AUTHORIZATION TO MARK

In recognition of its compliance with PFS TECO's policies, the manufacturer listed below is authorized to mark their product(s) with the following certification mark.

Manufacturer: NORDLAM GmbH
Magdeburg, Germany

PFS TECO Plant No.: 869

Product: Glued Laminated Timber

Product Description: Glued laminated timber from Norway Spruce lumber bonded with exterior-type adhesive, with the following dimensions:

Depth:	3⅛ - 17¾ in.	(80 - 450 mm)
Width:	1½ - 5½ in.	(38 - 140 mm)
Length:	up to 52½ ft.	(up to 16 m)

Refer to PFS TECO Building Product Evaluation Report 0128

Standard: ANSI A190.1, *Standard for Wood Products – Structural Glued Laminated Timber*

Authorized by:

Issue Date: 11 December 2019

Revision Date: 08 March 2024

Scott Drake
President & CEO

SCC Accredited CB-P/S OCPS Accrédité CCN

PFS Corporation dba PFS TECO, Cottage Grove, WI USA *www.pfsteco.com*

HASSLACHER Glued Laminated Timber

NORDLAM GmbH

Initial Acceptance: 23 January 2020

Expiration: 15 March 2026

Revision: 08 March 2024

TYPE OF ACCEPTANCE

Product Material – Wood, Plastics and Composites
CSI Section 06 18 13 – Glued Laminated Beams

MANUFACTURER IDENTIFICATION

NORDLAM GmbH
Gasereistraße 1
DE-39126 Magdeburg
Germany
www.hasslacher.com

DESCRIPTION OF THE PRODUCT EVALUATED

This Building Product Evaluation Report (BPER) applies to glued laminated timber (GLT) manufactured by NORDLAM GmbH in accordance with ANSI A190.1, with in-plant manufacturing procedures approved by PFS TECO, and identified by brand name **HASSLACHER Glued Laminated Timber** or **HASSLACHER GLT**.

HASSLACHER GLT is composed of selected grades of kiln-dried Norway Spruce lumber ("laminations") with the grain direction of all laminations oriented parallel to the longitudinal axis of the GLT, with adjacent laminations face bonded with adhesive to form a composite structural glued member. Laminations may be comprised of multiple pieces that are end-jointed to create longer lengths. The adhesives used to manufacture **HASSLACHER GLT** are exterior-type adhesives meeting the requirements of ANSI 405.

HASSLACHER GLT is available in depths of 3⅛ to 17¾ in. (80 to 450 mm), widths 1½ to 5½ in. (38 to 140 mm), and lengths up to 52½ ft. (16 m); elements outside these parameters are available as special components and are outside the scope of this Report. The maximum lamination thickness is 1¾ in. (45 mm). End joints comply with standards ANSI A190.1 and ASTM D3737. **HASSLACHER GLT** is produced in balanced layups only (i.e., with lamination grades placed symmetrically about the neutral axis of the GLT).

HASSLACHER GLT is intended for use as beams and columns in load bearing and non-load bearing applications.

CODES AND STANDARDS APPLICABLE TO PRODUCT

- 2012, 2015, 2018, and 2021 editions of the International Building Code® (IBC)
- 2012, 2015, 2018, and 2021 editions of the International Residential Code® (IRC)
- 2015 and 2018 editions of the National Design Specification® (NDS®) for Wood Construction
- ANSI A190.1-2022, *Standard for Wood Products – Structural Glued Laminated Timber*

PROPERTIES REVIEWED

Testing of **HASSLACHER GLT** was conducted in accordance with the applicable Codes and Standards. The evaluation of the testing and analysis verified that the **HASSLACHER GLT** described in Table 1 complies with the requirements of ANSI A190.1.

DESIGN

HASSLACHER GLT design properties and capacities are provided in Table 1 in this Report. **HASSLACHER GLT** can be used as elements in the design of structural systems, although the design of such systems is beyond the scope of this Report.

Fire resistance of **HASSLACHER GLT** can be calculated using Section 16.2 of the NDS.

LIMITATIONS OF ACCEPTANCE

The **HASSLACHER GLT** described in this Report comply with or are suitable alternatives to what is specified in those codes listed in the 'Codes and Standards Applicable to Product' section of this Report, subject to the following conditions:

1. The product described in this Report is limited to dry service conditions where the in-service equilibrium moisture content is less than 16%.
2. Design calculations, shop drawings and installation instructions must be furnished to the building official or authority having jurisdiction, verifying that **HASSLACHER GLT** beams are used in compliance with this Report and the requirements of the Engineer of Record (EOR).
3. Cutting or notching of **HASSLACHER GLT** beams is not permitted, unless provided for in the design.
4. **HASSLACHER GLT** beams are manufactured at the NORDLAM NL2 manufacturing facility located in Magdeburg, Germany. Quality control inspections are performed by PFS TECO or its recognized agent.

DOCUMENTATION SUBMITTED

Submitted data was provided in accordance with PFS TECO *Certification and Inspection Policy: Glued Laminated Timber in Accordance with ANSI A190.1 (Version 1.0)*. Test data and analysis was also provided and reviewed in accordance with ANSI A190.1, ANSI 117, and ASTM D3737.

PRODUCT IDENTIFCATION

HASSLACHER GLT beams and columns described in this Report are identified by a mark bearing the standard (ANSI A190.1), product name, production date and time, stress class, plant number (869), the PFS TECO Building Product Evaluation Report number (BPER 0128), and the PFS TECO certification mark (as shown in Fig. 1).

Fig. 1: PFS Check Certification Mark with United States country identifier

Table 1. Reference Design Values for HASSLACHER GLT [a]

Stress Class	Bending About X-X Axis (Loaded Perpendicular to Wide Faces of Laminations)						Bending About Y-Y Axis (Loaded Parallel to Wide Faces of Laminations)						Axially Loaded		Fasteners
	Extreme Fiber in Bending [b] (psi) / Bottom or Top of Beam Stressed in Tension	Compression Perpendicular to Grain (psi) / Tension or Compression Face	Shear Parallel to Grain (psi)	Modulus of Elasticity (10^6 psi)			Extreme Fiber in Bending (psi)	Compression Perpendicular to Grain (psi)	Shear Parallel to Grain (psi)	Modulus of Elasticity (10^6 psi)			Tension Parallel to Grain (psi)	Compression Parallel to Grain (psi)	Specific Gravity for Fastener Design
	F_{bx}	$F_{c\perp x}$	F_{vx} [c]	$E_{x\ true}$	$E_{x\ app}$	$E_{x\ min}$	F_{by}	$F_{c\perp y}$	F_{vy}	$E_{y\ true}$	$E_{y\ app}$	$E_{y\ min}$	F_t	F_c	G
24F – 1.8E	2400	430	265	1.9	1.8	0.95	1450	430	230	1.7	1.6	0.85	1100	1050	0.42

(a) For members stressed primarily in bending. Tabulated design values are for normal load duration and dry service conditions.

(b) HASSLACHER GLT is produced only with balanced layups, therefore F_{bx} is the same for positive and negative bending.

(c) The design values for shear (F_{vx} and F_{vy}) shall be decreased by multiplying by a factor of 0.72 for non-prismatic members (e.g., members with varied cross section along their length), notched members, and for all members subject to impact or cyclic loading. The reduced design value shall be used for design for members at connections that transfer shear by mechanical fastener. The reduced design value shall also be used for determination of design values for radial tension and torsion.