

Thermahood Air Tightness Case Study – Astonishing results!

Reduction of Air Permeability From: 4.73 m³/h/m² to 1.97 m³/h/m²

Independent testing of 1 room in a property in Belfast, November 2020.

Introduction to Air Tightness

Air tightness testing is the recognised method of measuring the extent to which air is lost through leaks in the building fabric. It is sometimes referred to as air leakage testing or air pressure testing.

Air leakage is the uncontrolled flow of air through gaps and cracks in the fabric often referred to as draughts.

This leakage can result in:

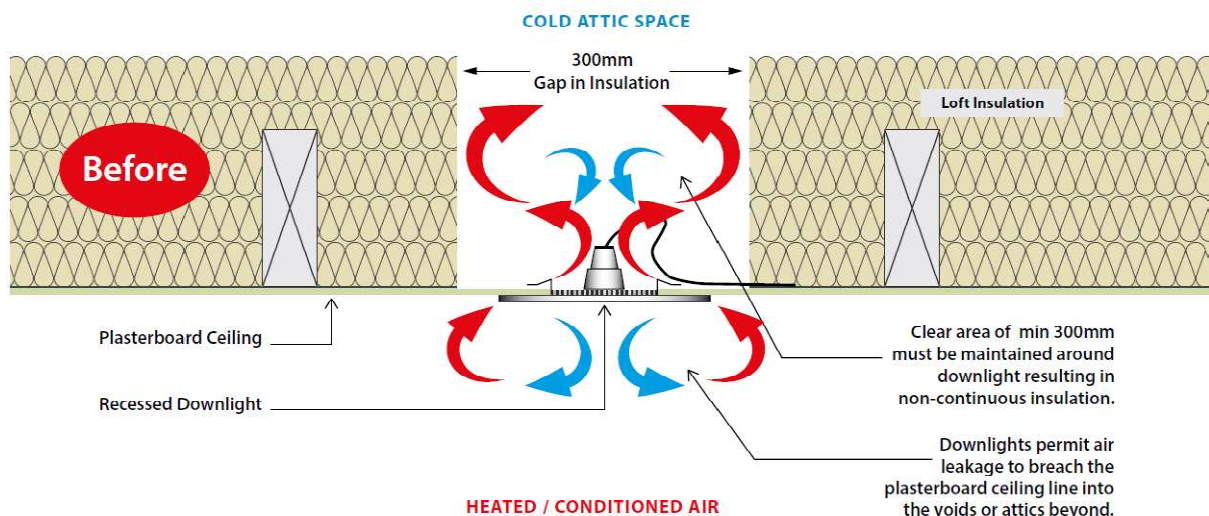
- Unwanted heat loss
- Condensation
- Damp and unhealthy living conditions
- Discomfort for occupants (cold homes)
- Increased heating bills (to counter the cold)
- Greater CO² emissions (as result of additional heating required)

Pre-Installation Results

The room tested had a total of 9 downlights.

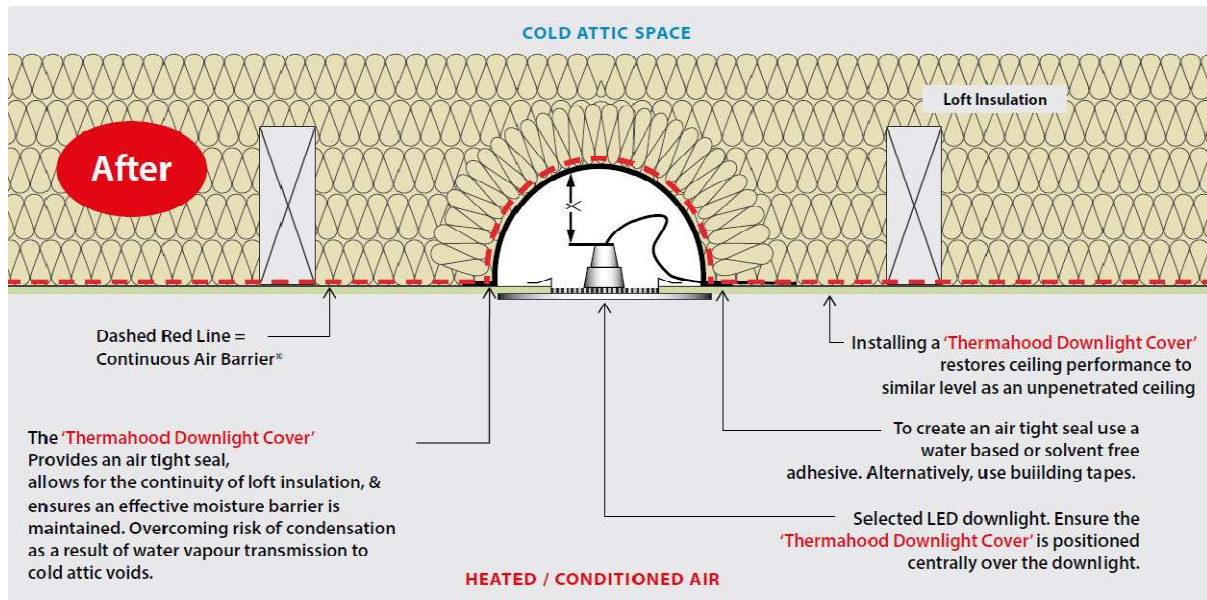
Before the installation of the Thermahood Downlight covers the room had an airtightness result of **4.732 m³/h/m² at -50 Pascals (Pa) of pressure.**

Below; illustration of a typical downlight installation.



Installation of Thermahood Downlight Covers could only be carried out to 6 of the 9 downlights in the room and then the room was retested.

Below: illustration of downlight installation with a Thermahood downlight cover installed.



Summary of Results - Permeability at 50 Pa [$\text{m}^3/\text{h}/\text{m}^2$]

Pre-Installation Air Permeability: **4.73 $\text{m}^3/\text{h}/\text{m}^2$**

Post-Installation Air Permeability: **1.97 $\text{m}^3/\text{h}/\text{m}^2$**

Synopsis

This case study has shown that after the addition of Thermahood Downlight covers to 6 of the 9 downlights they have had a positive impact on the air tightness of the room.

This improvement in air tightness means the room is more effective and efficient in maintaining warm air and excluding draughts. As a result, the customer can expect to see a reduction in their energy bills as there is less heat escaping.

It has also shown the importance of installing Thermahood Downlight covers at the initial construction stage. Only 6 of the rooms 9 downlights were able to be covered due to the other 3 being inaccessible. If all the downlights had been covered then it is safe to assume that the air tightness would improve further.

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