

INSIDE ISSUE <a>
 110+ green products & design tips; Greener building blocks; Kevin McCloud;
 Phase change materials; Design Workshop: free advice on your home plans



# Design Word with Kevin McCloud

E 21 + AUD\$11.95 + NZ\$10.95 CTUARYMAGAZINE.ORG.AU SSN 1833-1416



WIN A washing machine from V-Zug

\*Australian residents only. Entries close 30 Nov 2012.

# Resilient rebuild

A committed team rebuilds a weekender destroyed in the 2009 Victorian bushfires. The result is an energy efficient home away from home with a small footprint, increased fire resistance and strong connections to the bush.

WORDS Beth Askham PHOTOGRAPHY Brendan Finn

> G Silvertop ash cladding will change in colour over time, helping the house soften and blend into its surroundings.



### SOMETIMES YOU GET A SECOND CHANCE - AND EVEN

when you haven't chosen it, all you can do is step up and make the most of the opportunity. Jonathan and Jane's new weekender in Marysville, Victoria, is part of a bold reimagining of the area and a commitment to be part of the new town. The result is an unobtrusive building that appears effortless and uses simple measures to connect the building and its inhabitants to its environment.

Snuggled next to the state forest and shaded in the winter by tall mountain ash, the block is on the northeast ridge of Marysville where it looks down above the town. Jonathan and Jane spend their weekends here with friends and family, enjoying the bush.

The destructive force of the Black Saturday fire was shocking and sobering. "[The original double-brick house] was destroyed along with the extensive mature garden," says one of the project's architects, Damien Thackray. "Timber balconies were reduced to a feint ash outline on the ground. Glazing had melted and congealed into eerily beautiful pools and teardrops. Double brick cavity walls had failed, the inner and outer leafs peeling away from one another. Tin roofing sheet had been blasted into the sky, twisted and warped and planted in the ground as mimetic sculpture."

It was not long after the fires that Jonathan and Jane made the decision to rebuild their weekend home. They felt it was important to stick by the community that was struggling to rebuild itself. New bushfire building regulations, however, meant this project was going to be more difficult than they expected. The challenge soon became how to meet the new regulations without the rebuild looking like a bunker, a building hunched up in defence against the natural environment.

What Jonathan and Jane wanted from their new house was a space that merged the inside and outside, embracing the full nature of the forest and the views of Marysville to the west and the Yarra Ranges to the south. They wanted the house to embody living in the bush in a resilient, durable and meaningful way. "We also wanted something that could be used year round – winters are cold and summers can be hot in Marysville. So the use of light and insulation were important," says Jane. The task of matching these desires to new bushfire regulations came down to a collaborative effort between them, the building design team and the builder.

Initially, a large double-storey house was on the

cards, but after an assessment of the cost and a realistic appraisal of how much space was actually required, the plans were downsized to a studio-style dwelling. One communal room, including a kitchen and bathroom, now sits underneath a sleeping-platform mezzanine. A separate laundry and storage area are incorporated externally to the house.

Meeting Bushfire Attack Level (BAL) 29 standards added approximately 12 per cent to the total cost of the house, says Damien. He adds that as there were no Forest Stewardship Council (FSC) certified timbers that could satisfy these requirements, they settled for radially sawn silvertop ash for the timber-framed walls due to its fire resistant properties, its durability in the area's climate and the way its colours would blend over time with the environment. As opposed to sawing across the log, radial sawn timber generates a higher yield and lower wastage. The home's doors and windows are all timber-framed and double-glazed.

"All external timbers were required to comply with the requirements of the BAL-29 rating, which has additional benefits in terms of considerably enhancing the expected durability and life cycle of the timber given its increased density," explains project architect Steffen Welsch. "For example, the deck frame timbers are F27, a grade which is rarely used."

The deck is indeed an impressive feature, complete with an outdoor bath. Stretching out to be almost as big as the small house, it extends the living space outside and connects to a series of smaller decks linking the living room, storage spaces and car park. Living areas are oriented to the north, with the bathroom and kitchen to the south, to make the most of solar thermal energy.

Thermal mass is provided by a double block wall sitting on the south and west aspects of the house. To maximise solar gain, the floor-to-glass ratio is four-toone, with most of the windows facing north. Smaller windows face west, south and east for natural light and to allow for cross ventilation. A pergola to the north shades the windows in the summer.

"The house feels lovely to live in – the light works very well, particularly in winter. The double height gives a real sense of space in the living area, while the kitchen is functional and beautiful too, with a view out to the southern hills," reflects Jane.



The weekender for a family of four was originally envisaged as a large double storey residence. However, as planning proceeded, the owners and design team pared back the design to an enlarged studio more suited for short and medium-term holiday accommodation. The house essentially consists of one communal room, bathroom, kitchen and a mezzanine as a sleeping platform.



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The house's floor-area-to-glass ratio is about 4 to 1, with the majority of glass facing north for solar gain and smaller window openings facing west, south and east for natural light and ventilation. Operable windows capture different wind directions, allowing cross ventilation. Ceiling fans also assist with ventilation.

