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European Assessment Document for

# Strength graded and finger jointed structural boards with closed finger base – softwood



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This European Assessment Document (EAD) has been developed taking into account up-to-date technical and scientific knowledge at the time of issue and is published in accordance with the relevant provisions of Regulation (EU) No 305/2011 as a basis for the preparation and issuing of European Technical Assessments (ETA).

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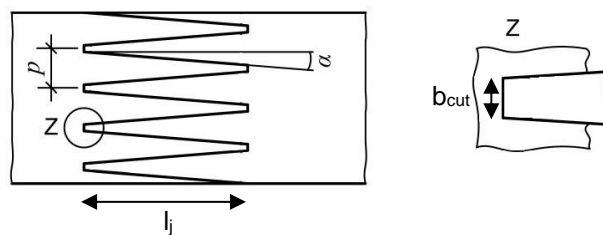
## 1 SCOPE OF THE EAD

### 1.1 Description of the construction product

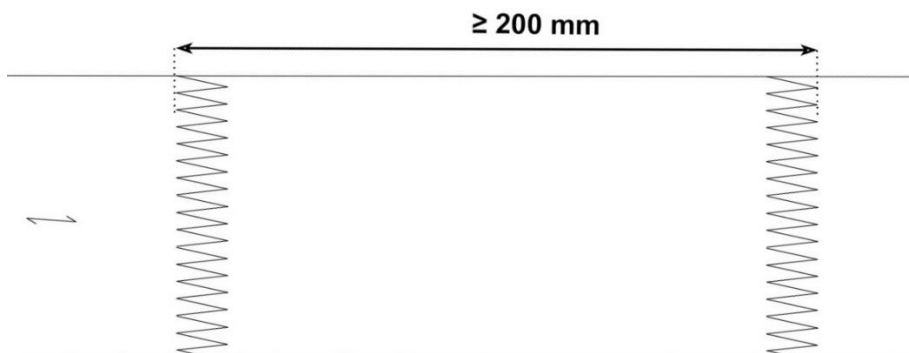
Strength graded and finger jointed structural boards with closed finger base – Softwood (in the following referred to as finger jointed structural boards with closed finger base), are visual graded boards of softwood with a finger joint connection with closed finger base, see Figure.1.1.1. Minimum board length before finger jointing procedure is 200 mm, see Figure 1.1.2.

**Figure 1.1.1: Finger joint connection with closed finger base**

$p$ ...distance of fingers  
 $\alpha$ ...angle of flanks  
 $l_j$ ...finger length  
 $b_{cut}$ ...milling width on finger base



**Figure 1.1.2: Minimum board length before finger jointing and minimum distance between finger joints**



The finger jointed structural boards with closed finger base are graded according to EN 14081-1<sup>1</sup>, Annex A, considering the special provisions according to Table 1.1.1.

<sup>1</sup> All undated references to standards or to EADs in this Chapter are to be understood as references to the dated versions listed in chapter 4.

**Table 1.1.1: Grading criteria for finger jointed structural boards with closed finger base**

Grading criteria	
<b>General</b>	Sapwood on the top and bottom faces maximum 1/3 of the length and 1/4 of the width
<b>Knots</b>	Permitted point knots nail knots in maximum 10 % of boards healthy tightly intergrown knots up to 2 x 5 cm in maximum 10 % of boards
<b>Pitch pockets</b>	Permitted up to 0,5 x 5 cm in maximum 5 % of boards
<b>Fissures</b>	Permitted Inclined fissures permitted in maximum 5 % of boards End-fissures and low fissures not longer than the width of the board
<b>Colour</b>	Blank
<b>Fungal and insect attack</b>	Not permitted
<b>Bow</b>	Not permitted
<b>On the board remaining part of the surface of the tree trunk instead of the sharp edge (with or without bark)</b>	Sharp-edged In case of broad material on single pieces up to ¼ of the length and - measured inclined - up to ¼ of the thickness

The EAD covers products from softwood species according to EN 15497, Clause 5.2.2. The finger jointed structural boards with closed finger base shall consist of only one species throughout.

