



LIGNOR

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Lignor Engineered
Australian Hardwoods





Introducing a revolutionary engineered hardwood that challenges the durability and strength of steel.

Australian hardwoods are acknowledged throughout the world for their exceptional stability and performance.

ESL® Engineered Strand Lumber

ESL® is a structural product in which the uni-directional alignment of strands provides strength along the length of the product making it suitable for spanning applications such as beams, lintels, scaffolding planks, power pole cross arms, exterior decking and playground equipment.

ESL®'s beauty and strength is also perfect for interior applications, such as door jambs, flooring, stair treads and window frames.

ESB® Engineered Strand Board

ESB® is a board product and comprises strands aligned bi-directionally i.e. in layers that are oriented at 90 degrees to each other ensuring strength in two directions.

ESB® is suited to panel applications such as external cladding, sea container flooring and concrete formwork.

The advantages of ESL® and ESB®:

- An exceptionally strong, termite, wet rot and fungal resistant product.
- ESL® and ESB® show a world best result in the 24 hour swell test to measure moisture resistance.
- Can be sawn, routed, profiled, turned, milled, nailed or screwed in all planes.
- ESL® has a uniform through density profile.
- High surface soundness makes it suitable for industrial flooring.
- The adhesion mechanism in the resin provides both a chemical and mechanical bond, contributing to the high internal bond property.
- The resin is unaffected by UV light or water.
- The extra strength characteristics allow it to be used in smaller section sizes.
- The products maximise the use of sustainable plantation resources by effectively converting over 70% of the log with the remaining 30% used to generate thermal energy for the drying process.

Engineered Australian Hardwoods

The natural qualities of the eucalypt hardwood utilised by Lignor distinguishes ESL® and ESB® from other engineered and sawn wood products through their potential for large dimensions, superior strength, durability, low water absorption properties, high internal bond, and termite and mould resistance.

The Sustainable Resource

Australia's renewable hardwood eucalypt plantations and forest residues will be used to produce ESL® and ESB®. Eucalyptus globulus, commonly known as

blue gum which is grown in plantations in Western Australia will be the primary species used. Lignor will also be supplied with forest thinnings and residues of three Western Australian hardwoods - jarrah, karri and marri – which are sustainably managed by the Western Australian State Government.

World-class technology

The Lignor hardwood process is based upon proven technology developed by the German engineering company, Siempelkamp, a world leader in presses and wood-based panel production.

The process of making ESL® and ESB®



Production Process

ESL® and ESB® will be produced through a fully automated production process. After the logs are de-barked, they are shredded into thin strands. Stranding is a method commonly used in North America to produce engineered wood products. They are manufactured by bonding various forms of wood fibres to make a composite unit that is stronger and stiffer than the sum of its parts.

The strands are impregnated with resins and treatments and then formed into a large mat. Non-toxic bonding resins and treatments for termite

and mould resistance are incorporated within the manufacturing process resulting in building materials that are much safer and healthier to work with. The billets are compressed to form an exceptionally strong product which is then cut into the final product dimensions.

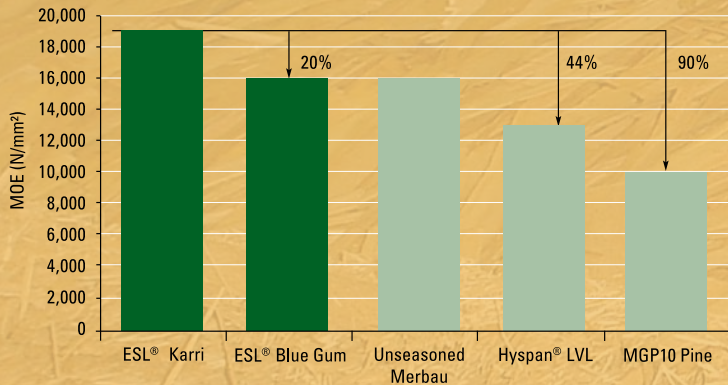
Lignor's plant is being designed to produce products in a range of sizes from 19-150mm thickness by up to 2.4m wide and up to 24m long. The applications are seemingly endless. By contrast, availability of large dimension sawn hardwoods is becoming increasingly limited.





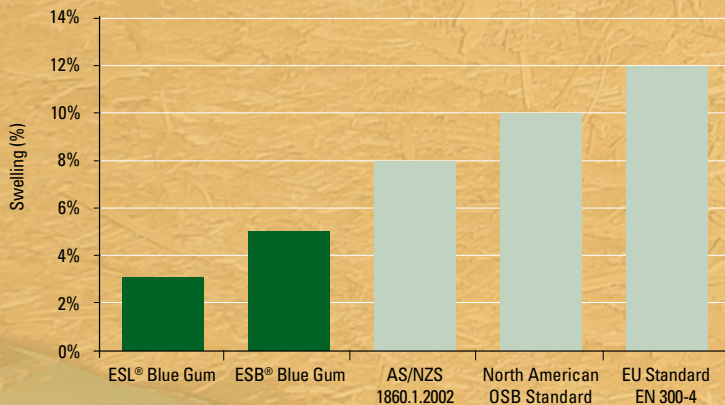
Exceptional Performance

Strength of ESL® Relative to Other Structural Products



Note: Some unseasoned hardwoods when seasoned have improved strength ratings but are not included as they are either not commercially available or cannot be produced in lengths and section sizes comparable to ESL®. The MOE shown for hardwood is the maximum available. Source: AS1720.2-2006, AS1720.1-1997, www.timber.org.au, company websites.

ESL® and ESB® Water Absorption



Source: Lignor, respective Canadian, European and Australian standards.



Minister for Agriculture and Food; Forestry; The Mid West and Wheatbelt; Great Southern Leader of the Government in the Legislative Council

“The Western Australian State forests which produce jarrah, marri and karri are managed to world’s best practice. All Western Australian jarrah, karri and marri is now supplied from regrowth forests on a sustainable basis, with no timber sourced from old growth forests. The WA Forest Products Commission has implemented an environmental management system that has been certified as complying with the requirements of the international standard AS/NZS ISO 14001. The Western Australian Government is currently investigating Australian Forestry Standard certification for native forests and State-owned plantations which is endorsed by the international Programme for Environmental Forestry Certification (PEFC).

An agreement has been reached for the WA Forest Products Commission to supply up to 360,000 tonnes per year of jarrah, marri and karri residue logs to Lignor which will produce high quality engineered strand lumber products.”

Kim Chance MLC
MINISTER FOR FORESTRY



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