

# SCI ENGINEERING CONSULTANCY THERMAL

## Verification of thermal modelling work

The SCI assessed and verified thermal modelling work carried out by Fusion Building Systems for the various junction details of its light steel framing system. Results from the thermal modelling showed that heat loss through the junction details in the Fusion system is significantly lower than generic thermal bridging data for light steel construction suggests.

To assess the thermal performance of a building it is necessary to calculate the amount of heat loss through the building envelope which includes heat losses through thermal bridges that exist at the various junction details as well as heat losses through the planar elements such as walls, roof, windows and doors. Heat loss at a thermal bridge is measured by the linear thermal transmittance (also known as the psi-value).



*Wall corner junction detail*



*Wall corner thermal model*

## Assessment of junction details

SCI undertook the assessment of 12 different junction details for the Fusion system and verified that Fusion had followed appropriate procedures and methods and that the linear thermal transmittance values and temperature factor values were calculated correctly.

The Fusion linear thermal transmittance values are significantly lower than those published for generic light steel construction (e.g. Accredited Construction Details). Hence, the thermal modelling and its verification has been extremely beneficial to Fusion as building energy performance models can use accurate and improved psi-values. Thereby, producing better results when buildings are assessed for; The Code for Sustainable Homes, Building Energy Performance Certificates and Building Energy Ratings.

## Independent certification & analysis

Fusion Building System's Technical Director commented; 'We believe that the sales and marketing potential of our system is greatly increased through having proper, independent certification and analysis that proves it does what it is designed to do. We use SCI for many areas of work related to the use of steel in construction, including technical support and guidance.'



### Client:

Fusion Building Systems was established in 2002 and is now Europe's leading provider of pre-insulated Light Gauge Steel frame structures

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