

# YIMFY: A Centre for Appropriate Building Technology in New Zealand


Min Hall and Graeme North

Build a Better New Zealand Conference, Auckland, 2014

Photo: G.North

WISE Building, CAT Wales

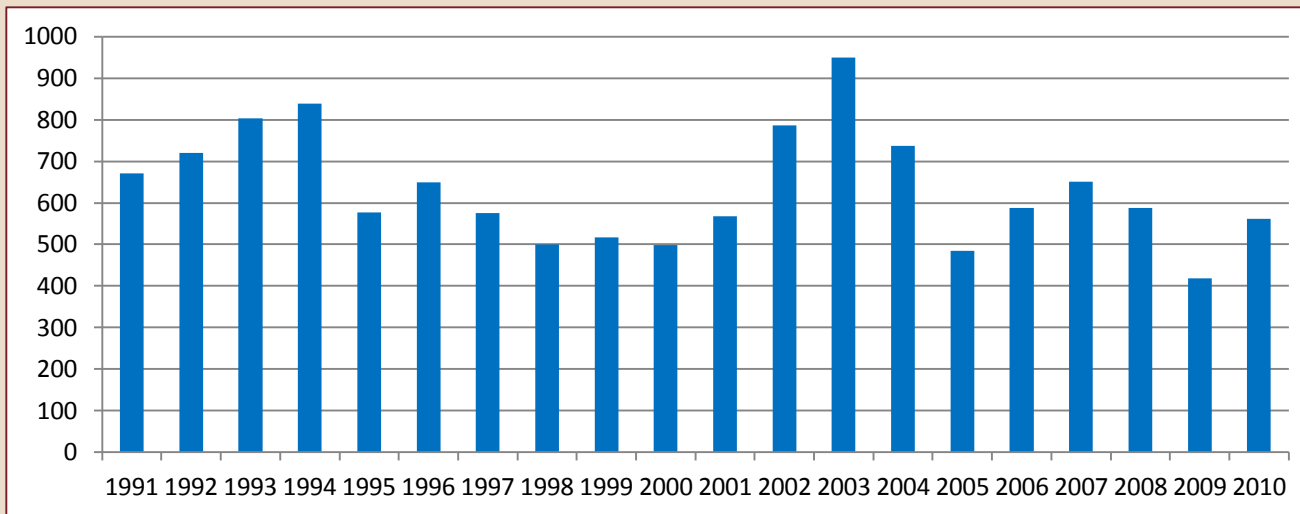




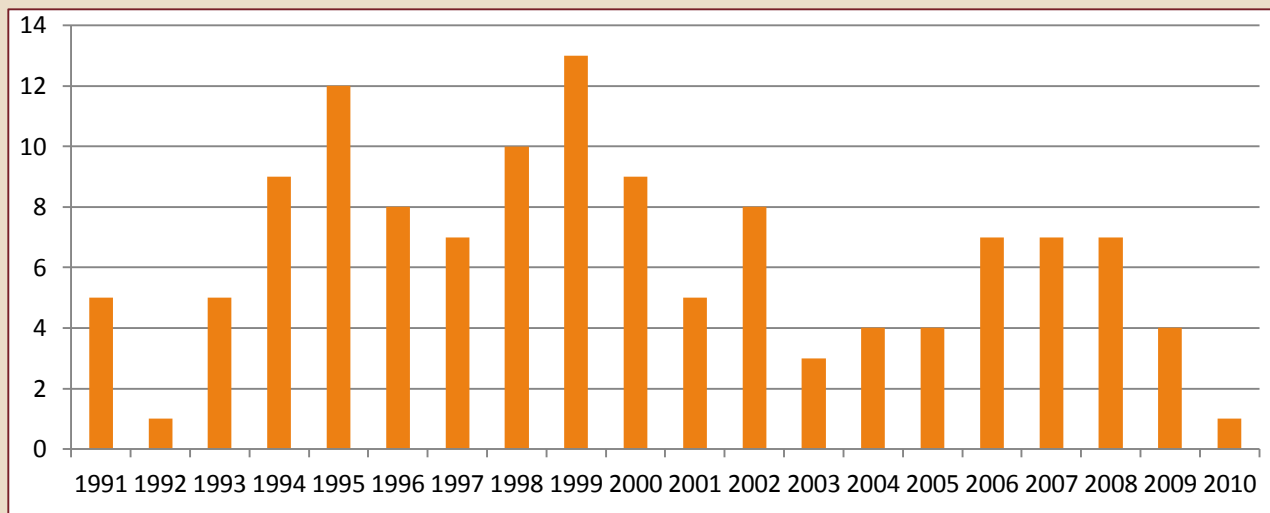
**Appropriate Technology** means technology that is suited to time, place, culture and environment, using local materials to do useful work in ways that do the least possible harm.

