

# BMDI program Standard Operating Procedure Manufacturer/permittee

Supported by / Prepared for

Bureau of Energy Efficiency, Ministry of Power, Government of India and

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#### **Glossary**

Act: The Energy Conservation Act, 2001 (52 of 2001).

**Admin/Reviewer:** An individual/organization (Bureau of Energy Efficiency) appointed by the Bureau of Energy Efficiency who has the authority to review the company registration forms and is charged with verifying and authenticating the documents. The admin/reviewer has the right to send back, approve and reject company and product application.

**Manufacturer/permittee:** Any manufacturers/suppliers/retailers/company who applies for company registration.

**Authorized Signatory:** An individual appointed by the manufacturer/permittee, who has been authorized to sign documents and represent the manufacturer/permittee.

**Building Materials Directory for India:** A directory/ database for energy-efficient building materials for India.

**BMDI Public Portal:** A public portal, which is accessible by everyone to register their company, add products and edit their profile. The portal also hosts the BMDI selection tool, which is accessible by end users to compare different products.

**BMDI Admin Portal:** A portal, which is accessible by an individual/organization (Bureau of Energy Efficiency) or appointed by the BEE as the admin/reviewer.

Regulations: Regulations made by the Bureau under this Act.



#### Introduction

The government of India enacted the Energy Conservation (EC) Act, 2001 to realize the benefits of energy efficiency through reduced energy consumption. The Act provides the legal framework, institutional arrangement and regulatory mechanism to embark upon an energy efficiency drive in the country. Energy efficiency institutional practices and programs in India are being guided through various voluntary and mandatory provisions of the Act.

The Government of India set up Bureau of Energy Efficiency (BEE), also referred to as 'BEE' or 'Bureau' on 1st March 2002 under the provisions of the EC Act, 2001. The mission of the Bureau is to assist in developing policies and strategies with a thrust on self-regulation and market principles, within the overall framework of the EC Act, 2001 with the primary objective of reducing the energy intensity of the Indian economy.

Bureau of Energy Efficiency (BEE) has taken up various policy and regulatory initiatives to enhance the energy efficiency of the building sector, support for energy assessment & retrofitting process and voluntary star rating programme for commercial buildings. BEE launched the Energy Conservation Building Code (ECBC) in 2007, and the revised version of ECBC was launched in 2017. ECBC is applicable for large commercial buildings with connected load of 100 kW and above or 120 kVA and above. ECBC focuses on building envelope, mechanical systems and equipment including heating, ventilating, and air conditioning (HVAC) system, interior and exterior lighting systems, electrical system and renewable energy, and also takes into account the different climatic zones.BEE introduced the Star Rating for existing buildings as a voluntary policy measure to reduce the adverse impact of buildings on the environment. This program rates buildings on a 1-5 scale, with 5 star labelled buildings being most efficient. Commercial buildings (Hotels) and (Airports) are notified under Perform Achieve and Trade (PAT) scheme, which is a flagship programme of BEE under the National Mission for Enhanced Energy Efficiency (NMEEE).

Rapid increase in residential building stock, coupled with increase in electricity use for space conditioning, is resulting in rapid increase in electricity use in residential buildings. BEE envisaged a phased approach for the development of the residential building energy conservation code. Making houses energy efficient is certainly a way of avoiding a long-term futile electricity consumption liability in residential buildings. Thus, the Eco Niwas Samhita, Part – I Building Envelope (Energy Conservation Building Code for Residential Sector) is developed and launched in 2018. The code aims for promoting design and construction of homes including apartments and townships to give the benefits of energy efficiency to the occupants.

BEE introduced Energy Efficiency Label for Residential Buildings with the objective to make a transparent instrument over the energy performance of a home which will gradually lead to an effective model taken into consideration while deciding over the home prices in the future. It also aims to provide a benchmark to compare one house over the other on the energy efficiency standards to create a consumer-driven market transformation solution for energy efficiency in the housing sector.



#### 1. Building Materials Directory of India

The Eco Niwas Samhita, Part – I Building Envelope (Energy Conservation Building Code for Residential Sector) was launched by the Ministry of Power in the year 2018. As part of the Indo-German Energy Programme (IGEN), Star labeling of residential buildings was envisioned and recently launched by the Ministry of Power, Government of India in 2019. The ECBC 2017 is applicable for large commercial buildings with connected load of 100 kW and above or 120 kVA and above. The implementation of these programs and also other programs related to energy efficiency in buildings are expected to push for energy efficiency in the residential and commercial building sectors. It will have the potential for energy savings to the tune of 125 Billion Units of electricity by 2030, which is equivalent to about 100 million tons of CO<sub>2</sub> emission.

The successful adoption of the ECBC, ECBC-R, Star labeling of buildings would require a compilation of a directory/ database for energy-efficient building materials and a policy roadmap to guide formulation, enforcement, and monitoring of labels, in the residential sector, through market forces. The Building Materials Directory for India (BMDI) is one of the major thrust areas of BEE for the successful adoption of the ECBC & ECBC-R. The key objective of this program is to provide the consumer an informed choice about the energy-saving and thereby cost-saving potential of the relevant marketed product. The program goals to display a directory for energy-efficient building materials.

BMDI is one of the most cost-effective tools for improving energy efficiency and lowering the energy cost of building materials for consumers. The program has been developed in a collaborative and consensus-driven approach with active participation from all the stakeholders.

For the BMDI program, the Bureau works through technical committees of experts and stakeholders, comprising of representatives from industry, industry association, consumer organizations, academia, Non-Government Organizations (NGOs), Research & Development (R&D) institutions, testing laboratories, government organizations and regulatory bodies, etc. The product categories of building materials covered under the BMDI program are as follows:

Table 1 : Categories of building materials

Categories of Building Materials					
S No. Product Categories		Sub-Category	Product Type		
1 Bricks and Blocks		Hollow Brick	<u>-</u>		
		Solid Brick			
		Hollow Block			
			Solid Block		
		Others			
2	Insulation Products	Rigid/Flexible	Boards & Slabs		
			Spray Applied		
			Others		
		Fibrous	-		



	Categories of Building Materials					
S No.	Product Categories	Sub-Category	Product Type			
		Others				
3	Fenestration- Glass	SGU (Single Glazed Unit)	<u>-</u>			
		DGU (Double Glazed Unit)				
		TGU (Triple Glazed Unit)				
		QGU (Quadruple Glazed Unit)				
		Glass blocks				
		Others				
4	Fenestration- Window Assemblies	-	-			
5	Fenestration- Door Set	Glass	-			
		uPVC (Unplasticized Polyvinyl Chloride)				
		Aluminium				
		Timber				
		Steel				
		Others				
6	Fenestration- Frames	-	-			
7	Cement and allied	Cement	Ready Mix Concrete			
	products		OPC (Ordinary Portland Cement) Grade 33, 43, 53			
			PPC ( Pozzolona Portland Cement)			
			Hydraulic Cement			
			Masonry Cement			
			Portland Slag Cement			
			Hydrophobic Cement			
			Supersulphated Cement			
			Others			
		Cement Based Products	-			
		Non-Cement Based Products				
		Others				
8	Paints	-	_			
9	Tiles	-	-			

#### Note:

- 1. For definition of the above mentioned product categories <u>please see Annex 1.</u>
- 2. For more details pertaining to their KPIs, relevant standards, etc. please see Annex 2.



# 2. General Introduction for participation in the Building Material Directory of India (BMDI) program

The energy-efficient building materials directory provides the manufacturers/ suppliers/ retailers of the Indian construction industry an opportunity to enhance their visibility among the business and the industry by registering their products with comprehensive information and getting listed on the website's online building materials directory. It also gives them the chance to showcase their building materials which satisfy the parameters for energy efficiency and are highlighted in the directory.

The manufacturers/ suppliers/ retailers of building materials can participate in the program by registering their company and products on the online BMDI web portal. The documents uploaded on the BMDI web portal shall be duly signed and stamped by the authorized signatory.

The set of documents required for the company registration includes:

- I. Document authenticating the name and address of the premises where the products are manufactured which includes:
  - The certificates/documentary evidence from Registrar of Firm/Directorate of Industries/Industries Centre/Gram Panchayat/Municipal Corporation/Local Body/Pollution Control Board, or;
  - Sale deed indicating ownership of the premises by the manufacturer/permittee firm or valid lease deed showing lawful occupancy of the firm over the premises (in case of the manufacturer/permittee firm is having tenancy rights over the premises), or;
  - Firm's registration with Goods and services tax/registrar of societies.
- II. Valid MSME/SSI certificate in case of micro, small & medium industries;
- III. Valid Certificate of Incorporation;
- IV. Valid Quality Management System Certificate as per the latest version of IS/ISO 9001 issued by an accredited certification body;
- V. A duly stamped letter from the head of the organization on its letterhead mentioning the name and specimen signature of the authorized signatory for representing the organization (please see Annex 3 for sample format);
- VI. Self attested Valid ID proof of Authorized Signatory (Government Issued ID Cards);
- VII. Valid Trade Mark Certificate in the name of the brand/company. In case, valid trademark certificate is not submitted to the Bureau, then the Bureau shall not be responsible for any dispute on the brand name or trade name;

#### Note:

\*The Bureau shall take necessary action against the manufacturer/permittee if any documents submitted by the manufacturer/permittee to the Bureau is found illegal. The Bureau shall not be responsible for any dispute over brand or trade name.



#### 2.1. Process of Company Registration

The manufacturer/permittee needs to register themselves on the BMDI web portal. After registering successfully, the manufacturer/permittee will receive login credentials on the registered e-mail Id. Using the login credentials the manufacturer/permittee can access their dashboard and view the status. Once approved the manufacturer/permittee can add products in different product categories. The process of company registration is as follows:

#### Step 1: Sign Up on the BMDI Portal

- a. To sign up to the BMDI Public portal, please use the following URL: http://52.76.109.165/bmdi/public/index.php
- b. Click on the "Sign Up" tab, as shown in the below figure.



Figure 1:BMDI Sign Up Page

#### Step 2: Enter all the requisite details in section A.

c. After clicking on the "Sign Up" tab, a screen will appear as shown in the below figure. This section includes the company details and authorized signatory details. Enter all the mandatory fields (\*) and click on save & next. After clicking on save & next, you will receive an OTP on provided e-mail ID.

#### Note:

\*The company name, name of the authorized signatory, and other relevant details should be uniform throughout the registration process, otherwise application for company registration will be rejected by the reviewer.



