



Energy Efficiency Best Practice in Housing

Insulation materials chart – thermal properties and environmental ratings

Energy Efficiency Best Practice in Housing publications

Domestic Energy Efficiency Primer (GPG 171)

Effective use of insulation in dwellings (CE23)

Energy efficiency in new housing: Summary of specification for England Wales and Scotland (CE12)

Energy efficiency in new housing: Summary of specification for Northern Ireland (CE24)

Energy efficient refurbishment of existing housing (CE83)

Summary specification of whole house refurbishment – Solid walled housing (CE58)

Summary specification of whole house refurbishment – Timber frame housing (CE59)

Summary specification of whole house refurbishment – Cavity walled housing (CE57)

Further reading

Green Guide to Housing Specification, J Anderson and N Howard, BRE 390, 2000

Green Guide to Specification, J Anderson D Shiers & M Sinclair, Blackwells, 2002

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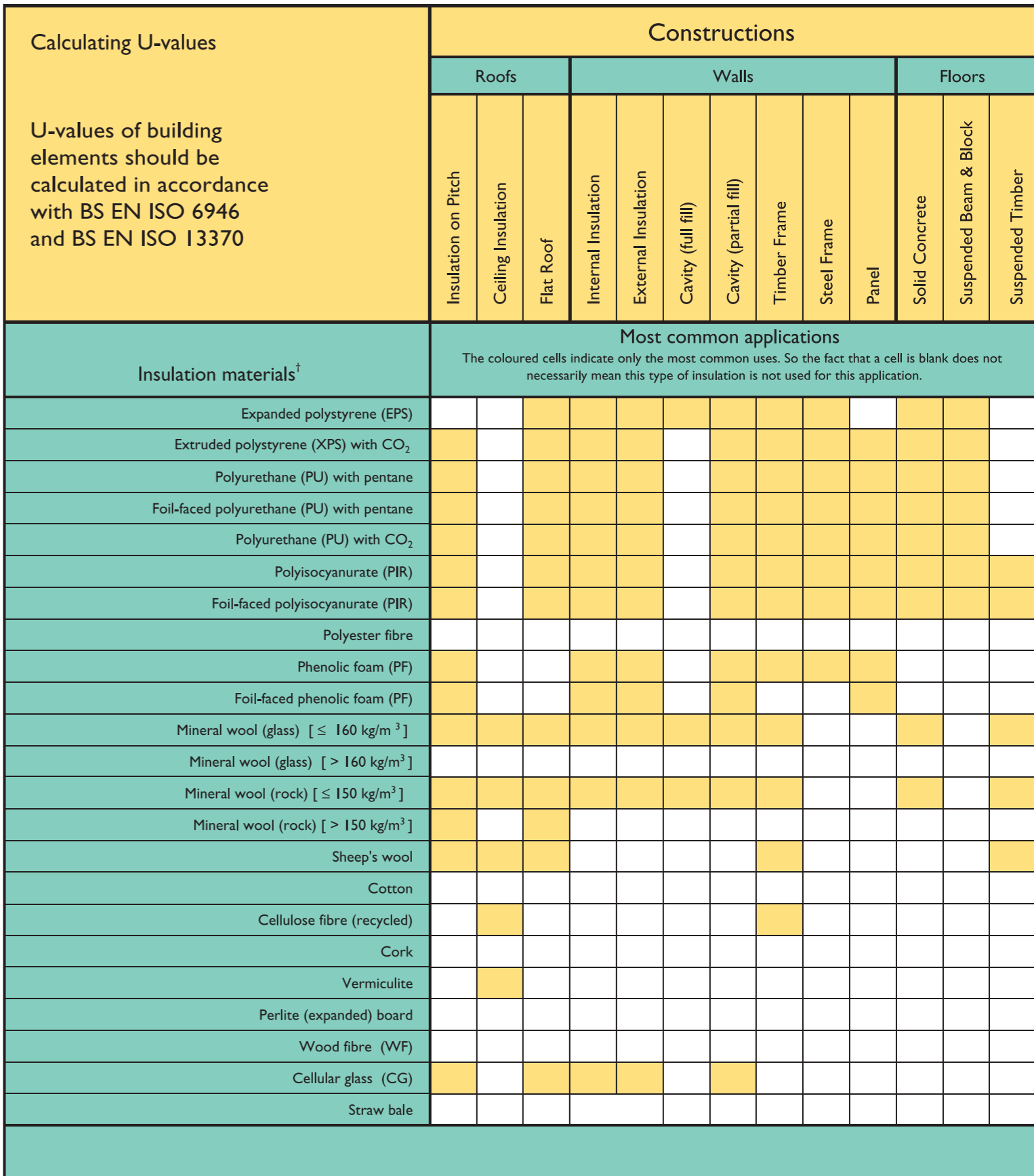
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Insulation materials – thermal properties and environmental ratings

This chart details the thermal conductivities, environmental ratings and typical applications of insulation materials available in the UK. It is designed as an aid to specification. The properties of any selected product should be checked prior to final specification.



1. The environmental ratings of different types of insulation (with A being the best) have been taken from the latest assessments in BRE's Green Guide to Specification. Using Life Cycle Assessment, the impacts associated with extraction, manufacture, transport and disposal – sometimes referred to as 'embodied impacts' – have been evaluated. The comparison between materials is on the basis of similar thermal resistance, rather than mass or volume.

2. The thermal conductivity ranges are the minimum and maximum obtained from the thermal conductivity values declared by UK manufacturers (or suppliers) and those given in the European Thermal Values* publication.

* Final report to the Thermal Values Group (March 1999) submitted to DG XII of the European Commission.

†. The insulation materials in this chart are those where thermal resistance is directly proportional to thickness and the insulation is used to provide the major part of the thermal resistance of the building element. Low emissivity products and the effects of low emissivity surfaces are not considered here – these are included in the calculation of U-values.