



Josh's House – Star Performers CSR House

Living Key: enhancing prosperity and quality of living



property certificate

project CRC House
client Star Performers Project
address Schofields, NSW
date 9 November 2014



About this Report:

This report has been provided at the request of and is solely for the client Josh Byrne & Associates as supporting information for the Josh's House Star Performers Project.

It is an independent assessment based entirely on published information, including site and house plans, brochures and fact-sheets as well as information provided by the client. Living Key did not visit the property as part of undertaking this assessment.

Due to this project being a research facility situated within an industrial site and not within a residential location, a number of key assumptions have been made, principally related to density zoning, block size and garden areas. Additionally, there are a number of comments concerning design and fitout features that are relevant to an assumed residential location but which may not have been installed due to the unique research and demonstration purpose of the building.

The Living Key categories assessed are relevant to property and building performance only. It does not include an assessment of the broader locational categories of Community, Transport and Nature.



summary result



61.5%

This property is a very good example of and model for sustainable living in the suburban context. Best practice in climate responsive and environmental sustainable design ensure the property achieves a good result for the development.

The 7 star rating for Energy, strongly supported by a photovoltaic renewable energy generation system and a high-efficiency and 'appropriately' size air-conditioning system, and the commendable 8 star rating for Water and smart design ensure this property is very economical to run and can achieve a longer than average design-life.

The climate responsive – solar passive – design with, open plan living, natural ventilation, slid flooring and outdoor living spaces are all supportive of a more liveable home.

The inherent design features and materials used in construction, specifically the low carbon intensity construction (floors and walls) result in a dwelling with a lower than average embodied energy.

Overall this property, its design, fitout and finishing ensure this dwelling is of a very high environmental performance, healthy, highly liveable and a very economical to run.

detailed results by category



66%

This property achieves a better than average result ensuring the dwelling is very efficient to run and therefore will have a lower than average energy use and may even exceed household energy demands, depending on occupant behaviour. The key features which contribute to this rating include:

- Very good 8 star NatHERS thermal performance rating and excellence in climate responsive – solar passive - design features including orientation of indoor and outdoor living areas to the north, eave shading to all walls, high R-value insulation throughout, excellent air-movement and ventilation via natural breeze-ways, ceiling fans, roof and room vents for heat purging, area and room zoning and thermal mass materials.
- Renewable energy systems: 1.5kW photovoltaic system of energy generation and a highly efficient solar with gas booster water heating system.
- Efficient appliances, efficient lighting - LED and compact fluorescent, and a well-ventilated fridge space.
- Energy management and intelligent wiring.

The following comments are provided in the context of some inclusions which impact on the energy demand and therefore the overall rating:

- This dwelling is fitted with a ducted reverse-cycle air-conditioning system which is sized to match the thermal performance of the dwelling rather than the conditioned area, which in itself is an excellent outcome and provides a strong case-study for how air-conditioning systems are sized and installed.
- As a 240m² dwelling with 4 bedrooms, therefore a potential occupancy of 5, and with the energy demand of ducted reverse-cycle air-conditioning, a 1.5kW photovoltaic system is probably undersized to offset the overall energy demand.

This property achieves a reasonable rating: overall the property would have low water use due to combination of water harvesting and efficient fixtures and appliances and some waterwise landscaping. Key features which contribute to this rating include:

- Large 10,000 litre rainwater tank plumbed for internal reuse to toilet and laundry.
- Efficient showers and tapware, and dishwasher installed.
- *Some native and drought-tolerant waterwise plants and an efficient low-flow controlled irrigation system.

There are a number of inclusions and features, which if included would improve the overall water efficiency and therefore the overall rating. These are:

- Install greywater reuse system to collect laundry and shower water and reusing it to irrigate the garden.
- Reduce the large irrigated *lawn area which has a high water demand.

