



Design and construction of a low energy building is only half the learning process.

Why do a Coheating test

- complete the learning process of constructing a low energy building
- compare actual to the predicted thermal performance (PHPP or SAP)
- use the data to help design future buildings - proof of real performance
- advance building physics - e.g. Coheating contributed to Leeds Met. discovery of party wall heat loss significance¹

What is Coheating

The objective of a Coheating test is to find the actual, real-world, heat loss through a building's fabric. The result should not be affected by occupancy or weather. It includes a measure of heat which is lost through:

- the walls, ground floor, roof, doors and windows
- the linear thermal bridges where the elements meet
- the imperfections - both designed, such as wall ties, and construction defects

How does Coheating work

A Coheating test works by continuously adding energy to the building using heaters to maintain a stable internal temperature higher than that outdoors. When this state is reached the energy going in should equal the energy escaping (the heat loss). An analogy is a bucket with several small holes representing the house and its various heat losses. If a tap were run into the bucket and the flow was adjusted until the level in the bucket was constant - the flow from the tap would equal the flow out of all the holes. The more the heaters run and the higher the power they run at, the more leaky the house is in terms of heat.

¹ http://www.leedsmet.ac.uk/as/cebe/projects/stamford/pdfs/party_wall.pdf

● WARM: Low Energy Building Practice

What is the Coheating process

- block the ventilation system to eliminate this as a heat loss
- set up the house with our heating and monitoring equipment
- heat the house for one to two weeks without disturbance
- collect the results and produce a co heating analysis report

What is required of the house for a robust Coheating test

- finished with all door and windows fitted
- air tight (i.e. plastering finished) and air test complete with test result
- 240v mains electrical supply with at least 100 amp capacity
- a pulsed output meter on the supply (can be provided in some cases)
- minimal access / disruption possible for a one – two week period



What equipment is used to perform a Coheating test

- a number of conventional electric heaters in various rooms of the house
- electric fans to distribute the heat around the house
- weather data recording equipment to log temperature and solar radiation
- power use and logging monitoring equipment
- temperature and humidity loggers
- CO₂ based air permeability measurement equipment can be used

Synergies with other testing

Coheating is the best way to find the real performance of your building. It is also very useful when combined with diagnostic tests such as thermal photography, heat flux measurement and air testing to identify the defective areas

Who can complete tests

WARM would be happy to discuss a Coheating test

—please contact john@peterwarm.co.uk or call 01752 542 546

Leeds Metropolitan University has produced a methodology that can be used to undertake a Coheating test, which can be found at www.leedsmet.ac.uk/as/cebe/projects/coheating_test_protocol.pdf