Renovation inspiration
- The case study collection
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The reasons to renovate are many and far-reaching – from leaving a legacy for future generations and improving our health, to mitigating climate change and regenerating our economy.

Renovation is hitting the headlines once again, as global governments promote energy efficiency renovations for existing building stock as one of the best ways to help our economies recover post COVID-19. The ambitious goal to achieve the greatest economic benefit and the greenest climate impact in the shortest possible timeframe. All while simultaneously improving our health and comfort – what’s not to like?

We’ve collected 10 of our most interesting renovation case studies from all over the world to inspire your next renovation project. Whether it’s upgrading a multi-unit house while protecting its historical façade or constructing a lightweight yet study apartment on the roof of a warehouse, we’ve got you covered!
A warm – and safe – welcome for moms and babies alike at Bradford Royal Infirmary

Bradford Royal Infirmary, UK

Protecting future roofers with the ultimate roof system

The Federal Education Centre for Carpenters, Germany

Striking, effective and in-budget

Hotel Theatre Figi, The Netherlands

85 years of the Moscow metro: Speed, precision and safety

The Moscow metro, Russia

Saving history, saving a home

Hirsch pharmacy, Germany
Hosting a modern residential complex... on a warehouse roof!

*Sneek warehouse conversation, The Netherlands*

A master class in acoustics at The Royal Academy of Music

*The Royal Academy of Music, UK*

Bièvre towers – When being fire-safe is beautiful

*Bièvre towers, France*

Kinder to the environment, kinder to the pocket!

*Viale Murillo, Italy*

VTB Arena park – Much more than a world-class stadium

*VTB Arena park, Russia*
1.4 million

As 1.4 million people move to urban environments globally each week, the challenge of maintaining healthy, safe and comfortable cities becomes even more urgent.

Source: PWC 2017 Cities and urbanisation - Unlocking the power of cities for sustainable development.
A warm – and safe – welcome for moms and babies alike at Bradford Royal Infirmary

The Bradford Teaching Hospitals NHS Foundation Trust is responsible for providing hospital services to over 500,000 people across the Bradford district in the UK. Its Women’s and Newborn Unit at Bradford Royal Infirmary is one of Bradford’s most well-known hospital buildings, where over 200,000 babies have been born since it was established over 50 years ago.

The challenge
Built in the 1960s, the façade of the hospital’s Women’s and Newborn Unit had never been upgraded. Heat-loss, draughts, noise and leaks were just some of the issues that made the five-storey building a cold and difficult space for patients and staff alike.

At a glance:
UK based maternity hospital discovers that teamwork – and stone wool – can future-proof a building.

- Thermal properties
- Acoustic capabilities
- Fire resilience
For Property Tectonics, the architect and lead consultancy company who oversaw the renovation, the team also needed to meet strict criteria in terms of fire safety and energy efficiency on the project.

“We worked extremely closely with the hospital to demonstrate the robustness and safety of the design as well as the products we selected,” explains Richard Rhodes-Heaton, the company’s Principal Surveyor.

While the renovation work was underway, the Women’s and New-born Unit had to be fully operational. This meant that everyone involved in the project had to be considerate of the patients and staff still visiting and working in the hospital.

The solution
The work on site began November 2017. Property Tectonics decided that insulation from ROCKWOOL and ventilated façade cladding from Rockpanel was the perfect solution to make the hospital a more comfortable and energy efficient facility for staff and patients.

To start, they installed ROCKWOOL RAINSCREEN DUO SLAB® – a thermally efficient insulation that secures a robust outer surface and a resilient inner face. Made from stone wool, RAINSCREEN DUO SLAB® is A1 fire rated as non-combustible for optimum fire resilience. It brings the added benefit of being highly resistance to wind and rain during construction, which, together with the minimal number of fixings required, made the installation quick and easy. The thermal benefits of the ROCKWOOL solution reduces heat loss and helps the hospital optimise costs by operating in a more energy efficient way.

Proven fire protection
Fire safety was a vital aspect of this project, and Property Tectonics needed to meet strict criteria and to demonstrate the robustness and safety of the design and the products used.

ROCKWOOL’s fire protection solutions can slow the spread of flames, contain fires locally and stop them from spreading further. Resilient stone wool insulation is a key component in fire-resilient buildings, as its fibres are non-combustible and can resist temperatures above 1,000°C.

Extensive testing and reliable quality from ROCKWOOL means that the products are proven to be fire safe – and this was important following the UK Government’s announcement banning combustible materials in all high rise residential buildings as well as hospitals, schools and care homes.

Watch how stone wool can act as a fire barrier
To fulfil the highest fire safety requirements for exterior cladding, Rockpanel A2 façade board was deployed to create a unique identity and authentic appearance to future-proof the building.

“When it came to selecting the cladding for the project, it was a truly group-based decision,” says Richard Rhodes-Heaton. “Property Tectonics put together six different designs, and the Trust as well as the staff picked the option they preferred. It allowed us to involve everyone in the project and give them a say about how their place of work would look, which is important for employee engagement.”

The scheme represents a great example of teamwork by hospital staff and their professional advisors - at every level to produce a very successful outcome.”