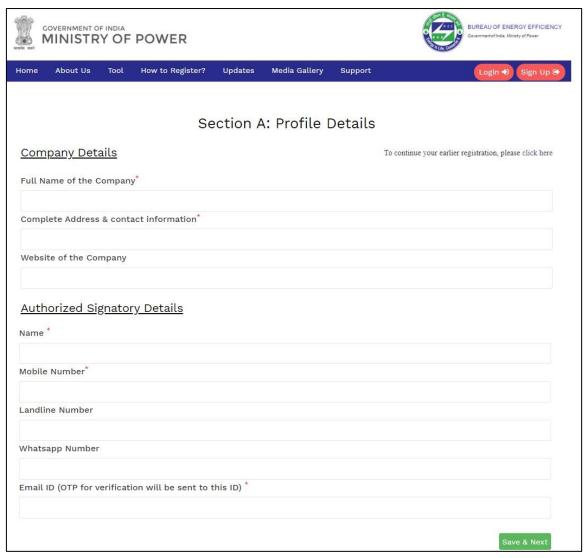


Figure 2:BMDI Company Registration-Section A

#### Step 3: Receiving OTP on the e-mail ID provided.

d. Submit the OTP to verify your e-mail ID. Once verified you will receive a Token ID on the same email ID, to access and continue your form later on. After

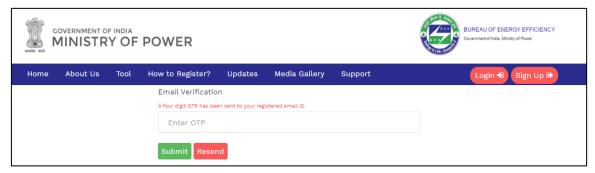


Figure 3:BMDI Email Verification



submission of OTP, the manufacturer/permittee can continue their registration process by clicking on the token ID displayed on the page.

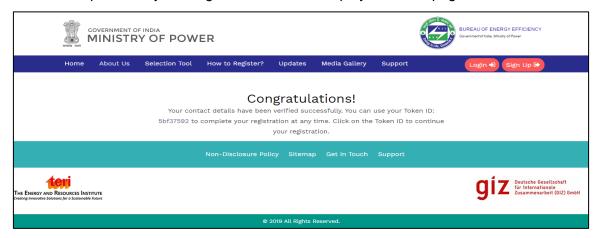


Figure 4: BMDI Token ID Verification

e. To continue registration later on, the manufacturer/permittee can click on Sing Up tab; thereafter please click on (click here) and enter the Token ID received on the verified e-mail ID.

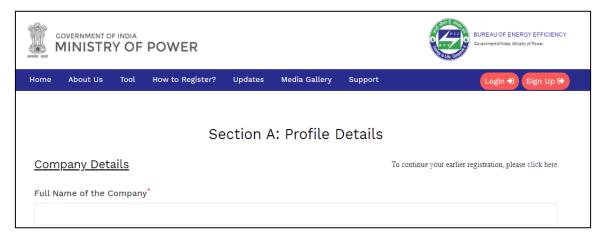


Figure 5:BMDI Registration Process

f. After entering the Token ID, please click on submit to continue.

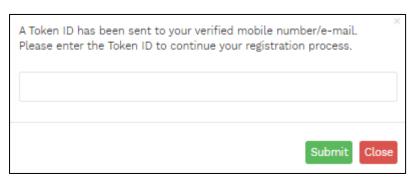


Figure 6: Token Verification at later stage



#### Step 4: Enter all the requisite details in Section B. Click on Save & Next.

- g. Section B is divided into four parts:
- Step 4.1 In this step, the manufacturer/permittee has to enter Authentication details of the company.

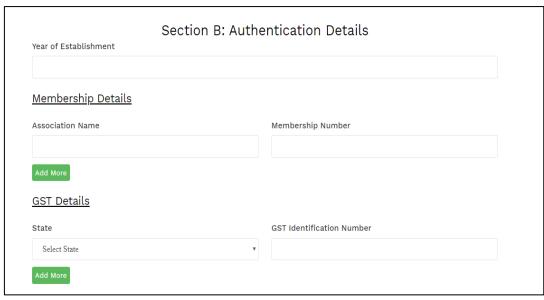


Figure 7:BMDI Registration Section B-Authentic Details

- Step 4.2 In this step, the manufacturer/permittee has to provide details as mentioned in the Section B and also upload at least one supporting document out of following mentioned list of documents:
  - Certificate of incorporation of the company,
  - ISO-9001 for QMS,
  - MSME/SSI certificate,
  - Any other accreditations (such as the GST certificate).

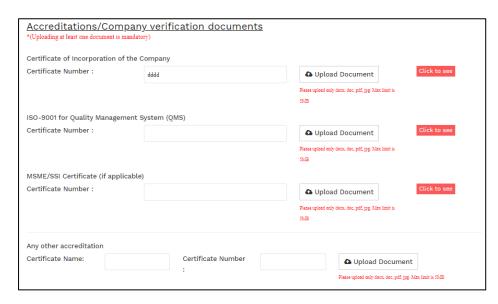


Figure 8:BMDI Registration Section B-Accreditations/Company verification documents



 Step 4.3 In this step, manufacturer/permittee has to upload authorization letter of authorized signatory and ID proof of authorized signatory.

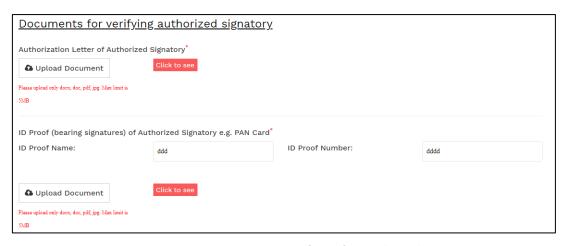


Figure 9:BMDI Registration Section B-Documents for verifying authorized signatory

 Step 4.4 In this step, the manufacturer/permittee has to upload a list of regional offices and branches in the template provide on the portal.

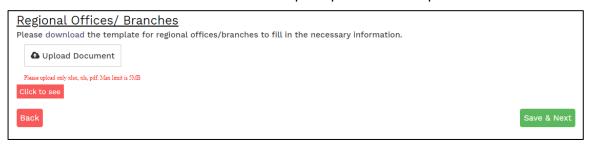


Figure 10:BMDI Registration Section B-Regional Offices/Branches

h. After entering and uploading all the required details, please click on save & next.

#### Note:

- \*The name of the company in verification documents should be same as the name of the company provided by the manufacturer/permittee in section A.
- \*\*The name of the Authorized Signatory should be same as provided by the manufacturer/permittee in section A.

#### Step 5: Enter all the requisite details in Section C. Click Save and Next.

- i. In section C, the manufacturer/permittee has to enter business related details such as the annual turnover range, countries to which products are exported and categories for which they want to register their products.
- j. To know the definitions of the listed products, the manufacturer/permittee can click on (click here) as shown in the figure below.
- k. After filling all the required details, please click on save & next.





Figure 11:BMDI Registration Section C-Business Details

#### Step 6: Preview of the form

- Please carefully check all the filled details before final submission of the form.
   Once submitted your application will be locked and you will not be able to make any changes.
- m. To edit your saved form please click on "back" as shown in the below figure on preview page of the form. The manufacturer/permittee can edit **section B** and **Section C** of the form.





Figure 12: BMDI Form Preview



#### **Step 7: Final Submission of Application and Disclaimer**

n. After clicking on submit in the *previous step*, a disclaimer will be displayed as shown in the below figure. Please read the disclaimer carefully and click on submit to complete your registration.



Figure 13: Policy for Non-disclosure of Data

**Step 8:** A login ID and password will be generated and sent to the registered email ID.

#### Step 9: Log in to BMDI Public Portal

o. To log in to the BMDI Public portal, please click on the "Login" tab as shown in the below figure.



Figure 14:BMDI Login Page



p. After clicking on "Login" the following screen will appear and the manufacturer/permittee can access the dashboard using credentials provided in the registered email.

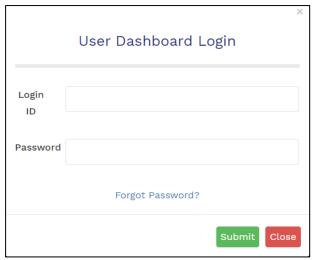


Figure 15:User Dashboard Login

q. After login manufacturer/permittee can check the status of the company registration application. After scrutiny and approval of the company registration application by the Bureau or its designated agency, manufacturer/permittee will be able to register their product on the portal.



#### 2.2. Scrutiny of Application for Company Registration

The Bureau or its designated agency shall be responsible for scrutinizing all the submitted documents submitted by the manufacturer/permittee to check for completeness, validity, consistency and correctness. In case of any inconsistencies in the application, it will be send back to the manufacturer/permitteeto address the comments provided by the Bureau or its designated agency. Till a satisfactory response is received from the manufacturer/permittee, the application shall be put on hold. In case of any further inconsistency or wrong information, the application might be rejected.

The Bureau or its designated agency shall scrutinize the documents as per the check list (please see Annex 4) and shall maintain all records.

After ensuring all the data submitted by the manufacturer/permittee is in compliance with the regulation/statutory order and/or schedule of the relevant product, the application shall be approved. On approval, intimation will be sent to the manufacturer/permittee through registered email. The Manufacturer/permittee will be able to register their products on approval of the company registration.

#### 2.3. Product Registration

The manufacturer/permittee shall apply online for registration of their products, once company registration the application for the gets approved. The manufacturer/permittee can add their products to the BMDI web portal, according to product category mentioned in "section 2" of this Manufacturer/permittees shall also be required to upload following documents on the BMDI portal for registration of the products:

- I. Product photograph/image;
- II. Product brochure containing product technical and physical specifications;
- III. Relevant projects/case studies;
- IV. Green certification for products;
- V. Test report in original providing the energy efficiency performance value, from NABL accredited lab which may be from manufacturer's own lab or an independent lab. Manufacture's in house test report must be submitted on the letterhead of the organization. The manufactured product should conform to the relevant standards referred to in the schedule/regulation and the validity of such a test report should not be more than 3 years.

The manufacturer/permittee may also provide information related to their annual sale for the past 3 years and indicative price range.



