

Earth Cycle Technologies

Thermal Bridging Inception Booklet

**Psi (2 Dimensional Heat Flow), Chi (3Dimensional Heat Flow),
Interstitial Condensation and fRsi (Surface
Temperature/Condensation)**

Thermal Bridging Introduction (Why Calculate Thermal Bridges?)

In Passive House, a consultant can make an assumption whether a detail is thermal bridge free based on a visual inspection. For Building Regulations in the UK and Ireland this is taken care of with the γ -value and/or with the government accredited construction details. Earth Cycle Technologies also has it's own online store for most commonly occurring situations which is always growing and will be regularly updated.

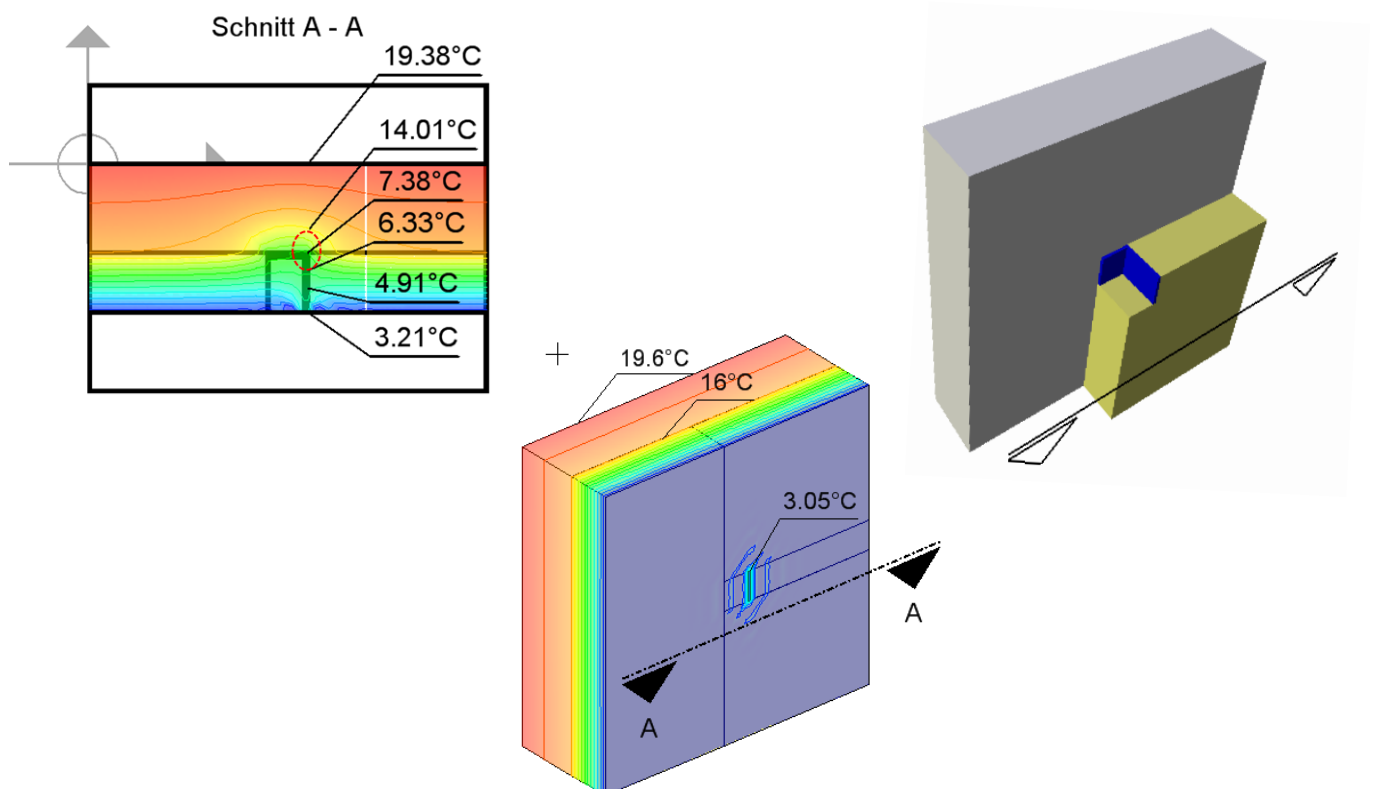
If you are unsure about either of these methods then you **MUST CALCULATE** the thermal bridge coefficients to be absolutely sure you are “**Thermal Bridge Free**” (PHI/PHPP) or that you have an acceptable γ -value (Building Regulations). **You also** need to be sure that **moisture** is not a problem.

Not all details are covered by the accredited details, some are bespoke and by calculating them you may in some instances achieve lower γ -values or thermal bridging results. Earth Cycle can provide γ -values and Psi/Chi Calculations for any type of detail. If sought after you can then use a lower γ -factor or thermal bridge result in PHPP to make it possible to use less insulation or renewable technologies saving you money on the build.

The last crucial item with thermally insulated constructions needing explanation is the risk of “sweating” or interstitial condensation. With super air tight buildings that are highly insulated this risk is hugely reduced. The effects of leaks in current regulation buildings are ~ 360 times greater than that of vapour transmission of materials. (PHI 0.6 ach vs SEAI/DOE ~ 7 ach)

Nevertheless and in either case; care needs to be taken so that temperatures at the membrane are above ~ 15 degrees in the average temperatures of the coldest month for their climate.

This type of calculation can only be performed with advanced finite 2D and 3D models.



Fees

There are many types of thermal bridging additives; each individual price per detail is dependent on the time and complexity of the model.

There are many variable at play and so we now have a fee generator which will calculated exactly the details you need.

Thermal Bridging Consultancy Process is as follows:

1. The fee generator can be used to generate the quote.
2. The commencement retainer of 25% is requested and work commences on payment.
3. A full set of the details is then review and the quote adjusted if needs be.

Once within three to five days we have reviewed all details that need calculation

Single details can also be calculated if it is only for investigational purposes but for any Passive House Certification all details must have had a calculation to support them. (albeit if a catalogue or previous calculation)

4. Calculation commences once these details are received taking time agreed after reviewing
5. Payment request is sent on completion of the calculations
6. Once Payment is received the complete set of files are sent.

If for any reason the project is stalled or further amendments are needed a 75% progress invoice must be processed and all additional work is charged at €65 plus applicable taxes.

Items Needed

To commence we will need;

1. Drawings for ALL relevant junctions of the thermal envelope,
2. Confirmation that You have reviewed and provided all details for Your project, and,
3. Technical Data sheets stating thermal conductivity of the materials used.

Drawings

Important information that must be added to the drawings for calculation are;

1. Dimensions of all Parts
2. Thermal Conductivities of all materials (listed on the drawing not ref to spec)
3. Centre's of Wood/Steel Studs
4. Profile of Steel Studs in both Directions.
5. Gauge of Steel Studs
6. Thickness of Timber Studs
7. Position of Membranes and Flashings (Highlighted with colour to make extremely clear)

Many thanks for your custom.



Earth Cycle Technologies

Contact Us

Email: info@earthcycle.co

Phone;

00 353 85 147 5880

Post;

10 Springfield
Wicklow Town
Co. Wicklow
A67 F863