MODULE: 3
KEY THRUST AREAS OF ENERGY CONSERVATION ACT, 2001

GreenTree
Define . Design . Deliver

सीमsseem

CONTENTS

STANDARD & LABELLING

STANDARD & LABELLING

1 Standard

- Energy-efficiency standards are procedures and regulations that prescribe limits on the energy consumption of manufactured products.

- Intention is to prohibit the sale of products that are less energy efficient than the minimum prescribed standards, called as Minimum Energy Performance Standards (MEPS).

Benefits

- Increased average efficiency or quality of products on the market
- Reduced energy costs
- Reduced greenhouse gas emissions
- Protected consumers
- Improved market efficacy & competition

2 Labelling

- Energy-efficiency labels are information affixed to manufactured products and usually communicate the product energy performance.

Benefits

- Recognize best products
- Describe product performance & quality
- Promote competition & innovation
- Provide visually information about EE standards to the consumers

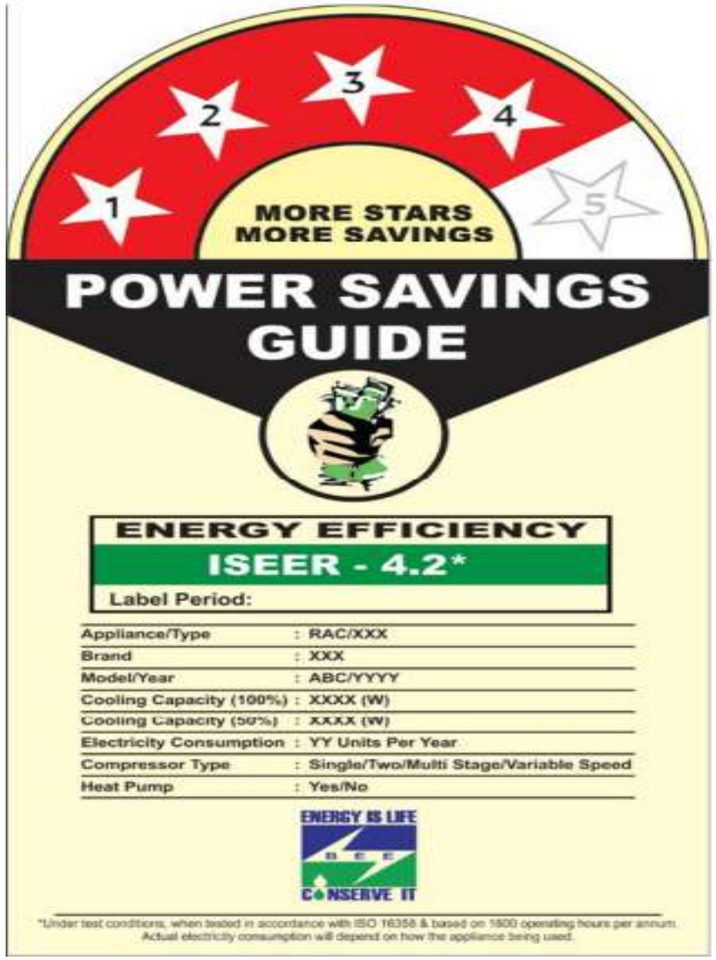
STANDARD & LABELLING

3 Endorsement Labels

Purpose

To indicate clearly to the consumer that the labelled product saves energy compared to other similar products in the market. They are essentially seals of approval given according to specified criteria.

STANDARD & LABELLING



4 Comparative Labels

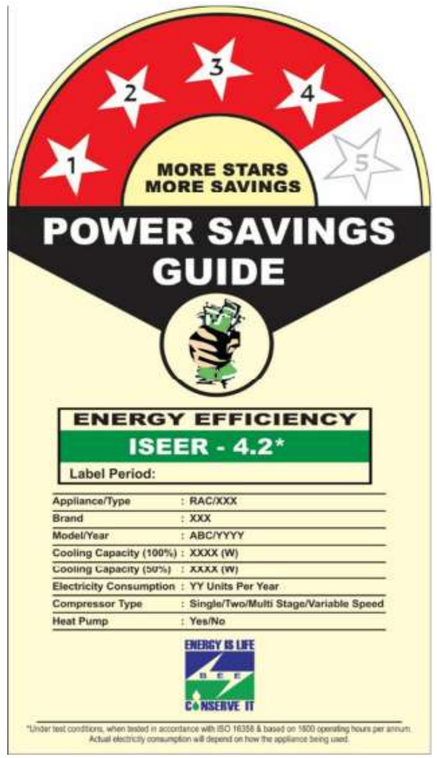
Purpose

Allow consumers to compare performance among similar products using either discrete categories of performance or a continuous scale. The use of comparative labels can motivate manufacturers to build products that are more efficient or of a higher quality than those already on the market.