Prof. Trevor Mole, MD Property Tectonics
An attractive fire resilient exterior cladding and quiet, comfortable indoor environment

Applied on top of an aluminium supporting structure and fixed with blind rivets, Rockpanel A2 boards were used in combination with ROCKWOOL’s RAINSCREEN DUO SLAB®. The Rockpanel boards weigh very little compared to alternative board materials, such as high pressure laminate (HPL), aluminium composite (ACM) and fibre cement (FCB). Rockpanel can be easily worked on site and without special tools, saving installation time and costs. It’s recyclable and has a confirmed lifetime of 50 years. All boards are as durable as stone and resistant to the effects of moisture, temperature and the weather.

A maternity ward is a special place where the indoor environment is vital. The acoustic properties of the ROCKWOOL RAINSCREEN DUO SLAB insulation also help reduce urban noise transfer into the hospital. Its high-density makes it extremely resistant to airflow and excellent when it comes to noise reduction and sound absorption, reducing sound energy as it passes through the material.

The £1.8m regeneration successfully corrected all the issues the hospital building had – heat loss, draughts, noise and leaks, while protecting the building from bad weather and fire. The result was a much more comfortable and energy-efficient facility that staff, patients and visitors alike could enjoy.

A hospital to be proud of

The entire team at the hospital were delighted with the renovation.

“The fact that we were able to keep services running as normal while all this work took place is testament to the support and consideration of the contractors,” says Amanda Hardaker, Midwifery and Gynaecology Matron at Bradford Maternity. “We are so pleased with the finished job: the main difference is that we’re insulated now and fit for the future. We’ve gone from having to have extra heaters on in patients’ rooms to a really balmy temperature, so that we often don’t even need the radiators on. And most importantly it means that we can optimise outcomes for babies. The best thing for new born babies, especially ones which are underweight and more vulnerable, is that the heat service is consistent, which it absolutely is now.”

Amanda Hardaker, Midwifery and Gynaecology Matron, is delighted that the renovation ensures the stable temperature needed for new born babies.

“The scheme represents a great example of teamwork and excellence in project delivery by hospital staff and their professional advisors cooperating and engaging at every level to produce a very successful outcome,” says Prof. Trevor Mole, MD Property Tectonics.

“The result creating the right internal environment which saves energy, protects the planet and improves the look and feel of the hospital estate; all achieved whilst maintaining full operation of the Unit.”

Click here

if you have a renovation project that we can help you with.
200 million tonnes of CO₂

Our building insulation sold in 2019 will save up to 200 million tonnes of CO₂ throughout its lifetime.

Source: ROCKWOOL Group, Sustainability Report 2019, p. 28
Protecting future roofers with the ultimate roof system

Welcoming trainees, architects and engineers since 1927, the Federal Education Centre for Carpenters and Finishing Trades in Gladbeck, Kassel helps preserve interest in timber construction – both traditional and modern – in Germany. The sprawling facility spreads over 13,000 m², with learning taking place in workshops, training and seminar rooms. The bulk of the centre’s expansion took place during the 1980s.

The challenge
With a goal to improve energy efficiency, most of the facility was renovated during 2017/2018. Responsibility for the roof areas fell to the local craftsmen from Kühne GmbH, and to master roofer, Dirk Flörke.

At a glance:
An exceptional learning experience occurs when an education centre for carpenters and future roofers needs to install an intricate roof system.

- Thermal properties
- Acoustic capabilities
- Fire resilience
“The Federal Education Centre has been expanded again and again. New buildings have been constructed and extensions added over time,” explains Dirk Flörke. “So for us, it wasn’t about upgrading the roof structure of a homogeneous building complex, but about processing many different roof structures and geometries. That’s what made our job tricky and exciting at the same time.”

In total, 36 individual roof areas covering around 5,500 m² needed refurbishment and modern insulation installed. Even removing the old roof coverings was challenging, as many used asbestos corrugated sheets that needed to be dismantled and disposed of properly. And to add to the complexity of the project, the refurbishment needed to take place during term time when school was running.

“Helmhard Neuenhagen, Managing Director and Head of the Federal Education Centre

**The solution**

The diversity of different roof shapes and structures meant that ROCKWOOL Meisterdach – a flexible and high-performing stone wool insulation system – was the perfect choice for the project. Not only would the roof insulation help minimise heat loss and reduce heating bills for the Centre, the stone wool would also secure fire and sound protection – both important benefits for a school environment.

**Roof insulation**

A sure way to increase the energy efficiency of residential and commercial properties is by installing effective roof insulation.

Whether it’s reducing heat loss in winter time or keeping cool in summer, increasing the energy efficiency of a building can reduce bills and operational costs.

ROCKWOOL supplies a variety of insulation products for flat or pitched roof applications – all based on premium stone wool to keep your properties safe and the indoor environment comfortable.

Get an overview of the various types of roof insulation

The first step involved installing a ROCKWOOL vapour barrier followed by non-combustible and pressure-resistant stone wool boards. As these boards came with a factory-applied water tight membrane on the outer surface, they provided an almost instant weather protection – which resulted in being very useful as the weather was particularly wet during the renovation period!

When it came to insulation, the team at Kühne GmbH from Kassel laid non-combustible and pressure-resistant stone wool panels from ROCKWOOL.

