Certified Passive House Consultants

Your home shouldn't cost the earth.

Barefoot Architecture

TREAD LIGHTLY ON THE PLANET

A Certified Passive House will sit at 20-22° all year round with minimal energy input.

Tomorrows homes today.

Home is the heart of family life and growth, and is the centre for family health and wellbeing. Creating an environment that provides the best comfort and care is important when considering your family home.

Passive houses are the benchmark in energy efficient building, requiring minimal energy to maintain a constant internal temperature throughout the year. The design-led approach sets new standards for insulation, ventilation and energy savings, creating a high-efficiency performance and delivering a comfortable, healthy and cosy environment for your family. The consistent temperature is attained through sophisticated heat recovery systems and creating airtightness, while filtered air is ventilated to your families living spaces. Passive houses are healthy homes, creating nurturing environments for where your family lives.

By using low impact materials, certified passive house design principles and a fabric first approach, Barefoot Architecture homes achieve a low-carbon ecological footprint, meaning the construction and lifetime operation creates less impact environmentally. What is good for you is also good for the earth.

Cleverly and carefully designed, a certified passive house can provide your family with years of optimum, comfy living and financial savings, achieved in ways that are ecologically sound. A certified passive house home is an affordable solution for a healthy home that protects the planet.

Designed and built for wellbeing.

Excellent insulation, the elimination of drafts (airtightness), thermal bridge free design and sophisticated ventilation systems using heat recovery make passive houses warm, healthy and comfortable with little heating energy input and low operating costs.

Design, technology and nature creating the ideal home environment.

Energy efficient design leads to low energy consumption for heating, typically less than 10% of a standard New Zealand house. Around 34% of the energy used in New Zealand homes is used for space heating, so certified passive house design leads to large annual cost savings for energy, which could be around $800 per year for a typical four-person household. This is a somewhat misleading comparison however, because a typical NZ house is not heated to 20 – 22 degrees all year round in every room, because it would be prohibitively expensive.

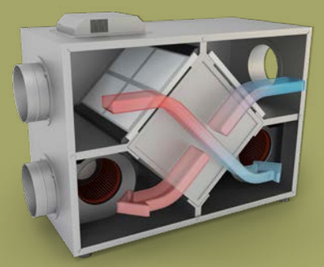
The certified passive house standard has 3 certification levels: Classic, Plus and Premium. Passive house Plus and Premium buildings include renewable energy generation requirements, typically achieved using photovoltaics (solar panels). ‘Plus’ houses are designed to generate at least as much energy as the residents consume, leading to an annual net-zero energy balance. ‘Premium’ houses generate far more energy than is needed, contributing positively to the local energy supply.

The heart of a certified passive house is its balanced ventilation system, where both the occupant health benefits and energy efficiency are delivered. Super-efficient mechanical heat recovery ventilation uses the extracted air to warm the incoming air via a heat exchanger, delivering near room temperature fresh, filtered air to all living spaces at up to 90% efficiency. The energy expended to heat the air in the building is recycled by the ventilation system. Continuous extraction removes CO2, humidity and other contaminants from the building. Dust, pollen, allergens and other unwanted substances are filtered from the incoming air, before warming and distribution to bedrooms and living spaces.

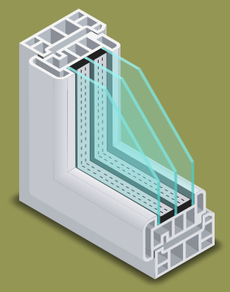
A certified passive house makes the most of the energy from the sun, by controlling solar gain to heat the building and minimising heat loss using high-spec double or triple glazing and low emission glass coatings. The warm air inside the building cannot leak out through the walls, windows and roof.

The building envelope of a certified passive house uses high tech ‘control layers’ to ensure moisture, humidity and temperature are adequately managed. Internal air and external moisture are prevented from moving through the wall construction (preventing damage to the building fabric) and the thermal bridge-free insulation layer controls the temperature of the building.

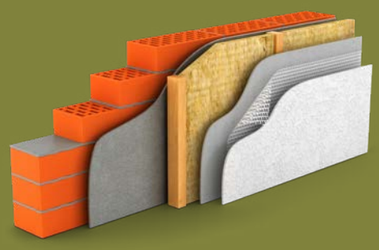
Thermal comfort is a big feature of a certified passive house, with all living areas sitting comfortably at 20 – 22 degrees all year round. Draft free construction means no cold rooms and high-spec glazing means it’s warm sitting close to windows when it’s cold outside.



Whisper-quiet fans provide continuous fresh air ventilation 24 hours a day, 7 days a week. A ceramic cross flow core transfers heat from the outgoing stale air to the incoming air, without mixing the air. High-grade filtration ensures the air delivered to the living and sleeping areas is clean and fresh providing a healthy indoor environment. HEPA filtration can be utilised for people with allergies. Up to 90% heat energy recovery leads to super-efficient low-cost operation.



Exterior windows and doors in certified passive houses are thermally broken, draft-free and use highly insulated low emissivity glass. Double or triple glazed units in conjunction with Argon or Krypton gas filling ensure the heat loss is minimised and heat gain can be controlled with special solar reflective coatings. Typical materials for passive house joinery are wood and uPVC, both are available with aluminium facings for additional durability, if required.



The passive house standard does not dictate what materials are used in the construction, there is no such thing as a standard passive house wall. Traditional NZ construction techniques, using timber framing, can be upgraded to meet the passive house standard. Other building systems - such as structural insulated panels (SIP’s), masonry, clay brick or even straw bale construction can be used in a certified passive house.

To find out more about building a passive house, please get in touch.

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