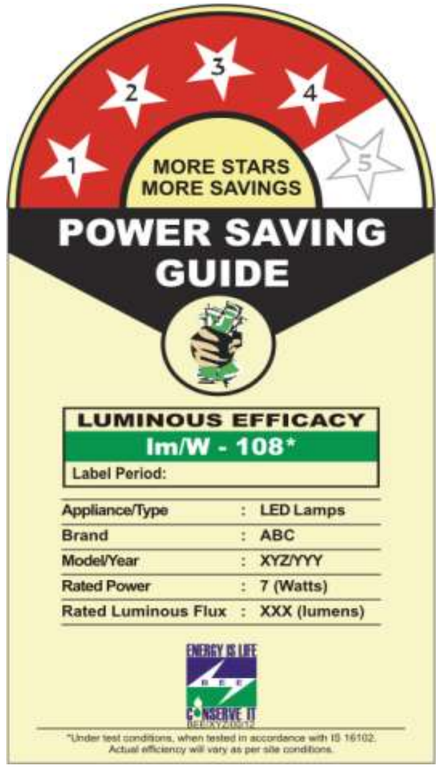
GreenTree
Define . Design . Deliver

STANDARD & LABELLING

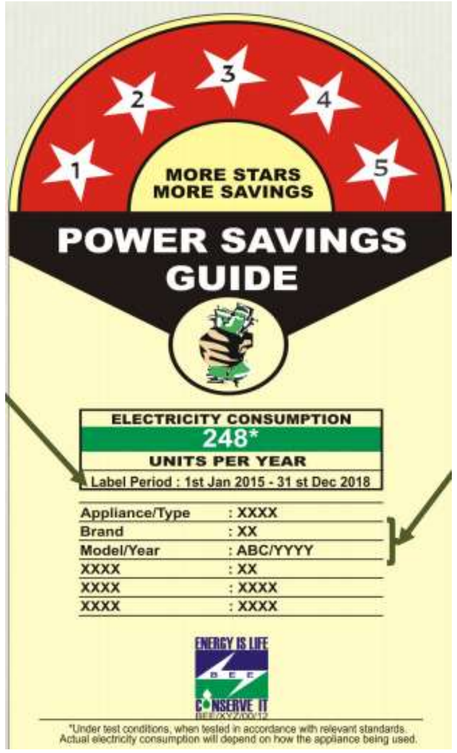
4 Comparative Labels



Sample Label for Air Conditioners



Sample Label for LED lamps



Sample Label for Refrigerator

GreenTree
Define . Design . Deliver

5 Star Rating of Building

- Energy audit studies in buildings have shown large potential for energy savings both in government and commercial office buildings.
- The Bureau of Energy Efficiency has developed a scheme for energy efficiency labeling of Buildings, in February 2009.

Purpose

  - To accelerating energy efficiency activities in commercial buildings across the country.
  - The Star rating Programme would provide public recognition to energy efficient buildings, thus creating a market demand for such buildings.

- This programme would rate buildings on a 1-5 Star scale with 5 Star labelled buildings being the most efficient.
- BEE Star Rating Scheme is based on actual performance of the building in terms of specific energy usage termed as Energy Performance Indicator (EPI).

5 Star Rating of Building

OFFICE BUILDING	BPO
• EPI shall be kWh/sq.m/year in terms of Purchased & Generated Electricity divided by Built up Area in sq.m. • The total electricity should not include electricity generated from on-site renewable sources such as solar photovoltaic etc.	• EPI shall be Average Annual hourly Energy Performance Index (AAhEPI) in (Wh/hr/sq.m), which is Purchased & Generated Electricity divided by Built up Area in sq.m and Total Annual Hours of Operation. • • The total electricity should not include electricity generated from on-site renewable sources such as solar photovoltaic etc.