(Key assumptions: 400m² block, 20m² native garden, 20m² waterwise garden, 20m² waterwise lawn)



51%



68%

For Liveability this property has achieved a better than average result in many areas. The key features which contribute to this rating include:

- Excellent quality climate responsive design features: the home is able to maintain a stable and comfortable temperature year-round and provide natural light and ventilation.
- Excellent natural ventilation, external openings to the bathrooms and laundry, and low dust collecting surfaces which support a healthy indoor environment quality.
- Reasonable universal access including a level entry (via the garage), open movement and circulation through the main open-plan living areas and between the indoor and outdoor living areas, and reasonable access to the

ground level bathroom and toilet.

There are a number of inclusions and features, which if included would improve the overall liveability of the property and therefore the overall rating:

- Productive food producing garden – install vegetable beds and fruit trees, as well as compost bins and/or worm farm.
- Shade providing trees – deciduous trees to the main outdoor living area on the north side and evergreen varieties to the east and west would improve shade, comfort and amenity for occupants and support an improved thermal benefit for the dwelling.
- Wider doorways with a minimum 850mm opening, especially to the main entry and toilet and bathroom and an installed shower recess to the ground level bathroom will greatly improve accessibility and usability for people with limited mobility.

The 7 star rating is a good result for a near new dwelling constructed as a detached single residential 2 level property in a *green-field development area. The dwelling has a number of features which support an increased design-life and reduce the overall embodied energy and carbon intensity of materials and construction:

- The use of 'recycled Polypropylene Waffle Pod domes' and concrete with recycled content for the ground level concrete slab and hebel block panel floor on timber frame to the upper level floor uses significantly less concrete and steel than a traditional poured concrete slabs.
- The combination of brick veneer wall to the ground level and framed panel walls with hebel panels to the upper-level.
- Reduced recurrent energy impacts through the use of natural finishes.
- The open internal layout with open-plan living, reasonable sized bedrooms and stud framed walls which enables adaptability of internal room layout means the home is reasonably adaptable to changing uses and occupant needs and therefor achieves a longer than average design life potential.
- The dwelling has low maintenance requirements and therefore low recurring energy impacts.

(Key assumptions: 400m² block, R30-40 density coding, Minimal site works)



61%

Living Key Star Ratings and Percentage Scores:

1 Star = 0-10%; 2 Stars = 10.01-20%; 3 Stars = 20.01-30%; 4 Stars = 30.01-40%; 5 Stars = 40.01-50%;
6 Stars = 50.01-60%; 7 Stars = 60.01-70%; 8 Stars = 70.01-80%; 9 Stars = 80.01-90%; 10 Stars = 90.01-100%

About Living Key

Living Key is a suite of rating tools, services and resources for industry and consumers to assess and certify the liveability and sustainability of properties. Its core objective is to address the market need for an easy to understand 'rating assessment' of the key liveability and sustainability features and attributes of new or existing properties.

Living Key Categories and Descriptions



ENERGY

Design features and fixtures of the property that optimise good design and conserve and produce energy



WATER

Design features of the garden, and fixtures and appliances that conserve and re-use water



MATERIALS

Well located and long life buildings with low energy content and are from sustainable sources



LIVEABILITY

Design features, materials and finishes, and location, which enhance human and environmental health



NATURE

Type, amount and diversity of vegetation on the lot, on street verges and in open space, and proximity to bushland



MOVEMENT

Proximity of the property to public transport, walking and cycling paths, and bicycle storage



COMMUNITY

Proximity of the property to local amenities and services such as shops, schools, day care, community centers and parks



Summary average of ALL assessment categories to indicate the average benefits and potential of the property

The Disclaimers:

This report is valid for 12 months from the date of issue. Whilst this report has been formulated from sources we deem to be reliable and is tendered in good faith, no warranty, expressed or implied is made by Living Key as to the accuracy or completeness and it does not accept any responsibility for matters arising there from.

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Note: This report was originally issued under the name of ARCAActive, which has since been superseded by Living Key.