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Authorised and notified according to Article 10 of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products

Member of EOTA

European technical approval ETA-06/0138

English translation, the original version is in German

Handelsbezeichnung *Trade name*	**KLH-Massivholzplatten** *KLH solid wood slabs*
Zulassungsinhaber *Holder of approval*	**KLH Massivholz GmbH** **8842 Katsch an der Mur 202** **Österreich**
Zulassungsgegenstand und Verwendungszweck *Generic type and use of construction product*	**Massive plattenförmige Holzbauelemente für tragende Bauteile in Bauwerken** *Solid wood slab element to be used as structural elements in buildings*
Geltungsdauer vom *Validity from* bis zum *to*	**01.07.2011** **30.06.2016**
Herstellwerk *Manufacturing plant*	**KLH Massivholz GmbH** **8842 Katsch an der Mur 202** **Österreich**
Diese Europäische technische Zulassung umfasst *This European technical approval contains*	**17 Seiten einschließlich 6 Anhängen** *17 Pages including 6 Annexes*
Diese Europäische technische Zulassung verlängert *This European technical approval extends*	**ETA-06/0138 mit Geltungsdauer vom 27.07.2006 bis zum 26.07.2011** *ETA-06/0138 with validity from 27.07.2006 to 26.07.2011*

I LEGAL BASES AND GENERAL CONDITIONS

1 This European technical approval is issued by Österreichisches Institut für Bautechnik in accordance with:

1. Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products[1] – Construction Products Directive (CPD) –, amended by the Council Directive 93/68/EEC of 22 July 1993[2];
2. *dem Gesetz vom 20. März 2001 über das Inverkehrbringen und die Verwendbarkeit von Bauprodukten (Steiermärkisches Bauproduktegesetz 2000), LGBl. Nr. 50/2001, in der Fassung LGBl. Nr. 85/2005 und LGBl. Nr. 13/2010;*

   the law from 20 March 2001 concerning putting on the market and use of construction products (Styrian construction products law 2000), LGBl. № 50/2001, amended by LGBl. № 85/2005, and LGBl. № 13/2010;
3. Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex of Commission Decision 94/23/EC[3];

2 Österreichisches Institut für Bautechnik is authorised to check whether the provisions of this European technical approval are met. Checking may take place at the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.

3 This European technical approval shall not be transferred to manufacturers or agents of manufacturers other than those indicated on Page 1, or manufacturing plants other than those indicated on Page 1 of this European technical approval.

4 This European technical approval may be withdrawn by Österreichisches Institut für Bautechnik, in particular pursuant to information from the Commission according to Article 5 (1) of the Council Directive 89/106/EEC.

5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction may be made with the written consent of Österreichisches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.

6 The European technical approval is issued by the Approval Body in its official language. This version corresponds to the version circulated within EOTA. Translations into other languages have to be designated as such.

[1] Official Journal of the European Communities № L 40, 11.02.1989, page 12
[2] Official Journal of the European Communities № L 220, 30.08.1993, page 1
[3] Official Journal of the European Communities № L 17, 20.01.1994, page 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

1.1 Definition of product

1.1.1 General

The European technical approval (ETA) applies to a product, the

KLH solid wood slabs,

made of softwood boards which are bonded together in order to form solid wood slab elements. Adjacent layers of the softwood boards are arranged perpendicular (angle of 90 °) to each other. Cross section of the solid wood slabs shall be symmetrically.

Maximum two consecutive board layers may be arranged in the same direction, creating a double layer. In this case the direction of the double layers shall be parallel to the main direction of the solid wood slabs in the structure.

The surfaces of the solid wood slabs may be provided with wood based panels.

The principle structure of the solid wood slab is shown in Annex 1, Figure 1 and Figure 2. Surfaces are planed.

The application of wood preservatives and flame retardants is not subject to the European technical approval.

1.1.2 Wood

Wood species is European spruce or an equivalent softwood.

