Calculation of the yearly energy performance of heating systems based on the European Building Energy Directive and related CEN Standards

According to the Energy Performance of Buildings Directive (EPBD) all new European buildings (residential, commercial, industrial, etc.) must since 2006 have an energy declaration based on the calculated energy performance of the building, including heating, ventilating, cooling and lighting systems. This energy declaration must refer to the primary energy or CO2 emissions. The European Organization for Standardization (CEN) has prepared a series of standards for energy performance calculations for buildings and systems. This paper presents related standards for heating systems. The relevant CEN-standards are presented and a sample calculation of energy performance is made for a small single family house, an office building and an industrial building in three different geographical locations: Stockholm, Brussels, and Venice. The additional heat losses from heating systems can be 10–20% of the building energy demand. The additional loss depends on the type of heat emitter, type of control, pump and boiler. Keywords: Heating systems; CEN standards; Energy performance; Calculation methods

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