
**Timber structures — Structural insulated
panel walls — Test methods**

*Structures en bois — Murs en panneaux isolants structurels —
Méthodes d'essai*



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Published in Switzerland

Contents

Page

Foreword	iv
Introduction.....	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols.....	3
5 Product evaluation	4
5.1 Tests applicable to panel construction.....	4
5.2 Tests applicable to wall panels.....	4
6 Structural testing	4
6.1 Conditioning	4
6.2 Tensile test on core material and bonding between faces and core	4
6.3 Shear test on panel assembly (short-term loading)	7
6.4 Accelerated ageing tests	9
6.5 Vertical load capacity (stiffness and strength)	10
6.6 Bending properties for SIP headers (stiffness and strength).....	14
6.7 Horizontal in-plane monotonic load racking stiffness and strength test	16
6.8 Out-of-plane bending (stiffness and strength).....	21
Annex A (informative) Testing for creep by means of ASTM C480.....	24
Bibliography.....	27

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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 22452 was prepared by Technical Committee ISO/TC 165, *Timber structures*.

Introduction

The objective of this International Standard is to provide the means for the structural testing of structural insulated panel (SIP) walls.

It includes tests for tensile bonding strength of the panels, ageing, shear, vertical load performance, horizontal in-plane performance and out-of-plane bending performance. A creep test has been included in the annex for information (and trial). The tests applicable to panels for particular applications are presented, the test requirements, including laboratory conditions, are given and the numbers of samples to be tested and the reporting of results are specified.

This International Standard is not intended for quality control testing or for conformity assessment.

Timber structures — Structural insulated panel walls — Test methods

1 Scope

This International Standard specifies test methods for determining the structural properties of double-sided, wood-based, load-bearing structural insulated panels (SIPs) for use in walls.

It is applicable to SIPs having

- two face layers, at least one of which is a wood-based structural panel, and
- a core made of a thermally insulating material having sufficient shear strength to cause the face layers to act together structurally.

NOTE 1 Gypsum-based structural boards are commonly used as a face layer.

NOTE 2 Panels can contain internal framing or bracing.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASTM C393/C393M-06, *Standard Test Method for Core Shear Properties of Sandwich Constructions by Beam Flexure*

ASTM D7446-09, *Standard Specification for Structural Insulated Panel (SIP) Adhesives for Laminating Oriented Strand Board (OSB) to Rigid Cellular Polystyrene Thermal Insulation Core Materials*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

structural insulated panel

SIP

panel with two load-bearing skins, one bonded to each face of a rigid, lightweight, homogenous core material with sufficient shear strength to cause the face layers to act together structurally

See Figure 1.

NOTE The homogenous core is made of one material with no internal joints requiring bonding.