Mapping of Existing Energy Efficiency Standards in Buildings in the UNECE region:

Main Outcomes

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Context: why looking into energy efficiency?
Mapping of Energy Efficiency Standards in Buildings: objectives

- To examine the current status of the energy efficiency standards in buildings in the UNECE region
- To form a basis to improve knowledge of UNECE member States of existing energy efficiency standards in buildings
- To collect best practices related to existing standards
- To provide a gap analysis and harmonization of data and standards
- To prepare an initial assessment of energy efficiency technologies in buildings in relation to the existing standards
Mapping of Energy Efficiency Standards in Buildings: methodology

**Questionnaire (26 January-28 February 2018)**
Collecting information from 56 member States on the current status of the energy efficiency requirements and technologies in building codes.

**Desktop Study**
Review of relevant policy documents, previously published studies, technological developments and best practices related to existing standards across countries of the UNECE region.

**Consultation with the members of the JTF**
Collection of feedback and comments from the members of the Joint Task Force on Energy Efficiency in Buildings.
Mapping of Energy Efficiency Standards in Buildings: survey

**Part 1: General Information**
- Name
- Address
- Contact details
- Country
- Organization

**Part 2: Building Energy Codes**
- Existing standards
  - Type of building covered
  - Stringency
  - Energy performance gap
  - Kind of prescriptive requirements
  - Inspections

**Part 3: Energy Performance Certification**
- Type of buildings covered by EPC
- Policy requirements level for EPC
- Existence of national registry database for EPC

**Part 4: Building Materials and Products**
- Existence of requirements
- Requirements to test the building materials

**Part 5: Requirements for Enforcement and Compliance**
- Existence of incentives for compliance
- Penalties for non-compliance
- Monitoring of energy performance in building energy codes

**Part Six – Energy Efficiency Technologies**
- Deployment of technologies
- Which technologies exist
- Recent trends
Mapping of Energy Efficiency Standards in Buildings: gap analysis

**Objective:** to evaluate the most effective policies and identify best practices to help member States learn from one another.

- Comprehensiveness and stringency of the building energy codes
- Technical requirements of the building energy codes
- Comprehensiveness and stringency of the EPC
- Enforcement mechanisms, including incentive packages and penalties
- Energy efficiency materials and products requirements in building energy codes
## Mapping of Energy Efficiency Standards in Buildings: country profiles

### HOUSING AND LAND MANAGEMENT

<table>
<thead>
<tr>
<th>Country</th>
<th>Energy Efficiency Standards</th>
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<tbody>
<tr>
<td>France</td>
<td>- TPS (Thermal Performance of Buildings) - EPC (Energy Performance Certificate)</td>
</tr>
<tr>
<td>Germany</td>
<td>- EnergieEtikett - Energetische Gebäudeprüfung</td>
</tr>
<tr>
<td>Italy</td>
<td>- Coefficient di Efficienza - Panel caloriico</td>
</tr>
<tr>
<td>Spain</td>
<td>- CTE (Technical Construction Code) - PEB (Performance Building)</td>
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### ENERGY PERFORMANCE CERTIFICATE (EPC)

The Energy Performance Certificate (EPC) provides information on the energy performance of a building. It includes details such as the energy consumption for heating, hot water, and space cooling. The EPC is attached to the property and can be used by prospective buyers to assess the building's energy efficiency.

### THERMAL PERFORMANCE OF BUILDINGS (TPS)

The TPS standards in France regulate the thermal performance of buildings. The standards cover aspects such as the insulation of walls and roofs, the efficiency of windows and doors, and the use of energy-efficient materials.

### ENERGIEETIKETT (GERMANY)

The EnergieEtikett is a label that rates the energy performance of buildings in Germany. It is based on the building's energy consumption for heating, cooling, and hot water. The rating system ranges from A (high performance) to G (low performance).

