

Old Leura Dairy: innovating with heritage materials

Introduction

The Old Leura Dairy (OLD) is a development of six luxury eco-friendly buildings built by the Hennessey Family providing corporate retreat and tourist accommodation in the Blue Mountains in New South Wales. Since inception 12 years ago, the OLD buildings have been constructed using the principles of ecologically sustainable development. The buildings use up to 95 per cent (by cost) locally sourced reclaimed and recycled materials. The materials have been incorporated into modern designs that achieve good thermal performance in the temperate climate of the Blue Mountains. The OLD has re-used a range of materials extracted from construction and demolition waste and has used reclaimed timbers from a variety of sources.

Use of recycled and re-used material

When the first two buildings of the OLD were built, re-use and recycling rates of 80 per cent were achieved. By buildings five and six, 95 per cent of all materials (by cost) were recycled building materials. The materials re-used include:

- over 12 lineal kilometres of timber:
 - framing timbers from a local recycler's yard
 - lining and weather boards
 - floorboards
 - railway bridge timbers
 - decking boards from old woolsheds
- corrugated iron sheets from roofing used for cladding
- sinks and toilets
- windows and doors
- light fittings
- 40 tonnes of bricks from the old Katoomba Ice Works
- carpet used as additional insulation under floor.



Drivers and benefits

Drivers:

Local council regulations, such as waste management plans or local government guidelines, were not the main driver for re-use. Rather the goal was to create interesting buildings with character that would attract people and create a place with unique character. Michael Hennessey describes his principal driver as 'Mother Nature and my daughter'. The key driver could be said to be a philosophical commitment to ecological sustainability.

Benefits:

The benefits of reusing materials for OLD relate to the accommodation that is provided. The buildings are unique due to the materials that have been incorporated. Michael Hennessey states that the character of the OLD has been achieved by the assortment of materials bringing with them character from a previous life, and that the OLD buildings benefit from 'the ghosts' of their previous lives.

Problems and challenges

Re-using and recycling at the OLD has been a difficult but rewarding task. The Hennessey's built this way knowing that it would take more effort. The cost of labour to recycle many of the products was equal or more than the cost of using virgin materials or new products. Michael Hennessey estimates that the additional cost of building with recycled materials is between 50–100 per cent.

There are some excellent opportunities to create unique buildings with great character from reclaimed and recycled materials if the problems of quantity and continuity of supply can be dealt with. Achieving the specified design of a house using reclaimed timbers for flooring, weatherboards, framing and other applications where a fixed quantity of consistent material is required can be challenging when relying on a supply of reclaimed product.

Using reclaimed materials can be more difficult from a tradesman's point of view. There is often an extra dimension to using reclaimed materials, where the tradesman needs to adapt materials or products to fit the purpose. This can take time and requires knowledge and experience. As demonstrated by the OLD's recycling rates rising from 80 per cent to 95 per cent, experience and knowledge allows greater opportunity for incorporating reclaimed materials into buildings.

Solutions

Increased supply—if the supply of reclaimed materials from demolition could be increased, the continuity of supply would improve and the opportunity for incorporating materials into designs would be greater.

Increased knowledge—as tradesmen gain experience working with reclaimed materials, knowledge in the industry increases, new methods of construction can be tried and tested, and time savings can be achieved. There is a shortage of tradespeople who are able to work with the inconsistencies of reclaimed and recycled materials; training is required.

Opportunities for other projects

Reclaiming and re-using materials in the way that the OLD has, provides the opportunity to create unique buildings that benefit from the style that reclaimed and re-used building materials offer.

The OLD demonstrates how valuable hardwood timbers can be reclaimed and how their life cycle can be extended in new applications.

Contacts and links

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Consultation

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