



In 2010 the Building Regulations will require a 60% improvement in energy efficiency in new buildings over the 2005 Regulations and the move towards the much-vaunted 'Passivhaus Standard' is growing.

Improvements in thermal bridging to a Y-factor of 0.08 W/m<sup>2</sup>K will become the norm, progressing quickly to 0.04 W/m<sup>2</sup>K and beyond, which will greatly reduce energy loss in buildings.

Accurately assessing the Linear Thermal Transmittance<sup>4</sup> of each junction detail will become essential for progressive architects and developers of increasingly energy-focused clients.

## Thermal Bridging Assessment Service

Do you have standard construction details with unknown thermal bridge values?

Do you want to use the 0.08 Y-factor<sup>1</sup> in DEAP but have construction details that don't agree with the 'Acceptable Construction Details' (ACD)<sup>2</sup>?

Would you like to bring your construction details up to the 'Passivhaus Standard'<sup>3</sup> or other low carbon standards?

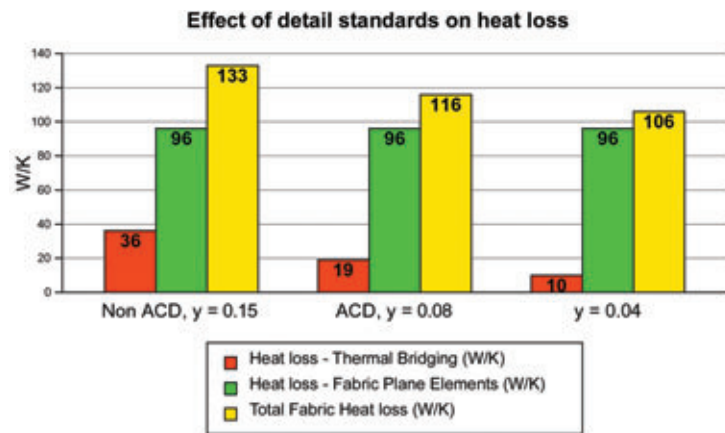
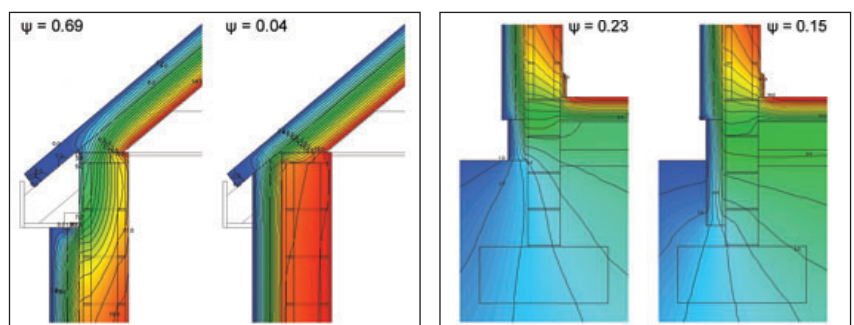


Figure 1. 'Acceptable Construction Details'<sup>2</sup> (pg 13).

Reducing thermal bridges at construction junctions can significantly improve a building's thermal performance without requiring additional insulation elsewhere, amongst other savings (Fig.1). The proportion of the overall heat loss due to thermal bridging in a typical, recently built dwelling is between 10-15% and can be higher in poorly constructed buildings (ACD July 2008).

Figures 2 and 3 below graphically show this additional heat loss through colour (blue is cold, red is close to room temperature). Minimising thermal bridging is simply one of the quickest, smartest and cost effective ways to limit that under-performance.



Figures 2 & 3. These show two approaches to installing external wall insulation at top and bottom of the walls of a typical house. In each case the version on the left results in significant heat loss, lack of comfort and higher fuel bills.





## Benefits of the Thermal Bridging Assessment Service:

Saves time, staff and training costs

Offers increased design flexibility

A clever cost-saving approach your clients will appreciate as it can offset insulation otherwise required elsewhere

A key step to creating a higher BER, or 'Passivhaus Standard' building

Confidence that the values for your linear thermal bridges are correct

Straight forward service with optimal turnaround times

Differing service levels: you choose the level of support you want

Strictly confidential

## Service Levels

### Level 1: Flat-Fee Service

Simply book-in the assessment, email detailed cross-sectional drawings and within five working days the thermal bridge value will be emailed to you. Assessing one detail will cost €200, two €350 and five €700. Special rates apply for multiple details.

### Level 2: All-Building Service

The Y-factor of the entire external envelope will be calculated based on the Psi-value of all relevant junctions. This factor can then be put directly into DEAP or PHPP. The fee will be dependent on the complexity of the building. Simply email a complete set of dimensioned construction or tender detail drawings and you will receive a quote within three working days.

### Level 3: High Performance Consultancy Service

We work with you to enhance construction details to achieve your desired standard, resulting in a significantly improved BER rating or compliance with PHPP.

*Level 1 and Level 2 refer to 2D linear thermal bridges. 3D point thermal bridge assessment is also available.*

- 1 The Y-factor of a building ( $W/m^2K$ ) is the sum of all linear thermal bridges multiplied by their length and divided by the total exposed surface area. This is a required input in DEAP (Domestic Energy Assessment Procedure). The lower the figure the better the energy efficiency of the building's exposed surfaces.
- 2 'Limiting Thermal Bridging and Air Infiltration Acceptable Construction Details' (published July 2008) is the Dept of Environment, Heritage and Local Government's guide to help the construction industry in the identification, measurement and management of airtightness and thermal bridging in standard construction details. The full document can be downloaded from [www.environ.ie/en/TGD](http://www.environ.ie/en/TGD).
- 3 The 'Passivhaus Standard' (also known as Passive House Standard) is a proprietary ultra-low energy standard created by the Passivhaus Institut of Darmstadt, Germany and is respected throughout the EU.
- 4 Linear Thermal Transmittance ( $W/mK$ ), known as the Psi- or  $\Psi$ -value, is the measure of linear thermal bridging. That is the additional thermal conductivity of a junction of two plane elements, such as a window and wall, over and above the heat loss through those elements as represented by their Thermal Transmittance (U-value).

**Building Life Consultancy** is a Joseph Little Architects initiative, which provides specialist solutions for architects, builders and manufacturers of construction systems for low energy, environmental, healthy and sustainable construction. Ireland is faced with resource depletion, fuel poverty, health problems and the effects of climate change. As a practicing architect and environmental consultant, Joseph Little recognised that there was a lack of support for the construction industry to enable them to make the step change that is required. Architects, builders and manufacturers of building systems are at the coalface, with increased responsibility to create lower energy and higher performance structures that are good for clients, good for the environment and good for the economy. Building Life Consultancy has been created to help the construction industry make that step change. The new range of discrete services is designed to plug into all architectural practices, building companies and manufacturers of construction systems.

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