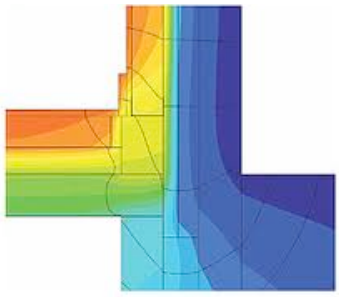
Thermal Bridging Calculations

What are Thermal Bridges?

Thermal bridging is a measure of insulation continuity and specifically where that continuity is broken, for example where a wall meets the floor.



There are three types of bridging:
Repeating - for example where loft insulation is broken by the joists.
Non -Repeating - for example at joins between walls and floors.
Random - being neither of the above but where structures bridge the insulation.

'y' Values

Repeating are taken care of within the U Value calculation. However, **Non-Repeating must be accounted for** as they can make a significant difference to the overall heat loss of the building. These heat losses are measured in W/mK and is called the linear thermal transmittance or 'y value'.

Energy Saving Experts are experienced in providing all the above calculations.

Accredited Construction Details (ACDs)

The effect thermal bridging has on heat loss is significant, therefore it is necessary to account for them in Part L. ACDs were introduced to demonstrate how to reduce thermal bridges.

A further requirement now is that the ACD value of 0.08 can no longer be used without any supporting evidence, and in fact only a figure of 0.15 can be input into the SAP calculations without any further supporting evidence. This is unlikely to provide a good enough figure to achieve a pass.

Specific Requirements
As On Construction Domestic Energy Assessors we are now required to calculate the y values.

There are three scenarios which are likely to arise.

1/ If there are no CDs to be used and the client provides no other details then the default psi values will be used and the y value value calculated using this figure. This is unlikely to gain a pass.

2/ If ACDs are to be used then the client provides a list of the ACD numbers, and details of where each are to be used. The y values are then calculated using the ACD psi values in the SAP calculator.

3/ If the client provides their own psi values, these can be used as long as they detail who calculated them. The y value is then calculated using these psi values. In due course these will be subject to a 25%, or 0.02 confidence factor being applied to them.

So the best result will come from using an Accredited Construction detail wherever possible. This is because when constructed in this way they provide a proven result, whereas the others have not.

Junctions Types
Junction types are those with an external wall and party walls. Each of these are measured and input into the SAP calculator to provide an overall result. There are up to 19 different calculations covering each of the junction types below:

Ground floor
Intermediate floors
Balconies
Eaves
Gables
Flat Roofs
Corners
Party Walls

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