

flexible design

Green
LOOK HOME
Design Awards

TEAM
BONUS
AWARD

THE WOW FACTOR

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In this sustainable home, luxury is on offer for all ages, although it comes in just one colour: green.

DESIGNING A DEMONSTRATION HOUSE WITH the potential to be all things to almost as many people could well bring with it the risk of fulfilling the adage 'Jack of all trades, master of none'.

But when Scott Whiteoak from Ellivo Architects was asked to build a high-end, sustainable demonstration home in Noosa to suit residents at any stage of their life, he rose to the challenge. "Many safety elements have been included so that the home is appealing to young families, but we've also ensured it's accessible for elderly or disabled occupants," says Whiteoak.

Whiteoak discreetly embedded the safety and accessibility features into the design, allowing potential buyers to simply enjoy the building's sense of light and luxury. "We wanted a house that would feel like a designer home when you walked in, although it was designed on principles of sustainability for a range of potential audiences," he says.

LIGHT AND SPACE

Natural light and good ventilation were key to conveying the feeling of sustainable luxury that the developer, Stockland, wanted, with

healthy airflow encouraged by the large spaces, particularly in the entry, living areas and master bedroom. "We have some large-volume rooms, so we've created very high ceilings which provide better opportunities for hot air to flow out the top, as well as large windows to allow natural light to flood the space. For 95% of the year, occupants of Sustainability House won't need to turn on any lights between 8.00am and 4.00pm. When they do, there are energy-efficient fluorescent and LED lights installed throughout," says Whiteoak.

While good ventilation is a must, given the South East Queensland location, Whiteoak says it's a feature that should be incorporated into any new building. "Healthy buildings do need natural air going through them. We wanted to create a level of excellence in air freshness that happens naturally, so we've done it through ventilation.

"This design allows air to flow in one side of the building and easily exit on the other. It means that every 100 seconds or so, the old air is replaced with new air. It is an excellent achievement in passive design that will significantly reduce electricity bills, as extensive use of cooling and heating units won't be necessary," Whiteoak says. >



SNAPSHOT

THE BRIEF:

A sustainable demonstration home that would suit luxury buyers at any stage of their lives.

MATERIALS USED:

Scyon™ Stria™ and Matrix™ cladding used with Linea™ weatherboard in the mix of cladding; as well as Scyon™ Secura™ interior flooring.

KEY INNOVATIONS:

- Clever design has ensured this home can be used at all stages of life, including when the occupants have limited mobility.
- Sustainable practices and principles are embedded into a luxury home through careful use of light and space.
- Passive solar design provides a high level of comfort despite the steamy South East Queensland location.
- Numerous safety features such as full-length mirrors and non-slip surfaces ensure high-level of safety for children.

Multiple safety features have been discreetly embedded into this home.

Builders of environmentally friendly houses are also starting to realise that sustainability goes well beyond bricks, mortar and even weather.



Consideration of local microclimates is vital in sustainable builds. In parts of Australia where temperature differences between day and night are extreme, the natural heating and cooling properties of a concrete floor may have been utilised, but in Noosa, little fluctuation between day and night temperatures meant floorboards over bearers and joists were an appropriate choice.

SOCIAL SUSTAINABILITY

Builders of environmentally friendly houses are also realising that sustainability goes well beyond bricks, mortar and weather. By incorporating design features suitable for occupants entering their twilight years, this home is not only environmentally sustainable, but also socially sustainable. "If people can stay in their home as they age, they are able to maintain important connections to their local community," he says.

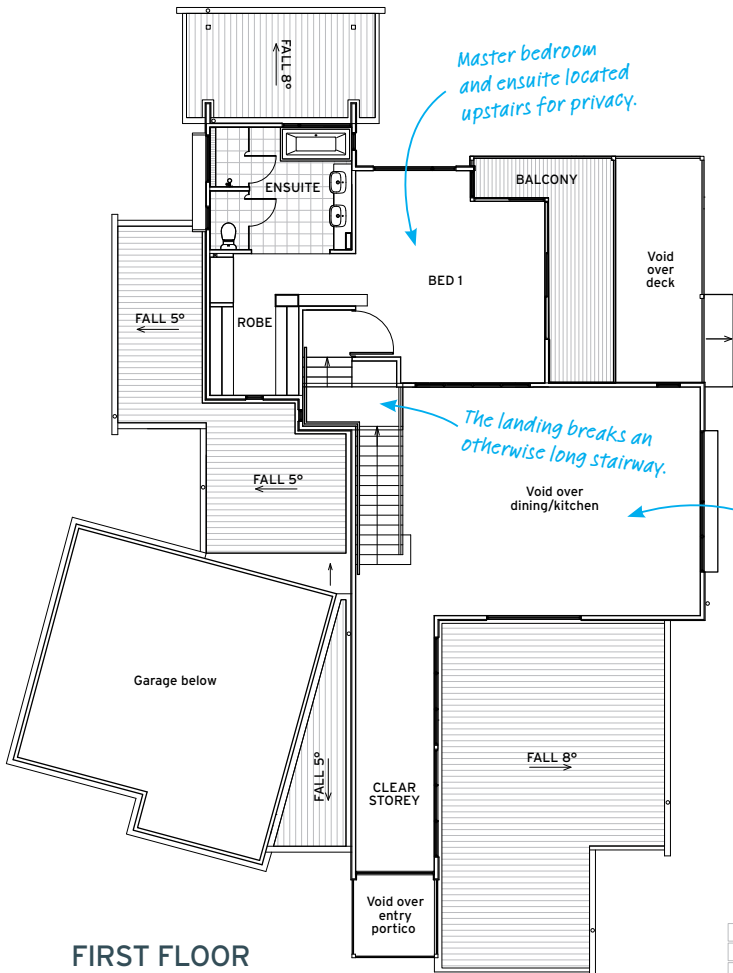
Whiteoak included doors wide enough to allow a wheelchair to pass through; windows in bedrooms incorporate full-height sliding doors or louvre panels with a deep sill to allow outside views from the bed; and showers offer easy access with flat floors, without tricky-to-navigate hobs.