1.2 Intended use

The solid wood slab is intended to be used as a structural or non structural element in buildings and timber structures.

The solid wood slab shall be subjected to static and quasi static actions only.

The solid wood slab is intended to be used in service classes 1 and 2 according to EN 1995-1-1[4]. Members which are directly exposed to the weather shall be provided with an effective protection for the solid wood slab element in service.

The provisions made in the European technical approval are based on an assumed intended working life of the solid wood slab of 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the Approval Body, but are regarded only as a means for selecting the appropriate product in relation to the expected, economically reasonable working life of the construction works.

2 Characteristics of product and methods of verification

2.1 Characteristics of product

2.1.1 General

The solid wood slabs and their boards correspond to the information given in the Annexes 1 to 3. The material characteristics, dimensions and tolerances of the solid wood slabs not

[4] Reference documents are listed in Annex 6.

indicated in these Annexes are given in the technical documentation[5] of the European technical approval.

2.1.2 Boards, wood based panels

The specification of the boards is given in Annex 2, Table 2. Boards are visually or machine strength graded. Only technically dried wood shall be used.

If wood based panels are used, these shall conform to EN 13986 or a European technical approval.

2.1.3 Adhesive

The adhesive for bonding the solid wood slabs and the finger joints of the individual boards shall conform to EN 301, EN 15425 and, if relevant, to ETAG 011, Annex C.

Normally a PU adhesive is used.

2.1.4 Hygiene, health and the environment

On dangerous substances the solid wood slab conforms to the CUAP for "*Solid wood slab element to be used as a structural element in buildings*", Edition June 2005, ETA request № 03.04/06. A manufacturer's declaration to this effect has been submitted.

In addition to the specific clauses relating to dangerous substances contained in the European technical approval, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive, these requirements need also to be complied with, when and where they apply.

2.1.5 Identification

The European technical approval for the solid wood slab is issued on the basis of agreed data, deposited with Österreichisches Institut für Bautechnik, which identifies the solid wood slab that has been assessed and judged. Changes of materials, of composition or characteristics, or to the production process, which could result in this deposited data being incorrect, should be immediately notified to Österreichisches Institut für Bautechnik before the changes are introduced. Österreichisches Institut für Bautechnik will decide whether or not such changes affect the European technical approval, and, if so, whether further assessment or alterations to the European technical approval are considered necessary.

2.2 Methods of verification

The assessment of the fitness of the solid wood slab for the intended use in relation to the requirements for mechanical resistance and stability, for safety in case of fire, for hygiene, health and the environment, for protection against noise, for energy economy and heat retention, as well as for durability in the sense of the Essential Requirements 1, 2, 3, 5 and 6 of Council Directive 89/106/EEC has been made according to the CUAP for "*Solid wood slab element to be used as a structural element in buildings*", Edition June 2005, ETA request № 03.04/06.

[5] The technical documentation of the European technical approval is deposited at Österreichisches Institut für Bautechnik and, in so far as is relevant to the tasks of the approved body involved in the attestation of conformity procedure, is handed over to the approved body.

3 Evaluation of conformity and CE marking

3.1 System of conformity attestation

The system of conformity attestation applied to this product shall be that laid down in the Council Directive 89/106/EEC of 21 December 1988, Annex III (2) (i), referred to as System 1. This system provides for.

Certification of the conformity of the product by an approved certification body on the basis of

(a) Tasks for the manufacturer

(1) Factory production control;

(2) Further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan[6].

(b) Tasks for the approved body

(3) Initial type testing of the product;

(4) Initial inspection of the factory and of factory production control;

(5) Continuous surveillance, assessment and approval of factory production control.

3.2 Responsibilities

3.2.1 Tasks for the manufacturer; factory production control

At the manufacturing plant the manufacturer has implemented and continuously maintains a factory production control system. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. The factory production control system ensures that the product is in conformity with the European technical approval.

