

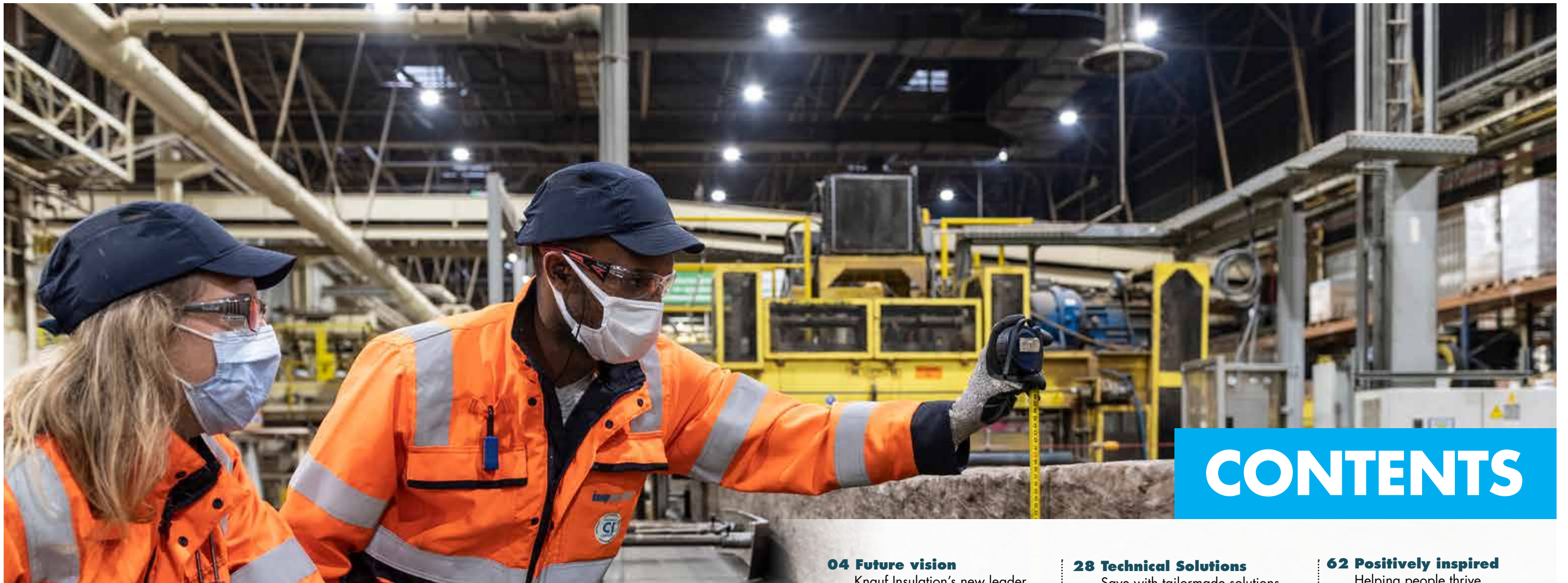
FOR A BETTER WORLD



Insulation Matters
Annual Review 2021

challenge.
create.
care.

KNAUFINSULATION



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Knauf Insulation and United Nations sustainable development goals

Our For A Better World sustainability strategy is in line with the Sustainable Development Goals (SDGs) of the United Nations – with a particular focus on the 10 above. The SDGs are designed to be the “world’s best plan to build a better world for people and our planet by 2030”. In addition, Knauf Insulation is a signatory of the United Nations Global Compact, the world’s largest corporate sustainability initiative. The company commits to align its strategies and operations with universal principles on human rights, labour, the environment and anti-corruption.

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Cover: the Slovenian Pavilion at the World Expo in Dubai is a showcase for Knauf Insulation’s Urbanscape® Green Solutions

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'Let us think outside the box, with customers always in mind'



'CHANGE IS ALWAYS EXCITING'

Dominique Bossan, Knauf Insulation's new leader, discusses market challenges, the importance of sustainability, the future of renovation and investing in new capacity.

Dominique Bossan, a Member of the Knauf Group Management Committee, took over as head of Knauf Insulation Europe/Middle East/Asia in 2021.

For the past four years, Dominique was a member of the Knauf Group Management Committee, responsible for the Gypsum's region of Western Europe, South America and Israel.

Prior to this role, he was Regional Managing Director for Eastern Europe, a position he took up two years after joining Knauf Insulation in 2003.

What is your vision for the company?

Business-wise, I want to make sure we have the right investment strategy long-term, giving ourselves the means to our growth ambition. I want to make our talents more visible, build on our people's strengths, and enable them to be ambitious. Growing leadership skills and working together

in the same direction as a team will participate in making us more customer centric. With sustainability always on our mind, as the public, political and regulatory agendas are accelerating faster than ever.

What plans are there to increase capacity?

Giving ourselves the means to our growth ambitions means optimising our existing industrial footprint, but also investing in new capacities and new greenfields. The outlook for our sector is very positive, fueled by strong demand for energy efficient products like ours. We will be making major announcements shortly.

What role does innovation play at Knauf Insulation?

It is central to the company if we are to stay ahead of the game. Innovation goes beyond just research and development. We have hungry competitors that are forcing us

to continuously improve, to show leadership when it comes to our technology, our systems, and our products. Our ECOSE Technology® certainly was a game changer for our industry, more than 10 years ago, but innovation goes beyond this type of fundamental research and discovery.

In what ways?

Being more anthropological in our approach to construction sites, more systematically observing the installers and other actors in the market, will help us find ways to help them, and bring them valuable solutions, to make their work easier. Setting up training centres, systematically working with technical schools, improving our employer brand are all ways to help tackle the shortage of skilled labour our industry is experiencing currently. Thinking outside the box will help us come up with more sustainable solutions and innovations, with better products and services. And this is how we will be able to differentiate ourselves from our competition. Let us think outside of the box, with customers always in mind, to make it easy for them to do business with us. This will make it harder for disruptive players to come in and impose a new game.

Digital plays a major role in that disruption.

Of course. We are lucky at Knauf to have very strong traditional — analog — relationships with many of our customers. This is one of our great strengths. But our customers are asking for more digital tools, for ways to make their experience with us a more seamless one. And it is critical that we work on offering the market the digital tools, the platforms that will make it easy for them to interface with us in a more digital manner.

Knauf Insulation is committed to Putting People First as part of its For A Better World sustainability strategy. What does this mean?

Our people are our greatest asset. And it starts with safety. How can we claim that we care about people if we do not care about safety? We have achieved a great deal when it comes to safety, but we still have a lot to do in terms of creating a very strong safety culture. In addition, promoting a more diverse, more inclusive workplace, will inevitably turn into more engagement from our people, and more positive thinking. So many studies have shown the power that lies in fostering such an environment. We are implementing innovative programmes to further develop, train and engage our people. I want people to feel good, feel right, and give their best.

Knauf Insulation is also committed to zero carbon. What plans are underway to achieve this?

Economically, environmentally, morally, we need to decarbonise our manufacturing processes and our logistics, and we have to do it by 2050. This is a long-term effort that will require significant investments over the next three decades, balancing carefully parameters that are not all under our control, like the availability of green electricity and biogases, the carbon emissions' price, waste treatment costs, and the upgrades of our plants. Our focus must be future proof, on developing and piloting the required new manufacturing technologies in the reasonably short-term. In parallel, each manufacturing site will be developing its own carbon reduction roadmap, taking into account the local



Giving ourselves the means to our growth ambitions means new capacities and new greenfields. We will be making major announcements shortly.



constraints and opportunities, and targeting zero carbon in the long run. In addition, we are committed to a 15% reduction of the embodied carbon in our products by 2025 — the carbon generated at every stage of their life cycle from the cradle to the grave. This is an ambitious mid-term goal that reflects the urgency of the carbon transition and will keep our teams focused on continuous improvements in every area, from sourcing recycled materials and cutting carbon in our plants, to the transportation we use for deliveries.

What do you see as Knauf Insulation's role in renovation?

An initiative such as the European Union's commitment to renovate 35 million buildings by 2030 is very ambitious. However, in the past, large-scale initiatives in some countries did not deliver on the expected promises, because of poor workmanship, and because the energy and emissions savings were never quantified and verified. We believe we can change this.

How?

Knauf Energy Solutions (KES) demonstrates that a closed system can work if you control every aspect of a renovation. KES guarantees good workmanship, efficient solutions, quality assurance at every single stage and, most importantly, can transparently audit the energy and emission savings achieved before and after a renovation. These aspects of measuring real performance make KES a game-changer. This has sparked some interest recently from one national government, which wants to understand how we could support them in some of their social housing initiatives. It will be interesting to see what these discussions lead to.

How do you view the future?

Change is constant and that is always exciting. Our industry is changing, the way we reach our customers is changing, so is legislation. We have to stay agile, continue to invest in our people and our leaders, and maintain our focus on improving the sustainability of our company and our products. The future is good! For A Better World!

TEXAS STAR

Knauf Insulation North America is building a 56,000 m² new state-of-the-art plant in Texas creating more than 150 new jobs and bringing high-quality solutions closer than ever to customers.

Work on the company's biggest-ever greenfield investment was scheduled to begin in the final quarter 2021 and is expected to be completed in the third quarter of 2023.

The plant is based in the industrial zone of the city of McGregor and when fully operational it will manufacture 46 million square metres of high quality Knauf Insulation products every year — enough to insulate 125,000 homes.

In addition to the new plant jobs, the economic benefits of the plant to Central Texas will be more than US\$2 billion in the first 10 years. The infrastructure investment of US\$20 million will kick-off growth in the region including the creation of more than 300 indirect jobs.

Alexander Knauf, General Partner of the Knauf Group, describes the new site as the centre piece of Knauf Insulation's growth strategy that will "serve our customers our high-quality products in a better way than we have ever done before".

Matt Parrish, CEO of Knauf Insulation North America, says the new Texas plant was "a natural

Knauf Insulation's biggest-ever greenfield site investment will produce more than 46 million square metres of Glass Mineral Wool every year, create 150 new jobs and help customers grow their business in North America's thriving Texas region.

next step for the company's growth and aspirations" filling a significant void in Knauf Insulation's North American footprint.

"This is a huge step for our customers," he says. "This is one of the regions in North America where demand has been very high for quite a while. This plant will help our company grow and support our customers' future growth. It is a perfect match for us."

Alexander says: "Knauf Insulation is known for quality products and this new facility will incorporate the best of our global know-how and state-of-the-art technology. This investment shows we really care for our customers."

"As part of a global, family-owned business, Knauf Insulation believes the timing is right and McGregor is exactly the type of community where the company can expand in the future," says Matt.

"I was absolutely overwhelmed by the warm welcome of the McGregor

community and by how much support we were given during the preparation phase," says Alexander.

Mayor of McGregor James Hering welcomed the new facility and says: "In addition to the creation of 150 new jobs, the site will create significant new employment for skilled trades as well as new opportunities for local businesses and service providers."

Greater Waco Chamber Senior Vice President for Economic Development Kris Collins added: "Securing a location in the McGregor Industrial Park allows Knauf Insulation to offer solutions to the thriving construction industry in Texas and throughout this region of the country."


Knauf Insulation Senior Vice President of Strategic Projects Kevin McHugh says: "Watching this incredible facility rise from the Texas soil and become one of the industry's leading production facilities will be an incomparable experience and positively impact Central Texas for decades to come."



“Demand in the region has been very high for many years. This plant will help our company grow and support our customers' future growth. It is a perfect match.”

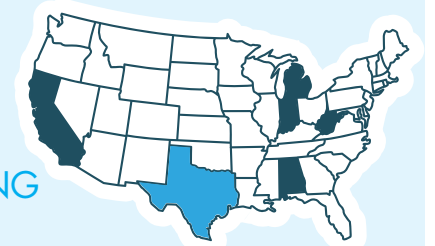
Matt Parrish
CEO of Knauf Insulation North America

In numbers: the new McGregor plant

 **56,000 m²**
state-of-the-art facility

7th

MANUFACTURING FACILITY



McGregor will expand Knauf Insulation's footprint in North America by adding the seventh manufacturing facility after Shelbyville 1 & 3, Albion, Inwood, Lanett and Shasta.

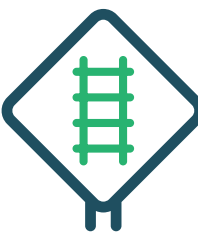


150+ NEW JOBS

Knauf Insulation in McGregor will employ 151 plant associates and 10 plant staff positions from the local market. And there will be opportunities to support the project from our corporate headquarters.

300+ ADDITIONAL JOBS

Knauf Insulation in McGregor will also create 300 new additional jobs throughout the heart of Texas with vendors, contractors and suppliers.



US\$20 MILLION NEW INFRASTRUCTURE

US\$20 million of new infrastructure to the community, including a rail line extension, will make the overall site more attractive to prospective developers and companies.

46 MILLION

SQUARE METRES OF INSULATION ANNUALLY
Knauf Insulation in McGregor will produce enough insulation every year to insulate 125,000 homes*.

*Based on an average of 370 square metres of insulation for a mid-size new home.



2 YEAR PROJECT

- Break ground Q4, 2021
- Fully operational Q3, 2023

FULL RANGE OF INSULATION PRODUCTS

Knauf Insulation in McGregor will manufacture a full range of insulation materials for residential, commercial and institutional buildings and a variety of OEM applications.



US\$2.1 BILLION BENEFIT

In McGregor's first 10 years (two years of construction and eight operational years) the facility will provide an economic state benefit of more than US\$2.1 billion (US\$1 billion direct and US\$1.1 billion indirect).



30 MILLION USED BOTTLES DIVERTED FROM LANDFILL ANNUALLY

Glass bottles headed for landfill are converted into Knauf Insulation products which continue to save energy and enhance building comfort.



“Our new site in McGregor Texas is the centre piece of Knauf Insulation's growth strategy and is an investment that shows we care for our customers.”

Alexander Knauf
General Partner of the Knauf Group



DELIVERING CUSTOMER-CENTRICITY



The Energy Efficiency Group (EEG) in **Australia** was the first company to take delivery of the consignment of Knauf Insulation's Earthwool solutions.

EEG Managing Director Devin Hall said delivery times had been cut from 10 to 12 weeks to just four to six. "This is going to be a game changer for our business," he said. "With shorter lead times, we won't need to have as much stock on hand and we can be more responsive when work comes at any given period."

The entire product range has also been customised to meet the requirements of residential and non-residential markets in the region in addition to solutions for heating, ventilation and air-conditioning (HVAC) systems and domestic appliances such as ovens and fridges.

In Malaysia our €120 million new plant at Johor Bahru with a capacity of 75,000 tonnes completed its first deliveries to customers in Australia in May, 2021.

Stuart Dunbar, Knauf Insulation's Managing Director for Asia Pacific, said: "Demand for insulation products that offer warranted quality, sustainability and ease of handling is soaring across the region due to increasing energy costs and more stringent building regulations in countries such as **Australia, New Zealand, Singapore, Japan and Korea.**"

The first shipment in mid 2021 from Johor Bahru was a celebration of Knauf Insulation's landmark achievement,

especially during the COVID-19 period, and demonstrated the international collaboration within the company.

Plant Manager Erkan Üçok said: "Day after day our international and local teams working on the ground have demonstrated outstanding levels of commitment and safety in extraordinary circumstances. They are living examples of our Knauf Insulation values to challenge.create.care."

The plant will be fully operational in the first quarter of 2022.

Sustainability at the heart of Johor Bahru

Johor Bahru features some of the most efficient technology available on the market today, and our wide range of solutions are produced from up to 80% post-consumer recycled glass using our ECOSE Technology® binder with no added formaldehyde.

In addition, emissions from shipping and transporting products to their final destination are offset thanks to our unique compression packaging, which allows us to deliver a high volume of products per shipment.

Sustainability is also at the heart of operations at Johor Bahru. The plant recently completed a giant rainwater harvesting system to avoid using potable water for manufacturing processes and to capitalise on Malaysia's tropical stormy weather.

The new system consists of a piping system that collects water from the roof, a 500 m³ storage tank, filtration units and a pump system. It is estimated that the system will save 20,000 m³ of water every year.

Knauf Insulation's For A Better World sustainability strategy commits the company to a significant reduction of water consumption in five plants with a focus on potable or city water use that requires treatment. The Malaysia plant's water system is a showcase example of water saving.

ADDING VALUE FOR CUSTOMERS

Customer-centricity has defined Knauf Insulation since the company started, now a series of initiatives are underway to create even more value for customers offering them the flexibility, accessibility and systems they need, whenever they want them, 24/7.

Director of Market & Business Excellence Tanja Schamberger says: "We went to our customers and listened to them to understand their pain-points. We then spoke to our customer service colleagues to understand precisely how to make the customer experience as seamless and efficient as possible."

Knauf Insulation is creating a seamless eco-system to bring our customers the expertise and solutions they need.

"Now we are creating the perfect eco-system that combines the strengths of our face-to-face personal interaction with the digital tools customers need — in whatever accessible and flexible formats they need. That is real customer proximity."

"The more touchpoints we have with our customers, the more we can anticipate their needs and make them

part of the value creation process."

A major customer-focused platform launch will be rolled out in **Germany** in 2022, with first functionalities such as, one login for all Knauf companies, self-service access to order status including notifications for order status updates. Further functionalities will be added step-by-step involving customers at every stage.

Home from home online

Homeowners can now access a one-stop website that offers Knauf Insulation solutions online with the added benefit of a specialist advice service and instant delivery.

Homeowners can browse Knauf Insulation's range of exterior wall and loft solutions at www.homebyknauf.sk and if they have any questions request a call back from one of our home insulation experts.

Specialist advice can range from the best solutions and accessories for specific building types to understanding which products offer the most effective acoustic, thermal or fire-safe performance. Home deliveries can be arranged at the click of a computer mouse.

Homebyknauf.sk is being piloted in **Slovakia** with plans to roll out the platform to other countries soon.



“We are creating the perfect eco-system that combines the strengths of our face-to-face personal interaction with the digital tools customers need.”

Tanja Schamberger
Director of Market & Business Excellence

New online showroom

Knauf Insulation Western Europe has launched an on-line showroom to enable customers to explore the advantages of our sustainable solutions.

The site www.ki-expo.fr offers an online 3D world that gives customers the opportunity to visit a range of virtual spaces and, in each one, learn about our innovations, tools, training, history and our approach to sustainability.

A highlight of the site is 'sustainable town' showing how Knauf Insulation can provide solutions for different building types.



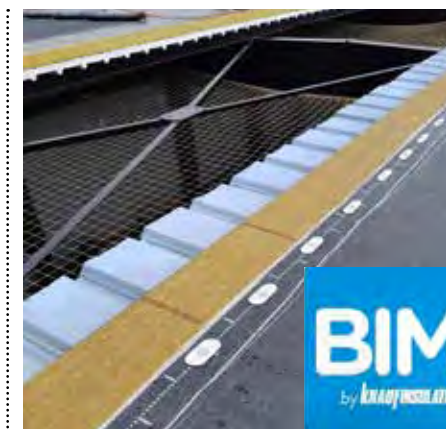
Roof systems to try before you buy

Knauf Insulation has developed a BIM Factory web app to enable specifiers to visualise and test a range of roof systems online — before a single building component is purchased.

Building Information Modelling, better known as BIM, combines 3D design and data management, allowing specifiers to model a building and quickly choose and test the right solutions for their project online.

Magdalena Pyszkowski, our **Group Market Manager and Head of Non-Residential**, says: "BIM has become an important way to create an overview of a building and make changes before work begins avoiding expensive mistakes during construction."

"Our BIM Factory allows the selection of roof systems by application on demand with constantly updated product data information including the properties



of components such as insulation and membranes based on technical requirements. Ultimately, BIM Factory will save specifiers and designers time, energy and money."

BIM has been around for over 30 years but Magdalena says that the process has a long way to go regarding mainstream technological accessibility and the maturity of the industry.

Most construction partners are used to working as they would in a factory assembly line, BIM however offers the digital opportunity for an entire team to work online on a project simultaneously.

BIM also offers the chance to understand and test a variety of building component properties such as fire safety or accessibility.

Magdalena says: "If these requirements were incorporated in the early stages of the design it would allow the model to be built around the solutions rather than having them forced on at the end."

Construction projects usually only have a slim margin to work with. However, with new reliable BIM data these margins would improve significantly and help manufacturers produce project-dedicated products while optimising their production line and supply chain.