The insulation on top of the rafters was the perfect solution for us. The use of non-combustible insulating materials was part of the fire protection concept.”

Helmhard Neuenhagen, Managing Director and Head of the Federal Education Centre
The team installed counter battens on top of the insulation layer, followed by Eternit panels. The entire roof structure was safely anchored with 300 mm long-thrust screws, screwed in at an angle of 90°, and 320 mm long-suction screws at a 60° angle. Kühne GmbH relied on expertise from ROCKWOOL's technical service to make the complex static calculation for the screws.

Managing Director and Head of the Federal Education Center, Helmhard Neuenhagen (right) and Head of Special Projects Dr. Holger Schopbach (left) are looking forward to lower energy costs after upgrading the building envelope and, of course, a better indoor environment for the students.

'Easy' insulation for an intricate installation
For Flörke and the team from Kühne GmbH, the fact that the ROCKWOOL insulation material is easy to cut and prepare proved to be a substantial benefit. They needed to follow the varied geometry of the roof structures and navigate difficult connection areas.

The shed roofs above the workshop halls were particularly demanding, requiring experience and a professional eye with an accurate sense of proportion to cut the insulation panels precisely. So it was relief for the team that they could cut and shape the stone wool to fit perfectly with the roof structure, avoiding air gaps and any possible errors.

Educating on the job!
The roof renovation work also served as a compelling visual aid for the students attending the Centre – and they gained unique and concrete understanding of what is needed in such a large-scale renovation project.

**Why do we need roof insulation?**

70%

Effective insulation in homes and commercial properties can reduce heating requirements by up to 70 percent! And those that are not insulated properly can lose approximately a quarter of the heat through the roof. As well as warm air escaping, there’s the chance that cold air can also enter through a poorly insulated roof. In hot climates the opposite can occur, where keeping a building cool is essential.

35-60%

Heat and cooling buildings accounts for 35-60 percent of the total energy demand around the world. So the resulting reduced energy bills quickly surpasses the cost involved in insulating the roof.

> “It wasn’t just the new generation of roofers that were interested – almost every student enjoyed an educational visit to the roofs in the course of the project,” said Helmhard Neuenhagen, Managing Director and Head of the Federal Education Centre. “The work of the team from Kühne GmbH interested almost every student. That is why we made sure that they could experience their work up close.”

2 https://www.c40.org/researches/mckinsey-center-for-business-and-environment

Click here if you have a roofing project that we can help with.
Retrofitting Europe’s buildings with insulation could save 660 million tonnes of CO$_2$ – that’s twice as much as France emits annually.

Source: Calculation carried out by Material Economics 2018
Hotel Theatre Figi - Striking, effective and in-budget

Since its humble start as a bakery in 1850, the Hotel Theatre Figi has been an important social gathering point in the town of Zeist in the Netherlands. Under the careful ownership of Ruijs family since 1917, the hotel and concert hall were added to the establishment in 1925, and a full rebuild took place in 1994. By 2017, Diederik and Victoria Ruijs – the third generation in charge of Figi – believed it was time to renovate the building once more, with the theatre lobby ready for a makeover in 2018.

At a glance:
A creative architect and convincing team at Rockfon Netherlands found a bold and fresh way to improve the acoustics and upgrade the look of a tired theatre lobby.

Acoustic capabilities
Aesthetics
When reopening the lobby of Hotel Theater Figi in Zeist, all the guests were talking about the ceiling. That’s the best compliment we could get.”

Gerben van der Molen, interior architect from Stars Design
if a bold and beautiful ceiling is on your renovation wish-list.

The extra-white surface provided by Rockfon Blanka® secures optimal light reflection and diffusion.

The solution
The architect worked closely with the team at Rockfon, part of the ROCKWOOL Group, to find a solution stood out from a standard suspended ceiling, but was still within budget. Together, they developed a 3D solution based on a stripped down system ceiling using standard acoustic ceiling panels and grid profiles.

“When the interior architect shared his vision with me we were able to create a whole new application using available components in a different way,” explains Anton Faber, key account manager Rockfon. “A mock-up at the Rockfon Development Center in Wijnegem convinced both the architect and the client to take a leap of faith and execute it for the first time.”

Transforming a traditional stripped-down rail system
The striking ceiling was created using Rockfon Blanka® in combination with a new 3D grid application, Rockfon Color-all®. By using c-profiles – the product used to close gaps between grid and tiles – the black rail system was highlighted, and then the ceiling panels were placed in an oblique position. This innovative solution allows the architect to maximise acoustics while playing with heights and patterns at the same time, creating a whole new experience. Rockfon Blanka® has a fully matt, smooth and extra-white surface, with high light reflection and light diffusion that contributes to energy savings and a bright and comfortable indoor environment. To create a playful contrast, Gerben van der Molen chose Rockfon Color-all® in charcoal. The 3D grid application offers new design freedom due to exposed, semi-concealed and concealed edges in a large variety of module sizes and colours.

A result that speaks for itself
The finished ceiling not only looked bold and fresh, it also provided great acoustics, and contributed to the experience of every visitor.

