

Paolo Lavisci

To build awareness of the benefits of timber in post earthquake rebuild conditions, NZ Wood brought Italian architect Paolo Lavisci to New Zealand and ran a series of design seminars throughout September 2011.

Since Italy's devastating earthquake in 2008 the use of timber as a structural building material has soared in the country, Italian engineer Paolo Lavisci says.

Lavisci's timber engineering consultancy, Legnopiù, was involved with the design of high-quality, permanent replacement accommodation for 20,000 people who lost their homes after the 2009 L'Aquila earthquake in Italy.



"The attention of the Italian construction industry is now focused on timber structures," he told a recent NZ Wood *Reaching New Heights with Wood* seminar.

Before the earthquake, which claimed the lives of 308 people and left 65,000 people homeless, 2500 one and two storey homes were built in Italy using timber. Three years later, in 2011, the number rose to 6000 homes.

Lavisci expects this trend to continue with a 40 per cent increase in timber construction next year.

After the L'Aquila earthquake residents of the small city made it clear to authorities that they did not want to return to concrete buildings.

Since then Legnopiù has designed six and eight storey timber buildings and is working on a 12 storey tower.

He says the experience of rebuilding L'Aquila has changed the perspective of both the Italian building industry and consumers on what can be achieved with timber in multi-level and high rise construction. "People are now confident about high-rise timber construction," he says.

In its strategy for rebuilding homes on the outskirts and rural parts of L'Aquila, the Italian government made a request to developers to choose timber construction.

"This was a surprise for Italy; we are a concrete country in many aspects."



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Paolo Lavisci *Continued*

The two key factors involved in timber's continued popularity as a structural building material is that it is both cost-effective and considerably reduces construction time.

The three storey apartments Lavisci's team designed in L'Aquila took just 75 days to complete once the foundations were laid. The apartments were built using mainly CLT panels and included some concrete cladding.

CLT was used for the rebuild but "is not the only way in timber construction. In Italy there is no Laminated Veneer Lumber (LVL) plant so we used CLT."

He says CLT is a strong material and customers, authorities and designers like it.

"It's a material that lends itself better than others to modern concepts of building."

For engineers and designers, CLT "helps us to promote and make use of our local timber resources in Italy".

Lavisci says tests have proven that timber is more efficient than concrete and steel during an earthquake.

Timber offers many advantages as a building material for both residential and commercial buildings in seismic regions:

- It has low mass but high strength.
- It has elasticity and ductility. When it is bent it doesn't lose strength.
- Building damage is easy to repair. This can involve replacing screws and timber panels.



Prefabrication of timber buildings dramatically reduces construction time and cost by enabling much of the preparation to be undertaken in weather-tight conditions offsite.

"The biggest issue for us for the consolidation and growth of the timber construction market is to keep durability and quality at its best," he says.

To the people of Christchurch Lavisci's message was that they will recover from the city's earthquakes by "building better buildings for your future".



Pre cut walls and partitions are simply brought to site and installed.