

# Thermal Bridge Calculations

Thermal bridging is an important consideration in Low Energy Building design. Generally, the aim is to wrap entire the thermal envelope in a blanket of insulation, thereby eliminating all bridges. However, practicalities and cost may prevent this goal from being achieved. To properly assess junctions that contain thermal bridging, 2D thermal modelling is often needed. This modelling must be carefully performed using validated software to ensure accurate results.

In this two-day course, participants will learn the fundamentals of thermal bridging calculations for wood-framed construction. Common junction details and their modelling conventions will be examined. Modelling techniques will be taught using Therm. Participants will be given the opportunity to perform calculations and have them reviewed in class.

## Course Objectives:

1. Gain better understanding of heat loss in buildings due to thermal bridging
2. Understand what comprises a high quality junction detail
3. Assess degree of thermal bridging in a junction qualitatively
4. Learn basic commands in the steady state numerical analysis software THERM
5. Create 2D thermal models of junction details
6. Set up the steady state models to output correct results
7. Calculate heat flows in THERM
8. Analyse the calculation results to ensure accuracy
9. Learn and apply the Passive House thermal bridging modelling conventions
10. Quantify the degree of thermal bridging at junctions
11. Gain practical experience in the calculation of thermal bridging heat loss
12. Account for thermal bridging in building energy modelling software

**Intended Audience:** architects, developers, self-builders, thermal modellers and other building professionals.

**Prerequisites:** Participants must have a familiarity with Excel and basic building heat loss calculations.

**Optional Course Extension:** Course participants wishing to further refine their modelling skills will have the opportunity to submit models they complete after the course. Feedback will be provided on these models at an additional charge per model.

**Course Requirements:** Laptop with THERM 7 preloaded; MS Excel (or equivalent); calculator, pencil and notepad for sketching

This course can be taught using one of the following software: THERM, Flixo, Heat3. Participants who attend our Heat3 course are eligible for a 20% discount on the software purchase.