“A suspended modular ceiling is often a ‘must’ when looking for a low-budget ceiling solution,” says Gerben van der Molen, interior architect from Stars Design. “However, a visible grid is not always the most beautiful aspect of the design and architects often try to hide it. But why not use the grid to our advantage and make it stand out more? I discussed my vision with Rockfon key account manager, Anton Faber. Together with the technical specialists, we were able to make this happen by developing a new 3D-application using available components.”
50-90 percent of the global energy used in buildings today can be saved by applying existing energy efficiency products and technology.

Source: BPIE, 2014, page 10
Having recently celebrated its 85th birthday, the Moscow metro has undergone many changes during its lifetime. From expanding to 15 lines with 275 stations to establishing the Moscow Central Ring and the Moscow Central Diameter, the metro continues to evolve and grow in importance as a means of transport. But one thing remains unchanged, and that's the priority of the safety of passengers and employees.

At a glance:
Stone wool is helping the Moscow Metro to keep commuters safe and comfortable.

- Fire resilience
- Robustness
- Thermal properties
Because we do not build or renovate as we used to do 50 years ago, being aware of the possible consequences of this change, like increased fire risks for example, is critical. Non-combustible materials have an important role to play in keeping modern buildings and their occupants safe.”

Andrei-Mircea Corches - Regulatory Affairs Partner, Fire Safety at ROCKWOOL Group
Fire safe insulation from ROCKWOOL

Installing fire safe insulation is a great way to ensure the safety of building occupants – and to prevent the spread of fire to limit structural damage.

As a fire can start in any part of a building, it’s important to install fire resistant insulation required wherever possible. Made from non-combustible stone wool, ROCKWOOL’s insulation slows down the spread of fire, containing it within one compartment of a building for as long as possible. This provides vital time for occupants to escape during a fire, while creating a safer environment for firefighters to combat the flames.

ROCKWOOL insulation is made from non-combustible fire-resistant stone wool that can withstand temperatures above 1,000°C. This helps limit the spread of fire in a building. With minimal organic content, no significant toxic smoke is produced either.

Our insulation is classified as A1 according to the Euroclass system. Those are the top fire performance classifications and based on several characteristics including:
- Ignitability
- Flame spread
- Heat release
- Smoke production
- Propensity for producing flaming droplets/particles

What’s more, ROCKWOOL insulation also offers additional benefits, including:
- Thermal properties – in the cold winter months, heat is retained in buildings to keep residents snug and warm, and in the summer time, the same properties help cool air stay within the walls, keeping people cool and fresh.
- Acoustic performance – noise pollution is blocked and absorbed, particularly in noisy urban areas.
- Robustness – made from sturdy stone wool, providing stability when used in high-rise developments.
- Aesthetics – fire resilient insulation solutions are flexible and can be shaped according to the building.
- Water repellence – in the event of rainfall or moisture, insulation can repel water to keep building dry.
- Circularity – made from recyclable materials and using environmentally-sustainable processes.

Deepen your understanding of fire safe insulation

ROCKWOOL’s fire-resistant insulation secures a safe journey for everyone using the metro – and a pleasant indoor environment.

Many Moscow Metro stations are benefiting from the unique properties of stone wool.

Click here if you’d like more ROCKWOOL inspiration for your renovation project.
Construction is very relevant in our economy, employing 10 percent of all workers and contributing to 8.2 percent of the GDP in Europe.

Source: BPIE infographic (https://www.renovate-europe.eu/2020/06/10/building-renovation-a-kick-starter-for-the-eu-economy/)
The impact of a fire can affect many – families, businesses and the community. In 2016, pharmacist Klaus Dewies faced his worst nightmare when a fire broke out in the building that hosted his business and his home. His family had maintained the historic building in the old German town of Haltern am See since 1919. The pharmacy, where Dewies worked, was located on the ground floor and the top floor was converted into a bright apartment for his family. To add to the tragedy, the building itself is protected and considered to be one of the most beautiful facades in Haltern.

At a glance:
Sometimes, a renovation is much more than improving a building.... it’s about saving a home and someone’s livelihood.

- Fire resilience
- Robustness
I have chosen the new insulation very consciously. It’s a good feeling that the historical wooden beams – and of course we – are protected by non-combustible insulation.”

Klaus Dewies – pharmacy owner
“You rarely find a beam construction like this,” explains Schade. “An external beam structure with a roof overhang covered the historic beams where they connected with the outer wall. This was to protect them from moisture. In principle, it was a good idea. But in the event of a fire, the fire and smoke could initially go unnoticed in the cavity between the two roof trusses.”

Stone wool – naturally fire resistant
Insulating a roof is an effective way to minimise heat loss and reduce heating bills and is important to consider as a major aspect of any roof renovation project.

Non-combustible stone wool was the obvious insulation choice for Dewies. Supported by Schade and his team, they decided on a ROCKWOOL insulation solution for pitched roofs that offered heat, noise and – most importantly – fire protection.

The geometry of the roof was a challenge when it came to installing modern insulation, as the large dormer windows at the front and back created many ridges and throats. This made a lot of detailed work necessary, requiring insulation and foils to be carefully cut and worked on. Here, the fact that the ROCKWOOL stone wool is easy to cut and prepare proved to be a substantial benefit, which helped the team complete their intricate work while avoiding errors.

The extensive renovation also needed to meet the requirements of the Energy Saving Ordinance 2016 (EnEv). But this was not a concern for Schade and his team. They could complete the renovation with peace of mind knowing that the ROCKWOOL insulation system was developed in accordance with these requirements.

