Deutsches Institut für Bautechnik

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

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European Technical Assessment ETA-22/0685 of 23 July 2024

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Cool Timber
Product family to which the construction product belongs	Structural finger-jointed, cold glued solid timber
Manufacturer	Henkel & Cie. AG Industriestrasse 16 6203 SEMPACH STATION SCHWEIZ
Manufacturing plant	01, 02
This European Technical Assessment contains	5 pages including 1 annex which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 130089-01-0304 – STRUCTURAL FINGER-JOINTED, WET AND/ OR COLD GLUED SOLID TIMBER

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Specific Part

1 Technical description of the product

Cool Timber is structural finger-jointed, cold bonded solid timber in the shape of boards, planks or square timber. Cool Timber is made of Norway spruce (*Picea abies*, PCAB) or Fir (*Abies alba*, ABAL) graded in accordance with EN 14081-1[1].

One component polyurethane, formaldehyde-free type I adhesive in accordance with EN 15425[2] and in accordance with the specifications deposited at DIBt is used to bond the finger joints. The maximum glue line thickness of the finger joints is 0.1 mm.

The width b (larger dimension of the cross-section) is not less than 50 mm and not more than 200 mm. The depth h (smaller dimension of the cross-section) is not less than 30 mm and not more than 80 mm. The dimensions refer to a moisture content of 20 %. The dimensions of Cool Timber are within tolerance class 1 of EN 336[3].

The ETA does not cover Cool Timber made of:

- softwood treated with fire retardants,
- recycled softwood.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the Cool Timber is used in compliance with the specifications and conditions given in Annex 1.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the Cool Timber of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Strength and stiffness properties of timber members without finger joints	Strength class C18 to C24 in accordance with EN 338
Bonding strength of finger joints as bending strength of battens	NPD
Bonding strength of finger joints as bending strength of boards, planks and square timbers	$f_{m,edge,i,k} = 0.9 \cdot f_{m,edge,k}$ $f_{t,0,j,k} = 0.9 \cdot f_{t,0,k}$ $f_{m,edge,k}$ and $f_{t,0,k}$ in accordance with EN 338 for the respective strength class

[1] EN 14081-1:2005+A1:2011 Timber structures – Strength graded structural timber with rectangular cross section – Part 1: General requirements

[2] EN 15425:2023 Adhesives – One component polyurethane (PUR) for load-bearing timber structures – Classification and performance requirements

[3] EN 336:2013 Structural timber – Sizes, permitted deviations

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	D-s2, d0 in accordance with the Delegated Regulation (EU) 2017/1227

3.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content, emission and/ or release of dangerous substances	NPD

3.4 Other essential characteristics

Essential characteristic	Performance
Durability of bonding strength	The provisions in EAD 130089-01-0304, clause 2.2.4 are satisfied. For working life and curing time see Annex 1
Durability against biological attack	The natural durability against biological attack of Norway spruce and Fir heartwood is in accordance with EN 350[4]: – DC 4 against fungi – DC S against beetles – DC S against termites Norway spruce and Fir sapwood is regarded as not durable.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 130089-01-0304 the applicable European legal act is: Decision 97/176/EC as amended by Decision 2001/596/EC.

The system is: 1

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 23 July 2024 by Deutsches Institut für Bautechnik

LBD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Dewitt

[4] 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

Annex 1 Specifications of intended use

A.1.1 Use of Cool Timber only:

- for static and quasi-static (non-fatigue) loads

A.1.2 Use conditions (environmental conditions)

Cool Timber is intended to be used in load-bearing timber structures in service classes 1 and 2 in accordance with EN 1995-1-1[1], clause 2.3.1.3.

A.1.3 Manufacturing provisions

Cool Timber is manufactured in accordance with the provisions given in EN 15497[2], Annexes G.4.1 to G.4.3, G.4.5, G.4.6 and G.4.7, unless otherwise specified in the following.

Cool Timber consists of only one species throughout. As given in EN 15497, clause 5.2.2 Norway spruce and Fir may be considered as one species.

The timber temperature during the gluing process is equal or higher than 5 °C. The adhesive temperature during the gluing process is equal or higher than 15 °C. The air temperature in the production facility at gluing and during the curing process can be lower than 18 °C but is not lower than 5 °C.

The maximum timber and air temperature in the production facility and during the curing process is 30 °C.
The moisture content of Cool Timber during the gluing process is at least 8 %.

The maximum assembly time between adhesive application and pressing of the finger joint shall not exceed 7 min at an ambient temperature of 5 °C and a timber moisture content of 12 %.

The curing time of the finger joints shall be at least 147 min at ambient temperatures of 5 °C and a timber moisture content of 8 %. The curing time of the finger joints shall be at least 105 min at ambient temperatures of 5 °C and a timber moisture content of 12 %.

The not fully cured jointed timber should be moved in a way that the curing process is not affected by deformation or vibration. The jointed timber may be further processed if it can be ensured that the curing process and the finger joint strength is not affected.

A.1.4 Installation provisions

EN 1995-1-1 applies for the installation.

The Cool Timber is applied with a moisture content of ≤ 20 % in use.

[1] EN 1995-1-1:2004/AC:2006 +A1:2008+A2:2014 Eurocode 5: Design of timber structures – Part 1-1: General – Common rules and rules for buildings

[2] EN 15497:2014 Structural finger jointed solid timber – Performance requirements and minimum production requirements

Cool Timber	Annex 1
Specifications of intended use	