

**Hygrothermal performance of buildings -
Calculation and presentation of climatic
data - Part 1: Monthly and annual means of
single meteorological elements**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 15927-1:2004 sisaldab Euroopa standardi EN ISO 15927-1:2003 ingliskeelset teksti. Käesolev dokument on jõustatud 20.02.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 15927-1:2004 consists of the English text of the European standard EN ISO 15927-1:2003. This document is endorsed on 20.02.2004 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: This European Standard specifies procedures for calculating and presenting the monthly means of those parameters of climatic data needed to assess some aspects of the thermal and moisture performance of buildings. Numerical values should be obtained from the meteorological service in the relevant country.	Scope: This European Standard specifies procedures for calculating and presenting the monthly means of those parameters of climatic data needed to assess some aspects of the thermal and moisture performance of buildings. Numerical values should be obtained from the meteorological service in the relevant country.
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ICS 91.120.10, 91.120.30

Võtmesõnad:

ICS 91.120.10; 91.120.30

English version

**Hygrothermal performance of buildings – Calculation and
presentation of climatic data**

**Part 1: Monthly and annual means of single meteorological elements
(ISO 15927-1 : 2003)**

Performance hygrothermique des bâtiments – Calcul et présentation des données climatiques – Partie 1: Moyennes mensuelles et annuelles des éléments météorologiques simples (ISO 15927-1 : 2003)

Wärme- und feuchteschutztechnisches Verhalten von Gebäuden – Berechnung und Darstellung von Klimadaten – Teil 1: Monats- und Jahresmittelwerte einzelner meteorologischer Elemente (ISO 15927-1 : 2003)

This European Standard was approved by CEN on 2003-04-10.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Management Centre: rue de Stassart 36, B-1050 Brussels

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Foreword

This document (EN ISO 15927-1:2003) has been prepared by Technical Committee CEN/TC 89, "*Thermal performance of buildings and building components*", the secretariat of which is held by SIS, in collaboration with Technical Committee ISO/TC 163, "*Thermal performance and energy use in the built environment*", Subcommittee SC 2 "*Calculation methods*".

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 April 2004, and conflicting national standards shall be withdrawn at the latest by April 2004.

This standard is one of a series of standards on calculation methods for the design and evaluation of the thermal and moisture performance of buildings. EN ISO 15927, *Hygrothermal performance of buildings – Calculation and presentation of climatic data*, consists of six parts:

- Part 1: *Monthly means of single meteorological elements*;
- Part 2: *Data for design cooling loads and risk of overheating*;
- Part 3: *Calculation of a driving rain index for vertical surfaces from hourly wind and rain data*;
- Part 4: *Data for assessing the annual energy for heating and cooling*;
- Part 5: *Winter external design air temperatures and related wind data*;
- Part 6: *Accumulated temperature differences for assessing energy use in space heating*.

Annexes A and B are informative.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies procedures for calculating and presenting the monthly means of those parameters of climatic data needed to assess some aspects of the thermal and moisture performance of buildings. Numerical values should be obtained from the meteorological service in the relevant country.

This European Standard covers the following single climate variables:

- air temperature;
- atmospheric humidity;
- wind speed;
- precipitation;
- solar radiation;
- longwave radiation.

Meteorological instrumentation and methods of observation are not covered; these are specified by the World Meteorological Organisation (WMO).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

World Meteorological Organisation: *Guide to meteorological instruments and methods of observation*. 6th Edition
WMO - No.8 1996.

3 Terms, definitions, symbols and units

3.1 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1.1

mixing ratio

ratio of the mass of water vapour to the mass of dry air with which the water vapour is associated

3.1.2

water vapour pressure

part of the total atmospheric pressure exerted by water vapour

3.1.3

saturated vapour pressure over water

vapour pressure of moist air in equilibrium with a plane liquid water surface

3.1.4

relative humidity

ratio of the vapour pressure of moist air to the vapour pressure it would have if it were saturated

3.1.5

reference wind speed

wind speed measured at a height of 10 m above ground level in open country without nearby obstacles

3.1.6

gust speed

greatest instantaneous wind speed observed during the period over which the mean is calculated