Buyers wishing to look after an elderly relative, or seeking a home for well into retirement, are expected to appreciate the commitment to accessibility; while the average mobile occupant will probably be more focused on space. With three bedrooms (including a master bedroom and ensuite, located upstairs for privacy), as well as a designated study and a multi-function media room that could be a guest room, the house offers plenty of flexibility in how spaces are used.

The developer also aimed to impress families through the home's many child-friendly design elements. "The health of the family living in the home is essential when it comes to sustainability," notes Stockland's regional manager, Sunshine Coast region, Nick Wellwood. "We've included safety features such as non-slip surfaces, pencil-rounded corners on all benches, full-length mirrors so children don't risk falling while climbing for a better view, and shower mixers that are positioned away from the water source to limit the risk of scalding. For safety, we've incorporated a kitchen mixer [tap] with an LED - light-emitting diode - which indicates blue when it's cold and red when it's hot." >

GREEN LIVING

- High ceilings and window placements eliminate the need to turn on lights during daylight hours for 95% of the year.
- Low-VOC emitting paints and glues are used throughout.
- Recycling facilities are built in, with lidded storage bins for compost, recyclables and general waste.
- Energy-efficient fluorescent and LED lights are used.
- Water-saving devices such as two 5,000 litre rainwater tanks were incorporated, well ahead of council requirements.



FIRST FLOOR

MONEY MATTERS

BUDGETED COST FOR BUILD: \$600,000

ACTUAL COST: On budget.

LONG-TERM COST REDUCTIONS:
 Excellent ventilation will save on need for air conditioning; two 5,000 litre water tanks reduce dependence on town water supply and associated bills; five-star WELS rated sink mixers will reduce water flow by up to 40% compared to standard fittings.

Master bedroom and ensuite located upstairs for privacy.

The landing breaks an otherwise long stairway.

