



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 50005-2017

Standard for design of timber structures

Issued on: November 20, 2017

Implemented on: August 1, 2018

Issued by: MOHURD

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1.0.1 In order to implement the national technical and economic policies in the
design of timber structures, to achieve advanced technology, safety and applicability,
economic rationality, quality and environmental protection, this standard is hereby
formulated.

1.0.2 This standard applies to the design of swan & log timber structure, glued
laminated-timber structure, light-wood frame construction for construction engineering.

1.0.3 In addition to complying with this standard, the design of the timber
structure shall also comply with the requirements of current relevant national standards.

2.1.1 Timber structure

A load-bearing structure made of wood-based members.

2.1.2 Log

Short-cut wood which is made through branch-removal of the felled trunk and bucking
process.

2.1.3 Sawn timber

Finished or semi-finished materials which are made through bucking process of logs,
divided into plank and square timber.

2.1.4 Square timber

Sawn timber which has a right-angle sawing and a width-to-thickness ratio of less than 3,
also known as square-edged timber.

2.1.8 Glued lamina

Planks which are used to make glued laminated timber, wherein the glued finger joint is
used for lengthening.

2.1.9 Moisture content of wood

The percentage of the mass of the moisture contained in the timber to the dry mass of the
timber.

3.1 Timber

3.1.1 Load-bearing structural materials may use logs, square timber, plank, dimension lumber, glued laminated-timber, structural composite lumber, wood-based structural panels.

3.1.2 Square timber, logs and planks may be visually stress-graded. The

material's selection criteria shall comply with the provisions of clause A.1 of

3.2.1 The steel used in the load-bearing timber structure should adopt Q235

steel, Q345 steel, Q390 steel, Q420 steel, meanwhile shall respectively comply with the relevant provisions of "Carbon structural steels" GB/T 700 and "High strength low alloy structural steels" GB/T 1591.

3.2.2 For the steel in the load-bearing timber structure, when the imported metal

connectors are used, it shall provide the product quality certificate, comply with the design requirements, make re-inspection of the materials.

3.2.3 The load-bearing members or connecting materials in the following cases

should use the grade-D carbon structural steel, or grade-D, grade-E low-alloy high-strength structural steel.

4.2.1 The seismic design of timber structure buildings shall comply with the

relevant provisions of the current national standard "Code for seismic design of buildings" GB 50011.

4.2.2 For the timber structure building, it shall follow the provisions of the current

national standard "Standard for classification of seismic protection of building constructions" GB 50223 to determine its seismic fortification category and corresponding seismic fortification criteria.

4.3 Design values and allowable deformation limits

4.3.1 The design indicators for timber such as square timber, logs, ordinary glued laminated timbers, laminated logs shall be determined according to the following provisions.

4.3.6 The design index values of strength of laminated timber which is

made by visually stress-graded and mechanically elastic modulus graded lamina shall be used as follows.

4.3.7 The design value of strength and elastic modulus of visually stress-graded

square timber, dimension lumber, structural materials imported from North America shall be adopted according to the provisions of Appendix D of this standard.

4.3.8 The standard value of strength and the standard value of elastic modulus

of the load-bearing structure shall be adopted according to the provisions of

4.3.9 The adjustment of design value of strength and elastic modulus of the

load-bearing structural materials shall comply with the following requirements.

5.2.5 If the load acts on the top surface of the beam, when calculating the

design value of shear force V of the flexural member, it may not consider the action of all loads on the beam within the distance range from the support at the beam's end to the height of the beam's cross-section.

5.2.6 The design of the incision on the flexural members shall comply with the

following requirements.

5.2.7 When there is incision at the tensioned plane of the seat of the flexural

member of rectangular cross-section, the actual shear capacity shall be verified according to the formula below.

5.2.8 The bearing capacity of the locally-compressed flexural member shall be

verified by the following formula.

5.2.10 The bidirectional flexural members shall be verified according to the

following provisions.

5.3.1 The bearing capacity of the tension-flexural members shall be verified as

follows.

5.3.2 The bearing capacity of the compression-flexural members and the

eccentric compression members shall be verified according to the following provisions.

5.3.3 The lateral stability outside the bending moment's action plane of the

compression-flexural member or the eccentric compression member shall be verified