



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 13181:2001

ICS 23.120

**VENTILATION FOR BUILDINGS - TERMINALS  
- PERFORMANCE TESTING OF LOUVRES  
SUBJECT TO SIMULATED SAND**

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*This Irish Standard was  
published under the  
authority of the National  
Standards Authority of  
Ireland  
and comes into effect on  
December 11, 2001*

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13181**

August 2001

ICS 23.120

English version

**Ventilation for buildings - Terminals - Performance testing of  
louvres subject to simulated sand**

Ventilation des bâtiments - Bouches d'air - Performances  
des grilles soumises à une simulation de sable

Lüftung von Gebäuden - Endgeräte - Leistungsprüfung von  
Schutzblenden unter Einwirkung von simuliertem Sand

This European Standard was approved by CEN on 22 June 2001.

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.

This European Standard exists 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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# EN 13181:2001 (E)

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 156 "Ventilation for buildings" the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by February 2002, and conflicting national standards shall be withdrawn at the latest by February 2002.

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.

## Warning

Attention is drawn to the possible risks associated with static electricity charge build-up, when using vacuum cleaners with plastic dust containers during sand trap louver testing, in order that appropriate precautions are taken to safeguard the health of those involved.

## 1 Scope

This European Standard specifies a method for measuring the sand rejection efficiency of sand trap louvres subject to simulated sand and with inlet air flow through the louver under test. The Standard considers a 1000 mm × 1000 mm section of sand trap louver, or the nearest possible blade increment, for evaluation purposes.

The purpose of the tests incorporated in this European Standard is as follows:

### a) Sand Rejection Effectiveness

To establish the sand rejection effectiveness when subjected to various air flow rates through the assembly.

### b) Entry loss coefficient/Pressure requirements

To establish the air pressure loss through the sand trap louver at various air flow rates and by calculation Discharge Loss Coefficient.

## 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).

CR 12792, *Ventilation for buildings — Symbols and terminology*

## EN 13181:2001 (E)

EN ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices — Part 1 orifice plates, nozzles and venturi tubes inserted in circular cross-section conduits running full. (ISO 5167-1: 1991)*

ISO 3966, *Measurement of fluid flow in closed conduits - Velocity area method using Pitot static tubes*

ISO 5221, *Air distribution and air diffusion — Rules to methods of measuring air flow rate in an air handling duct*

ISO 5801, *Industrial fans - Performance testing using standardized airways*

### 3 Terms and definitions

For the purposes of this European Standard the terms and definitions given in CR 12792, together with the following, apply:

#### 3.1

##### **sand trap louver**

device intended to allow the passage of supply or exhaust air while minimising the ingress of airborne sand

NOTE Sand trap louvres are air terminal devices for use in desert-like conditions or other conditions where airborne sand is present. They are usually positioned on the inlets to air distribution systems or parts of a building, to alleviate the load on the main filtration of air conditioning and similar systems.

#### 3.2

##### **sand trap louver core area**

product of the minimum height and minimum width of the front opening in the sand trap louver assembly with the louver blades removed (see Figure 5)

#### 3.3

##### **entry loss coefficient of a louver**

actual air flow rate divided by the theoretical air flow rate at a given pressure difference across the louver

#### 3.4

##### **theoretical air flow**

product of the louver core area and the air velocity calculated using the pressure difference across the louver as the velocity pressure, assuming  $C_E = 1$  (see clause 4)

#### 3.5

##### **sand rejection effectiveness**

quotient resulting from the total weight of sand rejected divided by the total weight of sand injected, at any velocity through the louver

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