

COOLHOUSE

low energy passive housing

www.coolhouse.co.nz



MINICOOLHOUSE

Following our recent success in producing the first Certified Passive House in New Zealand the team set to design a low energy simple prototype for a weekend retreat.



"Passive House is a performance standard not a design standard..."



Prefabricated panels being delivered to site



Ply interior

What is a COOLHOUSE?

There is a major shift worldwide toward sustainable, green and low energy architecture.

COOLHOUSE is New Zealand's answer to this movement, designing affordable, stylish and low energy houses.

"COOLHOUSE will be a New Zealand Standard"

Why a COOLHOUSE?

A COOLHOUSE is an architecturally designed, low energy, premium, prefabricated home.

A COOLHOUSE combines the best passive house or low energy technologies from overseas with local award-winning design and green home construction.

A COOLHOUSE combines stunning design, an international standard of building, off-site manufacturing techniques and precision construction.

- It's quick and efficient – construction timelines are shortened due to European methods of offsite construction. The structure is up, airtight and watertight within 7 days and fully completed within 12 weeks (from slab going down).
- It has superior strength, superior insulation, no mould or mildew.
- We can construct to our client's desired levels of energy efficiency, savings on utility bills of up to 80% can be achieved.
- It's warm in the winter/cool in the summer. A temperature of 18-24 degrees in every room, year round at a healthy humidity. This is achieved with virtually no active heating or cooling.
- The protected building envelope means the insulation properties will not break down and will insulate to 100% of its value for the life of the building.
- We have over 20 years of experience and knowledge in both design and low energy construction methods.
- COOLHOUSE reflects a passion for providing New Zealanders with architecturally designed homes that are affordable and have proven energy efficiency – without compromising on style.
- Our off-site manufactured homes are of exceptional quality, with excellent thermal efficiency and air-tightness.
- The long term benefits of a low energy COOLHOUSE is a healthier, sustainable and durable home which enhances future living standards.



Standard specs for a COOLHOUSE (price dependant)

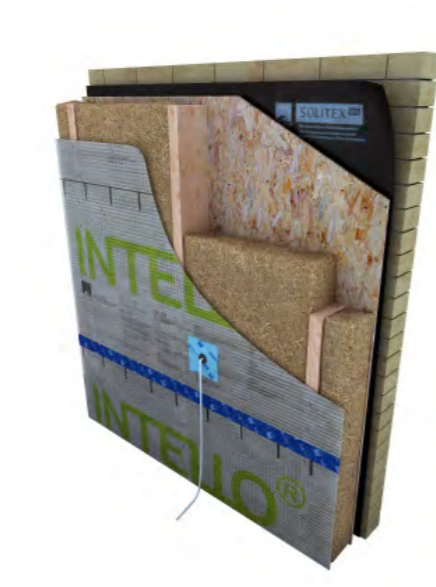
- ___ Architecturally designed by Jessop Architects
- ___ A timber home (which means it is resistant to heat/cold/corrosion and is durable and long lasting)
- ___ Crafted off-site, delivered and erected on-site
- ___ European window technology that far exceeds NZ Building Code
- ___ All foundations to NZS3604 (125 senton piles set in concrete)
- ___ Thermal bridge-free construction
- ___ Airtight building envelope
- ___ Highly insulated walls, floors and ceilings
- ___ Double cavity timber framed walls
- ___ Colorsteel roof and membrane
- ___ German kitchen joinery and appliances
- ___ Bathroom fittings and fixtures selected
- ___ LED lighting - low energy
- ___ European Heat Recovery Ventilation System (HRVS)
- ___ Strip timber floor
- ___ Weatherboard external cladding
- ___ None toxic painted plasterboard interior wall finish
- ___ Siberian Larchwood timber joinery
- ___ Bathroom tiled walls and floor
- ___ Kitchen bench top - stone
- ___ Gas Rheem infinity or electric (135L) hot water cylinder



NB: Council fees i.e. building / resource consents and consultant fees are site specific and are not included in the COOLHOUSE cost.



Insulation Detail



Wall Structure



Air tight Windows - European window technology, constructed off site

Optional Extras

(not included in standard specifications)

- ___ Oak veneer panelling to interior walls
- ___ Curtains / blinds
- ___ Timber shutters (Electrical or Manual)
- ___ Hardwood deck
- ___ Specialist lighting, automation and audio control
- ___ Built-in wardrobe
- ___ Concrete walls
- ___ Solar panels (Photovoltaic) for water heating
- ___ Passive House Certification
- ___ Site works
- ___ Landscaping
- ___ Driveway
- ___ Concrete floors
- ___ Heated floors
- ___ Customised kitchen

Passive House Certification

(an optional extra)