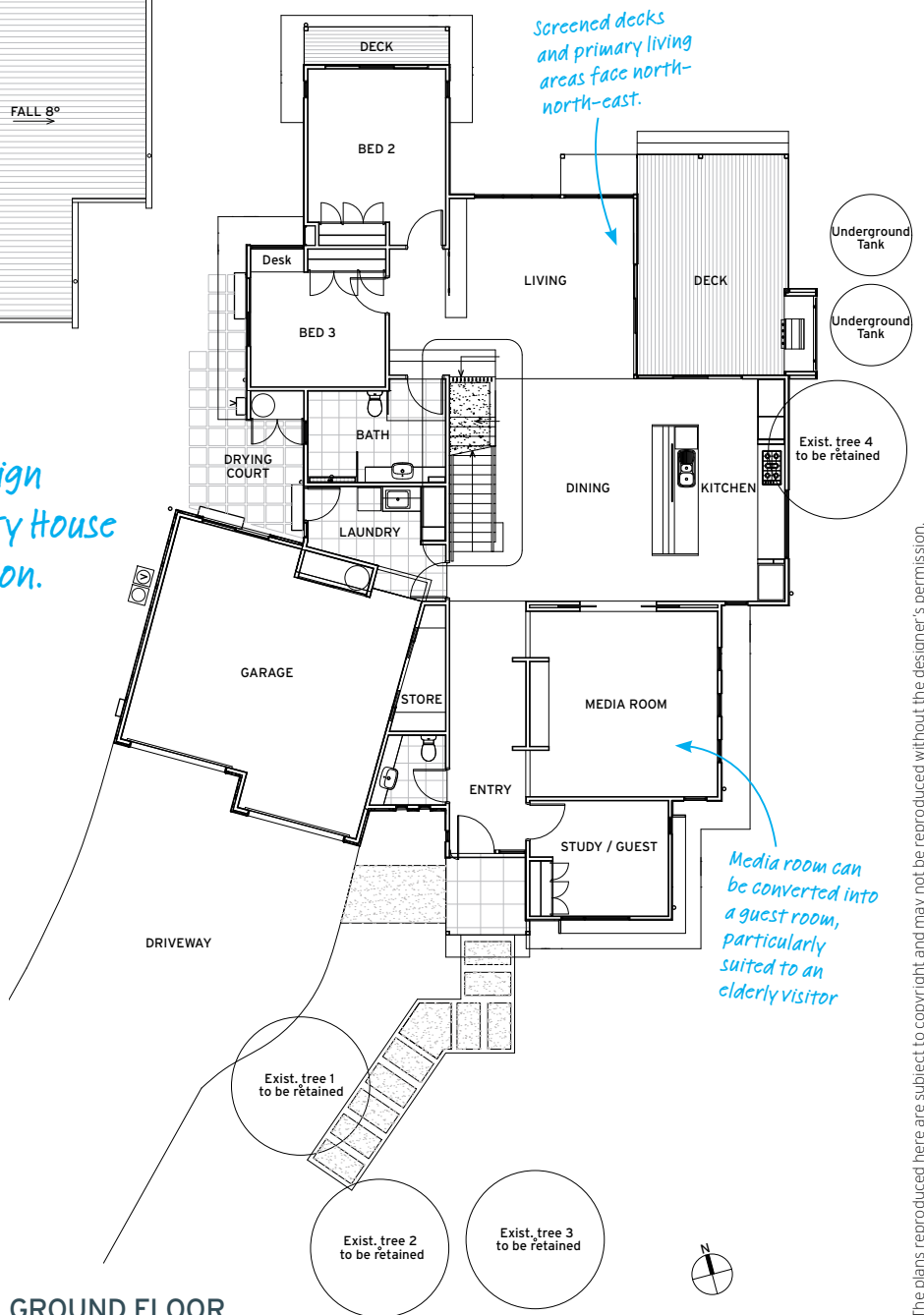
Large volume rooms allow hot air to rise up and out.

Screened decks and primary living areas face north-north-east.

With the bar for green building constantly being raised, the design team had to ensure Sustainability House stayed ahead of future legislation.

TRADE SECRET

According to Scott Whiteoak from Ellivo Architects, you should design your home so all the downstairs living spaces are linked visually from the entry, and orient all rooms to the north (or north-east in South East Queensland). This will make the spaces feel larger and be more usable, thanks to the fact that the sun travels from east to west, but always in a northerly direction.



GROUND FLOOR

Media room can be converted into a guest room, particularly suited to an elderly visitor

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FIND OUT MORE

about this project in
the Safe Design episode
of myLOOKHOMETv at
www.lookhome.com.au/tv.html



The kitchen tap has a light emitting diode which is blue when cold and red when hot.

DID YOU KNOW?

Social sustainability is becoming just as important and environmental sustainability.

This means home designers, architects and builders are realising it's smart to create homes that suit all stages of the occupants' life cycle.

SMART CHOICE OF MATERIALS

In keeping with the commitment to sustainability, lightweight materials were used on the external structure of the four-bedroom home. Scyon™ Stria™ and Matrix™ cladding were amongst the variety of cladding options outside, a stylish alternative to brick. "Straight brick walls are cheap, so you often see them in project homes, but we wanted to demonstrate the design benefits of mixing up cladding styles, as well as showcasing the most recent building materials and techniques available on the market," says Whiteoak.

Although cladding choices were simple, illustrating best practice did provide a number of challenges throughout the build. Sustainable technologies are developing rapidly, and new products can come with a high price tag. "We were interested in exploring solar air-conditioning; it's a new technology which at the time [2008] would have cost about \$50,000," Whiteoak says. "It will no doubt come down in price in the future, but for now it's really only accessible for commercial buildings. Instead, we designed for natural ventilation to reduce the need for air conditioning."

While some sustainable materials like low-VOC paints and glues were easily accessible, the designer's commitment to sustainable windows tested their production schedule. "Aluminium is a high-energy material, so you want to make sure it can be recycled. Powder-coated aluminium can't be reused, although people are working on this technology now, so we've selected natural anodised aluminium windows, which are fully recyclable. They were hard to source, taking about six weeks rather than the usual two," he says.

A STEP AHEAD

The design team also ensured Sustainability House stayed ahead of future legislation. "We chose to install two 5,000 litre water tanks, which at the time weren't required by legislation at all. Now, just a year later, new homes in Queensland require one 5,000 litre tank, but we've gone further," he says.

While adult visitors are impressed by the luxury look and feel, Whiteoak says the green 'wow factor' has come from a surprising audience - school groups who express a real appreciation for the home's sustainable innovations. ☑