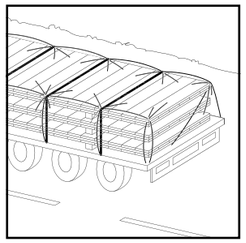
Important Information for the Appropriate Handling of Engineered Timber Products

Glued laminated timber and cross laminated timber are processed construction materials which are made of natural timber. Please find below some general guidelines and rules which help to safeguard the longevity of timber construction and help to preserve its excellent visual appearance.

HASSLACHER NORICA TIMBER

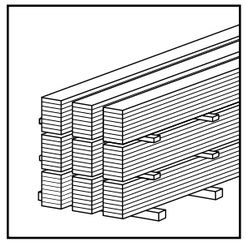
From **wood** to **wonders.**

Transport



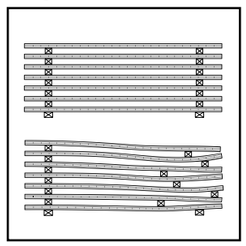
The loading sequence must be confirmed with the manufacturer. The components must be protected from moisture and soiling during transport.

Stacking

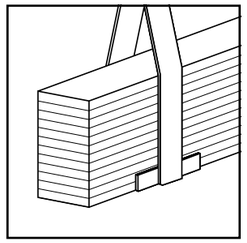


Use dunnage bars for stacking to protect the timber against tilting.

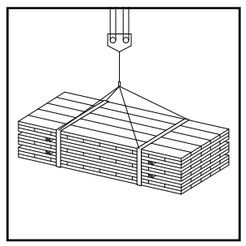
To prevent deformations, the dunnage bars should always be arranged in line above the other.



Damages



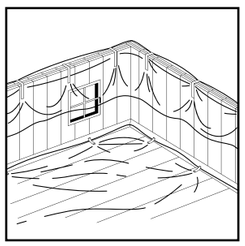
Use broad lifting straps and edge protectors to avoid damages. Prepare the correct lifting tool and protection measures in regards to the material, package size, etc. you have to move.



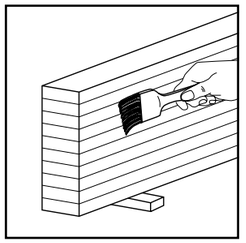
Humidity



Protect the timber against absorbing humidity by covering it. Remove or check the transport packaging immediately to avoid condensation risk.

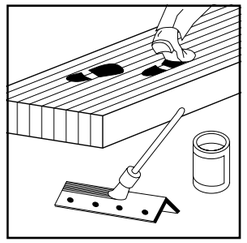


Weather Protection

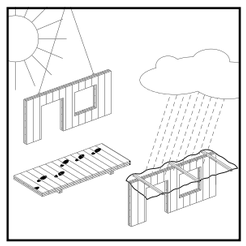


Be mindful on timber construction principles to preserve timber's longevity. Also, protect the timber against weathering during construction.

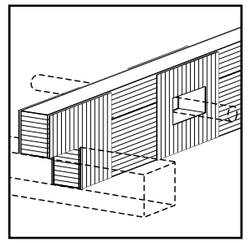
Staining



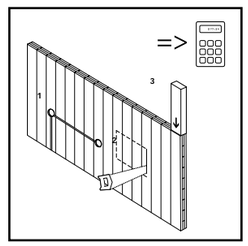
Avoid staining, e.g. by impregnation, covering, etc. Avoid stains resulting from impregnation salts and rusting of steel parts.



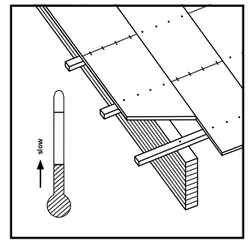
Notches/ Openings



Design of notches or openings based on structural analysis. Machining by the glulam manufacturer or after consultation with the engineer.