Finger joints are glued with one of the following structural adhesives:

- Adhesives type I according to EN 301
- Adhesives type I according to EN 15425.

This European Assessment Document does not cover finger jointed structural boards with closed finger base:

- made from softwood timber members treated with flame retardants or wood preservatives
- made from recycled softwood timber members
- glued laminated timber.

The product is not fully covered by the following harmonised technical specifications:

- EN 15497 because of deviating finger joint geometry (closed finger base without tip gap)<sup>2</sup> and additional essential characteristics.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Relevant manufacturer's stipulations having influence on the performance of the product covered by this European Assessment Document shall be considered for the determination of the performance and detailed in the ETA.

<sup>2</sup> The deviating finger joint geometry can be checked comparing Figure 1.1.1 of this EAD with Figure 2 of EN 15497.

## 1.2 Information on the intended use(s) of the construction product

### 1.2.1 Intended use(s)

Finger jointed structural boards with closed finger base are intended to be used as a structural element in external floors (such as terraces and balconies), internal floors and facades.

Finger jointed structural boards with closed finger base are subjected to static and quasi static actions only.

Finger jointed structural boards with closed finger base are intended to be used in service class 1, 2, or 3 according to EN 1995-1-1.

### 1.2.2 Working life/Durability

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the finger jointed structural boards with closed finger base for the intended use of 50 years when installed in the works. These provisions are based upon the current state of the art and the available knowledge and experience.

When assessing the product, the intended use as foreseen by the manufacturer shall be taken into account. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works<sup>3</sup>.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting this EAD nor by the Technical Assessment Body issuing an ETA based on this EAD, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

## 1.3 Specific terms used in this EAD

### 1.3.1 Nail knots

Nail knots are not tightly intergrown knots with a maximum width of 15 mm which are cut lengthwise.

### 1.3.2 Point knots

Point knots are round knots with diameters  $\leq 5$  mm.

### 1.3.3 Tightly intergrown knots

Tightly intergrown knots are knots that are tightly intergrown in the surrounding wood structure with the entire circumference; for sawn timber this applies for both faces of the board.

### 1.3.4 Visual strength grading

Process by which a piece of timber can be sorted, by means of visual inspection, into a grade to which characteristic values of strength, stiffness and density may be allocated.

### 1.3.5 Symbols

$f_{m,k}$	[MPa]	characteristic bending strength
$f_{m,j,k}$	[MPa]	characteristic flatwise bending strength of the finger joints
$f_{t,0,j,k}$	[MPa]	characteristic tensile strength in direction of grain

<sup>3</sup> The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, as well as on the particular conditions of the design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product may also be shorter than referred to above.

$f_{t,90,k}$	[MPa]	characteristic tensile strength perpendicular to the grain
$f_{c,0,k}$	[MPa]	characteristic compression strength in direction of grain
$f_{c,90,k}$	[MPa]	characteristic compression strength perpendicular to the grain
$f_{v,k}$	[MPa]	characteristic shear strength
$E_{0,mean}$	[MPa]	mean value of the local bending modulus of elasticity in direction of grain
$E_{0,05}$	[MPa]	characteristic value of the local bending modulus of elasticity in direction of grain
$E_{90,mean}$	[MPa]	mean value of the modulus of elasticity perpendicular to the grain
$G_{mean}$	[MPa]	mean value of shear modulus
$\rho_k$	[kg/m <sup>3</sup> ]	characteristic density
$k$	[-]	moisture deformation factor for a change in moisture content of 1 %
$w$	[%]	moisture content of wood
$\mu$	[-]	sliding friction coefficient

## 2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

### 2.1 Essential characteristics of the product

Table 2.1.1 shows how the performance of the finger jointed structural boards with closed finger base are assessed in relation to the essential characteristics.

