

Wrap your house in a warm envelope

External wall insulation is cost-effective. Richard Bayliss, chairman of the External Wall Insulation Association, explains how

One third of the nation's housing stock — some eight million dwellings — is affected by damp, condensation and mould growth.

These problems are exacerbated by inadequate insulation and contribute to deterioration of the building fabric. Leaving such situations untreated can only make maintenance worse and repair even more difficult, increasing the costs of essential refurbishment.

Buildings in this condition are also almost impossible to heat economically — but treating with external wall insulation will bring dwellings up to the U-value of $0.45 \text{ W/m}^2\text{K}$, as the proposed new Building Regulations require.

A growing number of local authorities have now realised the urgency of revitalising ageing housing stock. Refurbishment is proving to be a more economical and practical option to acquiring land for development.

External wall insulation is increasingly being used to 'envelope' houses. In inner city areas, some 15,000 council houses a year are being treated.

This has meant a big increase in business for the industry — sales last year were up by more than 50 per cent.

Nonetheless, it is seen as just the beginning — the industry is now making a bid for the vast and as yet virtually untapped private housing market.

This advance has been made possible by major technological advances which have improved performance, quality and aesthetic appeal. For example, finishes were previously restricted to rendered coats. Now, the choice has widened to include such finishes as natural stone aggregate.

Installing external wall insulation usually costs around £35 - £45 per square metre applied, depending on the condition of the structure, detailing and scaffolding requirements. The insulation is generally a composite system made of three basic components — insulant, fixings and cladding.

There are three systems available in the UK. The first is a three-coat render or cladding system, of 25 mm to 80 mm of polystyrene, polyurethane, foamed glass or polyisocyanurate which is normally bonded to the wall, fastened with mechanical fixings,



Warm coat: external wall insulation cuts heat loss to give a U-value of $0.45 \text{ W/m}^2\text{K}$

reinforced with metal lathing and protected with a thick coat render to BS 5262.

An alternative to this would be 25 mm to 80 mm of mineral fibre slab, glass or rock, which is mechanically fixed to the wall. A protective wire lathing and render coat, cladding or hung tiling is applied.

Another option is a thin coat polymer system, which involves 25 mm to 80 mm of polystyrene, foamed glass, polyurethane or polyisocyanurate bonded to the wall, fastened by mechanical fixings, reinforced with fibrous mesh and protected with a polymer scratch coat and finishing coat, both layers between 3 mm and 10 mm thick.

The third and final option is a lightweight insulating render — normally expanded polystyrene bead incorporated in a cement render — trowelled into the wall. This is particularly useful because it can be applied

to uneven surfaces. Thickness is again usually 25 mm to 80 mm.

Because up to 50 per cent of the total heat loss from a building occurs through the walls, the application of external wall insulation will improve thermal insulation.

Systems incorporating insulating board or slab can, depending on the thickness of the insulation and cladding, reduce the U-value of an average solid wall construction (taken as 210 mm brickwork internally plastered) from around 2.2 to $0.45 \text{ W/m}^2\text{K}$.

If the process is applied to a typical three-bedroom semi-detached house centrally heated with a well controlled system for 16 hours a day, it shows annual savings on a fuel bill of £95 for gas, £160 for LPG, £120 for cheap rate electricity, £135 for solid fuel and £80 for oil.

For fire performance, all systems comply with BS 476 Part 6 for Class 0 rating and Part 7 (spread of flame).

An approved contractor member of the External Wall Insulation Association should apply the systems, as detailing is important — finishes around external services, pipe work, window sills, and flue extensions are all examples. Attention to the dpc is important and should be included in the package.

There are a number of cowboys in the industry not recognised by the association, who not only get the industry a bad name but put up the systems incorrectly and can do more harm than good.

The association recently produced an industry technical standard. This includes detailed specification for all aspects of external wall insulation including testing procedures, component parts — properties and performance — insulating materials, render carriers, reinforcement meshes, trims and fixings, and also covers fire precaution and health and safety.

The association is also producing a code of practice for installation, and a British Standard is expected before 1992 as the association believes that standards in the UK are now the highest in Europe.

Richard Bayliss is chairman of the External Wall Insulation Association. Technical information on the process, and data on individual systems, are available from the EWIA at PO Box 12, Haslemere, Surrey GU27 3AH. Tel: (0428) 54011.