


North Beach Project

by [Brian Guinan](#) / ⌚ 2019-06-06 06:58:40 / International / 👁 3725 / 🇪🇺 EN

New Construction



Primary energy need :

25 kWhpe/m².year

(Calculation method : Primary energy needs)

ENERGY CONSUMPTION

<i>Economical building</i>	<i>Building</i>
< 50 A	
51 à 90 B	
91 à 150 C	
151 à 230 D	
231 à 330 E	
331 à 450 F	
> 450 G	
<i>Energy-intensive building</i>	

Building Type : Isolated or semi-detached house

Construction Year : 2018

Delivery year : 2018

Address 1 - street : 53B Sorrento Street 6020 NORTH BEACH , Other countries

Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 326 m² Other

Certifications :



Proposed by :



General information

This truly indulgent 4 x 3 two-storey home is a modern design built to the world leading passive standards but crosses the boundary to where affordability and sustainability come together. This fabulous home is the only one of its kind in Western Australia and one of only two in all of Australia being CERTIFIED PASSIVE HOUSE PLUS and was proudly completed in just under six months for under \$2,090.00 sq/m

The construction of the home to Passive Plus Certification ensures the homes energy use is net positive, not just now but for many years into the future.

Passive House is currently the most widely used form of sustainable construction throughout the world when seeking scientific assurance that the building's performance will, in fact, perform as intended. Passive House is specifically tailored to generate information to ensure the buildings performance and energy use, focusing particular attention on thermal performance and heating & cooling loads. Designing the home through the Passive House Planning Package affords the design team and the homeowner endless opportunity to explore all options of design and orientation while still maximising the full performance and budget of the building.

Combining passive design with innovative construction methods modelled specifically for the Western Australian climate ensures this home is not only sustainable, has net positive energy use, low carbon footprint but most importantly maintains a healthy and ambient living environment for the homeowners for many years into the future.

This particular home also proves the versatility of building a passive home. The original design was conceived by the client with very minimal changes made by the design team. The home was then built to what the client thought was passive principles. It was only after the completion of the home that they were made aware that the home was indeed a Certified Passive Plus home. This is further proof that building 'better' does not need to be more difficult, just better understood and executed.

With open-plan living, theatre room, raking ceilings and an elevated walkway between the upstairs bedrooms, this house embraces all the required elements of a passive home. Enjoy comfort and easy-living with perimeter bulk insulation, high-performance double-glazed

windows, thermal bridge free construction,exceedingly high levels of air-tightness and heat recovery ventilation.

Upstairs, windows and doors to the northern and western elevations allow the sun in winter. And because this home expertly combines crucial elements in the passive house process, north facing skillion roof design is also incorporated for optimal PV panel installation.

The lower floor allows for easy open-plan living. Kitchen, living and dining areas effortlessly connect within the same floor space. The beautifully custom crafted kitchen with generous island bench and striking copper back-splash is the true heart of this home, offering comfort and quality.

See more details about this project

<https://ismart-bg.com.au/projects/north-beach/>

Photo credit

Nathan Sixsmith

Stakeholders

Contractor

Name : Ismart Building Group

Contact : brian.guinan@ismart-bg.com.au, Brian Guinan Director & Registered Builder, 5/82 Forsyth Street, O'Connor, WA 6163

<https://ismart-bg.com.au>

Construction Manager

Name : Ismart Building Group

Contact : brian.guinan@ismart-bg.com.au, Brian Guinan Director & Registered Builder 5/82 Forsyth Street, O'Connor WA 6163

<https://ismart-bg.com.au>

Stakeholders

Function : Construction company

Ismart Building Group

brian.guinan@ismart-bg.com.au, Brian Guinan Director & Registered Builder 5/82 Forsyth Street, O'Connor WA 6163

<https://ismart-bg.com.au>

Function : Certification company

Grun Consulting

Clare Parry clare.parry@grunconsulting.com 0403-691-214

www.grunconsulting.com

Contracting method

General Contractor

Type of market

Realization

If you had to do it again?

I would spend a little more time in the design stage to try and minimise the site decisions relating to servicing the structure while maintaining airtightness and Bulk thermal insulation considering Thermal bridge free construction.