**Table 2.1.1 Essential characteristics of the product and methods and criteria for assessing the performance of the product in relation to those essential characteristics**

No	Essential characteristic	Assessment method	Type of expression of product performance
<b>Basic Works Requirement 1: Mechanical resistance and stability</b>			
1	Bending strength	0	Level $f_{m,k}$ [MPa]
2	Bending strength of finger joints	2.2.2	Level $f_{m,j,k}$ [MPa]
3	Tension strength in direction of grain	2.2.3	Level $f_{t,0,j,k}$ [MPa]
4	Tension strength perpendicular to direction of grain	2.2.4	Level $f_{t,90,k}$ [MPa]
5	Compression strength in direction of grain	2.2.5	Level $f_{c,0,k}$ [MPa]
6	Compression strength perpendicular to direction of grain	2.2.6	Level $f_{c,90,k}$ [MPa]
7	Shear strength	0	Level $f_{v,k}$ [MPa]
8	Modulus of elasticity in direction of grain	2.2.8	Level $E_{0,mean}, E_{0,05}$ [MPa]
9	Modulus of elasticity perpendicular to direction of grain	2.2.9	Level $E_{90,mean}$ [MPa]
10	Shear modulus	2.2.10	Level $G_{mean}$ [MPa]
11	Density	2.2.11	Level $\rho_k$ [kg/m <sup>3</sup> ]
12	Dimensional stability	2.2.12	Level $\beta_r, \beta_t$ [%] $\alpha_r, \alpha_t$ [%]
13	Bonding strength	EN 15497, Clause 5.2.1	Level
<b>Basic Works Requirement 2: Safety in case of fire</b>			
14	Reaction to fire	2.2.13	Class
15	Resistance to fire	EN 15497, Clause 5.4	Description, level
<b>Basic Works Requirement 3: Hygiene, health and the environment</b>			
16	Content, emission and/or release of dangerous substances	2.2.14	Class, Description
<b>Basic Works Requirement 4: Safety and accessibility in use</b>			
17	Slipperiness	2.2.15	Description $\mu$ [-]
<b>Aspects of durability</b>			
18	Durability of bonding strength	2.2.16	Description
19	Durability against biological attack (with or without preservative treatment)	2.2.17	Description



## 2.2 Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product

This chapter is intended to provide instructions for TABs. Therefore, the use of wordings such as “shall be stated in the ETA” or “it has to be given in the ETA” shall be understood only as such instructions for TABs on how results of assessments shall be presented in the ETA. Such wordings do not impose any obligations for the manufacturer and the TAB shall not carry out the assessment of the performance in relation to a given essential characteristic when the manufacturer does not wish to declare this performance in the Declaration of Performance.

### 2.2.1 Bending strength

#### Purpose of the assessment

Determination of bending strength of the base material boards without finger joints.

#### Assessment method

The test shall be carried out and assessed in accordance with Clause 19 of EN 408 on boards without finger joints. The number of specimens shall be at least 40.

Calculation of the characteristic value shall be performed according to EN 14358, Clause 3, lognormal distribution.

#### Expression of results

The characteristic bending strength  $f_{m,k}$  in MPa shall be given in the ETA.

### 2.2.2 Bending strength of finger joints

#### Purpose of the assessment

Determination of flatwise bending strength of the finger jointed structural boards with closed finger base.

#### Assessment method

The test shall be carried out in accordance with EN 15497, Clause 5.1.3 and Annex C, in flatwise bending. Hereby, finger jointed boards with minimum intended board length before finger jointing shall be tested. The number of specimens of one source shall be at least 40.

Calculation of the characteristic value shall be performed according to EN 14358, Clause 3, lognormal distribution.

#### Expression of results

The characteristic flatwise bending strength of the finger joints  $f_{m,j,k}$  in MPa shall be given in the ETA.

### 2.2.3 Tension strength in direction of grain

#### Purpose of the assessment

Determination of tension strength in direction of grain of the finger jointed structural boards with closed finger base.

#### Assessment method

The test shall be carried out and assessed in accordance with Clause 13 of EN 408. The number of specimens shall be at least 40.

Calculation of the characteristic value shall be performed according to EN 14358, Clause 3, lognormal distribution.

#### Expression of results

The characteristic tensile strength in direction of grain  $f_{t,0,j,k}$  in MPa shall be given in the ETA.

## 2.2.4 Tension strength perpendicular to direction of grain

### Purpose of the assessment

Determination of tension strength perpendicular to direction of grain of the finger jointed structural boards with closed finger base.