The manufacturer shall only use raw materials supplied with the relevant inspection documents as laid down in the prescribed test plan. The incoming raw materials shall be subject to controls and tests by the manufacturer before acceptance. Check of incoming materials shall include control of inspection documents presented by the manufacturer of the raw materials (comparison with nominal values) by verifying the dimensions and determining the material properties.

The frequency of controls and tests conducted during production and on the assembled solid wood slab is laid down in the prescribed test plan, taking account of the automated manufacturing process of the solid wood slab.

The results of factory production control are recorded and evaluated. The records include at least:

- Designation of the product, basic materials and components;
- Type of control or testing;
- Date of manufacture of the product and date of testing of the product or basic materials or components;
- Results of control and testing and, if appropriate, comparison with requirements;
- Name and signature of person responsible for factory production control.

[6] The prescribed test plan has been deposited at Österreichisches Institut für Bautechnik and is handed over only to the approved body involved in the conformity attestation procedure. The prescribed test plan is also referred to as control plan.

The records shall be kept at least for five years and they shall be presented to the approved body involved in continuous surveillance. On request they shall be presented to Österreichisches Institut für Bautechnik.

3.2.2 Tasks for the approved body

3.2.2.1 Initial type testing of the product

For initial type testing, the results of the tests performed as part of the assessment for the European technical approval may be used unless there are changes in the production line or plant. In the case of changes, the necessary initial type-testing shall be agreed between Österreichisches Institut für Bautechnik and the approved body involved.

3.2.2.2 Initial inspection of factory and of factory production control

The approved body shall ascertain that, in accordance with the prescribed test plan, the factory, in particular personnel and equipment, and the factory production control are suitable to ensure a continuous and orderly manufacturing of the solid wood slab according to the specifications mentioned in Section II as well as in the Annexes of the European technical approval.

3.2.2.3 Continuous surveillance

The approved body shall visit the factory at least once a year for routine inspection. It shall be verified that the system of factory production control and the specified manufacturing process are maintained, taking account of the prescribed test plan. On demand the results of continuous surveillance shall be made available by the approved body to Österreichisches Institut für Bautechnik. Where the provisions of the European technical approval and the prescribed test plan are no longer fulfilled, the certificate of conformity shall be withdrawn.

3.3 CE marking

The CE marking shall be affixed on the accompanying commercial documents. The symbol “CE” shall be followed by the identification number of the certification body and shall be accompanied by the additional information:

- Name or identifying mark and address of the manufacturer;
- Number of the certificate of conformity;
- Last two digits of the year in which the CE marking was affixed;
- Number of the European technical approval;
- Species of wood used;
- Number and orientation of layers;
- Nominal thickness of the solid wood slab.

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The solid wood slabs are manufactured in accordance with the provisions of the European technical approval using the automated manufacturing process as identified in the inspection of the plant by Österreichisches Institut für Bautechnik and laid down in the technical documentation.

Single and double layers of planed boards shall be bonded together to the required thickness of the solid wood slabs. Individual boards shall be joined in longitudinal direction by means of finger joints according to EN 385, there shall be no butt joints.

Adhesive shall be applied on one faces of each board. The edges of the boards need not to be bonded. Pressure shall be at or above 0,6 N/mm^2.

4.2 Installation

4.2.1 Design of solid wood slab elements

The European technical approval only applies to the manufacture and use of the solid wood slab. Verification of stability of the works including application of loads on the solid wood slab are not subject of the European technical approval.

Fitness for the intended use of the solid wood slab is given under the following conditions:

- Design of the solid wood slab elements is carried under the responsibility of an engineer experienced in solid wood slab elements.
- Design of the works shall account for the protection of the solid wood slab elements in service.
- The solid wood slab elements are installed correctly.

Design of the solid wood slab elements may be according to EN 1995-1-1 and EN 1995-1-2, taking into account the Annexes 2 to 5 of the European technical approval. Standards and regulations in force at the place of use shall be considered.