Energy Saving Ordinance (EnEV)

The Energy Saving Ordinance – or Energieeinspaarverordnung (EnEV) as it’s called in German – is an important part of the energy and climate guidelines issued by the government in Germany. First released in 2002, it was reissued and amended several times, with the latest coming into force on January 1, 2016.

The EnEV poses energy requirements for new buildings, taking the structural heat insulation of the building as well as the energy efficiency of the systems used – heating, ventilation, cooling, light – into account.

Klaus Dewies was delighted with the final result, and happy to move back into his renovated, fire-safe home.

After the renovation, the Hirsch pharmacy reopened for business, continuing to serve the community as it had done for almost 100 years.
Across the planet, more than 28 percent of greenhouse gas emissions derive from energy use in buildings.

Source: Global Status Report 2017, figure 7 (IEA)
Hosting a modern residential complex... on a warehouse roof!

In the Dutch town of Sneek, an old warehouse was repurposed to serve as much-needed base for assisted living apartments. The Rockzero® Building system from ROCKWOOL ensured that the transformation took place in record time – while securing the highest insulation values.

Dutch real estate developer, RTR Vastgoed, owned an existing warehouse built in the 1950s. Located in a prime residential area right in the centre of Sneek, the potential of the building was huge – particularly if it could be extended vertically.

At a glance:

The Rockzero building system helps an aging warehouse find new purpose by hosting apartments for a local care institution.

- Thermal properties
- Acoustic properties
- Fire resilience
The Rockzero Building Systems worked out well, because the system is very flexible and very suitable for making adjustments quickly in the work process. This system contributes extremely well to a smooth construction process.”

Bernd Bove, project manager at Adema Architects
Stephen Muller, key account manager at ROCKWOOL, regularly visited the project throughout the construction period.

“For us, this transformation was extremely interesting, because it was the first time we’d used the Rockzero building system within an existing building. RTR Vastgoed chose our building system to be able to apply a lightweight, fireproof façade with façade cladding, which could be built quickly and flexibly on and against an existing building,” explained Muller.

The Rockzero building system contains columns of stone wool, which have a strong structural load-bearing capacity. The building system is light, flexible, non-flammable and insulates well, due to the fact that it is based on ROCKWOOL’s stone wool.

If it’s necessary to construct a new building, it makes sense to use the latest in available technology to ensure that it’s as energy efficient and sustainable as possible. Nearly zero-energy buildings (NZEB) have very high energy performance – and the small amount of energy that these buildings require comes mostly from renewable sources. According to the EU’s Energy Performance of Buildings Directive, all new buildings must be nearly zero-energy by the end of 2020.1

ROCKWOOL developed Rockzero to meet this need – a pioneering new system that integrates the natural benefits of stone wool insulation with the structural support of the home. With Rockzero, you can build homes with superior energy efficiency, fire protection, indoor comfort and sound insulation, that deliver on energy performance as calculated and that are airtight yet breathable. Rockzero homes are lightweight and modular, allowing new homes to be constructed quickly, meeting standards that exceed local regulations and giving long-lasting durability. This makes it easier to construct next-generation sustainable homes – while using less valuable resources. Thanks to the Rockzero Revit Plug in, customer can also receive support in the digital space using BIM (Building Information Modelling).

The performance of Rockzero exceeds current and future energy regulations without the use of other energy sources and with no restrictions on the orientation of the building or choice of primary heating source. Rockzero has no thermal bridges, so it performs consistently, regardless of the building’s layout. As stone wool insulation is robust and durable, you benefit from predictable low energy and maintenance costs for decades. With Rockzero, you’re ready to meet the requirements of tomorrow – and protect future generations.

The Rockzero building system allowed the warehouse to be converted into apartment – and even host apartments on its’ roof!

“As a result, the system is suitable for any type of façade and façade finish,” continues Muller. “In this project, the building contains different types of façade finishes that demonstrate that flexibility, such as existing and new masonry and façade cladding. The system is modular, arrives to the site and can be assembled directly.”

The success of the project at Sneek was the direct result of positive team work from RTR Vastgoed, Adema Architects and ROCKWOOL’s technical solutions centre. By using the Rockzero building system, the could rapidly development safe and comfortable homes for local people with special needs.

1 https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/nearly-zero-energy-buildings

Download our Rockzero brochure to learn more

if you have a renovation project that we can help you with.
Over the lifetime of its use, the building insulation we sold in 2019 will save 100 times the carbon emitted in its production.

Source: Global Status Report 2017, figure 7 (IEA)
A master class in acoustics at The Royal Academy of Music

The recent project marks one of the most significant building and renovation projects in the Academy’s near-200-year history.

To achieve the very best performance demands commitment, skill and passion. The team behind the recent reinvention of the Royal Academy of Music in Regent’s Park, London called on all three qualities to create the stunningly beautiful, acoustically brilliant and inspiring spaces for staff and students. The project included completely refurbishing the 309-seat Susie Sainsbury Theatre and creating the new 100-seat rooftop Angela Burgess Recital Hall. Alongside these impressive spaces, the Academy also renovated 14 practice and dressing rooms, developed five new percussion studios, a large refurbished jazz room and a new control suite for its audio-visual recordings department.