### Assessment method

The test shall be carried out and assessed in accordance with Clause 16 of EN 408 (reference method). The number of specimens shall be at least 40.

Calculation of the characteristic value shall be performed according to EN 14358, Clause 3, lognormal distribution.

As simplified method the characteristic tensile strength perpendicular to the grain can be determined according to EN 384, Table 2.

### Expression of results

The characteristic tensile strength perpendicular to the grain  $f_{t,90,k}$  in MPa shall be given in the ETA.

## 2.2.5 Compression strength in direction of grain

### Purpose of the assessment

Determination of compression strength in direction of grain of the finger jointed structural boards with closed finger base.

### Assessment method

The test shall be carried out and assessed in accordance with Clause 15 of EN 408. The determined characteristic value for specimen with equilibrium moisture content at normal climate conditions according to EN 408 of about 12 % applies if the product is only used in service class 1 (reference method for service class 1). In case the product shall be used in service classes 2 or 3 the characteristic value shall be decreased by the factor 0,8 (see EN 384, clause 5.4.2) or the test shall be carried out with specimen with  $18 \% \pm 2 \%$  moisture content (reference method for service class 2 and 3). The number of specimens shall be at least 40.

Conditioning shall follow EN 408, Clause 8, at  $(20 \pm 2) ^\circ\text{C}$  and  $(65 \pm 5) \%$  for service class 1 and  $(85 \pm 5) \%$  for higher service classes.

Calculation of the characteristic value shall be performed according to EN 14358, Clause 3, lognormal distribution.

As simplified method the characteristic compression strength in direction of grain can be determined according to EN 384, Table 2, for a reference moisture content of 12 %. This applies if the product is only used in service class 1. In case the product shall be used in service classes 2 or 3 the characteristic value shall be decreased by the factor 0,8 (see EN 384, clause 5.4.2).

### Expression of results

The characteristic compression strength in direction of grain  $f_{c,0,k}$  in MPa shall be given in the ETA for the respective service classes together with the assessment method.

## 2.2.6 Compression strength perpendicular to direction of grain

### Purpose of the assessment

Determination of compression strength perpendicular to direction of grain of the finger jointed structural boards with closed finger base.

### Assessment method

The test shall be carried out and assessed in accordance with Clause 16 of EN 408. The determined characteristic value for specimen with equilibrium moisture content at normal climate conditions according to EN 408 of about 12 % applies if the product is only used in service class 1 (reference method for service class 1). In case the product shall be used in service classes 2 or 3 the characteristic value shall be decreased by the factor 0,8 (see EN 384, clause 5.4.2) or the test shall be carried out with specimen with

18 %  $\pm$  2 % moisture content (reference method for service class 2 and 3). The number of specimens shall be at least 40.

Conditioning may follow EN 408, Clause 8, at (20  $\pm$  2) °C and (65  $\pm$  5) % for service class 1 and (85  $\pm$  5) % for higher service classes.

Calculation of the characteristic value shall be performed according to EN 14358, Clause 3, lognormal distribution.

As simplified method the characteristic compression strength perpendicular to direction of grain can be determined according to EN 384, Table 2, for a reference moisture content of 12 %. This applies if the product is only used in service class 1. In case the product shall be used in service classes 2 or 3 the characteristic value shall be decreased by the factor 0,8 (see EN 384, clause 5.4.2).

#### Expression of results

The characteristic compression strength perpendicular to the grain  $f_{c,90,k}$  in MPa shall be given in the ETA for the respective service classes together with the assessment method.

