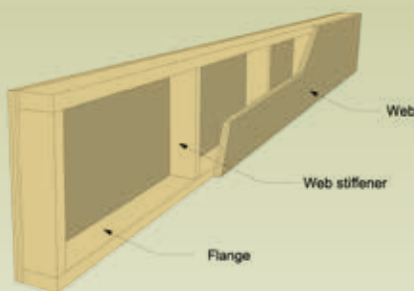


# Plywood box beams: a flexible and strong solution - thinking outside the box



***Flexible and lightweight, plywood box beams are a high-strength timber product that can be used in a vast range of residential, industrial and commercial design and building projects.***

Plywood box beams are finally getting the recognition they deserve as a long span, high-strength timber product that can be used in almost any building context. They provide a versatile, flexible, strong and lightweight alternative to steel beams and other engineered wood products.

Simon Dorries, General Manager of the Engineered Wood Products Association of Australasia (EWPA), says “the fact that the beams can be prefabricated off-site, or constructed on-site with no need for a crane, props or welding, and that they are so easily transportable, adds to their appeal for the industry”.

Plywood box beams use plywood sheets on either side of the horizontal flanges, forming a box structure; deep beams can be manufactured up to 1200mm in depth. The top and bottom flanges are made from solid timber, LVL, or from Glulam for very large beams, and vertical stiffeners are provided for increased stability. The box shape of the beams means that they have a high torsional stiffness and resistance to buckling, making them perfect for use as long span portal frame rafters or floor beams; services can also be run through the inside of the beam, adding a cleaner finish to the overall look of a structure.

Structural engineer Tim Gibney who uses box beams regularly in his designs says: “you can also use walls, clad with plywood webs, to form and act as deep box beams to save space and avoid height restrictions”. In one project Gibney clad an existing stud wall in plywood to create a box beam to provide open space under an existing first floor extension, and in another he designed walls at ground floor level so they could span between pile foundations without needing stumps or concrete footings. “The exterior walls were the only load bearing elements on the system”, says Gibney.

***The fact that the beams can be prefabricated off-site, or constructed on-site with no need for a crane, props or welding, and that they are so easily transportable, adds to their appeal for the industry.***

## ***Thinking outside the box***

There is really no limit to the ways plywood box beams can be specified as structural members in the building industry. Andy McNaught of the EWPA highlights the beams’ “ability to span long distances and ease of transportation as a key to their potential for use in remote building projects. Similarly, the fact that most beams are customised on-site means that they are perfect for one-off projects, including the potential to be tapered, curved or pitched to suit a particular application, which opens up the possibilities for innovative architecture and design”.

For large projects, such as warehouses, indoor sports venues or industrial buildings, plywood box beams provide a economical and versatile solution to the need for long span members, with the additional element of architectural freedom that their customisability allows.

Above all, as an engineered wood product plywood box beams not only represent huge savings in terms of labour, time and tools, they are carbon stores and sustainably sourced, so your next building or design project can contribute to a sustainable built environment.

***Information on plywood box beam application and design is available from the EWPA website. WoodSolutions also has available a technical design manual Plywood Box Beam Construction for Detached Housing. The guide provides information on design, fabrication and installation. It also includes span tables for a range of residential applications including lintels, bearers, ridge beams, strutting beams, hanging beams and counter beams. The design manual is available from woodsolutions.com.au.***