

# tenement fact sheet

## 3 Solid wall insulation and under floor insulation for ground floor flats

3 ওয়াল ইনসুলেশন ও আন্ডারফ্লোর ইনসুলেশন

3 عوائل الجدران و العوازل الأرضية

3 牆壁隔熱和地板下的隔熱措施

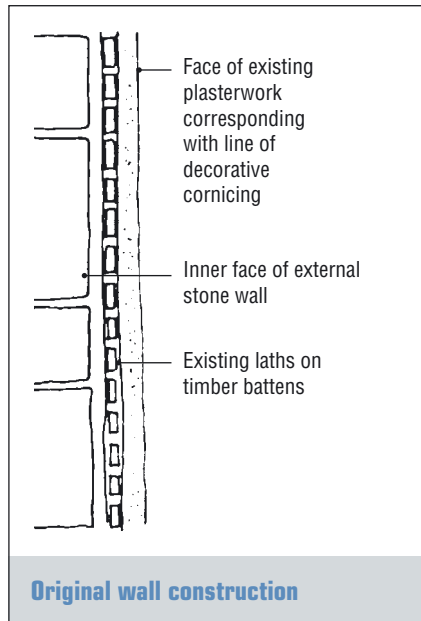
3 گھری دیواروں میں مواد بھرنا اور فرش کے نیچے مواد بھرنا

This is the third of six fact sheets on how to improve the energy efficiency of traditional stone-built tenements. It describes solid wall insulation for all properties in a tenement, and floor insulation for ground floor flats. It explains how solid wall insulation can impact on the look of original features in the home, and how this can be maintained.

### Why install solid wall insulation and what are the benefits?

One fifth of all heat in a home escapes through the external walls. In properties built after 1920 there is usually a cavity. This is an air gap between an inner and outer wall, which is suitable for adding cavity wall insulation. This is not appropriate in traditional stone built properties which have solid stone outer walls with no cavity. This stonework was originally built with an internal lining of plaster on laths and battens.

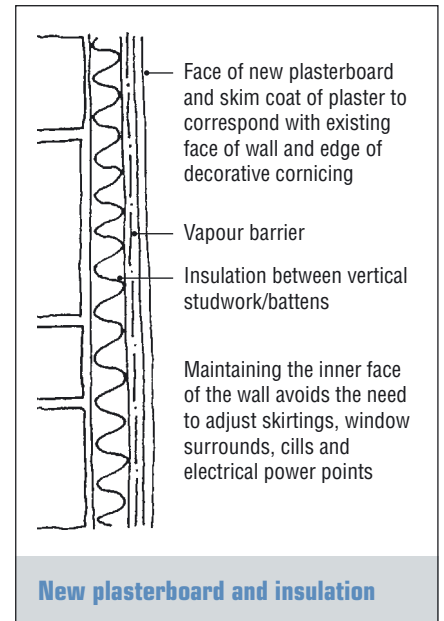
To slow and reduce heat loss through external walls requires 'dry' lining internally or insulation with a weatherproof facing to the outside. In both cases this may be impractical due to the historic nature of the property. External insulation is usually not an appropriate way of upgrading the



energy efficiency standard of stone tenements, because of the impact of overcladding on the look of the building. Overcladding also involves work to rooflines, gutters, downspouts and window cills.

Dry lining the inside face of external walls involves a significant amount of builders work. In particular window cills, and surrounds, skirtings and frames decorative plasterwork, switches and electric sockets will all need to be modified, since dry lining increases the wall thickness and brings the finished face of the wall into the room.

An alternative is to use a proprietary thermal lining material, applied to the face of the plasterwork itself. The thickness of these materials can



be a few millimetres and no greater than the thickness of several layers of wallpaper. In most cases however these are foam based materials which can be damaged by impact.

Where a property requires renovation including replastering of the inside of external walls this is the ideal opportunity for fitting wall insulation. Dry lining replacing existing plasterwork, battens and laths using plasterboard with thermal backing and a foil facing can significantly improve the energy efficiency of the wall. Original plasterwork and its battens can be up to 60mm thick. Careful sizing of replacement battens and plasterwork can retain the inner wall surface in line with retained decorative plasterwork, and timber facings.

