Eskom	Strategy	Engineering

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1. INTRODUCTION

The Eskom Academy of Learning (EAL) site comprises of 39 buildings, which all generate waste on a daily basis. This waste is then collected and brought to the Refuse Warehouse for recycling and disposal. The Refuse Warehouse is in need of re-organising and urgent upgrading due to Health and Safety non-compliance. In addition the site requires fencing to protect the facility against theft and vandalism.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document provides the tender technical evaluation strategy for the required works of the Eskom Academy of Learning Refurbishment of the Refuse Warehouse Project

2.1.1 Purpose

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria and TET member responsibilities for tender technical evaluation. The technical evaluation strategy serves as basis for the tender technical evaluation process.

2.1.2 Applicability

This document is applicable to the refurbishment and upgrade of the Eskom Academy of Learning Refurbishment of the Refuse Warehouse Project.

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

[1] 240-48929482: Tender Technical Evaluation Procedure

[2] ISO 9001 Quality Management Systems

[3] 32-1034 Eskom Procurement Policy

[4] 240-53716726: Tender Technical Evaluation Scoring Form Template

2.2.2 Informative

[5] 240-53113685: Design Review Procedure

[6] 240-53114026: Project Engineering Change Management Procedure

2.3 DEFINITIONS

Definition	Description
Contractor/Tenderer	Refers to the corporation appointed to perform the engineering, procurement, and construction works required for the project.

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Employer	Refers to Eskom Holdings State Owned Company
Eskom Plant Engineering	Refers to the Eskom Engineering team who will perform the reviews and provide technical assistance for the work performed by the appointed Contractor.
Specification	The document/s forming part of the contract in which the methods of executing the various items of work to be done is described, as well as the nature and quality of the materials to be supplied and it includes technical schedules and drawings attached thereto as well as all samples and patterns
The Client	The end user will be Eskom who will be represented by Eskom Properties throughout the duration of the Project.

2.3.1 Classification

Controlled Disclosure: Controlled Disclosure to external parties (either enforced by law, or discretionary).

2.4 ABBREVIATIONS

Abbreviation	Description
BOQ	Bill of Quantity
ECSA	Engineering Council of South Africa
EDWL	Engineering Design Work Lead
LDE	Lead Discipline Engineer
TET	Technical Evaluation Team
RFP	Request For Proposal

2.5 ROLES AND RESPONSIBILITIES

As per 240-48929482: Tender Technical Evaluation Procedure

Compiler	The document compiler is responsible for ensuring that this document is up-to-date and that this document is not a duplication of an existing documentation, regarding the Document's objectives and content.
Functional Responsibility	The Functional Responsible Person shall determine if the document is fit for purpose, before the document is submitted for authorisation.
Authoriser	The document authoriser is a duly delegated person with the responsibility to review the document for alignment to business strategy, policy, objectives and requirements. He/she shall authorise the release and application of the document.
Lead Discipline Engineers	Provide input to the technical tender evaluation strategy and associated engineering Activities

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2.6 PROCESS FOR MONITORING

The primary process for monitoring will be governed by Design Review Procedure (240-53113685), this entails assuring that the design achieves the requirements set out in this document. Any changes to this document will be performed as per Project Engineering Change Management Procedure (240-53114026).

2.7 RELATED/SUPPORTING DOCUMENTS

Please refer to Section 2.2.

3. TENDER TECHNCIAL EVALAUTION STRATEGY

3.1 TECHNICAL EVALUATION THRESHOLD

Mandatory Technical Evaluation Criteria (gatekeepers) are ‘must meet’ criteria. These criteria shall not be weighted or point scored, but shall be assessed on a Yes/No basis as to whether or not the criteria are met. An assessment of ‘No’ against any criterion shall technically disqualify the tenderer and shall not be further evaluated against Qualitative Criteria.

Qualitative Technical Evaluation Criteria are weighted evaluation criteria used to identify the highest technically ranked tenderer after determining that all the Mandatory Evaluation Criteria have been met. The Qualitative Evaluation Criteria are weighted to reflect the relevant importance of each criterion. The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 70%.