4.2.2 Installation of solid wood slab elements

The manufacturer shall prepare installation instructions in which the product specific characteristics and the most important measures to be taken into consideration for installation are described. The installation instructions shall be available at every construction site and shall be deposited at Österreichisches Institut für Bautechnik.

Solid wood slab element installation shall be carried out by appropriately qualified personnel under the supervision of the person responsible for technical matters on site. An assembly plan shall be prepared for each structure, which contains the sequence in which the solid wood slab element shall be installed and the designation of the individual solid wood slab elements. The assembly plan shall be available at the construction site.

The safety-at-work and health protection regulations have to be observed.

5 Recommendations for the manufacturer

5.1 General

The manufacturer shall ensure that the requirements in accordance with the clauses 1, 2 and 4 as well as with the Annexes of the European technical approval are made known to those who are concerned during planning and execution of the works.

5.2 Recommendations on packaging, transport and storage

The solid wood slab elements shall be protected during transport and storage against any damage and detrimental moisture effects. The manufacturer’s instruction for packaging, transport and storage shall be observed.

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5.3 Recommendations for use, maintenance and repair of the works

The assessment of the fitness for use is based on the assumption that maintenance is not required during the assumed intended working life. In case of a severe damage of a solid wood slab element immediate actions regarding the mechanical resistance and stability of the works shall be initiated.

On behalf of Österreichisches Institut für Bautechnik

The original document is signed by:

Dipl.-Ing. Dr. Rainer Mikulits

Managing Director

Figure 1: Principle structure of the solid wood slab

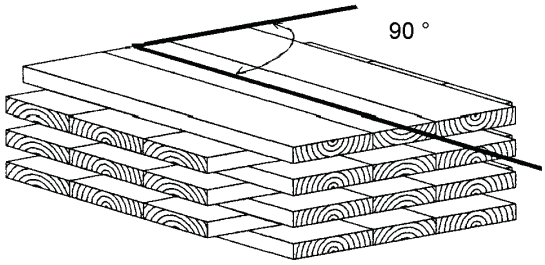
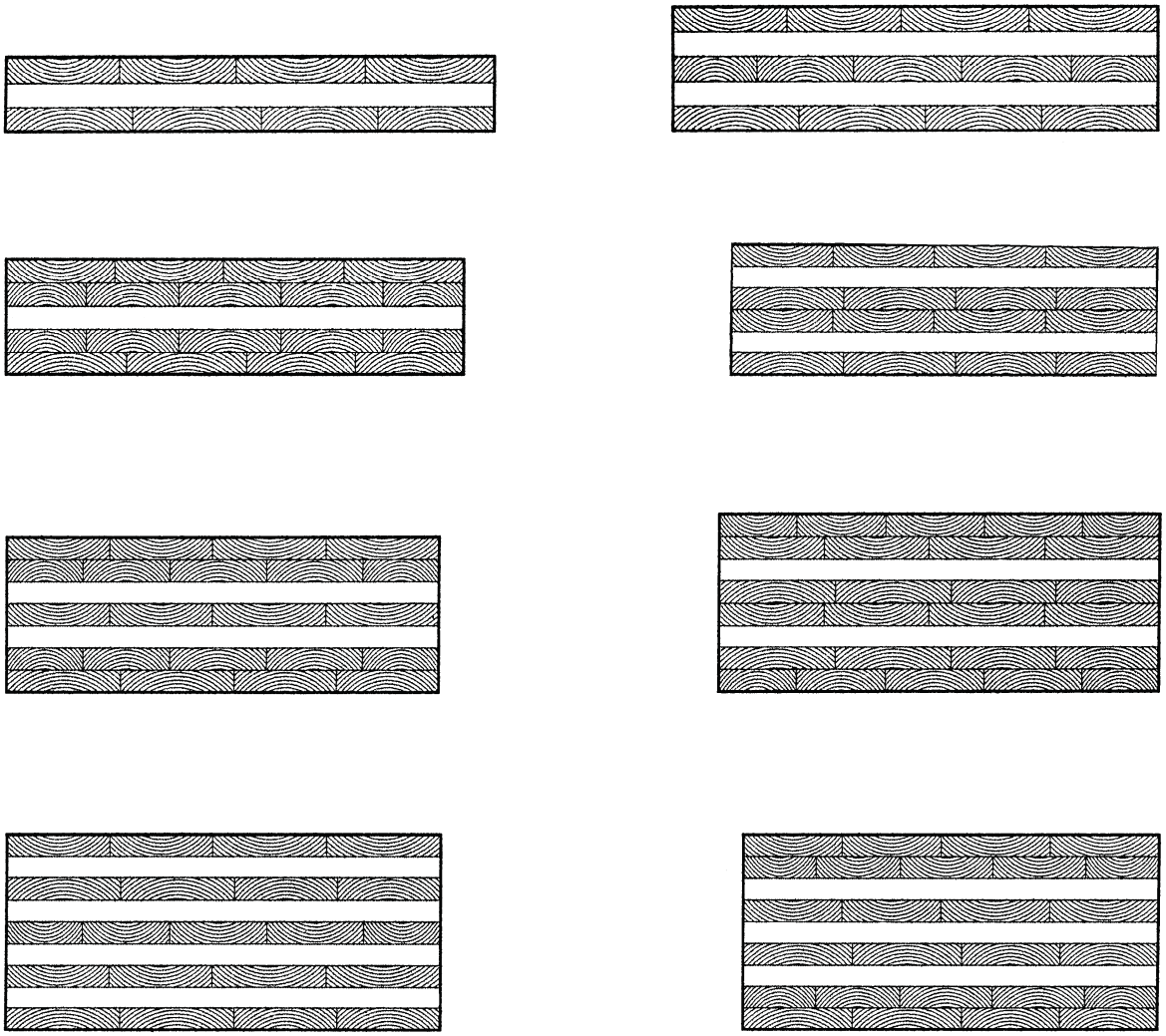


