

# Claiming the Passive House Standard

TECHNICAL BRIEFING  
DOCUMENT VI



Te Tōpūtanga o te  
Whare Korou ki Aotearoa

PHINZ



## **Acknowledgements**

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The original paper was written by Mark Siddall and Nick Grant, with input from the Passivhaus Trust Technical Panel and the Trust's 'Passivhaus Claims' technical working group. Members of the working group include: Jon Broome, Alan Clarke, Paul Smyth and Melissa Taylor. Additional input was also provided by Mark Allen, Justin Bere, Jon Bootland, Bill Butcher, Andrew Goodman, Chris Herring, Jonathan Hines, Sofie Pelsmakers, Paul Tuohy, Peter Warm, Kym Mead and Tad Everhart.



# Introduction

The Passive House Standard is arguably the world's most rigorous quality assurance standard for energy efficient buildings.

Passive House buildings have a reputation not only for energy efficiency, but also for comfort and quality. This has led to a rapid growth in the adoption of the Standard and global interest in the buildings that result. The Passive House Institute (PHI) in Darmstadt, Germany developed the Passive House Standard based upon rigorous scientific research and testing.

The term “Passive House” is often used when referencing a building that has been designed to this internationally recognised standard.

In order to support the quality assurance that is offered by the standard the Passive House Institute<sup>1</sup> (PHI) has specified requirements for Passive House buildings, products, designers and consultants.<sup>2</sup> This document is primarily concerned with matters relating to Passive House buildings. Internationally and within New Zealand, there are occasionally claims that buildings meet or exceed the Passive House Standard simply because they might meet one or more of the requirements of the Passive House Standard.

On other occasions claims have been made that buildings are designed using “Passive House Principles” – for example, because they achieve the airtightness target, incorporate insulation to levels that are akin to the recommended R-values (or U-values), or have been shown to have a space heating energy demand of less than 15 kWh/(m<sup>2</sup>a) using less holistic calculation methods than those required for the Passive House Standard.

It is incorrect to claim that such a building satisfies the Passive House Standard or that it adheres to the Passive House “principles” that underpin the quality assurance standard.

A building should not be described as a Passive House unless it has been modeled in the Passive House Planning Package (PHPP) and meets all of the requirements of the Passive House Standard, including onsite verification methods. PHI established a process to certify buildings that meet the Passive House Standard, and PHI publishes quality assurance criteria.<sup>3</sup>

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1 <https://www.passivehouse.com>

2 [https://passivehouse.nz/PHI\\_PassiveHouse\\_professionals](https://passivehouse.nz/PHI_PassiveHouse_professionals)

3 PHI established quality assurance requirements for Passive House buildings, products, designers and consultants but this document is concerned only with quality assurance requirements for Passive House buildings.

# Achieving the Passive House Standard

In order to achieve the Passive House Standard, a project must clearly demonstrate that it meets the validated quality assurance requirements. This includes the requirements listed over; reference must also be made to any other requirements or guidelines currently set by the Passive House Institute.

PHINZ recommends that the best way to demonstrate that the quality assurance requirements have been met is through certification by an accredited Passive House Certifier.<sup>4</sup> It is acceptable to claim, or declare, that a building is a non-certified Passive House, or satisfies Passive House requirements, provided that it meets all of the quality assurance requirements established by the Passive House Standard.

If the quality assurance protocols endorsed by the Passive House Standard have not been observed during the design and construction of a building, then claims that such a building satisfies the Passive House Standard are, at the very least, unfounded and at worst, under consumer law, misleading and deceptive. Such claims also risk bringing the Passive House Standard into disrepute.

## **Certified Passive House Designers and Consultants**

When designing a Passive House, persons with Certified Passive House Designer and Consultant qualifications have a duty of care to ensure that their work adheres to and respects the principles of quality assurance that are established by the Passive House Standard.

It is considered reasonable to expect that Certified Passive House Designers and Consultants will carry a higher duty of care because of their training, qualifications and standing within the building industry.

