

---

# International Standard



# 7361

---

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

---

## Performance standards in building — Presentation of performance levels of façades made of same-source components

*Normes de performance dans le bâtiment — Présentation des performances des façades construites avec des composants de même origine*

**iTeh STANDARD PREVIEW**

First edition — 1986-12-15

**(standards.iteh.ai)**

[ISO 7361:1986](https://standards.iteh.ai/catalog/standards/sist/976210eb-bb31-481c-8d2e-0ef986ded059/iso-7361-1986)

<https://standards.iteh.ai/catalog/standards/sist/976210eb-bb31-481c-8d2e-0ef986ded059/iso-7361-1986>

---

UDC 69.022.32

Ref. No. ISO 7361-1986 (E)

Descriptors : buildings, façades, specifications, utilization.

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7361 was prepared by Technical Committee ISO/TC 59, *Building construction*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

ISO 7361:1986  
http://standards.iteh.ai/catalog/standards/sist/0772316b-bb31-481c-8d2e-0e1986ded059/iso-7361-1986

ITEH STANDARD PREVIEW  
(standards.iteh.ai)

## Contents

	Page
0 Introduction .....	1
1 Scope .....	1
2 Field of application .....	1
3 References .....	1
4 Definitions .....	2
5 Role of façade and conditions of use .....	2
5.1 Role of façade .....	2
5.2 Conditions of use .....	2
6 Performance .....	2
6.1 Contribution to meeting stability requirement .....	2
6.2 Contribution to meeting fire safety requirement .....	3
6.3 Contribution to meeting requirement of safety against intrusion .....	3
6.4 Contribution to meeting requirement of resistance to humidity .....	4
6.5 Contribution to meeting requirements of thermal comfort and energy conservation .....	4
6.6 Contribution to meeting air purity requirements .....	5
6.7 Contribution to meeting acoustical comfort requirement .....	5
6.8 Contribution to meeting appearance requirements .....	6
6.9 Contribution to meeting tactile requirements .....	7
6.10 Contribution to meeting equipment requirements .....	7
6.11 Contribution to meeting durability requirements .....	7
6.12 Contribution to meeting erection and handling requirements .....	8
7 List of performance levels .....	9

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 7361:1986  
<https://standards.iteh.ai/catalog/standards/sist/976210eb-5b31-481c-8d2e-9e1986ded959/iso-7361-1986>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

This page intentionally left blank

[ISO 7361:1986](#)

<https://standards.iteh.ai/catalog/standards/sist/976210eb-bb31-481c-8d2e-0ef986ded059/iso-7361-1986>

# Performance standards in building — Presentation of performance levels of façades made of same-source components

## 0 Introduction

This International Standard is one of a series of standards relating to the performance of building elements. This series comprises firstly

- Performance Standards which indicate the type of performance characterizing each family of elements — façades, partitions, roofs, cross-walls, tridimensional units — making up a building with their scales of values, if required, and which also refer to suitable methods for determining performance,
- and, secondly, International Standards applicable to each family of elements, describing the means (measurement, calculation, test method or method of examination) by which a certain performance achieved by the element is to be evaluated or verified, and/or the means of forecasting the life expectancy.

In conjunction with this series of standards, another series will also be established defining the rules pertaining to dimensional coordination and modular coordination for the different families of elements, given that they and performance are so related that some correlation is desirable.

## 1 Scope

This International Standard deals with façades made of prefabricated components. These are products which, when assembled according to the supplier's specifications, are intended to constitute a façade meeting the required performance levels as a complete entity.

This International Standard gives the types of performance relevant to façades, together with their scales of values, in the form in which some or all of them should be listed in the supplier's catalogue in order to allow selection of a façade achieving the overall performance required of it for the purpose of the building project in question, irrespective of type.

The façade may fulfil performance characteristics other than those specified, such as: behaviour in earthquakes, solar energy collection, etc.

This International Standard does not specify performance values; this is the task of the building designer.

## 2 Field of application

The façades which form the subject of this International Standard may comprise completely opaque components and components with glazed parts, either opening or fixed, provided that they all stem from one and the same supplier.

It does not, however, deal with performance specific to doors or to the opening and closing of windows, nor with the performance of internal decorative finishes (wallpaper, paint, etc.).