Figure 2: Typical examples of the structure of the solid wood slab



KLH solid wood slab	Annex 1
Structure of the solid wood slab	of European technical approval ETA-06/0138

Table 1: Dimensions and specifications

Characteristic		Dimension / Specification
Solid wood slab element		
Thickness	mm	57 to 250
Width	m	≤ 2,95
Length	m	≤ 16,50
Number of layers	—	3 to 9
Maximum width of joints between boards within one layer: regions with fasteners to be applied elsewhere	 mm mm	 3 6
Board		
Surface	—	planed
Thickness, planed dimension	mm	10 to 40
Width	mm	80 to 240
Ratio width to thickness	—	≥ 4 : 1
Boards shall be graded with suitable visual and/or machine procedures to be able to assign them to the strength classes according to EN 338.	—	≤ 10 % C16 ≥ 90 % C24
Moisture of wood according to EN 13183-2	%	12 ± 2
Finger joints	—	EN 385

KLH solid wood slab	Annex 2
Characteristic data of the solid wood slab	of European technical approval ETA-06/0138

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Table 2: Product characteristics of the solid wood slab

ER	Requirement	Verification method	Class / Use category / Numeric value
1	**Mechanical resistance and stability**		
	1. Mechanical actions perpendicular to the solid wood slab		
	Modulus of elasticity		
	– parallel to the grain of the boards $E_{0, mean}$	I_{eff}, Annex 4 CUAP 03.04/06, 4.1.1.1	12 000 MPa
	– perpendicular to the grain of the boards $E_{90, mean}$	EN 338	370 MPa
	Shear modulus		
	– parallel to the grain of the boards G_{mean}	EN 338	690 MPa
	– perpendicular to the grain of the boards, rolling shear modulus $G_{R, mean}$	CUAP 03.04/06, 4.1.1.1	50 MPa
	Bending strength		
	– parallel to the grain of the boards $f_{m, k}$	W_{eff}, Annex 4 CUAP 03.04/06, 4.1.1.1	24 MPa
	Tensile strength		
	– perpendicular to the grain of the boards $f_{t, 90, k}$	EN 1194, reduced	0,12 MPa
	Compressive strength		
	– perpendicular to the grain of the boards $f_{c, 90, k}$	EN 1194	2,7 MPa
	Shear strength		
	– parallel to the grain of the boards $f_{v, k}$	EN 1194	2,7 MPa
	– perpendicular to the grain of the boards(rolling shear strength) $f_{R, V, k}$	A_{gross}, Annex 4 CUAP 03.04/06, 4.1.1.3	1,5 MPa
	2. Mechanical actions in plane of the solid wood slab		
	Modulus of elasticity		
	– parallel to the grain of the boards $E_{0, mean}$	A_{net}, I_{net}, Annex 4 CUAP 03.04/06, 4.1.2.1	12 000 MPa
	Shear modulus		
	– parallel to the grain of the boards G_{mean}	A_{net}, Annex 4 CUAP 03.04/06, 4.1.2.3	250 MPa
	Bending strength		
	– parallel to the grain of the boards $f_{m, k}$	W_{net}, Annex 4 CUAP 03.04/06, 4.1.2.1	23 MPa