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<sup>4</sup> [https://passivehouse.nz/PHI\\_PassiveHouse\\_professionals](https://passivehouse.nz/PHI_PassiveHouse_professionals)



# Quality Assurance Requirements

## **Certifying that a building is a Passive House/meets the Passive House Standard requires all of the following:<sup>5</sup>**

1. The use of Passive House Planning Package (PHPP) – a bundle of both software and guidance notes - and the entry of the correct data;<sup>6</sup>
2. That all relevant design assumptions and boundary conditions accord with those contained within the PHPP;
3. That the thermal properties of all materials, products, components and constructions (including thermal bridging) satisfy the relevant standards;
4. That the internal surface temperature will not lead to discomfort or mould formation in any part of the building;<sup>7</sup>
5. That pressure tests have been undertaken in accordance AS/NZS ISO 9972:2015 (with the variant that both pressurisation and depressurisation, and that the mean result be used during certification procedures);<sup>8</sup>
6. That where mechanical ventilation with heat recovery (MVHR) is utilised it satisfies the PHI's strict performance requirements for those systems;
7. That MVHR systems be commissioned in accordance with the requirements of the Passive House Standard;
8. That the contractor writes a declaration confirming that the building has been built in accordance with the contract documentation;
9. That photographic records of the project are submitted;
10. That a comprehensive set of construction drawings and documentation is submitted;
11. That the above tools and documentation be used to demonstrate that the energy performance standards established by the Passive House Institute have been satisfied. The current energy performance standards are set out in the table below.

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5 Certification criteria: [https://passivehouse.nz/O3\\_building\\_criteria\\_en](https://passivehouse.nz/O3_building_criteria_en) Note that this list is necessary but may not be sufficient. PHI retains the right to add quality assurance requirements for certification.

6 PHPP has been especially developed for high performance buildings and is compatible with international standards (such as ISO 52016-1:2017). Furthermore, it has been tested against dynamic simulation tools as well as the measured data of completed and occupied buildings. The planning package comprises a wide range of tools specifically developed for the design of high performance buildings (see [https://passivehouse.nz/PHI\\_PHPP\\_Tools](https://passivehouse.nz/PHI_PHPP_Tools)) and is ANSI/ASHRAE Standard 140-2017 compliant: <https://passivehouse.nz/PHPP-ASHRAE-140>.

7 Determined by PHI approved climate data.

8 For a Passive House building the reference volume used to establish the n50 air leakage is defined by PHI instructions that differ to the AS/NZS ISO 9972:2015 which can give a significantly higher volume.

# Passive House Standard Energy Performance Requirements

Specific Heating Demand	<b><math>\leq 15 \text{ kWh}/(\text{m}^2 \text{ a})</math></b>
or, Specific Heating Load	<b><math>\leq 10 \text{ W}/\text{m}^2</math></b>
Specific Cooling Demand	<b><math>\leq 15 \text{ kWh}/(\text{m}^2 \text{ a})</math></b>
Entire Specific Primary Energy Renewable (PER) demand	<b><math>\leq 60 \text{ kWh}/(\text{m}^2 \text{ a})</math></b>
Airtightness	<b><math>n_{50} \leq 0.6/\text{h}</math></b>

Certification by an accredited building certifier is a quality assurance mechanism that ensures that all of the above requirements have been met. This is supported, and recommended, by both the PHI and PHINZ.<sup>9</sup>

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<sup>9</sup> A building can achieve the Passive House Standard (and indeed be a Certified Passive House building) using products that are not certified by the Passive House Institute, provided that the products used meet the necessary performance requirements. It should be noted that the use of Passive House Certified, or Passive House suitable, products and materials is not evidence of suitability in all cases. However, the use of certified components does simplify the audit trail that is utilised by the standard.

# What's in a Name?

The terms “Passive House” and “Passivhaus” are not trademarked in New Zealand; however, the terms have been widely used for over 20 years in connection with the Passive House Standard.

A Google search on the term “Passive House” results in more than 2,700,000 hits – and the term has a Wikipedia entry. The Fair Trading Act 1986 protects consumers from misleading and deceptive claims.<sup>14</sup> The Act contains:

1. A general prohibition on conduct that it misleading or deceptive or is likely to mislead or deceive (section 9);
2. A prohibition on misleading the public as to the “nature, manufacturing process [or] characteristics ... of goods” (section 10);
3. A prohibition on the making of “unsubstantiated representations” (section 12A), meaning a supplier of goods must be able to prove its claims by reference to evidence.