Energy

Energy consumption

Primary energy need : 25,00 kWhpe/m².year

Primary energy need for standard building : 48,00 kWhpe/m².year

Calculation method : Primary energy needs

Breakdown for energy consumption : Annual heating demand: 15 kWh / (m²a) calculated according to PHPP

Heating load: 13 W/m²

Cooling load: 18 W/m²

Envelope performance

More information :

Exterior wall: U-value = 0.42 W/(m²K) - Timber frame with mineral wool insulation

Basement floor / floor slab: U-value = 6.7 W/(m²K) - Concrete slab on ground

Roof: U-value = 0.183 W/(m²K) - Vaulted truss roof

Frame: U w-value = 1.62 W/(m²K) - Kommerling, Gold C70 and UPVc Frame

Glazing: U g-value = 1.37 W/(m²K) and g -value = 40 % - Viridian LightBridge Grey

Entrance door: U d-value = 1.62 W/(m²K) - As above (glazing)

Indicator : n50

Air Tightness Value : 0,57

More information

Primary energy consumption is calculated according to Australian standard - Primary energy consumption according to PHPP is 68 kWh /(m²a)

Generation of renewable energy: 79 kWh /(m²a) based on the projected area

Renewable energy demand (PER demand according to PHPP): 30 kWh /(m²a) on heating installation, domestic hot water, household electricity and auxiliary electricity

Renewables & systems

Systems

Heating system :

- Geothermal heat pump

Hot water system :

- Heat pump

Cooling system :

- Geothermal heat pump

Ventilation system :

- compensated Air Handling Unit

Renewable systems :

- Heat pump (geothermal)

Other information on HVAC :

- Ventilation:

Brink, Renovent Excellent 400 Plus

- Heating installation:

Split system

- Domestic hot water:

Heat Pump - Stiebel Eltron

Generation of renewable energy: 79 kWh /(m²a) based on the projected area

Renewable energy demand (PER demand according to PHPP): 30 kWh /(m²a) on heating installation, domestic hot water, household electricity and auxiliary electricity

Environment

Urban environment

The house is located in a dense residential neighborhood between a beach and several parks or natural reserves.

Products

Product

C70 Gold

Kömmerring

<https://www.koemmerling.com>

Product category : Finishing work /
Exterior joinery - Doors and Windows



LightBridge Grey

Viridian

<https://www.viridianglass.com>

Product category : Finishing work /
Exterior joinery - Doors and Windows



Renovent Excellent 400 Plus

Brink

<https://www.brinkhrv.com>

Product category : HVAC, électricité /
ventilation, cooling



Heat pump

Stiebel Eltron

<https://www.stiebel-eltron.com>

Product category : HVAC, électricité / heating, hot water

Costs

Construction and exploitation costs

Additional information on costs :

\$2,090.00 sq/m

Contest

Reasons for participating in the competition(s)

?

Health and comfort: A heat recovery ventilation system throughout the home ensures fresh filtered and tempered air throughout the home 24 hours a day all year which also assists with maintaining ambient comfortable temperatures in the home YEAR-ROUND. The home has achieved passive house plus certification which ensures the homes build quality and performance is of the highest possible standard. This is the first home to be awarded this certification in Western Australia and only the second in all of Australia. This certification ensures the health and comfort levels of the home are of the highest possible standards available in the world today.



Low Carbon: The home is constructed of prefabricated external timber frame panels with a prefabricated timber frame roof and floor trusses which is then wrapped with world-leading vapour permeable membranes prolonging the life of the building structure for up to 100 years Extending the life of an already low carbon building. The use of low VOC products and polished concrete to the lower floor further reduced the carbon footprint of the build.

Energy and Temperate Climates: This home was modelled through the passive house planning package using the Western Australian climate data which ensures the highest possible performance available to the construction industry. a system based largely on physics which focuses on the performance of the home when considering ambient internal temperatures being maintained with



little or no energy use. thermal bridge free construction, high-performance windows, air tightness, high-performance insulation and heat recovery ventilation all combined through the design stage of the project ensure the end result not only has form but also has function and performance which can be measured and recorded for future improvement.

This home has an air-tightness result of .57 ac/h and has achieved passive house plus certification, the first of its kind in Western Australia and the second only in all of Australia to achieve this status. the passive house plus certification ensures the home will have outstanding performance and will have net zero energy use although it already shows to have quite a high net positive results thus outperforming its intended results.


Building candidate in the category



Energy & Temperate Climates



Low Carbon





Health & Comfort



Users' Choice

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