



Energy Efficiency Labels for Residential Buildings

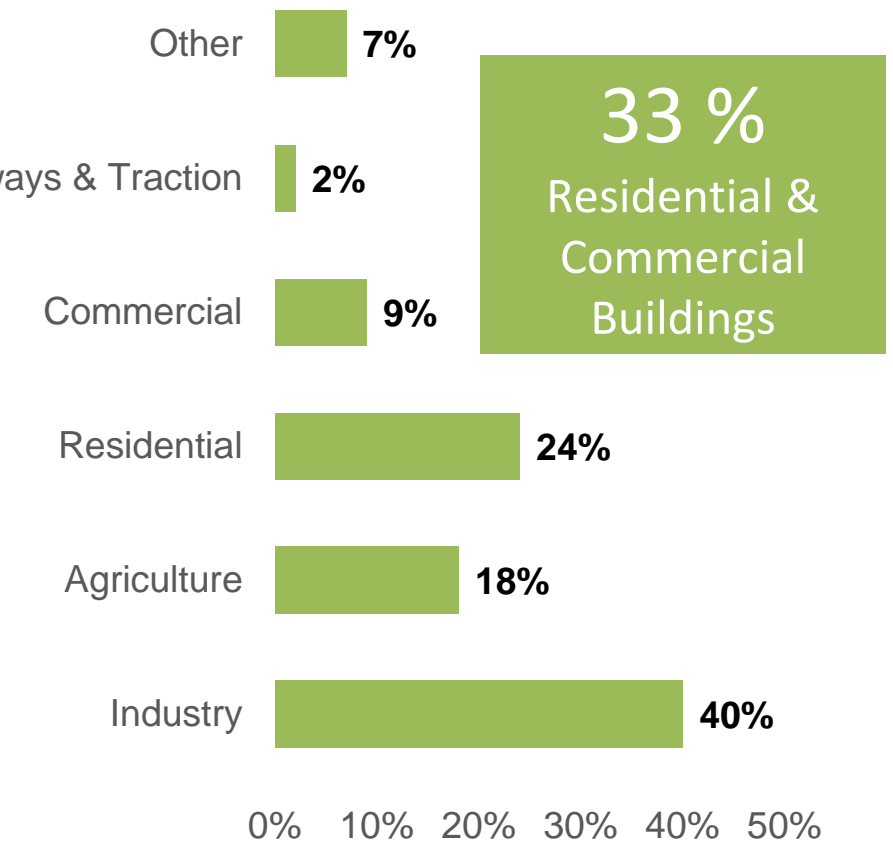
Overview

Bureau of Energy Efficiency

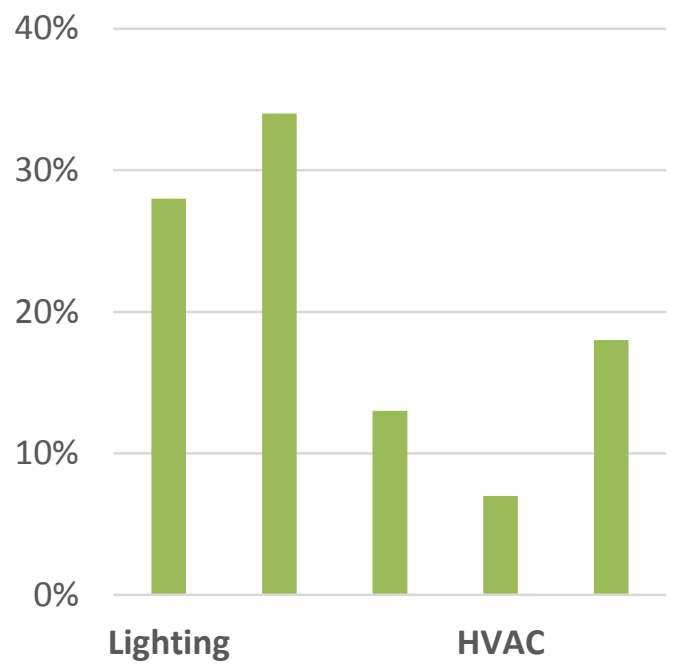
India's Electricity Scenario



Electricity Consumption in 2016-17=1066 BU
Electricity Consumption (BU) in 2016-17