Consequently, in relation to the use of the terms “Passive House” and “Passivhaus” in New Zealand, PHINZ's position is that:

1. Legally, any claim or information in advertising and marketing (whether it is environmental or not) must not be misleading and must be substantiated. This means that the party making the claim needs to be confident that they have robust<sup>15</sup> and/or scientifically accepted evidence to support the claim.<sup>16</sup> The party making the claim should make sure the evidence is clear and robust, measure claims using the most appropriate standard methods and consider seeking independent assurance by a third party.
2. It should be ensured that claims about aspirations of future environmental performance are also supported by evidence and action.
3. Information to substantiate a claim should be retained by the person making the claim.

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<sup>14</sup> [https://passivehouse.nz/NZ\\_Fair\\_Trading\\_Act\\_1986](https://passivehouse.nz/NZ_Fair_Trading_Act_1986)

<sup>15</sup> That the relevant party has adopted all of the quality assurance requirements associated with the Passive House Standard, and where possible, has undertaken a third-party audit (certification audits are considered to be robust as they can reduce the number of errors by 80-90%.)

<sup>16</sup> PHINZ considers this would include ongoing scientific research undertaken by PHI and the Passive House community.



# The Passive House Standard and Consumer Protection

A building meeting the Passive House Standard is a distinct and established product that may be advertised, marketed, and sold to consumers.

Buildings meeting the Passive House Standard have a number of benefits for the consumer.<sup>17</sup>

A building which does not meet the Passive House Standard will not have the advertised benefits. The purchaser will be injured by the false claims and misrepresentations that the building met the Passive House Standard.

Persons making false claims and misrepresentations that a building meets the Passive House Standard, or satisfies the Passive House quality assurance, could find themselves facing proceedings brought by

the Commerce Commission for breach of the Fair Trading Act (which can attract fines of up to \$600,000) or brought by an affected consumer seeking damages.<sup>18</sup>

Alternatively, an aggrieved consumer might bring a claim in damages for misrepresentation and might even be entitled to cancel the contract if it can show that it was induced to enter the contract by a misrepresentation that the building would meet the Passive House Standard.

PHINZ will also consider joining or initiating legal action against parties making false or misleading claims that buildings meet the Passive House Standard, in order to protect its members and the Passive House “brand.”<sup>19</sup>

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<sup>17</sup> Refer to the section The benefits of Passive House buildings

<sup>18</sup> Civil actions under the Fair Trading Act are not exclusive remedies. The professional making false claims is likely to find themselves a defendant in claims for damages based on common law tortious conduct as well as facing disciplinary action by the relevant professional body.

<sup>19</sup> The true value of the performance claims of the Passive House Standard rests upon the assurance that the claims are credible to consumers. False claims not only injure consumers but also the professionals and tradespeople creating buildings which do meet the Passive House Standard.

# The Benefits of Passive House Buildings

The true value of the performance claims associated with the Passive House Standard, and any associated claims/marketing by any third party,<sup>10</sup> rest upon the assurance that claims are both credible to consumers and reflect a genuine benefit to both the consumer and the environment.

## **Benefits include:**

1. Minimised energy consumption
2. Excellent levels of thermal comfort;
3. Avoidance of building defects that can lead to mould growth
4. Minimised energy bills;
5. High standard of indoor air quality;<sup>11</sup>
6. Optimised lifecycle costs;
7. High levels of satisfaction by the building user/owner.<sup>12</sup>

The intensive monitoring of Certified Passive House buildings over the last twenty years has clearly demonstrated and validated the quality assurance requirements of the standard.<sup>13</sup>

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10 Including designers, manufacturers, vendors etc.

11 Measurements of energy performance and indoor environmental quality in 10 Danish Passive Houses – a case study, Larsen T., Jensen R. L., Proceedings of Healthy Buildings 2009

12 Refer to Schnieders, Hermelink (2006) CEPHEUS results: measurements and occupants' satisfaction provide evidence for Passive Houses being an option for sustainable building, Vol 34, pp 151-171, Energy Policy; PEP Project Information No. 1, Climate Neutral Passive House Estate in Hannover - Kronsberg: Construction and measurement results

13 For example, refer to Feist et al (2005) PEP Project Information No. 1, Climate Neutral Passive House Estate in Hannover - Kronsberg: Construction and Measurement Results



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