


Owl Woods Passive House

by Talina Edwards / ⌚ 2021-04-01 14:21:31 / International / 👁 4323 / 🇪🇺 EN



New Construction

Primary energy need :
31 kWhpe/m².year
(Calculation method : Other)

Building Type : Isolated or semi-detached house

Construction Year : 2018

Delivery year : 2018

Address 1 - street : street AU - 3458 TRENTHAM - AUSTRALIA , Other countries

Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 170 m² Other

Certifications :



Proposed by :



General information

3 bedroom plus study single-family home. Timber construction throughout. Inland regional location with cool winters and warm summers. Original design adapted to meet the Passive House Standard prior to construction commencing.

This pioneering Australian Passivhaus project is world's best practice in terms of performance, efficiency, resilience, durability, quality, beauty, comfort and occupant health. It demonstrates what is achievable, but also necessary for more climate-responsive and responsible buildings. The brief was for a beautiful tree-change home that goes above and beyond expectations of what sustainable architecture is.

The concept was driven by shared values for a home that connected with the land – both experientially and ethically - the design embraces biophilic design principles to engage with nature as the site context and sense of place were a fundamental design response.

The layout allows generous visual and physical connections to the landscape, with natural light and materials, creating diverse spaces to experience and entice the senses. Connection to the environment also meant responding to changing seasons and future climate conditions with a considered and resilient approach.

The design evolved beyond simple “Passive Solar Design” concepts, to become an internationally Certified Passive House, strongly focused on occupant comfort and health, with very low energy-use and running costs.

The Sustainable Design philosophy extended further to embrace a more holistic view: a modest footprint favouring quality over quantity, flexible/adaptable spaces, bushfire-resilient design, materials with low embodied-carbon or recycled/recyclable, controlled ventilation for a healthy indoor environment, water harvesting, grey-water re-use, drought-tolerant garden with native plants and billabong to enhance biodiversity, all-electric, and solar-ready to be a net-zero carbon building.

Beyond the design-fundamentals of delight, space, light, biophilic-design, functionality, and flexibility...this project goes much further - its beauty is much more than skin deep as it ensures the indoor temperatures remain comfortable all year round, despite the extremes

outside of 40degrees+ summer, and occasional winter snow.

See more details about this project

https://passivehouse-database.org/index.php?lang=en#d_5851

Photo credit

Tatjana Plitt

Stakeholders

Contractor

Name : Talina Edwards Architecture

Contact : studio[a]talinaedwards.com.au

<https://talinaedwards.com.au/>

Construction Manager

Name : Detail Green

Stakeholders

Function : Certification company

Grun Consulting

<https://grunconsulting.com/>

Function : Others

Craftsmen Quality Builders

Energy

Energy consumption

Primary energy need : 31,00 kWhpe/m².year

Calculation method : Other

Breakdown for energy consumption : Primary energy needs corresponds to Passivhaus PER value. Annual heating demand : 15 kWh/(m²a) Heating load : 11 W/m² Cooling load : 14 W/m² Cooling and dehumidification demand : 1 kWh/(m²a)

Envelope performance

Envelope U-Value : 0,17 W.m⁻².K⁻¹

More information :

Exterior wall

90mm Timber stud frame with 100mm PIR (021) insulation + mineral wool btw studs

U-value = 0.165 W/(m²K)

Basement floor / floor slab

Timber floor with bulk mineral wool insulation (050) 350 mm

U-value = 0.152 W/(m²K)

Roof

Timber frame with bulk mineral wool (048) 300+100mm insulation, metal deck roofing

U-value = 0.111 W/(m²K)

Frame

Unilux, Design Line 0.8

80mm Timber aluminium composite frame

U w-value = 0.82 W/(m²K)

Glazing

Unilux glazing

U g-value = 0.5 W/(m²K)

g -value = 53 %

Entrance door

Unilux frame

U d-value = 1.3 W/(m²K)

Air Tightness Value : 0,50

Renewables & systems

Systems

Heating system :

- Heat pump

Hot water system :

- Heat pump

Cooling system :

- No cooling system

Ventilation system :

- Double flow

PER demand (renewable Primary Energy)

31 kWh / (m²a) on heating installation, domestic hot water, household electricity and auxiliary electricity calculated according to PHPP

Environment

Urban environment

The concept was driven by shared values for a home that connected with the land – both experientially and ethically - the design embraces biophilic design principles to engage with nature as the site context and sense of place were a fundamental design response.

The layout allows generous visual and physical connections to the landscape, with natural light and materials, creating diverse spaces to experience and entice the senses. Connection to the environment also meant responding to changing seasons and future climate conditions with a considered and resilient approach.

The clients chose this site due to its regional bushland setting with views to the nearby native bushland in multiple directions, which had a sense of privacy even due to the close proximity of the other new neighbouring homes in the new estate.

The other huge attraction was their proximity to the regional township - they are a short 15minute walk into the town centre through the native bushland, or alternatively along the road if they wish.

Costs

Construction and exploitation costs

Additional information on costs :

As one of the first architect-designed certified Passivhaus projects in Australia, the cost to build to this quality was at a slight premium - however, the square-meter rate was equivalent to the current market rates for most custom-designed homes.

Contest

Reasons for participating in the competition(s)

- Timber construction: biosourced material
- PassiveHaus certification
- The architecture of the house is integrated in its environnement : connection with the land
- Summer and winter comfort indoors even with extreme temperatures

Building candidate in the category



Energy & Temperate Climates



Health & Comfort



Date Export : 20230322144914