

Standard 105-2021



ANSI/ASHRAE Standard 105-2021, *Standard Methods of Determining, Expressing, and Comparing Building Energy Performance and Greenhouse Gas Emissions*

Purpose

Standard 105 fosters a commonality in determining and reporting the energy and greenhouse gas (carbon) performance of buildings. The standard also facilitates a comparison of design and operation strategies in new and existing buildings as well as the development of building energy and carbon performance standards and the reporting of energy use and greenhouse gas emissions associated with building operations. This standard provided essential concepts and ideas for the development of ANSI/ASHRAE Standard 228-2023, *Standard Method of Evaluating Zero Net Energy and Zero Net Carbon Building Performance*.

Significance

This standard provides a consistent method for reporting building energy use and carbon emissions in terms of various imported, exported, and produced energy forms and expressions of energy performance, and comparing energy performance in terms of energy resources used and greenhouse gas emissions generated by new buildings and with improvements to, or changes in, the operation of existing buildings.

Scope

Covers new and existing buildings or portions thereof, the determination and expression of building energy performance and the estimate of greenhouse gas emissions associated with that energy use. Also provides techniques for the comparison of the energy performance and associated greenhouse gas emissions between different buildings or between alternative designs or operation strategies for the same building.

It does **not**:

- Establish building energy performance or greenhouse gas emissions goals or limits,
- Present a method for certification of prediction methodology,
- Address embodied energy of building materials and systems, or
- Incorporate transportation energy or associated greenhouse gas emission for building functions

Highlights

- ✓ Standard 105 is referenced in the U.S. Department of Energy publication *A Common Definition for Zero Energy Buildings*, September 2015.
- ✓ Provides commonality in reporting building energy performance to provide consistent methods of measuring, expressing and comparing.
- ✓ Provides a common basis for comparing energy performance in terms of energy resources used and greenhouse gas emissions generated across buildings.

Changes and Improvements from Standard 105-2014

- ✓ Revised reference tables for site-to-source conversion to include both captured energy and infinite energy as an efficiency approach and they are now based upon eGRID 2018 data.
- ✓ Updated primary energy factors due to improvements in technology and an increasing portion of renewable sources.
- ✓ Updated and expanded greenhouse gas emissions factors to include both 20-year and 100-year time horizons.
- ✓ Includes new methods for determining primary energy and greenhouse gas emissions produced at the discretion of the adopting authority.