This International Standard does not deal with components which may be added to the façade such as guard-rails or light-excluding devices, nor with any components provided by different suppliers.<sup>1)</sup>

## 3 References

ISO 140/3, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 3: Laboratory measurement of airborne sound insulation of building elements.*

ISO 140/5, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 5: Field measurements of airborne sound insulation of façade elements and façades.*

ISO 354, *Acoustics — Measurement of sound absorption in a reverberation room.*

ISO 834, *Fire-resistance tests — Elements of building construction.*

ISO 7895, *Façades — Test for resistance to positive and negative static pressure generated by wind.*<sup>2)</sup>

ISO 7897, *Façades — Impact resistance tests.*<sup>2)</sup>

1) The properties of joints between components provided by a variety of suppliers will form the subject of future International Standards.

2) At present at the stage of draft.

## 4 Definitions

For the purposes of this International Standard, the following definitions apply.

**4.1 components from one and the same source :** Components offered and provided on a contract basis by one and the same supplier.

**4.2 self-supporting façades :** Façades which support themselves over several storeys, only transferring their weight onto the loadbearing structure at their base.

## 5 Role of façade and conditions of use

### 5.1 Role of façade

The façade plays a role in meeting some or all of the following requirements :

- a) user safety, i.e. stability, fire and intrusion safety;
- b) resistance to humidity (dryness);
- c) thermal comfort;
- d) air purity;
- e) acoustical comfort;
- f) appearance;
- g) tactile requirement;
- h) durability;
- i) ability to withstand suspended loads;
- j) energy conservation;
- k) work safety.

### 5.2 Conditions of use

The façade made of components is submitted to some or all of the following agents :

- a) gravity (dead weight, climatic loads, suspended loads);
- b) wind and static atmospheric pressure;
- c) snow, frost;
- d) rain, hail;
- e) displacements of the loadbearing structure and of building elements adjacent to the façade, caused by wind, live loads, subsidence, seismic forces if appropriate, temperature and moisture changes and inherent deformation;
- f) impact from the exterior and interior;
- g) explosions;

- h) air and road traffic noise;
- i) vibrations transmitted by the ground;
- j) earthquakes, if appropriate;
- k) solar radiation and temperature of external air;
- l) freezing;
- m) thermal effects of heating of premises;
- n) acidity of air and rain;
- o) seaspray, if appropriate;
- p) dust and sand;
- q) attack from birds, insects, bacteria;
- r) intrusions;
- s) maintenance loads.

## 6 Performance

In order to perform its role in meeting user requirements indicated in 5.1, the façade made of components assembled in accordance with the supplier's instructions shall fulfil the following performance requirements.

### 6.1 Contribution to meeting stability requirement

#### 6.1.1 Ability of self-support

##### 6.1.1.1 Definition and mode of expression

Number of storeys over which the façade is able to support itself safely (self-supporting façade) or a façade which separates two construction levels at which it is fixed to the loadbearing structure.

##### 6.1.1.2 Determination

Calculation according to any acceptable method, giving the load at the base of the self-supporting façade or on the façade fixing devices to the nearest 5 %.

### 6.1.2 Ability to withstand suspended loads

#### 6.1.2.1 Definition

Ability to bear, on the exterior and/or interior, any type of load suspended by means of devices described by the supplier.

#### 6.1.2.2 Mode of expression

Mass of permitted loads.

#### 6.1.2.3 Determination

Test, which will form the subject of a future International Standard.

### 6.1.3 Resistance to wind

#### 6.1.3.1 Definition and mode of expression

Permitted air pressure differential, in pascals, between the exterior and interior without this resulting in the collapse of the façade or in any deformation which would cause failure to meet other performance requirements.

#### 6.1.3.2 Determination

a) Calculation according to any acceptable method, provided that errors are limited to 5 %, or

b) laboratory test : measurement of the rupture pressure differential, and of deformation occurring as a result of subjecting a section of the façade to positive and negative air pressure by means of a pressurized chamber or air cushion in accordance with ISO 7895, the façade being submitted to service loads.

### 6.1.4 Resistance to imposed deformation

#### 6.1.4.1 Definition and mode of expression

Permitted displacements, in millimetres, of the points at which the façade is fixed to the loadbearing structure and to the building elements adjacent to the façade in relation to their position when the façade was erected, without this leading to the collapse or excessive deformation of the façade (maximum permitted values of deformation in service conditions are given in ISO 4356), the façade being submitted to service loads.