At a glance:

Improving acoustics is an important aspect of most renovations, but never more so than when revitalising London’s Royal Academy of Music.

- Acoustic properties
- Thermal properties
- Fire resilience
The challenge
Creating impeccable acoustic environments was key during the project. But it was equally important to control how sound travelled throughout the spaces, while ensuring effective isolation from sounds from other areas.

The new performance spaces are hidden behind the listed façade of the Royal Academy of Music’s Edwardian premises, surrounded by Grade I and Grade II listed buildings and located within the Regent’s Park conservation area. The architects, Ian Ritchie, Architects, needed to carefully design the new spaces so that they would seamlessly blend into the historic site.

The new Angela Burgess Recital Hall sits above the Susie Sainsbury Theatre, meaning it needs to be acoustically isolated from what was below as well as the other buildings in the vicinity.

“This one of the biggest challenges for the project,” comments Richard Shanahan, Director at All Metal Roofing. “Sound quality was of absolute importance within the performance spaces themselves, but we also had to limit its travel around the building and externally.”

The solution
As part of the redevelopment of the building, the Royal Academy of Music worked with engineering consultancy, Arup, to create spaces that were completely isolated in terms of acoustics and noise transfer.

Why ROCKWOOL for the Royal Academy?
ROCKWOOL worked with the team at All Metal Roofing to specially create a 50mm version of the HARDROCK® Multi-Fix solution. Its unique Dual Density stone wool composition is why HARDROCK® Multi-Fix (DD) is renowned for its excellent acoustic reduction, absorption and impact performance, whether from people, machinery or rain on the roof.

HARDROCK® Multi-Fix (DD) is dimensionally stable and will provide long term consistent thermal performance over its lifetime. It also provides the highest fire safety rating of any flat roof board insulation on the market with a Euroclass (A1) non-combustible fire classification and LPCB approval (LPS 1181 Part 1, BS 476: Part 21, EN 13501-1)

ROCKWOOL RWA45 has been developed for thermal, acoustic and fire performance in a range of construction types. RWA45 is made up of high-quality resin bonded slabs in a variety of thicknesses. Specialist facings are available to order to meet the specifications of unique projects.

The renovation saw the creation of spaces that optimised acoustics and were completely isolated from external noise.

“We are delighted with the finished result. Working with ROCKWOOL to understand and guarantee the sound performance of the insulation was a crucial part of the project.”

Richard Shanahan, Director at All Metal Roofing
This included looking at external noise such as the nearby underground and, as the various concert spaces are so tightly intertwined, the sound coming from the individual rooms. Arup, Ian Ritchie Architects and The Royal Academy of Music teams collaborated to create spaces that were structurally isolated from each other to minimise sound transfer. The Recital Hall itself is actually built as a self-supporting space placed on top of the existing building.

In order to complement the structure of the building and ensure each space was acoustically isolated, the contractors for the project, All Metal Roofing, selected insulation from ROCKWOOL as the ideal material.

The project has impressed many, winning numerous awards since its’ completion.

Academy of Music project, ROCKWOOL RWA45 insulation is both water repellent and vapour permeable, which helps to prevent moisture build-up, damp and rot; condensation was a particular concern due to the type and age of the building.

Meeting royal standards
The renovation project has been a huge success for the Royal Academy, with the result being that they have more suitable space to hold concerts and events. The ROCKWOOL solution complements the structure of the building and ensures that each space is acoustically isolated, meaning that every performance is fit for a king.

“We have estimated the performance of the roof at 58db and the wall at upwards of Rw 65 dB,” says Richard Shanahan. “This means we met the criteria the Royal Academy of Music required.”

And it’s not only those involved in the project that are impressed. The project has already won the RIBA London Building of the Year and the AJ Retrofit of the Year Award as well as many others since its completion in 2018.

Click here if sublime acoustics are vital to your renovation project.
18,000 jobs

For every €1 billion invested in renovation, 18,000 local jobs are secured.

Source: BPIE (infographic https://www.renovate-europe.eu/2020/06/10/building-renovation-a-kick-starter-for-the-eu-economy-2)
Bièvre towers
– When being fire-safe is beautiful

Watered by the Bièvre, a tributary of the Seine, the town of Antony is located 11 km outside the centre of Paris. When aging residential towers located on the hills needed refurbishment, it proved to be a chance to improve the look and general attractiveness of the area.

The challenge
Many architects face the challenge of creating buildings that ensure optimum fire safety – but that also meet their design dreams. There are many ways to comply with safety and building regulations, but what’s the best option when if you don’t want to compromise on design?

At a glance:
Sometimes renovation can result in a complete make-over for the building, proving that practical can be beautiful!

- Fire resilience
- Aesthetics
- Thermal properties
The solution

Irène Morawiec, from Architecte Associée Groupe, Arcane Architectes, was tasked with designing the upgrade of the Bièvre towers. Located on the hills in the leafy Parisian suburb of Anthony, she was asked to dramatically improve the look of the building as part of the refurbishment. Their prominent location in the town meant that their look affected the appeal of the area. Due to the fact that they are residential towers, the moment Morawiec saw their height and number of windows, she realised that fire safety would also play a large part in their renovation. After careful research, she discovered that innovative façade cladding and insulation could make big difference to both the safety and the appearance of the buildings.

