

Case study

ROCKWOOL® insulation delivers energy-saving benefits to the 'Worst House on the Street'

Exhall, Warwickshire

Year:
2023

Client:
Bradley Dodic and Billy Parsons

Building type:
Domestic dwelling

Application:
Cavity wall insulation

Product type:
NyRock® Cavity 032





The project

As energy prices continue to rise, many households are prioritising energy-saving measures, including those embarking on renovations and extensions.

With the cost of living firmly on their minds, renovators Bradley Dodic and Billy Parsons looked to improve the energy efficiency of their three-bedroom, semi-detached home in Exhall, Warwickshire. To do this, they opted for a fabric-first approach - a strategy for improving the energy efficiency of a building through its materials and construction.





“It was dark, dingy but we saw the potential to bring it into 2023 and add a side extension to create a fourth bedroom.”

Bradley Dodic



The challenge

Friends Brad and Billy joined forces to purchase their first home, a renovation project in the suburbs of Bedworth and Coventry.

In need of some TLC, the house featured on Channel 4's Worst House on the Street (April 2025) and captured the friends' journey in bringing the outdated home back to modern standards.

“It was in quite a bad state when we bought it,” described Brad. “It was dark, dingy but we saw the potential to bring it into modern times and add a side extension to create a fourth bedroom.”

As well as increasing the home's square footage, a key driver for the works was energy efficiency. “One of the biggest challenges today for homeowners like us is the cost of living. We want to keep our energy bills as low as possible,” added Brad.

Recognising the impact of insulation in improving a home's energy performance, Brad began researching different products.

“I wanted to find a manufacturer who had a range of products we could use across the whole house. There's no point in having a really warm extension and the rest of the house be freezing. I also wanted to use insulation from a company that is sustainable,” added Brad.





The solution

"ROCKWOOL insulation was one of the products we looked at and two things stood out to me," Brad continued. "First was how sustainable they are as a business¹. And secondly, their technical services team were really helpful by supporting me through the entire process."

Brad and Billy opted for a range of ROCKWOOL stone insulation for their renovation project. For external walls in the new extension, 150mm of NyRock® Cavity Slab 032 was used alongside plasterboard on dabs to help achieve a minimum required U-value of 0.18 W/m²K.

NyRock Cavity Slab 032 is a BBA-certified (Certificate 22/6252), non-combustible stone wool insulation with a low thermal conductivity, for use in both full and partial fill masonry cavities.

NyRock Cavity Slab 032 has a thermal conductivity value of 0.032 W/mK, a 13% improvement over our standard stone wool cavity slab. This means, when considering the latest notional U-values for walls in domestic dwellings, NyRock Cavity Slab 032 can achieve the target performance of 0.18 W/m²K with a thickness of 150mm, depending on construction type, which is 25mm thinner than equivalent standard stone wool cavity products within the same wall build-up².

NyRock Cavity Slab 032 comes in 455mm widths to suit standard vertical wall tie spaces and achieves a closely knitted joint with adjacent slabs, without the need for taping of the joints. This closely knitted joint helps to eliminate gaps where heat loss could occur and helps to achieve continuity of insulation across the cavity.

Brad and Billy's new extension also features a flat warm roof insulated deck for which ROCKWOOL recommended 150mm of its Hardrock® Multi-Fix (DD). High-density, non-combustible thermal insulation board, Hardrock Multi-Fix (DD) helps improve the ability of lightweight flat roof systems to control both noise ingress and egress through the building envelope while delivering thermal conductivity of 0.039 W/mK. For the floor of the new extension, 150mm of dual-density Thermal RockFloor® was installed to provide additional thermal comfort. delivering thermal conductivity of 0.039 W/mK. For the floor of the new extension, 150mm of dual-density Thermal RockFloor® was installed to provide additional thermal comfort.



1. Over the lifetime of its use (50 years as an average), ROCKWOOL building insulation sold globally in 2023 will save 818 TWh of energy, equivalent to the annual electricity use of more than 68 million homes. Source: ROCKWOOL Sustainability Report 2023

2. 13% improvement is based on the 0.37 lambda value of standard ROCKWOOL Full Fill Cavity Batt.