The process of adding a product is as follows:

#### **Step 1: Login to BMDI Public Portal**

- a. To login to the BMDI Public portal, please use the following URL: <a href="http://52.76.109.165/bmdi/public/index.php">http://52.76.109.165/bmdi/public/index.php</a>
- b. Click on the "Login" tab, as shown in the below figure.

#### Step 2: Enter login credentials



Figure 16:BMDI Login Page

c. After submitting login credentials, the following screen will appear. Company details can be viewed under the "My Profile" tab on the left-hand side.



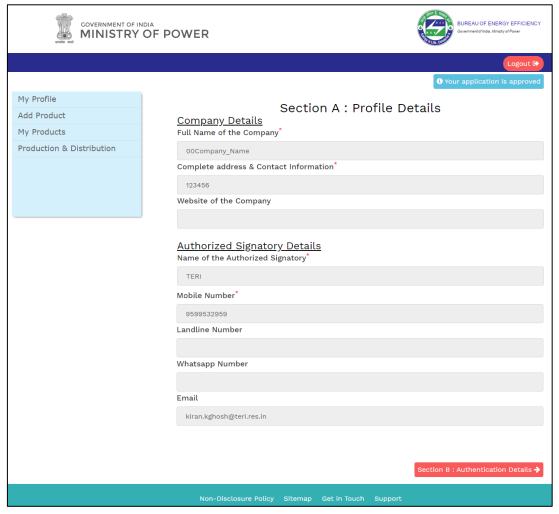


Figure 17:Company profile details-Section A



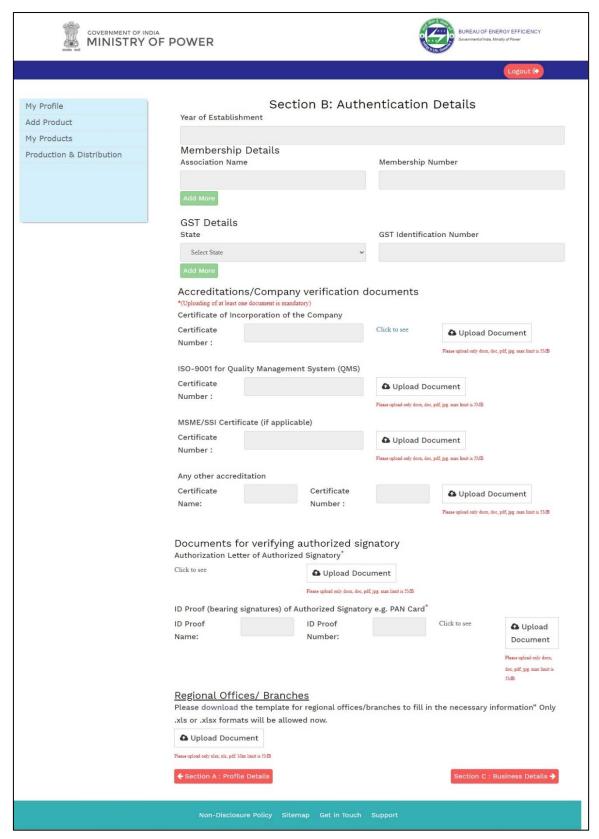


Figure 18:Company profile details-Section B



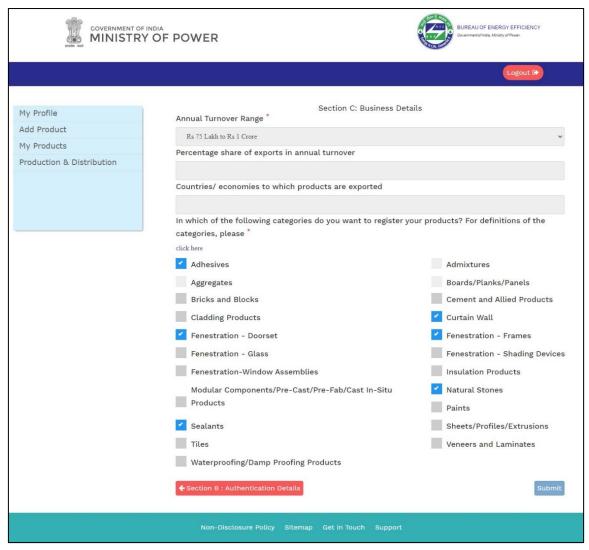


Figure 19:Company profile details-Section C

#### Step 3: Add product

- d. To add product, the manufacturer/permittee hass to click on the "Add Product" tab on the left hand side as shown in the above figure 19.
- e. After clicking on "Add Product", the following screen will appear. The manufacturer/permittee has to select, enter and upload all the requisite details in "section 1: Product Description" as shown in the below figure 20 and click on the next tab.





Figure 20:Add product section 1: product description



f. Select, Enter and upload all the requisite details in "Section 2: Product Indicator" as shown in figure 21 and Click on submit.

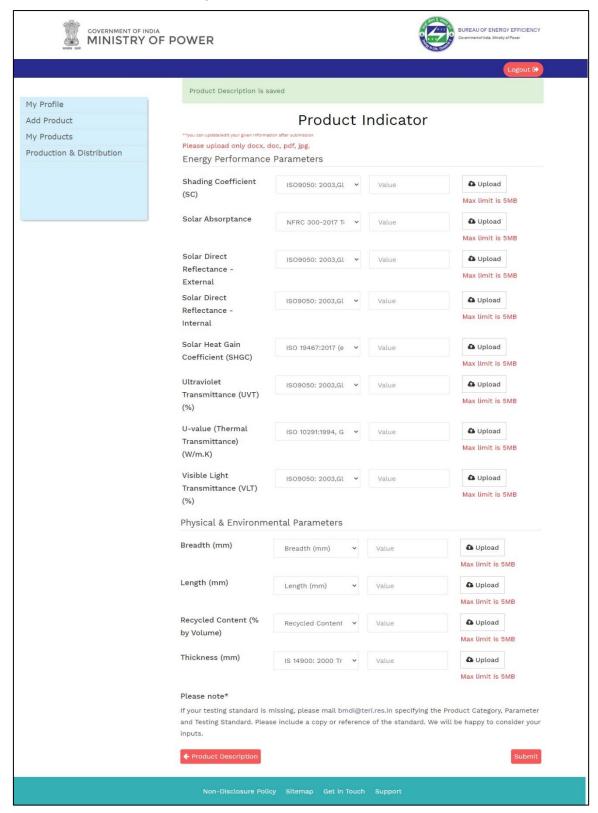


Figure 21:Add product section 2: product indicators



g. Once the manufacturer/permittee clicks on the submit button, a pop-up appears for confirmation to submit or not. To confirm the submission of the product registration application, click on "Yes" button. On clicking "No" the manufacturer/permittee can edit the product registration application form.



Figure 22:Add product confirmation

h. The list of registered products are visible in the "My Products" tab.



Figure 23:Added products



#### 2.4. Scrutiny of Application for product registration

The Bureau or its designated agency shall be responsible for scrutinizing all the documents submitted by the manufacturer/permittee to check for completeness, validity, consistency and correctness. Discrepancies, if any shall be communicated to the manufacturer/permittee and responses sought. Till a satisfactory response is received from the manufacturer/permittee, the application shall be put on hold. In case of a further discrepancy or wrong information, the application may be rejected.

The Bureau or its designated agency shall scrutinize the documents as per the check list (<u>please see Annex 5</u>) and shall maintain all records.

Applications may be put on hold in case:

- a) Any inconsistencies found in documents uploaded, as mentioned in "section2.3" for product registration;
- b) Information furnished in the application is either incomplete or incorrect/false;
- c) Complete set of documents are not signed and stamped by an authorized signatory and any mismatch in the hard copy with respect to online submitted documents and
- d) Expiry of validity period of documents.

lf the application send back to the manufacturer/permittee. the manufacturer/permittee shall informed through be e-mail manufacturer/permittee may check status of their application on the web portal. The manufacturer/permittee has to rectify the issues in the application based on the comments provided and upload validated documents against the same.

An application shall be rejected, in case:

- a) The manufacturer/permittee fails to respond to the discrepancies within 30 days of issuance of such notice .
- b) Forged and tampered documents submitted along with application.
- c) If the firm is found to have indulged in corrupt practices or applied external pressure.

After ensuring that all the data submitted by the manufacturer/permittee is in compliance with the regulation/statutory order and/or schedule of the relevant product, the application shall be approved. On approval, intimation will be sent to the manufacturer/permittee through registered email.



# 2.5. Withdrawal of Registration by the Manufacturer/Permittee

The manufacturer/permittee may wish to discontinue the registration due to any of the following reasons:

- a) Inability to meet the requirements of any revision in the program;
- b) Discontinue with the business;
- c) Any changes in the product design of registered products;
- d) Any unforeseen circumstances, namely strike, lockout, etc.

The request for withdrawal of registration to display registered products shall follow the following process:

- a) Manufacturer/permittee shall inform the Bureau of their intention to withdraw registration through e-mail;
- b) Manufacturer/permitteeManufacturer/permittee shall identify the products to be withdrawn through the BMDI web portal;
- c) Bureau shall review the request, and take necessary action to approve/reject the request for withdrawal of the application and communicate to the manufacturer/permittee through BMDI web portal.



# 2.6. Suspension of registration at the request of the manufacturer/permittee

The Bureau may temporarily suspend the registration at the request of the manufacturer/permittee under the circumstances that the operation(s) at its premises are discontinued due to:

- a) Natural calamities such as flood, fire, earthquake etc.;
- b) A lockout declared by the manufacturer/permittee management;
- c) Closure of operations directed by a competent court or statutory authority and
- d) Any other circumstances beyond the control of the manufacturer/permittee.

Suspension of registration under these circumstances shall not be for more than 6 months. However, in the case of the situation (a) above, the suspension period may extend for another 6 months. The suspension shall be revoked by the Bureau upon receipt of the declaration from the manufacturer/permittee that the operation(S) has restarted supported by suitable documentary evidence.



### 3. Timelines for application processing

Bureau shall follow specific timelines for the application processing cycle. The company and the product registration process shall be completed within 2-3 days and 10-15 days respectively provided the information furnished in the application is complete and supported by all the necessary documents. Stepwise description of application processing along with the timeline associated with each step is presented in the tables below.