“After we had done our research very thoroughly, we decided to choose a combination of stone wool insolation from ROCKWOOL and Rockpanel Woods and Colours for the façade cladding,” explains Irène Morawiec.

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Rockpanel Woods look so much like real wood. I find it absolutely astonishing.”

Irène Morawiec, Architecte Associée Groupe, Arcane Architectes.
A basalt-based façade – that looks like wood!

In high-rise buildings, fire safety is the number one priority – and with a beauty-boost also on the agenda, Morawiec truly believed that the Rockpanel and ROCKWOOL combination was the perfect solution. The architect group presented two designs to their client, Hauts-de-Bièvre Habitat – the housing association who owned the towers.

“The first option included a faded colour effect and the second one looked more like a chocolate fountain,” said explains Morawiec. “The second option was selected by the building owner and it works very well. Rockpanel Woods look so much like real wood. I find it absolutely astonishing.”

As the housing complex was very outdated, their improved new looks delighted the residents – as did the peace of mind knowing that the non-combustible stone wool insulation vastly improved their safety.

Using Rockpanel Woods and Colours for the façade cladding gave the housing complex a gorgeous and modern look.

Click here for more inspiring ways to use Rockpanel Woods

The new eye-catching exterior of the towers also contributes to the general attractiveness of the neighbourhood as a whole.

In France, using fire resilient façade panels on high-rise buildings is relatively new, as traditional ‘bavettes’ are often used. The combination of light-weight panels that are fire resilient and available in many attractive designs is what made Rockpanel stand out in this case. And although it was the first time for the architect group to use this solution, it certainly won’t be the last.

Click here if you want advice about how best to give your building a makeover.
5-6%

Based on a renovation of medium depth, the internal rate of return (IRR) over 30 years is 5-6 percent.

Source: European commission (2019)
Over 100 years old and located on a busy street in central Milan, this beautiful building on the Viale Murillo took advantage of national renovation incentives to become more energy efficient. It’s a mixed neighbourhood in the very heart of the city, with banks, offices, restaurants, shops and residential buildings mingling together. No.10 Viale Murillo is a residential building, housing nine units over five floors.

The challenge
Built in about 1905, this apartment building craved a deep renovation to reduce its energy use and limit the noise levels stemming from the bustling city outside.

At a glance:
This renovation reduced energy bills by a whopping 80 percent!

- Thermal properties
- Acoustic properties
- Fire resilience
This project constitutes a model to follow and replicate: A building that combines innovation and respect of the past. Implementing sustainable actions at a social, economic and environmental level we can improve the quality of life of citizens. The renovation of buildings represents a fundamental step in planning the future of the city. We therefore continue on this path.”

Giuseppe Sala, Mayor of Milan
Reducing energy consumption and utility bills
A key challenge throughout the renovation was to preserve the historical character of the building. This was achieved by a very detailed survey of the classic façade combined with the application of a customised external insulation system that could accurately and flexibly follow the original mouldings on the building. The project team identified the ROCKWOOL REDArt thermal insulation system as being the perfect fit, preserving the old design of the building while improving energy efficiency and guaranteeing high level performance over time. REDArt proved to be an ideal choice, as the system offers excellent, lasting thermal properties as well as securing fire protection. As the building is located in a very vibrant part of the city, the insulation system also secured welcome relief from external noise pollution, boosting the acoustic comfort within the building. The ROCKWOOL technical support team were on hand to advise throughout the renovation and ensure the system exceeded expectations.

“By selecting a versatile material such as stone wool for the realisation of the exterior thermal insulation layer, it was possible to obtain multiple advantages,” says Paolo Migliavacca, Business Unit Director of ROCKWOOL Italia S.p.A. “These ranged from the improvement of insulation with a consequent reduction in energy consumption to the achievement of more comfortable environments, with enhanced sound insulation and fire safety.”

The renovation focused heavily on the addition of effective thermal insulation, with a goal to help increase internal comfort and reduce consumption and operating costs. The outdated heating system was also replaced with an efficient gas-fired heat pump. By combining effective insulation with a modern heating system, the building’s energy class jumped from G to C. In turn, this reduced energy consumption by a whopping 74 percent, the equivalent of 48 kW/m², and utility bills were reduced by 80 percent!

Get wiser about External Thermal Insulation Composite Systems
Otherwise known as ETICS, this innovative product is a compact, multilayer insulation that helps improve the energy efficiency of new and existing buildings.

The greatest amount of heat loss can occur through the building’s façade, as it’s usually the largest surface area between its internal and external environment. A great way to avoid this heat loss is by insulating external walls from the outside. And this is exactly what ETICS does. Whether an individual detached house or an entire apartment block, ETICS insulates the vertical envelope of a building. This prevents temperature loss, weather related damage and issues with condensation.

Made from many layers, ETICS includes a base coat, reinforced mesh and a finishing coat. The types of materials used can vary between systems, making it flexible to fit different building structures and designs – and making it a popular choice for renovate existing apartment blocks.

Today, the renovated residential building on Viale Murillo now ranks among the most advanced real estate assets in the capital of Italy’s Lombardy region, representing a model for the entire city to aspire to.

