

Hygrothermal performance of buildings - Calculation and presentation of climatic data - Part 3: Calculation of a drivingrain index for vertical surfaces from hourly wind and rain data

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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 15927-3:2009 sisaldab Euroopa standardi EN ISO 15927-3:2009 ingliskeelset teksti.

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English Version

Hygrothermal performance of buildings - Calculation and
presentation of climatic data - Part 3: Calculation of a driving
rain index for vertical surfaces from hourly wind and rain data
(ISO 15927-3:2009)

Performance hygrothermique des bâtiments - Calcul et
présentation des données climatiques - Partie 3: Calcul
d'un indice de pluie battante pour surfaces verticales à
partir de données horaires de vent et de pluie (ISO 15927-
3:2009)

Wärme- und feuchteschutztechnisches Verhalten von
Gebäuden - Berechnung und Darstellung von Klimadaten -
Teil 3: Berechnung des Schlagregenindex für senkrechte
Oberflächen aus stündlichen Wind- und Regendaten (ISO
15927-3:2009)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 15927-3:2009) has been prepared by Technical Committee ISO/TC 163 "Thermal performance and energy use in the built environment" in collaboration with Technical Committee CEN/TC 89 "Thermal performance of buildings and building components", the secretariat of which is held by SIS.

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of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

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Introduction

This part of ISO 15927 specifies two procedures for analysing data derived from hourly observations of wind and rainfall so as to provide an estimate in terms of both an annual average and short-term spells of the quantity of water likely to impact on a wall of any given orientation.

The first method, which uses hourly observations of wind and rainfall, is based closely on BS 8104 ^[1], which originated from a long series of measurements of driving rain on buildings in a wide range of locations within the UK. As such, the method applies to climates similar to those in the UK; in other regions, with very different climates, it is recommended that confirmation of its applicability be obtained by measurements of driving rain on representative buildings.

Where hourly observations of wind and rain are not available, the second procedure, based on the present weather code for rain and average wind speeds can be used.

In all cases, especially in mountainous areas, it is important that direct measurements of the rain impacting on building façades be made wherever possible.

Rain penetration around the edges of doors and windows or similar cracks in building façades depends on shorter periods of heavy rain and strong winds.

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

Part 3: Calculation of a driving rain index for vertical surfaces from hourly wind and rain data

1 Scope

This part of ISO 15927 specifies two procedures for providing an estimate of the quantity of water likely to impact on a wall of any given orientation. It takes account of topography, local sheltering and the type of building and wall.

The first method, given in Clause 3 and based on coincident hourly rainfall and wind data, defines a means of calculating

- the annual average index, which influences the moisture content of an absorbent surface, such as masonry, and
- the spell index, which influences the likelihood of rain penetration through masonry and joints in other walling systems.

The second method, given in Clause 4 and based on average wind data and a qualitative recording of the presence and intensity of rain (the present weather code for rain), defines a means of calculating the spell length during which an absorbent material such as masonry is moistened, which has a 10 % probability of being exceeded in any year (commonly referred to as having a mean return period of 10 years).

A comparison between the two methods is given in informative Annex D.

Procedures are given to correct the results of both methods for topography, local sheltering and the type of building and wall.

The methods included in this part of ISO 15927 do not apply in

- a) mountainous areas with sheer cliffs or deep gorges,
- b) areas in which more than 25 % of the annual rainfall comes from severe convective storms,
- c) areas and periods when a significant proportion of precipitation is made up of snow or hail.