Electricity Consumption Pattern In Residential Buildings

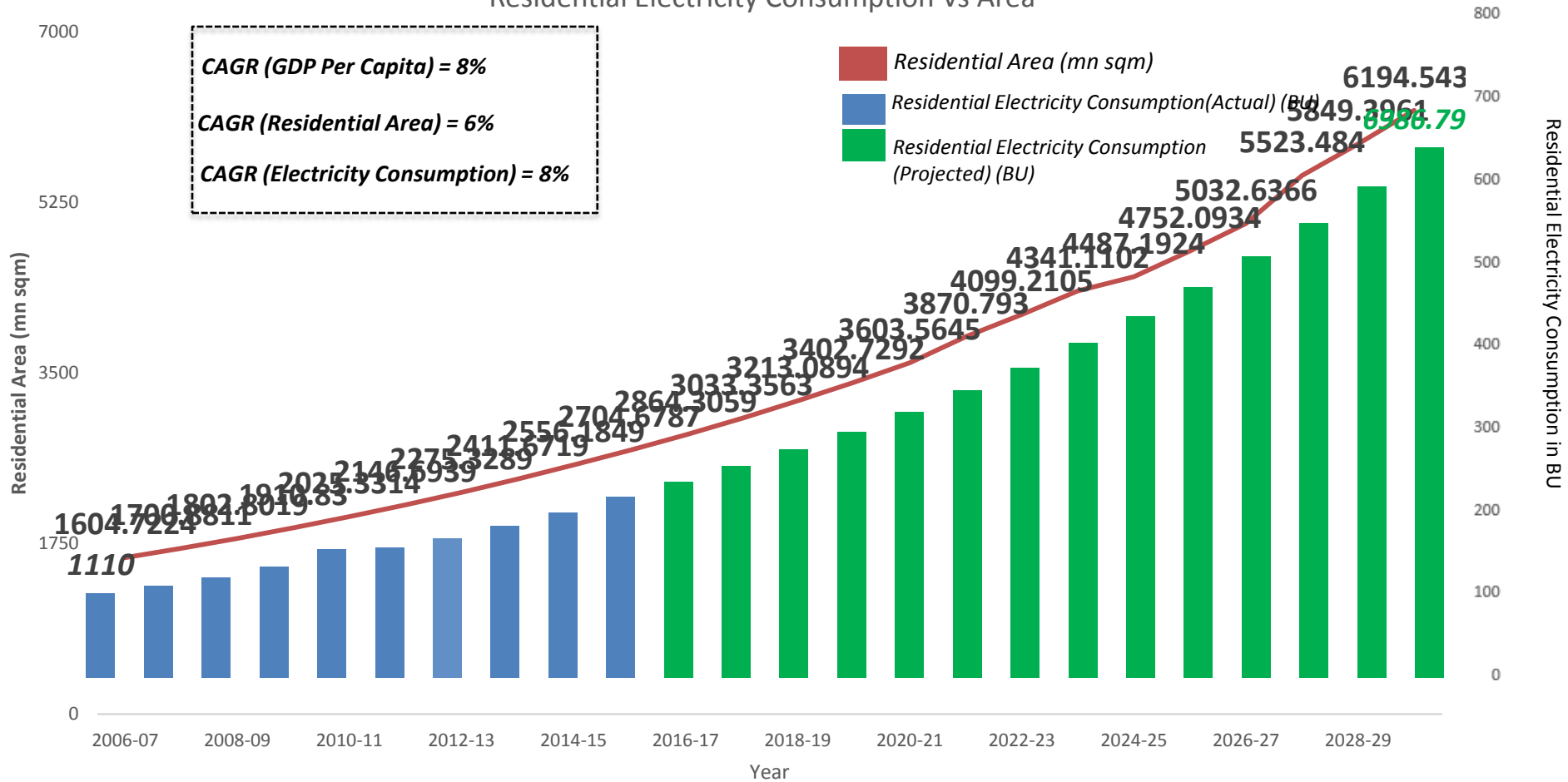


Source: Energy Statistics 2018



Residential Electricity Consumption Vs Area

CAGR (GDP Per Capita) = 8%
CAGR (Residential Area) = 6%
CAGR (Electricity Consumption) = 8%





India will add
3 Billion m² by 2030 of New
residential building w.r.t
Year 2018



Objective of labelling Program-Passport



- To provide information to consumers for EE Homes
- Energy Sustainability for India
- To achieve Indian NDC Targets
- Market Transformation for Energy Efficiency in each Home





Features of labelling Program



Choice for Consumers to select EE Homes

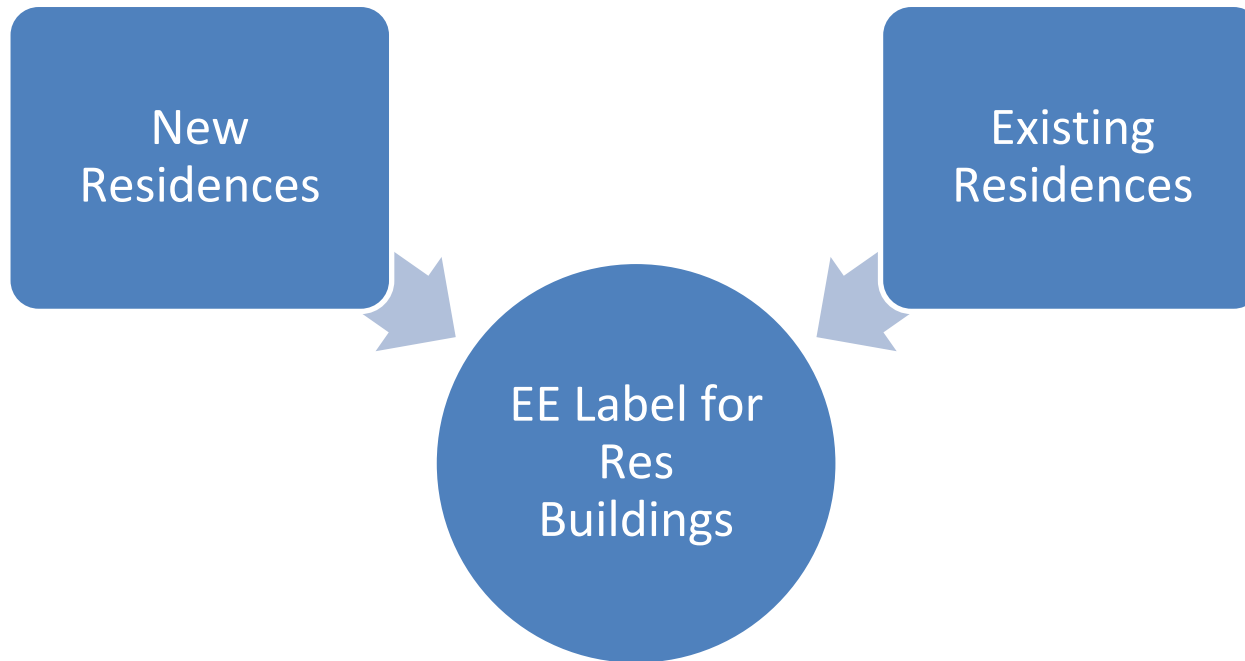
Encourages consumers to improve EE

Peer to Peer Comparison

Provide information on the potential and actual energy use of buildings



Scope of labelling Program



- Program covers all types of residential buildings
- Making EE label a mandatory information required during real estate transaction/leasing will help in achieving the program's objectives