Tenderers that achieve the 70% requirement will be required to submit lighting samples to Eskom as part of the negotiation’s requirement. The criteria for the samples will be as per

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Appendix B – Luminaire samples to be submitted

The following scoring method will be used:

SCORE	PERCENTAGE (%)	DESCRIPTION
5	100	COMPLIANT • Meet the technical requirement(s) AND, • No foreseen technical risk(s) in meeting technical requirements
4	80	COMPLIANT WITH ASSOCIATED QUALIFICATIONS • Meet the technical requirement(s) with, • Acceptable technical risks AND/OR; • Acceptable exceptions AND/OR; • Acceptable conditions
2	40	NON-COMPLIANT • Does not meet the technical requirement(s) AND/OR • Unacceptable technical risk(s) AND/OR; • Unacceptable exceptions AND/OR; • Unacceptable conditions
0	0	TOTALLY DEFICIENT/NON-RESPONSIVE

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3.2 TET MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
TET 1	Byron Thomas	Civil and Structural Engineer
TET 2	Kameel Burath	Civil and Structural Engineer
TET 3	Andrew Koenane	Senior Electrical Engineer
TET 4	Jabulani Mathebula	Configuration Management
TET 5	Palesa Moleko	Project Management
Optional Members:		
TET number	**TET Member Name**	**Designation**
TET 6	Andre Blignaut	Electrical, Lighting Senior Advisor
TET 7	Lebogang Khumalo	Project Management

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3.3 MANADATORY TECHNICAL EVALUATION CRITERIA

Table 2: Mandatory Technical Evaluation Criteria

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	The detailed design must be carried out by Registered engineers or technologists with minimum 2 years' experience post registration. Contractor provides proof of ECSA Registration		a) Design liability.

QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 3: Qualitative Technical Evaluation Criteria

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighting (%)
1.	**Civil**			**55**	
	1.1	High-level method statement for the entire works clearly demonstrating compliance with the full scope of works (Design and Construction)			25
	1.2	CV's of the Design Engineer(s) Professionally registered with ECSA as an Engineer or Technologist. Showing design experience relevant to the project civil scope			20
	1.3	CV's of Key Construction resources (Construction Manager and Civil Foreman)			20
	1.4	Submit a detailed level 2 schedule for the works (design and construction phases).			10
	1.5	Tenderer provides evidence of completing a minimum of 3 similar projects (Reinforced concrete, structural steel, road and civil works) completed projects in the last 10 years. References to include contact numbers of client, description of involvement in the project and the cost of the project as a minimum. Score: 0 (no acceptable similar projects) 2 (1 acceptable similar projects) 4 (2 acceptable similar projects) 5 (3 or more acceptable similar projects)			25
2.	**Electrical and Lighting:**			**20**	
	2.1	Photometric requirements	**TES Appendix A 2.1**		10
	2.2	Electrical requirements: All work shall be executed and supervised by suitably qualified staff. Only "ACCREDITED PERSONS" shall be permitted to carry out and supervise work. **Installation Electrician: SANS 10142** • Qualifications for **two** installation electricians, with minimum N4 Electrical / NQF Equivalent, Electrical trade test, Wireman's license, registered with the Department of Labour (RSA).			30

		(All Certificates must be submitted) **Master Electrician:** The works shall be supervised by a full time registered "MASTER ELECTRICIAN". Qualifications for a master electrician, within the company employment structure or a letter of intent for the respective services to the company. (All Certificates must be submitted)			
	2.3	Electromagnetic requirements	**TES Appendix A 2.3**		10
	2.4	Mechanical requirements	**TES Appendix A 2.4**		10
	2.5	Guarantees	**TES Appendix A 2.5**		10
	2.6	Delivery	**TES Appendix A 2.6**		5
	2.7	Maintenance strategy	**TES Appendix A 2.7**		10
	2.8	Luminaire technical evaluation	**TES Appendix A 2.8**		10
	2.9	Documentation to be submitted	**TES Appendix A 2.9**		5
3.	**Configuration Management**			**15**	
	3.1	The contractor needs to provide the configuration management plan that will be implemented in line with the ISO 10007 Guidelines for Configuration Management.			45
	3.2	The contractor needs to provide a stipulated Handover Plan, stating when and how they plan, submitting Documentation to Eskom, in line to the agreed Vendor Document Submission Schedule (VDSS).			55
4.	**Project Management**			**10**	
	4.1	Tenderer to provide a proposed work plan, which includes: Project schedule / programme illustrating how the project implementation is planned to be undertaken. Provide a level 3 detailed schedule / programme to complete the construction work within acceptable timeframes	NEC Part 3 & Functional Specification		20