Table 2:Timeline for processing of application for company registration

S. No.	Activity	Timeline (Working Days)	Responsibility
1	Sign Up to BMDI Public Portal	-	Manufacturer/Permittee
2	Sending OTP and Token ID	Immediately after Sign Up	BEE
3	Submission of online company registration form	1-2 days	Manufacturer/Permittee
4	Allotment of user ID and Password	Immediately after completion of company registration	BEE
5	Scrutiny of Application	3-4 days	BEE
6	If application send back to the manufacturer/permittee, submission of revised documents	3-4 days	Manufacturer/Permittee
7	Scrutiny of revised documents	3-4 days from the revised documents	BEE

Table 3:Timeline for processing of application for product registration

S. No.	Activity	Timeline (Working Days)	Responsibility
1	Registration of products	-	Manufacturer/Permittee
2	Scrutiny of Application	3-4 days	BEE
3	Send Back of application in case of incompleteness or any discrepancies	1-2 days	BEE
4	If application send back to the manufacturer/permittee, submission of scrutiny documents	3-4 days	Manufacturer/Permittee
5	Scrutiny of revised documents	3-4 days	BEE
6	Approval/rejection	3-4 days from the revised documents	BEE



# 4. Manner of display of registered products

The registered products shall be displayed on the BMDI web portal under the Selection tool tab. The building materials selection tool provides the user with a list of building materials with details to help them in making the informed decision on the selection of energy-efficient products for construction.



# **Annex 1: Product category definitions**

Certain terms are defined in this section for the purposes of the ease of the manufacturer/permittee. These definitions are applicable to all sections of this document/tool. Terms that are not defined shall have their ordinarily accepted meanings within the context in which they are used. The product categories of building materials covered under the BMDI program are as follows:

Table 4:Categories of building materials

	Categories of Building Materials				
S No.	Product Categories	Sub-Category	Product Type		
1	Bricks and Blocks	Hollow Brick	-		
		Solid Brick			
		Hollow Block			
		Solid Block			
		Others			
2	Insulation Products	Rigid/Flexible	Boards & Slabs		
			Spray Applied		
			Others		
		Fibrous	-		
		Others			
3	Fenestration- Glass	SGU (Single Glazed Unit)	<u>-</u>		
		DGU (Double Glazed Unit)			
		TGU (Triple Glazed Unit)			
		QGU (Quadruple Glazed Unit)			
		Glass blocks			
		Others			
4	Fenestration- Window Assemblies	-	-		
5	Fenestration- Door Set	Glass	-		
		uPVC (Unplasticized Polyvinyl Chloride)			
		Aluminium			
		Timber			
		Steel			
		Others			
6	Fenestration- Frames	-	-		
7	Cement and allied	Cement	Ready Mix Concrete		
	products		OPC (Ordinary Portland Cement) Grade 33, 43, 53		



	Categories of Building Materials			
S No.	Product Categories	Sub-Category	Product Type	
			PPC ( Pozzolona Portland Cement)	
			Hydraulic Cement	
			Masonry Cement	
			Portland Slag Cement	
			Hydrophobic Cement	
			Supersulphated Cement	
			Others	
		Cement Based Products	-	
		Non-Cement Based Products		
		Others		
8	Paints	-	_	
9	Tiles	-	-	

#### **Definitions**

(arranged in alphabetical order)

**Aluminium:** Aluminium is a chemical element, which is malleable and ductile. It is highly reactive although it is having high resistance to corrosion. Aluminium is mostly used in window frames and doorset.

**Blocks:** A concrete masonry unit, any one of the external dimensions of which is greater than the corresponding dimension of a brick as specified in IS: 3952, and of such size and mass as to permit it to be handled by one man. Furthermore, to avoid confusion with slabs and Panels, the height 'of the block shall not exceed either its length or six times its width.

**Bricks:** A masonry unit not exceeding 300 ram in length, 150 mm in width nor 100 mm in height.

**Cement:** It is a binder, a substance used for construction that sets, hardens, and adheres to other materials to bind them together.

**Doorset:** An assembly including a fixed part (the door frame), one or more movable parts (the door leaves) the function of which is to allow or to forbid the access, and their hardware.

**Double Glazed Unit (DGU):** A form of glazing which incorporates, instead of a single pane of glass, two panes separated by substantially stationary air, for the purpose of sound or thermal insulation or both. It may consist of: two separate window frames, each single glazed fixed in the same wall opening; one window frame carrying two sashes coupled together, each separately glazed; one window frame carrying two separate glasses, usually glazed on site; one window frame single-glazed, with a second glass attached by clips or other means; and one window frame carrying a factory-made hermetically-sealed double glazing unit.

**Fibrous:** Fibrous insulation is a specific type of insulation, which limits heat transmission through convection by capturing air within the fibres.



**Frames:** A structure manufactured from timber, metal, aluminium or other durable material or combinations of materials such as glass fins and structural sealant, supporting the full length of a glazed panel edge.

**Glass blocks:** Glass block is an architectural element made from glass, it provides visual obscuration while admitting light. Glass blocks are used in walls, skylights and sidewalk lights.

**Glass:** An inorganic, non-metallic material produced by the complete fusion of raw materials at high temperatures, into a homogeneous liquid which is then cooled to a rigid condition essentially without crystallization.

**Hollow Block:** A block in which holes passing through the block exceed 25 percent of its volume and the holes are not small. The hollows may be at right angle or parallel to the bearing surface.

**Hollow Bricks:** A masonry unit having holes (or voids) greater than 25 percent and at most 60 percent of the unit's bed area.

**Hydraulic Cement:** Finely ground material which on addition of requisite quantity of water is capable of hardening both under water and in air by the chemical interaction of its constituents with water, and is also capable of bending together appropriate materials.

**Hydrophobic Cement:** Cement obtained by grading 33 grade ordinary Portland cement clinker with an additive which. Impart to ground cement, a water repelling property which shall be destroyed only by wet attrition, such' as in concrete mixer. The hydrophobic quality of cement would facilitate Its storage for longer periods 10 extremely wet climatic conditions.

**Insulation**: A product which is intended to reduce heat transfer through the structure against which or in which it is installed. Numerical limits can be set only when the specific application is defined.

**Masonry Cement:** Product obtained by inter grinding a mixture of Portland cement clinker with pozzolanic materials, such as fly ash and calcined clay pozzolana; or non-poseolanic (inert) materials, such as limestone. conglomerates, dolomitic limestone, dolomite, granulated slag and waste materials like carbonated sludge, mine tailings, etc, and gypsum and an air entraining plasticizer in suitable proportions so that the resulting product conforms to the requirements laid down in the standard.

**Ordinary Portland Cement (OPC) Grade 33, 43, 53:** Ordinary Portland Cement is the most widely used cement for producing concrete, mortar, stucco, and non-specialty grouts. OPC has 3 grades based on its strength namely 33, 43 and 53 grade that indicates the compressive strength obtained after 28 days of setting.

**Paint:** A pigmented material, which when applied in a liquid form to, a surface, forms after a time a dry adherent film.

**Portland Slag Cement:** An intimately inter-ground mixture of Portland cement clinker and granulated slag with addition of gypsum and permitted additives or an Intimate and uniform blend of Portland cement and finely ground granulated slag.

**Portland-Pozzolana Cement:** An intimately interground mixture of Portland clinker and pozzolana with the possible addition of gypsum (natural or chemical) or an intimate and uniform blending of Portland cement and fine pozzolana.

**Quadruple Glazed Unit (QGU):** A form of glazing which incorporates four panes of glass, commonly equipped with low emissivity coating and insulating gas in the cavities between the glass panes.



Single Glazed Unit (SGU): A form of glazing which incorporates a single pane of glass.

**Solid Block:** A block which is hundred percent solid.

**Solid Bricks:** A masonry unit having holes (or voids) not greater than 25 percent of the unit's bed area.

**Spray Applied:** Spray foam is a chemical product created by two materials, isocyanate and polyol resin, which react with each other and expand up to 30-60 times its liquid volume after it is sprayed. This expansion makes it useful as a specialty packing material which forms to the shape of the product being packaged and produces a high thermal insulating value with virtually no air filtration.

**Steel:** Steel is an alloy of iron with a few percent of carbon to improve its strength as compared to iron. Because of its high tensile strength, corrosion resistance and lost cost, steel is best used as a building material.

**Supersulphated Cement:** Hydraulic cement produced by inter-grinding 01' intimately blending a mixture of granulated blast furnace slag, calcium sulphate and a small amount of Portland cement, Portland cement clinker or any other source of lime. The abbreviation 'SS' shall be used for 'supersulphated cement'.

**Tiles:** Burnt clay units which are appreciably smaller in thickness than the bricks and are used for flooring, roofing, ceiling and wall covering.

**Timber:** Timber is a type of wood that has been processed into beams and planks in the process of wood production. It is mainly used for structural purposes but has many other uses as well.

**Triple Glazed Unit (TGU):** A form of glazing which incorporates three panes of glass separated by spacer bars, and two cavities, usually filled with argon.

**Unplasticized Polyvinyl Chloride (uPVC):** uPVC is a low-maintenance building material, mostly used as a substitute for painted wood for window frames and doorset.

**Window Assembly:** It refers to the assembled window units, including glazing, frames, sealants and fittings.



# **Annex 2: Category details**

# **Category 1: Bricks and blocks**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for bricks and blocks product category. The following standards and their amendments are necessary adjunct to this category.

