

TIMBER STRUCTURES

“The use of timber in building construction goes back many centuries and has evolved from simple craft through prescriptive trade to sophisticated, performance based engineering.”

(Source: ISO/TC 165 - Strategic Business Plan - June 2019)



MAIN TECHNICAL COMMITTEES ON TIMBER STRUCTURES STANDARDIZATION

- International level -

➤ ISO/TC 165 – Timber structures

Standards

51

Projects

6

National delegates

0

Scope

Standardization concerning structural applications of timber, wood-based panels, other wood based products, and related lignocellulosic fibrous materials including:

- requirements for design;
- structural properties, performance, and design values of materials, products, components, and assemblies and;
- test methods and requirements to establish related structural, mechanical and physical properties and performance.

5 Working Groups

WG 2	Structural glued wood products	WG 7	Connections and assemblies
WG 10	Characteristic values and design specifications	WG 11	Solid and mechanically laminated timber products
WG 12	Structural use of bamboo		

- European level -

➤ CEN/TC 124 – Timber structures

Standards

42

Projects

10

National delegates

0

Scope

Preparation of standards for the structural use of timber, covering:

- test methods for the determination of strength and stiffness for solid timber, glued laminated timber, mechanical joints, wood based panel products, timber structures and their components;
- solid timber: preferred sizes, strength grading and strength classes system (included glued laminated timber), evaluation of mechanical properties;
- glued laminated timber: essential requirements, production requirements and control, structural full size finger joints;
- mechanical fasteners.

6 Working Groups

WG 1	Test methods	WG 2	Solid timber
WG 3	Glued laminated timber	WG 4	Connectors
WG 5	Prefabricated wall, floor and roof elements	WG 6	Wood poles

MAIN STANDARDS ON TIMBER STRUCTURES

Cross laminated timber	
ISO 16696-1:2019	Part 1: Component performance, production requirements and certification scheme
EN 16351:2021	Requirements
Laminated veneer lumber	
ISO 22390:2020	Structural properties
EN 14374:2004	Structural laminated veneer lumber - Requirements
Bond performance of adhesives	
ISO 20152-1:2010	Part 1: Basic requirements
ISO 20152-2:2011	Part 2: Additional requirements
ISO/TR 20152-3:2013	Part 3: Use of alternative species for bond tests
Durability of wood and wood-based products	
ISO 21887:2007	Use classes
Wood-based panels	
ISO 16572:2008	Test methods for structural properties
ISO 16507:2013	Uniform, concentrated static and concentrated impact loads on wood-based roof and floor panel assemblies - Test Methods
Structural insulated panel	
ISO 18402:2016	Structural insulated panel roof construction – Test methods
ISO 22452:2011	Structural insulated panel walls – Test methods
Determination of characteristic values	
ISO 12122-1:2014	Part 1: Basic requirements
ISO 12122-2:2014	Part 2: Sawn timber
ISO 12122-3:2016	Part 3: Glued laminated timber
ISO 12122-4:2017	Part 4: Engineered wood products
ISO 12122-5:2018	Part 5: Mechanical connections
ISO 12122-6:2017	Part 6: Large components and assemblies
EN 14358:2016	Calculation and verification of characteristic values
EN 384:2016	Determination of characteristic values of mechanical properties and density – <i>Amended in 2022</i>
Bending of I-beams	
ISO 22389-1:2010	Part 1: Testing, evaluation and characterization
ISO 22389-2:2020	Part 2: Component performance and manufacturing requirements
Finger-jointed timber	
ISO 18100:2017	Manufacturing and production requirements
ISO 10983:2014	Minimum production requirements and testing methods
EN 15497:2014	Structural finger jointed solid timber - Performance requirements and minimum production requirements
Glued laminated timber	
ISO 12578:2016	Component performance requirements
EN 408:2010	Requirements – <i>Amended in 2012</i>
ISO 12579:2007	Method of test for shear strength of glue lines
ISO 12580:2007	Methods of test for glue-line delamination
ISO 8375:2017	Test methods for determination of physical and mechanical properties
ISO/TR 19623:2019	Assignment of glued laminated timber characteristic values from laminate
ISO 19993:2020	Face and edge joint cleavage test
Glued laminated timber and glued solid timber	
EN 14080:2013	Requirements
Joints made with mechanical fasteners	
ISO 6891:1983	General principles for the determination of strength and deformation characteristics
EN 26891:1991	General principles for the determination of strength and deformation characteristics (ISO 6891:1983)
ISO 16670:2003	Quasi-static reversed-cyclic test method
Testing of joints made with mechanical fasteners	
EN ISO 8970:2020	Requirements for timber density
Metal plate fasteners	
ISO 8969:2011	Testing of punched metal plate fasteners and joints
EN 14250:2010	Product requirements for prefabricated structural members assembled with punched metal plate fasteners
Connectors & fasteners	
EN 14545:2008	Requirements
EN 912:2011	Specifications for connectors for timbers
Strength graded & classes	
ISO 13910:2014	Strength graded timber – Test methods for structural properties
ISO 9709:2018	Visual strength grading – Basic principles
EN 16737:2016	Visual strength grading of tropical hardwood
ISO 13912:2017	Machine strength grading – Basic principles
EN 338:2016	Strength classes
EN 1912:2012	Strength classes – Assignment of visual grades and species – <i>Technical Corrigendum in 2013</i>