**Appropriate Building Technology** includes *Natural Building* or *Alternative Building* and refers to materials and systems that are:

- minimally processed
- readily available
- renewable
- recyclable
- or recycled



Building Consents for All Dwellings Nelson/ Tasman 1991-2010



Building Consents for Earth/Straw Bale Dwellings Nelson/Tasman 1991-2010



# Exploratory and experimental building is difficult to carry out in New Zealand

- Resource Management Act - TAs can establish a zone for experimental or demonstration buildings
- Building Act – TAs can grant a building consent subject to a waiver or modification to NZBC



FEB Experimental Field  
Kassel University, Germany



Mussel Shell and Green Roof  
Friland, Denmark



## Earth Building Association of New Zealand

*...promoting the art and science of earth and natural building*

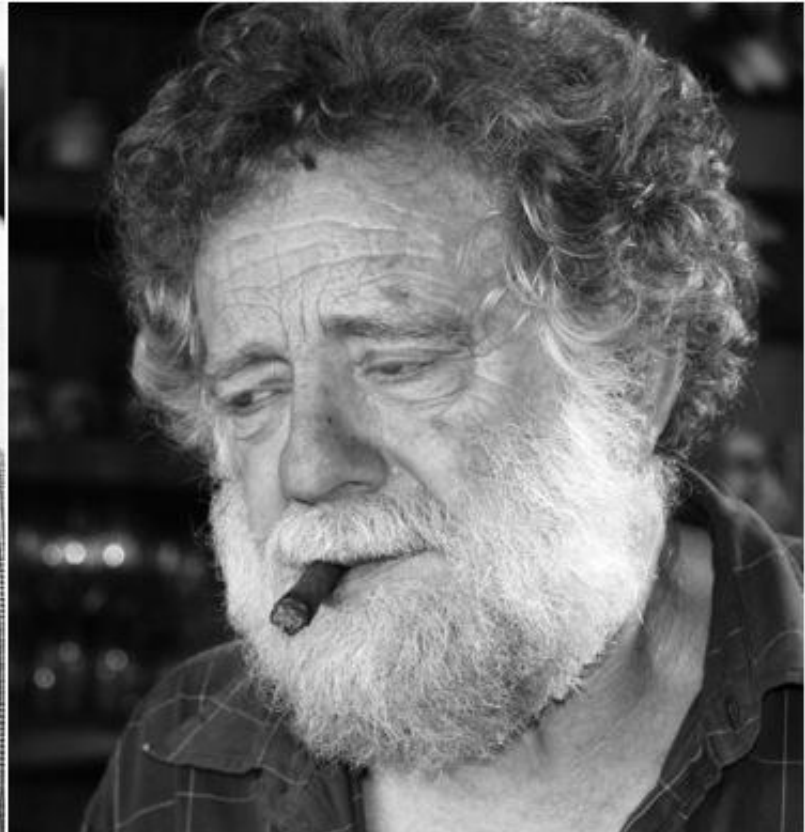
[www.earthbuilding.org.nz](http://www.earthbuilding.org.nz)

PO Box 1452, Whangarei



Unitec Students at Bio Build Earth Building Workshop 2013





## **A Centre for Appropriate Building Technology in New Zealand**

2010 Winston Churchill Fellowship – Study trip to Europe

2011 “Appropriate Building Technology, YIMBY – Yes In My Back Yard”

WCMF Report 10 [www.communitymatters.govt.nz](http://www.communitymatters.govt.nz)



# YIMFY – Yes! In My Front Yard



A shared pond, orchard and native bush area create a tranquil and safe atmosphere



Each house has its own title including private garden



Mobility friendly paths and houses



The Common House / Earthsong Centre provides facilities for both seminars and residents



