ENERGY MANAGEMENT CENTRE -KERALA
Department of Power, Government of Kerala
Thiruvananthapuram, Kerala – 695 017;
www.keralaenergy.gov.in

REQUEST FOR PROPOSAL

Invitation for Government Institutions, Engineering & Architectural colleges, Other training institutes in Kerala for training of Building Energy Efficiency Expert applicants

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Ref. No.:EMC/502/2020-PE(ESS)

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1. Preamble

This document is a Request for Proposal (RFP) for selection of institutes for training of building professionals who are interested to become a Building Energy Efficiency Expert (BEEE) empanelled with EMC Kerala. Empanelment program for Building Energy Efficiency Expert(BEEE) by EMC-Kerala targets at creation of a pool of building professionals in the State of Kerala, who can facilitate implementation of design concepts and other measures for achieving better energy efficiency and conservation in building sector.

Interested institutions may download the RFP document from our website www.keralaenergy.gov.in. The submission of the RFP document must be accompanied with the payment of application fee of Rs. 2000/- (Rupees two thousand only) inclusive of GST. The payment will be accepted in the form of online transaction across the following account or the UPI ID - energymanagementcentre@sbi.

Interested bidders may contact Mr. Tomson Sebastian, Energy Technologist-B, EMC-Ker-ala for any clarification. Tel: 9400068323, Email: tomson@keralaenergy.gov.in

2. Introduction

About EMC-Kerala

Energy Management Centre - Kerala, Department of Power, Government of Kerala is the State Designated Agency (SDA) of Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India to coordinate, enforce and implement Energy Conservation Act-2001 (Central Act52 of 2002) in Kerala. EMC is working towards attaining energy efficiency in all sectors of economy.

About Building Energy Efficiency Experts (BEEE).

The Energy Conservation Building Code (ECBC) was launched in May 2007 by the Bureau of Energy Efficiency (BEE), Ministry of Power. Its main objective is to establish minimum requirements for energy efficient design and construction of buildings. Recognizing the energy and cost savings of efficient buildings and to help address growing energy needs, Government of Kerala has notified Kerala State Energy Conservation (Building Code) Rules 2017-KSECBC (G.O. (P) No.3/2017/PD dated 11th April 2017 vide Kerala Gazette Vol VI, No. 936 dated 8th May 2017). KSECBC states that, any building or building complex in the state of Kerala that have a connected load of 100kW or greater or a contract demand of 120kVA or greater or having an air conditioned area of 500 m^2 or above and buildings that are intended to be used for commercial purposes including office buildings except for buildings with residential purpose or warehouse are accounted under the scope of ECBC compliance. Correspondingly, the ECBC clauses has been incorporated in the Kerala Municipality Building Rules (KMBR) vide G.O (P) No. 77/2019/LSGD dated 2/11/2019 and Kerala Panchayat Building Rules (KPBR) vide G.O.(P) No. 78/2019/LSGD dated 2/11/2019. The ECBC stipulates mandatory requirements and prescriptive directives for building components and systems.

The ECBC compliance procedure requires the building to fulfil a set of mandatory provisions related to energy use as well as show compliance with specified requirements stipulated for different building components and systems. The EMC-Kerala, vide the empanelment of BEEE, tries to ensure the availability of building professionals who are capable of doing ECBC compliance check for upcoming buildings in the State. This helps building owners and design- ers to evaluate the energy performance of a proposed building and make it energy efficient by incorporating necessary measures in the design before the building is constructed.

The Terms of Reference for the empanelment of building professionals in the field of building energy efficiency is published in the official website of EMC-Kerala. For more details, please visit https://www.keralaenergy.gov.in/index.php/building-energy-efficiency-experts-beee

3. Project

The EMC-Kerala has invited applications for empanelment of professionals in Building Energy Efficiency. The empanelment of Building Energy Efficiency Experts happens through a two stage the training evaluation and subsequent empanelment process creating a cadre of building professionals capable to design energy efficient buildings and give advices on development of energy efficient building projects. The pilot batch of training and empanelment has been completed successfully in 2020-21. From 2021-22 onwards EMC is planning to develop this base of empanelled professionals in a big way to increase its strength to at least 1000 nos. For this, EMC invites the institutions in Kerala to organize training programs through online / offline training sessions (as the situation may permit) for the BEEE applicants as per syllabus provided by EMC-Kerala. The applicant can also associate with BEE empanelled ECBC firms for organizing the training programs where all the roles & responsibilities and financial terms has to be finalized between the institute and empanelled ECBC firms. The broad outlay of training programs will be as below.

