

5x

Hayes  
Lane  
Project

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***Industry Fact Sheet***

The '5x4 Hayes Lane Project' will be a unique inner city dwelling set on an unusually small footprint designed, built + powered with passive and active eco-driven processes, materials and performance considerations.

The Project will demonstrate and encourage debate around sustainable living, a healthy form of densification in the city of Melbourne and how to achieve it through best practice design and living. It will be using the One Planet Living® principles as its guide for the physical design of the project, adaptation around behaviour to reduce ecological footprints in a city and act as a platform to disseminate progress and learnings from the process.

### ***Context of Build***

#### Location

- 21 Hayes Lane, East Melbourne in Victoria
- Located 800m from the CBD
- East Melbourne was the state's first suburb – postcode 3002 (3001 is a Post Box) settled in the 1840's
- Hayes Lane is a 100 year old laneway
- It is an established Heritage overlay area – home to some of Melbourne's earliest houses comprising of notable terraces and remnant mansions with limited new builds
- Possibly East Melbourne's first fully integrated eco-driven build
- Melbourne City Council planning department has already expressed encouragement and support for the build

#### The Site

- Approx. 5m x 4m site which is currently occupied by a lean-to storage shed
- End of a laneway with limited access
- Capacity to go to 3 levels with a rooftop garden – city views
- North, East and West orientation

#### Community

- Across the road from a public park
- On public transport route – train, tram and bus access all within 500m
- Access to all CBD services and amenities
- Close to major sporting venues

### ***The Build***

Some interesting facts:

- Buildings consume 40% of the world's total energy and 16% of water consumption
- 70% of materials produced on this planet go into construction
- 22% of Australia's carbon dioxide comes from the house

The objective of the *5x4 Hayes Lane* build is to combine different materials and processes to create the smallest eco-footprint, whilst providing the highest performance.

Consideration will be given to the total environmental impact of the build from extraction, processing and manufacturing to transport, operational lifespan to end-use. Careful selection of sustainable materials, and waste minimization will be very important.

An assessment of the embodied energy of each of the proposed products and materials, will determine which are incorporated into the build.

### ***The Project Team***

#### ***Architect & Builder – ARKit***

Melbourne based, Craig Chatman has been appointed as the Architect & Builder on this project. As a registered architect (Australia and New Zealand), Craig has been running his own practice cc-ark with over ten years of experience in both Australia and the Netherlands. He brings a wealth of experience as principal of ARKit in the design and manufacturing of pre-fabricated and bespoke dwellings, which extends the environmental commitment to the entire building system.

#### **Also from the ARKit team:**

- Millie Cattlin – *Design and Interiors*
- Tristan Burfield – *Design and Documentation*

<http://www.arkit.com.au>

#### ***Client & Project Manager – Barley Store***

Ralph Alphonso is acting as both client and project manager of this project. His motivation to build a sustainable house with the smallest carbon footprint had him draw on his experiences through Barley Store to communicate and bring together specialists to develop the *5x4 Hayes Lane Project*.

At Barley Store, the approach is to identify creative projects and challenge existing responses. Through strategic thinking, innovative solutions and expression, projects are brought to life via unique and engaging platforms.

<http://www.barleystore.com>

### ***The Project Team***

#### ***Embodied Energy – University of Melbourne, Faculty of Architecture, Building and Planning***

Dr Robert Crawford will be measuring the Project's embodied energy. He has extensive expertise in the built environment, sustainability, life cycle assessment and renewable energy. His research focuses on building environmental assessment, with a particular emphasis on sustainable resource use, the environmentally appropriate selection of materials and sustainable building design and feasibility.

Robert is a Lecturer at the University of Melbourne in the Faculty of Architecture, Building and Planning, teaching in the areas of life cycle assessment, supply chain management and prefabrication in construction. He is also a member of the Executive Committee of the Melbourne Energy Institute.

<http://www.abp.unimelb.edu.au>

#### ***Environment & Design – GHD***

*Building Physics, Ecological Accountancy & Building Systems Design*

GHD is one of the world's leading engineering, architecture and environmental consulting companies. Wholly-owned by its people, GHD is dedicated to understanding and helping clients achieve their goals in the global markets of water, energy and resources, environment, property and buildings, and transportation. Their networks of 6500 professionals collaborate to improve the built, economic and social environment of the communities where GHD operates.

#### **The GHD Team**

- Tai Hollingsbee – *Principal Engineer, Design, Innovation and Sustainable Buildings*
- Chris King – *Engineer*

<http://www.ghd.com>

### ***The Project Team***

#### ***One Planet Living***

One Planet Living® is an initiative based on 10 guiding principles of sustainability developed by BioRegional and WWF. The framework aims to make sustainable living easy and affordable for all. It is free to use and helps people and organisations around the world live and work within a fair share of our planet's resources.

The One Planet Living framework will be implemented within the *5x4 Hayes Lane Project* to inform the Project's sustainability programme.

Director of BioRegional Australia, Ed Cotter, will be representing the organisation for the Project.

<http://www.oneplanetliving.net>

#### ***Structural Engineer – Felicetti***

The practice of Felicetti Pty Ltd was founded in 1990, with a specific aim to provide structural engineering responses to architectural projects.

Since its inception, the practice has developed a reputation for its enthusiastic and innovative approach to structural engineering.

The founder of the practice, Peter Felicetti, who has over 20 years experience in the industry, has qualifications both in structural engineering and architecture. Prior to initiating the practice he played a senior engineering role in the design of a number of Melbourne's significant projects such as the 53 storey Melbourne Central, the 48 storey Telecom tower and Mona in Tasmania.

