

SUMMARY OF MAJOR REPORT - ‘Characterising softwood sawn products in Australia’ project (‘MGP project’)

Background to the MGP Project:

- The ‘Characterising softwood sawn products in Australia’ project (‘MGP project’) captures the nationally pooled structural performance of machine graded softwood sawn timber produced in Australia over a period from 2020 to 2022. This project aimed to confirm existing timber design values, build timber testing capacity, and to identify opportunities to optimise value and yield from the softwood resource.
- Over 15,000 structural sawn timber samples (over MGP15, MGP12, MGP10, F5 and non-structural grades, and in the dimensions 90x35mm and 190x45mm) were collected and tested from 13 Australian mills and test data was pooled nationally. The contributing mills represent over 90% of Australian-produced MGP structural sawn softwood used for building applications.
- Material was tested ‘in-grade’ as structural sized elements across a range of structural properties including bending strength and stiffness, tension strength, compression strength, beam shear, and density. Results were compared to the existing properties for use in design, as presented in Australian Standard AS 1720.1 (*Design methods for timber structures*).
- This project was funded by the National Institute for Forest Products Innovation (NIFPI) Mt Gambier hub (a joint initiative between Federal and South Australian governments and industry) and participating Australian timber mills contributing \$537k to the \$1.5m total project cash.
- The MGP project has been led by the University of South Australia (UniSA) and represents a collaboration between industry, UniSA, and consultant TimberED.
- An industry steering committee, comprising Australian Forest Products Association (AFPA) industry representatives, Forest and Wood Products Australia (FWPA), and the Engineered Wood Products Association of Australasia (EWPA), provided expert guidance and oversight to the delivery of the MGP project.
- A dedicated timber testing facility was established at UniSA Mawson Lakes campus, as part of the Specialised Testing & Research Unit. Timber testing capacity is comprehensive covering bending, tension & compression parallel to grain, and beam shear tests from timber up to 6m long to AS/NZS 4063.1 (*Test methods for structural timber*), with associated moisture and density information captured.
- The MGP project was impacted by COVID19, 2019/2020 summer bushfires, and floods resulting in delays to testing equipment delivery, and timber samples collection and delivery.

Key outcomes of the MGP Project:

- ***In-grade testing across major (indicator) and minor (inferred) properties demonstrated that the nationally pooled resource exceeds the design values required for the sampled and tested grades, indicating that mill grading processes within the framework of AS/NZS 1748:2011 (Timber – Solid – Stress-graded for structural purposes) are performing as anticipated.***
- Each of the 13 participating mills has also received individual confidential reports covering the products and grades from their specific samples supplied to the project.
- Mills over time have developed robust quality control systems that have adapted to changing resource and underpinned consistency in the quality and reliability of the established MGP product.
- Although still exceeding required design values, a minor shift in compression strength results and wide board beam shear strength results compared to the previous national 2010 study, have led to the initiation of new R&D projects that have been commenced by UniSA.
- In addition to reviewing the existing design properties, the MGP report proposes the adoption of design values for density for potential use in future changes to AS 1720 connection design models.
- The legacy dataset from this MGP project, including test results and grading profiles of the tested boards, provides a powerful tool for future MGP timber grade development and verification work.