Packaging better by design



In the **UK**, we have improved our packaging and upgraded our compression technology. We have colour-coded packaging to allow customers to instantly find the right product with the right conductivity group for the right application.

A bigger, bolder look ensures our solutions are easy to identify, while our Euroclass A1 non-combustible logo clearly identifies our fire safety assurance and compliance. Key product information and certification is distinct, our sustainability credentials and ECOSE Technology® benefits are highlighted while thermal acoustic icons help customers choose the right product for the right application.

SUSTAINABLE PRODUCTS, ACCESSIBLE INSIGHT

Customers will soon be able to analyse the environmental impact of our solutions and compare the results with other products in the market thanks to our new Eco-Design Tool.

Understanding the environmental impact of products and systems can be a complex process — our new Knauf Insulation Eco-Design Tool makes it straightforward.

We have simplified a wide variety of complex information into one easy-to-understand measure using our extensive experience of Environmental Product Declarations (EPDs).

In line with European Union standard EN 15804, our EPDs are independently verified and audited and based on a Life Cycle Assessment methodology that forensically examines the impact of every stage of our products' life cycle — from the sourcing of materials and manufacturing processes to ultimate disposal, recycling or reuse.

Unfortunately, this is a massive amount of information to digest often featuring up to a hundred individual figures to cover a product's different life cycle stages and impact indicators.

And even though EPDs provide a wealth of important environmental insight about categories — such as climate change, acidification or resources used — these categories do not 'speak' to each other.

This means it is complex to get a good overview of the environmental impact of a product unless the focus is on just one indicator such as climate change.

Our new Knauf Insulation Eco-Design Tool cuts through this complexity by reducing all the indicators into one easy-to-understand measure, the euro.

Why the euro? Well, it is a good measure to reflect environmental impact whether that incorporates the price of a pollutant or the

cost of environmental damage. Such an approach adds up all factors associated with environmental cost, such as, for example, the loss of economic welfare when a pollutant finds its way into the environment.

Using the euro as a unit also allows all the indicators to be summed up in one straightforward measure.

The concept has been developed by the renowned Dutch environmental agency CE Delft, among others, and is based on shadow pricing. Shadow pricing is where a value is attached to intangible assets that are not normally bought and sold. For instance, a shadow price may be put on the social value of a public park in terms of community health benefits or its value as a place for children to play.

Vincent Briard, our **Group Sustainability Director**, says: "Life Cycle Assessment results and the environmental impact of products are made much more understandable through the lens of shadow pricing.

"Shadow pricing can be applied to systems or products and support communication, making conversations with designers and architects easier while also ensuring discussions between manufacturing teams are more straightforward."

The Eco-design Tool will never replace EPDs, says Vincent. This is because EPDs are the basis of the shadow pricing calculation and in many situations EPD data is required in its original form without weighting factors. "Actually, they complement one another," he says.

A pilot version of the Knauf Insulation tool has been tested throughout 2021 and it will be publicly available in 2022.

“Our Eco-Design Tool cuts through the complexity of environmental impact with one easy measure.”



100 LIVERPOOL STREET'S SUSTAINABILITY SUCCESS

The unique 100 Liverpool Street building, pictured here, is based in London, **UK**, and has been certified BREEAM Excellent for sustainability, WELL Gold for well-being and features a total of 14,700 m² of Knauf Insulation's CNF boards produced in our Ajdovščina fabrication in Slovenia.

Powered by renewable electricity it is the first ultra-low carbon building in the London neighbourhood of Broadgate and contains retail, dining and office space. 100 Liverpool Street saved 11,000 tonnes of embodied carbon by retaining half the original structure of two previous buildings, using efficient design and low carbon materials.

Knauf Insulation's Eco-Design Tool will simplify understanding of the environmental impact of building products such as embodied carbon — the CO₂ generated during their life cycle from the sourcing of materials to their ultimate disposal.

“The Knauf Insulation tool has been tested throughout 2021 and will be publicly available in 2022.”



NEED FOR SPEED

Our customers face labour shortages, demanding energy efficiency regulation, waste disposal restrictions and the need to complete projects quickly to a high specification. From cavity walls, lofts and prefabricated buildings, SUPAFIL delivers great results. Fast.

Picture being able to efficiently insulate four cavity walls of a house in two to three hours. Visualise insulating an entire loft of 80 m² in just an hour.

Now imagine automating an entire factory that turns out thousands of prefabricated buildings every year with each insulation installation process taking minutes.

With Knauf Insulation's SUPAFIL Blowing Wool solution all this is possible with no waste, no fuss, no

wasted time and great results in terms of energy savings and CO₂ emissions reductions.

In addition, SUPAFIL is humidity resistant, made from up to 80% recycled glass and does not support the growth of fungi and bacteria.

Finally, it is the only Blowing Wool to be certified by DECLARE in Europe which means it does not contain any harmful substances on the DECLARE Red List.



“
The added value of SUPAFIL is that it is incredibly fast.
 ”

Maximilian Böddeker, Neesen Schlüsselfertighau GmbH, **Germany**



A Gerken Innenausbau contractor installs SUPAFIL in a new build in **Germany**. A total of 80 m² of SUPAFIL Blowing Wool can be installed every hour in a loft

Benefits for modular builders

Prefabricated building companies require the maximum production of high quality modular homes in the minimum amount of time. When it comes to insulation, these companies want speed, consistent high quality, minimal labour and complete integration into their process.

SUPAFIL delivers custom-built installation systems that can be integrated into any modular manufacturing process. Depending on the system, up to 1,000 kg of insulation can be injection-installed into modular sections every hour. And, as only 35 kg/m³ is required to achieve a lambda of 0.034W/mK, about 30 cubic metres of insulated frames can be processed every hour.

Our 174 kg compressed packing bales minimise refill times, optimise truck loads and storage area usage and our Blowing Wool smoothly fills any complicated frame space without waste. As it is light, the solution adds no significant weight to building panels, does not settle and is water repellent.

High-speed loft insulation

Loft insulation installers need high performance and speed. Installers want to work as efficiently as possible and avoid spending too much time at job sites. The owners of those lofts want a fire-safe, sustainable solution that is certified by DECLARE as being free of ingredients on the Red List — a list of substances designated as harmful to health by the International Living Future Institute — and work that is carried out quickly with minimal disruption.

Eighty square metres of SUPAFIL Blowing Wool can be installed every hour in a loft. To achieve a high performance of 0.045W/mK only 12 kg/m³ of SUPAFIL is required. SUPAFIL installation is faster than traditional slabs and also reaches all areas of a loft no matter how complex the space. Plus of course, it can also be blown directly over old insulation so there is no need for removal.

A1 non-combustibility, high thermal performance and DECLARE certification, makes the Blowing Wool attractive to home-owners looking for reassurance that the products installed in their home enhance comfort and add value.

Hassle-free renovation

Renovation installers need speed and efficiency when it comes to filling wall cavities. Installers and building owners do not want to carry out structural work to install insulation. They want the work to be mess free, hassle free and quick.

SUPAFIL delivers speed and minimal disturbance and it takes between two and three hours to fully install SUPAFIL in four walls of a typical detached property in the UK. This offers installers the chance to maximise operations by working on several job sites every day.

And, in terms of renovation, the process is hassle free for occupants. There is no need for major building work to install the insulation, simply discrete entry points that allow SUPAFIL to be injected with no mess, waste or fuss. SUPAFIL can be injected after a thorough inspection following drilling through the outer leaf of the wall by certified installers. Homeowners can hardly see their intervention but they feel the improved home comfort quickly.

Faster new-build sequence

New build companies need efficiency because time is money. They want projects delivered on time and to high standards. They want onsite logistics to be efficient and their contractors to move from job to job effectively.

Thanks to the speed of SUPAFIL's installation, there are major advantages for new build investors. Brick layers can focus entirely on their work rather than combining their role with that of an insulation installer as well.

This means they can move from site to site and then be followed by SUPAFIL installers who can follow up quickly and carry out the insulation installation, speeding up the entire sequence.

SUPAFIL being installed in modular frames at FM-Haus in Finland. SUPAFIL delivers custom-built installation systems that can be integrated into any modular manufacturing process

“
Up to 1,000 kg of insulation
can be injection-installed into
modular sections every hour.
”

“
To achieve a high performance
of 0.045W/mK only 12 kg/m³
of SUPAFIL is required.
”



SUPAFIL helps contractors work efficiently and effectively



CASE HISTORY: NEW BUILDING

'SUPAFIL is the future of our business'

"The added value of SUPAFIL is that it is incredibly fast. In future we want to use SUPAFIL for all our projects and hope to significantly increase our capacity."

These are the words of **Construction Manager Maximillian Böddeker** of **Neesen Schlüselfertighau GmbH** in **Germany**, which offers one-stop building services ranging from extensions and renovations to new construction. **Frank Gerken, CEO of contractors Gerken Innenausbau**, who has been working with Neesen for nine years, says that to install traditional slab insulation in a hundred-square-metre loft would take three people a full day.

"Now with two people it is done in just four or five hours. I believe that this insulation is the future of our business," he says. And for installers, there is another advantage. "We know from previous renovations that when we remove old glass wool it is incredibly itchy. This is not the case with SUPAFIL," says the contractor.



Frank Gerken, CEO of contractors Gerken Innenausbau, **Germany**

“**SUPAFIL saves time and labour**”



Guiding SUPAFIL equipment into place at FM-Haus in **Finland**. Up to 1,000 kg of SUPAFIL can be injection-installed every hour

CASE HISTORY: MODULAR BUILDING

'Knauf Insulation helped us find solutions that suit our market'

FM-Haus manufactures a wide range of prefabricated wooden buildings in **Finland**.

Toni Sjöman, Technical Manager, says: "What our clients appreciate about our services is our reliability, flexibility and expertise."

The company's market has grown considerably and so has its relationship with Knauf Insulation and the SUPAFIL Blowing Wool team.

"Knauf Insulation helped us source our insulation installation equipment and find solutions to suit our market," Toni says.

The future looks positive for FM-Haus. "Our customers appreciate wood buildings that are good for environment and are manufactured in factories to high standards with no risk of being damaged by wet weather and no waste."



Toni Sjöman, Technical Manager at FM-Haus, **Finland**

“**Clients appreciate our expertise**”

JetSpray offers an ideal soffit solution

JetSpray is ideal for customers looking for a non-combustible Blowing Wool solution for car parks, basements, crawl spaces or other soffit areas. As these areas are inevitably connected to public buildings, JetSpray offers an ideal A2 fire safe product for hard-to-reach areas as well as a quickly installed solution that provides the performance customers expect by adding only a light weight to the existing soffit structure.



Knauf Insulation's innovative new training centre in France offers installers a unique opportunity to maximise their skills, boost their business and give customers what they really need — real performance and real benefits for better buildings.

When Knauf Insulation opened its new Insulation Training Centre — L'École de l'Isolation™ — in the south of France it became an instant best-selling success.

The centre, which is just metres away from our Glass Mineral Wool plant in Lannemezan opened in September 2021 and within days its courses were full to capacity until the end of the year.

The centre provides installers with the skills to sharpen their expertise, get proper certification, provide a better service and boost their business.

A wide variety of courses can be tailored to meet any installer requirements in addition to the centre's comprehensive training programme.

Giuliano Camillato, Product Development and Technical Manager in France, says: "This programme is the perfect continuation of the digital offer that professionals can find on the online Knauf Insulation Learning platform.

"After taking the online courses, they can achieve an advanced level of expertise by following class-based



training and, most importantly, practical hands-on experience of a wide range of insulation installation scenarios created from 'real-life' materials such as concrete block, metal studs, brick or wood."

These scenarios feature a range of full-size walls, lofts, floors, cavities, partitions and roofs in which to learn the most effective way to install Knauf Insulation solutions such as our Mineral Wool or range of accessories.

Courses last between one and three days and each can accommodate up to 10 installers. The French government has put in place a €100 billion recovery

plan to rebuild the country's post COVID-19 economy with a focus on houses and renovation supported by training to improve professional skills.

The opening of L'École de l'Isolation™ is ideally timed to offer installers the competitive advantage they need to maximise this national opportunity as well as the access to national funding they need to finance their courses.

In addition, building regulations are changing, new products are coming to market, technology is transforming the industry and in many countries, there is a lack of skilled construction specialists.



Giuliano Camillato, Product Development and Technical Manager in France, says: "Installers can achieve an advanced level of expertise."

L'École de l'Isolation™ offers installers the chance to gain the specialist knowledge they need to give them a great competitive advantage.

And as the centre is certified by the National Quality Reference Scheme (Qualiopi), it means that installers attending courses can access funding to pay for their training from state-approved apprentice organisations.

Installers and installation companies that upgrade their skills, obtain nationally recognised Reconnu Garant De L'Environnement (RGE) quality certification while gaining expertise in our range of Knauf Insulation solutions.



EXPERT INSIGHT

L'École de l'Isolation™ courses start with first understanding the fundamentals of Knauf Insulation products, energy efficiency and regulation, then move to online e-learning expertise on the Knauf

Insulation Learning platform, and finally to hands-on experience at the centre to deepen specialist knowledge.

Visit www.knaufinsulation.fr

SUSTAINABILITY SHOWCASES

Knauf Insulation's experience centers in Belgium and Slovenia have been designed to showcase our innovative solutions and provide energy efficiency expertise.

Our Slovenian Experience Center (KIEXC) at Škofja Loka, is built to Platinum DNGB sustainability standards and features cutting edge solutions such as our Urbanscape Green Roof Systems. The center is always open to share building expertise and is an important education base for demonstrations and training.

Our 500m² Knauf Insulation Experience Center at Visé, Belgium, features a wide range of full-scale building scenarios including a pitched roof, ventilated façade, wall cavities and reconstructions of lofts and internal partitions. Each scenario showcases our solutions and reveals how to install them for maximum performance, while our technical team provides certified training for installers. Visit kiexperience.org and experiencecenter.knaufinsulation.eu

INNOVATION ON TOUR

The MUZA mobile pavilion features Knauf Insulation solutions and is designed to highlight the benefits of nearly zero-energy buildings.



MUZA which stands for Mobilna, Učinkovita, Zdrava, Arhitektura (mobile, efficient, healthy, architecture) will serve as an information and demonstration centre to maximise effective communication among stakeholders about the importance of nearly zero-energy buildings (NZEB).

More than 20 industrial partners in **Croatia** joined forces to construct MUZA and the project has also been showcased in the country's long-term renovation strategy, a plan drawn up to support the European Union's 2050 ambitions.

MUZA is completely insulated with Knauf Insulation products and built to serve as an information and demonstration centre to raise awareness of Mineral Wool's key role in NZEB. "NZEB construction is now mandatory for all new buildings in Croatia as well as other European

Union Member States, but still many architects and specifiers need support to navigate this new reality. MUZA is here to help demonstrate how to achieve NZEB standards using best practice solutions," says **Krešimir Benjak, Knauf Insulation's Marketing and Communications Manager** in Croatia.

MUZA took part in a Nearly Zero-Energy Building Days in cities across Croatia, which highlighted events featuring construction products, real estate fairs, practical demonstrations, real-time NZEB construction, training courses for designers and construction workers (including Virtual Reality and Augmented Reality solutions).

The roadshow is a European Union Horizon 2020 project that focuses on the benefits of NZEB.

MUZA is insulated with Knauf Insulation products and designed to raise awareness of the advantages of nearly zero-energy buildings (NZEB). For further information and tour dates visit www.nzebroadshow.eu



European breakthrough: Knauf Insulation's Glass Mineral Wool solutions are certified by DECLARE

Glass Mineral Wool with ECOSE® is certified Red List free

Knauf Insulation's Glass Mineral Wool solutions with ECOSE Technology® are the first Mineral Wool products in rolls and slabs to be officially certified in Europe by the DECLARE label marking a major breakthrough for building well-being and health.

DECLARE certification is an important independent public declaration that our products do not contain any harmful or unhealthy chemical ingredients on the International Living Future Institute's Red List such as added formaldehyde, fire-retardant additives or any anti-fungal intentionally added chemicals.

Health and well-being has been an area of increased focus in recent years. Just as customers increasingly want to know the ingredients of the food they consume, there is growing

demand for understanding the ingredients of building products. People want certainty that there are no unhealthy chemicals being installed particularly homes, schools, offices and hospitals. DECLARE provides this certainty.

The certification also underlines the natural composition of our solutions such as 90% glass mineral wool — which is made up of up to 80% recycled content — and virgin raw materials such as sand and limestone.

Other Knauf Insulation solutions certified by DECLARE are SUPAFIL Blowing Wool and Urbanscape Rock Mineral Wool for green roofs. The Urbanscape solution was the first building material in Europe to be certified by DECLARE in 2019, while in North America most of our solutions have been DECLARE certified for many years.

Safety is a priority for 3D printers

When Formlabs was developing its pioneering new industrial 3D printer, the company called on Knauf Insulation's OEM team to create a solution that was durable, sustainable, high-performing and safe.

Niki Entin, Strategic Sourcing Lead for Formlabs, says: "As our latest industrial quality 3D printer, the Fuse 1, operates at a very high temperature, we needed a safe way to insulate the inner chamber to avoid electronics and other components from getting too hot."

The team at OEM within Knauf Insulation's System Division was able to provide the technical expertise and custom-made insulation designs Formlabs needed at our **Ajdovščina** fabrication unit in **Slovenia**.

"The solution provided by the OEM team is durable, easy

to handle, insulates consistently to our requirements and is cut to the precise dimensions required for our Fuse 1 3D printers. Most importantly it is safe at high temperatures," says Niki.

Anže Vrbinc, Segment Manager OEM, says: "Another consideration of Formlabs was sustainability as the company prides itself on minimising waste and tackling CO² emissions. Our customised solutions are produced with ECOSE Technology and made from 65% recycled glass."

Formlabs' printers are used for printing out highly detailed, high resolution 3D objects such as prototypes or jewellery and also used by engineers and manufacturers to produce robust functional parts.



Safe at high temperatures: Knauf Insulation installed in Formlabs' new 3D printers



Knauf Insulation's SmartWall S C1 is installed in social homes in Italy's Salerno province: our Italian team is supporting a digital platform to improve building energy efficiency

Knauf Insulation joins research pioneers

Knauf Insulation **Italy** is contributing to a pioneering project that aims to revolutionise energy savings in buildings.

Often there is a significant gap between the anticipated energy consumption of a building and the reality — the SATO project aims to bridge that gap and in the process to maximise building energy savings using smart technology.

To achieve this, the European Union-funded SATO (Self Assessment Towards Optimization of Building Energy) will create a state-of-the-art building energy assessment and optimisation platform that combines artificial intelligence, Building Information Modelling (BIM) 3D visualisation software, Internet of Things sensors, smart devices and building management systems.

A series of building projects across Europe — including one in Milan supported by Knauf Insulation — aims to explore how to maximise this platform and optimise building energy

Sound solution

Knauf Insulation Customised Solutions has developed a new silencer for heating, ventilation and air-conditioning (HVAC) systems that is high in performance and competitive on cost.

Rather than featuring an inner metal tub, the silencer's circular core is created from our specially-coated Mineral Wool with ECOSE Technology® which is certified Eurofins Indoor Air Comfort Gold for indoor air quality.

The structure of the insulation offers great acoustic performance, reducing vibration and noise, while the removal of the metal core cuts cost. The silencer can be tailored to meet any customer requirements.

use by managing building energy in real time, bringing emissions close to zero and achieving almost zero energy consumption. The Milan project builds on a study carried out by the end-use Efficiency Research Group of the Polytechnic University of Milan which examined how deep renovation using high-quality wall and roof thermal insulation can generate energy savings of up to 80% in buildings.

Converting buildings into giant 'batteries' that store comfortable temperatures over several days optimises buildings by offering them the flexibility to use renewable energy sources or tap into cheaper off-peak power.

The SATO project receives funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement Number 957128.

For more information about the project, partners and Knauf Insulation's contribution, visit www.sato-project.eu



Who will be the building innovator of tomorrow?

Knauf Insulation's renovation experts are assessing the entries in our unique Race to Zero building innovation competition with the winners set to be announced at the end of 2021.

Hundreds of entries were received in the competition which was launched earlier this year to find new ways to scale up and industrialise the renovation of social housing with a focus on quality workmanship, improved thermal and acoustic comfort as well as quantifiable emission-reducing results.

