

# BIG is Beautiful

As the residential market becomes increasingly more competitive, many fabricators are looking towards the larger commercial or Multi-Residential Timber Framed Constructions



(MRTFC's). With the ever-present fluctuations in new home developments, these larger projects can actually provide the astute fabricator with a lucrative source of extra revenue.

Whilst large-scale projects can 'tie up' a fabricator's operations for some time, when well planned into the plants operating structure, they can be a real boost for the business. One of the key features of many of these large jobs is: they can present the fabricator with some rather interesting design challenges. That's where the versatility of timber really can make a difference.

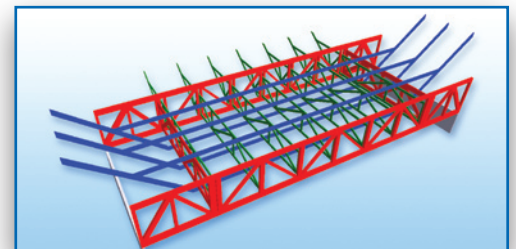
These larger projects have been dominated in the past by masonry and reinforced construction...even all steel framing. However timber is now proving a more than worthy adversary to these solutions.

Large commercial jobs can be extremely rewarding for the fabricator prepared to tackle new challenges. Bernie Wilson, Manager of the truss department at Truss Me in Queanbeyan, 15 km south-east of Canberra knows first hand just how complex – and how beneficial they can be, in more ways than one. "We were asked to tender for the roofing component of the new National Portrait Gallery. It's strategically positioned near other cultural institutions on the shores of Lake Burley Griffin (in Canberra's CBD) – so this was to be a real 'landmark' building," said Bernie.

"The building was originally designed as a space framed timber structure with bolted connections and no nail plates; but cost and some 'design' features meant prefabricated timber trusses would be a far more practical choice," said Bernie. "Timber engineering has progressed so much in recent years, just about anything can be achieved – especially with the help of MiTek 20/20 (MiTek's powerful estimating & detailing program)."

"This was a difficult job because of the sheer size of the trusses required.

Like most Art Galleries, this was a free-flowing, predominately open-plan structure," said Bernie. The biggest trusses were 15.1m long 'tip-to-tip'. These large trusses were used to build 'pods' 4.8m wide. "Each 'pod' consisted of 5, evenly spaced, oversized trusses (1.8m high at the apex). Plus, the pods (an amazing 54 in total) were built in the Truss Me yard – then shipped on-site!



But before Truss Me could even start building the 'pods', changes to their truss plant had to be made. "We had to pour a purpose-built, steel reinforced concrete work slab, with special jiggging to act as an assembly area for the pods," exclaimed Bernie. "We also invested in a 4.5 tonne crane to manoeuvre these giant trusses... and, in turn, 'pods' in and around the plant and yard."

# "timber prefabrication saved \$1.4 million."

The ability to do this successfully is due to the amazing advances made in timber engineering in recent years, especially when using MiTek's extremely powerful 20/20 program.

MiTek's 20/20 program gives the viewer fully rotational 3D visualisation, plus extremely accurate detailing and estimating. It will also look for the most design and cost-effective solution for even the most challenging, most complex roof truss requirements. An excellent example of this can be found in the new National Portrait Gallery, Canberra.

There were two 'zones' in the job: the 'gallery' and administration areas contained the pods, but the 'foyer' required both exposed and concealed trusses.

The 1,500 sq m of exposed (foyer) trusses were laminated Tasmanian Oak... for aesthetic effect. It would take two carpenters two days to put one of these together! Plus, being feature pieces (like furniture), they had to be handled very carefully from plant to assembly to installation – no scratches, dents or marks.

"These were 'V' frame and so special 'custom-made' brackets had to be designed and made to accommodate them...not a nail plate in sight," said Bernie.

The concealed trusses in the foyer and the gallery zone pod trusses were LVL.

"We had to register our transport times and route with the RTA (Road Traffic Authority). Naturally the route had been previously checked to make sure it would accommodate such large and wide loads – no overhanging wires, bridges etc.

We weren't allowed to travel at night.

We weren't allowed to travel during the day – after 7am. We were given about a one hour window of opportunity at dawn every day. There were 54 trips in total; if we were lucky we might get two loads a day," exclaimed Bernie.

Bernie is the first to admit: "this was always going to be a challenging project with lots of twists and turns along the way – but it has also been a very rewarding job.

We were always very confident we could deliver for the architect.

We wanted to be their 'one-stop-shop,' so we also took on the construction component of the job too, employing 14 carpenters on-site for over a year. This meant we could take ownership of the job." A job well done; a happy customer...and savings of over \$1.4million on the roofing part of the project! A great result all round.



Suppliers of roof frames:  
Truss Me

Software program:  
MiTek 20/20

**20/20 ADVANTAGES:**

- Fast, accurate detailing
- Fast, accurate estimating
- 3D visualisation – with image rotation
- Improves manufacturing efficiencies
- Design versatility
- Colour-coded print-outs work as an on-site guide for roof assembly

Many of these (570) trusses had 'wings' protruding from the roof line.

They pitched about 45 degrees beyond the structure, creating yet another design feature. Making these massive trusses... and pods was one thing; making sure everything would come together on-site was another.



creating the **advantage**

To find out more about timber prefabrication call your local state office or visit: [www.mitek.com.au](http://www.mitek.com.au)

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