## Typical Costs and Savings by Energy Efficiency Measure

Measure	Typical Cost	Costs Recovered in
Replace ordinary lightbulb with CFL (20W) in light used 3 hours a day	£8 – £10	Under 6 months
Hot water tank insulation (jacket 80mm thick)	£5 – £10 DIY	Up to a year
Insulating hot water pipes	£10+	2 years
Loft insulation 250mm*	£170 DIY £225 – £250 contractor	2 years 2-3 years
Draughtproofing	£40 – £60 DIY £85 – £110 contractor	3-4 years 6-11 years
Floor insulation filling gaps between skirting board and floor	£25 DIY	3-5 years
Floor insulation under floor	£100 DIY	4-7 years
Fit a room thermostat	£110 – £140	4-7 years
Replace fridge freezer with energy efficient model	£180 – £300	4-7 years
Solid wall insulation 50mm plasterboard laminates or battens, insulation and plasterboard	£900	5-6 years
Loft insulation 200mm* topping up existing 50mm	£140 DIY £210 – £230 contractor	5-7 years 7-11 years
Fit thermostatic radiator	£75 – £100	5-10 years
Replace fridge with energy efficient model	£120 – £250	5-10 years
Double glazing, sealed units	£3,000+	20 years

\* or equivalent.

## Insulating walls to the close (the common stair)

A significant source of heat loss from individual properties in a tenement will be to the stair. Where the temperature difference between the stair and individual properties is great this will speed up the rate of heat loss. By carrying out the common measures referred to in the first two factsheet in this series, loft insulation, draughtproofing and installing a draught lobby, this temperature difference will be less and thus lower heat loss.

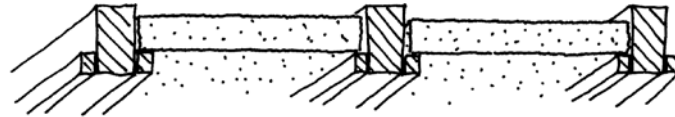
Other ways to limit the rate of heat loss to the common stair are referred to in the fact sheet 6 in this series, innovative solutions. This includes heat recovery ventilation systems to preheat the stair which otherwise will only be heated by solar gain through windows to the close itself or from heat loss from the individual properties to the stair.

## Why install floor insulation to ground floor flats and what are the benefits?

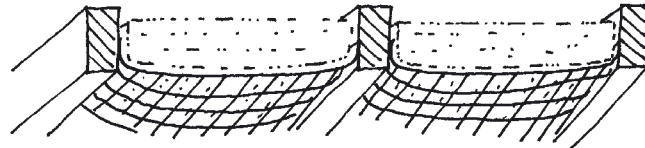
The underfloor space (the solum) will be ventilated to prevent wood rot in the floor timbers. Draughts from the solum can be prevented by insulating under the floor, or by sheeting over the floor and applying a floor finish.

The most effective way to insulate a floor is by insulating between the floor joists across which the floorboards are laid. There are three

There are two alternative ways of insulating the floor

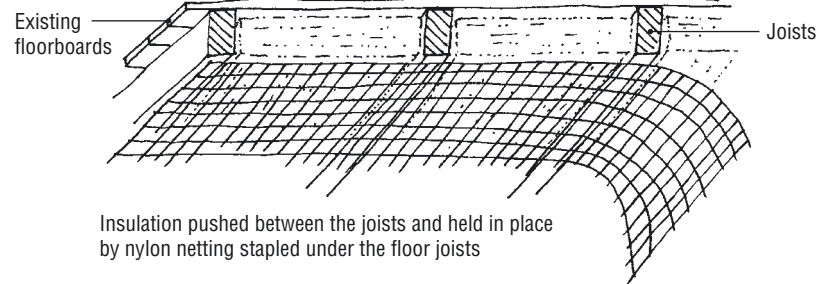


Battens nailed to the sides of the joists to support rigid panels of insulation



Quilt insulation rolled out between joists supported on plastic netting stapled between the joists

Insulating a floor from above. The floorboards have to be lifted to give access.



Insulation pushed between the joists and held in place by nylon netting stapled under the floor joists

Insulating a floor from below

ways of fitting insulation, the first two being based on access from above which involves lifting the floorboards.

Battens can then be fitted to the sides of the joists to support sheet insulation.

Alternatively quilt material can be applied, but this requires the prior fitting of support plastic netting to hold the insulation in place.

An easier solution is to apply this quilt material from underneath the floor, where there is sufficient crawl or access space.



Insulation sheet applied to walls



# tenement fact sheet

## **Mastic**

Mastic can be used to fill gaps between the window sub frame and interior walls. It can also be used to fill gaps between floorboards.

An alternative low cost way to draughtproof floorboards is to use papier mache.

## **Sources of funding/grants for draughtproofing and sources of advice**

There are various grants for energy efficiency measures.

For details contact the local Energy Efficiency Advice Centre on 0800 512 012.