Table 5:Standards for Bricks and Blocks

Performance Parameters	Testing Standards	Standard Name	
Emissivity	ASTM C1371 - 15	Standard Test Method for De of Materials Near Room Tem Emissometer	
Solar Absorptance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007-2:2015	Plastics — Determination of thermal diffusivity — Part 2: source (hot disc) method	
Thermal Conductivity (W/m.K)	IS 3346	Method of determination of the thermal insultation materials plate method)	
	ISO 22007-2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method	
Reflectance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	
Thickness (mm), Breadth (mm), Length (mm), Compressive Strength (N/mm²), Water Absorption (%), Dry	IS 2185 : Part 1 : 2005	Concrete masonry units specification  Part – 1: Hollow and solid concrete blocks (Open & closed cavity type)	Thickness (mm), Breadth (mm), Length (mm), Compressive Strength (N/mm²), Water Absorption (%), Dry Shrinkage (%), Density (kg/m³)
Shrinkage (%), Density (kg/m³)	IS 2185 : Part 2 : 2005	Concrete masonry units specification  Part – 2: Hollow & Solid Lightweight concrete masonry units (loadbearing & non-loadbearing)	Thickness (mm), Breadth (mm), Length (mm), Compressive Strength (N/mm²), Water Absorption (%), Dry Shrinkage (%), Density (kg/m³)
	IS 2185 : Part 3 : 2005	Concrete masonry units specification	Thickness (mm), Breadth (mm), Length



Performance Parameters	Testing Standards	Standard Name	
		Part – 3: Autoclaved Cellular (Aerated) Concrete Blocks	(mm), Water Absorption (%), Density (kg/m³)
	IS 6441 : Part 2 : 1972 (2001)	Methods for test for Autoclaved Cellular (Aerated) Concrete Products- Determination of dryinging shrinkage	Dry Shrinkage (%)
	IS 6441 : Part 5 : 1972 (2001)	Methods for test for Autoclaved Cellular (Aerated) Concrete Products- Determination of compressive strength	Compressive Strength (N/mm²)
	IS 12894 : 2002	Pulverized fuel ash-lime bricks-Specification	Thickness (mm), Breadth (mm), Length (mm), Density (kg/m³) <sup>1</sup>
	IS 3495 : Part 1 : 1992 (2002)	Methods of tests of burnt clay building bricks - Determination of Compressive Strength	Compressive Strength (N/mm²)
		Pulverized fuel ash-lime bricks	
		Heavy duty burnt clay building bricks	
		Burnt clay fly-ash building bricks	
		Burnt clay perforated building bricks	
	IS 3495 : Part 2 : 1992 (2002)	Methods of tests of <b>burnt</b> clay building bricks - Determination of Water Absorption	Water Absorption (%)
		Pulverized fuel ash-lime bricks	
		Heavy duty burnt clay building bricks	
		Burnt clay fly-ash building bricks	
		Burnt clay perforated building bricks	

<sup>&</sup>lt;sup>1</sup> No specified standard for testing Density of **Pulverized fuel ash-lime bricks**. Density may be tested conforming to **IS 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.** 



Performance Parameters	Testing Standards	Standard Name	
	IS 4139 : 1989	Calcium Silicate Bricks – Specification	Dry Shrinkage (%),
		Pulverized fuel ash-lime bricks	
		Burnt clay fly-ash building bricks	
		Burnt clay perforated building bricks	
	IS 1077 : 1992 (2007)	Common burnt clay building bricks - Specification	Thickness (mm), Breadth (mm), Length (mm), Density (kg/m³) <sup>2</sup>
	IS 13757 : 1993 (2007)	Burnt clay fly-ash building bricks – Specification	Thickness (mm), Breadth (mm), Length (mm), Density (kg/m³) <sup>3</sup>
	IS 2180 : 1988 (2002)	Specification for heavy duty burnt clay building bricks	Thickness (mm), Breadth (mm), Length (mm), Density (kg/m³)
	IS 2222 : 1991 (2002)	Specification for Burnt clay perforated building bricks	Thickness (mm), Breadth (mm), Length (mm), Density (kg/m³) <sup>4</sup>
	IS 2691 : 1988 (2006)	Specifications for Burnt clay facing bricks	Thickness (mm), Breadth (mm), Length (mm), Density (kg/m³) <sup>5</sup>
Recycled Content (% by Volume)	No standard availab	le.	

#### II. PRE-QUALIFICATION

a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.

<sup>&</sup>lt;sup>2</sup> No specified standard for testing Density of **Common burnt clay building bricks**. Density may be tested conforming to **IS 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.** 

<sup>&</sup>lt;sup>3</sup> No specified standard for testing Density of **Burnt clay fly-ash building bricks**. Density may be tested conforming to **IS 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.** 

<sup>&</sup>lt;sup>4</sup> No specified standard for testing Density of **Burnt clay perforated building bricks**. Density may be tested conforming to **IS 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.** 

<sup>&</sup>lt;sup>5</sup> No specified standard for testing Density of **Burnt clay facing bricks**. Density may be tested conforming to **IS** 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.



b. Quality System Certification as per ISO: 9001 shall be mandatory.

#### III. SCHEDULE OF TESTS

a. Method of Tests

The bricks and blocks product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.

#### IV. TOLERANCE LIMITS



## **Category 2: Insulation Products**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for insulation product category. The following standards and their amendments are necessary adjunct to this category.

Table 6 Standards used for insulation products

Performance Parameters	Testing Standards	Standard Description	
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007-2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method	
Thermal Conductivity (W/m.K)	IS 3346 or	Method of determination of thermal conductivity of thermal insultation materials (Two-slab, guarded hotplate method)	
	ISO 22007-2:2015 or	Plastics — Determination of thermal diffusivity — Part 2: source (hot disc) method	
	ISO 8301:1991	Thermal insulation — Determination of steady-state thermal resistance and related properties — Heat flow meter apparatus	
Thickness (mm), Density (kg/m³)	IS 3144: 1992 (2010)	Mineral wool thermal insulation materials-Method of test	Thickness (mm), Density (kg/m³)
	IS 11239: Part 1 : 2008	Method of test for rigid cellular thermal insulation - Part 1: Dimensions	Thickness (mm)
	IS 11239 : Part 2 : 2009	Method of test for rigid cellular thermal insulation - Part 2: Apparent Density	Density (kg/m³)
Compressive Strength (N/mm²)	IS 11239 : Part 11 : 1985	: Method of test for <b>rigid cellular thermal insulation</b> - Part 11: Compressive Strength	
Recycled Content No standard available (% by Volume)			

#### II. PRE-QUALIFICATION

- a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.
- b. Quality System Certification as per ISO: 9001 shall be mandatory.

#### III. SCHEDULE OF TESTS

a. Method of Tests



The insulation product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

#### b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.

#### IV. TOLERANCE LIMITS



## **Category 3: Fenestration – Glass**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for fenestration glass product category. The following standards and their amendments are necessary adjunct to this category.

Table 7 Standards used for fenestration glass

Performance Parameters	Testing Standards	Standard Description
Light Direct Transmittance	IS 16231 : Part 2 : 2019	Use of Glass in Buildings — Code of Practice Part 2 Energy and Light (First Revision)
Shading Coefficient (SC)	· or	
Solar Absorptance	<u> </u>	
Solar Direct Reflectance - External	ISO 9050:2003	Glass in building — Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and
Solar Direct Reflectance - Internal		related glazing factors
Solar Heat Gain Coefficient (SHGC)		
Ultraviolet Transmittance (UVT) (%)		
U-value (Thermal Transmittance) (W/m².K)		
Visible Light Transmittance (VLT) (%)		
Recycled Content (% by Volume)	No standard available	9

#### II. PRE-QUALIFICATION

- a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.
- b. Quality System Certification as per ISO: 9001 shall be mandatory.

#### III. SCHEDULE OF TESTS

a. Method of Tests



The insulation product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.

#### IV. TOLERANCE LIMITS



# **Category 4: Fenestration – Window Assemblies**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for fenestration-window assemblies product category. The following standards and their amendments are necessary adjunct to this category.

Table 8 Standards used for fenestration window assemblies

Performance Parameters	<b>Testing Standards</b>	Standard Description
Solar Transmittance	IS 16231 : Part 2 : 2019 or	Use of Glass in Buildings — Code of Practice Part 2 Energy and Light (First Revision)
Shading Coefficient (SC)	ISO 9050:2003	Glass in building — Determination of light
Solar Absorptance		transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and
Solar Direct Reflectance - External	**************************************	related glazing factors
Solar Direct Reflectance - Internal		
Ultraviolet Transmittance (UVT) (%)		
Visible Light Transmittance (VLT) (%)		
Solar Heat Gain Coefficient (SHGC)	ISO 19467:2017	Thermal performance of windows and doors — Determination of solar heat gain coefficient using solar simulator
U-value (Thermal Transmittance) (W/m².K)	ISO 10077-1:2017	Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 1: General. Thermal performance of windows and doors-
	ISO 12567-2:2005	Determination of thermal transmittance by the hot-box method — Part 1: Complete windows and doors  Thermal performance of windows and doors — Determination of thermal transmittance by hot box method — Part 2: Roof windows and other projecting windows
	ISO 15099:2003	Thermal performance of windows, doors and shading devices — Detailed calculations
Air Permeability	ISO 6613: 1980	Windows and Doors height windows - Air permeability test



Performance Parameters	Testing Standards	Standard Description
Recycled Content (% by Volume)	No standard available	e

#### II. PRE-QUALIFICATION

- a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.
- b. Quality System Certification as per ISO: 9001 shall be mandatory.

#### III. SCHEDULE OF TESTS

a. Method of Tests

The insulation product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.

#### IV. TOLERANCE LIMITS



# **Category 5: Fenestration – Doorset**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for fenestration-doorset product category. The following standards and their amendments are necessary adjunct to this category.

Table 9 Standards used for fenestration doorset

Performance Parameters	Testing Standards	Standard Description
Solar Transmittance	IS 16231 : Part 2 : 2019	Use of Glass in Buildings — Code of Practice Part 2 Energy and Light (First Revision)
Shading Coefficient (SC)	ISO 9050:2003	Glass in building — Determination of light
Solar Absorptance	100 9030.2003	transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and
Solar Direct Reflectance - External		related glazing factors
Solar Direct Reflectance - Internal		
Ultraviolet Transmittance (UVT) (%)		
Visible Light Transmittance (VLT) (%)		
Solar Heat Gain Coefficient (SHGC)	ISO 19467:2017	Thermal performance of windows and doors — Determination of solar heat gain coefficient using solar simulator
U-value (Thermal Transmittance) (W/m².K)	ISO 10077-1:2017 ISO 12567-1:2010	Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 1: General.  Thermal performance of windows and doors- Determination of thermal transmittance by the hot-box
	ISO 12567-2:2005 ISO 15099:2003	method — Part 1: Complete windows and doors Thermal performance of windows and doors — Determination of thermal transmittance by hot box method — Part 2: Roof windows and other projecting windows Thermal performance of windows, doors and shading
Air Permeability	ISO 6613: 1980	devices — Detailed calculations  Windows and Doors height windows - Air permeability test



Performance Parameters	Testing Standards	Standard Description
Recycled Content (% by Volume)	No standard availabl	e

#### II. PRE-QUALIFICATION

- a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.
- b. Quality System Certification as per ISO: 9001 shall be mandatory.

#### III. SCHEDULE OF TESTS

a. Method of Tests

The insulation product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.

#### IV. TOLERANCE LIMITS



## **Category 6: Frames**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for frames product category. The following standards and their amendments are necessary adjunct to this category.