As buildings are responsible for 36% of Europe's CO₂ emissions and more than 34 million Europeans cannot afford to pay their energy bills, Knauf Insulation wanted to find the young innovators who can inspire the



The search is on to find innovative ideas that will transform the mass renovation of social housing

change needed to drive renovation forward to tackle climate change and improve lives. Final year students and 2020 graduates in architecture, construction engineering, design and related building specialties from **Belgium, France, Italy, Spain, Luxembourg, the Netherlands**

and **Portugal** were invited to participate in the competition which features a main prize of €15,000 and an offer of employment with Knauf Insulation.

The Race to Zero competition is a Knauf Insulation commitment For A Better World.

Customised inclined flat-roof slabs

A new Cut-to-fall digital app developed by Knauf Insulation Customised Solutions will soon help customers cut costs, reduce waste and speed up the design process and the installation of inclined flat roof slabs all at the swipe of a screen.

The user-friendly app works out the optimal position for the slabs, marks out each slab to speed up installation, precisely defines height, length and width dimensions, calculates detailed costs and then produces the slab using minimal waste.

Customers can draw any shape during the design process in the application. If this design changes, customers can simply change their roof design and get immediate feedback from the application and our team about the pricing and bill of materials.



For Knauf Insulation the application optimises production processes at our fabrication units at **Adjovščina** in **Slovenia** and at **Most** in **Czechia** and reduces the generation of scrap. Already the app has been used on a

range of flat roof projects and shown great results for customers as well as for our company. The app is the first in our Customised Solutions business and is fully integrated with our products and work processes.

CUTTING ENERGY USE

From massive energy savings at industrial plants to improved energy efficiency in HVAC systems, Knauf Insulation's Technical Solutions are tailor-made to meet the most demanding ambitions of customers.



Specialists install Technical Solutions' Sea-teK boards and Sea-teK wired mats on a ferry at the Turkish city of Izmir

Safety and comfort at sea

At the heart of any passenger-carrying ship — from cruisers to ferries — is the issue of safety, particularly the risk of fire. So, it is important to factor in fire risk long before construction.

Furthermore, as large passenger vessels group large volumes of people in small spaces, acoustic health and interior air quality are also significant considerations.

Technical Solutions can help. Our lightweight Sea-teK® Mineral Wool with ECOSE Technology® offers indoor air quality advantages backed by Eurofins Indoor Air Comfort Gold certification as well as great acoustic performance. Sea-teK also provides highly effective A30 and A60 fire-resistance certified by the International Maritime Organisation.

Industrial scale savings

With soaring energy prices, increased carbon costs and regulation set to make industrial energy audits mainstream, owners of industrial plants need to reassess their approach to energy efficiency.

“When we show owners the savings that can be achieved, they normally become very enthusiastic,” says **Technical Solutions’ General Manager Andraž Sabotič**.

From paper mills in **Finland** and manufacturing bases in **Chile** to nuclear plants in **France** to industrial storage plants in **Switzerland**, Knauf Insulation’s Technical Solutions provide highly detailed Technical Insulation Performance Checks (TIPCHECKS) to reveal the energy-saving potential of an installation and the solutions required to deliver maximum performance.

Our Power-teK® solutions are available in a range of high-performance options for storage vessels and tanks, pipelines, chimneys or stacks as well as boilers, furnaces and storage tanks up to a maximum application temperature of 700°C.

Often companies are unaware of the massive savings they can achieve if they insulate their assets. “With proper insulation we can reduce heat and energy losses by up to 88%,” says **Andreas Wald, Certified TIPCHECK engineer** at Knauf Insulation.



Technical Solutions’ General Manager Andraž Sabotič: “When we show plant owners the savings that can be achieved, they become very enthusiastic.”



*Power-teK loose wool Cryo LWC was used to insulate a new minus 160°C coldbox developed by BASF and Linde Engineering in Ludwigshafen, **Germany***

Gold standard indoor air quality for HVAC insulation

High quality heating, ventilation and air-conditioning (HVAC) system insulation is essential to controlling heat loss from boilers and hot water pipes, keeping air consistently warm or cool in heating or air-conditioning systems while delivering good acoustic performance and ensuring indoor air quality standards.

Thermo-teK solutions for circular and rectangular air ducts, pipes, heat reservoirs and boilers deliver the energy efficiency and acoustic performance customers need.

However, what customers appreciate most about these HVAC systems is that they are made using ECOSE Technology®.

“Companies developing hospitals, schools and hotels with extensive public HVAC systems appreciate that our solutions with ECOSE Technology are certified Eurofins Indoor Air Comfort Gold for indoor air quality,” says Andraž.

*Thermo-teK PS Pro ALU and Power-teK PS 680 was used to ensure optimum thermal conductivity and sound absorption in the InterContinental Hotel in Ljubljana, **Slovenia***



Design fire safety into buildings from the start — especially in heating, ventilation and air-conditioning systems

Fire-safe materials minimise risk and prevent fire spreading to give people time to evacuate a burning building, allow firefighters time to contain the fire and provide greater building resilience after a blaze has been extinguished. Of course, any fire material has to meet and, ideally exceed, national safety standards.

Our Fire-teK® products and solutions meet all national fire safety regulations and can be customised to meet any fire safe requirements in HVAC systems. They can be used in circular or rectangular duct systems to provide fire resistance

of 30 to 120 minutes — a major consideration in large public buildings.

In addition to fire safe products, Technical Solutions offers expertise to specifiers who need to understand how their fire standards and regulations have been updated or how building products have been tested or certified.

Knauf Insulation also produces a wide range of A1 and A2 fire-safe solutions for all building applications including Rock Mineral Wool and Glass Mineral Wool rolls and slabs.



HOW TO CREATE BETTER BUILDINGS

*The 3,700 m² headquarters for the French Research Institute for Exploitation of the Sea (IFREMER) in Plouzané in **France** features Knauf Insulation's Naturoll 032, TP138, Ultracoustic and FIT035 solutions. The dramatic curved building accommodates 840 employees and is designed to reflect its striking sea-view location.*

Climate action has taken centre stage in Europe with the European Commission tabling an ambitious package of green policies. At Knauf Insulation we are working with European Union and national policy makers to unlock the incredible potential of these plans with a focus on upscaling renovation initiatives and ensuring quality work. →

TO REALLY DELIVER HISTORIC EMISSION REDUCTIONS IN BUILDINGS, THERE NEEDS TO BE A FOCUS ON EIGHT KEY AREAS:

- 1 Create an outstanding legacy
- 2 Unlock renovation funding
- 3 Focus on real performance
- 4 Ensure renovation delivers

- 5 Put energy efficiency first
- 6 Harmonise carbon metrics
- 7 Nurture green infrastructure
- 8 Ensure zero energy buildings

When the European Commission unveiled its ambitious raft of climate action proposals in the summer of 2021, our public affairs team welcomed the news as a golden opportunity for renovation.

The proposals showed how the European Union could meet its collective goal to reduce Europe's net greenhouse gas emissions by at least 55% by 2030 compared to 1990 as a historic milestone on the road to becoming the world's first net zero continent by 2050.

The plan also built on the Commission's Renovation Wave strategy to at least double renovation rates in the next 10 years and renovate 35 million buildings by 2030.

To really deliver historic emission reductions in buildings, there needs to be a focus on eight key areas:

1 Create an outstanding legacy

The revised Energy Efficiency Directive (EED) calls for the extension of a requirement that all public buildings — whether owned by an urban, city, municipal, regional or national authority — must be renovated to the highest standards.

Katarzyna Wardal, our **EU Public Affairs Manager**, says: "This revision is a unique chance to create flagships of renovation closer to local communities. These public buildings must demonstrate best-in-class approaches to building safety and climate resilience while focusing on decarbonisation in a meaningful way that resonates with those who use them.

"Imagine a school that is an outstanding example of energy efficiency as well as a climate action teaching aid that



“

Around 34 million Europeans cannot afford to keep their homes warm. We want to see action to ensure they get the comfort they deserve.

Quentin Galland
Public Affairs Director

”




The five-star Athens Capital Center Hotel, MGallery Collection, in **Greece**, features 6,000 m² of Knauf Insulation's FKD-S Thermal Rock Mineral Wool in its energy saving ETICS façade system Knauf Thermoprosopsis MW Thermal

supports urban biodiversity with green infrastructure and also delivers a healthy acoustic environment," Katarzyna says.

Now imagine visiting a public administration building and having information about how much energy has been saved with renovation. "The EED revision must create the public buildings we all deserve," she says.

2 Unlock renovation funding

The Commission's proposals call for all revenues from the Emissions Trading System (ETS) to be channelled to projects that support climate objectives. In addition, it has proposed a separate emissions trading scheme on fuel used in buildings.

Our **Public Affairs Director Quentin Galland** says: "It is essential that renovation is central to using these revenues in the most effective way, including for technical assistance and skills development among professionals to perform high-quality renovations.

"The Commission has also proposed that half the ETS revenues from the new ETS for buildings must be invested in low-income households.

"Around 34 million Europeans cannot afford to keep their homes warm and we want to see action to ensure that renovation gives these people the comfort they deserve."

3 Focus on real performance

It is vital that any renovation work is carried out to the highest standards and the results are audited accurately. In other words, if a promise is made to deliver real energy and emissions savings, that promise must be delivered.

Knauf Energy Solutions was established to gain deep insight into the energy-saving potential of a renovation using our products, expertise and digital innovation.

Our expertise and experience can be reduced to two essential lessons. First, attention to detail during a retrofit is crucial and this means strong quality assurance systems in place to ensure renovation work and products meet required specifications at every stage.

Second, we need to objectively measure the outcome of that renovation work in terms of achieved energy and emissions savings as well as the comfort delivered.

For everyone involved in the process of a building renovation there is often a lack of trust and a concern that corners have been cut. By delivering quantifiable results the pressure is put back on the construction chain to deliver quality.

The Mia Dorcol is a striking addition to the downtown area of Belgrade in **Serbia**. Offering exclusive office space, the building features 800 m² of Rock Mineral Wool sandwich wall, NaturBoard VENTI, 100 m² of NaturBoard VENTACUSTO ventilated façade and Knauf Insulation's Homeseal LDS membranes

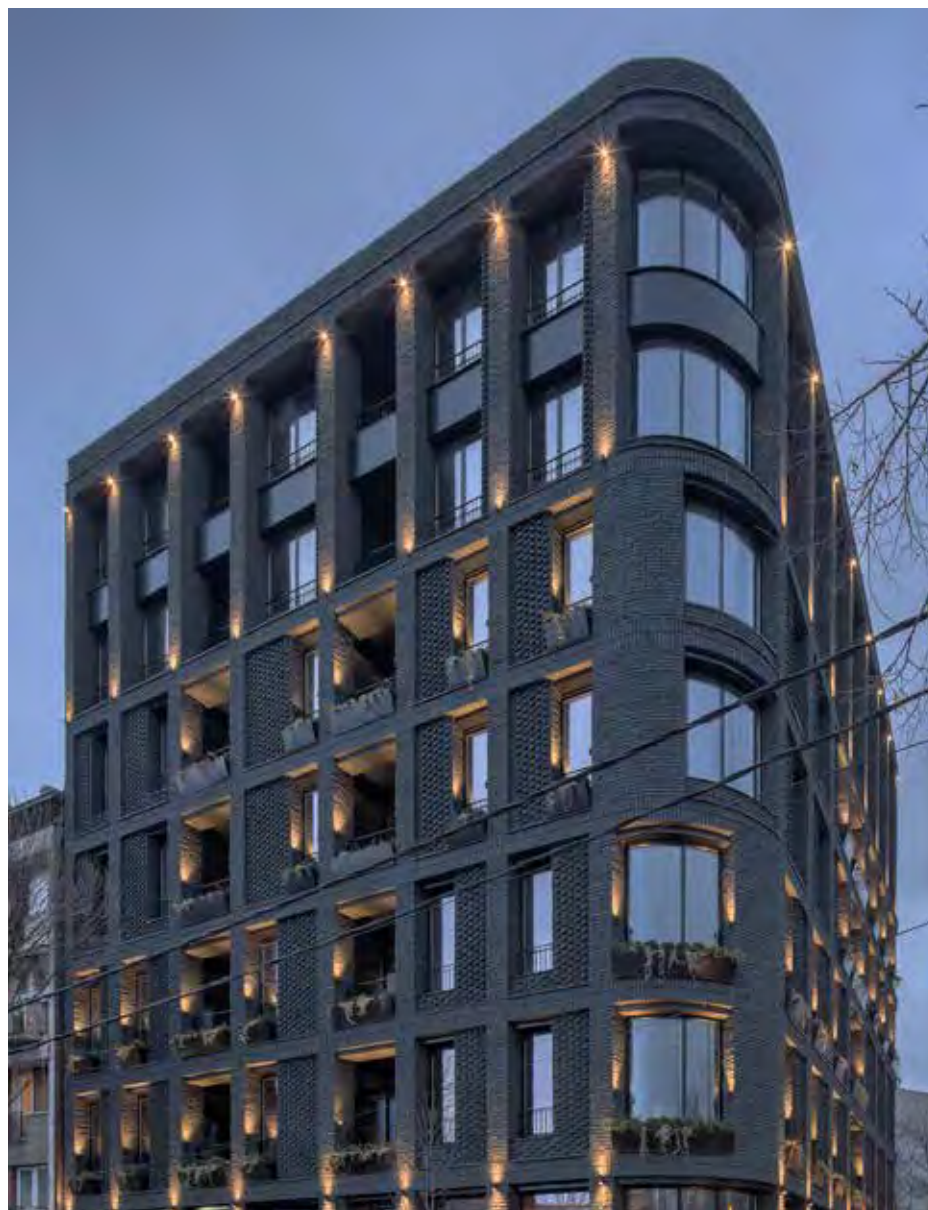
4 Ensure renovation delivers

The revision of the Energy Performance of Buildings Directive (EPBD) is an important chance to focus on real performance and renovation.

Our **Public Affairs Director Quentin Galland** says: "At Knauf Insulation we are calling for an EU-wide certification scheme for energy efficiency meters so that all Member States have trust in the results recorded.

"We also want to open up Energy Performance Certificates to real performance metrics. Real performance is a powerful tool that will support the introduction of a deep renovation standard and financially reward investments in a progressive way depending on the quality of renovation.

"Moving from paying for measures to paying for performance will ensure the Renovation Wave delivers."



5 Put energy efficiency first

When it comes to renovation, we need to address the emissions with the most impact first and that means operational carbon, the carbon generated from heating and cooling a building.

In the European Union almost 50% of final energy is used for heating and cooling of which 80% is used in buildings.

At Knauf Insulation we recognise the importance of embodied carbon — the carbon generated at every stage of a product's life from the sourcing of materials to ultimate disposal — but operational carbon must come first.

Why? Well, in a building constructed in 2010, for example, operational carbon would account for 75% of emissions, while embodied carbon from construction and materials would account for 25%.

Focusing on the energy efficient performance of a building by installing insulation, double-glazing and efficient energy sources has an impact during the use phase that is many hundreds of times higher than the embodied carbon generated during their manufacture.

The revision of the Energy Performance of Buildings Directive

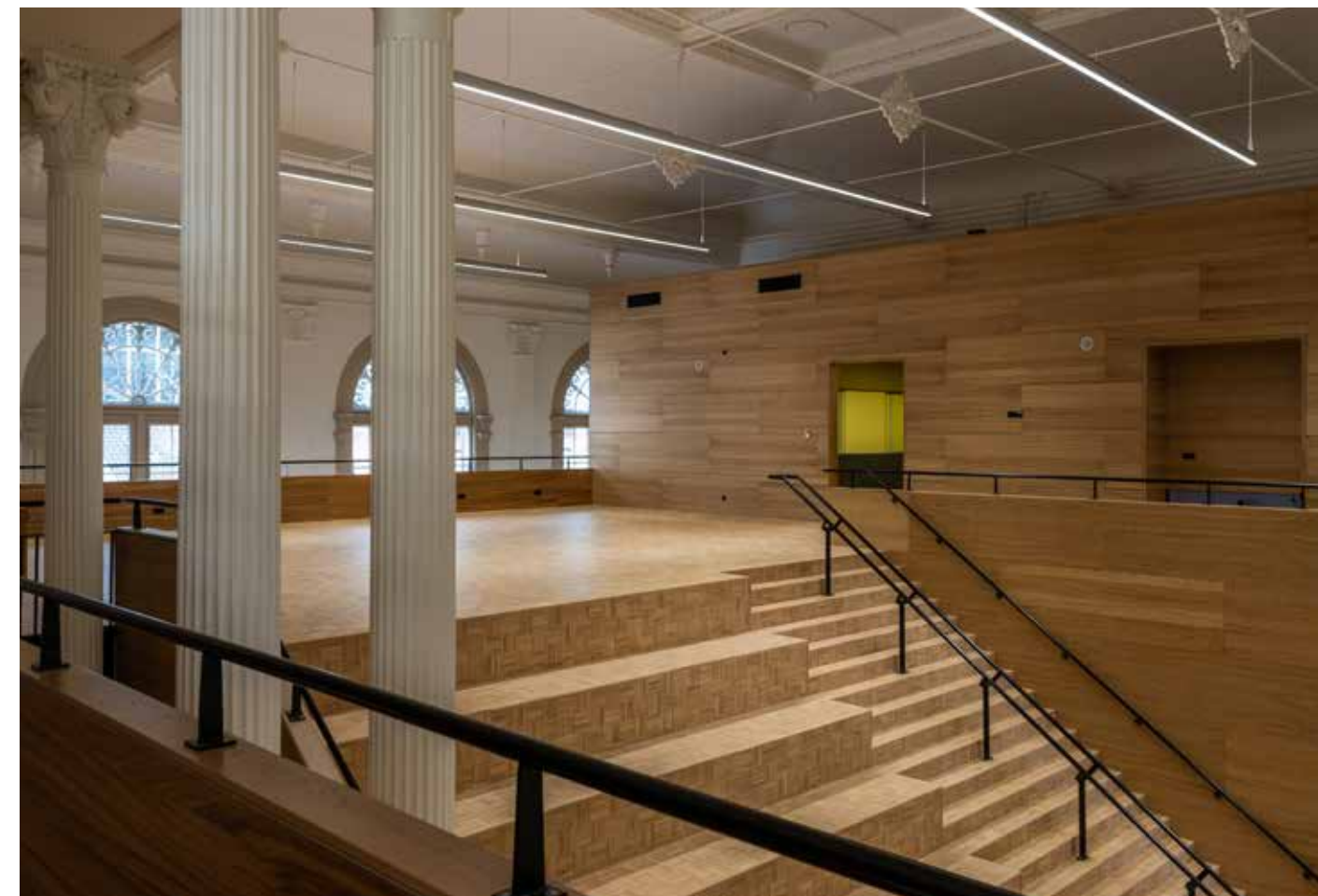
must include legally binding national targets expressed in reductions in energy consumption in the building stock per country based on national trajectories needed to meet 2030, 2040 and 2050 emissions objectives.

6 Harmonise carbon metrics

A harmonised approach is needed to assess the carbon of a building over its entire lifetime to ensure a level playing field in Europe when comparing, for instance, the environmental impact of a building in Spain to one in Slovenia.

Knauf Insulation uses Life Cycle Assessments (LCAs) to produce Environmental Product Declarations (EPDs) that detail the environmental impact — including CO₂ emissions — of our products from the cradle to the grave.

Vincent Briard, our **Group Sustainability Director**, says: "We also contributed research to the European Commission's Level(s) initiative which offers a harmonised one-stop framework and common language to assess the sustainability of a building which can be used by any EU Member State. Every country should use the same European harmonised approach and the standardised language based on the Level(s) framework, the product standard EN15804+A2 and the building level standard EN15978."



The former 150-year-old Stock Exchange in Leeuwarden in **the Netherlands** has been converted into a new faculty building for Groningen University. Knauf Insulation's Acoustifit 140mm was installed in internal walls to improve the building's thermal performance without impacting the historic façade.

8 Ensure 'zero energy' buildings

Since the beginning of 2021 every new building in Europe must be a 'Nearly Zero-Energy Building'. That 'near' has proved to be problematic with the European Commission concerned that EU countries need to "significantly step up their efforts".

This situation can be improved by setting new 'Zero Energy Building' (ZEB) standards in the Energy Performance of Buildings Directive that create maximum thresholds for heating and cooling energy needs per square metre in new buildings depending on clearly defined geographic climatic zones.