"We love going up to Marysville and sharing the house with friends. It's a beautiful place," says Jane. 1 Aug

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Stores

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The fireplace – the hinge and anchor of the old house and the only remaining structures after the fire - became the seed for the new house,

The replacement Morsoe

says architect Damien.



FLOOR PLAN



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 Double height living space
 Mezzanine sleeping space ③ Bathroom ③ Bathroom
④ Kitchen
④ Laundry
④ Rainwater tank
⑦ Deck
④ Wood store

> G The kitchen and bathroom are tucked in under the mezzanine at the north-west end of the house. Hoop pine lines the ceiling and cabinetry. Recycled red gum was used for the mezzanine ladder and kitchen benchtops.

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# Marysville residence

-Specifications

# Credits

# **Sustainable Features**

# DESIGNER

Damien Thackray & Steffen Welsch Architects www.terminusstudio. com.au steffenwelsch.com.au

### BUILDER

Camson Homes www.camsonhomes.com.au

# **PROJECT TYPE** New build

**PROJECT LOCATION** Marysville, VIC

# SIZE

House 60 sqm; deck 62 sqm; land 5588 sqm

# **STAR RATING**

7.5 stars

# HOT WATER

Quantum 270L heat pump.
 This was chosen as it is not
 dependent on solar access, which
 is severely limited by wet and
 cloudy weather in Marysville from
 autumn through to spring.

# WATER SAVING

- Bluescope slimline Colorbond 5000L rainwater tank
- All taps, shower and cistern plumbed to rainwater tank.

# PASSIVE HEATING & COOLING

- House is sited to maximise northern solar access on a difficult sloping site with a north/north-west orientation. Mountain ash forest on the ridge above screens the house from morning winter sun.
- Operable windows are located to catch prevailing breezes during summer. High operable windows facilitate thermal stack effect through the double height internal space
- Windows are positioned to optimise cross ventilation
- A sunshade can be fixed to deck posts in summer to extend the living space outside, or removed to allow full sun penetration in winter.

The pre-construction energy rating was 7.5 stars. Damien says: "An additional ply skin to all timberframed walls – for structural and additional fire-proofing reasons with obvious thermal benefits – increases the overall R-value of that wall system from R3.7 to around R4 and lifts the overall rating to 8 stars."

# **ACTIVE HEATING & COOLING**

- Morsoe 7648 wood heater from Wignells of Melbourne. Selected for its compact appearance in a small space, its efficiency and relatively low emissions.
- Universal ceiling fan.

# INSULATION

R2.5 double block insulated 50mm cavity walls with Foilboard Super 15mm in cavity achieve total R-value of R2.5

"The block walls, though situated at the rear, still provide considerable thermal mass benefit given the dwelling's compact size," explain architects Damien and Steffen.

- Timber-framed walls: 140mm laminated timber frames with
   120mm bulk glasswool insulation,
   Bradford Enviroseal Wall Wrap (fire rated) and a plywood skin. Timber cladding on battens creates an air cavity to assist with air movement and achieve R4 insulation levels.
- Sub-floor: R1.5 extruded polystyrene rigid insulation
- Roof: R2.1 Anticon 55 Bradford
   60mm roofing blanket with
   reflective foil on underside and
   185mm R3.5 bulk glasswool ceiling
   batts for total R6 insulation value.

# **BUILDING MATERIALS**

- Timber-framed walls clad with a radially sawn silvertop ash skin from Radial Timber Sales
- Solid core 90mm Boral ash grey double block insulated cavity walls to the south and west
- Fully enclosed double block floor
- Galvanised steel entry canopy and bathroom window reveal
- Blackbutt wharfdeck decking boards by Urban Salvage
- Red ironbark deck sunshade posts and external stair posts and handrails
- Lysaght Kliplok 700 Colorbond Nightsky metal deck roof and roof plumbing
- Fibre cement sheet cladding to laundry and storeroom
- Blackbutt Armourpanel flooring from Big River

- Hoop pine ceiling lining and cabinetry
- Recycled red gum used for mezzanine ladder and benchtops.

# WINDOWS & GLAZING

- High windows on east elevation enable winter morning sun to enter the building
- Glazing on west and east elevations is minimised
- Full height glazed corner to the north, including three smaller windows, and the sole west-facing window capture all available winter sunlight
- All doors and windows are timber framed with dense hardwood and double glazed; bathroom window is aluminium framed and double glazed
- 6mm toughened glass forms the outer pane on glazed doors; 5mm toughened glass forms the outer pane on windows to meet BAL-29 rating requirements.

# LIGHTING

- Majority of lights are LED lights from Artemide and Laser Lighting
- Two compact fluorescent pendants.

# PAINTS, FINISHES & FLOOR COVERINGS

 Haymes low VOC paint to internal walls and inside face of window frames.

# OTHER ESD FEATURES

# The house is sited to:

- Maximise northern orientation
- Minimise fire risk
- Respond to the steep topography and liveability challenges of the site
- Enhance physical and spatial connections with the site
- Capture the site's various outlooks, including Marysville down to the west.