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: HASSLACHER Holding GmbH (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: 3½ - 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 Research Report 0128

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

Authorized by: 

Issue Date: 11 December 2019
Revision Date: 18 December 2020

Steve G. Winstorfer, PE
Senior Vice President

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

This document expires on December 31, 2021 but is subject to change. Confirm validity by visiting the "Engineered Wood Products" section of http://www.pfsteaco.com/clients

Page 1 of 1
HASLACHER Glued Laminated Timber
HASLACHER Holding GmbH

Initial Acceptance: 23 January 2020
Expiration: 21 January 2022
Renewal: 22 January 2021

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

MANUFACTURER IDENTIFICATION
HASLACHER Holding GmbH (NORDLAM GmbH)
Gasereistraße 1
DE-39126 Magdeburg
Germany
www.haslacher.com

DESCRIPTION OF THE PRODUCT EVALUATED
This Report applies to glued laminated timber (GLT) manufactured by HASLACHER Nordlam in accordance with ANSI A190.1 and with in-plant manufacturing procedures approved by PFS TECO. HASLACHER 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 HASLACHER GLT are exterior-type adhesives meeting the requirements of ANSI 405.

HASLACHER GLT is available in depths of 3¼ to 17¼ in. (80 to 450 mm), widths 1½ to 5½ in. (38 to 140 mm), and lengths up to 52⅞ 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 1¼ in. (45 mm). End joints comply with standards ANSI A190.1 and ASTM D3737. HASLACHER GLT is produced in balanced layups only (i.e., with lamination grades placed symmetrically about the neutral axis of the GLT).

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

CODES AND STANDARDS APPLICABLE TO PRODUCT
- 2015 and 2018 editions of the National Design Specification® (NDS®) for Wood Construction
- ASTM D3737-18, Standard Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)

PROPERTIES REVIEWED
Testing of HASLACHER GLT was conducted in accordance with the applicable Codes and Standards. The evaluation of the testing and analysis verified that the HASLACHER 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 HASSLACHER Nordlam NL2 manufacturing facility located in Magdeburg, Germany. Quality control inspections are performed by PFS TECO.

DOCUMENTATION SUBMITTED

Submitted data was provided in accordance with PFS TECO 1601 (Quality control manual, Specifications, Manufacturer's installation instructions, Test data and Descriptive information). Test data and analysis was also provided and reviewed in accordance with ANSI A190.1, ANSI 117, and ASTM D3737.

PRODUCT IDENTIFICATION

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 Research Report number (RR 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)

<table>
<thead>
<tr>
<th>Stress Class</th>
<th>Bending About X-X Axis (Loaded Perpendicular to Wide Faces of Laminations)</th>
<th>Bending About Y-Y Axis (Loaded Parallel to Wide Faces of Laminations)</th>
<th>Axially Loaded</th>
<th>Fasteners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extreme Fiber in Bending (lbs/linear in.)</td>
<td>Compression Perpendicular to Grain (psi)</td>
<td>Shear Parallel to Grain (psi)</td>
<td>Modulus of Elasticity (10^6 psi)</td>
</tr>
<tr>
<td>Bottom or Top of Beam Stressed in Tension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F_{ex}</td>
<td>F_{ex}^*</td>
<td>F_{ex} (a)</td>
<td>E_{x}true</td>
<td>E_{x}app</td>
</tr>
<tr>
<td>24F – 1.8E</td>
<td>2400</td>
<td>395</td>
<td>265</td>
<td>1.9</td>
</tr>
</tbody>
</table>

(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_{ex} is the same for positive and negative bending.
(c) The design values for shear (F_{ex} and F_{ey}) 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.