Table 10 Standards used for frames

Performance Parameters	Testing Standards	Standard Description
Emissivity	ASTM C1371 - 15	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
Solar Absorptance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007-2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method
Thermal Conductivity (W/m.K)	IS 3346	Method of determination of thermal conductivity of thermal insultation materials (Two-slab, guarded hot-plate method)
	ISO 22007-2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method
U-value (Thermal Transmittance) (W/m².K)	ISO 10077-1:2006	Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 1: General
Reflectance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres
Recycled Content (% by Volume)  No standard available		le

#### II. PRE-QUALIFICATION

- a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.
- b. Quality System Certification as per ISO: 9001 shall be mandatory.



#### III. SCHEDULE OF TESTS

#### a. Method of Tests

The insulation product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

#### b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.

#### IV. TOLERANCE LIMITS



# **Category 7: Cement and Allied Products**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for cement & allied product category. The following standards and their amendments are necessary adjunct to this category.

Table 11:Standards used for cement and allied products

Performance Parameters	<b>Testing Standards</b>	Standard Description
Emissivity	ASTM C1371 - 15	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
Solar Absorptance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007-2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method
Thermal Conductivity (W/m.K)	IS 3346	Method of determination of thermal conductivity of thermal insultation materials (Two-slab, guarded hot-plate method)
	ISO 22007-2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method
Reflectance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres
Density (kg/m³)	IS 4031 : Part 11 : 1996	Methods of physical tests for hydraulic cement, Part 11: Determination of density
Compressive Strength at 28 days (Mpa)	IS 4031 : Part 6: 1996	Methods of physical tests for hydraulic cement, Part 6: Determination of compressive strength of hydraulic cement other than masonry cement Methods of physical tests for hydraulic cement, Part 7:
Compressive Strength at 7 days (Mpa)	IS 4031 : Part 7: 1996	Determination of compressive strength of masonry cement
Final Setting Time (min)	IS 4031 : Part 5 : 1996	Methods of physical tests for hydraulic cement, Part 5: Determination of initial and final setting time



Soundness (mm and %)	IS 4031 : Part 3 : 1996	Methods of physical tests for hydraulic cement, Part 10: Determination of dry shrinkage
Dry Shrinkage (%)	IS 4031 : Part 10 : 1996	Methods of physical tests for hydraulic cement, Part 3: Determination of soundness
Fineness (%)	IS 4031 : Part 1 : 1996	Methods of physical tests for hydraulic cement, Part 1: Determination of fineness by dry sieving.
Water Retention (%)	IS 4031 : Part 13: 1996	Methods of physical tests for hydraulic cement, Part 13: Determination of water retentivity of masonry cement
Air Content (%)	IS 4031 : Part 12: 1996	Methods of physical tests for hydraulic cement, Part 12: Determination of air content of hydraulic cement mortar
Recycled Content (% by Volume)	No standard available	e

#### II. PRE-QUALIFICATION

- a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.
- b. Quality System Certification as per ISO: 9001 shall be mandatory.

#### III. SCHEDULE OF TESTS

a. Method of Tests

The insulation product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.

#### IV. TOLERANCE LIMITS



### **Category 8: Paints**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for paints product category. The following standards and their amendments are necessary adjunct to this category.

Table 12:Standards used for paints

Performance Parameters	Testing Standards	Standard Description	
Emissivity	ASTM C1371 - 15	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometer	
Solar Reflectance Index	ASTM E1980 - 11	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces	
Reflectance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	
VOC (g/l)	IS 101 IS 15489: 2004	Methods of sampling and test for paints, varnishes and related products Paint, plastic emulsion- Specification	
Recycled Content (% by Volume)	No standard available		

#### II. PRE-QUALIFICATION

- a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.
- b. Quality System Certification as per ISO: 9001 shall be mandatory.

#### III. SCHEDULE OF TESTS

#### a. Method of Tests

The insulation product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.



#### IV. TOLERANCE LIMITS



# **Category 9: Tiles**

#### I. SCOPE

This category specifies the requirements for participating in the energy efficient building materials directory program for tiles product category. The following standards and their amendments are necessary adjunct to this category.

Table 13:Standards used for tiles

Performance Parameters	Testing Standards	Standard Description		
Emissivity	ASTM C1371 - 15	Standard Test Method for of Materials Near Room Te Emissometer	Determination of Emittance emperature Using Portable	
Solar Absorptance	ASTM E903 - 12	Standard Test Method for Reflectance, and Transmit Integrating Spheres		
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007-2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method		
Thermal Conductivity (W/m.K)	IS 3346	Method of determination of thermal conductivity of thermal insultation materials (Two-slab, guarded plate method)		
	ISO 22007-2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method		
Reflectance	ASTM E903 - 12	Standard Test Method for Reflectance, and Transmit Integrating Spheres		
Breadth (mm), Length (mm), Thickness (mm), Density (kg/m³),	IS 13801 : 2013	Chequered cement concrete tiles- Specification	Breadth (mm), Length (mm), Thickness (mm), Water Absorption (%)	
Modulus of Rupture (N/mm²), Water Absorption (%)	IS 15622 : 2006	Pressed ceramic tiles- Specifications	Breadth (mm), Length (mm), Thickness (mm), Density (kg/m³), Modulus of Rupture (N/mm²), Water Absorption (%)	
	IS 1237 : 2012	Cement Concrete Floor Tiles-Specification	Breadth (mm), Length (mm), Thickness (mm), Water Absorption (%)	



	IS 13630 : 2006	Ceramic Tiles (Part 1 - 15)	Breadth (mm), Length (mm), Thickness (mm), Density (kg/m³), Modulus of Rupture (N/mm²), Water Absorption (%)
	IS 2690 : 1992	Burnt clay flat terracing tiles – Specifications  Part – 1 : Modular	Breadth (mm), Length (mm), Thickness (mm), Water Absorption (%)
		Part – 2 : Handmade	
	IS 4457 : 2007	Ceramic unglazed vitreous acid resisting tile - Specifications	Breadth (mm), Length (mm), Thickness (mm), Density (kg/m³), Modulus of Rupture (N/mm²), Water Absorption (%)
Recycled Content (% by Volume)	No standards availab	le	

#### II. PRE-QUALIFICATION

- a. The products shall conform to the requirements of relevant standards for both safety and performance requirements to participate in BEE energy efficient building materials directory program.
- b. Quality System Certification as per ISO: 9001 shall be mandatory.

#### III. SCHEDULE OF TESTS

a. Method of Tests

The insulation product categories shall be tested as per method prescribed in above mentioned testing standards with all its relevant amendments and revisions.

b. Parameters to be tested

Parameters mentioned under performance indicators shall be tested.

c. The test report from only NABL accredited labs shall be considered.

#### IV. TOLERANCE LIMITS



# **Annex 3: Authorization letter format for authorized signatory**

(To be furnished on the letter head of the Manufacturer/permittee)

To whomsoever it may concern

(AUTHORIZED SIGNATORY NAME) is hereby appointed as the authorized signatory for (COMPANY NAME) with effect from (DATE) and is authorized to operate the company profile and sign legal documents on behalf of the (COMPANY NAME) for the BMDI portal.



## **Annex 4: Company verification check-list**

For manufacturer/permittee's reference only

**Check List for Company V BEE BMDI Program** Application received on Section - A Manufacturer/permittee's Information Tick ( $\sqrt{\ }$ ) the information below that matches the details specified in the Authorized Signatory Letter from the c 1. Manufacturer/permittee Name 2. Company ID 3. Address with landmark 4. Name of contact person 5. Contact No 6. Email ID Section - B Verification of Company Details Tick ( $\sqrt{\ }$ ) if the below mentioned information verified from the Government of India portal (https://services.gst.c 7. Company Registration No. 8. Pan No. 9. GST No. Section - B Accreditations/ Company verification documents Tick ( $\sqrt{\ }$ ) if any one of the below mentioned information verified from the links provided 10. Certificate of Incorporation of the Company: http://www.mca.gov.in/mcafoportal/findCIN.do 11. ISO-9001 for Quality Management System (QMS): Note the Registrar's details from the certificate. Access the registrar's online list of ISO-certified companies 12. MSME/ SSI Certificate: https://udyogaadhaar.gov.in/UA/UA VerifyUAM.aspx 13. Any Other Document Specify in Remarks how was the document verified? Section - C Tick  $(\ \ )$  if information mentioned below does not have any obvious errors or glitches 14. Annual Turnover Ranges: 15. Percentage share of exports in annual turnover : 16. Countries/ economies to which products are exported : 17. In which of the following categories do you want to register your products? **Final Remarks:** 





# **Annex 5 : Category-wise product verification check-list**

## **Product Related General Information**

	Check List for Product Verification		
E	BEE BMDI Program	Document Uploaded (Yes/No/NA)	Remarks
Applicatio	n received on		
Product I	nformation Verification		
Tick (√ ) i	f the answer to below mentioned information is yes		
i.	<ul> <li>Product photographs</li> <li>Are the uploaded files valid (incorrupt)?</li> <li>Do the images match the product description and name?</li> </ul>		
ii.	<ul> <li>Product brochure containing product technical and physical specifications</li> <li>Are the uploaded files valid (incorrupt)?</li> <li>Does the brochure mention the company name, logo &amp; other details?</li> <li>Does the product name/description reflect in the brochure?</li> </ul>		
iii.	Relevant projects/case studies		
iv.	Green certification for products		



### **Product Related Technical Information**

Tick ( $\sqrt{\ }$ ) all the performance pameters for which all of the following has been verified.

- \*Check validity date of the test report
- \*Check the if the test report has NABL/ILAC logo
- \*Verify the name of the product and details of the manufacturer/company with the details in the test report.
- \*Verify the applicable testing standard number and standard name for the product from the list below for each Performance Parameter.
- \*Only the performance parameters provided with a NABL accredited valid test report will be approved and displayed on the portal.

