
INTERNATIONAL STANDARD



3447

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Joins in building — General check-list of joint functions

Joins dans le bâtiment — Liste générale aide-mémoire des fonctions des joints

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (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 set up 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 3447 was drawn up by Technical Committee ISO/TC 59, *Building construction*, and circulated to the Member Bodies in June 1974.

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It has been approved by the Member Bodies of the following countries:

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Austria	Germany	Norway
Belgium	Hungary	Romania
Brazil	Iran	South Africa, Rep. of
Canada	Ireland	Tanzania
Denmark	Israel	United Kingdom
Egypt, Arab Rep. of	Italy	Yugoslavia
Finland	Netherlands	
France	New Zealand	

The Member Body of the following country expressed disapproval of the document on technical grounds:

Switzerland

This International Standard forms one of a series concerning joints in building. The series includes the following International Standards:

ISO 2444, *Joints in building — Vocabulary*.

ISO 2445, *Joints in building — Fundamental principles for design*.

Joists in building — General check-list of joint functions

1 SCOPE AND FIELD OF APPLICATION

This International Standard gives a general check-list of functions of joints¹⁾ in building for use in their design.

2 METHOD OF USE OF THE CHECK-LIST

The initial stage in the design of a joint is to determine the conditions applying to it. The next stage is to identify the functions it has in consequence to perform, both those relating to the functions of the joined components and those resulting from the presence of the joint as such. While some functions will be obviously relevant in any particular situation in a building, it is necessary for all criteria to be considered if the design is to be complete. Failure in the performance of only one required function may produce a failure of the joint.

The identification of the range of functions that must be satisfied is simplified if the designer can check against a general list covering the great majority of considerations in the selection of a jointing technique. This International Standard provides such a general list in which functions are grouped under design aspects. Any one joint will be required to satisfy a selection of functions only. However, as the list cannot be comprehensive, the designer may have to identify additional functions applying in a specific situation.

It is in the synthesis of a design for a joint that the interrelationship between joint functions becomes apparent, as one part of the joint may have to perform several functions and, moreover, may impede or prevent the achievement of others.

3 GENERAL CHECK-LIST OF JOINT FUNCTIONS, GROUPED UNDER DESIGN ASPECTS

3.1 Environmental factors

- A1 To control passage of insects and vermin
- A2 To control passage of plants, leaves, roots, seeds and pollen

- A3 To control passage of dust and inorganic particles
- A4 To control passage of heat
- A5 To control passage of sound
- A6 To control passage of light
- A7 To control passage of radiation
- A8 To control passage of air and other gases
- A9 To control passage of odours
- A10 To control passage of water, snow and ice
- A11 To control passage of water vapour
- A12 To control condensation
- A13 To control generation of sound
- A14 To control generation of odours

3.2 Capacity to withstand stress²⁾

- To resist stress in one or more directions due to :
- B1 compression
 - B2 tension
 - B3 bending
 - B4 shear
 - B5 torsion
 - B6 vibrations (or any other type of stress which may induce fatigue)
 - B7 impact
 - B8 abrasion (indicate, for each particular case, the type of wear)
 - B9 shrinkage or expansion
 - B10 creep
 - B11 dilation or contraction due to temperature variations

1) See ISO 2444, first part of the definition :

The construction formed by the adjacent parts of two or more building products, components or assemblies, when these are put together, fixed or united with or without the use of a jointing product.

2) Either during or after assembly.

3.3 Safety

- C1 To control passage of fire, smoke, gases, radiation and radioactive materials
- C2 To control sudden positive or negative pressures due to explosion or atmospheric factors
- C3 To avoid generation of toxic gases and fumes in case of fire
- C4 To avoid harbouring or proliferation of dangerous micro-organisms

3.4 Accommodation of dimensional deviations

- D1 To accommodate variations in the sizes of the joint at assembly due to deviations in the sizes and positions of the joined components (induced deviations)
- D2 To accommodate continuing changes in the sizes of the joint due to thermal, moisture and structural movement, vibration and creep (inherent deviations)

3.5 Fixing of components

- E1 To support joined components in one or more directions
- E2 To resist differential deformation of joined components
- E3 To permit operation of movable components

3.6 Appearance

- F1 To have acceptable appearance
- F2 To avoid promotion of plant growth
- F3 To avoid discoloration due to biological, physical or chemical action
- F4 To avoid all or part of the internal structure showing
- F5 To avoid dust collection

3.7 Economics

- G1 To have known first cost
- G2 To have known depreciation
- G3 To have known maintenance and/or replacement costs

3.8 Durability

- H1 To have specified minimum life, taking into account cyclic factors
- H2 To resist damage or unauthorized dismantling by man

- H3 To resist action of animals and insects
- H4 To resist action of plants and micro-organisms
- H5 To resist action of water, water vapour or aqueous solutions or suspensions
- H6 To resist action of polluted air
- H7 To resist action of light
- H8 To resist action of radiation (other than radiation of light)
- H9 To resist action of freezing of water
- H10 To resist action of extremes of temperatures
- H11 To resist action of airborne or structure-borne vibration, shock waves or high-intensity sound
- H12 To resist action of acids, alkalis, oils, fats and solvents
- H13 To resist abrasive action

3.9 Maintenance

- J1 To permit partial or complete dismantling and reassembly
- J2 To permit replacement of decayed jointing products

3.10 Ambient conditions

- K1 To perform required functions over a specified range of temperatures
- K2 To perform required functions over a specified range of atmospheric humidity
- K3 To perform required functions over a specified range of air or liquid pressure differentials
- K4 To perform required functions over a specified range of joint clearance variations
- K5 To exclude from the joint if performance would be impaired :
 - a) insects
 - b) plants
 - c) micro-organisms
 - d) water
 - e) ice
 - f) snow
 - g) polluted air
 - h) solid matter
- K6 To perform required functions over a specified range of driving rain volume

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