

# BRAZIL

## 1. CONTEXT OF THE BUILT ENVIRONMENT

### Urban population

Total population	Functional Urban Area population*	Share of urban population	Average urban growth
213.233 million (2020)	130.773 million (2020)	61% (2020)	3.9% (2015-2020)

\*Data source: European Commission (2023), FUA and eFUA methodology: OECD/European Commission (2020)<sup>1</sup>

### Building data

	Building stock	Built before	Annual construction	Annual construction rate
Residential	N/A thousand dwellings	N/A	N/A thousand dwellings	N/A
Non-residential	N/A million m <sup>2</sup>		N/A million m <sup>2</sup>	N/A

### Energy & emissions data

Residential buildings**	1990	2021	+/- rate	Non-residential buildings
Final energy consumption (PJ/year)	756	1,193	58%	Final energy consumption (PJ/year) N/A
	1990	2021	+/- rate	
GHG emissions (MtCO <sub>2</sub> /year)	13.89	18.31	32%	GHG emissions (MtCO <sub>2</sub> /year) N/A

\*\*Data source: IEA Countries & Regions<sup>2</sup>

#### Energy consumption by end-use (Residential)

N/A

#### Heating degree days\*\*\*

43.6

Degree (°C) Days (2020)

Reference degree day: 16 degree (°C)

#### Cooling degree days\*\*\*

1,102.3

Degree (°C) Days (2020)

Reference degree day: 21 degree (°C)

\*\*\*Data source: IEA Weather, Climate and Energy Tracker<sup>3</sup>

<sup>1</sup> <http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cfe>, <https://doi.org/10.1787/d58cb34d-en>

<sup>2</sup> <https://www.iea.org/countries>

<sup>3</sup> <https://www.iea.org/data-and-statistics/data-tools/weather-climate-and-energy-tracker>

## 2. GOVERNANCE AND CAPACITY BUILDING

### Who does what

#### Ministries/Agencies responsible for BEE (building energy efficiency) and related policies

<b>A</b> Ministry of Cities	<b>B</b> Ministry of Mines and Energy	<b>C</b> Ministry of Environment and Climate Change	<b>D</b> Ministry of Management and Innovation in Public Services	<b>E</b> Brazilian Development Bank (BNDES)
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#### Ministries/Agencies responsible for each policy area

Building code	Governmental buildings	Housing policy in general	Financial incentives for BEE	Behaviour change for BEE
<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>
BEE standard	Act/law for BEE regulation	Whole life carbon	Energy policy in general	NDC
<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b>

#### Local governments' authority to customise BEE standards<sup>4</sup>

<input type="checkbox"/>	Local governments can customise national standards.
<input checked="" type="checkbox"/>	<b>Local governments cannot adjust national standards, but the standards differ across regions depending on the local climate.</b>
<input type="checkbox"/>	Local governments cannot adjust national standards. All building codes, standards or requirements are uniform across the entire country.
<input type="checkbox"/>	Neighbourhood level approach/planning
<input type="checkbox"/>	The national government is tracking progress on decarbonisation efforts at the local level
<input type="checkbox"/>	More ambitious policy instrument by local governments

### Capacity building

#### Government funding programmes to train/enhance skills for SMEs

Designing for ZEB	<input checked="" type="checkbox"/>	Insulation	<input type="checkbox"/>
Calculation for energy performance of buildings	<input checked="" type="checkbox"/>	Installation of energy efficient equipment	<input type="checkbox"/>
Calculation for life cycle CO <sub>2</sub> of buildings	<input type="checkbox"/>	Other	<input type="checkbox"/>

**Actions undertaken by the national government to support local governments for BEE policy implementation<sup>5</sup>**

Co-ordinating regional networks for knowledge exchange and support	-
Providing funding for training	✓
Distributing toolkits and guidelines	✓
Developing online platforms to share best practices	-
Hosting annual conferences focused on BEE policy implementation	-
Offering grants to hire consultants	-
Collaborating with research institutes offering specialised courses on BEE practices	Priority ✓
Creating incentive programmes to reward local governments	-
Supporting the Implementation of local regulations	-
Establishing mentorship programmes	Priority ✓
Other	-

### 3. GOALS AND POLICY FOCUS

**Policy areas covered in the goals and existing commitments**

	Zero emission for new buildings	Zero emission for existing buildings	Renewable energy for new buildings	Renewable energy for existing buildings	Whole-life cycle carbon reduction
NDC	-	-	-	-	-
LT-LEDS	-	-	-	-	-
Ministerial plan	✓	-	-	-	✓

**Quantitative targets included in long-term goals**

<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  Fossil fuel-free buildings                 </div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  District heating/cooling                 </div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  Insulation                 </div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  Heat pumps                 </div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  Rooftop PVs                 </div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  Solar heating of water                 </div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  Other renewable energy                 </div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  Other                 </div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>

## Policy focus for decarbonising buildings (Top 3)

### Current focus

Passive design to reduce heating demand	<input type="radio"/>
Energy efficiency on heating	<input type="radio"/>
Passive design to reduce cooling demand	<input type="radio"/>
Energy efficiency on cooling	<input checked="" type="radio"/>
Switching energy to sustainable energy	<input type="radio"/>
Renewable energy	<input checked="" type="radio"/>
Embodied carbon	<input type="radio"/>
Circularity of building materials	<input type="radio"/>



