



SLOVENSKI STANDARD

SIST-TS CEN/TS 13307-2:2010

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Lamelirani in konstrukcijski les z zobatimi spoji in leseni polizdelki za profile za nekonstrukcijsko uporabo - 2. del: Kontrola proizvodnje

Laminated and finger jointed timber blanks and semi-finished profiles for non-structural uses - Part 2: Production control

Holzkanteln und Halbfertigprofile für nichttragende Anwendungen - Teil 2:
Produktionskontrolle

Ebauches et profilés semi-finis en bois laminés et assemblés par entures multiples pour usage non structurels - Partie 2 : Contrôle de production

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English Version

Laminated and finger jointed timber blanks and semi-finished profiles for non-structural uses - Part 2: Production control

Ebauches et profilés semi-finis en bois lamellé-collés et assemblés par enture multiples pour usages non structurels - Partie 2: Contrôle de production

Holzkanteln und Halbfertigprofile für nicht tragende Anwendungen - Teil 2: Produktionskontrolle

This Technical Specification (CEN/TS) was approved by CEN on 1 September 2009 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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Foreword

This document (CEN/TS 13307-2:2009) has been prepared by Technical Committee CEN/TC 175 “Round and sawn timber”, the secretariat of which is held by AFNOR.

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

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Introduction

The production requirements and control described in this Technical Specification are designed so as to obtain a reliable and durable bond between the lamellae, in order that the bonds in the glued laminated blanks will maintain their integrity throughout their intended service life. Such blanks are not intended to be used as load-bearing members.

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CEN/TS 13307-2:2009 (E)**1 Scope**

This Technical Specification specifies the method of control and tests for glue bond performance of lamination and finger jointing processes employed in the production of timber blanks and semi-finished profiles (products) for joinery applications.

The methods of control are set out to ensure the durability of the glue line according to the service class.

The specific requirements for dimensions, stability and moisture content are given in EN 13307-1.

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.

EN 204, *Classification of thermoplastic wood adhesives for non-structural applications*

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

EN 392, *Glued laminated timber — Shear test of glue lines*

EN 408, *Timber structures — Structural timber and glued laminated timber — Determination of some physical and mechanical properties*

EN 12765, *Classification of thermosetting wood adhesives for non-structural applications*

EN 13183-1, *Moisture content of a piece of sawn timber — Part 1: Determination by oven dry method*

EN 13183-2, *Moisture content of a piece of sawn timber — Part 2: Estimation by electrical resistance method*

EN 13183-3, *Moisture content of a piece of sawn timber — Part 3: Estimation by capacitance method*

EN 13307-1, *Timber blanks and semi-finished profiles for non-structural uses — Part 1 : Requirements*

EN 13354, *Solid wood panels (SWP) — Bonding quality — Test method*

EN 14220, *Timber and wood-based materials in external windows, external door leaves and external doorframes — Requirements and specifications*

EN 14221, *Timber and wood-based materials in internal windows, internal door leaves and internal doorframes — Requirements and specifications*

EN 14257, *Adhesives — Wood adhesives — Determination of tensile strength of lap joints at elevated temperature (WATT '91)*

EN 14298, *Sawn timber — Assessment of drying quality*

3 Terms and definitions

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

3.1 adhesive failure

failure of the glue bond, where an adhesive film, free of wood particles, may be detected on the opposing sheared wood surfaces

3.2**wood failure**

failure of the glue line which is not an adhesive failure, where wood fibres remain firmly adhered to opposing surfaces of the sheared glue line

3.3**wood failure percentage**

percentage of the wood failure area in relation to the total sheared area

3.4**service classes 1, 2 and 3**

classification system which indicates the average equilibrium moisture content of wood in service, described in EN 13307-1

3.5**batch**

profiles with same lay-up prepared within the same time period in same production line

3.6**profile type**

profile defined by:

- a) the wood species or combination of wood species;
- b) the glue;
- c) the intended service class;
- d) the type of connection between the timber elements including the profile, laminating, edge-jointing and end-jointing and the cross section of the lamella;
- e) profile shape

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3.7**thermoplastic adhesive**

adhesive capable of being softened by heat and hardened by cooling

NOTE "Hardened" as opposed to "chemically cured".

