



# quality timber portals

Typical of the innovative use of engineered timber products is a large industrial building designed and fabricated by Timberbuilt Pty Ltd, a Melbourne based operation, for Dindas Lew's new building at Tingalpa near Brisbane. The portal frame structure has a 41 metre span with a 6 metre overhang on one side. The 69 metre x 47 metre industrial building consists of Laminated Veneer Lumber (LVL) box section portal frames with 6 metre inside clearance height. The structure is a truly impressive example of the use of engineered timber products being used in a genuine engineered application. All the engineered timber components were factory fabricated at Timberbuilt's new plant at Dandenong, Victoria and transported to Brisbane for assembly.

The type of building being constructed at Tingalpa illustrates the importance of the use of reliable materials with predictable performance. The accreditation by the Joint Accreditation System - Australia and New Zealand (JAS-ANZ) of the Plywood Association of Australia's Quality Control and

Product Certification Program, is particularly significant in gaining recognition and acceptance of LVL and structural plywood as genuine engineering materials. JAS-ANZ is the peak accreditation body set up under a treaty between the Australian and New Zealand Governments and therefore has high credibility. Product Certification by an organisation such as the PAA and accredited by JAS-ANZ is now accepted under the Building Code of Australia as 'Evidence of Suitability'. With this certification engineered timber products are suitable for construction of critical elements for which the consequences of failure may be extremely high.

Timberbuilt's Managing Director, Bruce Hutchings explains their reliance upon PAA product certification this way. "First and foremost, as structural engineers we are concerned to ensure the buildings we design will be safe and perform to expectations. LVL provided us with a timber material having the inherent reliability needed. We also are aware that unless the manufacturer has appropriate control over the manufacturing process, inherent reliability will not necessarily be fully realised. For this reason we specify PAA product certified LVL. This is our assurance that the product has been manufactured under a sophisticated JAS-ANZ audited quality control program".

"Using a product that is consistently fit for purpose motivates our workforce to maintain a high standard of workmanship. These factors result in increased productivity."

Portal Frames provide one of the most elegant solutions for buildings whose function necessitates large free spans with no internal columns; shopping centres, sporting facilities, churches and commercial and industrial buildings all being common applications of this type of structural form.

Portal frames are used extensively the world over; however, it is Australia and New Zealand who are the world leaders in regards to timber portal frame construction.

There are many practical reasons why timber should be the first choice, these include:

- aesthetics,
- structural efficiency and economy,
- simplicity in fabrication and erection,
- resistance to fire and corrosive environments,
- suitability for site fabrication, and
- timber is the only true 'renewable' resource.

Timber portal frames achieve their structural action through rigid connections between the column and the rafter at the knee, and between the individual rafter members at the ridge. These rigid joints are constructed in the majority of cases using nailed plywood gussets; a simple yet highly efficient connection which is easily achieved on site by a carpenter and a nail-gun. This provides a far more cost effective fabrication method when compared with the skilled labour and costly machinery required to produce the rigid joints of steel portal frames.

Unfortunately, lack of technical knowledge and the persistent dollar driven mentality of Australia's building market has worked against the wider use of timber portals. Inevitably, initial cost comparisons of structural materials often see the price of timber alternatives inflated because quantity surveyors, estimators or fabricators are unfamiliar with timber and therefore cover their uncertainty with an additional cost premium. In reality, when a project is accurately costed the difference in the actual cost of the structural frame is marginal, particularly in relation to the total cost of the project. The benefits however, listed previously, are great.

Building professionals with a wealth of knowledge and experience in the design and costing of timber portal frames now exist in every state. Their contact details can be obtained from your state timber advisory service.

Gain the benefits many building professionals are obtaining when building timber portal frames...today!

PROJECT: Portal Frame Warehouse - Tingalpa, Queensland  
STRUCTURAL FABRICATORS: Timberbuilt Pty Ltd

