

Curtain walling — Watertightness — Site test

The European Standard EN 13051:2001 has the status of a
British Standard

ICS 91.060.10

National foreword

This British Standard is the official English language version of EN 13051:2001.

The UK participation in its preparation was entrusted by Technical Committee B/538, Doors, windows, shutters, hardware and curtain walling, to Subcommittee B/538/6, Curtain walling, which has the responsibility to:

- aid enquirers to understand the text;
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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 33 "Doors, windows, shutters, building hardware and curtain walling", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by January 2002, and conflicting national standards shall be withdrawn at the latest by January 2002.

This European Standard is part of a series of European Standards dedicated to curtain walling products.

This European Standard forms part of a series of curtain walling tests as defined in the product standard prEN 13830.

The annexes A and B are informative.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard defines the method to be used to check for any points of water leakage that may occur in curtain walling when installed on a building. It is a supplementary test not required for classification purposes. It is intended for use primarily where water leaks have already occurred. It may also be used on new installations, when specified.

It describes how an area of curtain walling that is installed on a building shall be subjected to a continuous film of water over its outside face

Windows and doors incorporated into the curtain walling may be similarly tested.

This standard applies to any curtain walling product as defined in prEN 13830.

NOTE An alternative, more exhaustive test for watertightness of curtain walling, installed on a building, may be carried out. (See annex B).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate points 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 into it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

prEN 13119 *Curtain Walling – Terminology.*

prEN 13830 *Curtain Walling - Product standard.*

3 Terms and definitions

For the purposes of this standard, terms and definitions given in prEN 13119, together with the following, apply :

3.1

watertightness

the ability of the curtain walling to resist water leakage

3.2

water leakage

the penetration of water that would continuously or repeatedly wet parts of:

1. the inside face of the test area or areas below
2. any parts of the curtain wall not intended to be wetted as part of the water drainage system to the outside

4 Principle

The application of a constant and specified quantity of water in a continuous film, over the outside face of an area of curtain walling installed on a building, for a given time while inspecting for water leakage.

5 Apparatus

5.1 A water spray bar with nozzles spaced at not more than 400 mm centres and supported in the correct position relative to the area of curtain walling.

5.2 An adjustable device for spraying water at a working pressure range of 2 bar to 3 bar, so that a constant and continuous film of water can be applied to the outside surface of the specimen.

5.3 A means of measuring the total amount of water supplied within an accuracy of 10%.

5.4 The mains water supply shall be an acceptable source providing it is clean enough to allow the spray nozzles to function properly throughout the test.

6 Test areas

Areas of curtain walling for test shall be representative of the total area of curtain walling.

7 Preparations for test

Allow sufficient time before testing to ensure that all sealants achieve an adequate state of cure

Where necessary remove internal finishes, ceiling tiles, floor tiles and ancillary works to allow satisfactory inspection of the inside face of the curtain walling throughout the test.

Set up the spray bar so that the nozzles are 250 mm from the outside face of the curtain walling and level with the top of the area to be tested.

Position the spray bar so that the axes of the water sprays, as they exit from the nozzles, are horizontal.

The order in which different areas are tested shall progress from ground level towards the top of the building.

8 Test procedure

8.1 Turn on the water supply and adjust to provide a constant flow for 30 min, equivalent to 5 l/min per metre length of spray bar, within an accuracy of $\pm 10\%$.

8.2 Inspect the inside of the curtain walling and note the position and time, since spraying began, of any water leakage.

8.3 After completion of the test continue to inspect for water leakage for 30 min.

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8.4 If water leakage is observed carry out procedures in annex A.

9 Test results

Identify on elevational drawings the areas of curtain walling that are tested and the order in which they are tested.

Record any points where water leakage is observed.

10 Test report

Prepare a report to positively identify the specimen/s and record all parameters checked.

The report shall include the following details:

- a) reference to this standard
- b) person(s) requesting the test
- c) details of test specimen as follows
 - 1 type/s of construction
 - 2 profile references
 - 3 origin of materials
 - 4 types of materials
 - 5 date/s of manufacture (if known)
- d) dimensioned drawings of the specimen
- e) results of the tests
- f) product designation from manufacturers literature
- g) date of the tests
- h) date of report
- i) signature of person preparing report
- j) name and address of test laboratory

Annex A (informative)

Procedure if water leakage is observed

A.1 If the source of water leakage can be positively identified at the time it occurs, dry the framing members near the source and tape over the joint to prevent further water ingress. Continue testing as described in clause 8.

A.2 If the source of water leakage cannot be positively identified, turn off the water supply and wait for 15 min after the observed water leakage ceases.

Re-position the spray bar level with the transom at or immediately below that from which water leakage was observed and re-test as described in clause 8. If water leakage does not re-occur, re-position the spray bar at the next highest transom and carry out a second re-test. Repeat this process until water leakage re-occurs.

When water leakage occurs, stop spraying and dry all the joints that were only exposed for the last re-test and seal them with tape to prevent water ingress. Re-start spraying and progressively remove the sealing at 15 min intervals until the observed water leakage re-occurs. When a point of water ingress is identified by this process, re-seal the last length of joint to be exposed and continue testing.

NOTE To avoid damage to finished metal surfaces, great care should be taken in the choice of waterproof sealing with particular attention to the compatibility of the curtain wall surface finish and the adhesive nature of the sealing. The sealing should be removed immediately after test, particularly when exposed to strong sunlight.

Annex B
(informative)

Site test with air pressure

B.1 A more severe site test may be carried out by applying air pressure in combination with water sprays, in accordance with the method in EN 12155, appropriately modified when necessary to accommodate practical aspects associated with site testing.

B.2 As an alternative to a rigid pressure chamber the inside surface of the area of curtain walling to be tested may be covered with a clear polythene sheet to form an airtight chamber. Ensure that there is continuity between the individual air spaces adjacent to each panel that is covered by the polythene. In some cases this may require small obstructions to be fixed across intermediate mullions and transoms to prevent continuous contact by the polythene around each panel.

B.3 Evacuate the air space between the polythene and the inside surface of the curtain walling to produce a sequence of test pressures as specified in EN 12155, up to the appropriate watertightness classification pressure. This shall not be less than 0,25 times the design wind load, determined in accordance with Eurocode I: Part 2.7.

Bibliography

EN 12155 *Curtain Walling - Watertightness - Laboratory test under static pressure.*

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