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BUILT-UP SYSTEMS AND SPACER STABILITY

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Introduction

Although Approved Document L2: 2002:The Building Regulations 2000/Scottish Technical Standard J has speeded up the requirements for deeper spacers in built-up system constructions, there are many instances of deeper spacers than the 80mm standard used up to the date when the new Regulations came into force.

Built-up systems suppliers have been aware for a number of years that changes would be necessary and they have therefore evolved new systems to meet the requirements of the marketplace. Spacer depths of 160-170mm are now regarded as standard and, in some instances, 250mm deep spacers have been used.

Stability of deep spacer systems

Insulation levels and thus the depth of the spacers have had to be increased to comply with Building Regulation L2 and Technical Standard J. The increase in spacer height does not affect loading normal to the roof slope however, the loading on the brackets due to the eccentricity and rotational focus induced from spacers in the roof plane does increase. These forces occur in the direction along the purlin and in the direction up and down the slope.

In reality, the worst of the eccentricity loading and loading from forces in the roof plane occur during construction. Manufacturers of spacer systems have had to ensure that their products can resist these loadings and alterations and developments have been made to ensure compliance. One example is the introduction of sway brackets to resist lateral movement in the direction of the purlin.

A proven method of construction

There is a large body of test data that has gone into proving built-up system construction by individual manufacturers of both cladding and spacer systems. The range of testing is comprehensive covering fire, thermal performance, acoustics, air tightness and structural stability.

Specific to the question of spacer system stability this includes:

- load testing - point load (compression)
- bracket attachment (tension)
- roof assembly downslope side load
- spacer assembly sway load
- roof assembly sway load
- downslope rotational loading
- roof assembly positive and negative wind load.

The nature of modern spacer systems and the continuing development undertaken by manufacturers has ensured that the transition to deeper construction has not proved problematic. Lightweight and highly transportable insulation, together with intrinsic fire resisting properties have been factors in recent times of strengthening the specification process for built-up systems.

Conclusion

To obtain further technical analysis, contact an MCRMA built-up systems supplier. Full details of MCRMA members can be found at www.mcrma.co.uk.

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