As well as helping to improve the thermal performance of their home, noise was a further consideration for the renovators. "As friends living under one roof, we wanted to improve acoustics and dampen noise within the house. To help, we used ROCKWOOL Sound Insulation Slab," said Brad.

Sound Insulation Slab is suitable for internal and separating walls and floors, and has a non-directional fibre orientation and high density that traps sound waves and dampens vibrations. While available in 400mm and 600mm options to fit standard centres, the age of Brad and Billy's home meant the slabs needed to fit within non-standard joist centres that ranged between 430 and 480mm. Fortunately, Sound Insulation Slab can be cut with an insulation saw or knife and features a flexible edge that enables friction fitting without leaving gaps or cracks that could affect noise and thermal leakage.

To further improve the energy efficiency of their new home, Brad and Billy worked with external wall insulation system holder, Wetherby, to install ROCKWOOL External Wall (DD) Slab and its Wetherby Four Seasons silicone render. Manufactured using dual density technology, ROCKWOOL External Wall (DD) Slab features a higher density outer surface that provides a firm and robust surface for the application of fixings and render.

ROCKWOOL Sound Insulation Slab is specially designed for internal and separating walls and floors, with a non-directional fibre orientation and high density that traps sound waves and dampens vibrations. While available in Sound Insulation Slab 400mm and 600mm options to fit standard centres, the age of Brad and Billy's home meant the slabs needed to fit within non-standard joist centres that ranged between 430-480mm. Fortunately, Sound Insulation Slab is easy to cut with an insulation saw or knife and features a flexible edge that enables easy, friction fitting without leaving gaps or cracks that could affect noise and thermal leakage.

To further improve the energy efficiency of their new home, Brad and Billy worked with external wall insulation system holder, Wetherby, to install ROCKWOOL External Wall DD Slab and its Wetherby Four Seasons silicone render. Manufactured using Dual Density technology, ROCKWOOL External Wall DD Slab features a distinctly higher density outer surface that provides a firm and robust surface for the application of fixings and render.

Once installed, adjacent tightly-butted slabs will effectively 'knit' together to provide a continuous insulating layer, eliminating heat losses that would otherwise be caused by gaps.

All the ROCKWOOL stone wool insulation used in Brad and Billy's project is also fire resilient, being made from naturally non-combustible volcanic rock. This means it can withstand temperatures in excess of 1000°C. Beyond non-combustibility, if exposed to fire, stone wool insulation will not emit any significant toxic smoke.



"ROCKWOOL insulation was one of the products we looked at and two things stood out to me. First was how sustainable they are as a business and secondly, their technical services team were really helpful by supporting me through the entire process."

Bradley Dodic



The result

"We've been really impressed with the products and support from ROCKWOOL," Brad summarised. "Billy and I have been hands-on with the project, supporting our builder, and we've all been amazed at how easy the products are to work with. I didn't realise stone wool could be cut so easily with an insulation knife."

Alongside ease of installation, the additional benefits of ROCKWOOL were eye-opening for Brad. "The good thing about stone wool is once you've installed it into the wall, it doesn't sag over time³ so you're going to have a great insulating product for years to come."

Throughout the project, ROCKWOOL also supported Brad and Billy with technical advice and support, which was much needed with the pair working full-time alongside project managing the renovation. "ROCKWOOL's technical service team were really helpful. Not only did they make sure the insulation would deliver the correct U-values we needed, but they helped me respond to queries from building control with datasheets and information, which ended up being make or break for our build timeline."

Brad continued: "Since finishing the house, we've had a further SAP [Standard Assessment Procedure] assessment, and we've gone from a low D to two marks off a B."

"Since finishing the house, we've had a further SAP [Standard Assessment Procedure] assessment and we've gone from a low D to two marks off a B, so the insulation is clearly working as it should."

Bradley Dodic

3. ROCKWOOL stone wool insulation has proven to retain its thermal insulation properties for up to 65 years. Testing conducted at the Danish Technological Institute in 2023, using ROCKWOOL products taken from an external wall system.