



information bulletin

ANSI/ASHRAE/IESNA Standard 90.1-2004

Overview

Energy efficient, Genuine Cambridge direct gas-fired heating equipment can comply with the requirements of ANSI/ASHRAE/IESNA Standard 90.1-2004.

Purpose of ASHRAE Standard 90.1

ASHRAE Standard 90.1 is a building efficiency standard that has been updated and revised many times since it was first introduced in 1989. It provides minimum requirements for the energy efficient design and construction of new commercial buildings and high rise residential buildings in the United States. The standard covers the entire building, setting minimum equipment efficiency levels for components that may be used, rather than setting standards for component manufacturing. The provisions of this standard do not apply to single family houses, low rise residential buildings and buildings (or portions of buildings) that use energy primarily for industrial, manufacturing or commercial processes.

Application of ASHRAE Standard 90.1

Compliance with ASHRAE 90.1 is a requirement for LEED Certified Green Building Projects and a growing number of local, state and federal (DOE) building codes. The standard covers HVAC systems, service hot water, building envelopes and lighting. Standard 90.1 does not claim to offer the ultimate solutions for energy efficient building design. It is only used as minimum baseline and does not reference all types of commercial/industrial HVAC equipment.

Minimum Energy Efficiency for Heating Equipment

Gas and oil fired warm air furnaces, air duct furnaces, air turnover systems, unit heaters, infrared heaters and boilers are specifically referenced in Standard 90.1 because these types of indirect-fired heating equipment all have heat exchanger and flue losses that limit their energy efficiency. Depending on the heater type, Standard 90.1 mandates various minimum efficiency ratings (E_c , E_t , and AFUE) of 78% to 81%.

Cambridge direct gas-fired heaters far exceed the requirements for indirect-fired heaters. Cambridge heaters have a 100% combustion efficiency (E_c) because there are no flue or heat exchanger losses. 100% of the available heat is delivered to the heated/ventilated space. The equivalent AFUE (Annual Fuel Utilization Efficiency) rating, or thermal efficiency (E_t) is 92% because rating only accounts for the sensible heat component of the combustion process.