Need of labelling Program



Making energy efficient homes to tackle the soaring energy consumption in the residential sector

Helping consumers make an informed decision while buying/leasing through the provision of direct, reliable & costless information

A step forward from EcoNiwas Samhita 2018 launched by Ministry of Power on 14th December 2018 by motivating consumers to move towards energy efficient designs



Potential Savings from Labelling Program

3



Potential of Energy Savings in New residential buildings



Summary of energy savings considering 2018-19 as base year

Year	Savings (MU)	CO2 million tonnes
2019-20	408.9	0.3
2020-21	1469.3	1.2
2021-22	3517.5	2.9
2022-23	6699.9	5.5
2023-24	11398.8	9.3
2024-25	20122.5	16.5
2025-26	30788.5	25.2
2026-27	37058.8	30.4
2027-28	44957.1	36.9
2028-29	55200.1	45.3
2029-30	66725.8	54.7
TOTAL	278247	228

The energy saving potential through proposed labelling program is around 278 BU per year



Ancillary benefits of the program



Embryo to stimulate the larger energy efficient material & technologies market

Additional set of professionals to expedite the complete the process of residential label granting shall be a stimulant to Indian job market

Will encourage manufacturers to invest in energy efficient materials & thus support Make in India program

Disposable income generated from the energy savings will help stimulate other sections of the economy

Helps the nation work towards fulfilment of Global Sustainable Development Goals 7 of United Nations: Affordable & Clean Energy



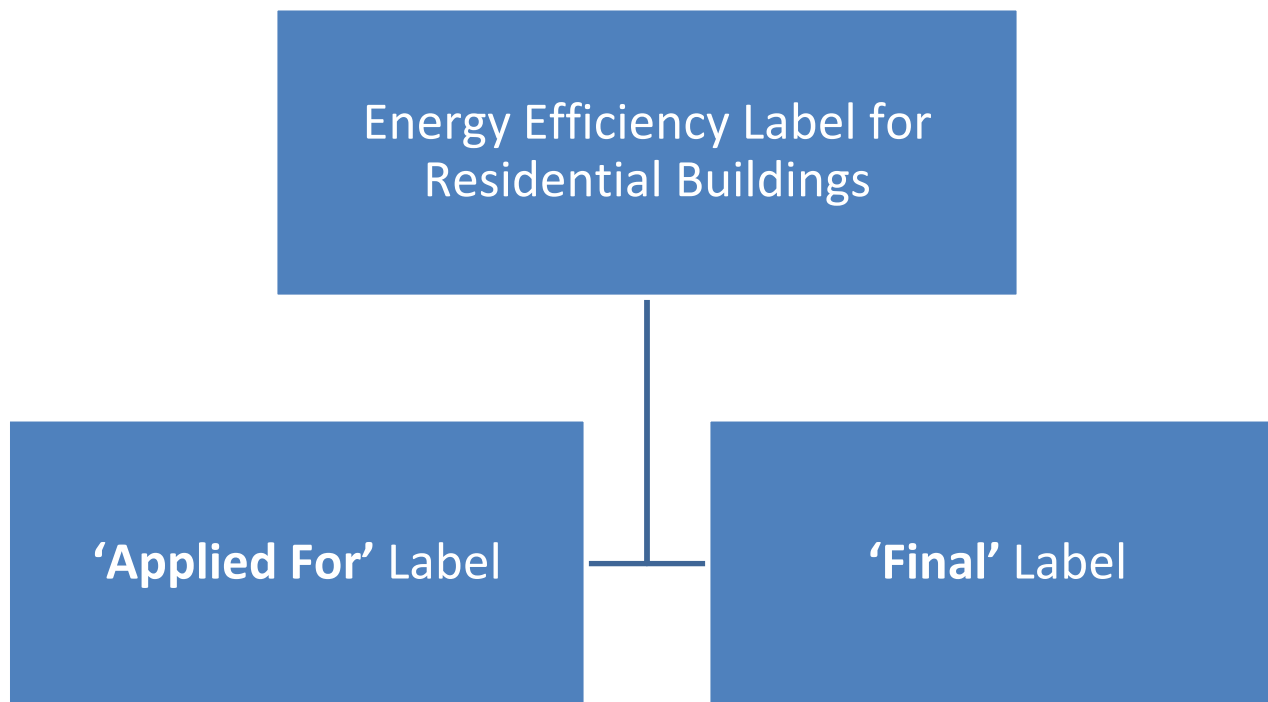
Energy Efficiency Labels for Residential Buildings

Scope, methodology & framework

Bureau of Energy Efficiency

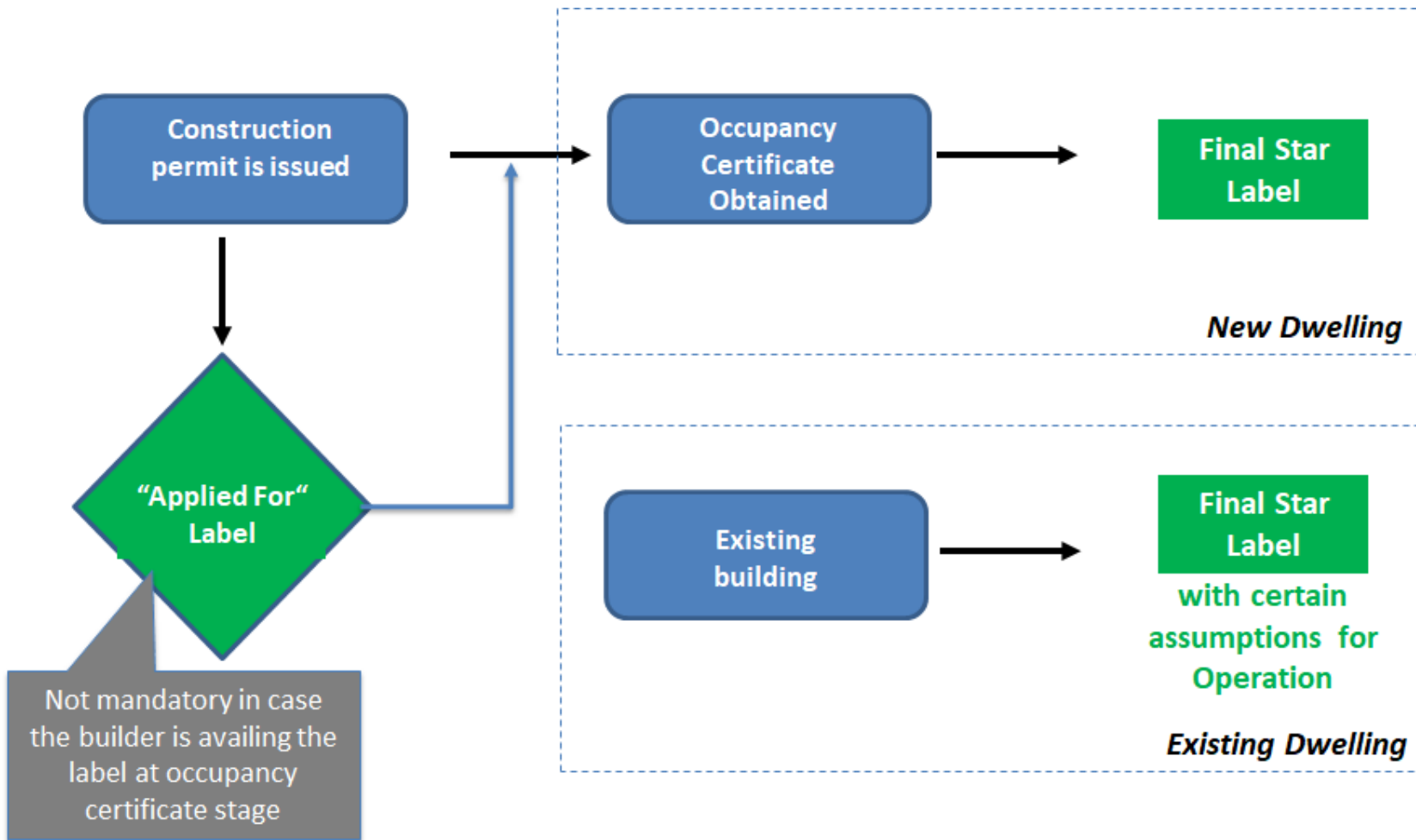


Types of Label





Classification of labelling stages





Star Rating Criteria & Calculation



Star Rating awarded in the basis on EPI (**Energy Performance Index**)

Energy Performance Index = Annual Energy Consumption (**kWh**)/Built up area (**m²**)

EPI Calculation = EPI for air conditioned spaces (~20% area) with 24 °C as set point (**E1**) with Air conditioner switched ON during occupied hours + EPI for other spaces (~80%) with natural ventilation (**E2**) set points defined by IMAC.

And EPI for other appliances: E3

E1 & E2 includes following systems: Building envelope characteristics, Lighting system, and comfort system (AC)

E3 includes appliances such as: Microwave oven, Grinder, , Refrigerators, TV, Water Pump, Washing Machine, etc.