Such a ZEB standard would mean the energy needs of buildings would have to be lowered first to pave the way for adding more renewable energy sources and using the surplus to decarbonise the whole energy system including electric vehicles and industry.

At Knauf Insulation we have always subscribed to the principle that most sustainable energy is the energy we do not use with energy-efficient buildings a prerequisite for a renewable, flexible and smart energy system.

7 Nurture green infrastructure

The revision of the Energy Performance of Buildings Directive has to put green infrastructure — green walls and roofs — at the heart of Europe's buildings.

The benefits are well documented. Green infrastructure helps absorb CO₂, encourage biodiversity, cool hot urban buildings in summer, manage storm water and absorb air pollution.

The EPBD needs to encourage the installation of green roofs and walls and include mandatory provisions for certain categories of buildings — such as for large commercial centres — to maximise all these benefits across Europe.

Furthermore, the renovation of public buildings such as schools and hospitals should provide flagship showcases for green infrastructure to offer best practice insight and public education.

BEFORE



184-HOME RETROFIT MAKES HISTORY

Knauf Energy Solutions (KES) has completed the biggest ever large-scale real-performance deep retrofit in history – a total of 184 homes for social housing company Woonpunt Zennevallei, benefiting hundreds of residents in the Vogelweelde Estate in the Belgian town of Halle.

The energy saving results of the giant project will be announced in early 2022, but already improvements of 26% have been recorded by KES negawatt hour technology following the quality installation of Knauf Insulation loft systems alone.

Why was KES selected?

Woonpunt Zennevallei chose KES to carry out the large-scale renovation because it wanted a solution that was able to show the real energy savings achieved by the renovation and then deliver those savings backed up by a warranty.

The approach of KES is based on providing objective real time data rather than theoretical calculations. This verification of real performance was critical to Woonpunt Zennevallei

because it demonstrated that quality products were installed to a high standard of workmanship and trustworthy quality controls were in place.

How was the scale of the work decided?

Prior to the renovation, KES monitored a range of buildings for three months to assess the baseline energy performance of each home type with state-of-the-art technology and cloud data algorithms. Using this data, the company was able to demonstrate a range of achievable energy savings based on four potential renovation scenarios.

Director of Woonpunt Zennevallei Bart Vranken says: "This was the most detailed analysis ever presented to us for the comparison of renovation packages."

Which renovation package was selected?

As a result of the analysis, Woonpunt Zennevallei chose a cost-effective renovation package which was low risk in terms of future maintenance and met regional Flemish energy performance and decarbonisation standards.

These standards for residential properties are aligned with the European Union's ambition to be the world's first carbon neutral continent by 2050.

What work was carried out?

The work started in 2019 and was completed by the end of June 2021.

The renovation included ventilation and heating upgrades alongside the installation of high quality Knauf Insulation loft systems with membranes,

AFTER



Belgian association Woonpunt Zennevallei chose the Knauf Energy Solutions renovation package because it was low risk in terms of future maintenance and met regional Flemish energy performance and decarbonisation standards. Top left Halle homes before renovation, and this page, after the completion of work

tape, cavity wall insulation and Knauf Insulation external wall systems from Czechia to improve the thermal performance of solid upper walls.

Quality was controlled and tracked using KES apps to present photographic evidence at every stage of the renovation to the project manager, schedule workflow, provide best practice descriptions at every step, ensure efficient communication with residents, schedule follow-ups and provide detailed work reports.

What were the challenges facing the project?

The project featured 20 different building archetypes meaning 20 different renovation packages. KES provided a range of energy renovation options to meet the needs of the housing association.

An important priority of the association was the installation of loft insulation before the end of 2019 ahead of the other renovation work. To achieve this, roof repairs had to be carried out on many of the buildings first.

In addition to the challenges of the pandemic, which resulted in periods of stop-start work, it was essential that the residents remained in their homes while the renovation was carried out to avoid putting pressure on other areas of the housing stock.

This meant that the health, safety and well-being of residents was paramount during the renovation and strict standards of conduct were applied to everyone on site supported by outstanding resident liaison at every stage.

Woonpunt Zennevallei's Director Bart Vranken described



KES provided a range of energy renovation options to meet the needs of the housing association



CREATE BETTER BUILDINGS

“KES can demonstrate improvements with objective real performance data from before and after renovation — backed up by quality assurance systems. This restores trust in an otherwise broken market.”

Barry Lynham
Managing Director, Knauf Energy Solutions

the level of resident engagement as “something that we have never seen before”.

To celebrate the completion of the work at the end of June, KES organised an ice-cream event to thank tenants for their support.

What were the results?

The energy-saving performance of the roof insulation improved by 26%, according to Knauf Energy Solutions data.

The roof retrofits were included in the first wave of the buildings’ renovation in 2019 to deliver on Flemish Government targets by 2020. The full

energy-saving results of the project were set to be revealed in early 2022.

What lessons have been learned from Halle?

Barry Lynham, KES Managing Director, says: “At the heart of any renovation project is the issue of trust. Trust that the work will deliver the energy savings housing associations expect and trust that the retrofit will deliver the high level of comfort residents deserve. “The fact that KES can demonstrate these improvements using objective real performance data from before and after renovation — backed up by quality assurance systems — restores trust in an otherwise broken market.”



Work begins in Aarschot on the second biggest Knauf Energy Solutions initiative in Belgium

Quality drives retrofit of 164 homes in Belgian town

Belgian housing association CNUZ has appointed Knauf Energy Solutions (KES) to carry out a deep energy efficient retrofit of 164 social homes in the Gijmelberg district of Aarschot town.

The Aarschot initiative is the second biggest KES renovation project in **Belgium**. In June 2021, renovation work was completed on 184 social homes in the town of Halle — the biggest ever real performance deep energy efficiency renovation in social housing.

Work began on the Aarschot project in autumn 2020 and focused on a mix of small terrace houses and semi-detached properties built in the 1970s all featuring flat roofs.

As with the Halle project, the pre-renovation energy performance of the buildings was assessed by KES technology over three months. Prior to installation of monitoring equipment, the KES tenant engagement team presented the project to residents and asked for permission to collect the necessary data.

Work began in March 2021 with a focus on tackling the issue of energy-draining cold bridges — uninsulated areas of a building where heat can leak out such as roof to

wall ‘junction’ points. In addition, renovation includes the installation of flat roof insulation and Knauf Insulation cavity wall insulation as well as the upgrading of heating systems and ventilation.

Barry Lynham, KES Managing Director, says: “The primary concern of all KES projects is quality. Quality solutions and quality installation work.

“In the case of Aarschot this has meant finding innovative solutions to the issue of cold bridges which minimise disruption for tenants and avoiding changing the external appearance of homes to avoid the requirement for a permit.

“The second issue has been quality work. All our contractors and sub-contractors go through collaborative planning sessions with KES before they start.

“We appoint project managers on site to ensure quality standards, bring in specially trained teams to test the effectiveness of our products and, if necessary, appoint specialist subcontractors for specific project work.”

The mass renovation in Aarschot is scheduled to be completed by the end of 2021.

At the new AFAS Software Experience Centre at Leusden in **the Netherlands**, health, well-being and comfort are regarded as a priority for building users. A total of 2,000 m² of Knauf Insulation's Acoustifit Glass Mineral Wool and 1,200 m² of Heraklith® Wood Wool A2 Decorative Boards were installed in the futuristic building in addition to 15,000 m² of 12.5 mm Knauf A Gypsum Board and 12.5 mm 27,500 m² of Diamond Board

HOW TO ENJOY A QUIET LIFE

Stress, irritation, sleep loss, poor concentration and even cardiovascular problems. The health implications of noise pollution are well-documented. The solution? Good acoustic insulation – especially in the places where people live, work and learn.

Rumbling traffic, loud neighbours, echoing conference halls, distorted conference calls, beeping delivery vans or the relentless barking of dogs – noise pollution is all around us.

The World Health Organisation reports that in Europe excessive noise is responsible for 12,000 premature deaths every year, contributes to 48,000 new cases of heart disease annually, triggers chronic 'high annoyance' for 22 million Europeans and disturbs the sleep of 6.5 million people across Europe.

All this acoustic misery adds up to an estimated cost of €40 billion every year in the European

Union in terms of lost workdays, healthcare, hospital allocation, decreased productivity and learning challenges.

The secret to good acoustic health is to focus on the three sources of noise pollution – external, internal and mechanical – and find solutions to tackle every area. Knauf Insulation can help. Our Mineral Wool can improve acoustic well-being, particularly if combined with sound-absorbing boards, partitions, facades or installed in floors.

To learn more about how our solutions can improve acoustic well-being at home, at school and in our workplaces.→



Photo: Jan de Vries Fotografie, AFAS Software

AFAS Software Experience Centre in **the Netherlands** features 2,000 m² of Knauf Insulation's Acoustifit Glass Mineral Wool

Quietly improving work life

The challenge: Excessive noise is a key concern whether we are working from home or commuting to an office. Novelty ringtones, loud paper shredders, colleagues eating at desks, shouting into conference calls or trying to be heard in an echoing room — work can be challenging without good sound insulation.

Impact on well-being: A study by the British Journal of Psychology in the **UK** found that if you can hear someone talking while you are reading or writing, productivity can fall by up to 66%. In another productivity test a group of students carried out mental arithmetic tasks while exposed to office noise and then in silence. They performed better when conditions were quiet. In the **US**, research into the working habits of 40,000 office workers discovered that there was no evidence that open plan offices offered benefits over closed alternatives. In fact, open plan workers complained more about sound privacy.

How Knauf Insulation can help: From rattling air-conditioning units and external traffic noise to hollow internal partitions and echoing meeting rooms, we have solutions and systems for any acoustic application.

Solutions: Our HVAC insulation solutions are fire-resistant and reduce mechanical noise. Externally our Mineral Wool can be fixed to outer walls or combined with façade fittings for an attractive finish and we also provide a range of flat



roof solutions. Internally we supply a versatile range of wall lining systems that offer high quality acoustic performance as well as interior walls and doors that combine the sound-absorbing excellence of our Mineral Wool with Knauf systems. For noisy technical rooms Heraklith® Wood Wool panels are ideal for insulating walls, floors and ceilings and provide effective sound insulation for car parks.

Schools that teach better

The challenge: Poor acoustics in educational buildings means students cannot hear lessons properly, online lessons are distorted, music lessons next to a language class can ruin comprehension and assemblies or gym classes are lost in translation.

Impact on well-being: Continuous exposure to disruptive noise impacts understanding in class, memory, reading ability, academic performance and causes stress and cognitive fatigue for educators, says the World Health Organisation. In the **UK**, for example, one research paper found the average classroom noise level was 72dB, almost vacuum cleaner level.

How Knauf Insulation can help: As an example, our solutions exceed the acoustic standards of Building Bulletin 93 — recognised standards in the UK for school noise levels, reverberation times and sound insulation.



Heraklith A2 Wood Wool was installed in Da Vinci College in **the Netherlands** to minimise noise from adjoining classrooms

Solutions: The noise-blocking fibre structure of our Rock Mineral Wool, Glass Mineral Wool and wall systems filled with these sound-absorbing materials offer great acoustic performance. Our Heraklith

Wood Wool is ideal for garages and ceilings, our flat-roof solutions are perfect for noisy classrooms and for echoing gyms or school halls, we offer customised combinations to meet every shape and size of space.

Reduce the volume at home

The challenge: Our homelife is often bombarded by external noise from traffic or construction outside to internal disturbances such as noisy air-conditioning systems or loud neighbours next door.

Impact on well-being: According to pre-pandemic research by the European Environment Agency at least one in five people in Europe are exposed to external noise levels that are harmful to health. Around 22 million Europeans suffered 'high annoyance' and 6.5 million endured significant sleep disturbance both of which can trigger health issues such as stress or cardiovascular problems.

How Knauf Insulation can help: When it comes to tackling external or internal noise we have a range of solutions for houses or apartments that can meet any home requirement.

Solutions: Our Mineral Wool façade systems can be easily fixed to exterior walls and finished with render, brick



Knauf Insulation's Acoustic Roll and OmniFit Roll were installed in The Gables housing project Liverpool, **UK** to achieve great levels of thermal and acoustic comfort

slips or boards or tiles. Our lightweight ventilated façade systems also provide a range of appealing aesthetic options while our Urbanscape Green Roof solutions can be customised to meet any noise-reducing requirements and are great for biodiversity and CO₂ absorption. For new buildings or renovation our SUPAFIL Blowing

Wool is ideal for lofts, cavity walls and timber frames. Internally, DRS Sound Supreme Board has been developed for door cores and is popular with hotel companies, our Rock Mineral Wool is often used as the core of sandwich panels and Heraklith Wood Wool is a naturally inspired solution for garages and basements.

GREEN HEART OF WORLD EXPO

Slovenian pavilion is a global showcase for Urbanscape Solutions

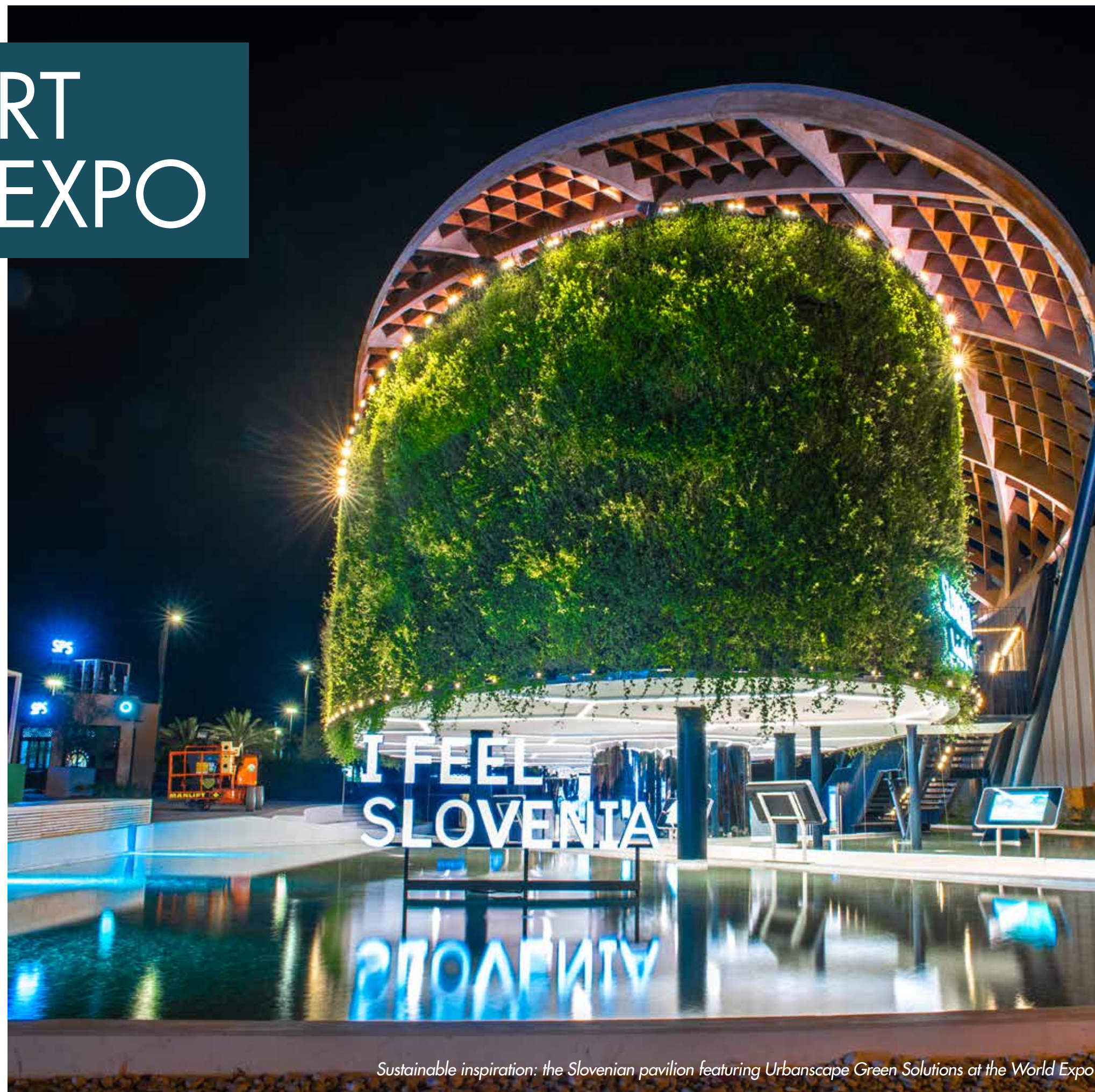
The Slovenian pavilion at the World Expo in Dubai offers a stunning example of the infinite possibilities of Knauf Insulation's Urbanscape® Green Solutions.

The 460 m² pavilion was inspired by Slovenia's stunning natural scenery and is located in the Sustainability District of the Expo Site at the entrance to the exhibition.

Matic Volk, General Commissioner of the Republic of Slovenia for the Expo, says: "We wanted to show Slovenia's reliance on nature and the country's sustainable

development." **Sandi Pirš, Co-author of the design concept**, says: "The lower levels celebrate Slovenian waters, rivers, sea and lakes and the upper level the country's green forests and woodworking tradition."

Barbara Šubic, Sales Director of Green Solutions, Knauf Insulation, says: "The six-metre-high Urbanscape green wall covers an area of almost 500 m² created from 1,500 green wall panels and featuring 45,000 plants using 11 varieties of locally grown plants to represent Slovenian forests."



Sustainable inspiration: the Slovenian pavilion featuring Urbanscape Green Solutions at the World Expo

Courtesy of ©Desert Dream Garden

Six reasons why we need more green roofs and walls

From decarbonisation, biodiversity and clean air to energy efficiency, thermal performance and improved comfort, green walls and roofs create better buildings and promote citizens' well-being.

1 Manage storm water

In towns and cities, storm water instantly runs off unvegetated roof tops into streets, drains and sewage systems. In many urban centres huge volumes of 'run-off' water can create flooding as a result of overloading antiquated sewage systems. Green roofs capture and retain storm water allowing it to evaporate rather than flooding streets. The revision of the European Urban Waste Water Treatment Directive offers an opportunity to introduce more green infrastructure to Europe's urban centres, while solutions such as Urbanscape® Detention Green Roof System can help capture more rainwater than ever. In one test case, Knauf Insulation's Urbanscape was found to retain 66% of storm water.

2 Increase natural habitats

In Europe, biodiversity is decreasing dramatically as more green spaces are covered. As a result, the European Commission's EU Biodiversity Strategy is calling on cities with populations of more than 20,000 people to create Urban Greening Plans by the end of 2021 to promote "healthy ecosystems and urban greening". Meanwhile, the Commission's Pollinators Initiative is committed to "the green infrastructure needed to sustain pollinator habitats". Vegetation is better for pollinators than concrete and with the net worth of pollinators estimated to be around 10% of total worth of agricultural production it is important to preserve their habitats. Green walls and roofs help.

3 Absorb carbon

The European Union is committed to ensuring Europe is the first carbon neutral continent in the world by 2050. Furthermore, under the conditions of NextGenerationEU funding which unlock €750 billion for post pandemic recovery, 37% of support must be allocated to climate action. Green infrastructure provides carbon sinks and, in the words of the Commission, "they are no regret solutions which provide social and economic benefits and build climate resilience". A square metre of green roof can absorb the same CO₂ as a regular car would emit during a 80 km drive.

4 Improve renovation

The European Commission's strategy to renovate 35 million buildings in Europe by 2030 ('Renovation Wave') highlights the "role of roofs and walls to increase the green surface of our cities and improve the urban climate and biodiversity". Buildings are responsible for 36% of emissions in Europe and renovation is the ideal way to make them more resilient and energy efficient. Green roofs provide great energy-saving insulation and offer energy savings for air-conditioning units by reducing the ambient temperature of the roof where they are installed.

5 Reduce city heat

Green roofs and walls cool down buildings by reducing ambient air temperatures in urban areas. During summer, temperatures in cities are often 5-7°C higher than in the countryside due to heat absorption by buildings. In concentrated urban centres, the temperature on a traditional roof can be up to 40°C higher than a green roof. According to data by the European Space Agency's centre for Earth observation, the highest mean temperatures in the heart of Paris were 5°C higher than outer, less urbanised areas.