3.8**thermosetting adhesive**

cross-linked adhesive which has undergone a chemical reaction by the action of e.g. heat, catalysts, ultraviolet light, etc., leading to a relatively infusible state

4 Material requirements**4.1 Timber****4.1.1 General**

All the requirements for timber are given in EN 13307-1.

4.1.2 Moisture content

Timber shall be dried to a moisture content level appropriate to adhesive being used and end use application.

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Guidance on the moisture content of the timber in the completed components is given in Table 1 for the particular end uses described.

Table 1 — Typical moisture content levels of timber in particular end uses

Service classes	Expected average moisture content in service ^a	Examples of end use products	Applicable product standards
1	Up to about 12 %	Internal doors and windows	EN 14221
2	Up to about 18 %	Products sheltered from rain (External doors, windows)	EN 14220
3	Above 18 % ^b	External doors or windows	EN 14220

^a Moisture content known to occur in service under conditions of constant relative humidity and temperature.

^b At least some weeks yearly.

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The same requirements apply to wood intended for finger jointing of the lamellae. Moisture content measurements made with calibrated resistance moisture meters are considered satisfactory.

The moisture content of any piece or parcel shall be estimated using the method described in EN 13183-2 or EN 13183-3. In the case of a dispute the method to be used shall be the method described in EN 13183-1 (this method is a destructive method).

The method of measuring average moisture content is given in EN 14298.

NOTE See Annex B for practical application recommendations.

4.2 Adhesive

The selected adhesive shall be capable of producing strong and durable joints so that the integrity of the bond is maintained throughout the life of the product. The minimum adhesive requirements for each of the service classes for adhesives are given in Annex A.

5 Manufacturing

The manufacturing process is critical for the production of laminated and finger jointed products. Manufacturing recommendations are provided in Annex B.

6 Sampling and testing

6.1 General

In order to ensure the integrity of the glueline of glued laminated and/or finger jointed blanks a representative sample of the product shall be tested during production (FPC). The number of samples to be selected is related to the type of test.

6.2 Initial type testing

The tests, size of test pieces and sample size required at the ITT stage are set out in Table 2. Test pieces shall be taken at least 50 mm from the end of a sampled profile. The sampling requirements are per profile type.

Table 2 — ITT sampling requirements for laminated glue line and finger tests

ITT Sampling		
Laminated profile		
Test	Size of test piece	Sample size
Moisture resistance (Delamination and shear strength tests) (see 9.1.2 and 9.2)	Length – (50 ± 1) mm; Width – width of profile but ≤ 50 mm; Thickness – overall of laminated profile.	60 samples by selecting 30 gluelines from at least 15 profiles, on each glue line two test pieces are cut to make two test batches.
	If the width of the profile exceeds 50 mm, the glue line test pieces shall be cut at random along the width of the profile (or length of the glue line along the cross section).	
Finger Joints		
Test	Size of test piece	Sample size ^a
Bending (see 10.1)	Length – 15 x thickness; Width – width of profile but ≤ 100 mm; Thickness – overall of piece.	30 samples with a finger joint and 30 without.
Moisture resistance (bending); (only for Service Class 3)	Thickness – 5 mm to 6 mm. ^b	30 finger joints sampled with two test pieces created at each finger joint (one for each face).
Watertightness (only for Service Class 3) (see 10.2)	Length – 10 x length of fingers; Width – width of profile; Thickness – actual but ≤ 25 mm. ^c	15 samples with a finger joint.
^a The finger joint shall be in the centre of the length of the sample. Profiles without finger joints shall be defect free. ^b Thicker lamellas may be used provided the lamellas are fully wetted at the end of the immersion period. ^c Any extra thickness being sawn or planed from one face.		

Finger joint testing is only necessary where the finger jointed lamella(s) are to be visible on the weather exposed faces of the profiles and/or are more than 80 % of the total thickness of the profile.

Where a laminated profile includes laminates with finger joints those finger jointed lamellas shall be sampled and tested before assembly into the laminated profile.

6.3 Factory production control tests

6.3.1 Sampling

The tests, size of test pieces and sample size required during Factory Production Control (FPC) are set out in Table 3.

The number of profiles to be sampled, per property to be tested shall be related to the size of the production but shall be at least two profiles per type and per production shift.

For each test method, the length of the profile shall be consistent across all test pieces specified for a glue line.