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Hygrothermal performance of buildings — Calculation and presentation of climatic data —

Part 4: Hourly data for assessing the annual energy use for heating and cooling

*Performance hygrothermique des bâtiments — Calcul et présentation
des données climatiques —*

*Partie 4: Données horaires pour l'évaluation du besoin énergétique
annuel de chauffage et de refroidissement*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15927-4 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 89, *Thermal performance of buildings and building components*, in collaboration with Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 2, *Calculation methods* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 15927 consists of the following parts, under the general title *Hygrothermal performance of buildings — Calculation and presentation of climatic data*:

- *Part 1: Monthly means of single meteorological elements*
- *Part 4: Hourly data for assessing the annual energy for heating and cooling*
- *Part 5: Data for design heat load for space heating*
- *Part 6: Accumulated temperature differences (degree days)*

Future parts are planned on the following subjects:

- *Hourly data for design cooling load*
- *Calculation of a driving rain index for vertical surfaces from hourly wind and rain data*

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Introduction

This standard covers the selection of appropriate meteorological data for the assessment of the long-term mean energy use for heating and cooling of buildings. Means of selecting data to assess the maximum heating demand are specified in ISO 15927-5.

Correct simulation of building performance depends not only on the appropriate mean values of the meteorological parameters, but also on the frequency distributions of individual parameters and the cross correlations between them. As these can be difficult to retain in the type of artificially constructed reference year discussed in this part of ISO 15927, the use of long periods (at least ten years but preferably more) of hourly meteorological data is preferred where possible. This also takes into account long spells of unusually warm or cold weather, lasting several months, which is eliminated in the construction of a reference year. In practice, however, long runs of hourly data containing all the necessary parameters are very expensive and can be difficult to obtain for many areas. There is, therefore, still a need for annual sets of data that can be used to represent the long-term mean performance of buildings. These can be generated once from long runs of expensive data and then distributed more cheaply.

This part of ISO 15927 specifies a method for the construction of a reference year from a longer meteorological record. Other methods are possible for constructing reference years for specific purposes, including those methods that are based on an analysis of general weather situations.