### 2.2.7 Shear strength

#### Purpose of the assessment

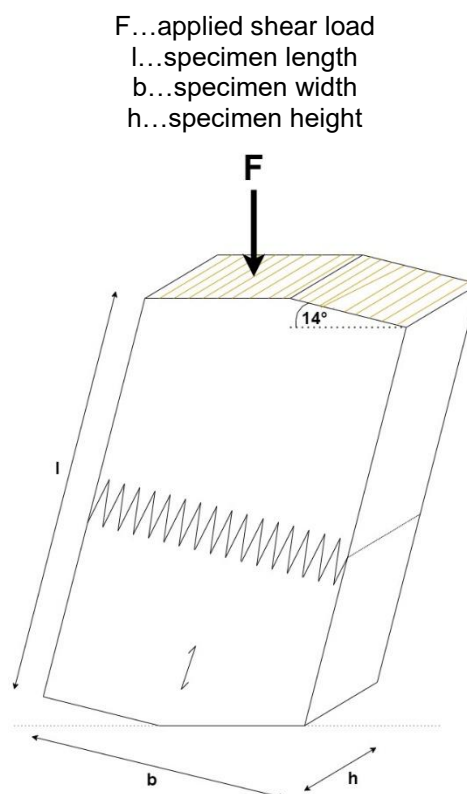
Determination of shear strength perpendicular to direction of grain of the finger jointed structural boards with closed finger base.

#### Assessment method

The test shall be carried out and assessed in accordance with Clause 18 of EN 408 on specimens of each height  $h$  and mean width  $b$  and  $l = 150 \pm 2$  mm. In contrast to EN 408 the steel plates shall not be used and load shall be applied via surfaces prepared under an angle of 14°, see Figure 2.2.7.1. The number of specimens is at least 40, whereas at least half of the specimens shall be provided with a finger joint in the middle of the specimen length.

Calculation of the characteristic value shall be performed according to EN 14358, Clause 3, lognormal distribution.

**Figure 2.2.7.1: Test and loading arrangement for determination of shear strength perpendicular to direction of grain**



### Expression of results

The characteristic shear strength  $f_{v,k}$  in MPa shall be given in the ETA.

## **2.2.8 Modulus of elasticity in direction of grain**

### Purpose of the assessment

Determination of local modulus of elasticity in bending in direction of grain of the finger jointed structural boards with closed finger base.

### Assessment method

The test shall be carried out and assessed in accordance with Clause 9 of EN 408. The number of specimens shall be at least 40.

Calculation of the mean value  $E_{0,mean}$  shall be performed according to EN 14358, Clause 3, lognormal distribution.

Calculation of the characteristic value shall be performed according to EN 384, Table 2, as  $E_{0,k} = 0,67 \cdot E_{0,mean}$ .

### Expression of results

The mean and characteristic value of the local modulus of elasticity in bending in direction of grain  $E_{0,mean}$  and  $E_{0,05}$  in MPa shall be given in the ETA.

## **2.2.9 Modulus of elasticity perpendicular to direction of grain**

### Purpose of the assessment

Determination of modulus of elasticity perpendicular to direction of grain of the finger jointed structural boards with closed finger base.

### Assessment method

The test shall be carried out and assessed in accordance with Clause 17 of EN 408 (reference method). The number of specimens shall be at least 40.

Calculation of the mean value shall be performed according to EN 14358, Clause 3, lognormal distribution.

As simplified method the mean modulus of elasticity perpendicular to direction of grain can be determined according to EN 384, Table 2.

### Expression of results

The mean value of the modulus of elasticity perpendicular to the grain  $E_{90,mean}$  in MPa shall be given in the ETA.

## **2.2.10 Shear modulus**

### Purpose of the assessment

Determination of shear modulus of the finger jointed structural boards with closed finger base.

### Assessment method

The test shall be carried out and assessed in accordance with Clause 11.1 or 11.2 of EN 408 (reference method). The number of specimens shall be at least 40.

For assessment of shear modulus for tests according to EN 408, Clause 11.2, Equation (6), the increase of shear load  $V_{s,2} - V_{s,1}$  is calculated from half of the total load applied.

Calculation of the mean value shall be performed according to EN 14358, Clause 3, lognormal distribution.

As simplified method the mean shear modulus can be determined according to EN 384, Table 2.

### Expression of results

The mean value of shear modulus  $G_{mean}$  in MPa shall be given in the ETA.

### 2.2.11 Density

#### Purpose of the assessment

Determination of density of the finger jointed structural boards with closed finger base.

#### Assessment method

The test shall be carried out and assessed in accordance with Clause 5.3.4 of EN 384. The number of specimens shall be at least 40.

Calculation of the mean and characteristic value shall be performed according to EN 14358, Clause 3, lognormal distribution.

