



**SLOVENSKI STANDARD**  
**kSIST FprEN 15316-4-8:2010**  
**01-september-2010**

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**Grelni sistemi v stavbah - Metoda za preračun energijskih zahtev in učinkovitosti sistema - 4-8. del: Sistemi za ogrevanje prostora, ogrevanje zraka in sistemi stropnih seval**

Heating systems in buildings - Method for calculation of system energy requirements and system efficiencies - Part 4-8: Space heating generation systems, air heating and overhead radiant heating systems

Heizungsanlagen in Gebäuden - Verfahren zur Berechnung des Endenergiebedarfs und des Nutzungsgrades von Anlagen - Teil 4-8: Wärmeerzeugung von Warmluft- und Strahlungsheizsystemen

**Ta slovenski standard je istoveten z: FprEN 15316-4-8**

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**ICS:**

91.140.10	Sistemi centralnega ogrevanja	Central heating systems
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<b>kSIST FprEN 15316-4-8:2010</b>	<b>en,fr,de</b>
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**FINAL DRAFT**  
**FprEN 15316-4-8**

July 2010

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ICS 91.140.10

English Version

Heating systems in buildings - Method for calculation of system energy requirements and system efficiencies - Part 4-8: Space heating generation systems, air heating and overhead radiant heating systems

Heizungsanlagen in Gebäuden - Verfahren zur Berechnung des Endenergiebedarfs und des Nutzungsgrades von Anlagen - Teil 4-8: Wärmeerzeugung von Warmluft- und Strahlungsheizsystemen

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## Foreword

This document (FprEN 15316-4-8:2010) has been prepared by Technical Committee CEN/TC 228 “Heating Systems in Buildings”, the secretariat of which is held by DS.

This document is currently submitted to the Unique Acceptance Procedure.

## Introduction

This standard presents methods for calculation of the additional energy requirements of a heat generation system in order to meet the building demand. The calculation is based on the performance characteristics of the products given in product standards and on other characteristics required to evaluate the performance of the products as included in the system.

This method can be used for the following applications:

- judging compliance with regulations expressed in terms of energy targets;
- optimisation of the energy performance of a planned heat generation system, by applying the method to several possible options;
- assessing the effect of possible energy conservation measures on an existing heat generation system, by calculating the energy use with and without the energy conservation measure.

The user shall refer to other European Standards or to national documents for input data and detailed calculation procedures not provided by this standard.

## 1 Scope

This European Standard is part of a series of standards on the method for calculation of system energy requirements and system efficiencies.

The scope of this specific Part is to standardise the:

- required inputs;
- calculation method;
- resulting outputs

for space heating generation by:

- a) air heating systems, including control, and
- b) overhead radiant heating systems for non-domestic use , including control.

This European Standard does not apply to air heating systems that utilise water as a heat transfer medium.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13410, *Gas-fired overhead radiant heaters — Ventilation requirements for non domestic premises*

EN 15316-2-1, *Heating systems in building — Method for calculation of system energy requirements and system efficiencies — Part 2-1: Space heating emission systems*

EN 15316-2-3, *Heating systems in building — Method for calculation of system energy requirements and system efficiencies — Part 2-3: Space heating distribution systems*

EN 15316-4-1, *Heating systems in building — Method for calculation of system energy requirements and system efficiencies — Part 4-1: Space heating generation systems, combustion systems*

EN ISO 7345:1995, *Thermal insulation — Physical quantities and definitions (ISO 7345:1987)*

EN ISO 13790, *Thermal performance of buildings — Calculation of energy use for space heating and cooling (ISO 13790:2008)*

## 3 Terms, definitions, symbols and units

### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 7345:1995 and the following apply.

#### 3.1.1

##### **air heating system**

heating system composed of one or more individual forced convection air heating appliances

**FprEN 15316-4-8:2010 (E)****3.1.2****auxiliary energy**

electrical energy used by technical building systems for heating, cooling, ventilation and /or domestic water to support energy transformation to satisfy energy needs

NOTE This includes energy for fans, pumps, electronics, etc.

**3.1.3****calculation period**

time period over which the calculation is performed

NOTE The calculation period can be divided into a number of calculation steps.

**3.1.4****combustion power**

product of the fuel flow rate and the net calorific value of the fuel

**3.1.5****condensing air heater**

air heater designed to make use of the latent heat released by condensation of water vapour in the combustion flue products

NOTE The heater will allow the condensate to leave the heat exchanger in liquid form by way of a condensate drain.

**3.1.6****energy need for heating or cooling**

energy to be delivered to or extracted from a conditioned space to maintain the intended temperature conditions during a given period of time

**3.1.7****energy use for space heating**

energy input to the heating system to satisfy the energy need for heating

**3.1.8****forced convection air heater**

appliance designed to provide space heating from a central source by distributing heated air, by means of an air moving device, either through ducting or directly into the heated space

**3.1.9****flued heater**

heating appliance of type B or C, connected to a flue or a device for evacuating the products of combustion to the outside of the room in which the appliance is installed

**3.1.10****gross calorific value**

quantity of heat released by a unit quantity of fuel, when it is burned completely with oxygen at a constant pressure equal to 101 320 Pa, and when the products of combustion are returned to ambient temperature

NOTE This quantity includes the latent heat of condensation of any water vapour contained in the fuel and of the water vapour formed by the combustion of any hydrogen contained in the fuel.

**3.1.11****high-low appliance**

appliance capable of operating either at its nominal fuel heat input or at a fixed reduced heat input

**3.1.12****heated space**

room or enclosure which for the purposes of the calculation is assumed to be heated to a given set-point temperature or set point temperatures, total volume of the room can be split up into several heating zones