### Future priorities

Passive design to reduce heating demand	<input type="radio"/>
Energy efficiency on heating	<input type="radio"/>
Passive design to reduce cooling demand	<input checked="" type="radio"/>
Energy efficiency on cooling	<input type="radio"/>
Switching energy to sustainable energy	<input type="radio"/>
Renewable energy	<input type="radio"/>
Embodied carbon	<input checked="" type="radio"/>
Circularity of building materials	<input checked="" type="radio"/>

## Energy poverty

Strategies to reduce poverty and inequality via decarbonising buildings

Stronger financial support for decarbonising public housing for low-income people	<input type="checkbox"/>
Financial support to buy zero-energy/emission homes	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Financial support to renovate their homes to zero-energy/emission	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Allowing partial retrofits to ease financial burden on upfront cost	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Provide energy efficient appliances (e.g. LED)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Energy bill coupon	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Energy coach/consultation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Other	<input type="checkbox"/>

Note: Policies targeting specific households  Low-income  Elderly  Households with more than 3 children  Other

# 4. DEVELOPMENT OF POLICY INSTRUMENTS

## Standards and regulations for decarbonising buildings

<b>Building codes</b>	National level	<input type="radio"/>
	State level	<input type="radio"/>
	Local level	<input checked="" type="radio"/>

### Type of buildings covered by the mandatory energy efficiency code

<b>Residential buildings</b>		
New	<input type="checkbox"/> All	<input type="checkbox"/> Only large units
Renovated	<input type="checkbox"/> All	<input type="checkbox"/> Only large units
<b>Non-residential buildings</b>		
New	<input type="checkbox"/> All	<input type="checkbox"/> Only large units
Renovated	<input type="checkbox"/> All	<input type="checkbox"/> Only large units

### Elements of building codes (new buildings)

Insulation/heat transmission coefficient	<input type="checkbox"/>
Primary energy consumption	<input type="checkbox"/>
Primary fossil-fuel energy consumption	<input type="checkbox"/>
Energy efficiency of equipment	<input type="checkbox"/>
Operational carbon reduction	<input type="checkbox"/>
Whole life cycle carbon	<input type="checkbox"/>
Comprehensive green building assessment	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>

**Stricter standards for public buildings than private buildings**

🏠 For new construction   🔧 For renovation

	Public buildings	Public housing
Energy efficiency	🏠 🔧	– –
Zero energy/emission	– –	– –
Renewable energy	– –	– –
Embodied carbon/life cycle	– –	– –
Locally sourced & recycled materials	– –	– –

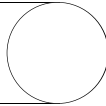
**Certificates/labeling programme for built environment**

**Types of certificates/programme**

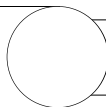
Energy Performance Certificate (EPC)	<input type="checkbox"/>
Energy labelling on passive house	<input type="checkbox"/>
Energy labelling on annual energy consumption	<input checked="" type="checkbox"/>
Comprehensive built environment certification	<input type="checkbox"/>
Labeling for whole life carbon emissions	<input type="checkbox"/>

**Target for Mandatory EPC**

New buildings (residential)	<input type="checkbox"/>
New buildings (non-residential)	<input type="checkbox"/>
Existing buildings for renovation	<input type="checkbox"/>
Existing buildings for sales/rent	<input type="checkbox"/>

**Standardised calculation methods for embodied carbon/LCA**


Database of CFP/EPD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Governmental	<input type="checkbox"/> Non-governmental
Grant for using the following materials	<input type="checkbox"/>	<input type="checkbox"/> Low-carbon	<input type="checkbox"/> Bio-based <input type="checkbox"/> Reused
Policy tools for reusing building materials	<input type="checkbox"/>		
Mandatory declaration	<input type="checkbox"/>	<input type="checkbox"/> Public	<input type="checkbox"/> Residential <input type="checkbox"/> Non-residential
Limit value on CO2 emissions	<input type="checkbox"/>	<input type="checkbox"/> Public	<input type="checkbox"/> Residential <input type="checkbox"/> Non-residential

**Minimum energy performance standards (MEPS) regulation for existing buildings**


<input type="checkbox"/> All buildings	<input type="checkbox"/> Residential (rent)	<input type="checkbox"/> Residential (sale)
<input type="checkbox"/> Office (rent/sale)	<input type="checkbox"/> Public buildings	<input type="checkbox"/> Other

## Climate resilience

**🔥 Extreme heat adaptation measures implemented in the building sector**

Strategic orientation of main building facades	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Light coloured and reflective materials	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Green roof	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Green facades	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Other	<input type="checkbox"/>		

**🏠 Floods/storms adaptation measures implemented in the building sector**

Lowest liveable floor above ground level	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Roof drainage system	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Hip-roof	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Hurricane straps	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Impact-resistant glass	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Backup generators	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Microgrids	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives

**Publicly available geographic database with climate risk information**

Flood risk	<input type="checkbox"/>
Heat wave	<input type="checkbox"/>
Storm	<input type="checkbox"/>
Wild fire	<input type="checkbox"/>
Other	<input type="checkbox"/>

**Building certificate system on climate resilience**

Resilience to flood risk	<input type="checkbox"/>
Resilience to heat	<input type="checkbox"/>
Other	<input type="checkbox"/>

This survey is designed for national governments.