Click here if you want to learn more about ETICS

Click here if the aim of your renovation is to slash your energy bill.
Buildings can save almost a staggering 70 percent more carbon emissions than the next most cost-effective sector – industry – with the same level of investment.

Source: IPCC ‘Climate change 2007 – Mitigation of climate change’
VTB Arena park
– Much more than a world-class stadium

It may resemble a futuristic spacecraft, but the stunning VTB Arena has taken great care to preserve its ties to history. The reconstructed and refurbished home of FC Dynamo Moscow, one of Russia’s most famous soccer clubs, is built on top of the original 1928 stadium’s perimeter wall, with a statue of legendary goalkeeper, Lev Yashin, gracing the main entrance.

The stadium is part of the spectacular project referred to as VTB Arena Park. Spanning 300,000 m², the project also includes the Dynamo hockey rink as well as a park, shopping and entertainment centre, office and apartment buildings, five-star hotel, and an underground car park with 1,600 spaces.

At a glance:
A celebrated soccer club, a 5 star hotel, luxurious apartments and a luscious park, the VTB Arena certainly has it all – including copious quantities of stone wool to insulate the roofs, walls, floor, pipes and ductwork.

Acoustic properties
Fire resilience
The challenge
Located just five km from the Kremlin, the project’s size and prestige meant that it received a lot of public attention – not least because the stadium belongs to the legendary football club, Dynamo Moscow. The historic stadium walls were preserved as part of the reconstruction, with many die-hard fans eagerly awaiting the final result, so there was no room for mistakes!

The goal of the project was to combine sports, entertainment, commercial and residential facilities in a unique location within the historical green area at the very heart of Moscow. Its very nature means that people – their comfort and safety – was key to its success. Only the best materials were considered for the construction – and fire safety, energy efficiency, thermal insulation and noise reduction was high on the list of the owners’ priorities.

And unsurprisingly, considering massive size and prominent location of the project, time was a critical factor.

Dynamo Central Stadium – A short history
Designed by architects Arkadiy Langman and Lazar Cherikover, Dynamo Central Stadium was established in 1928. The Dinamo metro station opened in 1938, making the stadium much more accessible to the general public. An athletics track – no longer in use – circles the football pitch, and a monument in honour of legendary goalkeeper, Lev Yashin (1929-1990), stands at the stadium’s north entrance with VIP boxes positioned above the entrances to the north and south stands.

In 2008, the stadium celebrated its 80-year anniversary – and during the same year, it closed for demolition, with FC Dynamo Moscow playing their farewell match on November 22, 2008. The stadium’s main tenant, FC Dynamo Moscow, moved to Arena Khimki in the Moscow suburb of Khimki.

Today, the Dynamo Central Stadium – a multi-functional sports and entertainment complex – has been developed as part of the overall reconstruction of the stadium. The stadium and arena share one roof within the boundaries of the historic stadium’s walls, making the project unique. The surrounding residential area, Arena Park, hosts the five star Hyatt hotel, offices, residential buildings and shopping, with the complex served by two metro stations.

The solution
Sergey Kuznetsov, the current Chief Architect of Moscow, was managing partner of the architectural association, SPEECH Tchoban & Kuznetsov, who looked after the general design of the project. For a prize-winning development praised for its contemporary and innovative approach, what better than prize-winning insulation, also famed for modern innovation. A match made in heaven!

If you look at the diversity of the spaces in this complex, combined with the millions of people expected to use them each year, helping the owners achieve a high level of fire safety, energy efficiency and comfort is quite rewarding, especially for such an important project like this.”

Marina Potoker, Managing Director, ROCKWOOL Russia.
if you have a renovation project that we can help you with.

ROCKWOOL’s dual density products were key in clinching the deal. Time was of utmost importance and installation time is slashed by 50 percent when using dual density products. As a primary supplier, ROCKWOOL has a variety of its stone wool products installed across all VTB Arena Park spaces. This includes more than 130,000 m² of several types of stone wool insulation in the floors, walls and roof. Not only that, but 70,000 m² of stone wool technical insulation cover the heating pipes and ductwork, ensuring the building’s utility infrastructure is fire safe and that precious heat is preserved to keep visitors warm throughout Russia’s cold winters.

The VTB Arena park project has breathed new life into the area, and ROCKWOOL is proud to be part of this exceptional project that brings entertainment, comfort and safety to city revellers in Moscow.

Click to understand more about dual density technology

ROCKWOOL uses a special manufacturing process to create dual density products. Consisting of a high-density outer layer and a lower-density sub-layer, this technology brings extra benefits to many of the ROCKWOOL products; including flat roof insulation, ETICS and ventilated façade insulation products. Dual density products are exceptionally strong, with a firm and robust surface that is balanced by a less dense, more flexible underside that can better adapt to unevenness in the substrate. Dual density technology provides compressive resistance, excellent sound absorbency and many other benefits for different applications.
Resilient buildings are crucial in adapting to a 1.5°C world, and urban design and spatial planning policies need to consider extreme weather conditions to ensure comfort and avoid displacement.

Source: IPCC 2018 Chapter 4, page 30
We’re ready to bring your renovation project to the next level!

And you’re just one click away from access to experts who can turn your renovation dream into a reality.

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