	4.2	Tenderer to submit a company profile with relevant experience of similar scope, budget and Company Organogram Tenderer's experience in the Construction Industry of similar projects (Building and Alteration Work) together with company profile of Professional Team Proposed. The tenderer must have a track record of five completed projects as a minimum; for construction and commissioning of similar projects with completion certificates. In case the tenderer intends to subcontract, or form a joint venture, a letter of agreement, together with individual track records of each party involved is to be provided Indicate all resources allocated to this project. The resource plan is to be clear in the allocation of tasks and responsibility. The resource plan should relate to the project specific schedule in that the activities adopted should be supported by competent staff.	NEC Part 3 & Functional Specification		**30**
	4.3	Three (3) Reference letters from Clients both signed and stamped on work of a similar nature completed in past seven (7) years Reference Letters from Clients to be signed and stamped (Referenced company stamp) by the referenced company. Reference letters for projects should not be older than seven (7) years. The references must be related to Construction, Building Works. The letter should contain contact details of the client, project name, value (Original Value and Final Account Value) and duration (the original contract duration and the actual project execution duration)	NEC Part 3 & Functional Specification		20
	4.4	Tenderer to provide a detailed project-related method statement, and preliminary project site establishment method statement inclusive of lay-down area requirements Site Access Plan - Provide a preliminary project specific site access plan taking into account the access roads into the EAL site, and to all other areas around Refuse Warehouse area.	NEC Part 3 & Functional Specification		30

3.4 TET MEMBER RESPONSIBILITIES

Table 4: TET Member Responsibilities

Mandatory Criteria Number	**TET 1**	**TET 2**	**TET 3**	**TET 4**	**TET 5**	**TET 6**	**TET 7**
1	x	x					
Qualitative Criteria Number	**TET 1**	**TET 2**	**TET 3**	**TET 4**	**TET 5**	**TET 6**	**TET 7**
1.1 to 1.5	x	x					
2.1 to 2.11			x			x	
3.1 to 3.3				x			
4.1 to 4.4					x		x

X – Mandatory
O - Optional

3.5 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.5.1 Risks

Table 5: Acceptable Technical Risks

Risk	Description
1.	Alternative solutions with the same or better performance

Table 6: Unacceptable Technical Risks

Risk	Description
1.	Exclusions of scope specified in the employers requirements
2.	Unclear staff organogram. i.e. the staffing plan is weak not showing clarity in allocation of tasks and responsibilities
3.	Exclusion of a project specific schedule

3.5.2 Exceptions / Conditions

Table 7: Acceptable Technical Exceptions / Conditions

Risk	Description
1.	Accept deviation with technical qualification

Table 8: Unacceptable Technical Exceptions / Conditions

Risk	Description
1.	Deviation without technical qualification not accepted

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation	Signature
~~Andrew Koehane~~	Senior Electrical Engineer	
~~Byron Thomas~~	Civil and Structural Engineer	BW Thomas
~~Jabulani Mathebula~~	Configuration Management	
~~Rameel Burath~~	Civil and Structural Engineer	RBurath
~~Lebogang Khumalo~~	Project Management	
~~Palesa Moleko~~	Project Management	

5. REVISIONS

Date	Rev.	Compiler	Remarks
April 2021	0.1	BW Thomas	Draft for review
May 2021	1.0	BW Thomas	Final
November 2021	1.1	BW Thomas	Revised due to reissue
November 2021	1.2	BW Thomas	Updating electrical requirements
November 2021	2.0	BW Thomas	Final

6. DEVELOPMENT TEAM

- ~~Byron Thomas~~
- ~~Palesa Moleko~~

7. ACKNOWLEDGEMENTS

N/A

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APPENDIX A – LUMINAIRE TECHNICAL EVALUATION

2 Luminaire Technical Requirements

2.1 Photometric Requirements

This section contains the minimum photometric requires and must be read in conjunction with Annex A.

