

## METAL CLADDING DESIGN AND INSTALLATION TECHNICAL GUIDES

### GUIDE 014: INSULATION

The primary function of insulation is to resist the passage of heat from the warm interior of the building to the cooler external environment. As a result it is often seen as the prime candidate for consideration when improvements to the thermal performance of the building design are sought. In reality, insulation only provides part of the solution, as the thermal performance of a building is also reliant on good workmanship, air-tightness and the reduction of 'heat-bridging elements'. This is recognised in Part L of the Building Regulations, where equal importance is placed on air leakage and cold bridging. **For further information concerning these topics please refer to our specific written articles.**

The most common form of insulation utilised within built up cladding systems is mineral wool quilt (glass or rock fibre). These products are favoured due to their lightweight, low thermal conductivity, ease of handling and relatively low cost. As the material is quite soft and it easily follows the shape of the liner ribs and fills around the chosen spacer system.

The product is supplied to site in tightly compressed rolls, making it easy to transport and store. However, when unrolled, it expands to the required thickness and fills the void between the liner and the weather sheet.

Where a bar and bracket system is used, the insulation should be tucked under the bars, with all the quilt edges tightly butted. When used in vertical applications the foot of the spacer system can be used to hold the insulation in place. Where the frequency of the brackets is too large, specialist 'stick pins'; spikes that have adhesive pads are available through Alpha Clad. These are adhered to the outside face of the lining and enable the quilt to be adequately held without the concern of slump.

Alpha Clad offer a large selection of high performance thermal and acoustic insulation, ranging from glassfibre and rockfibre quilts to acoustic slabs and polyisocyanurate boards.

All of our glass fibre and rock fibre type insulation quilts are classified non-combustible to BS476 Part 4, meet Euroclass A1 to BS EN ISO 13501-1 and achieve very impressive thermal conductivity ( $\lambda$  value) figures. These quilts are odourless, rot proof, non-hygroscopic, do not sustain vermin and will not encourage fungi, mould or bacteria growth.

However, it is important to stress that not all quilts supplied within the construction industry are the same! Products used within the cladding construction industry should have  $\lambda$  values of 0.040 or better. Therefore, you must ensure that 'U' value performance quotes are for comparable products and the thermal conductivity value is stipulated within the calculations. Typical loft type insulation, available from the major DIY suppliers tends to only achieve a  $\lambda$  value of 0.044. If this insulation is used, in the thicknesses we quote, it will NOT meet Building Regulation requirements.

The way the insulation is placed during construction is also critical. Any compression reduces the product's performance. Therefore, spacer compression, indentations from lining panel ribs etc., must be taken into account – a 200mm quilt compressed into a 160mm cavity will only theoretically perform as good as a 160mm quilt!

**For advice concerning correct product choice, 'U' value compliance, acoustic performance and junction detailing good practice, combined with excellent rates and quick lead times please contact us.**