

## Fairfield City Council: a sustainable community building

### Introduction

The Nalawala Hall, Fairfield City Council's Sustainability Hub, is Australia's largest straw bale community building and was designed with environmental sustainability as its core value. The hall and small seed shed containing an Indigenous plant nursery were constructed bale-by-bale by local residents and other volunteers from Sydney. The main body of the hall was built from straw bales and rendered with mud. The building uses recycled materials for doors, frames and fittings. Paints and finishes are also environmentally friendly. Nalawala Hall incorporates the world's first concrete load-bearing foundation slab which is 95 per cent recycled. The recycled concrete used for the Nalawala Hall and seed shed has been produced by the council's own in-house construction material recycling operation in partnership with local concrete supply company Metromix. The hall has been in use since 2008 and the concrete slab is performing well.

### Use of recycled and re-used material

The Nalawala Hall ('nalawala' is an Indigenous word for 'sit down') exemplifies the re-use of recycled concrete among other construction and demolition waste re-use.

Recycled materials used in the project include:

- a 95 per cent recycled concrete load-bearing foundation slab, never before implemented anywhere in the world
- recycled window frames and doors
- Five tonnes of waste straw for the straw bale construction
- 800 milk bottles of plastic waste re-used as toilet partitions.



### Drivers and benefits

Drivers:

The main driver for re-use was for Fairfield City Council to deliver on its commitment to sustainability and its work on Local Agenda 21 and Cities for Climate Protection. Fairfield City Council aimed to deliver a community building that would inspire the community to make more environmentally sustainable choices in their day-to-day routines.

Benefits:

The environmental benefits of the Nalawala Hall straw bale construction include:

- converting waste straw into a valuable building resource
- avoiding greenhouse gas generation, as straw is often burned
- 10 times the insulation factor of double-brick cavity wall
- an increase in the efficiency of solar-passive design
- walls that are estimated to be 30 times less energy intensive than wood frame walls.

The benefits associated with local government leadership include a demonstration to the community and other local councils on what can be done with recycled and re-used construction materials, and how it will promote further initiatives across community, industry and other local government areas.

### Problems, challenges and solutions

Pioneering the use of recycled concrete presented challenges. Since the mid-1990s the construction industry was aware that concrete foundation slabs may provide the widest and most economical field of application for recycled concrete. In a 1999 CSIRO report for the building industry, a recommendation noted that a 30 per cent recycled concrete replacement of virgin aggregates might be trialled for domestic slab construction. Fairfield City Council reported that 'the psychological barrier of 'who's first' presented a challenge for greater recycled concrete mixes being used in slab construction. However in the Nalawala project an environmental decision was made to specify a 95 per cent recycled concrete content in the foundation slab, and a calculated level of risk accepted.'

The use of recycled concrete at such a high level has the capacity to give architects, builders, building inspectors and various stakeholders within the construction industry the confidence to move ahead with high recycled concrete content for foundation slab specification, knowing that benefits have been proven.

**Contacts and links**

Fairfield City Council Sustainable Resource Centre

<http://www.fairfieldcity.nsw.gov.au/default.asp?iSubCatID=288&iNavCatID=67>

CSIRO report: *Demonstration Project, Construction of Building and Recreational Facilities with Recycled Concrete*

[http://www.ecorecycle.vic.gov.au/resources/documents/Field\\_Demonstration\\_Project\\_Const\\_of\\_building\\_and\\_recreation.pdf](http://www.ecorecycle.vic.gov.au/resources/documents/Field_Demonstration_Project_Const_of_building_and_recreation.pdf)

United Nations Local Agenda 21

[http://www.un.org/esa/dsd/agenda21/res\\_agenda21\\_00.shtml](http://www.un.org/esa/dsd/agenda21/res_agenda21_00.shtml)

**Consultation**

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