessories. For decorative fittings, shop drawing with finish samples shall be provided first. Upon comment and approval a prototype shall be made and reviewed and approved by the Engineer in charge & Architect. Once scaled prototype is approved, factory mock up shall be made and get approval by engineer in charge and architect. After that a site mock up shall be conducted under a finished interior condition before going for the final approval for final order production.

LED Manufacturer Criteria

1. The Manufacturer should be present in india for more than 5 years (Company incorporation certificate should be submitted to prove the presence in India)
2. The manufacturer should have own LED Luminaire manufacturing facility with ISO Certification (Certificate to be enclosed) and having following facilities:
3. The manufacturer should not have been Blacklisted / debarred to quote/banned / removal of make in any ofthe Municipal Corporations/ Development authorities /Govt Banks /PSU's in India during the last 5 years. Such companies makes will not be accepted.
4. The Led Manufacturer should Compulsorily meet the Design and Façade Intent with their Equivalent makes
5. Manufacturer should provide LM79 test report from any NABL accredited laboratory .

4.1 BIDDER SELECTION PROCESS

4.1.1 Vendor Pre-qualification Criteria:

A. The Bidder should have 5 years' experience in supply of outdoor lighting/ office Lighting/ hospitality lighting/ convention center/ auditorium lighting etc.

Minimum Criteria for selecting bidder:

The OEM / Associates Contractor must have Gujarat govt / Central govt registered Class A Electrical Contractor who have experience of similar works within last five years as follows

a) At least three similar completed works costing not less than the amount equal to 40% of the Estimated Cost of Electrical Works OR

b) At least two similar completed works costing not less than the amount equal to 50% of the Estimated Cost Electrical Works OR

c) At least one similar completed works costing not less than the amount equal to 80% of the Estimated Cost Electrical Works

Similar works means Internal, External & facade Lighting: Similar work done of SITC of any kind of Internal and external lighting fixtures.

Lighting Bidder's Luminaire vendor will have to submit the following for selected light fixture before supply.

a) Certificate of registration/partnership deed

b) Copy of work orders/work completion certificate letters for minimum 3 years in last 5 years

c) List and address of the sites where similar work executed

d) MOU with consortium partner (Optional)

e) Contact number, email and name of client or their representative manager responsible for the project.

B. The bidder's lighting contractor/vendor/supplier should have successfully completed similar works during last 5 years. Shall provide copy of the work orders & completion certificates mentioning cost of project towards the support of the claim. a) Shall provide List and address of the sites where work executed.

C. The bidder's lighting contractor should have a well qualified team with proven track record/education/ training/ experience and expertise in the relevant field. Projects should be handled by qualified technical team of technicians, project man- agers, accounts, technical and design support teams. Full Details to be enclosed along with CVs of the personnel as mentioned in the tender document.

- The bidder/ its supplier should not have been blacklisted by any State Government, Central Government or any other Public sector undertaking or a Corporation or any other Autonomous organization of Central or State Government. Declaration for the same shall be required.

D. Bidder shall purchase material from authorized dealer of the brands specified. Bidder shall submit following required Documentation from Approved Makes and Suppliers,

1) Authorized dealer certificate with details (Contact Number, address, email, company profile)

2) BIS certificate copies of luminaires from respective country's chamber of commerce

3) Safety, security and performance Certification of product from reputed international or NABL approved lab

4) Certificate of minimum 5yr Guarantee.

5) Photometer files of all submitted items

6) Mention minimum time required to address an issue related to servicing of items. Toll free numbers, call center details etc.

7) Proof of own lab or third party arrangements to test photometry and all other parameters as per IEC60598 2-1/IS :1032

8) Data-sheets mentioning the product dimensions, LED chip type, luminous flux of lamp and luminaire, CBCP of directional luminaires, CRI Ra, R9, CCT, SDCM, optics, beam angle, accessories, power supply and dimming unit information, installation and mounting accessories required along with the cost considered. Refer Annexure-5

9) Companies considered in quote, their place of manufacturing and affidavit that percentage of component of fitting manufactured in INDIA may please be submitted.

Project Specific Light Levels and Facade Design Intent as follows:

SL NO	AREA	AVG .LUX LEVEL AS PER STANDARD (IS 3646)
1	TOILET	50-100
2	STAIRCASE AND PASSAGE	50-100
3	ELECTRICAL ROOM	200-300
4	CLASSROOM	200-300
5	VIDEO CONFARANCE ROOM	500-750
6	VIP WAITING ROOM	300-500
7	EXCUTIVE AREA	300-500
8	BED ROOM	50-100
9	COMPUTER LAB	300-500
10	MEETING ROOM	500-750
11	TRANNING ROOM	300-500
12	PARKING AREA	50-100
13	VIRTUAL CLASSROOM	500-750
14	NORMAL WAITING LOUNGE	150-200
15	STORE	150-200
16	RECEPTION	300-500

SECTION-2

LIST OF APPROVED MAKES

	PARTICULARS	MAKE
1	Wires	As per Main Tender Make List
2	Lighting and Accessories	Refer Electrical BOQ for Individual Light Fixture
3	Other Materials	For any other materials not listed above prior approval shall be obtained from the Architect/Consultant/Client Charge after submitting Technical Data and Samples.

INTENT OF FACADE LIGHTING OF BANK OF BARODA BUILDING TO BE MATCHED UP TO BEST EXTENT BY SUCCESSFUL BIDDER.

3-D Renders of Bank of Baroda Building – Arial View

3-D Renders of Bank of Baroda Building – View 1

3-D Renders of Bank of Baroda Building – VIEW 2 (Day time)

3-D Renders of Bank of Baroda Building – Left Night Time RGBW

3-D Renders of Bank of Baroda Building – Left Night Time RGBW

3-D Renders of Bank of Baroda Building – Right Night Time RGBW

3-D Renders of Bank of Baroda Building – Right Night Time RGBW

Special Notes :

- The successful tenderer will have to supply the material in consultation with the Client / Architect / Consultant.
- The successful Bidder will have to place order directly to the manufacturer OR it's authorized dealer.
- Samples of each item needs to be approved from Architect / Consultant / Client.
- The Client/Architect/Consultants have right to check the challans of supplier.
- The Client/Architect/Consultants have right to accept / reject contract without giving any reasons.
- Within a week of work order, the contractor shall submit the sample of each item / component of approved makes for the approval of the Client/Architect/Consultant.
- Successful bidder have to check light fixtures Quantity as per actual site condition before placement of order i.e BOQ qty directly not to be executed.