6 Absorb air pollution

A huge amount of pollution is caused by transportation and residential heating. Particles and smog from cars, trucks and motorbikes are particularly unhealthy with long-term exposure to fine particulate matter or PM2.5 responsible for causing serious health problems. According to research, a square metre of green roof can remove 0.2 kg of dust particles every year. In one study in **Singapore**, the level of particles above a monitored 4,000 m² green roof was reduced by 6%.

*Urbanscape was installed to striking effect on Ypsilon, a residential building project in Ljubljana, **Slovenia***



INSPIRING BETTER BUILDINGS

The European Commission's New European Bauhaus initiative wants to reimagine sustainable living, community spaces and the quality of urban experience. Green walls and roofs are the natural solution.

On top of a mall packed with stores, restaurants and cafés in the heart of Porto, **Portugal**, is a 4,500 m² urban park. Lush green and shaded, thanks to the planting of mature olive trees, the garden offers an urban escape for local workers and curious tourists.

On top of a four-storey school in the **Slovenian** city of Kranj, greenery flourishes. For the students, the roof is a green classroom offering the opportunity to learn about gardening and sustainability.

In **China** on an industrial building in NanTong, a sloped green roof offers a community space for people to relax, while outside the Ferrari factory in Maranello, **Italy**, a garden welcomes workers during their break.

These examples show the social and community importance of green infrastructure in our urban environment, a fact that has been recognised by the European Commission's commitment to what is known as 'New European Bauhaus' (NEB). The concept is described as "platform for experimentation and connection" to make living spaces more accessible, re-imagining sustainable living and improving the quality of our living experience.

The terms may seem abstract but these spaces in Porto, Kranj, NanTong and Maranello demonstrate how to

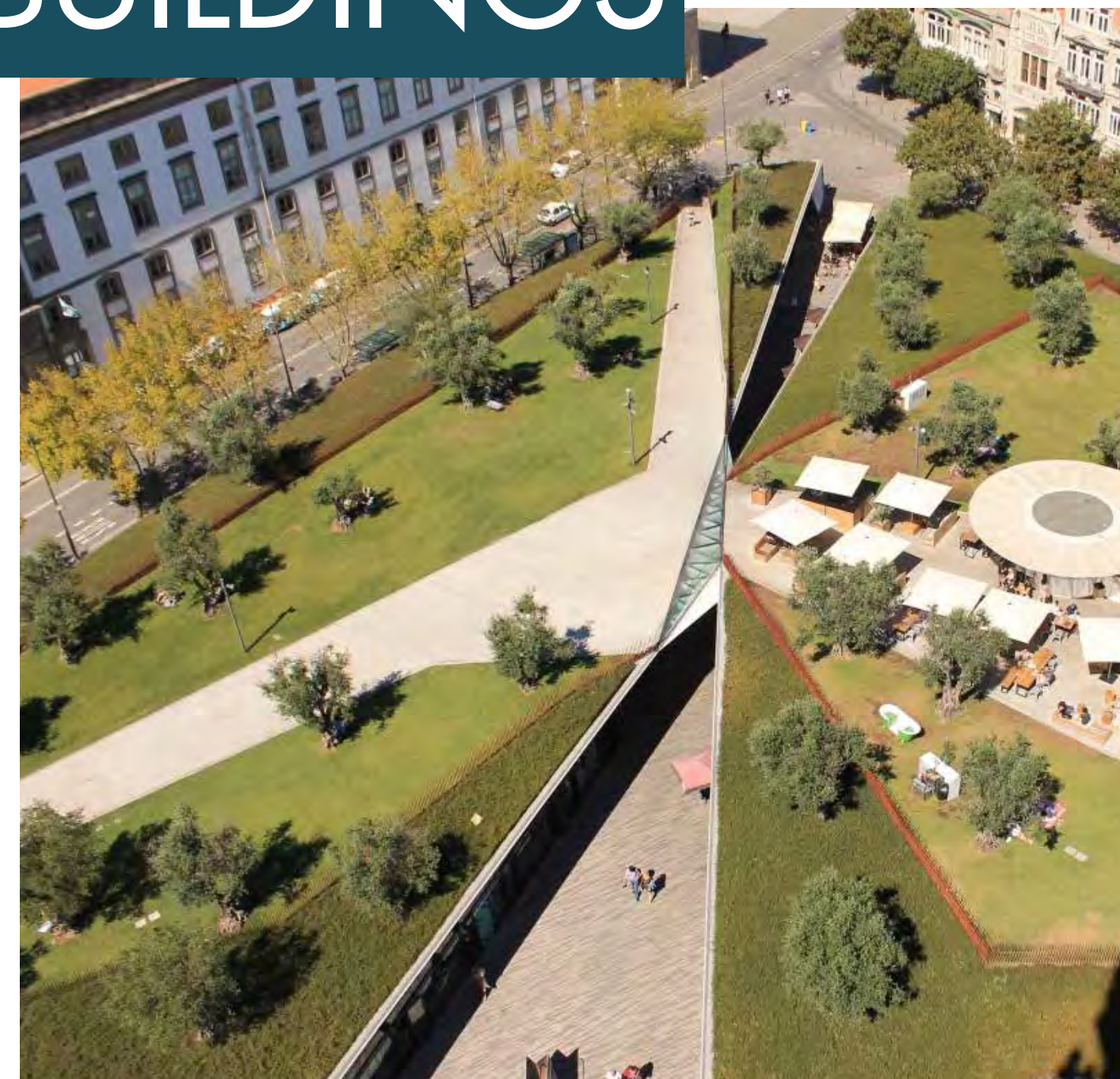
bring European Bauhaus to life. Each example reveals how architecture can improve society, help people to prosper, encourage biodiversity, build community, improve living as well as working conditions and transform grey urban spaces into green.

Jure Šumi, Knauf Insulation's Green Solutions' Advocacy Lead, says: "The European chapter of the World Green Infrastructure Network (WGIN) has been involved in shaping European Bauhaus since its conception.

"Green infrastructure is infinitely adaptable to any use from urban farms, community spaces to play areas. In addition, it encourages better biodiversity and offers an attractive, sustainable way to decarbonise the environment."

Our Green Solutions division has already been contributing expertise to the European Commission's NEB Lab — a 'think and do tank' — designed to accelerate the move towards European Bauhaus and share expertise.

"The aim is to build a community where projects and ideas can be shared. Already members of the WGIN have attended an initial NEB Lab European Commission Round Table to discuss a wide range of potential opportunities and themes to examine how we all work together."



European Bauhaus in action: a green roof park reimagines urban living in Porto, **Portugal**



“

New European Bauhaus aims at creating a new lifestyle that matches sustainability with good design, that needs less carbon and is inclusive and affordable for all.

Ursula von der Leyen
President of the European Commission

”

CREATE BETTER BUILDINGS

Photo copyright (c) 2019 Alexandros Michailidis/Shutterstock

www.ec.europa.eu/regional_policy/en/newsroom/news/2021/09/15-09-2021-new-european-bauhaus-new-actions-and-funding-to-link-sustainability-to-style-and-inclusion

URBANSCAPE'S SUSTAINABLE ADVANTAGE

Circular economy: Environmental Product Declarations reveal our solutions' contribution to the circular economy and the Mineral Wool it uses is recyclable.

DECLARE certified: Urbanscape Rock Mineral Wool is certified by DECLARE meaning all product ingredients are free of Red List chemicals.

Installation: A square metre of Urbanscape takes minutes to install and does not need soil — saving time and labour.

Future insight: Urbanscape's Performance Evaluation Tool (PET) measures the effectiveness of our solutions anywhere in the world.

Digital support: All green solutions are available in the latest Building Information Modelling (BIM) and CAD digital formats.

Lighter solutions: Urbanscape offers the lightest Green Solutions on the market at just 45 kg per square metre.

Courtesy of the Portuguese National Association of Green Roofs

CAMPAIGNING FOR CHANGE

Our public affairs colleagues around the world are campaigning to put energy efficiency, decarbonisation and resilience at the heart of policies and buildings.



UK

Knauf Insulation in Northern Europe with Knauf Energy Solutions has been pioneering the transition from theoretical to measured fabric performance in **UK** buildings policy. After two retrofit successes demonstrating the improvement well-installed Mineral Wool can offer, the Government has progressed from research and development projects to now requiring their use in at least one large retrofit subsidy programme. An expansion of real performance requirements into new build regulations — proposed for 2025 — would mitigate risks in the UK market while amplifying Mineral Wool’s real energy efficiency performance.



Slovenia

Slovenia’s Ministry for the Environment and Spatial Planning has issued guidelines for the installation of green roofs and walls in new buildings and buildings under renovation. The recommendations highlight the importance of green infrastructure as a positive addition to communities — for example creating public places to relax or urban farms — and are aimed at investors, planners and

architects. It is hoped new regulation and subsidies will follow to encourage more green infrastructure.



Croatia

Our Public Affairs team has played an important role in “making fire protection measures an integral part of comprehensive renovation” in Croatia’s Long Term Renovation Strategy and Recovery and Resilience plan, unlocking over €800 million in European Union funding for building renovation. The money will be used for energy efficient renovation and to reconstruct buildings damaged by earthquakes in **Croatia** as well as public buildings as part of a national post-pandemic recovery plan.



Germany

We are working with the new government to ensure that housing policies create a built environment that is resource efficient, contribute meaningfully to climate action and provide more homes for those in need. Our proposals include encouraging the building of new low-cost apartments on top of urban buildings and improving subsidies for insulation.



Spain

More than €6.8 billion in European Union post-pandemic recovery funding has been allocated to energy efficient renovation in **Spain** following work by our public affairs team, the National Mineral Wool Manufacturers Association and Consorcio Passivhaus. Our campaigning has also led to improved regulation as part of the government’s long-term Spanish Building Energy Rehabilitation strategy to renovate three times more buildings every year and the Building Energy Efficiency Programme to increase building energy efficiency from a minimum of 30% to more than 60% particularly for social housing.



Italy

Our Public Affairs team in Italy is calling for an extension of the Ecobonus initiative which allows homeowners to deduct 110% of the expenses incurred for renovation through tax incentives. By September 2021, €7.5 billion had been admitted to the deduction with the state funding €8.2 billion. Our team, with other stakeholders, is now campaigning to extend the scheme’s deadlines from 2022 to the end of 2023.



The Park Hyatt Hotel in Auckland, **New Zealand**, features Earthwool in internal partitions and on external walls

Asia Pacific

In **New Zealand** we have commissioned an assessment of the CO₂ emissions associated with the direct shipping of imported Glass Mineral Wool into major cities compared with local manufacturing. Initial results indicate that shipping CO₂ is lower than multiple local truck movements associated with local manufacture in a single location.

Knauf Insulation **Australia**, meanwhile, has become a founding member of the Embodied Carbon Alliance founded by the World Wildlife Fund and New South Wales Government with the goal of defining the framework for embodied carbon that will impact future Government procurement.

Maximising billions for renovation across Eastern Europe

Almost €15 billion in European Union funding for the energy efficient construction and renovation of buildings is to be unlocked across the Eastern European region. These funds will be amplified by private

investment with the opportunity to double business as usual in the region, says **Peter Robl, Public Affairs Manager for Eastern Europe**.

While the impact is subject to implementation

capacities of public agencies and the industry as well as other events in the market, the allocation gives a positive signal to investors and homeowners. The EU support represents 16% of the €93 billion from the Recovery and

Resilience Fund designed to rebuild Eastern European countries post pandemic.

“It is vital the money is leveraged for maximum impact and our teams continue to work with policy makers to allow the

efficient allocation of funds to projects, availability of assistance and delivering deep renovation results,” says Peter.

Meanwhile, our Eastern European colleagues have also been connecting stakeholders across the region to maximise energy

efficiency and renovation policies within advocacy associations.

Chance for Buildings in **Czechia** and Buildings for the Future in **Slovakia** have already provided a powerful advocacy voice in their respective countries unlocking incentive budgets

and removing barriers to major renovation projects.

In **Romania**, the ROENEF renovation advocacy association successfully campaigned for a €90 million programme to reduce energy use in more than 9,000 single family homes that is taking off.

In **Poland**, the Renovation Wave or Fala Renowacji association was set up in 2021 to bring together leading businesses to campaign for a national renovation focus.



In October 2020 we launched our new sustainability strategy For A Better World with a focus on Putting People First, Achieving Zero Carbon, Delivering A Circular Economy and Creating Better Buildings.

To ensure these words were translated into concrete action we set demanding mid-term targets for 2025 which were designed to transform our business and build on the sustainability success of the previous decade.

From 2010 to 2019 we cut our waste to landfill by 67%, reduced our CO₂ emissions and energy use by 23%, cut our water discharge by 81% and reduced Lost Time Accidents by 56.5%. We achieved four out of five of the targets we set ourselves in 2010 ahead of the 2020 deadline — only our zero waste target was not achieved.

Today our 2025 goals focus more profoundly on what sustainability means for our company taking a more fundamental approach to every environmental impact.

Since 2020 we put in place demanding new metrics against our baseline of 2019 to measure, for example, embodied carbon — the carbon

generated at every stage of our products' life — while launching a range of initiatives to improve our environmental impact such as exploring new ways to recycle customer waste.

Group Sustainability Director Vincent Briard says: "We have a lot of work to do in a short period of time before 2025, but we now have solid foundations in place to move forward."

Safety first

2020 was Knauf Insulation's safest year on record. The entire company achieved 100 days without an accident that resulted in time off work and many of our plants experienced record-breaking periods of safety.

As the challenges of the pandemic heightened risk awareness for everyone, we launched our Take Care Everywhere campaign to maintain focus on the Knauf Insulation safety principles (see page 57) in addition to increasing hazard spotting tours by 50% and safety dialogues by 85%.

In 2020 our Total Recordable Incident Rate (TRIR)* was down to 6.5 from 9.1 in our baseline year of 2019 putting us within reach of our For A Better World 2025 target of reducing TRIR by 55%.

As result we set ourselves a more ambitious deadline. By 2023 we aim to achieve that 55% target and reduce this TRIR figure to 5.0 at a maximum.

**TRIR involves dividing the number of injuries at a company by the total number of hours worked by all employees and then multiplying by a million. It sounds complicated, but TRIR is the industry benchmark and is used to measure ALL accidents not just incidents resulting in lost time from work.*

Embodied carbon

Against our 2019 baseline we are committed to reducing our embodied CO₂ by 15% by 2025. This is the CO₂ generated at every stage of our products' life cycle from the sourcing of materials to ultimate disposal.

For years we have been measuring the embodied carbon of our products through the Life Cycle Assessment process and publishing results in Environmental Product Declarations. These examine the environmental impact of our products from the cradle to the grave.

Now we are applying the same principle to every manufacturing plant and have created a 2019 baseline.



Focusing on cutting embodied carbon is a radical departure for Knauf Insulation from the assessment of our CO₂ over the past 10 years which only reported emissions from energy consumption and the melting process, equivalent to 60% to 70% of total life cycle emissions. As we have done in the past, we will continue to monitor the carbon intensity: kg CO₂ emissions/kg Mineral Wool manufactured.

For embodied carbon we need to put every single stage of a product's lifecycle under the microscope and find a way to shrink its carbon footprint. We have made significant progress with green energy supply, less carbon intense recycled raw materials and reducing waste to landfill (see page 80). We have also started to more precisely assess the carbon footprint of transport to our customers (see page 78). We have

also put in place a data collection system across the whole organisation, starting with manufacturing plants and including our enterprise resource planning system. We are now looking at automatising the process to make it more efficient.

Although 2020 was a challenging year, with several lines stopping and starting at the height of the pandemic, we were able to stabilise emissions to 2019 levels. This means that we need to be more ambitious in the years to 2025 to meet our target.

Landfill waste

Since 2010 we have reduced the amount of waste to landfill by 67% as a result of efficient improvements and recycling initiatives. Our Rock Mineral Wool scrap is repurposed into bricks that are fed back into the manufacturing process, our Glass

Mineral Wool residue is repurposed into other products such as ceiling tiles and the insulation in Wood Wool multi-layer panels and boards is recycled.

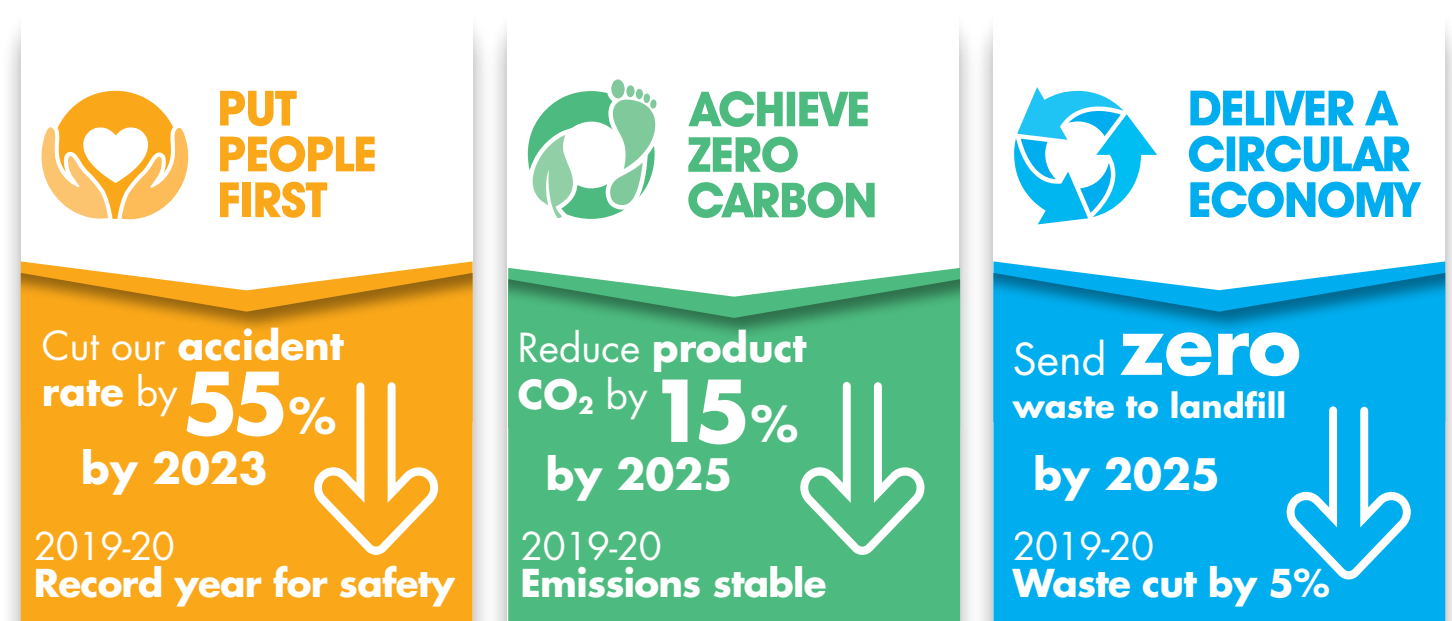
At our **Visé** plant in **Belgium** we have seen an 80% reduction in landfill waste over seven years and in sites such as **Nová Baňa** in **Slovakia**, zero waste goes to landfill.

However, in recent years our progress has plateaued. From 2019 to 2020, we reduced scrap to landfill by 5%.

We are piloting new initiatives that we believe will make a difference. The most important is our Looping project at Visé in Belgium that from 2022 will be able to recycle scrap Glass Mineral Wool (see page 80).

In 2010 we set ourselves a target of zero production waste to landfill by 2020. We failed to achieve this, but by 2025 we aim to realise our zero goal.

Knauf Insulation's For A Better World key targets and progress



RECORD YEAR FOR SAFETY

From 2019 to 2020 there was a 31% reduction in Lost Time Accidents (LTA) across Knauf Insulation sites marking an overall decrease of 63.6% since our baseline year of 2010.

As a result, the company recorded its safest year in its history with 10 plants going more than 12 months without an LTA, up from seven in 2019.

By June 11, 2020, Knauf Insulation had marked a major milestone — a hundred days without an LTA.

In 2019 we also changed from recording accidents as LTAs to Total Recordable Accidents with our Total Recordable Accident Rate (TRIR).

TRIR is important to Knauf Insulation because it records ALL significant accidents, not just those that result in lost time. It is calculated by dividing the number of injuries by the total number of hours worked by all employees and then multiplied by a million — a

Knauf Insulation marked the safest year in its history in 2020 with 10 plants recording more than 12 months without a Lost Time Accident (LTA).

methodology used across a range of industries to compare the effectiveness of safety programmes.