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ER	Requirement	Verification method	Class / Use category / Numeric value
1	**2. Mechanical actions in plane of the solid wood slab**		
	Tensile strength – parallel to the grain of the boards $f_{t,0,k}$	EN 1194	16,5 MPa
	Compressive strength – parallel to the grain of the boards $f_{c,0,k}$	EN 1194	24 MPa
	– concentrated, parallel to the grain of the boards $f_{c,0,k}$	CUAP 03.04/06, 4.1.2.2	30 MPa
	Shear strength – parallel to the grain of the boards $f_{v,k}$	A_{net}, Annex 4 CUAP 03.04/06, 4.1.2.3	5,2 MPa
	3. Other mechanical actions		
	Creep and duration of load	EN 1995-1-1	
	Dimensional stability Moisture content during service shall not change to such an extend that adverse deformation will occur.		
	Fasteners, see Annex 5	EN 1995-1-1	

KLH solid wood slab	Annex 3
Product characteristics of the solid wood slab	of European technical approval ETA-06/0138

ER	Requirement	Verification method	Class / Use category / Numeric value
2	**Reaction to fire**		
	Solid wood panels excluding floorings	Commission Decision 2003/43/EC	Euroclass D-s2, d0
	Floorings of solid wood panels		Euroclass D_{FL}-s1
	Resistance to fire		
	Charring rate, see Annex 4 – Charring of cover layer only. – The cross section of the remaining wood shall be reduced by 10 %. – At least 3 mm of the cover layer shall remain unchared. – Charring of more layers than the cover layer.	EN 1995-1-2	0,67 mm/min 0,76 mm/min
3	**Hygiene, health and environment**		
	Vapour permeability, μ, including joints within the layers	EN ISO 10456	25 to 50
5	**Protection against noise**		
	Airborne sound insulation – Plain wall, thickness of 94 mm – Plain wall, thickness of 146 mm	EN 12354-1	 approximately 33 dB approximately 37 dB
	Impact sound insulation	No performance determined	
	Sound absorption	No performance determined	
6	**Energy economy and heat retention**		
	Thermal conductivity, λ	EN ISO 10456	0,13 W/(m · K)
	Air tightness	No performance determined	
	Thermal inertia, specific heat, c_p	EN ISO 10456	1 600 J/(kg · K)
—	**Durability**		
	Durability of timber Service classes	 EN 1995-1-1	 1 and 2

KLH solid wood slab	Annex 3
Product characteristics of the solid wood slab	of European technical approval ETA-06/0138

Mechanical actions perpendicular to the solid wood slab and in plane of the solid wood slab

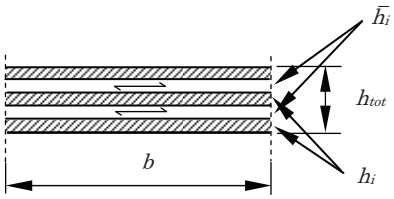
Due to the perpendicular orientation of the boards, the solid wood slabs are able to transfer loads in all directions according to their conditions of support.