- The light colour shall be “Neutral White” (4000K).
- The colour rendering index shall be equal to or greater than 85.
- The luminaire efficacy shall be equal to or greater than 110 lm/W.
- The luminaire downward light output ratio (LOR) shall be equal to 100%.
- The luminaire shall reach its full brightness instantaneous.
- IES and/or LTD files for use with Relux must be supplied in electronic format.

2.3 Electromagnetic Requirements

Security lighting luminaires offered shall comply with the following standards: EN 55015. Proof of compliance shall be provided through standard test reports (actual measurement data for the frequency spectrum tested).

2.4 Mechanical Requirements

- Luminaires shall be constructed from durable lightweight materials and shall be accompanied by comprehensive test reports certifying that the luminaires have successfully passed SANS 475.
- Luminaires shall be supplied complete with control gear and LED module.
- Diffusers / lenses shall not have external prisms that could accumulate dirt and dust, and thus reduce the light output of the luminaires. Diffusers shall be constructed in such a manner that the wall thickness of the material is maintained at a constant thickness, hence preventing the projection of lines of patterns onto the ground level.
- In case where luminaires are fitted with reflectors, the reflector shall be made of high-grade super pure deep anodized aluminium.
- LED drivers shall be fully housed within or fixed onto the body of the luminaire.
- The luminaire dimensions and weight shall be specified.
- The number of modules and LEDs per module shall be specified.
- The operating relative humidity range shall be 10% to 70%.

2.5 Guarantees

Lead time for delivery within 60 calendar days from date of order.

The tenderer/s shall guarantee, from date of delivery:

- Luminaire housing for a minimum period of ten (10) years.
- The electrical components for 30 000 operating hours (five years).
- The LED module for 30 000 operating hours (five years).

2.6 Delivery

Lead time for delivery within 60 calendar days from date of order.

2.7 Maintenance strategy

The tenderer/s shall provide Eskom with a proposed maintenance/cleaning strategy for the luminaires offered.

This strategy must ensure that a maintenance factor of at least 0.80 will be maintained for the LED luminaires through its expected service life.

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2.8 Luminaire technical evaluation

The technical evaluation for the luminaires shall consist of three parts namely:

Documentation evaluation to verify all required documents and luminaire samples have been submitted. Refer to Annex A for detail. Luminaire submissions not complying with all set requirements will immediately be disqualified.

Documentation and a physical luminaire evaluation to verify all requirements as set out comply. Criteria as listed will be scored to determine compliance to set requirements. Refer to Annex B for detail. Luminaire submissions that score less than 80% will immediately be disqualified.

The remaining luminaires will undergo photometric, electrical and electromagnetic interference performance tests in the Eskom RT&D laboratories to verify compliance to the photometric, electrical and electromagnetic interference data submitted. Only luminaires with photometric, electrical and electromagnetic interference performance compliance of 95% or more compared to submit data will be considered technically acceptable for use in Eskom substations as floodlights.

All supplier submission documentation, reports and certificates shall be in English.

2.9 Documentation to be submitted

The following documentation must be submitted per luminaire offered:

- Proof of compliance to the SANS 60598-1 (by reputable accredited laboratory)
- Proof of compliance to the SANS 475 (by reputable accredited laboratory)
- Proof of compliance to the EN 55015 (by reputable accredited laboratory)
- Completed technical Schedule B in Annex 1.
- IES and/or LTD files supplied in electronic format.
- Proposed Relux simulation (electronic .RDF file)
- Photometric test reports per luminaire offered. (by reputable accredited laboratory)
- Luminaire guarantee certificate.
- Certificate indicating lead time for delivery from date of order
- Luminaire maintenance strategy.