In 2013 our TRIR hit a high of 21.12. By the end of 2019 the figure was 9.1 and at the end of 2020 the number was 6.5. We are committed to reduce this figure to 5.0 at a maximum by 2023.

In 2020 there were also considerable achievements in terms of risk management. Hazard-spotting tours were up 50% compared to 2019, safety observations had increased by 21% and safety dialogues had increased by an impressive 85%. In addition, lower severity incidents — First Aid incidents — were reduced by 15% from 2019 to 2020.

Philippe Coune, Group HSE Lead EMEA & APAC, says: "The pandemic heightened our employees' safety awareness. People went beyond rules to demonstrate real care for one another.

"They were more sensitive to health and safety in every part of the company and the Group HSE team highlighted the importance of taking care everywhere to stay safe outside of work as well as on site.

"Colleagues became more aware of risks and there was less rush, more focus on protecting one another. Last minute risk assessments became standard and by reducing unexpected changes our workplaces became safer and more efficient."



“The pandemic heightened our employees' safety awareness. Colleagues went beyond rules to show real care for one another.”

Philippe Coune
Group HSE Lead EMEA & APAC



Safety visit: Head of Knauf Insulation Dominique Bossan at the company's Visé plant in Belgium

Take Care Everywhere

Do you hold handrails going downstairs? Do you scroll your phone while crossing the street? Would you dry a wet floor if you thought it was dangerous?

More than 80% of accidents at work and at home can be prevented by the way we behave (intentionally or not) — the things we do (or don't) and the things we say (or don't).

That is why we launched our safety campaign Take Care Everywhere in 2021.

Using online videos, posters at all our sites, weekly shared stories on our internal communication platform as well as talks and presentations by HSE managers across Knauf Insulation, we called on everyone to Take Care Everywhere by following The Safety Principles (see below).

Featuring our safety superstar Ki on all posters, information and presentations, the principles continue to remind us to improve our safety and reduce risk at work, at home and everywhere in between.

* The Knauf Insulation Safety Principles are: Expect the unexpected — Managing risk keeps us safe; Investigate all incidents — Share lessons learned; Fix risk rapidly — Don't ignore it. Solve it; Accept mistakes happen — Make work fail-safe; Speak up, listen up — Let's work together for safety; Stay safe outside work — We care everywhere; Give transparent feedback — Total honesty is essential; Put safety first. Always — It's our top priority every day.



The character Ki was created to underline the Take Care Everywhere message in posters, videos and other communication to employees

'SAFETY CANNOT BE ONLY ABOUT WORDS ON A SAFETY POSTER'

Better risk management, upgraded equipment and training, training, training is making a difference at Knauf Insulation's Simbach plant in Germany.

When **Herbert Rieder** took over as manager of Knauf Insulation's **Simbach Wood Wool** plant in 2019 he inherited a series of unexpected safety challenges.

Accident rates were high, risk management was low, out-dated equipment needed upgrading, the HSE manager had left, and a major culture shift was required to improve safety behaviour.

"My priority has always been that everyone who works at the plant has to go home safely at the end of the day," says Herbert. "Safety cannot be only about words on a safety poster, words have to be translated into action."

"At Simbach this was not happening. In 2018, before I arrived, there had been a major incident and then when I took over management there were a series of small incidents that highlighted the need to completely transform safety at the plant."



Sometimes I am too blunt, but when you talk about safety, you must be honest. I want my employees to go home safe.

Herbert Rieder
Plant Manager Simbach, Germany



New safety measures introduced

Supported by **Plant Assistant Kerstin Niedermeier**, who stepped up to handle safety administration, Herbert appointed himself HSE manager and immediately began making changes.

Engineers and safety specialists from Knauf Insulation's Central team as well as external experts were brought on site to carry out hazard spotting tours, assess the safety standards of equipment, carry out training and make risk areas safe.

Among dozens of new measures, new entrances and exits were introduced to keep pedestrians separate from forklifts, for example, new safety fencing was installed where necessary, trip-risk holes in the ground were filled and 'lock-out tag-out' procedures ensured machinery energy was completely shut off during servicing or maintenance.



Appetite for safety: colleagues at Simbach take a break during World Safety Day

Major upgrades implemented

Significantly, out-dated equipment was replaced. "It was important to be completely honest about the standard of machine safety at Simbach and the need for very significant investment," says Herbert. "The management was receptive and the major upgrades that were carried out ultimately cost more than a million euros."

The investment, new equipment and improved safety areas had a far-reaching impact. First, the improvements demonstrated to everyone at the plant that safety was being taken seriously — actions were speaking louder than words. Secondly, plant efficiency was improved, processes were safer, more streamlined and output increased significantly.



Safety stop: Simbach colleagues are updated on the Take Care Everywhere safety campaign

Positive culture change

However, new machinery was not enough. It was equally important for Herbert to focus on a culture change. "A lot of people had been at the plant for a long time and their approach to safety needed to be upgraded. How did we do this? Training, training, training. Talking, talking, talking."

"I was on the production floor constantly talking and carrying out safety checks. Sometimes I was too blunt, but when you talk about safety, you must be honest. I want my employees to go home safe and they must take responsibility for themselves."

The results have been positive. For example, safety issues are no longer 'last-minute' at the end of shifts; mechanics are

called immediately to fix machinery problems and there is an improved approach to highlighting risks if an employee sees a colleague working in a way that is unsafe.

"Safety was stuck in the mud at Simbach in 2019," says Herbert. "Now the plant is a safer place, and a great deal has been achieved, but accidents still happen."

"Until summer 2021 the plant had recorded 325 days without a Lost Time Accident and then on July 15, an employee broke his leg loading a truck."

This incident demonstrates that safety is always a process of continuous improvement, you can never be complacent, and you can never give up."

'WE CANNOT ELIMINATE RISK COMPLETELY, BUT WE CAN MANAGE IT'

Lagging indicators such as Lost Time Accident figures to benchmark 'what has happened' are insufficient when it comes to safety. These figures must be seen in the context of risk management, 'what could happen', says the safety team at our St Helens site in the UK.

For 16 months there were no Lost Time Accidents (LTAs) at Knauf Insulation's **St Helens plant** in the **UK**. Then in May 2021, there was an incident. Six weeks later, another.

A long period of time without accidents is often a source of great pride among the company's sites. So, what can we learn from St Helens? Is this simply a story of never taking safety for granted?

"Of course, safety should never be taken for granted at any plant, but accidents can happen despite our best endeavours," says **Kevin West, HSE Lead – Glass Mineral Wool Technology EMEA & APAC**.

"That is why the focus must always be to ensure that the risk of an accident — its likelihood and its severity — is minimised as much as possible. We cannot eliminate risk completely, but we can manage it to a tolerable level."

Lagging indicators are not enough

At St Helens, the incidents occurred in low-risk areas and the operators suffered minor injuries. However, the operators were still signed off work for a day by a medical practitioner, a situation that is common in the UK.

For **Darren Holt, St Helens' Plant Manager**, and **Philip Burke, Plant HSE Manager**, the incidents raise issues about reporting, the role of safety metrics, different cultural approaches to safety and the essential role of managing risk.

According to the UK team, it is not enough to use lagging indicators — such as LTA figures alone — to benchmark "what has happened". These figures must be seen in the context of risk management, "what could happen".

"If the level of risk is high and the accident rate is high at a plant, you have a serious problem," says Kevin. If the risk level is low and the accident rate is low then we need to continue doing the things that lead to the risk being low, as is the case at St Helens."

Engage and empower people

Plant Manager Darren Holt says: "Numbers are important, but do you change direction if there is an incident? You cannot stop doing all the good things that you are doing if you have low risk and low accident rates.

"You need to continue to engage and empower people to highlight hazards and control risk, so mistakes are unlikely to happen in the first place, they are easy to spot and easy to recover from



Kevin West, HSE Lead – Glass Mineral Wool Technology EMEA & APAC: 'If the risk level is low and the accident rate is low then we need to continue doing the things that lead to the risk being low'

if they happen. Reduce the risk of failure but ensure we fail safe if failures happen"

HSE Manager Philip Burke says there are daily morning safety hazard review meetings at St Helens, an embedded culture of Continuous Improvement and the number of hazard spotting tours have increased significantly. "These tours keep everyone engaged because each one results in a concrete action

"At the end of 2020 there were 360 hazards reported and by July 2021 the number had increased to over 500 with a very high closure rate" says Philip. "Unfortunately, LTAs are not an accurate reflection of what is happening here.

The incidents were in low-risk areas, completing low risk tasks with low severity consequences to me this shows we are at a tolerable level of risk at St Helens."

Importance of using risk assessments

What about the impact of reporting an incident after a long period without an accident? Does it have a demoralising effect at the plant? "If we pay too much attention to the statistics it can have a demoralising effect, but in St Helens, no. It shows we are not afraid to report these accidents", says Kevin.

A better way to measure safety is by risk

assessment, he says. Give every area and task a risk rating. Go through all the areas, determine what needs to be done — and what is being done — to control risk.

"Prioritise higher risks, and then go to lower risks and so on until you have a tolerable level of risk. But don't stop there, always keep things under review as things change over time.

"If a low incident rate tallies with a low-risk rating, then the plant may be considered a "safer plant". One of our Safety Principles is that managing risk keeps us safe. We measure safety by the absence of unmanaged risk and not by the absence of reported incidents alone."

Do you change direction if there is an incident? You cannot stop doing all the good things that you are doing if you have low risk and low incident rates.

Darren Holt
Plant Manager St Helens, UK

POSITIVELY INSPIRED

Wherever we are in the world, Knauf Insulation is helping people bring the best version of themselves to work.

At Knauf we have a core value known as Menschlichkeit — humanity towards others.

Values are easy to write down, but how do we put this value into action at Knauf Insulation?

By helping our colleagues bring the best versions of themselves to work by focusing on our strengths, resilience, positivity and providing the leadership insight and skills to develop these characteristics in others.

Company-wide we have been piloting programmes designed to instil positive psychology such as Living the KI Way and our new Knauf Leadership Programme supported by region-

specific practical advice sessions, helplines, workshops and courses.

And, of course, coming out of the crisis, our focus has been around mental health and well-being (see pages 64).

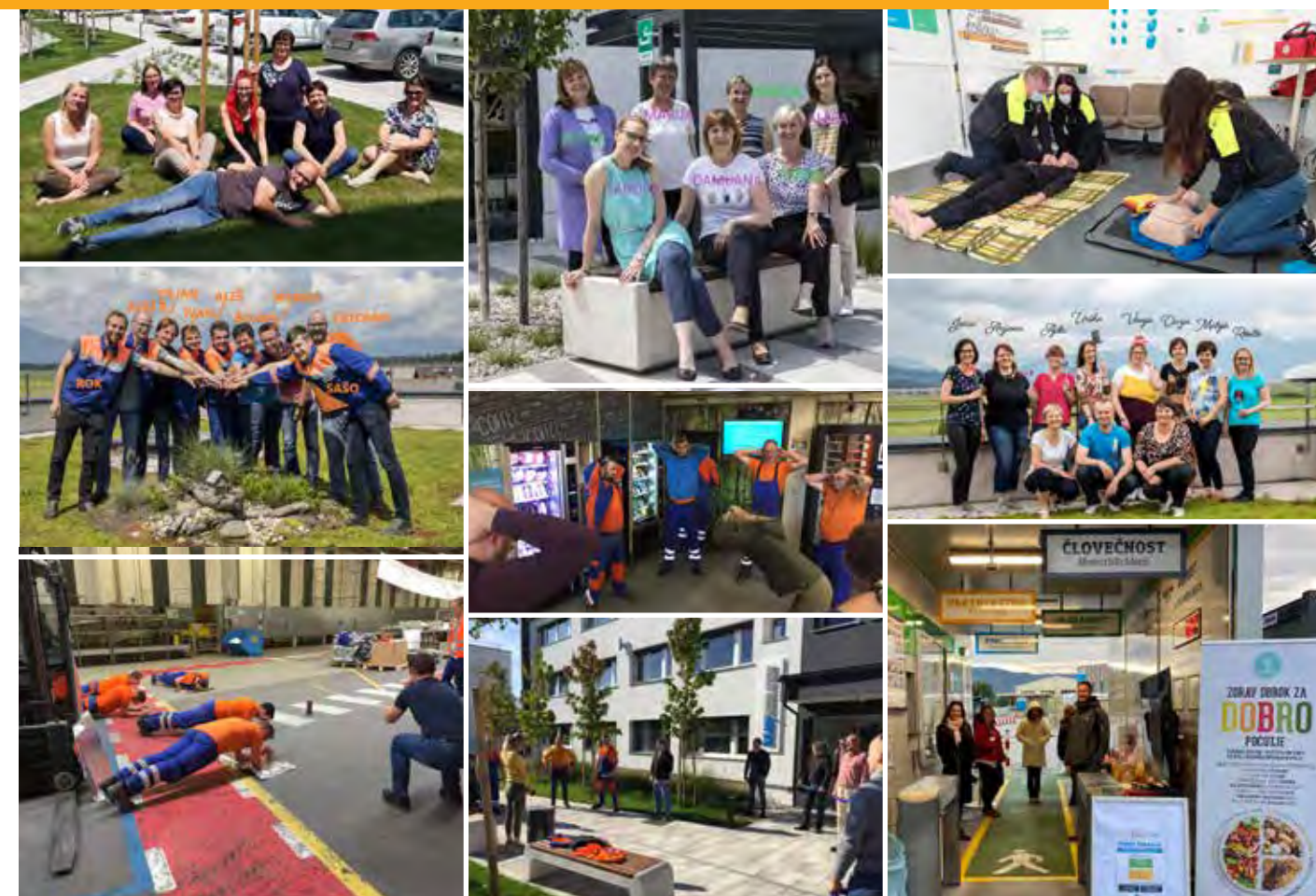
Siân Hughes, Knauf Insulation's Group HR and Corporate Affairs Director, says: "Across the Knauf Group, you feel the sense of family. We all have a duty of care to our colleagues and each other and you can feel it.

"At the height of the pandemic we rallied together brilliantly at Knauf Insulation and really looked after each other, but almost two years later our

well-being is now more important than ever. The world is still getting back on its feet and mental health concerns are not going away, in fact so many of us are still very fragile.

"It is not easy to talk about, but we have to start normalising conversations about well-being and helping each other to focus on the positives in ourselves, and in each other — that also helps us to value diversity and build positivity in teams.

Our For A Better World sustainability strategy commits us to providing positive mental health, well-being and resilience training to all managers and new joiners by 2025.




“
We have to start normalising conversations about well-being and helping each other to focus on the positives in ourselves.
”

Siân Hughes
 Group HR and Corporate Affairs Director




#myheromoment showcases the motivation that inspires colleagues across the company

Knauf Insulation Western Europe has released a series of #myheromoment videos where 15 employees talk about what inspires them at work, the secrets of their success and why sustainability is close to their heart.

Cédric Natalis, HR Director for Western Europe, says: "We are showing everyone that building on strengths and motivations as well as defining a clear sense of purpose is an opportunity to shape work as something people want to do, in a community they want to be in."

The videos feature a diverse range of colleagues who work in a wide variety of positions at our **Visé, Lannemezan, Paris** and **Illange** offices and plants in **Belgium** and **France**.

Our colleagues were asked about what motivates them at work, what strengths they have and the importance of Knauf Insulation's For A Better World strategy. Check out #myheromoment to see what they said.

Recognition matters

Having work recognised by those that matter is an important pillar of positivity. Every year Knauf Insulation celebrates leaders who have lived the Knauf values of Entrepreneurship, Commitment, Partnership and Menschlichkeit.

Freeing up Fridays

Knauf Insulation has introduced 'Meeting Free Fridays' to help colleagues catch up with teams, learning, development and focus on work that requires concentrated time. The aim is to avoid organising project meetings, steering committees, management meetings or even Board meetings on Fridays.

LEARNING TO THRIVE IN THE NEW NORMAL

The past two years have been challenging, but to build resilience colleagues have been focusing on their strengths through programmes such as Living the KI Way.

Focus on strengths

Katja Pruša, HR Director of our Systems Division, says: "If we are able to use our strengths at work and develop them, we can reach our true potential and we feel more engaged at work. Adults usually do not think about their strengths, there is usually a tendency to think about development needs or gaps.

"However, if we just focus on gaps, we only come to a neutral zero point, we do not see and cannot achieve our full potential — and this is true for individuals as well as entire organisations."



Katja Pruša, HR Director of our Systems Division: 'We are enabling people to use their inner resources for the change that is needed'

At Knauf Insulation, workshops and learning journeys such as Living the KI Way are helping leaders to recognise their own strengths and strengths in others and build on them.

"We are implementing this in our people-related processes such as talent management, showing leaders how to have meaningful discussions or in giving feedback that nourishes future growth, enabling people to use their inner resources for the change that is needed."

Key to this has been increasing the number of coaching processes.

"I believe this is one of the most effective personal development processes that enable people to become more self-aware and build their own strengths."

Improve resilience

Maximising strengths through initiatives such as Living the KI Way shows colleagues how they can achieve even more and builds the resilience to cope with challenges, says **Ekaterina Pronkina, HR Director Russia & CIS**.

"What are my strengths? Can I reach higher? What helps me cope with difficulties?"

"Knowing answers to these questions, helps people deal with stress and anxiety and this ultimately impacts on their level of life satisfaction," she says.



Ekaterina Pronkina, HR Director Russia & CIS: 'Knowing your strengths helps life satisfaction'

Gulfiia Aiupova, Finance Director Russia & CIS, says: "Living the KI Way highlighted perspectives of mindfulness providing emotional support for teams and individuals during the challenges of the pandemic."

Oleg Gorun, Plant Manager Tyumen, Russia, says: "Living the KI Way is all about the inner driving force. You simply cannot let your standards drop. If you have already reached your heights, you must do everything 101% better, run faster, jump higher — not only fix your achievements but also gain more power to reinforce your team."



Julie McKean, HR Manager Northern Europe: 'There are plans for more Mental Health First Aiders'

Provide support

Positivity also needs to be reinforced by practical support. In our Northern

European region, employees can benefit from a 24/7 helpline and website offering free confidential support on personal, financial and legal issues.

Colleagues can also have counselling and online Cognitive Behaviour Therapy sessions. "We also plan to train more Mental Health First Aiders who have the in-depth insight to help those they work with," says **HR Manager Julie McKean**.

In Eastern Europe & Middle East, webinars have been organised to support colleagues with well-being issues as well as offering a 24/7 employees' assistance hotline.

CHAMPIONS OF ENGAGEMENT

Our Eastern European colleagues have recorded double digit improvements in terms of employee engagement. The secret of their success? A bottom-up approach driven by trusted, self-appointed champions whose motivation ensured action plan results were delivered as promised.

Tania Orglerova, our Regional HR Director for Eastern Europe, admits that when she saw her region's 2021 employee experience survey results, she thought they were unbelievable.

"I thought, 'This is incredible.' We had an 89% response rate. Our engagement score was up by 14%. Our employee satisfaction was up by double digits across the board. And this was all at a time of uncertainty and COVID-19. I had to double check the figures to make sure they were correct," she says.

The figures were correct. And they are ultimately a tribute to the hard work of the region's engagement champions and their 850 colleagues working across Knauf Insulation sites in **Czechia, Poland, Slovakia, Turkey, Serbia, Bulgaria, Romania** and **Hungary**.

Why are engagement results important?

Good levels of engagement translate to happy colleagues who talk positively about their company, enjoy coming to work and want to stay. Bad levels of engagement can lead to increased absenteeism, and sick days as well as constant turnover.

Our For A Better World sustainability strategy makes a commitment to ensure that by 2025 our engagement survey results are significantly above industry average in every country we operate in.

What was revealed by the survey?

In 2018 an employee experience survey was carried out across all Knauf



Insulation sites in Eastern Europe and repeated in 2021. An incredible 89% of employees completed the second survey with the region's engagement score up 14% compared to 2018 (and 6% above the Eastern European Manufacturing average).

The number of people who described themselves as moderately engaged was up from 32% to 38%, those who described themselves as highly engaged was up by 8% to 19% and the number of disengaged was down by 10%.

Meanwhile, employees' satisfaction, rated across areas such as pride in the brand, well-being, employee care, manager support, career development and performance management — was between 9% and 14% up on 2018.

How were these results achieved?