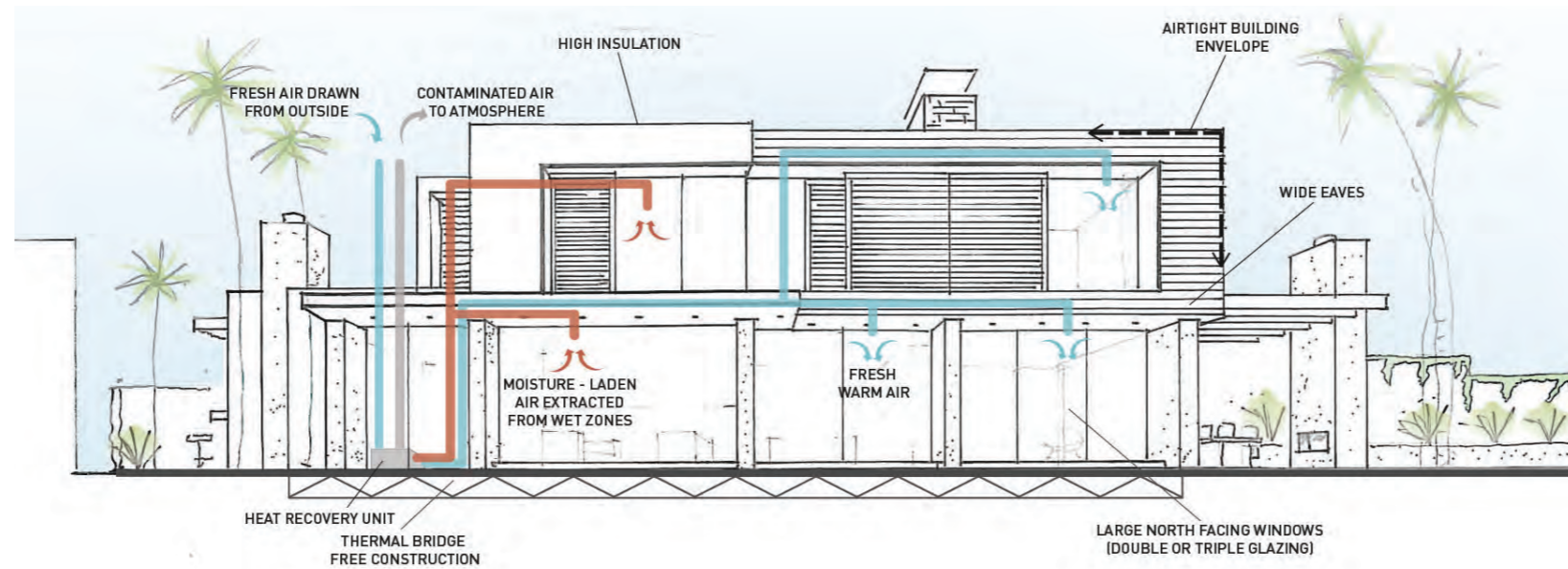
While a Passive House building does not need to be certified to be considered a Passive House, certification provides an important and visible form of quality assurance.

Before construction, each design is accessed to ensure it will meet the minimum standard. A technician uses specialised software to measure the R value, airtightness, and thermal bridging performance of the design as well as assess the mechanical systems (heating and cooling systems and hot water production).

To ensure airtightness is achieved, two pressure tests are normally scheduled during construction. The first test is performed once the the building envelope has been made airtight with the panels still exposed. The second test is carried out by a suitably qualified technician who is independent from the construction team after work is complete.

The cost for certifying a Passive House in New Zealand starts at around \$5000 NZD.

How a passive COOLHOUSE works?



Air Circulation with heat recovery

A Heat Recovery Ventilation System (HRVS) ensures that fresh, good quality, even air is circulated throughout the house at a comfortable temperature. Heat is recovered from the warm, stale indoor air and passed to the cold, fresh incoming air, bringing it up to near room temperature. Further, to minimise the loss of heat through structures and windows, the combination of passive heating and heat recovery from ventilation air provides almost all of the heating.

High Insulation

In a low energy or Passive House, the entire envelope of the building is well insulated - the walls, windows, roof and floor. This ensures that heat is not lost in winter and keeps indoor temperatures lower during the summertime.

- Cellulose under floor insulation-R 2.4
- Wool insulation in external walls-R 4.8
- Wool insulation in ceiling-R 6.2

Window Technology

The best investment to be made for a beautiful sustainable home is choosing thermally efficient windows and doors. Timber joinery is specified because timber is the ultimate renewable material, it requires much less energy to be processed and is a natural insulator which greatly enhances the thermal performance of a home. Our window and door profiles are made from the highest quality laminated wood profiles, tested and certified to European (the world's most stringent) standards. We use double or triple glazing with low e glass and thermally insulated frames. Each sash has four full length weather seals (rubber to rubber) which ensures a perfect fit.



Airtight windows - European window technology, constructed off site
Credits: AGB

"Specific design and structural connections."

"Airtightness describes how non-draughty the building is."