#### Expression of results

The characteristic density  $\rho_k$  in kg/m<sup>3</sup> shall be given in the ETA.

### 2.2.12 Dimensional stability

#### Purpose of the assessment

Determination of dimensional stability of the finger jointed structural boards with closed finger base by its shrinkage and swelling values.

#### Assessment method

Shrinkage shall be tested according to ISO 13061-13. Total linear shrinkage value  $\beta$  shall be determined in radial as well as tangential direction according to ISO 13061-13.

Swelling shall be tested according to ISO 13061-15. Total linear swelling value  $\alpha$  shall be determined in radial as well as tangential direction according to ISO 13061-15.

#### Expression of results

Total linear shrinkage value in radial direction  $\beta_r$  and tangential direction  $\beta_t$  shall be stated in the ETA in %.

Total linear swelling value in radial direction  $\alpha_r$  and tangential direction  $\alpha_t$  shall be stated in the ETA in %.

### 2.2.13 Reaction to fire

The finger jointed structural boards with closed finger base are considered to satisfy the requirements of class D-s2,d0 of the reaction-to-fire performance in accordance with the Commission Delegated Regulation (EU) 2017/1227 without the need for testing on the basis of it fulfilling the conditions set out in that Decision and its intended use being covered by that Decision.

Therefore the performance of the product is D-s2,d0.

When the product does not meet the provisions of the Commission Delegated Regulation (EU) 2017/1227, the finger jointed structural boards with closed finger base shall be tested, using the method(s) relevant for the corresponding reaction to fire class according to EN 13501-1. For the mounting and fixing conditions of the specimens of the tests EN 15497, Clause 5.5, shall apply. The finger jointed structural boards with closed finger base shall be classified according to the Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1.

### 2.2.14 Content, emission and/or release of dangerous substances

The performance of the product regarding the emissions and/or release and, where appropriate, the content of dangerous substances will be assessed on the basis of the information provided by the manufacturer<sup>4</sup>

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<sup>4</sup> The manufacturer may be asked to provide to the TAB the REACH related information which shall accompany the DoP (cf. Article 6(5) of Regulation (EU) No 305/2011).

after identifying the release scenarios taking into account the intended use(s) of the product and the Member States where the manufacturer intends his product to be made available on the market.

The identified intended release scenarios for this product and intended use with respect to dangerous substances are:

- IA1: Product with direct contact to indoor air
- IA2: Product with indirect contact to indoor air (e.g. covered products) but possible impact on indoor air
- IA3: Product with no contact to indoor air

#### 2.2.14.1 Emission of formaldehyde

##### Purpose of the assessment

The adhesives for the finger jointed structural boards with closed finger base may contain formaldehyde (for example MUF adhesive according to EN 301).

##### Assessment method

If a formaldehyde-containing adhesive is used, the release of formaldehyde shall be determined according to EN 15497, Clause 5.6, and assigned to a release of formaldehyde class E1 or E2 according to EN 15497, Annex A.

Finger jointed structural boards with closed finger base, produced with an adhesive not containing formaldehyde, shall be assigned to class E1 without testing.

##### Expression of results

The release of formaldehyde shall be given as class E1 or E2.

#### 2.2.14.2 Release of other dangerous substances - SVOC and VOC

##### Purpose of the assessment and assessment method

For the intended use covered by the release scenario IA1 semi-volatile organic compounds (SVOC) and volatile organic compounds (VOC) shall be determined in accordance with EN 16516. The loading factor to be used for emission testing is 0,4 m<sup>2</sup>/m<sup>3</sup>.

The preparation of the test specimen is performed by use of the finger jointed structural boards with closed finger base with maximum depth, maximum width and for each adhesive using the maximum glue line thickness. The test specimen represents the maximum number of possible bond lines.

Once the test specimen has been produced, as described above, it shall immediately be placed in the emission test chamber. This time is considered the starting time of the emission test.

The test results have to be recorded for the relevant parameters (e.g., chamber size, temperature and relative humidity, air exchange rate, loading factor, size of test specimen, used adhesive, conditioning, production date, arrival date, test period, test result) after 3 days and 28 days testing.