For calculation of characteristic values of the cross section, only boards which are oriented in direction of mechanical action may be employed.

For design of KLH solid wood slabs according to EN 1995-1-1, characteristic strength and stiffness of solid wood according to Annex 3 shall be taken. If wood-based panels are used, characteristic values according to EN 1995-1-1 or appropriate European technical approval shall be considered.

For solid wood slabs multi-axle stressed in both principal directions, different stiffness for the two principal directions shall be considered.

Mechanical actions perpendicular to the solid wood slab



h_i..... Thickness of board layers in direction of mechanical actions
$\bar{h}_i$..... Thickness of board layers perpendicular to direction of mechanical actions

For I_{eff} see clause 9.1.3 and Annex B of EN 1995-1-1.

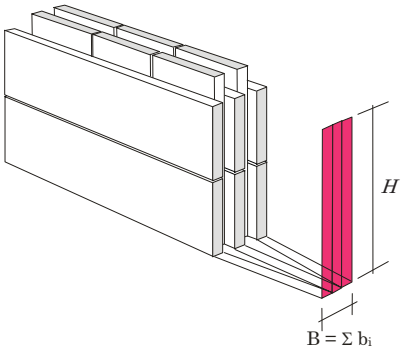
The term $\frac{s_i}{K_i}$ of EN 1995-1-1 should be substituted by $\frac{\bar{h}_i}{G_R \cdot b}$.

$$I_i = \frac{b_i \cdot h_i^3}{12} \qquad W_{eff} = \frac{2 \cdot I_{eff}}{h_{tot}}$$

$$A_i = b_i \cdot h_i \qquad h_{tot} = \sum_i (h_i + \bar{h}_i)$$

$$\tau_v = \frac{1{,}5 \cdot V}{A_{gross}} \qquad A_{gross} = b \cdot h_{tot}$$

Mechanical actions in plane of the solid wood slab



$H \leq 800$ mm
b_i.....Thickness of parallel board layers

$$I_{net} = \frac{B \cdot H^3}{12} \qquad W_{net} = \frac{B \cdot H^2}{6}$$

$$\tau_v = \frac{1{,}5 \cdot V}{A_{net}} \qquad A_{net} = B \cdot H$$

KLH solid wood slab	Annex 4
Design considerations	of European technical approval ETA-06/0138

Fire resistance

KLH solid wood slabs may be designed according to EN 1995-1-2. For design under fire conditions two cases shall be differentiated:

- Charring only in the outmost layer or the outmost double layer:

  A Charring rate of 0,67 mm/min may be applied. The remaining thickness of the layer shall be at least 3 mm. The cross-section of the fire subjected layers shall be decreased by 10 % as at the joints a higher charring rate develops.

- Charring of more layers than the outmost layer:

  For charring layers of both directions may be employed. A charring rate of 0,76 mm/min may be applied.

Verification according to EN 1995-1-2 shall be by the system with reduced cross sections. Layers which run perpendicular to the main direction of the solid wood slab in the structure shall not be considered for structural verification.

The cross section of the solid wood slab becomes asymmetrically due to the charring of the layers. This shall be considered e.g. for walls as a resulting eccentricity.

KLH solid wood slab	**Annex 4**
Design considerations	of European technical approval ETA-06/0138

Fasteners

The determination of the load bearing capacities of the fasteners in "KLH solid wood slabs" shall be carried out according to EN 1995-1-1 and/or the European technical approval which has been granted for the relevant fastener for softwood and/or for glued laminated timber or the wood based panel used.