Airtight windows - European Window Technology, constructed off site
Credits: AGB



Airtightness

Airtightness describes how non-draughty the building structure is. Contrary to previous belief, it is now considered hugely important to achieve an airtight building envelope. Draughts are not only uncomfortable but can contribute to significant heat losses. Constructing an airtight building envelope improves sound protection and saves energy by ensuring that the ventilation system operates most efficiently. The airtight envelope is achieved by wrapping the whole building with 'Intello' variable humidity airtightness membrane (building paper). This includes placing membrane along all the connections between various building elements i.e between walls/window and walls/ceilings, taping all joins in the membrane and taping around all services that protrude through it.

Site Works

Site works generally include any excavation work, foundation preparation and drainage that is required before construction can commence. These works are site specific and vary depending on location, accessibility, slope and ground conditions. For this reason we are unable to estimate the cost of these; however, we are able to facilitate the undertakings of these works and co-ordinate with the relevant consultants and obtain the necessary consents if required.

Thermal Bridge-free Construction

Thermal bridges are points where heat can be transferred from one element to another. This heat transfer generally occurs between the floor slab and the ground, at corners, connections, windows and where insulation is interrupted. They lead to about 10-15% of the loss of heat in traditional buildings, so eliminating thermal bridges can significantly influence the thermal performance of a house. Through specific design of structural connections and by insulating under the flooring, thermal bridging can be practically eliminated. This ensures that the interior temperature of the building is not affected by the exterior conditions.

MINICOOLHOUSE

Plans - COOLHOUSE Options

MINI COOLHOUSE	STUDIO 30 M ²
CRIB COOLHOUSE	1 BEDROOM HOUSE 45M ²
BOX COOLHOUSE	2 BEDROOM HOUSE 80M ²
MINT COOLHOUSE	3 BEDROOM/1 BATHROOM HOUSE 110M ²
MASTER COOLHOUSE	3 BEDROOM/2 BATHROOM HOUSE 170M ²



Features

- Studio
- 1 bathroom
- 1 kitchenette

Floor Area: 27m²

Deck Area: 30m² (round)
or 20m² (square)

CRIBCOOLHOUSE



Features

- 1 bedroom
- 1 bathroom
- 1 living/kitchenette

Floor Area: 45m²

Deck Area: 30m²

BOXCOOLHOUSE



Features

- 2 bedrooms
- 1 bathroom
- Open plan kitchen/dining/living

Floor Area: 78m²

Deck Area: 36m²

MINTCOOLHOUSE



Features

- 3 bedrooms
- 1 bathroom
- Open plan kitchen/dining/living

Floor Area: 107m²
Deck Area: 21m²

MASTERCoolHOUSE



Features

- 3 bedrooms
- 2 bathrooms
- Open plan kitchen/dining/living

Floor Area: 170m²
Deck Area: 54m²

COOL Team

COOLHOUSE architect

Darren Jessop

Darren Jessop is an award-winning architect who is committed to excellence. He is the designer of Australasia's first certified Passive House, which has recently claimed recognition and was selected as a finalist in the International Passive House Awards 2014. The look and feel of his architecture can be considered modern pacific rim with classic lines, resulting in timeless structures.

The inspiration for COOLHOUSE came about through Darren's learning experience with Passive House construction techniques. COOLHOUSE was developed with the aim of improving the way homes are built in New Zealand and by enabling a healthy low energy (and low cost) way of living.

Darren believes that creative, cool design doesn't need to be compromised when building a low energy home.

(www.jessoparchitects.co.nz)

COOLHOUSE master craftsman

Jon Begg

Our building teams have constructed passive homes nationally, including New Zealand's 1st certified passive home.

Each have over 20 years experience in the building trade, as well as their Master builder certification. They each have experience in constructing passive and low energy homes. Their passion to improve New Zealand building standards and home efficiency forms the very essence of COOLHOUSE.

COOLHOUSE project manager

Greg Robbins

Greg has over 25 years of experience in the building industry. He believes that construction today is a "maze of legal, town planning, environmental and public interest issues that effect all projects one way or another", and he provides an effective and co-ordinated management of all these issues. Each backed project follows strict building contracts that ensure a stress free program.

COOLHOUSE project coordinator

Kirsten Dovey

Kirsten is an engineer who has extensive knowledge of the construction/architectural industry. She is passionate about green technology and low energy solutions, and will make them accessible to New Zealand home owners.

From start to finish, Kirsten is your main COOLHOUSE contact and will ensure the process is seamless; overseeing design, planning, construction and energy efficient perspectives to provide you with your perfect home.

NEXT STEP Consultation

If you would like the COOLHOUSE team to visit, we can arrange for our architect and/ or builder to come and discuss the project with you. If you choose to go ahead with a COOLHOUSE build, the fee incurred will be deducted from your build cost.

ISLANDCOOLHOUSE



[CLICK HERE TO SEE THE WEBSITE](#)

▶ Passive House Explained in 90 Seconds
<http://coolhouse.co.nz/>



Disclaimer - Information included in this document is our opinion and may vary from project to project.



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COOLHOUSE / COOLHOUSE TEAM / COOLPLANET