#### 6.1.4.2 Determination

a) Calculation by any acceptable method, provided that errors are limited to 5 %, or

b) laboratory test with the façade being submitted to service loads; this test will form the subject of a future International Standard.

### 6.1.5 Resistance to safety impacts

#### 6.1.5.1 Definition and mode of expression

Maximum impact energy, expressed in joules, which does not cause the collapse of the façade and does not endanger the safety of occupants or passers-by.

A distinction is made between external, internal and shock impacts (i.e. a series of impacts of an energy less than actual safety impacts).

#### 6.1.5.2 Determination

Dynamic laboratory test according to ISO 7897.

Other methods for determining impact resistance based either on calculation or static tests will be the subject of future International Standards.

## 6.2 Contribution to meeting fire safety requirement<sup>1)</sup>

### 6.2.1 Reaction to fire

#### 6.2.1.1 Definition and mode of expression

All properties relating to flammability, surface spread of flame along the external and internal faces, toxicity of pyrolysis and combustion products, opacity of smoke and combustibility of the façade.

#### 6.2.1.2 Mode of expression

Classes of reaction to fire.

#### 6.2.1.3 Determination

Laboratory test, which will form the subject of future International Standards.

### 6.2.2 Fire resistance

#### 6.2.2.1 Definition and mode of expression

Time interval, expressed in multiples and sub-multiples of an hour, during which the façade's stability, thermal insulation and fire integrity are sufficient to prevent the spread of flame either through the component cavities or across the exterior of the components. (Requirements relating to stability, thermal insulation and fire integrity to be met during this interval of time are defined in ISO 834.)

#### 6.2.2.2 Determination

Laboratory test in accordance with ISO 834, the façade being submitted to service loads.

## 6.3 Contribution to meeting requirements of safety against intrusion

### 6.3.1 Definition

Resistance offered by façade to attempts at intrusion from the exterior.

### 6.3.2 Mode of expression

This will form the subject of a future International Standard.

### 6.3.3 Determination

This will form the subject of a future International Standard.

1) In many countries, there are regulations on this subject.

## 6.4 Contribution to meeting requirement of resistance to humidity

### 6.4.1 Watertightness with respect to rainwater

#### 6.4.1.1 Definition

Absence of penetration of rainwater which would otherwise give rise to the presence of moisture stains on the internal face, or cause damage to the façade or other parts of the building.

#### 6.4.1.2 Mode of expression

Pressure limit of watertightness : maximum value of positive static air pressure and, if necessary, of pulsatory pressure, in pascals, at which watertightness remains assured when the façade is submitted to the test for watertightness.

#### 6.4.1.3 Determination

Laboratory test, which will form the subject of a future International Standard.

### 6.4.2 Propensity to interstitial condensation

#### 6.4.2.1 Definition

Behaviour of façade on exposure to water vapour condensation.

#### 6.4.2.2 Mode of expression

With respect to their behaviour the façade components are classified as follows :

- a) façade impermeable to water vapour from the inside (or outside) : where there exists a continuous water vapour barrier of no greater than  $2,10^{-12}$  kg/(m<sup>2</sup>.s.Pa) water vapour transmission which prevents the penetration of water vapour from the inside (or outside) into the component cavities;
- b) façade permeable to water vapour but no likelihood of interstitial condensation taking place;
- c) façade permeable to water vapour but not affected by condensation : although condensation may take place, it results in neither dripping water penetrating towards the interior nor the presence of stains on surfaces nor loss of performance or durability;
- d) façade permeable to water vapour and affected by condensation, and all other cases.

#### 6.4.2.3 Determination

- a) Impermeable to water vapour : laboratory test (any method is acceptable provided that errors are limited to 10 %).
- b) Likelihood of condensation : either calculation involving the permeability to water vapour of various elements constituting the façade and their thermal conductivity or a laboratory test, which will form the subject of a future International Standard.
- c) Not affected by condensation : observation of actual usage or laboratory test, which will form the subject of a future International Standard.

## 6.5 Contribution to meeting requirements of thermal comfort and energy conservation

### 6.5.1 Air permeability

#### 6.5.1.1 Definition

Quantity of air passing over a unit of surface area of a façade per unit of time at a unit of pressure difference between the outside and the inside.

#### 6.5.1.2 Mode of expression

Rate of air leakage expressed in multiples of 0,1 m<sup>3</sup>/(m<sup>2</sup>.h) per 100 Pa of positive and negative pressure.

