Standard 90.2-2024

ANSI/ASHRAE/IES 90.2-2024, *Energy-Efficient Design of Low-Rise Residential Buildings*

Purpose

The purpose of this standard is to establish whole-building design requirements that enable high levels of energy and greenhouse gas emissions performance for residential buildings.

Significance

The 2024 version of Standard 90.2 is a leadership standard that can be adopted as a stretch code, which presents a cost-effective approach to deliver high levels of both energy performance (i.e., more efficient than the 2024 IECC) and greenhouse gas emissions performance to residential buildings. Key to accomplishing this objective is delivery of an accurate, flexible, performance-based tool to enable user creativity in meeting performance objectives. This feature can allow users to comply at substantially lower cost compared to prescriptive standards. The standard incorporates detailed verification requirements, thus ensuring that the intended energy and greenhouse gas emissions performance results are achieved. In addition, Standard 90.2 delivers improved resilience, safety, and improvements to indoor air quality and health of building occupants.

Scope

This standard provides requirements for achieving high levels of energy and greenhouse gas emissions performance for residential buildings and their systems.

Highlights

- ✓ The standard addresses not only energy efficiency but also energy performance, which includes considerations such as emissions and indoor environmental quality (IEQ).
- ✓ The standard provides a required mechanism to evaluate any residential building design against the standard's performance objectives for both energy efficiency and greenhouse gas emissions.
- ✓ The standard includes a jurisdictional option to reach net zero energy and/or net zero carbon.
- ✓ The standard is applicable to all residential buildings, including single-family homes, multi-family buildings of any height and manufactured homes.
- ✓ The standard contains an informative appendix which describes how to produce prescriptive paths. This approach allows for any number of prescriptive paths to be produced and encourages innovation in energy efficient building design.
- ✓ In order to harmonize energy efficiency and IEQ requirements, the standard is aligned with ASHRAE Standards 62.1-2022 and 62.2-2022, and provisions to address air cleaning, garages, material emissions, radon, and kitchen exhaust hoods were added.
- ✓ Designers and home builders can easily assess various designs, materials options, orientations, and other variables to evaluate predicted energy performance.
- ✓ Utilities and beyond-code program developers have a reliable and repeatable tool for helping to establish program targets and ensure program compliance.
- ✓ Cost effectiveness was considered during the standard's development.

ASHRAE Washington Office | 1255 23rd Street, NW Suite 825 | Washington, DC 20037
Telephone 202-833-1830 | ashrae.org/governmentaffairs | GovAffairs@ashrae.org

Changes and Improvements from Standard 90.2-2018

- ✓ Standard 90.2-2024 builds on Standard 90.2-2018 by increasing energy efficiency requirements and adding new CO2e targets for operational emissions. These requirements reduce net building energy consumption by about half, compared to Standard 90.2-2018 Thresholds for the Energy Rating Index (ERI) and CO2 Rating Index (CRI) (not counting renewable energy) when renewable energy systems are utilized on- or off-site to ensure that the use of renewable energy does not compromise efficiency.
- ✓ Standard 90.2-2024 includes a revised scope that covers multifamily residential buildings of any height.
- ✓ The standard facilitates use in multi-family buildings by clarifying the requirements for dwelling units and common spaces including:
    - New lighting control requirements for common areas distinct from dwelling units; and
    - New thermal envelope requirements to specifically address common areas.
- ✓ Increases stringency for air leakage requirements and updates accommodate different test methods as appropriate
- ✓ Changes lighting requirements:
    - Improvements to lighting quality with the use of dim-to-warm and tunable light sources; and
    - Higher-efficacy requirements for permanent lighting.
- ✓ New requirements for the provision of charging infrastructure for electric vehicles (EVs) were added.
- ✓ New performance requirements for substantial energy alterations (i.e., retrofits).