ENERGY CONSERVATION BUILDING CODE (ECBC)

1 Introduction

Purpose

- Energy Conservation Building Code (ECBC) encourage energy efficient design of buildings without affecting the building function, comfort, health, or the productivity of the occupants.
- ECBC also addresses local design conditions and helps improve existing construction practices.
- The emphasis of BEE is on Integrated Building Design approach.
- ECBC is also easy to use and encourages continuous improvisations.
- The code was revised and updated in 2017 to match with the technology developments to set higher benchmarks for energy efficiency.

2 Benefits of ECBC

- Lower HVAC loads – reduced energy consumption and operational cost.
- Lesser addition of power generation capacity– better building performance.
- Climate oriented design practice.
- Improved lighting and extensive use of day lighting.
- Use of natural ventilation/free-cooling systems.
- Market demand for energy efficient products like glass, insulation, HVAC equipment etc.

Hospitality
Star/non Star Hotels, Resorts

Religious, Recreation, Social,
Picture hall, Bus/Rail/Airports

:
Healthcare

:
Educational

3 Building Classification

The following are the classifications of building as per ECBC:

- Hospitality: Star/non Star Hotels, Resorts
- Healthcare
- Assembly: Religious, Recreation, Social, Picture hall, Bus/Rail/Airports
- Business: Large >30000 sq.m, Medium: <30000 - 10000 Sq.m, small <10000 Sq.m
- Educational
- Shopping Complexes
- Mixed Building

4 Levels of Energy Efficiency Performance

- **ECBC Buildings**

  Demonstrate compliance by adopting the mandatory and prescriptive requirements listed under ECBC Compliant Building requirements. An ECBC compliant new building should be able to demonstrate minimum energy savings of 25% compared to a conventional building.

- **ECBC+ Buildings**

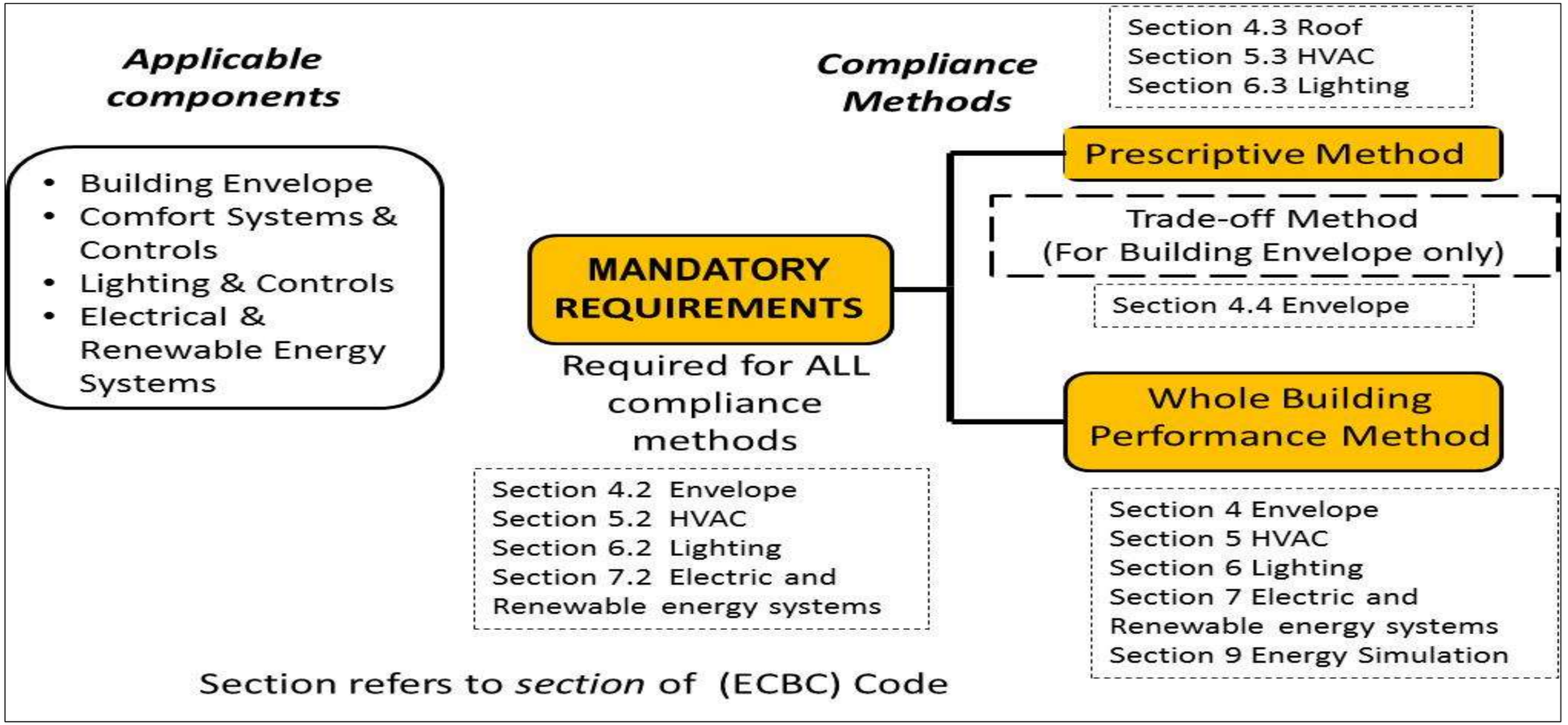
  Shall demonstrate compliance by adopting the mandatory and prescriptive requirements listed under ECBC+ Compliant Building requirements. Buildings should be able to demonstrate energy savings of 35% compared to a conventional building.

- **SuperECBC Buildings**

  Shall demonstrate compliance by adopting the mandatory and prescriptive requirements listed under SuperECBC Compliant Building requirements. Buildings should be able to demonstrate energy savings of 50% compared to a conventional building.

5

ECBC Compliance Approaches & Methods



CONTRIBUTION BY

Bureau of Energy Efficiency

- Mr. Abhay Bakre, Director General, Bureau of Energy Efficiency
- Shri Pankaj Kumar, Secretary , Bureau of Energy Efficiency
- Mr. Saurabh Diddi, Director, Bureau of Energy Efficiency
- Dr. Ashok Kumar, Director, Bureau of Energy Efficiency
- Mr. S. K. Khandare, Director, Bureau of Energy Efficiency
- Shri Sameer Pandita, Director, Bureau of Energy Efficiency
- Ms. Rajini Thompson. Coordinator (Exam), Bureau of Energy Efficiency

Industries

- Anant Shukla, ASEAN-German Energy Programme (AGEP), GIZ GmbH
- H. Ragavendra Prabhu, National Productivity Council (NPC)
- Idhayachander Ravichandran, National Productivity Council(NPC)
- J. Nagesh Kumar, National Productivity Council (NPC)
- Joel Franklin Asaria, National Productivity Council(NPC)
- K.V.R. Raju, National Productivity Council (NPC)
- M. J. P. Varun, National Productivity Council (NPC)
- M Narayanan, Energy Management Centre
- Padu S Padmanabhan, Water, Environment Expert
- P. Chitra, National Productivity Council(NPC)
- P. Dharmalingam, ENSAVE Consultancy and Training Pvt. Ltd.,
- P. Kanagavel, National Institute of Wind Energy (NIWE)
- R.K. Khilnani, Energy Tech Consultants Pvt. Ltd.
- R. Kumar, Energy & Sustainability,
- R. Suryanarayanan, National Productivity Council (NPC)
- Satyanarayan Seshadri, Aspiration Energy
- Sreenivasulu Deverapalli,, National Productivity Council (NPC)
- S. Srinivas, CII-Sohrabji Godrej Green Business Centre
- Suryanarayanan, National Productivity Council (NPC)
- T. Sankaranarayanan, National Productivity Council (NPC)
- Velayutham V , National Productivity Council(NPC)
- V G. Sandhya, National Productivity Council (NPC)
- V.S. Deshpande, Transparent Cogen Systems Pvt. Ltd.,

Thank You

Presentation Prepared by:

M/s GreenTree Building Energy Private Limited

GreenTree

Define . Design . Deliver