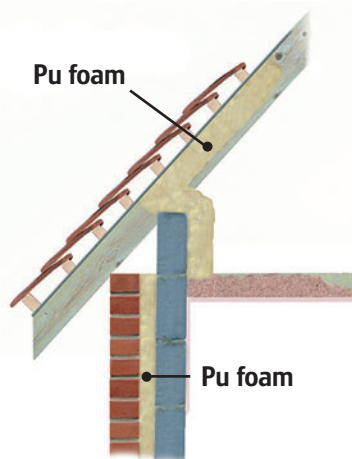# Guidance to achieve U-values and air permeability for
Code for Sustainable Homes Level 3 - 25% less CO_2

Foamseal

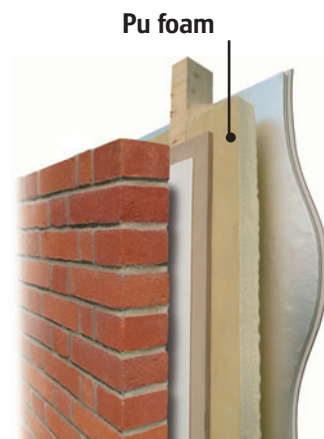

Pu foam

Pu foam

Pitched roof, horizontal ceiling

Pu foam

Pitched roof, ceiling at rafter line

Pu foam

Pu foam

Timber frame wall

Pu foam

Pu foam
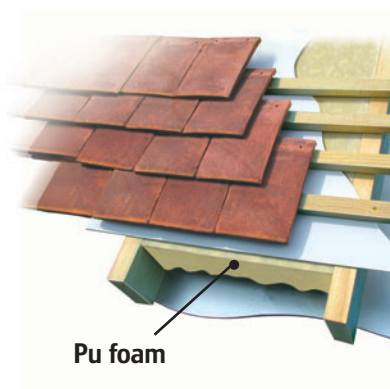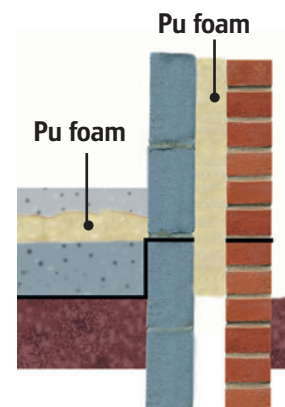
Concrete ground floor and masonry cavity wall

General

The Energy Saving Trust has developed a range of guidance to help housing professionals meet the energy performance requirements of the Code for Sustainable Homes. This is aimed at reducing the UK's carbon dioxide emissions. The documents CE290 - CE292 can be downloaded from their website.

The targets for less CO_2 emissions than the current maximum allowable, calls for stringent U-values, air tightness and a reduction in permissible air permeability from $10m^3/(hr.m^2)@50Pa$ to $3m^3/(hr.m^2)@50Pa$.

Foamseal Spray applied polyurethane foam achieves maximum U-values for minimum depth of insulation and completely seals against unwanted air leakage.

On-site sprayed or injected Foamseal polyurethane foam seeks and seals all gaps. Therefore no costly corrections for air gaps are necessary in the calculations. Timber frame and masonry cavity wall constructions insulated with Foamseal polyurethane foam applied to the roof and walls have achieved air permeability results of $3m^3/(hr.m^2)@50Pa$.

Foamseal provide U-value and Condensation Risk Analyses free of charge and give assistance with SAP Ratings. Each project must be assessed individually and therefore all examples here can only be illustrative.

All applications are approved by the British Board of Agrément.

BBA BRITISH BOARD OF AGRÉMENT
Approved
93/2939 & 02/3964

Recommended Depths of Foamseal Polyurethane Foam Insulation

Construction details	U-value	Foam depth	Additional insulation
Pitched roof - horizontal ceiling	$0.13W/m^2K$	150mm	100mm of mineral fibre at ceiling level
Pitched roof - ceiling at rafter level*	$0.13W/m^2K$	160mm	30mm foam backed plasterboard
Timber frame wall**	$0.25W/m^2K$	85mm	-
Masonry cavity wall	$0.25W/m^2K$	65mm	125mm Thermalite Turboblock
Concrete ground floor	$0.20W/m^2K$	75mm	-

* 172mm rafters @ 600mm centres ** 140mm studs @ 600mm centres

These calculations take into account repeating thermal bridges using methods in ISO 6946 (walls and roofs), ISO 13370 (ground floors) and analyses interstitial condensation risk using the method in BS EN ISO 13788:2002 (and BS 5250 Appendix D) to help you demonstrate compliance with the Building Regulations and Building Standards. Each project must be assessed individually and therefore examples here can only be illustrative.