No luminaire will be approved or tested if these test reports are not provided.

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APPENDIX B – LUMINAIRE SAMPLES TO BE SUBMITTED

Tenderers that pass the qualitative process with 70% and above will be required to submit luminaire samples to Eskom prior to negotiations.

2.10 Sample criteria

One sample of all different luminaires that is proposed must accompany each submission for inspection and to undergo photometric, full electrical and electromagnetic interference performance tests in the Eskom RT&D laboratories to verify compliance to the photometric, electrical and electromagnetic interference data submitted.

All samples not meeting the set criteria can be returned on request. Samples that met the set criteria will be retained for reference purposes for the period the luminaire will be considered acceptable (typically a period of five years).

2.11 Evaluation criteria

The evaluation criteria as detailed in Annex B will be applied in determining compliance to the set requirements.

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Annex A – Technical Schedules A and B

Schedule A: Eskom's Particulars Requirements

Schedule B: Technical Particulars of Luminaire Offered

ITEM NO	DESCRIPTION	UNIT	SCHEDULE A	SCHEDULE B
1	**Photometric Specifications**			
1.1	Colour temperature	K	4000 K (Neutral White)	
1.2	LED luminous flux	lm	Specify	
1.4	Colour rendering index (CRI)		≥ 85	
1.5	Luminaire efficacy	lm/W	≥ 110	
1.5	Light output ratio (LOR)	%	Specify	
1.6	Downward light output ratio (DLOR)	%	≥ 85	
1.7	Time to full brightness	minutes	< 1	
1.8	IES and/or LTD files		Comply	
2	**Electrical Specifications**			
2.1	Input voltage	VAC	230 ±15%	
2.2	Frequency	Hz	50 ± 5%	
2.3	Input current (maximum)	mA	300-500	
2.4	Efficiency (total LED to total luminaire power consumption)	%	≥ 90	
2.5	Power factor (PF)		≥ 0.95	
2.7	Total Harmonic distortion	%	≤ 20	
2.8	Protection type			
3	**Electromagnetic Specifications**		As specified	
4	**Mechanical Specifications**			
4.1	Luminaire design		As specified	
4.2	Luminaire material and SANS 475 compliance		As specified	
4.3	Luminaire and accessories		As specified	
4.4	Diffuser		As specified	

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ITEM NO	DESCRIPTION	UNIT	SCHEDULE A	SCHEDULE B
4.5	Reflector material		High-grade super pure deep anodized aluminium	
4.6	LED Drivers capability		As specified	
4.7	Luminaire dimensions		As specified	
	Height	mm		
	Width	mm		
	Length	mm		
4.8	Luminaire Weight	kg		
5	**General Specifications**			
5.1	Number of modules			
5.2	Number of LEDs			
5.3	Arrangement (number of LEDs per module)			
5.4	Operating temperature range	°C	-10 to +60	
5.5	Operating humidity range	%RH	10% - 70%	
6	**Guarantee**			
6.1	Luminaire housing (minimum)	years	10	
6.2	Electrical components (minimum)	hours	30 000	
6.3	LED modules (minimum)	hours	30 000	
6.4	Luminaire replacement in case of sub-standard performance		As specified	
7	**Delivery**			
7.1	Lead time for delivery from time of order	Calendar days	60	
8	**Maintenance strategy**		Specify	

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Annex B – Technical evaluation scoring matrix

B.1 Qualitative evaluation criteria

After a luminaire offered has met all the mandatory criteria in B1, the submission will be assessed against the following criteria (shown below with their weightings):

Criteria	% weight
Photometric requirements	25
Electrical requirements	20
Mechanical requirements	20
Guarantees	10
Sample submitted	20
Total	100

For each evaluation criteria, the extent to which submissions have complied with the requirements shall be scored based on the following:

5	COMPLIANT Meet technical requirement(s) AND; No foreseen technical risk(s) in meeting technical requirements.
4	COMPLIANT WITH ASSOCIATED QUALIFICATIONS Meet technical requirement(s) with; Acceptable technical risk(s) AND/OR; Acceptable exceptions AND/OR; Acceptable conditions.
2	NON-COMPLIANT Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR; Unacceptable exceptions AND/OR; Unacceptable conditions.
0	TOTALLY DEFICIENT OR NON-RESPONSIVE

Threshold: The score that each tenderer receives will provide a numeric basis for tender comparison. The minimum weighted average score required for a luminaire to be considered must be 80% or above. Only luminaire scoring 80% or above will be tested in the Eskom RT&D photometric laboratory to verify the photometric and electrical data submitted.

