

Building environment design - Design, dimensioning, installation and control of embedded radiant heating and cooling systems - Part 4: Dimensioning and calculation of the dynamic heating and cooling capacity of Thermo Active Building Systems (TABS) (ISO 11855-4:2012)

EESTI STANDARDI EESSÕNA

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English Version

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and control of embedded radiant heating and cooling systems -
Part 4: Dimensioning and calculation of the dynamic heating and
cooling capacity of Thermo Active Building Systems (TABS)
(ISO 11855-4:2012)

Conception de l'environnement des bâtiments - Conception,
construction et fonctionnement des systèmes de chauffage
et de refroidissement par rayonnement - Partie 4:
Dimensionnement et calculs relatifs au chauffage
adiabatique et à la puissance frigorifique pour systèmes
thermoactifs (TABS) (ISO 11855-4:2012)

Umweltgerechte Gebäudeplanung - Planung, Auslegung,
Installation und Steuerung flächenintegrierter
Strahlheizungs- und -kühlsysteme - Teil 4: Auslegung und
Berechnung der dynamischen Wärme- und Kühlleistung für
thermoaktive Bauteilsysteme (TABS) (ISO 11855-4:2012)

This European Standard was approved by CEN on 30 July 2015.

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of ISO 11855-4:2012 has been prepared by Technical Committee ISO/TC 205 “Building environment design” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 11855-4:2015 by Technical Committee CEN/TC 228 “Heating systems and water based cooling systems in buildings” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2016, and conflicting national standards shall be withdrawn at the latest by February 2016.

This standard is applicable for design, construction and operation of radiant heating and cooling systems. The methods defined in part 2 are intended to determine the design heating or cooling capacity used for the design and evaluation of the performance of the system.

For identifying product characteristics by testing and proving the thermal output of heating and cooling surfaces embedded in floors, ceilings and walls the standard series EN 1264 can be used.

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Endorsement notice

The text of ISO 11855-4:2012 has been approved by CEN as EN ISO 11855-4:2015 without any modification.

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Introduction

The radiant heating and cooling system consists of heat emitting/absorbing, heat supply, distribution, and control systems. The ISO 11855 series deals with the embedded surface heating and cooling system that directly controls heat exchange within the space. It does not include the system equipment itself, such as heat source, distribution system and controller.

The ISO 11855 series addresses an embedded system that is integrated with the building structure. Therefore, the panel system with open air gap, which is not integrated with the building structure, is not covered by this series.

The ISO 11855 series shall be applied to systems using not only water but also other fluids or electricity as a heating or cooling medium.

The object of the ISO 11855 series is to provide criteria to effectively design embedded systems. To do this, it presents comfort criteria for the space served by embedded systems, heat output calculation, dimensioning, dynamic analysis, installation, operation, and control method of embedded systems.

Building environment design — Design, dimensioning, installation and control of embedded radiant heating and cooling systems —

Part 4: Dimensioning and calculation of the dynamic heating and cooling capacity of Thermo Active Building Systems (TABS)

1 Scope

This part of ISO 11855 allows the calculation of peak cooling capacity of Thermo Active Building Systems (TABS), based on heat gains, such as solar gains, internal heat gains, and ventilation, and the calculation of the cooling power demand on the water side, to be used to size the cooling system, as regards the chiller size, fluid flow rate, etc.

This part of ISO 11855 defines a detailed method aimed at the calculation of heating and cooling capacity in non-steady state conditions.

The ISO 11855 series is applicable to water based embedded surface heating and cooling systems in residential, commercial and industrial buildings. The methods apply to systems integrated into the wall, floor or ceiling construction without any open air gaps. It does not apply to panel systems with open air gaps which are not integrated into the building structure.

The ISO 11855 series also applies, as appropriate, to the use of fluids other than water as a heating or cooling medium. The ISO 11855 series is not applicable for testing of systems. The methods do not apply to heated or chilled ceiling panels or beams.

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.

ISO 11855-1, *Building environment design — Design, dimensioning, installation and control of embedded radiant heating and cooling systems — Part 1: Definition, symbols, and comfort criteria*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 11855-1 apply.

4 Symbols and abbreviations

For the purposes of this part of ISO 11855, the symbols and abbreviations in Table 1 apply: