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ANSI/ASHRAE/IES Standard 100-2024
Energy and Emissions Building Performance Standard
for Existing Buildings

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NOTE

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FOREWORD

The Challenge

The greatest opportunity to reduce energy consumption and carbon emissions lies with existing buildings. As of 2023, the United States has 5.9 million commercial buildings and 124 million residential buildings, which together account for approximately 40% of the nation's total energy use, 70% of its electricity consumed, and 40% of all its carbon dioxide emissions. Existing buildings account for approximately 90% of buildings that will exist in ten years, 75% to 80% of buildings that will exist in 2030, and at least 50% of all buildings that will exist in 2050. Additionally, new buildings become existing buildings as soon as they are occupied. Jurisdictions serious about reducing their carbon footprint need a building performance standard that helps them reduce energy consumption and carbon emissions in their existing buildings.

ANSI/ASHRAE/IES Standard 100, Energy and Emissions Building Performance Standard for Existing Buildings, is that standard. It provides processes and procedures for reducing energy consumption and carbon emissions through improved energy efficiency and performance of all types of existing buildings, including residential, commercial, institutional, and industrial. Standard 100 is code-ready—written in mandatory, enforceable language—and can be integrated directly into building codes. It provides owners, utility companies, and government at every level a verifiable process that can reduce energy costs and support tax incentives, rebates, and related programs.

A Building Performance Standard

At its core, a building performance standard is a mandatory policy mechanism that requires existing buildings to reduce their energy use or carbon footprint over time. Jurisdictions use a combination of energy and carbon targets, and custom and standardized compliance targets, in addition to developing their own compliance paths and mechanisms for enforcement and lack of compliance.

Updates in the 2024 edition make Standard 100 a model building performance standard (BPS) for adoption across the United States and internationally. The standard includes new metrics for greenhouse gas emissions targets and continues to improve energy efficiency and performance in existing buildings as part of the vital project to mitigate climate change and meet global commitments to environmental stewardship.

The standard requires a building to establish an energy management plan that incorporates efficient, low-carbon equipment into capital replacement; achieve energy and emissions performance goals; and implement an operations and maintenance program to ensure continued building performance. Energy-efficient and low-emission buildings are provided a simple compliance mechanism to demonstrate compliance with the standard if they meet both energy use intensity (EUI) and greenhouse gas intensity (GHGI) targets. For buildings that do not meet targets, an energy audit and decarbonization assessment must be conducted, necessary measures must be implemented, and it must be demonstrated that measured EUI and GHGI targets are met. A separate compliance process is included for building types without targets.

While Standard 100 establishes EUI and GHGI targets nationally, based on climate zone, property type, and operation shifts, jurisdictions are encouraged to develop their own targets based on measured local data, which are increasingly available as jurisdictions require energy benchmarking. The 2024 edition of Standard 100 includes a new informative appendix that provides guidance to jurisdictions seeking to generate their own targets. It also includes example targets for British Columbia and example targets for hospitals across the United States.

Additional Updates to Standard 100

In addition to the changes mentioned above, the 2024 edition of Standard 100 includes the following key updates. For a complete list of changes, see Informative Appendix P at the end of the standard.

- *Title, purpose, and scope were revised to position the standard as a model BPS that includes performance requirements for carbon emissions, in addition to energy efficiency, for existing buildings.*
- *Requirements for greenhouse gas emissions were added to the existing energy efficiency requirements. The standard now requires buildings to meet both energy use intensity and greenhouse gas emissions targets.*
- *An emissions GHG monitoring methodology was defined, and GHG targets were established.*