<http://www.felicetti.com.au>

Support from Organizations

***Australian Conservation Foundation (ACF)***

The Australian Conservation Foundation (ACF) stands for ecological sustainability. ACF is committed to protecting, restoring and sustaining the environment.

<http://www.acfonline.org.au>

***Beyond Zero Emissions***

A not-for-profit research and education organisation developing blueprints for the implementation of climate change solutions. Their goal is to transform Australia from a 19th century fossil fuel based economy to a 21st century renewable powered clean tech economy.

<http://www.beyondzeroemissions.org>

***City of Melbourne***

The City of Melbourne has a vision for a bold, inspirational, sustainable city and is committed to supporting residents, business and visitors to create this vision. Council will ensure that Melbourne is a well-planned municipality as our populations grows, and we lead by example locally, nationally and internationally. The *5x4 Hayes Lane Project* provides a leading example of what can be achieved when creative minds consider a different approach to the way we can live.

<http://www.melbourne.vic.gov.au>

***Open House Melbourne***

For one weekend every year, Open House Melbourne unlocks just over 100 of the city's significant buildings to explore.

<http://www.openhousemelbourne.org/>

### ***Realising the Vision***

The project will showcase intelligent and responsive architecture combined with advanced engineering techniques. This combination will ensure the *5x4 Hayes Lane Project* is at the forefront of sustainability in the residential context.

Some of the design strategies that will achieve this desired level of performance are as follows:

#### Water

- Water efficient appliances and systems
- Rain water storage tanks
- Storm water capture/retention systems
- Grey water recycling systems
- Low water use toilets

#### Energy

- Geo thermal heating cooling and hot water systems
- Passive solar energy with limited use of electricity
- 5 star appliances
- Renewable energy sources have been considered
- Phase change materials (PCM) embedded in building
- Onsite renewable energy generation

#### Air

- Low emission materials & finishes
- Natural or polyester insulation
- Well sealed, air tight construction
- Energy Recovery Ventilation for Whole House

### *Realising the Vision*

#### Materials

- Low environmental impact and/or embodied energy
- Use of recycled materials or materials with recycled content
- Local materials and suppliers
- Building materials and appliances are durable and low-maintenance
- Materials have been included that moderate indoor temperatures
- Materials are designed efficiently to minimize waste, and are designed for recycling, re-use and/or disassembly

#### Passive Design

- Building orientation
- Shading devices incorporated
- Solar reflective roofs and walls
- Window position, size and orientation
- Double/triple glazing considered
- Maximum insulation for roof, walls and floor
- Natural Cross ventilation and airflow
- Light colour exterior surfaces for rapid cooling of the dwelling
- Provision for electric/regular use of bicycle for commuting
- Behaviour adaptation strategy for reducing ecological impacts of living
- High performance building fabric to intelligently minimise gains and losses
- Optimised thermal zoning

#### Landscaping

- Low water use and no-dig roof-top garden
- Edible and native plant selection

### ***Partner Leverage***

The *5x4 Hayes Lane Project* is a unique opportunity to positively showcase, profile and promote your brand, products & services. The various areas outlined below will ensure considerable exposure in return for your support:

### ***Dedicated Digital Platform***

A dedicated website for the project will be live from the commencement of the build. The website will document all aspects of the project from design considerations, building materials and processes. The website will serve as a platform for commercial integration for project partners via. product directories, product/service installation video footage, fact sheets, links, logo presence and content.

<http://www.fivexfour.com/>

Social media will run alongside the dedicated website documenting the daily journey.

### ***Project Case Study***

The entire process from design, planning and construction will be documented in a case study which will serve as a resource for industry bodies, suppliers and others looking to undertake a similar build. All products/services provided by project partners will be profiled in this case study.

***Partner Leverage/2***

***Media Partner***

We are currently in discussions with the ABC, Fremantle Media (Grand Designs) and XYZ Productions (Lifestyle Channel) to bring the project to life via television broadcast within an existing programme or via a documentary style production. We see this medium as a strategic & high-profile platform for commercial integration. This will extend to associated digital platforms.

***Editorial***

We anticipate a high level of interest from design, trade, industry and consumer print publications, digital and broadcast mediums. The project has broad appeal to extend across a range of media platforms and audience/reader profiles.

***Image Library***

The build journey will be documented through stills photography and video footage. Project partners will enjoy royalty free access to the images for editorial usage and access to images for advertising (\$ to be established).

***On-site Directory Board***

A temporary directory board will be erected on-site for the duration of the build featuring principal partner logos, converted to a permanent plaque installed upon completion

***Partner Leverage/3***

***Open House***

Upon completion, the *5x4 Hayes Lane* build will be available for corporate showcase events, hospitality and industry seminars (duration, associated fee and requirements to be discussed).

***Industry & Consumer Events***

We propose that the *5x4 Hayes Lane* build be included in programs such as Open House Melbourne, architecture walks and State of Design site-specific events/talks/tours.

***Exposure of the project already receiver;***

The One Planet Living Organization presented the *5x4 Hayes Lane Project* to the United Nations Earth Summit in Rio June 2012, as one of the first of it's kind in Australia.

<http://www.fivexfour.com/wp-content/uploads/2013/03/One-Planet-Living-@Rio+20-Earth-Summit2.pdf>

Tai Hollingsbee, Principal Engineer at GHD, was interviewed by Architecture & Design Magazine.

<http://www.architectureanddesign.com.au/comment/in-profile-tai-hollingsbee-from-ghd>

Australian Geographic has agreed to feature the Project in their upcoming article, *6 Global Megatrends*. The article will be featured in their November/December 2013 issue and is to be written by Fiona McDonald.

We look forward to working with you to identify opportunities to further leverage the value of your commitment and exposure for your company!

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Store  
Production

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***Contacts***

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