Category – 1 E	Bricks and Block	<u>(S</u>		
Performance Parameters	Testing Standards	Standard Name		Tick (√) all that apply to category/subcategory
Emissivity	ASTM C1371 - 15	Standard Test Method for I Emittance of Materials Nea Using Portable Emissometer		
Solar Absorptance	ASTM E903 - 12	Standard Test Method for S Reflectance, and Transmitt Using Integrating Spheres		
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007- 2:2015	Plastics — Determination of and thermal diffusivity — P heat source (hot disc) meth		
Thermal Conductivity (W/m.K)	IS 3346	Method of determination of thermal conductivity of thermal insultation materials (Two-slab, guarded hot-plate method)		
	ISO 22007- 2:2015	Plastics — Determination of and thermal diffusivity — P heat source (hot disc) methods		
Reflectance	ASTM E903 - 12	Standard Test Method for S Reflectance, and Transmitt Using Integrating Spheres		
Thickness	IS 2185 : Part	Concrete masonry units	Thickness (mm),	
(mm), Breadth	1 : 2005	specification	Breadth (mm),	
(mm),		Part – 1: Hollow and solid concrete blocks	Length (mm),	
Length (mm), Compressive Strength (N/mm²), Water Absorption (%), Dry Shrinkage		(Open & closed cavity type)	Compressive Strength (N/mm²),	
			Water Absorption (%),	
			Dry Shrinkage (%),	
			Density (kg/m³)	
			Thickness (mm),	



Performance Parameters	Testing Standards			Tick (√) all that apply to category/subcategory
(%), Density (kg/m³)	IS 2185 : Part 2 : 2005	Concrete masonry units specification  Part – 2: Hollow & Solid Lightweight concrete masonry units (loadbearing & non-loadbearing)	Breadth (mm), Length (mm), Compressive Strength (N/mm²), Water Absorption (%), Dry Shrinkage (%), Density (kg/m³)	
	IS 2185 : Part 3 : 2005	Concrete masonry units specification  Part – 3: Autoclaved Cellular (Aerated) Concrete Blocks	Thickness (mm),  Breadth (mm),  Length (mm),  Water Absorption (%),  Density (kg/m³)	
	IS 6441 : Part 2 : 1972 (2001)	Methods for test for Autoclaved Cellular (Aerated) Concrete Products- Determination of dryinging shrinkage	Dry Shrinkage (%)	
	IS 6441 : Part 5 : 1972 (2001)	Methods for test for Autoclaved Cellular (Aerated) Concrete Products- Determination of compressive strength	Compressive Strength (N/mm²)	
	IS 12894 : 2002	Pulverized fuel ash-lime bricks-Specification	Thickness (mm), Breadth (mm), Length (mm), Density (kg/m³) 6	
	IS 3495 : Part 1 : 1992 (2002)	Methods of tests of burnt clay building bricks - Determination of Compressive Strength  Pulverized fuel ash-lime bricks	Compressive Strength (N/mm²)	

<sup>&</sup>lt;sup>6</sup> No specified standard for testing Density of **Pulverized fuel ash-lime bricks**. Density may be tested conforming to **IS 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.** 



Performance Parameters	Testing Standards	Standard Name		Tick (√) all that apply to category/sub- category
		Heavy duty burnt clay building bricks		
		Burnt clay fly-ash building bricks		
		Burnt clay perforated building bricks		
	IS 3495 : Part 2 : 1992 (2002)	Methods of tests of <b>burnt clay building bricks</b> - Determination of Water Absorption	Water Absorption (%)	
		Pulverized fuel ash-lime bricks		
		Heavy duty burnt clay building bricks		
		Burnt clay fly-ash building bricks		
		Burnt clay perforated building bricks		
	IS 4139 : 1989	Calcium Silicate Bricks – Specification	Dry Shrinkage (%),	
		Pulverized fuel ash-lime bricks		
		Burnt clay fly-ash building bricks		
		Burnt clay perforated building bricks		
	IS 1077 :	Common burnt clay	Thickness (mm),	
	1992 (2007)	huilding bricks -	Breadth (mm),	
			Length (mm),	
			Density (kg/m³) 7	
	IS 13757 :		Thickness (mm),	
	1993 (2007)		Breadth (mm),	

<sup>&</sup>lt;sup>7</sup> No specified standard for testing Density of Common burnt clay building bricks. Density may be tested conforming to IS 2180: 1988 (2002) - Specification for heavy duty burnt clay building bricks.



Category – 1 E	Category – 1 Bricks and Blocks					
Performance Parameters	Testing Standards	Standard Name		Tick (√) all that apply to category/subcategory		
		Burnt clay fly-ash	Length (mm),			
		building bricks – Specification	Density (kg/m³) 8			
	IS 2180 :	Specification for <b>heavy</b>	Thickness (mm),			
	1988 (2002)	duty burnt clay building bricks	Breadth (mm),			
			Length (mm),			
			Density (kg/m³)			
	IS 2222 :	Specification for Burnt	Thickness (mm),			
	1991 (2002)	clay perforated building bricks	Breadth (mm),			
			Length (mm),			
			Density (kg/m³) 9			
	IS 2691 :	Specifications for Burnt	Thickness (mm),			
	1988 (2006)	clay facing bricks	Breadth (mm),			
			Length (mm),			
			Density (kg/m³) 10			
Recycled Content (% by Volume)	No standard a	available.				

<sup>&</sup>lt;sup>8</sup> No specified standard for testing Density of **Burnt clay fly-ash building bricks**. Density may be tested conforming to **IS 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.** 

<sup>&</sup>lt;sup>9</sup> No specified standard for testing Density of **Burnt clay perforated building bricks**. Density may be tested conforming to **IS 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.** 

<sup>&</sup>lt;sup>10</sup> No specified standard for testing Density of **Burnt clay facing bricks**. Density may be tested conforming to **IS** 2180 : 1988 (2002) - Specification for heavy duty burnt clay building bricks.



Category – 2 Insulation Products				
Performance Parameters	Testing Standards	Standard Description		Tick (√) all that apply to category/sub- category
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007- 2:2015	Plastics — Determination of therma and thermal diffusivity — Part 2: Traheat source (hot disc) method		
Thermal Conductivity (W/m.K)	IS 3346 or	Method of determination of thermal of thermal insultation materials (Two guarded hot-plate method)		
	ISO 22007- 2:2015 or	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method		
	ISO 8301:1991	Thermal insulation — Determination of steady- state thermal resistance and related properties — Heat flow meter apparatus		
Thickness (mm), Density (kg/m³)	IS 3144: 1992 (2010)	Mineral wool thermal insulation materials- Method of test	Thickness (mm), Density (kg/m³)	
	IS 11239: Part 1: 2008	Method of test for <b>rigid cellular thermal insulation</b> - Part 1: Dimensions	Thickness (mm)	
	IS 11239 : Part 2 : 2009	Method of test for <b>rigid cellular thermal insulation</b> - Part 2: Apparent Density	Density (kg/m³)	
Compressive Strength (N/mm²)	IS 11239 : Part 11 : 1985	Method of test for <b>rigid cellular the insulation</b> - Part 11: Compressive S		
Recycled Content (% by Volume)	No standard av	railable		

Category – 3 Fenestration Glass					
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/sub- category		
Light Direct Transmittance	IS 16231 : Part 2 : 2019	Use of Glass in Buildings — Code of Practice Part 2 Energy and Light (First Revision)			
Shading Coefficient (SC)	or				
Solar Absorptance					



Category – 3 Fenestration Glass			
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/subcategory
Solar Direct Reflectance - External	ISO 9050:2003	Glass in building — Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet	
Solar Direct Reflectance - Internal		transmittance and related glazing factors	
Solar Heat Gain Coefficient (SHGC)			
Ultraviolet Transmittance (UVT) (%)			
U-value (Thermal Transmittance) (W/m².K)			
Visible Light Transmittance (VLT) (%)			
Recycled Content (% by Volume)	No standard ava	ailable	

Category – 4 Fenestration – Window Assemblies			
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/sub- category
Solar Transmittance	IS 16231 : Part 2 : 2019	Use of Glass in Buildings — Code of Practice Part 2 Energy and Light (First Revision)	
Shading Coefficient (SC) Solar Absorptance	ISO 9050:2003	Glass in building — Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and related glazing factors	
Solar Direct Reflectance - External			
Solar Direct Reflectance - Internal			



Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/sub- category
Ultraviolet Transmittance (UVT) (%)			
Visible Light Transmittance (VLT) (%)			
Solar Heat Gain Coefficient (SHGC)	ISO 19467:2017	Thermal performance of windows and doors — Determination of solar heat gain coefficient using solar simulator	
U-value (Thermal Transmittance) (W/m².K)	ISO 10077- 1:2017	Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 1: General.	
	ISO 12567- 1:2010	Thermal performance of windows and doors- Determination of thermal transmittance by the hot-box method — Part 1: <b>Complete windows</b> <b>and doors</b>	
	ISO 12567- 2:2005	Thermal performance of windows and doors — Determination of thermal transmittance by hot box method — Part 2: Roof windows and other projecting windows	
	ISO 15099:2003	Thermal performance of windows, doors and shading devices — Detailed calculations	
Air Permeability	ISO 6613: 1980	Windows and Doors height windows - Air permeability test	
Recycled Content (% by Volume)	No standard available		

Category – 5 Fenestration – Doorset			
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/sub- category
Solar Transmittance	IS 16231 : Part 2 : 2019 or	Use of Glass in Buildings — Code of Practice Part 2 Energy and Light (First Revision)	
Shading Coefficient (SC) Solar Absorptance	- ISO 9050:2003	Glass in building — Determination of light transmittance, solar direct transmittance, total	



Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/sub- category
Solar Direct Reflectance - External		solar energy transmittance, ultraviolet transmittance and related glazing factors	
Solar Direct Reflectance - Internal			
Ultraviolet Transmittance (UVT) (%)			
Visible Light Transmittance (VLT) (%)			
Solar Heat Gain Coefficient (SHGC)	ISO 19467:2017	Thermal performance of windows and doors — Determination of solar heat gain coefficient using solar simulator	
U-value (Thermal Transmittance) (W/m².K)	ISO 10077- 1:2017	Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 1: General.	
	ISO 12567- 1:2010	Thermal performance of windows and doors- Determination of thermal transmittance by the hot-box method — Part 1: <b>Complete windows</b> <b>and doors</b>	
	ISO 12567- 2:2005	Thermal performance of windows and doors — Determination of thermal transmittance by hot box method — Part 2: Roof windows and other projecting windows	
	ISO 15099:2003	Thermal performance of windows, doors and shading devices — Detailed calculations	
Air Permeability	ISO 6613: 1980	Windows and Doors height windows - Air permeability test	
Recycled Content (% by Volume)	No standard available		



