

How Passive Homes are Setting a new Standard for Sustainability

These buildings are the height of cost and energy-savings, but are they right for you?

If you are looking for a way to live your environmental values you could consider building a “[Passive House](#)”, but it will cost you. While initial costs are higher, the savings for the homeowner make them a viable option that should be considered for new builds or extensive renovations.

What is a Passive House?

A Passive House is a certified building constructed to an energy-efficient building standard that aims to reduce a structure’s carbon footprint. It is a construction strategy which focuses on energy efficiency. Unlike a LEED certification, a Passive House need not be built from eco-friendly materials, but they do typically include superinsulation, advanced energy-saving window systems, air tightness and a natural ventilation system. The [Canadian Passive House Institute](#) (CanPHI) shows that Passive Houses are approximately [80-90% more energy efficient](#) than other buildings which are code-compliant.

Energy Efficiency

A Passive House is oriented to the South so as to take advantage of natural light and the warmth of the sun. It requires advanced window system with a U-value of 0.80W. The U-value is a rating to measure how effective windows are at insulating. The lower the U-value, the better the windows are at preventing heat loss.

Mechanical ventilation is utilized to keep indoor air fresh. Air from outdoors is heated (or cooled) by the exhausted air before it enters the home through a heat exchanger. [Up to 75%](#) of the heat from exhausted air is transferred to fresh air by the heat exchanger.

Wall, floor and roof insulation creates a secure building envelope that keeps conditioned air in. Unlike with LEED certification, Passive House does not require you to use eco-friendly building materials—its focus is solely on energy consumption.

Is a Passive House Right for You?

One misconception is that Passive House designs are too expensive. Monte Paulsen from [Green Building Advisor](#): “If you include operating costs in the equation, Passive House emerges as the most affordable way to construct any building. Here’s the math: Passive House walls and windows cost more than code construction, while Passive House heating systems cost less. On balance, Passive House construction costs

up to 10% more than code. Upon completion, Passive House buildings require an average of 90% less heating energy than code buildings.”

Passive houses utilize a fraction of the energy that regular homes do, are more comfortable and don't dictate building materials which gives the homeowner more flexibility in design. Resale values are also [increased by a Passive House and other green certifications](#).

The cons of owning a passive house is that there is an initial [10-30% increase in building costs](#). Passive houses only work well when the building occupants are educated in using the systems effectively.

While there are some drawbacks to consider, Passive Houses vastly reduce the occupant's utility costs while improving comfort and resale value which make them an attractive option for the homeowner who wishes to reduce their impact on the environment.

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