
International Standard



6241

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Performance standards in building — Principles for their preparation and factors to be considered

Normes de performance dans le bâtiment — Principes d'établissement et facteurs à considérer

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

International Standard ISO 6241 was developed by Technical Committee ISO/TC 59, *Building construction*, and was circulated to the member bodies in December 1982.

It has been approved by the member bodies of the following countries :

Australia	Hungary	Norway
Belgium	India	Portugal
Bulgaria	Iran	Romania
Canada	Israel	South Africa, Rep. of
Czechoslovakia	Italy	Spain
Egypt, Arab Rep. of	Korea, Dem. P. Rep. of	Sweden
Finland	Korea, Rep. of	United Kingdom
France	Netherlands	
Germany, F.R.	New Zealand	

The member body of the following country expressed disapproval of the document on technical grounds :

Denmark

Performance standards in building — Principles for their preparation and factors to be considered

0 Introduction

The development of performance standards for building involves work at all levels from fundamental to specific. The aim is to define the performance required of whole buildings, parts of buildings and building products in terms of the functional requirements of their users.

The work includes the preparation of :

- a) fundamental (level 1) standards on the general principles of defining performance requirements and of establishing standard methods for their evaluation, such as ISO 6240 and ISO 7162¹⁾;
- b) fundamental standards on the means of expression by which user requirements can be communicated, such as ISO 6242²⁾;
- c) fundamental standards concerning the definition of agents relevant to building performance, such as ISO 6243³⁾;
- d) wide-ranging and specific (levels 2 and 3) standards for the performance of particular types of building or product and on methods for assessing individual performance attributes. These would be prepared by committees responsible for the particular items.

This International Standard is a guide to level 1 standards, intended primarily to assist standards committees in their work by stating the general principles for drafting performance standards for building. It includes four tables aimed at identifying the main factors to be considered in their elaboration, i.e.

- a) the user requirements (table 1);
- b) the possible uses of the buildings and their spaces (table 2);
- c) the building sub-systems of which the product is a part (table 3);
- d) the agents, of any nature and origin, which are relevant to the performance of the product in use (table 4).

These tables may also serve to arrange the items given in the standards; it is particularly recommended that the performance of a product is stated in the order of the user requirements which it has to meet.

The tables are not exhaustive. Their relationship to current classification systems for building documentation is indicated.

1 Scope

This International Standard lays down general principles for the preparation of performance standards in building. It complements ISO 6240 by listing factors to be considered for performance standards.

2 Field of application

This International Standard is intended to assist standards committees concerned with the performance of whole buildings, of parts of buildings (components, assemblies and sub-systems) and of the spaces within and around buildings.

The principal uses envisaged are :

- a) as a basis for the preparation of performance standards;
- b) as an *aide-mémoire* for drafting particular standards.

3 Reference

ISO 6240, *Performance standards in building — Contents and presentation*.

4 Definitions

For the purpose of this International Standard, the following definitions apply :

4.1 user: Person, animal or object which a building is designed to accommodate.

1) ISO 7162, *Performance standards in building — Contents and format of standards for evaluation of performance*. (In course of preparation.)

2) ISO 6242, *Building performance — Expression of functional requirements of users — Thermal comfort, air purity, acoustical comfort, visual comfort and energy saving in heating*. (In course of preparation.)

3) ISO 6243, *Climatic data for building design — Definitions and symbols*. (In course of preparation.)

4.2 agent: Whatever acts on a building or parts of a building.

4.3 user requirement: Statement of need to be fulfilled (by a building).

4.4 performance: Behaviour (of a product) related to use.

NOTE — A product may mean a building as a whole or any part of it.

4.5 performance requirement: User requirement expressed in terms of the performance of a product.

4.6 (building) sub-system: Part of a building fulfilling one or several of the functions needed to meet the user requirements.

4.7 component: Product manufactured as a distinct unit to serve a specific function (or functions).

4.8 assembly: Aggregate of components used together.

5 Principles for the preparation of performance standards

5.1 Objectives

Performance standards, which are generally wide-ranging documents, define specific behaviour of whole buildings, parts of buildings or spaces within and around them.

When dealing with components, they permit different products as solutions in alternative designs or materials (for example, windows of wood, steel, aluminium or plastics). Performance standards define requirements without imposing restrictions on the form or materials of the solutions. It has to be stressed that performance standards are aids to, but not substitutes for, design.

5.2 Types of application

The need is foreseen for coherent sets of performance standards dealing with different types of subject, such as

- a) performance standards for whole buildings, for example performance requirements and methods of assessment for thermal comfort;
- b) performance standards for spaces in buildings, for example performance requirements for bathrooms;
- c) performance standards for sub-systems, for example loadbearing structural systems or electrical and mechanical services;
- d) performance standards for components, joints or building assemblies, for example for a window (component), for a joint between façade and floor (joint), for a finished façade (assembly).

In general, performance standards may also be established for any material intended to serve a specific function in the building, the performance being defined for the material when formed into a product considered in its conditions of use *in situ*, for example a tile, a pipe for water distribution.

Other standards or documents which are complementary to performance standards may describe the details of products that provide solutions to the performance requirements laid down (see 7.2).

5.3 Contents

Performance standards should include statements about :

a) performance requirements (expressed as ranges of values or grades) for buildings or their parts under specified conditions and referring to :

- 1) related user requirements (see 6.1),
- 2) agents relevant to building performance, such as climate, site conditions, occupancy characteristics or design consequences (see 6.4);

b) methods of assessing each performance characteristic, including performance over time referring to the requirements and agents, as for a).

The user requirements and the agents relevant to performance should be expressed using standard means of expression and units of measurement with, where applicable, scales of values or grades. In this respect, reference should be made to ISO 6242 and ISO 6243. [See footnotes 2) and 3) to clause 0.]

The contents of, and the order of the clauses in, performance standards should comply with ISO 6240.

It may be convenient for methods of assessment to be given in documents separate from the performance standards to which they relate. The contents and presentation of standards or parts of standards defining methods of assessment should comply with ISO 7162. [See footnote 1) to clause 0.]

5.4 Methods of assessment or verification

5.4.1 General

The method of assessment or verification of each performance requirement may be by means of a test, calculation or judgement.

In all cases, reliability and performance over time will need to be included in the assessment.

5.4.2 Test

A test provides a basis for assessing the satisfaction of functional requirements of a building, a sub-system, a component or assembly by direct measurement or other means of determination under either real conditions of use or conditions appropriately correlated to use, for example

- a) by the measurement of the overall resultant temperature of a room;

