

Case study

SEN classrooms exceed acoustic targets using ROCKWOOL® HardRock®

Clarín College, Athenry, Republic of Ireland

Client:

Department of Education & Skills,
Government of Ireland

Architect:

Healy Partners Architects

Main contractor:

JJ Rhatigans

Roofing contractor:

Priority Roofing





The project

Clarín College in Athenry, Republic of Ireland, opened its doors as the Vocational College Athenry in 1968 - and 50 years later, ground was broken on a brand-new secondary school development.

In August 2020, the resulting €20 million secondary education facility was handed over to school management, ready to offer a truly 21st century teaching and learning experience to its first cohort of students.

The school, situated in County Galway, has been designed to support up to 1,000 students and features a general building with multi-use classrooms, an indoor sports hall, two special education needs (SEN) classrooms and a range of outdoor amenities.

As both the main building and the gymnasium featured flat roofs, main contractor JJ Rhatigans appointed sub-contractor Priority Roofing to manage this specialist package.



Clarín College Athenry's secondary school facility is now in active use, bringing modern facilities to the area and offering a much-needed expansion in capacity for the fast-growing local population.





The challenge

A key design consideration was the acoustic performance of the flat roof.

Priority Roofing had to meet a 35 dB indoor ambient noise level (IANL) as detailed in School Guidance Document 02-05-03 (Acoustic Performance in New Primary & Post Primary School Buildings), while meeting the general performance requirements specified within Technical Guidance Document 21-7 'Minimum Performance Standards of Roof Materials and Finishes'.

Although indoor sports halls allow for slightly higher indoor ambient noise levels, the decision was taken to achieve 35 dB performance throughout the facility, with control of reverberation being a key factor in the gymnasium.

Healy Partners Architects specified that the flat roof build-up should be constructed with non-combustible insulation while also achieving a U-value of $0.16 \text{ W/m}^2\text{K}$, exceeding the thermal requirement for flat roofs in schools as per the Irish Building Regulations' Technical Guidance Document L.



The solution

Meeting or exceeding acoustic, thermal and fire safety requirements simultaneously necessitated an insulation solution capable of delivering against a complex specification. The ambitious project schedule presented an additional consideration, as it was vital that the chosen insulation solution could be quickly and easily installed across the flat roof.

Having taken part in ROCKWOOL® CPD sessions covering the role of insulation for acoustics in schools, Healy Partners Architects specified ROCKWOOL to give Priority Roofing access to products which would perform for each of the criteria and be compatible with Bauder Thermofol finishing membranes.

For the 6,500m² metal-deck flat roof of the general building, 255mm of ROCKWOOL HardRock® Dual Density Multi-Fix was mechanically fixed over a Bauder DBR Air & Vapour Control Layer. This tried-and-tested build-up was finished with a mechanically fixed Bauder Thermofol PVC layer.

As a versatile build-up, Priority Roofing could use the same ROCKWOOL materials across the whole of the general building and similar across the 1,000m² gymnasium roof, which only required minor modifications.

The base gymnasium roof was a TATA D60 perforated pre-finished steel deck, with ROCKWOOL Acoustic Infills laid in the troughs to combat reverberation in the indoor environment.

As on the general building, an air and vapour control layer from Bauder sat under 255mm of ROCKWOOL HardRock Dual Density Multi-Fix insulation, and the installation was finished with an adhered, fleece-backed membrane to further improve acoustic performance.

Supported with appropriate third-party testing, the ROCKWOOL HardRock insulation layer ensured excellent acoustic and thermal performance - and as a Euroclass A2-s1,d0 non-combustible material, provided the specified fire performance.





The result

Following installation, the new school's flat roof achieved a U-value of 0.15 W/m²K, exceeding the thermal target, and met or exceeded the 35 dB IANL requirement across both the general building and the gymnasium - ultimately ensuring that the interiors are suitable for modern teaching and learning.

The thermal performance, which will hold up for decades to come, will also impart energy efficiency benefits that reduce running costs at Clarin College in the long term. Finally, the non-combustible nature of the HardRock insulation ensured that the build-up met the fire safety specification.

Having worked with ROCKWOOL before, Priority Roofing had experience of installing this build-up and similar solutions. Kevin Ryan, Director at Priority Roofing, explained, "We have worked with Bauder and ROCKWOOL on a couple of large projects installing both bituminous and single ply systems. We found the system both practical and efficient to install. The combination of the availability of the products and the technical backup received was superior to any other system that we have worked with."

"We are delighted with the overall delivery of the roof build-up and the performance achieved. The technical expertise provided by Bauder and ROCKWOOL as well as the on-site inspection regime added to the end quality achieved for the school."

Eoin O'Grady
Associate Director
Healy Partners Architects

Niall Hanley, Contracts Manager at JJ Rhatigan, the project's main contractor, echoed this sentiment: "My first experience working with Bauder and ROCKWOOL was at Gaelscoil Liatroma, and since then these have been the chosen products on a number of projects including Ennis CBS, Coláiste an Chláirín Athnery, and Coláiste Chiaráin Athlone.

"The technical backup and onsite support team are second to none which allows us as a Design and Build contractor to instil confidence in our clients when designing and delivering our projects. Coláiste an Chláirín Athnery was a great success and in particular the use of the self-adhesive vapour barrier in advance of the build-up allowed works to commence immediately internally, which was critical from a programme perspective."

Healy Partners Architects, the firm that made the initial project specification, is also extremely pleased with the final result, "The PE hall solution to deal with reverberation noise as well as rainfall noise was very successfully managed, in the most part through the innovative roof build-up solution put forward by Bauder and ROCKWOOL. The use of mineral wool as the main insulant also provided the added value of achieving relevant fire stopping performance in certain areas of the school design.

"We look forward to working with Bauder and ROCKWOOL on future projects."