Sl. No.	Type of training	Duration
1	Training A- Online certificate course on ECBC compliance check through Energy Simulation.	26 hrs
2	Training B – Intensive training on ECBC compliance check	16hrs

The BEEE applicants who completes Training A successfully shall be allowed to participate in the Training B. The minimum number of participants expected in the each training programme is 30 and at the maximum 50. The institutions has to ensure that at least 75% of the participants are residents in Kerala or working in the State of Kerala.

4. Scope of Work

1. Create awareness on BEEE empanelment programme across the building professionals especially in Kerala and ensure maximum participation in the programme

2. Organize training programmes for BEEE applicants across Kerala. It can be through online / off-line mode based on the requirements of applicants. The institutions can organize training programmes in co-ordination with the associations/ organizations in the building sector, if there are sufficient number of BEEE applicants from that associations/ organizations.
3. The training sessions have to be handled by the ECBC master trainers/ Building energy simulation experts listed by EMC-Kerala. The institute can seek the support of BEE empanelled ECBC firms if found necessary.
4. EMC shall provide the training material and training content and the training session has to be done based on the same.
5. The institute is expected to prepare model questionnaire / problems with the support of master trainers, in concurrence with EMC-Kerala, for carrying out evaluation process of BEEE applicants.
6. The institute shall submit the simulation outputs and supporting documents from candidates in the prescribed format for the evaluation exercise to EMC-Kerala.
7. The expert team constituted by EMC-Kerala will do the evaluation of the outputs forwarded by the institution from trainees. A representative from the institution should be there in the expert team for evaluation.
8. After evaluation of submissions and publishing of the results by EMC-Kerala, the institutions shall facilitate in preparation of certificates in prescribed format for the participants. The soft copy of the certificate shall be forwarded to EMC for issue.

5. Duration of project

Project duration will be 6 months from the date of signing of MoU with the institute, within which time the institute may conduct maximum number of training and evaluation processes to achieve the target. The duration may be extended by EMC-Kerala if required, based on the performance of the institute, for which the cost structure may vary.

6. Fee of Project

Training fee per applicant shall be given to the institute for undertaking training of BEEE applicants is as follows. Fees should be inclusive of all expenses.

Sl. No.	Type of training	Duration	Honorarium/Participant
1	Training A- Online certificate courseon ECBC compliance check through Energy Simulation.	26 hrs	1950
2	Training B – Intensive training on ECBC compliance check	18 hrs	2900

**The details of Training A and Training B is attached as annexure A and annexure B

EMC will provide an additional remuneration to the institute at a rate of Rs.1000 per trainee who successfully complete the empanelment process and become a BEEE professional empanelled with EMC under the aegis of the respective institute. This remuneration is provided to encourage the institute to produce maximum numbers of BEEEs through this programme.

7. SELECTION PROCESS

The institutes meet the following qualifications criteria are invited to submit the proposal to EMC-Kerala.

1. The institute should be Government Institution/ Engineering or Architectural College/Other training institute.
2. Should be located in Kerala and has at least two employees who can communicate in local language (Malayalam) and English for event coordination.

The proposals shall be submitted to EMC-Kerala via email to emck@keralaenergy.gov.in and cc: tomson@keralaenergy.gov.in.

Preliminary scrutiny of the Proposals will be made to determine whether they are complete, whether the documents have been properly signed, whether the forms are generally in order (As per clause of this RfP), and whether the minimum eligibility criterion is met (as per clause of this RfP). Proposals not conforming to above listed preliminary requirements will be prima facie rejected. The rectifiable discrepancies in the Proposal, if any would have to be corrected by the interested institutes within a period of seven (7) days of the intimation given to them during the preliminary scrutiny of proposals.

8. Terms of Payment

Payment authority will be Energy Management Centre- Kerala. The institute shall raise the invoice in favour of "The Director, Energy Management Centre –Kerala, Sreekrishna Nagar, Sreekaryam P.O. Thiruvananthapuram – 695 017".

Note:
The institutes can raise the invoice for advance payment, 5 days prior to the commencement of the eachtraining program. The advance payment is limited to 50% of the total honorarium for the each training.