No toxic chemicals are used on the property for house construction, food production, or weed control



Organic fruit and vegetables are grown and supplemented by co-operative buying



Houses are clustered around common gardens, walkways and play areas



Rainwater is used for bathrooms, toilets and gardens



Solar water-heating and passive solar design significantly reduce living costs



A stormwater system utilises swales and ponds to minimise run-off



Earthsong Eco-Neighbourhood  
Ranui, West Auckland  
[www.earthsong.org.nz](http://www.earthsong.org.nz)



# From YIMFY Vision Document

*“Our vision is to develop a centre that supports and promotes the use of environmentally restorative building materials and systems.*

*The YIMFY Centre will have two main areas of focus:*

- *a centre for coordination of research, advice, and advocacy;*
- *a destination site, built using successful natural building methods employing appropriate technology, for demonstration, display, and education of groups and individuals.”*



## International examples

- CAT in Wales, UK
- Eden Project in Cornwall, UK
- FEB at University of Kassel, Germany
- BRE CICM at University of Bath, UK
- Genesis Centre in Somerset, UK
- Craterre, Grenoble, France
- Friland, Denmark

## Web based organisations

- DCAT Tucson Arizona, USA
- EB Network, California, USA





## Key factors to consider

- A living/working site
- An educational site
- A demonstration site
- An experimental site
- A mixed site



# CAT Centre for Alternative Technology Wales



[www.cat.org.uk](http://www.cat.org.uk)





WISE  
(under construction)  
(wrthi'n cael ei adeiladu)

Control Room  
Ystafell Rheoli

Restaurant  
Bwyty

Wind Turbine Viewpoint  
Safbwynt Tyrbin Gwynt

Playground  
Maes Chwarae

Gardens  
Gerddi

Mole Hole  
Twll Twrch

Transport  
Trafnidiaeth

Gardens  
Gerddi

Energy and Power  
Ynni a Pŵer

Straw Bale Theatre  
Theatr Bêls Gwellt

The Whole Home  
Y Cartref Cyfan

Self Build  
Hunan Adeiladu

Introductory Video  
Fideo Rhagarweiniol

Shop & Information  
Sioep a Gwybodaeth

Upper Station  
Gorsaf Uchaf

Footpath Entrance  
Mynedfa Ar Droed

Reception  
Derbyntfa



Centre for Alternative Technology  
Canolfan y Dechnoleg Amgen





CAT Wales





CAT Wales



# EDEN PROJECT    CORNWALL, UNITED KINGDOM















FEB Experimental Building Field  
University of Kassel, Germany



University of Bath  
BRE Centre for Innovative Construction Materials  
Department of Architecture and Civil Engineering



[www.bath.ac.uk/ace/research/cicm](http://www.bath.ac.uk/ace/research/cicm)



# Durability: BaleHaus 'strawtopsy'



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# Genesis Centre, Somerset College UK



[www.genesisproject.com](http://www.genesisproject.com)





## welcome to genesis

The primary aims of the Genesis Project are to explore, evaluate and evaluate cutting edge thinking in sustainable construction and to provide a wide range of resources and learning opportunities for school children, college students, the public and those professionally engaged in the commissioning and construction of buildings and infrastructure.

Designed by Architects, Genesis comprises a main central glass structure partially surrounded by a series of pavilions. Each pavilion demonstrates a different approach to sustainable construction.

"We believe we have something here."

"It's for the region for it's of national significance."

The extremely striking position of each pavilion is fully exposed and we drive right, along the main road, allowing visitors to see their future stripped away to reveal and demonstrate the opportunity.

