



Terrace House Underfloor Upgrade & Refurbishment



Leca® Insulation Fill was utilised for the renovation of a 3-bedroom terrace house in Liverpool. This project was an upgrade and refurbishment to make the property a more energy efficient property with a reduction in fuel bills and carbon emissions, whilst increasing the comfort levels.

Over 20m³ of **Leca® Insulation Fill** was utilised by local contractors **Penny Lane Builders (PLB)** for the whole ground level of the property. Leca® Insulation Fill is a lightweight expanded clay insulation that typically cuts foundation time by hours, and this was further accelerated through the unique pneumatic delivery option, which completed the ground floor within 45 minutes. The natural compaction of the material to find its place when delivered as an aggregate increased the efficiency of the delivery.

FACTS

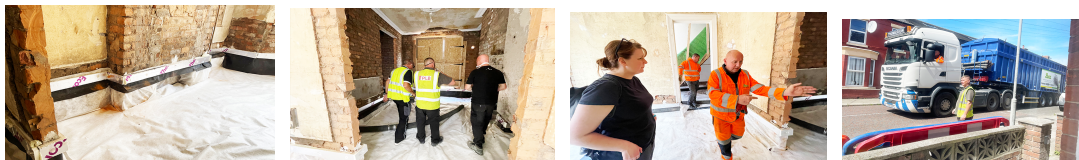
Client: Marianne Heaslip, Technical Director for [Powered Retrofit](#)

Contractor: [Penny Lane Builders](#)

Delivery Method: Pneumatic Delivery

Product: 20m³ [Leca® Insulation Fill](#)

Marianne Heaslip, Technical Director for **Powered Retrofit** who was the project lead for the development provided feedback; “My day job is as Technical Director for People Powered Retrofit, a not for profit 'one stop shop' providing retrofit services to householders across the North-West - offering advice and support to community energy groups across the country. As part of this I spend a lot of time looking at different products and understanding their performance and when you might best use them. I chose Leca® Insulation Fill for the ground floor insulation in my own house for a few different reasons.”



Future Proofing Against Flood Risk

Future proofing the property against the risk of flooding was an important factor for selecting a suitable underfloor fill, “I was keen to manage moisture risks and using a granular insulation like Leca® Insulation Fill means there is no capillary action, so moisture doesn't track upwards towards the slab, and it also reduces moisture pressure on the surrounding walls, so reducing the risk of moisture tracking upwards in party and partition walls. If the house ever does flood it should also mean the insulation and the floor suffer minimal damage and will minimise the need to be replaced. As we're on the edge of a surface water flood risk zone, and through family in Carlisle, I've seen the damage the flooding can do. This was important and one of the reasons why we chose to remove the partial suspended timber floor and go for a full solid floor.”



Environmental Factors

Furthermore, the environmental benefits of using Leca® Insulation Fill as an alternative to hardcore was factored in the decision making process, Marianne goes on to explain, “I was keen to reduce the amount of plastic used in our project, and also reduce the embodied impacts of construction overall. Using clay balls as the main insulation rather than plastic foams or other high energy and petrochemical-based products should help with this.”

Ease of Installation

The installation methods available through Leca® Insulation Fill also provided a key factor to the selection of the material, “It needed to be practical to install. Granular insulation works better in this context because it can act as hardcore, blinding and insulation - so it's just one operation to do what would normally be two or three jobs. It also doesn't need to be cut and shaped to the awkward shapes of the existing ground floor layout - the bay window and the wonky walls etc. Instead, it can simply be raked into place. We went with Leca® Insulation Fill in the end over other granular products because it's a relatively modest mid-terraced house with not much space for storage of materials on site. With Leca® Insulation Fill we were able to simply 'blow' the material in direct from the truck parked in the street, rather than having to find space for bags full of insulation. The other advantage was that for the depth of insulation we were using (about 300mm) it is self-levelling - so didn't need to be 'whacked' into place, which would be another awkward job in a small terraced house.”



Conclusion

Marianne concludes, “I think the most impressive thing was the speed of the whole installation. Between the truck parking up in the road and leaving again it was just an hour and a half. And the actual insulation fill was done and dusted in about 45 minutes - or about 1 minute per square meter in terms of floor area. I think the builders especially appreciated the speed of it. If you were doing a few houses on the same street, you could really see the benefits of time saved stacking up.”

The work continues for this renovation and is aimed to be complete at the beginning of Autumn, “I've known about Leca for years - possibly during my studies at CAT, when researching for work I was involved in on the 'Retrofit for the Future' programme. I've used it and specified it on other projects - though normally in the 50L bags, and sometimes also for chimney fill. This is the first time I've seen it blown in from a truck!”