"The success is a result of a bottom-up approach and the work of our engagement champions who volunteered time to make a difference," says Tania. "From the first survey we knew where attention was needed and champions worked with colleagues and management to create action plans to tackle these areas."

"These became living documents publicly displayed and everyone could see the action being carried out and when. You cannot earn trust by saying, 'Trust me.' You must walk the talk and that is what our champions did. Their success is reflected in our 2021 results."




“
You cannot earn trust by saying, 'Trust me.' You must walk the talk and that is what our champions did. Their success is reflected in our 2021 results.
”

Tania Orglerova
 HR Director, Eastern Europe





TURNING RESULTS INTO ACTIONS

The first Gallup engagement survey was carried out in 2020 across Knauf Insulation sites in Central and Western Europe as well as Russia and CIS with a total of 2,605 colleagues (77%) taking time to give their input. The results are now being transformed into action plans.

Engagement champions are now working with colleagues and management to create action plans based on the survey feedback.

Our **Group HR Talent & Development Manager Katrien Wakana** says: "Surveys are not just about results, they are about what results raise. Thanks to our Engagement Champions we are finding out exactly what this means for every team."

"The champions are colleagues we exchange with every day. They experiment, they interact, they initiate, all year

long, and they are no different from anyone else, which ensures trust.

"They help us to address situations and come up with creative solutions. They also show it is not always big solutions that improve our environment, it starts with changing small habits and learning from new experiences. I am sure our champions have been transformed by their experiences — we could not have achieved so much without them."

A follow-up survey will be carried out in 2022 to assess the results and keep the initiative on track.



“ Surveys are not just about results, they are about what results raise. **”**

Katrien Wakana
Group HR Talent & Development Manager




Feedback from our champions



"Being a champion is about caring, making people feel comfortable and letting them speak frankly. Being a champion is about dedicating yourself to others and being full of hope to make them feel better. But you also receive so much. The exchanges are incredible."

Valérie Godfroid, Group Headquarters Office Manager and Executive Assistant of the Group Chief Financial Officer, Visé, Belgium

"Following the survey, at Zalaegerszeg and Budaörs in **Hungary**, we have focused on development, managerial skills, cooperation between departments and motivating colleagues. Common to both sites was a need for more training in communication which is now another important focus."

Nicolette Reháneková, Regional HR Project Manager/HR Manager, Hungary



"I took part in meetings to action plans after the survey. My preconception was that people would talk about salaries, so it was interesting to hear people speak about things such as engagement, development, recognition. It is by speaking together that we can change the way we work together."

Inna Sukhoguzova, HR Manager, Tyumen, Russia

"After the survey I spent many hours speaking with people about engagement, the company, values and their interests. It is important to ask: why am I here? What can I do for my colleagues and company? What are my values? It is important to bring together personal and corporate aims."

Glafira Kaliuzhnaya, Training & Development Manager, Russia & CIS



"We are working to address needs such as joint summaries at the end of leadership meetings to ensure uniform top-down communication, development courses, inter-departmental meetings to improve relationships and a common charter to maintain good relations between departments."

Alicia Dona, HR Manager, Paris, France

"Our survey was positive, so it is important to continue consolidating the path we have taken. Continuing initiatives include bottom-up processes that see employees as leading actors. Recently we organised workshops to define a list of tasks to work on such as strategy, ideas and newsletters."

Marina Cagliano, HR Officer and Personal Assistant to Managing Director Italy, Volpiano, Italy



"The involvement of the team in defining the plan of initiatives is fundamental for the achievement of each objective, especially in the area of engagement. We will continue the initiatives launched with determination."

Paolo Curati, Managing Director Italy, Volpiano, Italy

"We had open sessions and our first action was to work on teamwork to counterbalance the impact of COVID. We had workshops to bring out team strengths and weaknesses as well as sessions on empathy, communication and assertiveness."

Cristina Gomez, Finance Controller and HR Manager, Iberia



BETTER TOGETHER



As a company we recognise the need to implement conscious, deliberate strategies that maximise the strength of our diversity.

At Knauf Insulation we are at the beginning of an exciting journey to challenge ourselves to be even more inclusive and to build on the diversity that has made the company such a success.

Lisa Flaherty, HR Director Northern Europe, says: "Members of our Diversity and Inclusion Working Group from every function and region have been working to ensure real engagement across all aspects of our business, assessing the needs of different regions and examining new ways to nurture the differences that make us unique."

"The business case for diversity and inclusion is clear. It improves innovation, productivity and reduces turnover. The moral case is indisputable, we all deserve respect, whoever we are. We want all our employees to be equally supported, valued and enabled to achieve their true potential. A diverse culture in which we all thrive fuels creativity and

allows success for all. Our priority is now finding out how to ensure Knauf Insulation is a more diverse business in future."

Since 2020, members of senior management have been taking part in diversity and inclusion workshops. There has been a focus on improving the company's data and understanding what is important to each region. Inspiration has also been provided from our USG sister company in North America which has been working in this area for several years.

The work is in line with our sustainability strategy For A Better World. By 2025 we have committed to ensuring all leaders, managers and new joiners undergo diversity and inclusion training to equip them with the skills, language and behaviours to maximise inclusion as well as developing diversity and inclusion training for employees as part of our education and training.

Diversity and Inclusion vision

"We embrace diversity and inclusion to welcome, support, grow and inspire our people equally. Connecting to our Knauf values of Entrepreneurship, Commitment, Partnership and Menschlichkeit, we strive to create an enriching experience for all employees For A Better World. Together we achieve more."



A diverse culture in which we all thrive fuels creativity and allows success for all.

Lisa Flaherty
HR Director, Northern Europe



CELEBRATING DIFFERENCE

Members of Knauf Insulation's Diversity and Inclusion Working Group discuss why diversity and inclusion matters.



Being part of this group and facilitating one of the pilot programmes, gives me the trust that manufacturing companies in the construction sector are open to invite more diverse candidates into the industry, where we, as individuals can bring our knowledge and uniqueness to contribute not only to the company's missions and objectives but also to our own development.

Magdalena Pyszkowski
Group Market Manager and Head of Non-Residential



Diversity, inclusion and gender parity make good business sense in terms of productivity, innovation and a positive company culture, but fundamentally on a human level, working in diverse teams is always more fun and more exciting.

Ondrej Šrámek
Corporate Affairs Director, Eastern Europe



I believe our company values can be easily linked to diversity and inclusion and I believe Knauf Insulation will strive to deliver an industry best Diversity and Inclusion workplace. My goal is to take all available learning and apply it to my day-to-day work in a way that supports diversity and inclusion at Knauf Insulation.

Asif Dar
Systems & Services Development Manager, Northern Europe



Engaging with conversations about diversity and inclusion with my international colleagues I have learned to appreciate how 'together we can achieve more'. The perspectives shared by a diverse team, where everyone feels comfortable and encouraged to contribute have resulted in enriched dialogue and surprising results which repeatedly exceeded expectations.

David Lieberman
Plant Manager Bernburg, Germany



It is vital each person is treated equally and recognised according to their own merit regardless of gender, ethnicity, age, beliefs or sexual orientation. Being able to evolve within a professional environment which fosters these values is inspirational and provides me with a sense of purpose within Knauf Insulation.

Pascale Bruwier
Group Procurement Manager



CARING FOR COMMUNITIES

Our culture of care informs everything we do at Knauf Insulation inspiring community leadership inside and outside of the company.

Peter Vilina from our **Nová Baňa** plant volunteered to support COVID-19 patients in his local hospital in **Slovakia**.

After answering a call for volunteers at the hospital he was assigned the COVID-19 department on Christmas Eve and Christmas Day.

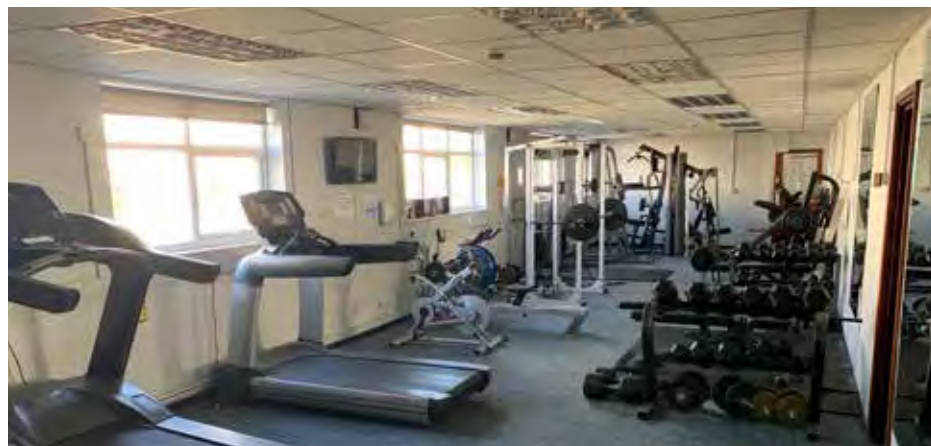


Wearing heavy duty protective clothing, Peter supported the admission of COVID-19 positive patients and was involved in transferring samples to laboratories, taking patients for X-rays and scans. He also helped to assist patients in wheelchairs refill oxygen bottles and clean rooms to support nurses. "I really wanted to help," says Peter.

Peter's experience epitomises a year of community leadership both inside and outside of Knauf Insulation that underlines our For A Better World ambition to create a global community of volunteers.

Refugee support

Knauf Insulation has partnered with Live In Colour, a non-profit organisation that works with more than 750 young refugees in **Belgium**. Our aim is to find ways to support the refugee community through integration initiatives such as sponsorship, 'activity days' and possible job opportunities.



Work out after work

Our colleagues have set up a new gym at our **St Helens** plant in the **UK** featuring an extensive range of cardio equipment and weights. It is maintained and run by colleagues at the plant providing real ownership of the initiative. Previously a gym had been housed in an old meeting room at the site, but as it grew in popularity, a bigger fitness centre was required. As a result, an unused building by the site's car park was converted into the new gym. Membership to the gym costs a token monthly amount while the physical and mental benefits are, of course, priceless.

Online boost for fitness

At our **Russia & CIS** sites we took an innovative approach to well-being by developing a series of online 'Body Boost' videos with a blogger who specialises in fitness. A total of 25 films were created to offer colleagues daily online routines to boost their health.

New trees planted at Surdulica

More than 300 trees and 500 metres of hedging were planted at our **Serbian** site at **Surdulica** in 2021 to demonstrate our commitment to our sustainability strategy For A Better World and our campaign 'A tree for Surdulica'. An agreement was made with Surdulica municipality to invest in the remodelling.

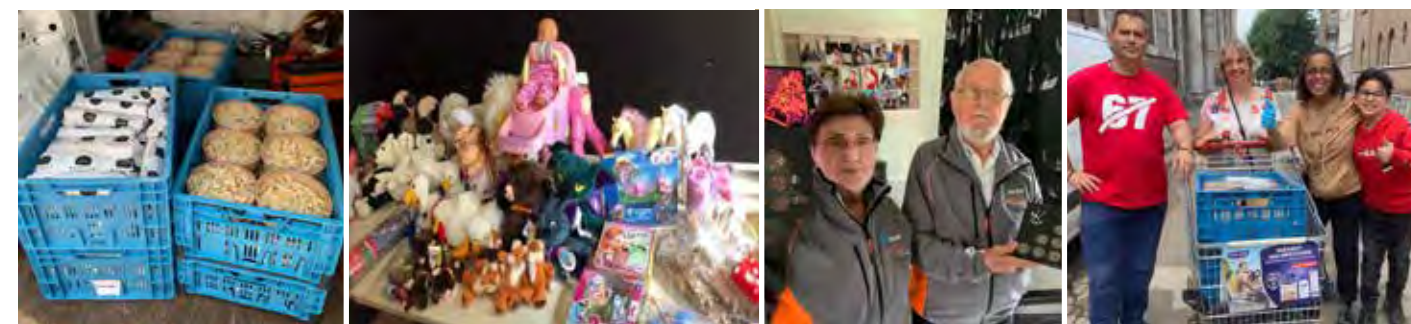


Better acoustics

The canteen at our **Škofja Loka** plant in **Slovenia** has been given a facelift to make it an ideal place to enjoy a peaceful lunch. The dining area had been too echoic, and it was decided to install TOPIQ® Sonic elements from Knauf Ceiling Solutions which look great and offer solid acoustic performance.

We have also carried out planting and remodelling work between our Škofja Loka site and the neighbouring village to create more green spaces for our neighbours and colleagues to enjoy including a green park and playground for local children.

Support for flood victims in Belgium



Towns and villages across **Belgium** were devastated by extreme rainfall and flooding during the summer of 2021.

In the Liège region, the River Vesdre broke its banks to sweep away cars, flood streets and completely destroyed entire districts including Verviers, Pepinster, Spa and Trooz, while the River Meuse overflowed to cause chaos in villages in the commune of Visé.

Our **Visé** plant was unaffected by the floods, but several team members were forced to evacuate their homes as water flooded their buildings. Many saw their cars swept away and some lost all their possessions.

At our Visé site a donation centre was set up and volunteers mobilised to help, while our CEO at the time, Jean-Claude Carlin, personally contacted workers who were most impacted by the floods.

Company vehicles were loaned to those who had lost their cars, accommodation was rented for those who could not return home and clothing collections were established.

In addition, our Visé site organised meals to be distributed to flood victims in Verviers as well as a collection of toys for children in the city. Following the disaster, our Visé engineering department donated computer screens to a school in Verviers.

A collection of supplies and clothing was also sent to our affected workers and donations made to local support organisations and the Red Cross.

One Visé colleague, Vincent Caltot, even took in a couple who could not return home and our Visé canteen provided them with hot meals for two weeks as well as chocolates to cheer them up and fleece jackets to keep them warm.

Earthquake aid mobilised

Our Croatian team responded quickly to help victims of 2020's earthquake in the Banija area of **Croatia** last year. The earthquake was the strongest to ever hit the area. Seven people were killed and 30,000 buildings destroyed. "At the initiative of our Knauf Insulation Ambassadors, our team collected and delivered financial support as well as other supplies," says **Krešimir Benjak, Knauf Insulation's Marketing and Communications Manager** in Croatia.



DECARBONISING OUR PLANTS

Knauf Insulation is on a mission to decarbonise all manufacturing plants to deliver net zero embodied carbon products. It is a commitment that requires the complete transformation of everything we do.

“We have no choice but to be ambitious. To achieve our commitment to deliver net zero embodied carbon products we must investigate every stage of our products’ lifecycle and brainstorm new ways of doing everything.”

These are the words of **Jean-Pierre Pigeolet, Knauf Insulation’s Products and Buildings Sustainability Manager**, who is focused on the company’s biggest embodied carbon challenge of all, manufacturing.

Embodied carbon is generated at every stage of a product’s life cycle from the sourcing of raw materials to ultimate disposal. “At Knauf Insulation the majority of CO₂, around 65%, is generated during plant manufacturing processes,” Jean-Pierre says.

“For example, the annual amount of electricity consumed by our plants is equivalent to the indirect emissions generated from powering 200,000 homes.”

In 2020 we committed to our zero-carbon ambition and to keep the objective on track set a 2025 target to reduce the embodied carbon of our products by 15%.



A total of 6,000 photovoltaic panels have been installed at our plant in Visé in Belgium

10 ways we are shrinking our carbon footprint

1 Setting ambitious targets

Using a combination of renewable sources onsite and offsite we have estimated that some of our Glass Mineral Wool plants have the potential to save up to 90% of the CO₂ generated by electricity in just five years.

2 Installing panels and turbines

Plants are installing photovoltaic panels and wind turbines to generate their own green energy on site. Some are aiming to reduce their direct grid consumption by 10% to 30% as a result.

3 Drawing up new contracts

We are drawing up contracts with suppliers of ‘cleaner’ energy from wind, solar and hydro sources that are certified by credible Guarantees of Origin.

4 Finding new power sources

We are looking into Power Purchase Agreements, long-term contracts with these developers of renewable sources to ensure a steady long-term supply from these sources.

5 Drawing up roadmaps

Not every plant has easy access to clean renewable energy. And not all plants are powered by just electricity. That is why we are examining the potential of alternative energy sources of the future such as hydrogen and biogas.

6 Continuously improving

We have a laser focus on saving energy wherever possible. This may mean new LED lights, new energy load management to limit peak energy use, introducing new technology or it developing innovations such as new melting processes.

7 Getting competitive

Every year we allocate a substantial amount of our capital expenditure to an internal competition to find new plant projects that can demonstrate long-term carbon or waste savings.

8 Using more recycled material

Using recycled materials such as used glass generates less carbon than processing virgin materials. We are looking for new sources of used material to integrate into our processes.

9 Getting closer to customers

We aim to expand the footprint of our company to be closer than ever to customers. Our new Malaysia plant, for example, ships deliveries to Australia and New Zealand.

10 Saving emissions of Belgium

Over the past decade Knauf Insulation has produced almost 14 million tonnes of Rock and Glass Mineral Wool — in its application it allowed saving the equivalent of more than the annual carbon emissions of Belgium.



To deliver net zero embodied carbon products we need to brainstorm new ways of doing everything.

Jean-Pierre Pigeolet
Products and Buildings Sustainability Manager



SAVING LOADS OF CARBON

Knauf Insulation is assessing the environmental impact of its transportation and logistics with the aim of dramatically reducing the carbon footprint of customer truck deliveries.

Julian Fassin, Knauf Insulation's Business Process Officer – Order Fulfilment, is using what is known as the Global Logistics Emission Council (GLEC) framework, an internationally recognised standard, to calculate the company's transportation emissions.

"We are in the initial stages of assessment as the methodology is complex factoring into algorithms, for example, truck routes, engine types, load weights, load origins and destinations," he says.

"Once we have baseline assumptions to work with, we can refine this data with precise real time data such as actual distances travelled by trucks or specific engine types used. This is significant as more than 90% of our loads are transported by truck.

Ambitious carbon reduction

"The aim is to use this data to work on reducing our transportation carbon footprint. Not only is this important to our customers it is an important contribution to Knauf Insulation's sustainability strategy For A Better World."

The company has committed to achieve zero carbon and minimise the impact of its products and manufacturing plants. To ensure this aim is kept on track, the company has set a 2025 target to reduce the embodied carbon of its solutions by 15% — that is the carbon generated at

every stage of a product's life cycle from the sourcing of materials to their ultimate disposal.

After raw material sourcing and manufacturing, customer deliveries account for around 10% of the embodied carbon of Knauf Insulation products.

Bigger loads, shorter distances

In addition to Julian's project to measure and optimise transportation, the company has introduced new ways to improve plant allocation and distribution. This is important because, for example, just reducing a distance from 1,000 km to 500 km can cut total embodied carbon of a product by up to 3%.

Knauf Insulation also compresses products to ensure fewer distribution trucks are needed — for example, 5,800 m² of 50 mm Mineral Plus can be delivered in one 80 m³ truck rather than 3.6 trucks required for traditional Rock Mineral Wool — and in many locations uses trucks with low emission EUR5 or EUR6 engines.

In **Belgium**, Knauf Insulation is using 25.5 m ECO-COMBI trucks for haulage to **the Netherlands**. A single ECO-COMBI can deliver up to 30 pallets of our Glass Mineral Wool which enables Knauf Insulation to transport the same volume of product but using 30% fewer standard trailers which cuts CO₂ emissions by around 20%.



Huge 25.5 m ECO-COMBI trucks can deliver up to 30 pallets of Knauf Insulation Glass Mineral Wool enabling the transportation of the same volume of product but using 30% fewer standard trailers, which cuts CO₂ emissions by around 20%



Customer deliveries account for around 10% of the embodied carbon of Knauf Insulation products.

Julian Fassin
Business Process Officer – Order Fulfilment



Driving ambition

Knauf Insulation sites in the Netherlands and in the UK are reducing the carbon footprint of their lease vehicles by switching from diesel cars to electric and hybrid vehicles.

At our Dutch site in Gilze, the aim is to reduce average vehicle CO₂ emissions from 110 g/km to 50 g/km after 2025. In 2019, average CO₂ emissions were 110 g/km, with zero hybrid or electric cars.

By 2021, the CO₂ average was set to fall by 14% after replacing these cars with combination of full electric, hybrid and mild hybrid cars.

The target is now to develop the low carbon fleet further to reduce average CO₂ to 81 g/km by 2023 by introducing more electric cars, followed by a revamp of the fleet that

will then take the average to 50 g/km after 2025.