E3 is not considered in EPI calculation for the Label



Residential Building Star Rating Plan

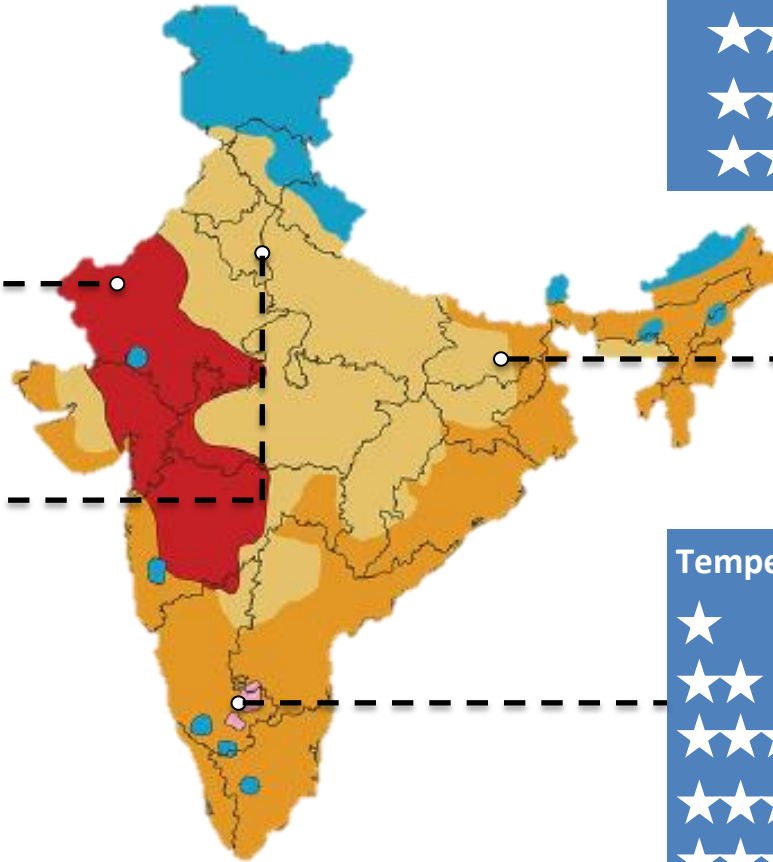


Hot & Dry

★	55 < EPI ≤ 67
★★	47 < EPI ≤ 55
★★★	38 < EPI ≤ 47
★★★★	29 < EPI ≤ 38
★★★★★	EPI ≤ 29

Warm & Humid

★	58 < EPI ≤ 64
★★	49 < EPI ≤ 58
★★★	39 < EPI ≤ 49
★★★★	30 < EPI ≤ 39
★★★★★	EPI ≤ 30



Composite

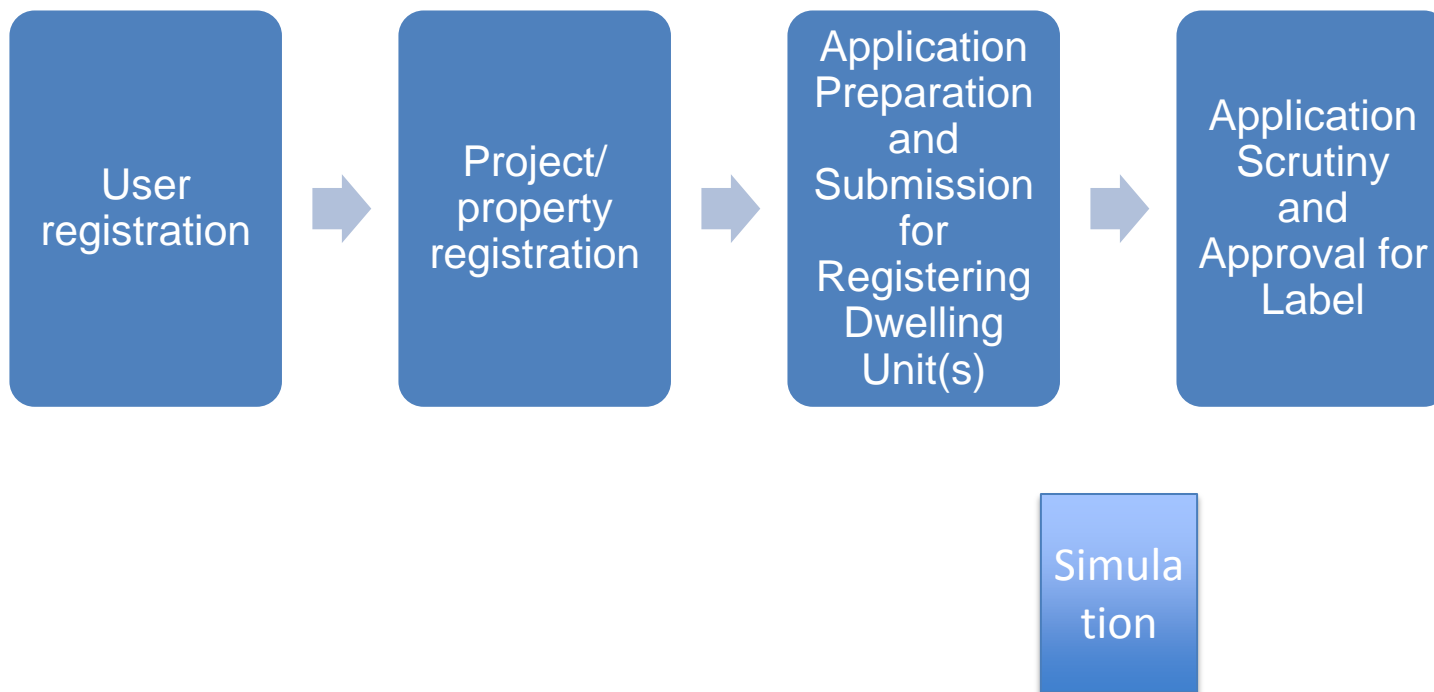
★	52 < EPI ≤ 60
★★	45 < EPI ≤ 52
★★★	37 < EPI ≤ 45
★★★★	29 < EPI ≤ 37
★★★★★	EPI ≤ 29