ITEM NO	DESCRIPTION	UNIT	Criteria	Score
1	**Photometric Specifications**			
1.1	Colour temperature	K	< 3500	0
			3500	2

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ITEM NO	DESCRIPTION	UNIT	Criteria	Score
			4000	5
			4500	2
			> 4500	0
1.2	Colour rendering index (CRI)		≥ 85	5
			< 85	0
1.3	Luminaire efficacy	lm/W	≥ 110	5
			100 – 110	2
			≤ 100	0
1.4	Downward light output ratio (DLOR)	%	≥ 90	5
			85 – 90	4
			80 – 85	2
			≤ 80	0
1.5	Time to full brightness	minutes	< 0.5	5
			0.5 – 1	4
			> 1	0
Photometric Specifications (maximum points: 25)			Photometric score	
Photometric Specifications (section weight: 30%)			Weighted score = score above	
ITEM NO	**DESCRIPTION**	**UNIT**	**Criteria**	**Score**
2	**Electrical Specifications**			
2.1	Input current (maximum)	mA	300	5
			400	4
			500	2
			> 500	0
2.2	Luminiare efficiency	%	≥ 95	5
			90 – 95	4
			< 90	2
2.3	Power factor		≥ 0.95	5
			0.90 – 0.95	4
			0.85 – 0.90	2
			< 0.85	0
2.4	Harmonic distortion	%	≤ 10	5

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ITEM NO	DESCRIPTION	UNIT	Criteria	Score
			10 – 15	4
			15 – 20	2
			> 20	0
Electrical Specifications (maximum points: 20)			Electrical score	
Electrical Specifications (section weight: 25%)			Weighted score = $(Score) * \left(\frac{25}{20}\right)$	
3		**Mechanical Specifications**		
3.1	General luminaire design		Yes	5
			Partially	2
			No	0
3.2	Body material		Non-ferrous metal	5
			Ferrous metal	2
			Anything else	0
3.4	Reflector material: High-grade super pure deep anodized aluminium		Yes	5
			No	0
Mechanical Specifications (maximum points: 15)			Mechanical score	
Mechanical Specifications (section weight: 25%)			Weighted score = $(Score) * \left(\frac{20}{15}\right)$	
4	**Guarantee**			
4.1	Luminaire housing (minimum)	years	≥10	5
			7.5 – 10	4
			5 – 7.5	2
			< 5	0
4.2	Electrical components (minimum)	hours	≥ 50 000	5
			40 000 – 50 000	4
			30 000 – 40 000	2
			≤ 30 000	0

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ITEM NO	DESCRIPTION	UNIT	Criteria	Score
4.3	LED module (minimum) life expectancy	hours	≥ 50 000	5
			40 000 – 50 000	4
			30 000 – 40 000	2
			≤ 30 000	0
4.4	Lead time for delivery from time of order	Calendar days	≤ 30	5
			30 – 40	4
			40 – 50	2
			≥ 60	0
Guarantee (maximum points: 20)			Guarantee score	
Guarantee (section weight: 20%)			Weighted score = score above	

B.2 Physical luminaire performance evaluation - Compulsory

Only luminaire that achieved 80% or more in the qualitative evaluation will be considered for further evaluation. These luminaire will undergo photometric, full electrical and electromagnetic interference performance tests in the Eskom RT&D laboratories to verify compliance to the photometric, electrical and electromagnetic interference data submitted.

Only luminaire with photometric, electrical and electromagnetic interference performance compliance of 95% or more compared to submit data will be considered technically acceptable for use in Eskom.

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