In the UK, Knauf Insulation non-commercial drivers with annual mileages of less than 10,000 km can order full electric vehicles, while commercial high mileage drivers can order hybrid vehicles.

Since the policy was introduced in October 2020, 66% of vehicles delivered to the company are hybrid cars (1–60 g/km) or full electric (0 g/km).

Employees that choose an electric or hybrid vehicle need to have a charging point installed at home. A grant scheme covers up to 75% of this installation and 50% of the remaining costs is paid by Knauf Insulation.

THE SHAPE OF THINGS TO COME

Knauf Insulation's pioneering new plant, pictured right, will revolutionise recycling in line with the company's ambition to take back 25% of scrap generated from customers' job sites by 2025.

Knauf Insulation has launched a pioneering new service to recycle Glass Mineral Wool waste backed by a new multi-million-euro recycling facility in Belgium.

The new Looping Project site based at **Visé** will recycle scrap Glass Mineral Wool from Knauf Insulation manufacturing plants, take back off-cuts from construction sites and recycle Glass Mineral Wool from demolished buildings.

Knauf Insulation's Circular Economy Manager Marc Bosmans, who is overseeing the initiative, says: "Knauf Insulation's sustainability strategy For A Better World commits the company to delivering a circular economy and sending zero waste to landfill. This plant is a multi-million-euro commitment that takes a step towards achieving these goals.

Historic moment for company

"The new site will reduce the environmental impact of the company's products by using recycled Mineral Wool rather than virgin materials. This is a genuinely historic moment for Knauf Insulation and a game-changing project for the recycling of Glass Mineral Wool."

Already the service is being marketed to Knauf Insulation plants ahead of the start of operations mid 2022.

The facility is described as a pilot plant because it offers Knauf Insulation the opportunity to carry out exploratory projects to gain insight into how to continuously improve the recycling process.

For example, Glass Mineral Wool is light density and it can be challenging to process, while Mineral Wool from demolition sites may need separating from bricks and plaster. The plant offers the opportunity to find the most effective solutions to managing challenges such as these.

Range of recycling solutions

Thomas Baguette, Knauf Insulation's Glass Mineral Wool Recycling Business Developer, says: "It is essential that we completely understand every single facet of the recycling process to maximise every possibility. We will start with scrap from our Visé plant while increasingly adding scrap from construction and demolition sites.

"We are seeing an exciting new era for the recycling of waste Mineral Wool. The Looping Project in Visé paves the way for delivering a circular economy taking Mineral Wool that has been saving energy and emissions for many years and recycling it for another energy-saving life cycle."

The new facility is another welcome addition to Knauf Insulation's pioneering circular economy initiatives.

For instance, in the **UK**, we partnered with waste management company Veolia to build a facility that refines up to 60,000 tonnes of used glass every year into the raw material we need for our insulation and in **Stupino, Russia**, we set up used collection points to provide used glass to our local plant. In **Germany** we have introduced a pioneering new programme for Mineral Wool (see page 82).



Work gets underway on the Looping Project which will recycle scrap Glass Mineral Wool from Knauf Insulation plants as well as construction and demolition sites



This project takes scrap Mineral Wool that has been saving energy and emissions for years and recycles it for another energy-saving life cycle.

Thomas Baguette
Glass Mineral Wool Recycling Business Developer



Knauf Insulation's Circular Economy Manager Marc Bosmans describes the Looping Project as "a genuinely historic moment for the company"

Winning idea reduces paint waste at Simbach plant

As part of our For A Better World sustainability strategy we set aside a substantial part of our general CAPEX to fund more projects that deliver carbon reductions or cut waste.

Our Simbach site in Germany was awarded funding for a waste separation initiative that reduces waste paint by more than 95%.

Paint waste had increased as demand for our painted Heraklith Wood Wool boards soared. Now following the introduction of the separation process, splitting agents separate the waste into two elements — water and dried paint.

The water can be disposed of in the sewer while the dried paint residue can be landfilled. The residue makes up only 5% of the previous amount of paint waste that was landfilled.

A second implemented initiative involved replacing compressors at Simbach. Two highly efficient centralised compressors will now replace five high maintenance, low efficiency compressors in three different locations reducing energy use and CO₂ emissions in the process.

RESULATION'S RECYCLING SUCCESS

Knauf Insulation's new project in Germany offers customers an easy, environmentally responsible way to collect scrap Mineral Wool and transform it back... into new Mineral Wool.

More than a thousand bags of scrap Mineral Wool have now been brought back from construction sites in **Germany** for recycling as part of our **RESULATION** initiative.

Rather than sending waste to landfill, **RESULATION** offers our customers across Germany an easy, environmentally responsible way to recycle onsite scrap Mineral Wool.

After an order has been placed, **RESULATION** bags are delivered to customer's sites and filled with any residue. When bags are full, this scrap is then collected and fed back into our recycling processes.

Thanks to **RESULATION** it is now possible to transform Rock Mineral Wool residue into 'recycling bricks' which can be used in the production of new Rock Mineral Wool and allow Glass Mineral Wool scrap to be transformed into ceiling tiles.

Prior to the **RESULATION** initiative customers faced

the challenge of sending scrap to landfill and working with waste disposal companies.

In July, we collected our thousandth bag of scrap in Germany, and we are now aiming to significantly increase the volume we collect and recycle through our partnership with Knauf Group's residual materials and recycling expert GFR.

GFR has invested in press containers which allow the collection and compression of larger quantities of insulation residues.

These have been delivered by Knauf Insulation to high volume customers such as manufacturers of prefabricated homes and when they are full they are returned for recycling.

RESULATION is available to all Knauf Insulation customers for Rock Mineral Wool, Glass Mineral Wool and Wood Wool and plays an important role in our 'For A Better World' sustainability strategy.

Supporting circular economy in France

Knauf Insulation and Knauf have joined 24 other pioneering firms to establish a new non-profit eco-organisation known as Valobat to fulfil new circular economy obligations in France.

From January 1, 2022, under the French Anti-Waste Law For A Circular Economy, manufacturers of building materials such as windows, carpets and insulation "will have the financial responsibility for the end-of-life of their products".

The French Circular Economy law is driven by the 'polluter pays principle' and introduces the Extended Producer Responsibility (EPR) for construction materials which means companies putting construction products on the market must finance what happens to them at the end of their life – a cost which is factored into a product's price.

Already many products such as batteries, tyres or textiles are covered by 'polluter pays' regulation in France, but until now areas such as construction

waste, sports equipment, toys or DIY materials have not been included. Valobat is what is known as a 'green-dot organisation', created to fulfil this requirement in the name of its members.

The organisation will develop the free collection of separated waste, the treatment of illegal building waste dumping sites, the development of recycling channels and the improvement of local waste collection sites. These initiatives are financed by 'eco-contributions' from building material manufacturers.

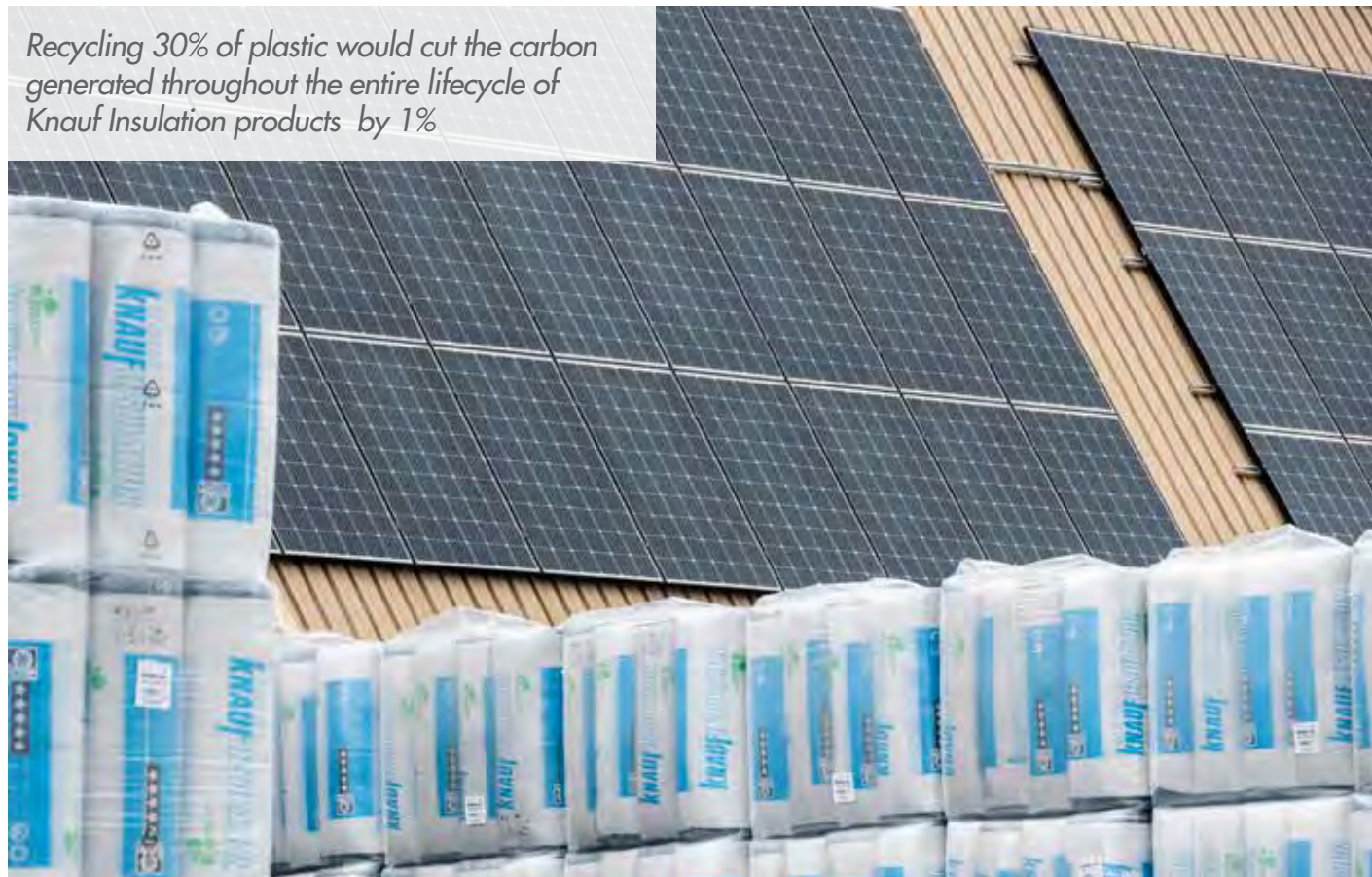
Valobat has members in a wide range of construction product families including wood, metals, floor coverings, plastics and Glass and Rock Mineral Wool and "encourage virtuous sorting at source and organise the recovery of materials collected separately in its network of collection points".

For more information visit www.valobat.fr



A **RESULATION** collection of Knauf Insulation Mineral Wool waste at a construction site in **Germany**

Recycling 30% of plastic would cut the carbon generated throughout the entire lifecycle of Knauf Insulation products by 1%



LESS IS MORE

Knauf Insulation is committed to reducing its virgin plastic film packaging by 25% by 2025.

In the UK we are introducing packaging that uses a minimum of 30% recycled content in line with our For A Better World sustainability strategy.

The strategy commits Knauf Insulation to a 2025 target of reducing virgin plastic film consumption by more than 25% across the company.

Despite a shortage of materials, we have been able to maintain our momentum in the UK. We are on track for the implementation of the recycled packaging in our UK plants by the end of the first quarter of 2022 which also uses less ink.

More product with less plastic

More recycled packaging will be launched across our sites throughout 2022. We are also continuing to work on the overall packaging weight reduction where possible — without compromising the level of compression strength.

This is important because at many sites we use state-of-the-art compression technology to maximise the amount of

insulation customers can get in a pack or pallet.

In the UK, for example, following the introduction of the new packaging, customers can get 15% more product per roll and 25% more pack per pallet.

The strength of our plastic packaging also allows us to compress our products and get more packs on each truck. For example, 5,800 m² of 50 mm Mineral Plus can be delivered in a single truck with an 80 m³ capacity.

This reduces fuel use as well as the number of trucks on the road. The same amount of Rock Mineral Wool would need 3.6 trips.

Just recycling 30% of plastic would cut the embodied carbon of our products by 1%. As a company we are committed to reducing this carbon by 15% by 2025.

In addition, where possible, as part of our For A Better World strategy, we are committed to taking back between 25% and 50% of our plastic film from our customers for recycling by 2025.

Knauf Insulation is committed to collect and recycle 35% of wooden pallets used for our Glass Mineral Wool



Pallet project to reduce waste

Knauf Insulation is working with customers in the United Kingdom, France, the Netherlands, Germany and Turkey to collect wooden delivery pallets and reuse them.

Across Europe a staggering 25 million cubic metres of wood are used for distribution packaging and pallets.

According to the European Union, one cubic metre of wood is required to manufacture 22 new EUR-pallets — pallets specified by the European Pallet Association — while one cubic metre of wood can be used to repair 150 recycled EUR-pallets.

As timber pallets have the potential to last up to seven years it is essential these resources are recycled and reused. In Turkey, alone, our Eskişehir plant reused 6,270 pallets in 2020 saving a total of 87 tonnes of timber.

As part of Knauf Insulation's For A Better World sustainability strategy, we have committed to collect 35% of wooden pallets used for our Glass Mineral Wool and sort, repair and recycle them.

LIGHTS, CAMERAS AND ACTION!

Knauf Insulation's Le Studio is a striking example of upcycling — an old trailer transformed into a video and audio studio. Le Studio now offers colleagues the chance to communicate from one simple, easy-to-operate, portable base.

Once upon a time you needed to hire a studio to produce a professional video. In the past if you wanted to host an international meeting or conference, you had to hire a hotel, conference hall and expensive audio-visual equipment.

Not anymore. Knauf Insulation's portable Le Studio brings together in one place all the audio-visual equipment you need to host conference and meetings online and all the hardware in a studio setting needed to produce professional content.

The challenges of the pandemic have accelerated digital communication and made online remote meetings and conferences a new company reality.

Furthermore, as demand grows for online content featuring Knauf Insulation solutions and expertise, there is increasing need for more video.

Le Studio has proved to be the ideal solution. The old trailer has been completely converted into a mobile studio featuring three professional cameras that can film simultaneously and high-quality audio all in a specially customised Knauf Insulation studio setting.

Demand for the studio facilities has

been high as colleagues have been booking time to create presentations about our solutions, filming training videos for stakeholders, hosting online discussions about specific issues, creating podcasts, live-streaming educational content and organising international meetings.

The studio facilities are fully automated and easy to operate which means that once the equipment has been set up, colleagues can work alone if necessary and film and refile as many times as they like.

Suzie Hazotte, Regional Communications Manager, Western Europe, says: "In all respects Le Studio is sustainable. It paid off its costs within just a handful of studio events by avoiding conference room and studio hire, it saves unsustainable business travel, and it is an extraordinary example of recycling."

Finally, the entire trailer length can be reduced by half thanks to a unique concertina 'fold-away' mechanism and Le Studio can go on tour simply by being hitched up to a car or van.

Le Studio is not only a pioneering innovation, it is set to create a whole new generation of Knauf Insulation video stars.

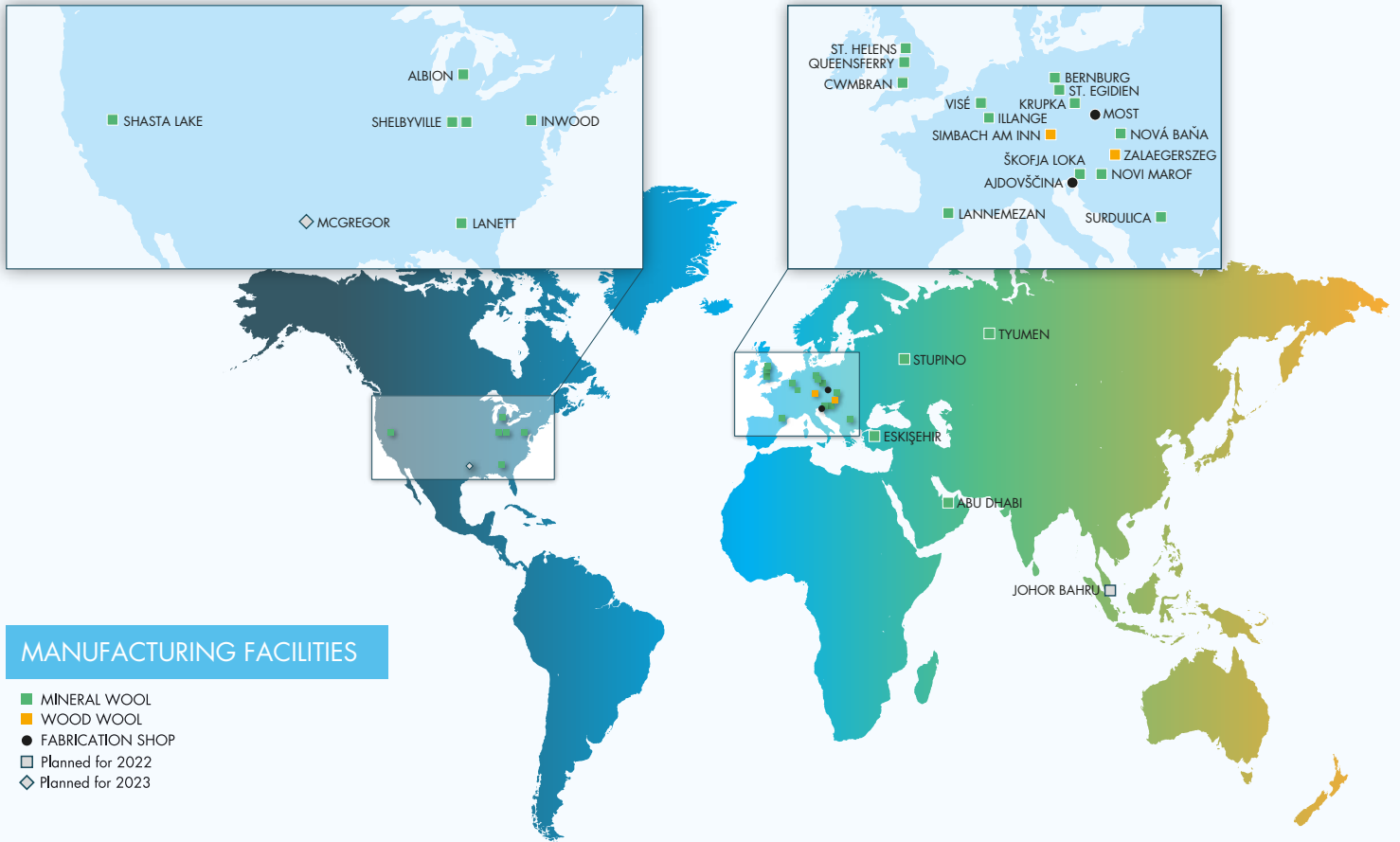


Video stars: Suzie Hazotte, Regional Communications Manager Western Europe, with Infrastructure Officer Bernard Rome, who helped support the project

In all respects, Le Studio is sustainable. It paid off its costs within just a handful of studio events by avoiding room and studio hire, it saves unsustainable business travel, and as former trailer, it is a great example of recycling

challenge.
create.
care.

KNAUF INSULATION



ABOUT KNAUF INSULATION

Knauf Insulation has more than 40 years of experience in the insulation industry. Today the company employs more than 5,500 people across more than 40 countries and has 27 manufacturing sites in 15 countries.

Knauf Insulation is part of the Knauf Group which has around 35,000 employees worldwide with more than 250 factories in over 90 countries and sales of 10.5 billion Euro (in 2020). The Knauf Group was founded in 1932 and remains an independent family-owned company driven by the values of Partnership, Commitment, Entrepreneurship and Menschlichkeit (humanity).

OUR MISSION

Our mission is to challenge conventional thinking and create innovative insulation solutions that shape the way we live and build in the future, with care for the people who make them, the people who use them and the world we all depend on.

OUR VISION

We lead the change in smarter insulation solutions for a better world. Join the conversation #ForABetterWorld

Join the conversation #ForABetterWorld

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RUE DE MAESTRICHT 95, 4600 VISÉ, BELGIUM

CONTACT@KNAUFINSULATION.COM

WWW.KNAUFINSULATION.COM