Annat Road

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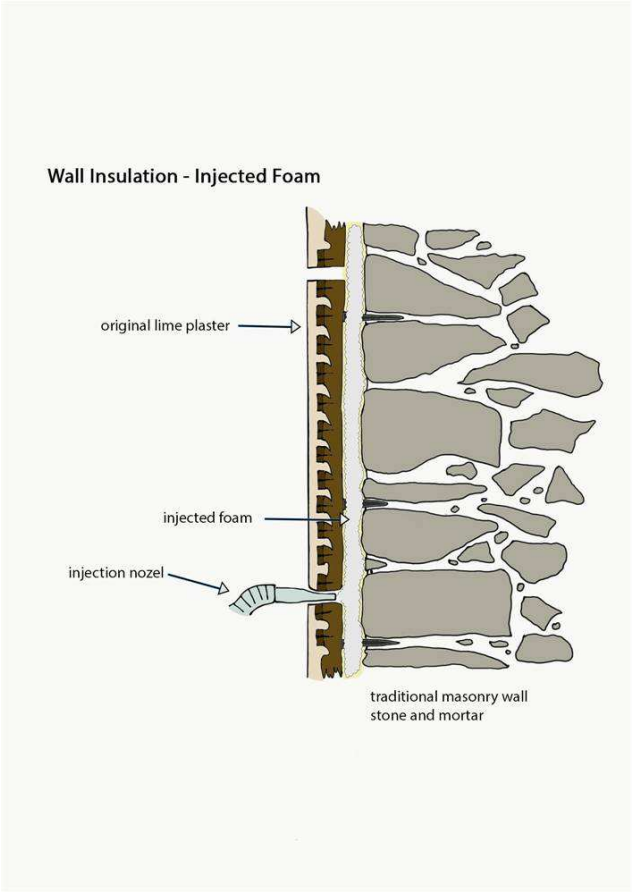
Injected foam insulation behind existing plaster

Walls

What is the solution?

This measure is a water based foam injected behind existing lath and plaster. The method retains the existing traditional finish in the building and adds an insulation layer between the wall and the plaster finish.

Cross section of the wall build-up, available pictures of the solution:



Indicative diagram showing the foam being injected behind the lath and plaster lining © HES

Photograph showing the injection of the insualtion foam © The Gannochy Trust

Why does the solution work in terms of compatibility with conservation, moisture safety and energy improvement?

While the width of the gap is modest, around 40mm, the water based foam is able to fill the void effectively. The cured foam is vapour open and capillary active, minimising the risk of condensation damage. The post intervention U value was 0.7 - see the case study for full details

Pros and cons of the solution:

This approach allowed the original wall linings to remain in place. This maintained the historic integrity and feel of the rooms; their dimensions were not reduced, waste and landfill was avoided. Lime plaster is able to buffer humidity, and by keeping this material in place it was assisting in maintaining a healthy internal environment. However, the installation while simple in concept needs careful delivery. Gaps between the floor and the wall need filling, electrical cables need to be put into conduit, and plug sockets needed resetting (see case study for details). There were concerns expressed that this approach would result in condensation risk; however after modelling, and in situ testing over two years this was not the case. The traditional vapour open construction was able to dissipate any water vapour. This measure also requires the removal of wallpaper and any other covering on the plaster, and re-decoration with vapour open lining paper and a suitable paint.

Type of data available (level of information, simulation):

A condensation risk assessment was carried out by Glasgow Caledonian University, and evidence from previous HES site trials was taken account of (it was done elsewhere and it worked well).

Additional Information:

Ongoing monitoring of the occupied building was carried out for two years after the work. The results of this will be published shortly.

Is there any related publication? If yes, please provide any available link or document for further reading

View of the case study property © HES

https://www.hiberatlas.com/smartedit/projects/122/Case Study 20 - Annat Road, Perth.pdf
HES Refurbishment Case Study
https://www.hiberatlas.com/smartedit/projects/122/Post-Invention Monitoring Annat Road.pdf
Post-Intervention Monitoring Report

Link to best practice example (Hiberatlas):

https://www.hiberatlas.com/en/annat-road--2-122.html