#### 6.5.1.3 Determination

Laboratory test on a sample representative of the variety of joints and elements constituting the façade, which will form the subject of a future International Standard.

### 6.5.2 Thermal resistance

#### 6.5.2.1 Definition and mode of expression

Resistance offered by the façade to the passage of heat by conduction, expressed in multiples of 0,1 m<sup>2</sup>.K.W<sup>-1</sup>.

#### 6.5.2.2 Determination

Calculation or test, in normal conditions of humidity for the materials in use, the wind speed being 5 m/s<sup>1)</sup>.

Any acceptable method may be used provided that errors are limited to 5 % and provided that it applies to a surface area of 10 m<sup>2</sup> comprising the various types of joint constituting the actual façade.

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 7361:1986

<https://standards.iteh.ai/catalog/standards/sist/976210eb-bb31-481c-8d2e-0ef986ded059/iso-7361-1986>

1) Subject to confirmation by ISO/TC 163.



### 6.5.3 Transmission of solar radiation through transparent and translucent parts of the façade

#### 6.5.3.1 Definition

Transmission of solar energy by means of radiation across the transparent or translucent parts of the façade which incorporate the components.

#### 6.5.3.2 Mode of expression

Solar factor of transparent or translucent parts : relationship of flux of solar energy transmitted to the flux of solar energy received.

#### 6.5.3.3 Determination

Calculation or test according to IEC Standards.

## 6.6 Contribution to meeting air purity requirements

### 6.6.1 Emission of smells by materials

#### 6.6.1.1 Definition and mode of expression

Classes of evaluation of smells emitted by the façade in use.

#### 6.6.1.2 Determination

Direct observation or test, which will form the subject of a future International Standard.

### 6.6.2 Emission of vapours, aerosols, dust and harmful radiation

#### 6.6.2.1 Definition and mode of expression

Emission or non-emission by the façade of a harmful quantity of vapours, aerosols, dust and harmful radiation.

#### 6.6.2.2 Determination

Test, which will form the subject of a future International Standard.

## 6.7 Contribution to meeting acoustical comfort requirement

### 6.7.1 Insulation with respect to external airborne sound

#### 6.7.1.1 Definition and mode of expression

Sound insulation, in decibels, offered by the façade between the outside and inside as a function of the airborne sound frequency, in hertz. It is defined in ISO 140/3.

Sound insulation values are rounded to the nearest multiple of 5 dB or 5 dB + 3 dB (3, 5, 8, 10, 13, etc. dB).

#### 6.7.1.2 Determination

Laboratory test in accordance with ISO 140/3 or field test in accordance with ISO 140/5.

### 6.7.2 Flanking transmission of airborne sound

#### 6.7.2.1 Definition and mode of expression

The sound pressure level, in decibels, measured in a room, which is due to airborne sound emitted in an adjacent room and which is transmitted by the façade, expressed as a function of the frequency, in hertz. The values for sound pressure level are rounded to the nearest multiple of 5 dB or 5 dB + 3 dB (3, 5, 8, 10, 13, etc. dB).

#### 6.7.2.2 Determination

Laboratory test, which will form the subject of a future International Standard.

### 6.7.3 Sound behaviour with respect to rain and hail

#### 6.7.3.1 Definition

Level of noise emitted by the façade towards the interior and which is caused by rain and hail.

#### 6.7.3.2 Mode of expression

Sound pressure level, in decibels, measured in a room, which is due to impact from rain and hail on the façade, expressed as a function of the frequency, in hertz. The values for sound pressure level are rounded to the nearest multiple of 5 dB or 5 dB + 3 dB (3, 5, 8, 10, 13, etc. dB).

#### 6.7.3.3 Determination

Laboratory test or field test, which will form the subject of future International Standards.

### 6.7.4 Sound behaviour under effect of wind, temperature and moisture changes

#### 6.7.4.1 Definition

Sound insulation against various noises due to wind (whistling noises, vibrations, etc.), temperature and humidity (pelting rain, etc.) on the façade.

#### 6.7.4.2 Mode of expression

Sound pressure level, in decibels, transmitted by the façade towards the interior of a room, expressed as a function of the frequency, in hertz.

The values for sound pressure level are rounded to the nearest multiple of 5 dB or 5 dB + 3 dB (3, 5, 8, 10, 13, etc. dB).

#### 6.7.4.3 Determination

Laboratory test or field test, which will form the subject of future International Standards.