Category – 6 Fra	mes_		
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/sub-category
Emissivity	ASTM C1371 - 15	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	
Solar Absorptance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007- 2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method	
Thermal Conductivity (W/m.K)	IS 3346	Method of determination of thermal conductivity of thermal insultation materials (Two-slab, guarded hot-plate method)	
	ISO 22007- 2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method	
U-value (Thermal Transmittance) (W/m².K)	ISO 10077- 1:2006	Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 1: General	
Reflectance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	
Recycled Content (% by Volume)	No standard a	vailable	

Category - 7 Cem	nent and Allied I	<u>Products</u>	
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/sub- category
Emissivity	ASTM C1371 - 15	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	



Category - 7 Cem	ent and Allied I	<u>Products</u>	
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/subcategory
Solar Absorptance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007- 2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method	
Thermal Conductivity (W/m.K)	IS 3346 or	Method of determination of thermal conductivity of thermal insultation materials (Two-slab, guarded hot-plate method)	
	ISO 22007- 2:2015	Plastics — Determination of thermal conductivity and thermal diffusivity — Part 2: Transient plane heat source (hot disc) method	
Reflectance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	
Density (kg/m³)	IS 4031 : Part 11 : 1996	Methods of physical tests for hydraulic cement, Part 11: Determination of density	
Compressive Strength at 28 days (Mpa)	IS 4031 : Part 6: 1996	Methods of physical tests for hydraulic cement, Part 6: Determination of compressive strength of hydraulic cement other than masonry cement Methods of physical tests for hydraulic cement,	
Compressive Strength at 7 days (Mpa)	IS 4031 : Part 7: 1996	Part 7: Determination of compressive strength of masonry cement	
Final Setting Time (min)	IS 4031 : Part 5 : 1996	Methods of physical tests for hydraulic cement, Part 5: Determination of initial and final setting time	
Soundness (mm and %)	IS 4031 : Part 3 : 1996	Methods of physical tests for hydraulic cement, Part 10: Determination of dry shrinkage	
Dry Shrinkage (%)	IS 4031 : Part 10 : 1996	Methods of physical tests for hydraulic cement, Part 3: Determination of soundness	
Fineness (%)	IS 4031 : Part 1 : 1996	Methods of physical tests for hydraulic cement, Part 1: Determination of fineness by dry sieving.	



Category - 7 Cem	ent and Allied I	Products Products	
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/subcategory
Water Retention (%)	IS 4031 : Part 13: 1996	Methods of physical tests for hydraulic cement, Part 13: Determination of water retentivity of masonry cement	
Air Content (%)	IS 4031 : Part 12: 1996	Methods of physical tests for hydraulic cement, Part 12: Determination of air content of hydraulic cement mortar	
Recycled Content (% by Volume)	No standard a	vailable	

Category - 8 Pai	nts		
Performance Parameters	Testing Standards	Standard Description	Tick (√) all that apply to category/sub- category
Emissivity	ASTM C1371 - 15	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometer	
Solar Reflectance Index	ASTM E1980 - 11	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low- Sloped Opaque Surfaces	
Reflectance	ASTM E903 - 12	Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres	
VOC (g/l)	IS 101 IS 15489: 2004	Methods of sampling and test for paints, varnishes and related products Paint, plastic emulsion- Specification	
Recycled Content (% by Volume)	No standard a	vailable	



Category - 9 Tiles	<u> </u>			
Performance Parameters	Testing Standards	Standard Description		Tick (√) all that apply to category/subcategory
Emissivity	ASTM C1371 - 15	Standard Test Method for Emittance of Materials Ne Temperature Using Portal	ar Room	
Solar Absorptance	ASTM E903 - 12	Standard Test Method for Reflectance, and Transmi Using Integrating Spheres	ttance of Materials	
Specific Heat Capacity (Volumetric) (MJ/m3.K)	ISO 22007- 2:2015	Plastics — Determination conductivity and thermal or Transient plane heat sour	diffusivity — Part 2:	
Thermal Conductivity (W/m.K)	IS 3346	Method of determination of conductivity of thermal ins (Two-slab, guarded hot-pl	ultation materials	
	ISO 22007- 2:2015	Plastics — Determination conductivity and thermal contraction transient plane heat sour	diffusivity — Part 2:	
Reflectance	ASTM E903 - 12	Standard Test Method for Reflectance, and Transmi Using Integrating Spheres	ttance of Materials	
Breadth (mm), Length (mm), Thickness (mm), Density (kg/m³), Modulus of	IS 13801 : 2013	Chequered cement concrete tiles- Specification	Breadth (mm), Length (mm), Thickness (mm), Water Absorption (%)	
Rupture (N/mm²), Water Absorption (%)	IS 15622 : 2006	Pressed ceramic tiles- Specifications	Breadth (mm), Length (mm), Thickness (mm), Density (kg/m³), Modulus of Rupture (N/mm²), Water Absorption (%)	
	IS 1237 : 2012	Cement Concrete Floor Tiles- Specification	Breadth (mm), Length (mm), Thickness (mm), Water Absorption (%)	
	IS 13630 : 2006	Ceramic Tiles (Part 1 - 15)	Breadth (mm), Length (mm), Thickness (mm), Density (kg/m³), Modulus of Rupture	



Category - 9 Tile	<u>es</u>			
Performance Parameters	Testing Standards	Standard Description		Tick (√) all that apply to category/subcategory
			(N/mm²), Water Absorption (%)	
	IS 2690 : 1992	Burnt clay flat terracing tiles – Specifications Part – 1 : Modular Part – 2 : Handmade	Breadth (mm), Length (mm), Thickness (mm), Water Absorption (%)	
	IS 4457 : 2007	Ceramic unglazed vitreous acid resisting tile - Specifications	Breadth (mm), Length (mm), Thickness (mm), Density (kg/m³), Modulus of Rupture (N/mm²), Water Absorption (%)	
Recycled Content (% by Volume)	No standards	available	•	



## **Annex 6: Sample company registration form**





Home About Us Tool How t

How to Register? Updates

Media Gallery

Support





#### Section A: Profile Details

<u>Company Details</u>	To continue your earlier registration, please click here
Full Name of the Company*	
Complete Address & contact information*	
Website of the Company	
Authorized Signatory Details  Name *	
Mobile Number*	
Landline Number	
Whatsapp Number	
Email ID (OTP for verification will be sent to this ID) *	
	Save & Next



### Section B: Authentication Details

<u>Membership Details</u>			
Association Name		Membership Number	
Add More			
GST Details			
State		GST Identification Number	
Select State	*		
Add Mare			
Accreditations/Compa		ocuments	
ertificate of Incorporation of			
Certificate Number :	the company		<b>△</b> Upload Document
			Please uplead only door, doc, pdf, jpg. Martin
SO-9001 for Quality Managen	nent System (QMS)		
ertificate Number :			<b>△</b> Upload Document
			Please uplined only doors, doo, pdf, jpg. Man la
ISME/SSI Certificate (if appli	cable)		
ertificate Number :			<b>△</b> Upload Document
			Please upload only does, doe, pdf, jpg. Max to
ny other accreditation			
ertificate Name:	Certificat		<b>△</b> Upload Document
	Number :		Please upload only door, doc, plf, jpg, blan la
ocuments for verifying	g <u>authorized sig</u>	<u>natory</u>	
uthorization Letter of Author	ized Signatory ံ 🚨 Up	oload Document	
ensemploed only doors, doc. pdf, pg. Man later is 55/20			
	of Authorized Signator	y e.g. PAN Card	
Proof (bearing signatures) o	of Authorized Signator		<b>△</b> Upload Document
D Proof (bearing signatures) of D Proof Name:			
Proof (bearing signatures) o			◆ Upload Document  Please splead only date, dat, pdf, pg, 15m;
Proof (bearing signatures) of Proof Name:	ID Proof N	Number:	Piece uplead only decr. dec. pdf, pg. Mar.l
Proof (bearing signatures) of Proof Name:  gional Offices/ Branche ase download the template fo	ID Proof N		Piece uplead only decr. dec. pdf, pg. Mar.l
D Proof (bearing signatures) of Proof Name:	ID Proof N	Number:	Piece uplead only decr. dec. pdf, pg. Mar.l



#### Section C: Business Details

Select	
Percentage share of exports in annual turnover	
Countries/ economies to which products are exported	
sounding continues to minor products are experted	
n which of the following categories do you want to register y	our products? For definitions of the categories, please clic
ere *	
Adhesives	Admixtures
Aggregates	Boards/Planks/Panels
Bricks and Blocks	Cement and Allied Products
Cladding Products	Curtain Wall
Fenestration - Doorset	Fenestration - Frames
Fenestration - Glass	Fenestration - Shading Devices
Fenestration-Window Assemblies	Insulation Products
Modular Components/Pre-Cast/Pre-Fab/Cast In-Situ Products	Natural Stones
Paints	Sealants
	Tiles
Sheets/Profiles/Extrusions	

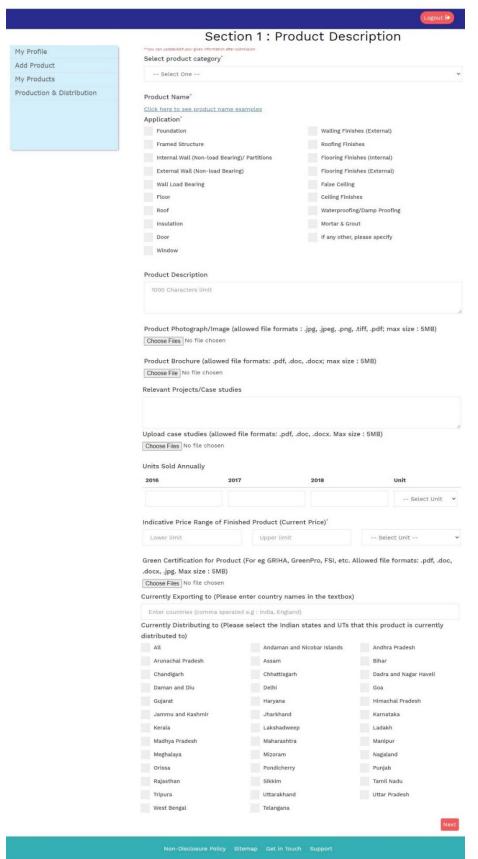


# **Annex 7 : Sample product registration form**















				Logout G		
	Product Description is sa	aved				
1y Profile		5 1 .				
Add Product		Product Indicator				
1y Products	**you can update/edit your given information after submission  Please upload only docx, doc, pdf, jpg.					
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