THERMORY®

Data sheet

Thermally modified glued posts

Glued thermo posts for outdoors: What to expect

Thermally modified wood – advantages over kiln-dried wood

Thermally modified wood differs from standard kiln-dried wood, with advantages in terms of strength and durability. The thermal modification process improves the wood's weather resistance, biological factors and mechanical properties.

Thermally modified wood is often used in outdoor glued laminated timber (glulam) products such as façade posts, fences, furniture, decking, pergolas, balconies and light-bearing structures. With no harmonized stress grading standard for thermally treated timber in the EU, these products are generally not used for load-bearing constructions.

Safety margins for load bearing

Thermally modified wood's load-bearing strength can be significantly lower than that of regular dried wood; depending on the treatment temperature and species, it is generally believed that thermal treatment reduces wood's strength by 10–30%. Therefore, a larger safety margin should be applied for thermally modified wood than kiln-dried wood when used in load-bearing structures.

For instance, if a 30% safety margin is used for standard kiln-dried wood, it might be necessary to increase the safety margin to 40–50% for thermally modified wood – to determine the exact parameters for demanding applications or special cases, testing with project-specific parameters is essential.

Protecting glued thermally modified wood posts during installation

- Avoid direct contact with water, keeping the posts under a roof or eaves wherever possible. If this is not feasible, be sure to place a waterproof covering over the ends and horizontal surfaces. This will ensure that the product lasts longer.
- If sheet metal covering is not feasible, it can to some extent be replaced by painting or waxing. Always paint or wax the ends of the posts, and if possible the horizontal surfaces as well. The thicker and more durable the paint layer, the longer it will keep direct moisture away. Paint should be renewed according to the manufacturer's guidelines or when it shows any signs of wear.
- Plan beams (posts used horizontally) to have the glue joints visible on the sides, protected from direct rain. If possible, slope these beams' top surfaces to allow for water drainage.
- For vertical posts, leave a ventilation gap of at least 20 mm between the bottom of the post and the metal or concrete base to prevent moisture seeping in from below. If possible, avoid wood-to-wood contact by placing thick plastic spacers (for example) of approximately 5 mm between the wooden elements.

Delamination cracks

Thermally modified wood is specially treated to repel water and chemicals, and this may result in small delamination cracks appearing between the lamellas (layers) of the glued posts and beams already during the first year, especially around knots – even with the appropriate protective measures in place.

These cracks are only found at the edges of the glued joints and should not go through the entire post. These do not typically need to be repaired, as they are similar in nature to the cracks that naturally develop on the surface of outdoor wood posts as they age.

Surface delamination around glued edges caused by tension around knots.

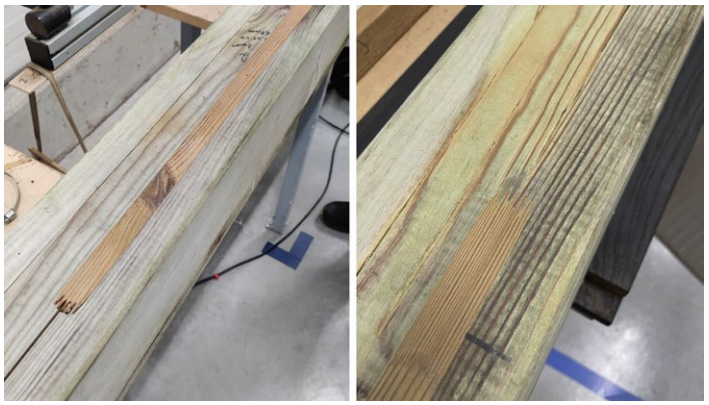
However, if repair is necessary it can be done using Minispot wood patches or, in the case of smaller delaminations, with Thermelt polyurethane hot-melt adhesives. When using wood patches, make sure they are made from the same thermally treated material as the post.

Repairing delamination cracks with a thermally treated softwood Minispot patch

1. Route the length of the Minispot patch using a stencil.

2. Apply a polyurethane adhesive or another exterior-grade glue, such as Titebond III Ultimate. Follow the manufacturer's guidelines and take care to avoid using excess as polyurethane glue will foam and expand.

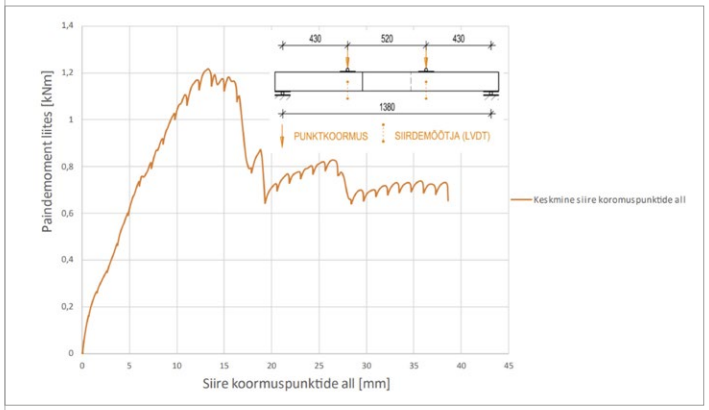
3. Immediately place the Minispot patch and apply pressure, ensuring that the glue does not move the patch as it expands and following the manufacturer's instructions for pressing time.



4. After releasing the pressure, remove any excess glue with a knife, sander or planer. The shade of the patch will be different from the rest of the post but will even up over the following year or so; if necessary, oil the patch to achieve a closer match. Typical end result seen on the photo with Minispot patch applied

While thermally modified wood products for use in outdoor conditions are specially treated to last significantly longer than kiln-dried wood, taking the additional measures outlined above will help to extend the lifetime of your posts and beams.

Testing a joint



For general handling advice for thermally modified wood products, please see our cladding installation guidelines.