##### Expression of results

The relevant product performances shall be expressed in [mg/m<sup>3</sup>] and given in the ETA.

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The manufacturer may **not** be obliged to:

- provide the chemical constitution and composition of the product (or of constituents of the product) to the TAB, or
- provide a written declaration to the TAB stating whether the product (or constituents of the product) contain(s) substances which are classified as dangerous according to Directive 67/548/EEC and Regulation (EC) No 1272/2008 and listed in the "Indicative list on dangerous substances" of the SGDS, taking into account the installation conditions of the construction product and the release scenarios resulting from there.

Any information provided by the manufacturer regarding the chemical composition of the products is not to be distributed to EOTA or to the TABs.

## 2.2.15 Slipperiness

### Purpose of the assessment

Determination of sliding coefficient of friction on dry and wet floor surfaces for finger jointed structural boards with closed finger base intended to be used in external floors.

### Assessment method

Sliders according to EN 13893, Clause 5.1.3 used as a glide assembly shall be loaded that a fixed force acts on an accessible surface with the dimensions 1500 mm x 500 mm. The loaded slider assembly shall be moved at a constant speed parallel to the accessible surface in dry and wet state. The applied horizontal force shall be recorded over the entire test duration and used to determine the sliding coefficient of friction  $\mu$ .

The tests in dry state shall be carried out according to EN 13893, Clause 9. In contrast to EN 13893, the dimensions of the specimens shall be at least 4 boards with 20 mm x 80 mm 1500 mm.

The same tests shall be performed in wet state where the surface of the test specimen shall be moistened uniformly with 250 ml of water whereas the leather gliders shall be replaced by rubber gliders.

The sliding coefficient of friction  $\mu$  shall be calculated according to EN 13893, Clause 10.

### Expression of results

The sliding friction coefficient  $\mu$  shall be given in the ETA.

## 2.2.16 Durability of bonding strength

### Purpose of the assessment and assessment method

The suitability of the adhesives for gluing the respective softwood species shall be assessed according to:

- EN 15497, Clause 5.2.3.2, for adhesives type I according to EN 301, and
- EN 15497, Clause 5.2.3.3, for adhesives type I according to EN 15425.

### Expression of results

The durability of bonding strength shall be given in the ETA as adhesive families, adhesive types and subclasses together with the respective timber species.

## 2.2.17 Durability against biological attack (with or without preservative treatment)

### 2.2.17.1 Durability against biological attack without preservative treatment

#### Purpose of the assessment and assessment method

The natural durability of wood shall be tested for the respective timber species according to EN 350. For sampling EN 350, Clause 4.1.3 "Sampling sawn timber" applies. If the timber species is given in EN 350, Table B.1, testing is not necessary:

- For the following wood species the natural durability of wood can be given according to EN 350, Table B.1 (for example *Larix decidua* Mill.).

#### Expression of results

The natural durability of wood shall be given in the ETA together with the timber species.

### 2.2.17.2 Durability against biological attack with preservative treatment

#### Purpose of the assessment and assessment method

Durability against biological attack with preservative treatment shall be assessed according to EN 15497, Clause 5.3.2.

#### Expression of results

The information about preservative treatment shall be given in the ETA according to EN 15228, Clause 6.

### 3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

#### 3.1 System(s) of assessment and verification of constancy of performance to be applied

For the products covered by this EAD the applicable European legal act is Decision 97/176/EC as amended by Commission Decision 2001/596/EC.

The system is 1.

#### 3.2 Tasks of the manufacturer

The cornerstones of the actions to be undertaken by the manufacturer of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 3.2.1.