9. Contents of Proposal

The proposals would be scrutinized on the basis of the criterion set in para 7 above.

The specific qualifications of the institute would be checked on the basis of the following information along with the prescribed documents:

I. Evidence of satisfying all the minimum eligibility criterion listed out in clause 7 of this RfP

II. Sufficient size, organization, and management to carry out the entire project.

III. Specialized skills and creativity related to the project.

However, EMC-Kerala in its sole/absolute discretion can apply whatever criteria deemed appropriate in determining the responsiveness of the Proposal submitted by the respondents.

10. Forms for the Proposal

Proposal is to be submitted in the following format along with the necessary documents as listed. The Proposal shall be liable for rejection in the absence of requisite supporting documents. Proposal should provide information against each of the applicable requirements. In absence of the same, the Proposal shall be liable for rejection.

Form 1 : Letter Proforma

To

The Director,

Energy Management Centre – Kerala

Sreekrishna Nagar, Sreekaryam P.O.

Thiruvananthapuram – 695 017

Sub: Empanelment of Government Institutions, Engineering & Architectural colleges, Other training institutes in Kerala for training of BEEE applicants

Sir,

The undersigned institute, having read and examined in detail all the RfP documents in respect of appointment of a partner institute for EMC-Kerala for the said project, do hereby express their interest to provide their Services as specified in the scope of work

2. Correspondence Details

1	Name of the Institute*	
2	Address of the Institute*	
3	Name of the contact person to whom all references shall be made regarding this empanelment*	
4	Designation of the person to whom all references shall be made regarding this proposal*	
5	Address of the person to whom all references shall be made regarding this proposal*	
6	Mobile * Telephone (with STD code)	
7	E-Mail of the contact person*	

3. Document forming part of Proposal We have enclosed the following:

Form 2 : Minimum Eligibility

Application fee

4. We hereby declare that our Proposal is made in good faith and the information contained is true and correct to the best of our knowledge and belief.

Thanking you

Yours faithfully,

(Signature and Seal of the Head of the Institute)

Form 2 : Minimum eligibility

Sl. No.	Criteria	Yes/No
1	Is institution is a Government Institution/ Engineering or Architectural College/ Other training institute*	
2	Is the firm is have at least two employee whocan communicate in local language (Malayalam) for event coordination**	

* Attach the relevant certifications

** Fill the following table

Local Language (Malayalam) expertise

Sl. No.	Name of the employee	Speak	Read	Write

Signature

(Head of the Institution)

Annexure A

Online Certificate Course on ECBC compliance check through EnergySimulation		
Session no.	**Session title**	**Duration(mins)**
1	1.1 ECBC- A Brief on ECBC and Kerala State ECBC Rules 2017	30
	1.2 Understanding Building Physics	60
2	2.1 Introduction on ECBC &Compliance Approach • Mandatory Requirements • Prescriptive Approach • Whole Building Performance Approach	45
	2.2 Case Study ECBC Compliant Building with Cost Analysis	60
3	3.1 Technical Aspects of ECBC	30
	3.2 Building Physics, U-Value Calculation	45
	3.3 Building Design, Form, Zoning & Orientation Optimization	45
4	4.1 Daylighting Analysis - Shading, Daylighting, Glass Selection	60
	4.2 Case Study – Presentation	30
5	5.1 Introduction to Energy Modelling	45
	5.2 Demonstrations on Tools Interface	45
	5.3 Presentation of Case Study	30
6	6.1 Hands-on Training for Sample Energy Model: • Building Geometry Development	90
7	7.1Optimization of Building Envelope *(Zoning, Insulation, Shading Devices, and their Impact on Building Energy-Load Calculation)*	45
	7.2 HVAC System Sizing	45
8	8.1 Modelling of Different Systems	60
	8.2 Simulation of Developed Model	30
9	9.1 Simulation-Output Analysis	90
10	10.1 Hands-on Training Exercise Problem • Base case modelling as per KSECBC Rules(ECBC 2007 Guide) – Notified in the State	90
11	11.1 Hands-on Training Exercise Problem Proposed Case as per Sample Exercise Shared • Proposed Case Modelling as per the exercise given.	90
12	12.1 Hands-on Training- Exercise Problem EPI evaluation and comparison of Base Case and Proposed Case Models-(Specific Building Type from the	90