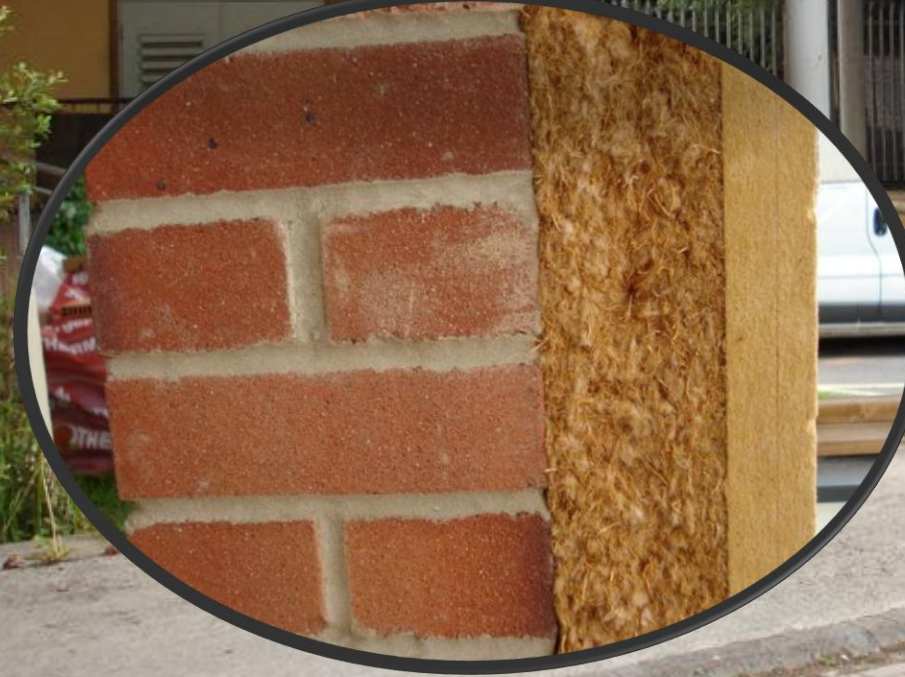
Each of the pavilions will be monitored, with regular updates, to measure environmental performance.

"Genesis will serve the Western region and indeed the whole country as an educational resource centre for sustainable building technologies, both modern and traditional."

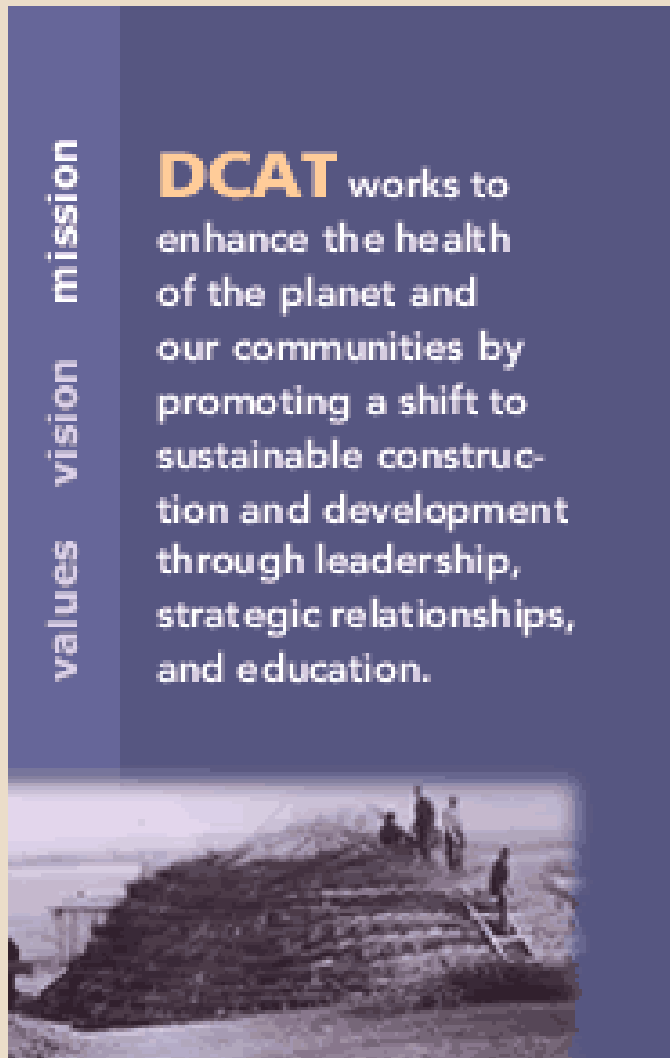
"Genesis will be an important centre of education development in the UK and help make the South region for sustainable construction."