Only wood screws and split ring connectors may be employed as load bearing fasteners in the edges of the solid wood slabs.

To all fasteners apply

Only nails, wood screws, bolts, dowels and connectors according to EN 1995-1-1 and/or an European technical approval may be used as fasteners, observing the following particularities.

The edge of the solid wood slab is the edge of the member. As long as the maximum joint width according to Annex 2 is not exceeded individual joints need not to be considered.

Nails

Nails shall have a diameter of at least 4 mm.

The load bearing capacity of nails shall be determined according to EN 1995-1-1. Minimum spacing and distances shall be determined following the direction of grain of the surface layer.

Smooth nails shall not be employed for axially loading. For axially loaded nails the recommendations of the ETA holder shall be observed.

Wood screws

Laterally loaded screws shall have a nominal diameter of minimum 4 mm and a nominal diameter of minimum 8 mm if driven in the edges of the solid wood slab.

The load bearing capacity of laterally loaded screws shall be determined according to EN 1995-1-1. The embedment strength shall be determined according to the direction of grain of the surface layer. If driven in cross grain, the embedment strength shall be reduced by 50 %. Minimum spacing and distances shall be determined according to the direction of grain of the surface layer.

Axially loaded screws shall have a minimum diameter of 4 mm. Axially loaded screws driven in cross grain shall have a minimum diameter of 8 mm.

The load bearing capacity of axially loaded screws shall be determined according to EN 1995-1-1. The load bearing capacity of screws driven in cross grain shall be reduced by 25 %.

Bolts and dowels

Bolts and dowels shall have a diameter of at least 10 mm.

The load bearing capacity of bolts and dowels shall be determined according to EN 1995-1-1. The embedment strength shall be determined following the direction of grain of the surface layer. Minimum spacing and distances for dowels and bolts shall be

$5 \cdot d$ from the loaded edge and between each other and

$3 \cdot d$ from the unloaded edge.

This applies regardless to the angle between the direction of force and the direction of grain.

KLH solid wood slab	**Annex 5**
Fasteners	of European technical approval ETA-06/0138

Reference documents

CUAP (Common Understanding of Assessment Procedure), ETA request № 03.04/06, Version June 2005: Solid wood slab element to be used as a structural element in buildings

EN 301, 06.2006, Adhesives, phenolic and aminoplastic, for load-bearing timber structures - Classification and performance requirements

EN 338, 10.2009, Structural timber - Strength classes

EN 385, 10.2001, Finger jointed structural timber - Performance requirements and minimum production requirements

EN 1194, 04.1999, Timber structures - Glued laminated timber - Strength classes and determination of characteristic values

EN 1995-1-1, 11.2004, EN 1995-1-1/AC, 06.2006, EN 1995-1-1/A1, 06.2008, Eurocode 5 - Design of timber structures - Part 1-1: General - Common rules and rules for buildings

EN 1995-1-2, 11.2004, EN 1995-1-2/AC, 03.2009, Eurocode 5 - Design of timber structures – Part 1-2: General - Structural fire design

EN 12354-1, 04.2000, Building acoustics - Estimation of acoustic performance of buildings from the performance of elements - Part 1: Airborne sound insulation between rooms

EN 13183-2, 04.2002, 13183-2/AC, 09.2003, Moisture content of a piece of sawn timber – Part 2: Estimation by electrical resistance method

EN 13986, 10.2004, Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking

EN 15425, 02.2008, Adhesives - One component polyurethane for load bearing timber structures - Classification and performance requirements

EN ISO 10456, 12.2007, EN ISO 10456/AC, 12.2009, Building materials and products - Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values

ETAG 011 (2002-01): Light Composite Wood-based Beams and Columns

KLH solid wood slab	Annex 6
Reference documents	of European technical approval ETA-06/0138