Strength graded structural timber with rectangular cross section	
EN 14081-1:2016	Part 1: General requirements – <i>Amended in 2019</i>
EN 14081-2:2018	Part 2: Machine grading; additional requirements for type testing – <i>Amended in 2022</i>
EN 14081-3:2022	Part 3: Machine grading; additional requirements for factory production control
Dowel-type fasteners	
ISO 10984-1:2009	Part 1: Determination of yield moment
ISO 10984-2:2009	Part 2: Determination of embedding strength
EN 14592:2022	Requirements
Timber connections and assemblies	
ISO/TR 21141:2022	Determination of yield and ultimate characteristics and ductility from test data
Timber poles	
ISO 15206:2010	Basic requirements and test methods
EN 14229:2010	Wood poles for overhead lines
Joist hangers	
ISO 19323:2018	Test Methods
Shear walls	
ISO 21581:2010	Static and cyclic lateral load test methods for shear walls
Bamboo structures	
ISO 22156:2021	Bamboo culms – Structural design
ISO 22157:2019	Determination of physical and mechanical properties of bamboo culms – Test methods
ISO 23478:2022	Engineered bamboo products – Test methods for determination of physical and mechanical properties
ISO 19624:2018	Grading of bamboo culms – Basic principles and procedures
Test methods	
ISO 19049:2016	Static load tests for horizontal diaphragms including floors and roofs
EN 380:1993	General principles for static load testing
ISO 17754:2014	Torsional resistance of driving in screws
EN 15737:2009	Torsional resistance of driving in screws
ISO 18324:2016	Floor vibration performance
EN 16929:2018	Timber floors – Determination of vibration properties
EN 12512:2001	Cyclic testing of joints made with mechanical fasteners – <i>Amended in 2005</i>
EN 383:2007	Determination of embedment strength and foundation values for dowel type fasteners
EN 16784:2016	Determination of the long term behaviour of coated and uncoated dowel-type fasteners
EN 409:2009	Determination of the yield moment of dowel type fasteners
EN 1075:2014	Joints made with punched metal plate fasteners
EN 1380:2009	Load bearing nails, screws, dowels and bolts
EN 1381:2016	Load bearing stapled joints
EN 1383:2016	Pull through resistance of timber fasteners
EN 594:2011	Racking strength and stiffness of timber frame wall panels
EN 596:1995	Soft body impact test of timber framed walls
EN 595:1995	Test of trusses for the determination of strength and deformation behavior
EN 15736:2009	Withdrawal capacity of punched metal plate fasteners in handling and erection of prefabricated trusses
EN 1382:2016	Withdrawal capacity of timber fasteners
Other structural timber	
EN 336:2013	Sizes, permitted deviations
EN 15228:2009	Structural timber preservative treated against biological attack
EN 14251:2003	Structural round timber – Test methods
ISO 16598:2015	Structural classification for sawn timber
ISO 9087:1998	Determination of nail and screw holding power under axial load application
Other ISO technical reports	
ISO/TR 21136:2017	Vibration performance criteria for timber floors
ISO/TR 18267:2013	Review of design standards
ISO/TR 12910:2010	Light-frame timber construction – Comparison of four national design documents

