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

Part 8: Electrical heating systems

*Conception de l'environnement des bâtiments — Conception,
dimensionnement, installation et contrôle des systèmes intégrés de
chauffage et de refroidissement par rayonnement —*

Partie 8: Systèmes de chauffage électrique

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This document was prepared by Technical Committee ISO/TC 205, *Building environment design*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 228, *Heating systems in buildings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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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 can be applied to systems that use not only water but also other liquids 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.

The following is a summary of the ISO 11855 parts:

- ISO 11855-1 specifies the comfort criteria which should be considered in designing embedded radiant heating and cooling systems, since the main objective of the radiant heating and cooling system is to satisfy thermal comfort of the occupants.
- ISO 11855-2 provides steady-state calculation methods for determination of the heating and cooling capacity.
- ISO 11855-3 specifies design and dimensioning methods of radiant heating and cooling systems to ensure the heating and cooling capacity.
- ISO 11855-4 provides a dimensioning and calculation method to design Thermo Active Building Systems (TABS) for energy-saving purposes, since radiant heating and cooling systems can reduce energy consumption and heat source size by using renewable energy.
- ISO 11855-5 addresses the installation process for the system to operate as intended.
- ISO 11855-6 shows a proper control method of the radiant heating and cooling systems to ensure the maximum performance which was intended in the design stage when the system is actually being operated in a building.
- ISO 11855-7 presents a calculation method for the product specific input parameters for ISO 52031.
- ISO 11855-8 (this document) presents a calculation method for electrical heating systems.