### COEFFICIENT DI EFFICIENZA (ITALY)

In Italy, the Coefficient di Efficienza (Coefficient of Efficiency) is used to evaluate the energy performance of buildings. It is calculated based on the building's energy consumption for heating and cooling.

### PANEL CALORICO (ITALY)

The Panel Calorico is an Italian energy efficiency index for buildings. It is based on the building's energy consumption for heating and cooling, taking into account the building's size and location.

### CTE (TECHNICAL CONSTRUCTION CODE) (SPAIN)

The Technical Construction Code (CTE) in Spain provides minimum requirements for the energy performance of buildings. It includes regulations for the insulation of walls and roofs, the efficiency of windows and doors, and the use of energy-efficient materials.

### PEB (PERFORMANCE BUILDING) (SPAIN)

The Performance Building (PEB) in Spain is a certification for buildings that meet high energy efficiency standards. It includes regulations for the insulation of walls and roofs, the efficiency of windows and doors, and the use of energy-efficient materials.

### BUILDING ENERGY CODE (BEC) (ITALY)

The Building Energy Code (BEC) in Italy sets minimum requirements for the energy performance of new buildings. It includes regulations for the insulation of walls and roofs, the efficiency of windows and doors, and the use of energy-efficient materials.

### PANEL CALORICO (SPAIN)

The Panel Calorico in Spain is an energy efficiency index for buildings. It is based on the building's energy consumption for heating and cooling, taking into account the building's size and location.

### THERMAL BUILDING CODE (GBR)

The Thermal Building Code (TBC) in the UK sets minimum requirements for the energy performance of new buildings. It includes regulations for the insulation of walls and roofs, the efficiency of windows and doors, and the use of energy-efficient materials.

### ENERGETISCHE GEBAUDEPRUFUN (GERMANY)

The Energetische Gebäudeprüfung is a building performance check in Germany. It includes an assessment of the building's energy consumption for heating, cooling, and hot water.

### THERMAL PERFORMANCE OF BUILDINGS (FRA)

The Thermal Performance of Buildings (TPB) in France provides information on the energy performance of a building. It includes details such as the energy consumption for heating, hot water, and space cooling. The TPB is attached to the property and can be used by prospective buyers to assess the building's energy efficiency.

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Mapping of Energy Efficiency Standards in Buildings: recommendations

1. To **harmonize building codes** and coverage of all kinds of buildings
2. To create a **national EE target**
3. To **strengthen** the **requirements** for **insulation**, ventilation and technical installations
4. To introduce or strengthen **quality assurance measures**, especially during the early stage of the certification process
5. To establish proper (electronic) monitoring systems of compliance, enforcement and quality control processes through a qualified workforce
6. To establish a **regular inspection of boilers and air-conditioning systems**
7. To continuously monitor, analyze and adjust energy usage in building energy codes
8. To **create incentives for companies for improving EE** through appropriate **policies, tax incentives and low-interest loans**
9. To facilitate the harmonization process of energy efficient materials and products testing and certification
10. To assist in the establishment of new harmonized building materials test mechanisms
11. To **make codes publicly available**
Mapping of Energy Efficiency Standards in Buildings: conclusions

- Some countries apply building energy codes only to specific types of buildings
- Large variance in Energy Performance Certificates (EPC) implementation
- Lack of data in the field of energy performance measurement
- **Closing the energy performance gap** is set to become an increasingly important issue over the next decade
Mapping of Energy Efficiency Standards in Buildings: conclusions

• Improving energy efficiency in buildings key to achieve objectives of 2030 Agenda, would bring about massive reduction in emissions.

• Easier to achieve change in public buildings than multi-apartment. Grants + loans needed to incentivize homeowners to retrofit.

• Fundamental to develop comprehensive and consistent policies to ensure development and implementation of standards, in the spirit of the Geneva UN Charter on Sustainable Housing.
Thank you for your attention!

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68th Commission Session of the UNECE

http://www.unece.org/housing/dayofcities.html