LOCATION: PLYMOUTH, Close to St. George's









Development Centre for  
Appropriate Technology  
[www.dcat.net](http://www.dcat.net)

**EBNet**  
Ecological Building Network  
*the art and science of building well*

*“an open, collaborative group of builders, scientists, architects and engineers sharing the best knowledge we can find for everyone's benefit. Here you will find practical technical guidance for designing and constructing better buildings, wherever you are.”*



Ecological Building Network  
[www.ecobuildnetwork.org](http://www.ecobuildnetwork.org)



# Learning from International Examples

## Demonstration Sites

- Standard of presentation is critical
- Set up for short-term visitors

## Educational and Experimental Sites

- External (invisible) relationships important
- Some control of on-site activity can be lost

- Local Spin-offs
- Adjacent/satellite areas - innovate, research and experiment
- Integration of Permaculture gardens
- Repository of essential knowledge
- **A web-based knowledge and information base is vital to the success of any 21<sup>st</sup> Century Appropriate Technology Centre**



# Yimfy Centre

- Vision and Visionary Team
- Suitable Site
- Inspirational Design
- Sound Business Plan
- Good management
- Good publicity
- Adherence to regulations
- Elements of work/live
- Integration with permaculture gardens
- Areas for research, experimentation, demonstration, and education

Unitec Studio Project: Kai Zhao

Site Plan 1:500



# Yimfy: Areas of Work

- Design and build a display centre
- Host talks, workshops, demonstrations and hands-on training
- Link, coordinate and generate research in appropriate building methods throughout New Zealand
- Make that information available
- Support the development of affordable, effective and culturally appropriate methods to improve existing buildings.
- Provide expertise to support both owner-builders and construction professionals.
- Work to get appropriate systems accepted for NZ Building Code compliance.
- Coordinate and cooperate with overseas centres doing similar work.

*Yes In My Front Yard*

*Education through demonstration*



## Brief

- Yimfy Admin
- Exhibition space
- Lecture theatre
- Library
- Demonstration
- Retail
- Offices
- Café
- Permaculture Gardens

Library

Supermarket

Medical Centre

459 Swanson Rd, Ranui, Auckland 0612, New Zealand

Google earth

Imagery Date: 3/28/2009 36°51'47.66" S - 174°36'02.27" E elev 23 m eye alt 443 m



# Materials

Jessica Dippie

## YIMFY Technology Centre



### Straw Bale

Straw Bale walls are used within the YIMFY Reception building and the theatre. This material was used due to its ability to absorb and control sound which is excellent in a theatre and learning environment.

Closest location straw can be found to site is Pukekohe.

The material has a good R value and provides insulation within the walls. The interior walls of the design are to be treated with a earth plaster and the exterior will be clad in naturally treated timber which has a cavity to ensure moisture does not enter and affect the Straw Bales.



### Rammed Earth

Rammed Earth walls make up the wall structure of the Office/Retail space of my design. This was not only chosen for its good thermal mass abilities but also for its captivating beauty. The walls can tell a story of the construction of the building blended with the flexibility of the speed at which the centre can be constructed at the walls throughout the design will all be uniquely individual.

Earth for walls will be located as close as Muriwai.

The exterior and interior of the walls will remain exposed however the exterior will be treated and sufficient overhang is provided to give protection for the walls ensuring a long life of the building.



### Concrete

Although this material is not the most sustainable material and it cannot be recycled it is needed within the design to provide structural support for the building and to provide flooring and sufficient protection for the natural walls from the ground conditions. Concrete is also a good thermal mass storing the sun's heat and releasing it slowly throughout the day and night.

The only place concrete originates from in New Zealand is Whangarei.



### Timber

Natural untreated timber is used throughout the design from the cladding to columns to framing. The timber used in the design is Macounara would link into the design aspect of Earthroving and like Earthroving the timber is to be treated with tung oil, a natural oil with minimal effects on the environment that provides protection to the timber from rot yet still allows the timber to be recyclable.

The Timber would be sourced from Taranaki.



Unitec Studio Project: James Ure





Unitec Studio Project: Natasha Renowden



Unitec Studio Project: James Ure



# The YIMFY Trust – what next?

- Establish a Business Plan
- Seek funding for various activities
- Establish a co-ordinating office
- Set up website and data bases
- Seek partnerships and relationships with allied organisations and individuals, local and international
- Present at relevant conferences – BBNZ, EBANZ , AUSBAL, and the upcoming International Straw Building Conference (ISBC) in Methven in 2016
- Design, build and run a YIMFY Centre



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