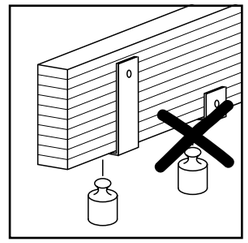


Roof Covering/ Heating

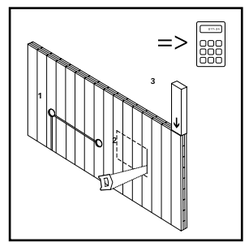


Fast covering of the building avoids high moisture content of the wooden product and resulting cracks during drying. Heating the building must be done slowly.

Additional Loads



Additional loads have to be approved with an appropriate structural analysis. Avoid any tensile stress perpendicular to the grain.



Design and Production

- If the timber construction is not protected against weather conditions, the application of a preservative treatment has to be considered during the planning process.
- With regard to the handling of the connection elements the swelling and shrinkage properties of timber should be considered, in addition to the aspects of the structural analysis.
- Sealants applied to the ends of beams (end grain sealers) help to prevent moisture penetration and excessive-end grain cracking.

Logistics

- It is very important to avoid staining of the timber members because the cleaning procedure can be very complicated and, in most cases, some discoloration may remain visible. Slight staining and pressure marks on the surfaces are inevitable and hence permitted.
- Due to the large dimension of glulam beams in combination with a small horizontal stiffness, it is necessary to take care of proper storage, tilt protection and bracing during transport, interim storage and erection.
- To avoid edge damage, heavy-weight lifting straps and edge protectors should always be used when lifting the material.
- Proper ventilation and drainage will reduce the likelihood of damage during storage.
- Use equal support timbers to prevent unstable loading - consider the center of gravity.
- Job site guidelines: maintain a levelled, well-drained, covered, raised and secured storage site.
- For long term storage: store unwrapped and covered or indoor (tent, hall, etc.) and inspect frequently for potential moisture impact. To prevent deformations, the support timbers should always be arranged one above the other.

Installation

- Any drillings or cuts, that seem to be necessary for the assembly, may only be implemented after consulting the structural engineer.
- It is strongly recommended that transport packaging is removed promptly, because perspiration may accumulate within the wrapping, resulting in mold or blue stain. Afterwards, the structural members have to be covered appropriately, so that they are protected against staining and moisture penetration.
- The roof and external wall areas should be covered (or enclosed) quickly after the timber construction has been completed to avoid direct water exposure.

Implementation

- In heated buildings, it is important to slowly increase the room temperature to reach equilibrium moisture content between the timber and the environmental conditions. The building owner has to be instructed how important it is to heat up the building under controlled conditions.
- With regard to the supporting structure of a timber building, the customer has to guarantee consistent climate conditions and to ensure that the ambient temperature ie neither too humid nor too dry over long periods. To maintain structural integrity of the timber members, rapid changes in moisture content must be avoided.

Maintenance

- Shrinkage cracks or gaps may appear on the surface of timber members or alongside the adhesive joints. For structural glulam members, shrinkage cracking of any size is permitted up to 1/6th the width of a member when measured with a 0.1 mm feeler gauge.
- Before any finish is applied or re-applied, it has to be clarified with the manufacturer of the varnish whether the product is compatible with the adhesive.
- If the timber construction is exposed to weather conditions, it may be necessary to renew or repeat paintwork. The best time to do this is during the summer months. It is important that the impregnation can permeate deeply into the shrinking cracks, if existing.

Modifications

- All modifications that may have an effect on the structural integrity or the load-bearing capacity, as well as any further engineering measure that may weaken the cross-section (e.g. drillings, cuts, slots, etc.), have to be coordinated with the structural engineer in advance.
- It has to be taken into account that interdependent structures shall be applied only in the upper parts of the girders.
- It is of particular importance that any modification that may have an effect on the basic conditions of the construction (e.g. additional sheathings, intermediate ceilings, planking, etc.), shall only be implemented after the structural engineer has been consulted and approved it.
- Before any finish is applied or re-applied, it has to be clarified with the manufacturer of the varnish whether the product is compatible with existing treatment.

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