Somerset Timbers

LAMINATED TIMBER BEAMS

Construction guide

Introduction

Laminated beams are an engineering solution to increase the carrying capacity of timber. They are manufactured by laying individual strips of timber on top of each other (known as laminae) using high strength industrial glues.

This is a highly specialised process and considers timber density, species, moisture content, temperature during manufacture and handling stresses. Beams used in a structural application are generally SABS approved and will be manufactured to a specific carrying capacity – known as the stress grade. Structural engineers use this number in design.

Care for laminated beams from delivery time to construction time on site

The following must be adhered to on site:

- Beams must be kept undercover out of sun and rain exposure.
- Store beams OFF the ground to prevent water absorption
- Do NOT store cement or other building materials on top of laminated beams. Beams can lie flat on top of each other.
- Do NOT wrap completely in plastic – this will cause sweating/condensation.
- Beams must lay completely flat on bearers supported every 2m
- Laminated beams are engineered for vertical loads and must not be carried flat. There is risk of damage if handled this way. Carry beams on edge to prevent this with sufficient people stabilising the beam. Beams must be carried on ends AND in middle.

Installation notes

During construction care must be taken to avoid or minimize excessive sun or rain damage. Beams should be temporarily (maximum 1 week) covered with plastic/tarpaulins during rain.

Roof sheeting installation should take place within 1 week.

- It is vital that Laminated beam and post ENDS are NOT exposed to rain and or constant direct sun. This may cause delamination over time.
- It is vital that beams exposed to direct sun are protected with a good quality maintained sealer.
- Laminated posts may be exposed to some rain/sun as they are used vertically. However a good quality sealer MUST be applied and maintained.
- Do NOT allow Laminated post ENDS to be exposed.
- Do NOT plant Laminated beams in the ground or in concrete. Use and appropriate engineered ground bracket to support the post.

- Use good quality galvanised or stainless steel fasteners or brackets with wide washers for spreading stress.
- Do NOT encase Beam ends in walls or in concrete. If this is unavoidable, ensure encased sections are suitable SEALED before installation and wrapped in building plastic to prevent water ingress.

Surface sealing of laminated beams

Pine laminated beams are pressure treated with Vacsol Azure to SABS H2 classification (unless otherwise specified). This treatment classification allows for undercover use only unless protected against water ingress. This is NOT a waterproof treatment and constant exposure to water will leach the treatment out of timber. This treatment protects against termites and rot. It will NOT protect against surface checking, warping, discoloration or delamination.

Therefore, exposed faces (eg laminated posts used outside) must be sealed. We recommend Rystix Armadek sealers. Beams must be inspected periodically to ensure surface sealing is maintained. We recommend all beams are sealed to maintain longevity.

More information on our timber pressure treatment is available at https://somtim.co.za/site/timber-preservation

Surface checking

Any timber exposed to the sun and rain will tend to show surface cracks (known as surface checking). The constant moisture ingress and drying out process puts strain on the timber, eventually causing cracks along the grain. This is a normal process and can be largely minimized by correct sealing.

Surface checking is more likely in laminated beams as many individual layers are joined together. Slightly different densities next to each other “fight” for their position causing cracks to show.

The appearance of minor surface checking does not affect the strength of the beam.

Delamination

Industrial grade glues are used in SABS structurally graded beams. These glues are waterproof and are generally stronger than the timber itself. However repeated sun exposure and/or water ingress/egress places incredible stresses on the timber. This may cause delamination over time.

Beams showing this must be inspected. The location and length of the delamination may or may not affect the strength of the beam. Remediation of this issue involves inspection and engineering solutions.

Conclusion

Laminated beams are an amazing combination of natural timber and engineering to build our world. They are manufactured using sustainable and responsibly sourced timber. They are light in weight and easily installed and used.

For further information or technical queries please enquire at sales@somtim.co.za