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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

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

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Contents

Page

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.

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ISO 15927-3 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 2: Hourly data for design cooling load*

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

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

⎯ *Part 5: Data for design heat load for space heating*

⎯ *Part 6: Accumulated temperature differences (degree-days)*

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.