



## PROJECT REGISTRATION FORM

<b>Project Number:</b> BATF-09-55	<b>Task Force:</b> Buildings and Appliances
<b>Title of Project:</b> Role Enhancement of Building Energy Codes Through Development of Building Envelope Component Energy Performance Labeling and Certification	
<b>Lead Partner Country:</b> India	
<p><b>Participating Partner Countries and Organizations:</b></p> <p>India: Bureau Of Energy Efficiency (BEE), Glazing Council of India (GCI), Center for Environmental Planning and Technology (CEPT).</p> <p>United States: National Fenestration Rating Council (NFRC), WinBuild, Inc., Association of Industrial Metallizers, Coaters and Laminators - Window Film Committee (AIMCAL-WFC), (IWFA), US-Department of Energy (DOE), North American Insulation Manufacturers Association (NAIMA), Cool Roof Rating Council (CRRC).</p>	
<b>Project Location</b> (Country, State/Province, City): <b>India</b>	
<p><b>Project Manager Information</b></p> <p><b>Name:</b> R Subramanian &amp; Bipin Shah</p> <p><b>Organization:</b> Glazing Council of India (GCI) + National Fenestration Rating Council (NFRC).</p> <p><b>Address:</b> GCI, c/o Saint-Gobain Glass India Ltd, A-1, SIPCOT Industrial Park, Sriperumbudur, Tamil, Nadu. PIN – 602105. NFRC, 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770-6323</p>	<p><b>GCI:</b></p> <p><b>Phone:</b> +914427160290</p> <p><b>Fax:</b> +914427162841</p> <p><b>Email:</b> Subramanian.r@saint-gobain.com</p> <p><b>NFRC</b></p> <p><b>Phone:</b> 240-821-9510 or 703-273-4981</p> <p><b>Fax:</b> 301-589-3884</p> <p><b>Email:</b> bvshah@verizon.net</p>
<b>Project Start Date:</b> 1st May 2009	<b>Proposed Project End Date:</b> 30th April 2012
<p><b>Description of Project:</b></p> <p>Construction Industry in India is growing at a stunning 30 %. If this growth is to be sustainable, adoption of energy efficiency in buildings is a necessity – particularly in view of the boom seen in high rise commercial complexes, institutional buildings and malls which are also acting as major consumers of energy.</p>	



Boom in real estate in an energy deficient country like India is increasing the power and energy deficit even further. Adoption of initiatives for energy efficiency in buildings would go a long way towards addressing the national priorities of water conservation and energy efficiency.

To reduce energy use and emissions in the construction sector, it is critical to demonstrate—and build capacity for implementing—energy efficient building technologies and practices throughout India. Key measures include: 1) building energy efficiency measures into the design phase of new construction through demonstration and training; 2) reducing energy use in existing buildings through building retrofits and effective low or no-cost operations and maintenance measures.

The project will develop a building envelope component certification program to be the nationally accepted benchmark for the design, construction and operation of high performance energy efficient buildings. This will establish the minimum level of energy efficiency for the proposed building envelope components namely fenestration, roof and wall-roof systems. The certification program will provide products energy performance level which will be listed on the label. Energy rated and labeled products will provide building inspectors a means to verify compliance of the Energy Conservation Building Code (ECBC).

The Bureau of Energy Efficiency (BEE) has introduced the Energy Conservation Building Code (ECBC) which is currently under implementation for commercial buildings. Inter alia the ECBC specifies the requirements which need to be adhered to by the building envelope components in terms of various performance requirements (SHGC, Light Transmittance, U-factor and Air Leakage, Surface Reflectance, Surface emissivity and R-value).

As part of the implementation program of the ECBC, the BEE is interested in developing an Indian institution which will be capable of providing accurate independent certifications on the building component performance parameters. Glazing Council of India (GCI) proposes to establish such a certification and labeling program. As part of the energy certification and labeling program, GCI proposes to sponsor energy performance testing laboratories. The first such laboratory for testing building components is planned to be with CEPT.

The project will have the following goals:

- Develop building envelope component performance certification.
- To make available to public the components which are certified on the basis of the above with details of their performance.
- Setup the first performance testing lab at CEPT, Ahmedabad
- Promote fenestration energy labeling system and its implementation.
- Testing lab, simulation and quality check capacity building to support analysis and verification.
- Standards development to establish product performance for rating and labeling
- Train Indian officials and professionals to administer and implement the rating and certification programs.



**Project Objectives:** To develop a component certification program in line with the ECBC and set up the first testing lab at CEPT for building component performance testing and verification. The project will be administered by GCI.

**Project Deliverables:**

Building envelope component energy labeling system:

- To set up the first Building Envelope component Testing Lab at Centre for Sustainable Energy & Environment at the CEPT University
- Develop a Certification Mechanism for the Program
- Promote the Glazing Council of India through a membership drive so as to arrive at an inclusive body with representation from all stakeholders in the Indian building envelope component Industry.
- Promoting energy efficient products
- Provide rating and labeling service which is in line with ECBC.
- Identify Building Envelope Certification needs:
- Develop criterion for the approval of authorized building labeling laboratories.
- Improve technical guidelines and procedures of building envelope component labeling.
- Train Indian building officials and professionals for verification and implementation of building labeling system.

Fenestration energy labeling and rating system:

- Through workshops, seminar and trade show participation introduce information and experiences on the implementation of different fenestration rating systems such as USA Energy Star and others.
- Research these rating systems to determine theoretical basis and method of Indian fenestration rating, basing on labeling.
- Develop specific documents and technical guidelines for fenestration rating system.
- Set up detailed quality control procedure for labeling and rating programs. Develop procedure package templates, consisting of regulation, technical and licensing documents that can then be used to develop state/national specific program and technical documents to operate the labeling and rating programs.
- Train professionals how to use fenestration simulation tools in order to provide certification services and for manufacturers improve their production energy performance during design process.
- Train Indian officials and laboratories professionals to administer and implement fenestration labeling and rating system.
- Hold experts and professionals workshop to discuss and address technical issues during implementation process.
- Hold technical exchange between Indian labeling laboratories and USA national



laboratories and NFRC accredited laboratories.

- Transfer engineering expertise to assist with the construction and operation of the simulating and testing laboratories. These facilities are a fundamental quality assurance requirement in the fenestration rating procedure ensuring accurate fenestration energy simulations are provided to consumers and building officials.
- Support an Indian labeling laboratory with technical assistance and testing facilities in order to analyze and compare the simulation and testing results for fenestration energy performances between India and other APP countries, research how to adapt to these results from each other so that a mutual recognition mechanism on fenestration labeling and rating may be established.
- Establish and maintain a database of labeled and rated fenestration, announce the labeling and rating information to the public and affect on the knowledge of energy consumption.

#### **Project Milestones:**

##### **Indicators:**

- 1) Setting up of Lab to be over by September 2010
- 2) A Certification mechanism by Nov 2010
- 3) Membership Drive to create an inclusive body by December 2010
- 4) First set of initiatives for promoting energy efficient products by January 2011.
- 5) Report on Energy and Materials Savings due to Improved Practices as a Percentage of Overall Country's Consumption – Measured in Twh/year
- 6) Number of Technologies and Methodologies Developed or Tested for Broad Dissemination. Potential technologies:
  - Optical measurement of glazing and database
  - Thermal (hot box) testing methods (ASTM C1363, C1199, E1423, NFRC 102)
  - Insulating Glazing durability testing methods
  - Applied film and laminated glass
  - ISO test methods
    - ISO9050
    - ISO10292
    - ISO15099
  - Software
    - Optics5
    - Window5
    - Therm5
    - EnergyPlus
  - Thermo physical Property Material testing (hot plate methods, ASTM 518, NFRC 101)



**Resources:**

**Total Project cost:** US\$ 1,200,000  
**Cost Share by Industry:** US\$ 400,000  
**Resources Requested:** US\$ 800,000

**Other Information:**