Temperate

★	28 < EPI ≤ 31
★★	24 < EPI ≤ 28
★★★	21 < EPI ≤ 24
★★★★	17 < EPI ≤ 21
★★★★★	EPI ≤ 17



Application Process

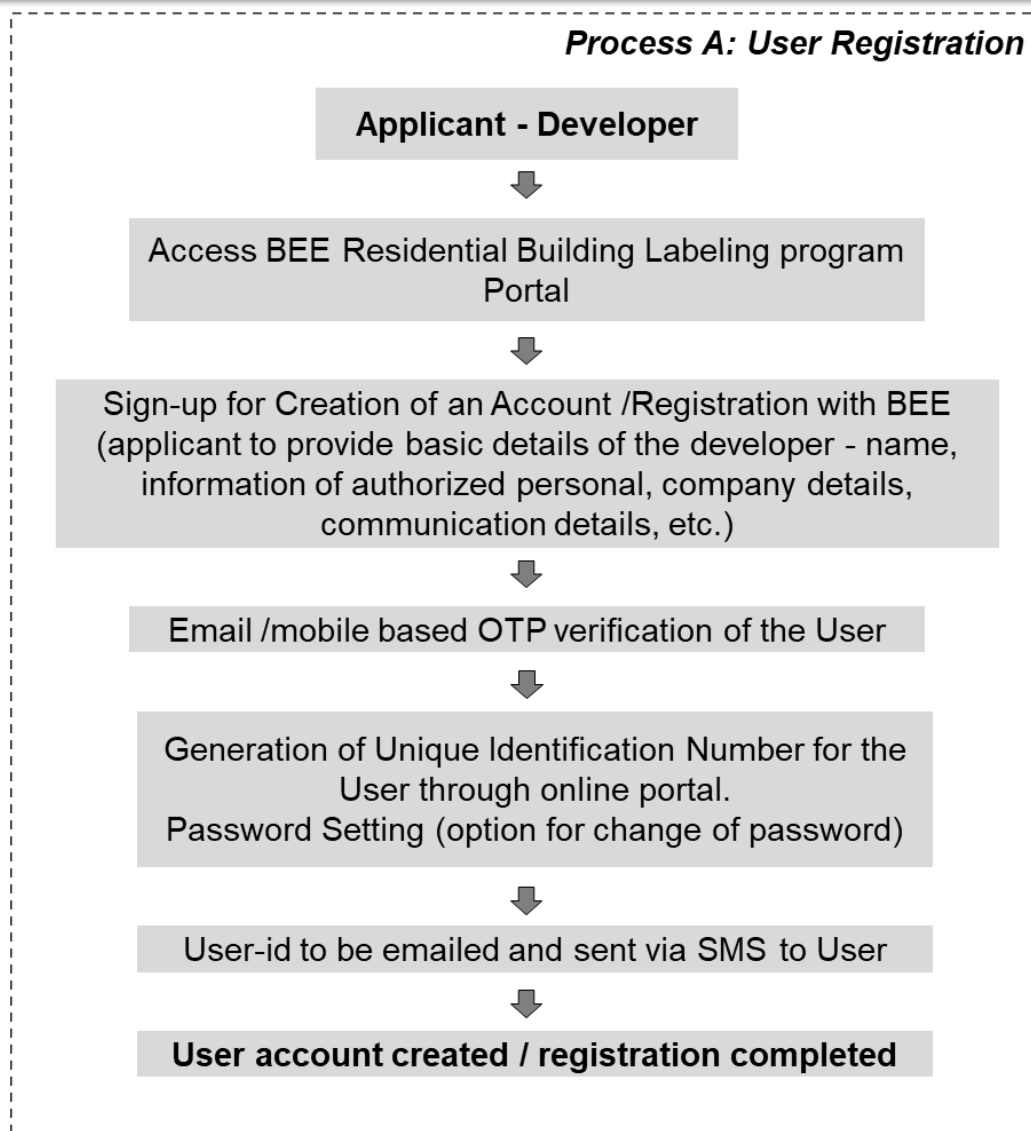




User Registration Stage

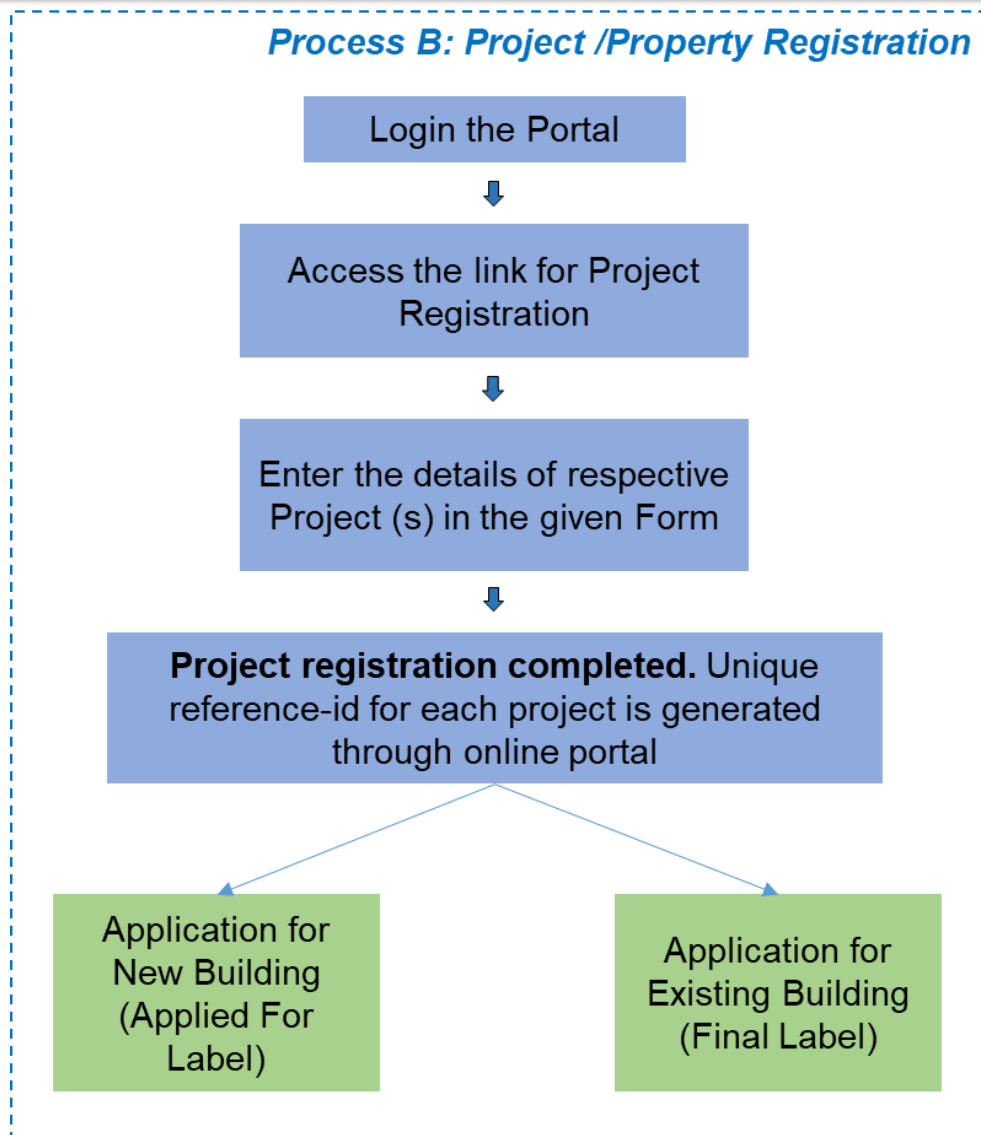


Process A: User Registration





Project Registration Stage





Outline of process for awarding BEE Star Label



BEE Star Label for Residential Building:

- Applied For Label (specifically for developers or under construction residential buildings – Voluntary)
- Final Asset Label

Outline of process for awarding BEE Star Label

Preparation stage

Pre-requisites for applying to BEE

Evaluation for eligibility requirements

Application processing

Application submission

Scrutiny of received application

Approval for label

Implementation stage

Label renewal

Label transfer

Changes in label awarded already

Uptake strategies

Monitoring & Verification

Verification audits

Data reporting for monitoring the progress



Preparation Stage



Who will apply

Applicant in case of SINGLE DWELLING unit

- **DU Owner OR**
- DU owner may appoint a **Certified Professional**

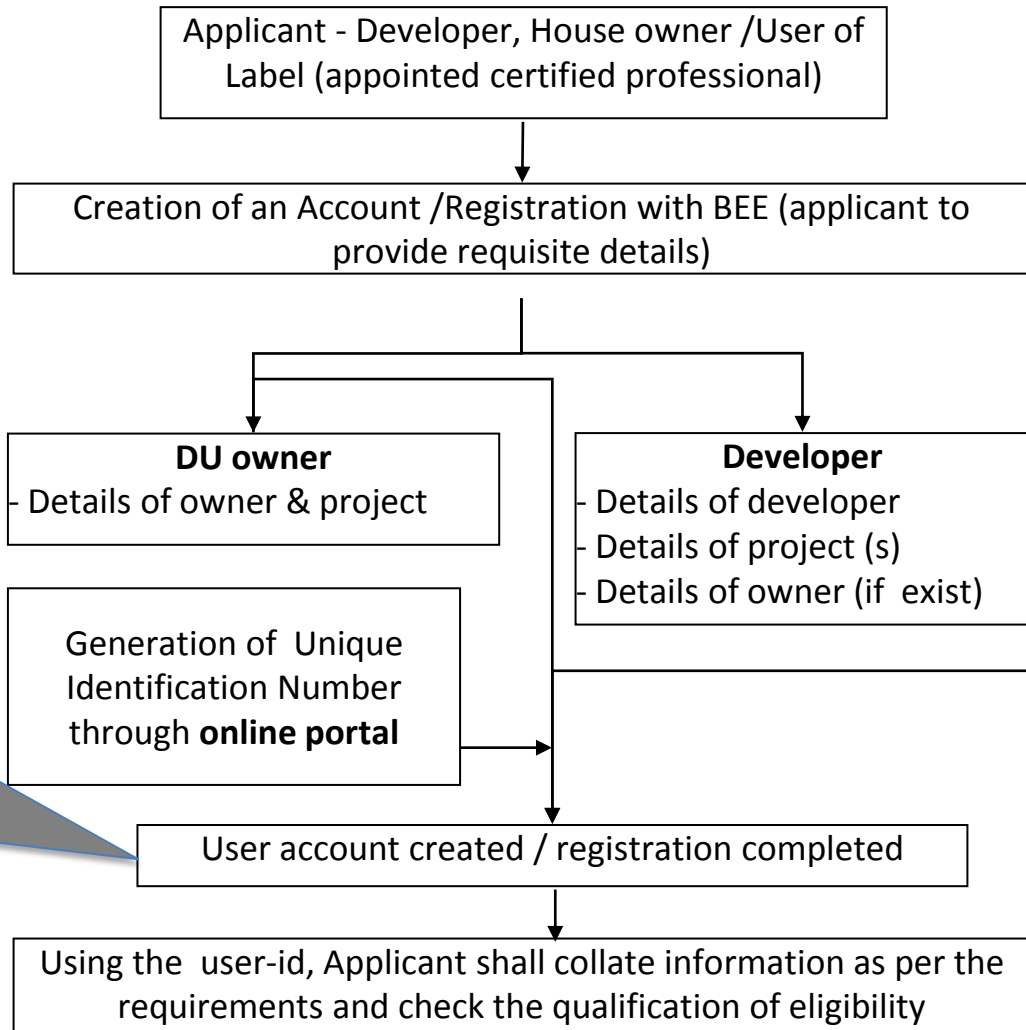
Applicant in case of MULTI DWELLING unit

- **Developer OR**
- Developer may appoint a **Certified Professional**

Creation of:

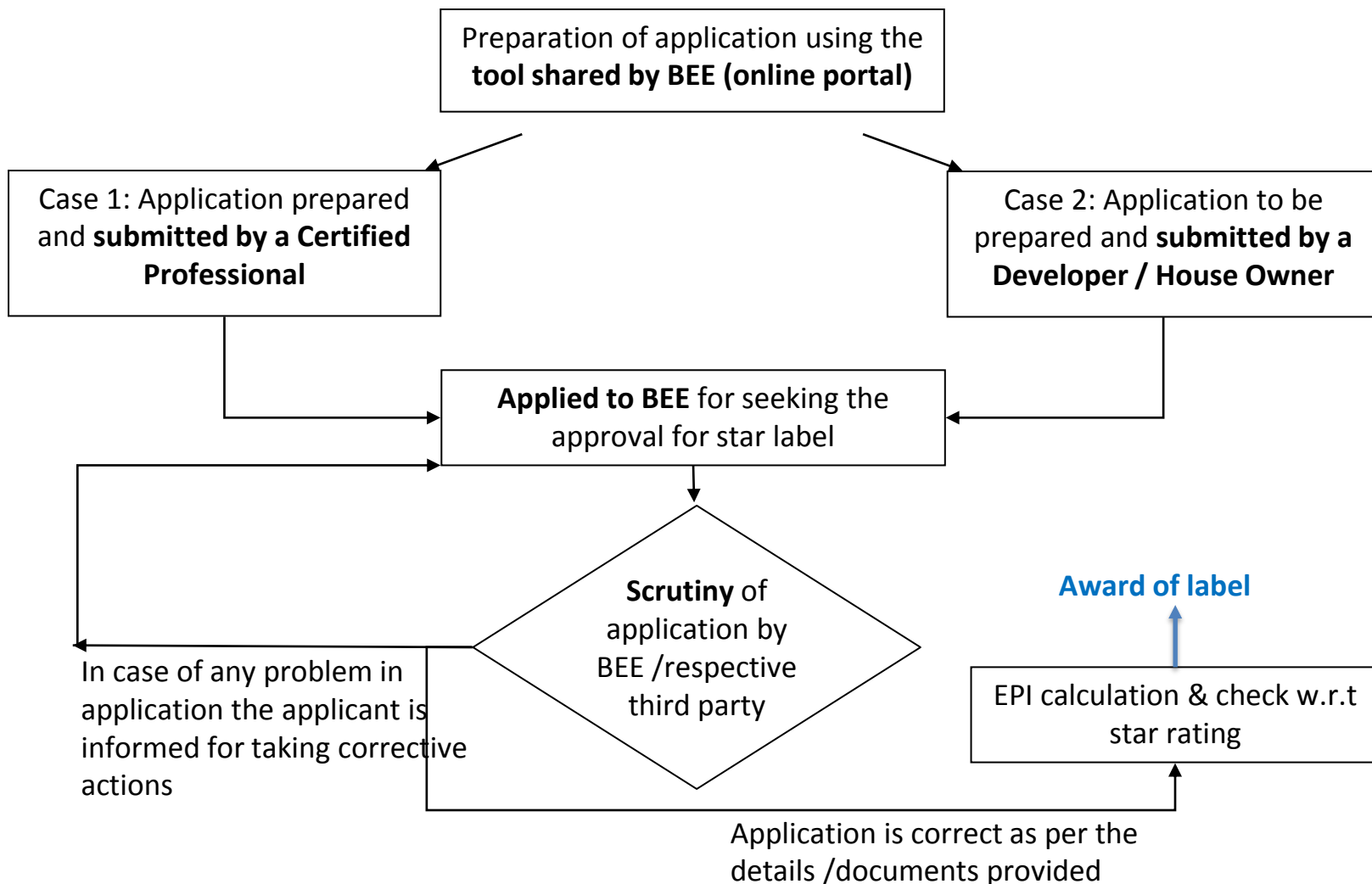
- **Developer ID OR Dwelling Owner ID**
- **Project ID (New Dwelling)**
- **Individual Dwelling ID**

Preparation Stage





Application processing stage





Application processing stage contd..



Label generation	New Dwelling stages			Existing Dwelling
	Developer	Developer	Owner	Owner
	“Applied For” Label	Final Star Label	Final Star Label	Final Star Label
Approval letter for the Label	Yes	Yes	Yes	Yes
Dwelling Passport (soft copy)	NA	Yes	Yes	Yes
Dwelling Name Plaque	NA	Yes	Yes	Yes



NAME: ABC
ADDRESS: XXX

- The plaque will be provided to the applicant (developer / owner) of the respective residential dwelling upon approval of 'Final' label. The developer or owner would be required to submit request to BEE for the plaque.



Validity of label and plaque from the date of approval by BEE

'Applied For' Label (New Construction)	3 Years
'Final' Star Label (existing construction)	5 Years
Name plaque	Linked with validity of respective Final Star Label



Dwelling ownership & transfer related cases



Label Stage	Ownership Transfer cases		
	Developer to owner	Developer to Developer	Owner to Owner
'Applied For' Label	NA	The already awarded 'Applied for' label stands OBSOLETE. The new developer shall submit application to seek the updated label.	NA
'Final' Label	The owner after seeking the ownership shall submit request to BEE for change of identity details linked with the respective label which was earlier issued to the developer and also submit request for reissue of passport and name plaque	NA	The earlier issued passport and name plaque stands OBSOLETE. The new owner shall submit ownership change documents and respective form to BEE for change in records. Thereafter, the new owner shall submit request for seeking fresh "Name Plaque"

Sr No	Description	Application fee (INR)	
		For dwelling unit with built-up area up to 100 m ² (Column A)	For dwelling unit with built-up area more than 100 m ² (in addition with amount mentioned in column A)
1	Fresh application for 'Applied For' Label	₹ 2000	₹ 5 per m ² for area above 100 m ²
2	Transfer of label stage from 'Applied For' to 'Final Star Label' by developer	₹ 1000 The charges is inclusive of cost of name plaque to be developer (irrespective of plaque size)	No extra charges (not applicable)

Sr No	Description	Application fee (INR)		
3	Fresh application for 'Final Star Label' either by developer or existing owner	₹ 2500	With small size name plaque	₹ 5 per m ² for area above 100 m ²
		₹ 2800	With medium size name plaque	
		₹ 3000	With large size name plaque	
4	Application for change in label details due to transfer of dwelling ownership	₹ 1000		Not applicable



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