	Code)	
	EXAMINATION	
1	ECBC Examination for Participants – Multiple Choice Questions type.	60
2	Simulation Examination for a sample energy model of typical building type– With the Building Descriptions shared with participants	300
	Total course duration	**26 Hrs**

Annexure B

Intensive training on ECBC compliance check	
MODULES	**DURATION**
Module 1	
ECBC Awareness & Overview	
World Energy Scenario & Energy scenario in India	15
About ECO-III Project, Milestones, EC Act,	10
Introduction to ECBC	15
Impact of ECBC Compliance	10
Q & A Session	10
Total Duration (Minutes)	0
Total Hours	1hr.
Module 2	
ECBC Scope & Administration	
ECBC Scope, Applicability	10
ECBC Compliance approach KSECBC Rules 2017	10
ECBC Compliance Process in Kerala	15
Administration and Enforcement	10
ECBC Documents in force	15
Q & A Session	10
Total Duration (Minutes)	0
Total Hours	1.2hrs.
Assignment: ECBC Compliance check building permit documentation	
Module 3	
Envelope Design Considerations	
Design & details of opaque construction, Fenestration, Shading devise, cool roofs	30
Heat transfer principles - Material Properties - Moisture & Infiltration – Design methods Calculations	30
Code requirements – Mandatory & Prescriptive- ECBC Compliance forms	15
Q & A Session	15
Total Duration (Minutes)	90
Total Hours	1.5 hrs.
Assignment: Calculation of thermal property of Construction materials /U-Value calculation for a sample building	
Module 4	
Heating Ventilation & Air-Conditioning – basics ECBC	
Whole building design approach and role of HVAC	15
Refrigerative cooling, system types and details	25
HVAC System components &Efficiency	25
Cooling load reduction	15

System Balancing & Building Commissioning overview	10
Mandatory & Prescriptive- ECBC Compliance forms	15
Q & A Session	15
Total Duration (Minutes)	0
Total Hours	2hrs.
Assignment: HVAC modelling in Simulation tool for a sample system	
Module 5	
Lighting Basics	
Lighting Principles, Light Quality optimisation	20
Energy Efficient Lighting Systems	15
Lighting control design, BAM, SFM	15
Whole building approach, Concept of LPD	10
Mandatory & Prescriptive -ECBC Compliance forms	15
Q & A Session	15
Total Duration (Minutes)	0
Total Hours	1.5hrs.
Assignment: LPD calculations (Manual and Simulation tool based)	
Module 6	
Daylighting Analysis	
Significance of Daylighting Analysis, DEF, Surface Reflectance, UDI Code Requirements	20
Daylighting Analysis Simulation Method	55
Q & A Session	15
Total Duration (Minutes)	90
Total Hours	1.5 hrs.
Assignment: Daylighting factor calculation (based on Prescribed ECBC Methods)	
Module 7	
Electrical Power	
Power Distribution, Transformers, Electric Motors	10
Types- selection criteria- Sizing	10
Losses- PF & PFC- Efficiency	10
Mandatory & Prescriptive- ECBC Compliance forms	10
Service Hot Water & Pumping – basics	
Types of water heaters - Source type and system details	10
Solar water heater sizing- Efficiency- Supplementary water heating	10
Energy loss- piping Insulation- heat traps	10
Mandatory & Prescriptive- ECBC Compliance forms	10
Q & A Session	10
Total Duration (Minutes)	90
Total Hours	1.5hrs
Assignment: Modelling Service hot water systems in simulation tool (for a sample building)	

Module 8	
Hands-on Compliance Check	
Prescriptive requirements	50
Trade- off compliance	30
Q & A Session	15
Total Duration (Minutes)	0
Total Hours	1.5hrs.
Assignment: Prescriptive analysis method for a hypothetical project	
Module 9	
Hands-on Compliance Check	
Whole Building Performance using software	150
Q & A Session	60
Total Duration (Minutes)	210
Total Hours	3.25hrs.
Assignment: Whole building analysis method for a sample project	
Module 10	
Report Generation &Assessments	
Guidance on Report Generation as per the ECBC	30
Assessment on ECBC Compliance	30
Total Duration (Minutes)	60
Total Hours	1hrs.
Assignment: Report generation for a Pre-modelled sample project.	
Total Course Duration	**960 min**
Total Course Duration in Hours	**16 hrs.**