**Table 3.2.1 Control plan for the manufacturer; cornerstones**

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
<b>Factory production control (FPC)</b> [including testing of samples taken at the factory in accordance with a prescribed test plan]					
1	Strength, stiffness and density properties of timber, species, adhesive	Check of incoming materials	According to Control plan	According to Control plan	Each delivery
2	Finger joints and bonding strength	EN 15497, Annex C	EN 15497, Annex C	EN 15497, Annex C	EN 15497, Annex C
3	Geometrical data	EN 336	According to Control plan	3	Once per shift and cross section
4	Species, adhesive	Check of incoming materials:	According to Control plan	According to Control plan	Each delivery
5	Moisture content of wood	EN 15497, Annex D	According to Control plan	According to Control plan	According to Control plan
6	Resistance to fire	Control of geometrical data and strength, stiffness and density properties	According to Control plan	According to Control plan	According to Control plan
7	Reaction to fire	For CWFT: Control of the minimum mean density, minimum overall thickness and preservative treatment (if any) For testing: Check that the relevant parameters of the tests are fulfilled	According to Control plan	According to Control plan	At least once per shift
8	Durability against biological attack	Check of species or preservative treatment (if any)	According to Control plan	According to Control plan	Each delivery
9	Emission of formaldehyde	Control that only adhesives for which an initial classification has been carried out are used	According to Control plan	According to Control plan	Each delivery
10	Release of other dangerous substances	According to Control plan	According to Control plan	According to Control plan	According to Control plan



### 3.3 Tasks of the notified body

The cornerstones of the actions to be undertaken notified body in the procedure of assessment and verification of constancy of performance for the finger jointed structural boards with closed finger base are laid down in Table 3.3.1.

**Table 3.3.1 Control plan for the notified body; cornerstones**

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
<b>Initial inspection of the manufacturing plant and of factory production control</b> <i>(for systems 1+, 1 and 2+ only)</i>					
1	Notified Body will ascertain that the factory production control with the staff and equipment are suitable to ensure a continuous and orderly manufacturing of the " <b>finger jointed structural boards with closed finger base</b> ".	Verification of the complete FPC as described in the control plan agreed between the TAB and the manufacturer.	According to Control plan	According to Control plan	When starting the production or a new line
<b>Continuous surveillance, assessment and evaluation of factory production control</b> <i>(for systems 1+, 1 and 2+ only)</i>					
2	The Notified Body will ascertain that the system of factory production control and the specified manufacturing process are maintained taking account of the control plan.	Verification of the controls carried out by the manufacturer as described in the control plan agreed between the TAB and the manufacturer with reference to the raw materials, to the process and to the product as indicated in Table 3.2.1.	According to Control plan	According to Control plan	2/year

## 4 REFERENCE DOCUMENTS

EN 301:2023	Adhesives, phenolic and aminoplastic, for load-bearing timber structures – Classification and performance requirements
EN 336:2013	Structural timber – Sizes, permitted deviations
EN 350:2016	Durability of wood and wood-based products – Testing and classification of the durability to biological agents of wood and wood-based materials
EN 384:2016+A2:2022	Structural timber – Determination of characteristic values of mechanical properties and density
EN 408:2010+A1:2012	Timber structures – Structural timber and glued laminated timber – Determination of some physical and mechanical properties
EN 1995-1-1:2004+A2:2014	Eurocode 5 – Design of timber structures — Part 1-1: General – Common rules and rules for buildings
EN 13501-1:2018	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests
EN 13893:2002	Resilient, laminate and textile floor coverings – Measurement of dynamic coefficient of friction on dry floor surfaces
EN 14080:2013	Timber structures – Glued laminated timber and glued solid timber – Requirements
EN 14081-1:2016+A1:2019	Timber structures – Strength graded structural timber with rectangular cross section – Part 1: General requirements
EN 14358:2016	Timber structures – Calculation of characteristic 5-percentile values and acceptance criteria for a sample
EN 15228:2009	Structural timber – Structural timber preservative treated against biological attack
EN 15425:2023	Adhesives – One component polyurethane for load bearing timber structures – Classification and performance requirements
EN 15497:2014	Structural finger jointed solid timber – Performance requirements and minimum production requirements
EN 16516:2017+A1:2020	Construction products – Assessment of release of dangerous substances – Determination of emissions into indoor air
ISO 13061-13:2016	Physical and mechanical properties of wood – Test methods for small clear wood specimens – Part 13: Determination of radial and tangential shrinkage
ISO 13061-15:2017	Physical and mechanical properties of wood – Test methods for small clear wood specimens – Part 15: Determination of radial and tangential swelling