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INTERPRETATION OF ADL2

Following the publication of the Approved Document and the MCRMA Guide, there has been some uncertainty in the metal cladding industry about the interpretation of the α value for buildings. This bulletin has been produced in consultation with BRE, and is intended to clarify the requirements.

The α value is defined as the ratio of the sum of the rate of heat loss through thermal bridges at junctions (Ψ values), to the sum of the rate of heat loss through the plane areas of the building (U values), and the value is limited to a maximum of 0.1.

i.e.
$$\alpha = \frac{\sum L \Psi}{\sum A U} \leq 0.1$$

Where L is the length of thermal bridge, and A is the area of plane element.

Uncertainty has arisen because if a designer chose to use a lower (better) U value than the Regulations require (e.g. $0.3 \text{ W/m}^2\text{K}$ for the walls) so that the building would cost less to heat, the expression above seems to suggest that he would also have to reduce the thermal bridging, in order to keep $\alpha \leq 0.1$. This is not the case, because trading off is allowed.

The 0.1 limit for the α value for a particular building is based on a notional building with the same size and shape as the actual building, but with the U values and area limits for openings as shown in Tables 1 & 2 of ADL2 (see section 5.4 of BRE IP 17/01). This effectively defines the total allowable rate of heat loss from the actual building as $1.1 \times \sum A U_{\text{elemental}}$. Provided the actual rate of heat loss (comprising $\sum A U_{\text{actual}} + \sum L \Psi_{\text{actual}}$) is less than this, the design will be acceptable, so long as the normal trading off limitations in 1.15 (b) & 1.16 of ADL2 are applied.

Therefore a designer who chooses to use a better U value for part of the building could in fact trade off the improvement against the rate of heat loss through the thermal bridges, provided the total rate of heat loss from the notional building is not exceeded.

It is interesting to note that the allowable rate of heat loss through 20% area of rooflights ($U = 2.2\text{W/m}^2\text{K}$) is such that if a building has only 10% area of the same rooflights, the “heat credit” available for trading off will probably be more than the total heat loss through all the thermal bridges at the junctions on the building, so the heat loss performance of the junctions would be less important. However, remember that the risk of condensation at each junction must still be considered (f factor).

The BRE website concerning the new Part L, with frequently asked questions and their answers can be found at <http://projects.bre.co.uk/partlfaq/default.htm>. The site is regularly updated.

Metal Cladding & Roofing Manufacturers Association Limited

18 Mere Farm Road
Prenton
Wirral
CH43 9TT

Tel: 0151 652 3846
Fax: 0151 653 4080
Web: www.mcrma.co.uk