KNAUF INSULATION

Sustainability Journey:

2024 Highlights

Build on us.

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COVER IMAGE: GTC X is a GOLD LEED-certified business complex in the heart of Belgrade, Serbia. Knauf Insulation solutions installed in the 17,700m² building include FKD S Thermal, FKD N Thermal, Naturboard VENTACUSTO, CLTT C1 and Akustik Roll. Picture: Relja Ivanic

How to build a better energy future

2024 was defined by record global temperatures, unprecedented weather events, concerns over energy security and geopolitical uncertainty; but behind the pessimistic headlines came a report offering an optimistic vision for the future.

The report by non-profit organisation Open Energy Transition – entitled 'Your Home Our Future' – demonstrated that by doubling renovation rates, Europe could reduce peak demand for electricity by 49%, save €312 billion every year in total energy costs and cut carbon emissions by 0.2 billion tonnes by 2030 (see page 25).

At Knauf Insulation, we continuously campaign for increased renovation rates, and our solutions save energy and reduce emissions. However, the report's findings were a vivid reminder of the critical role we also play in securing Europe's energy future.

Europe is transitioning from fossil fuels to low carbon electricity in every sector, grappling with the complexities of renewables and working to achieve the European Union's ambition to roll out 60 million heat pumps.

All these factors will put energy systems under extreme pressure, impacting prices, creating potential blackouts and undermining decarbonisation.

By focusing on energy efficiency, we lighten the load on the energy system, making it more resilient while unlocking billions for reinvestment. By putting energy efficiency first in buildings, we create optimal environments for decarbonised heating systems.

In other words, our work at Knauf Insulation to create energy efficient buildings is now more important than ever.

Safety first

Our Total Recordable Incident Rate (TRIR) has been reduced from 5.2 in 2023 to 3.88 in 2024 and is a tribute to the hard work of everyone at Knauf Insulation. We must continue to progress. It is up to each and every one of us to ensure we all go home safely. That means always being vigilant to risk and continuously encouraging positive safety behaviours.

Our For A Better World commitments

- PUT PEOPLE FIRST
- ACHIEVE ZERO CARBON
- DELIVER A CIRCULAR ECONOMY
- CREATE BETTER BUILDINGS

Key achievements in 2024

In 2024, we launched a new range of flat-roof products designed specifically for solar power installations and celebrated 15 years of success with our low-carbon ECOSE® Glass Mineral Wool. We were proud to accelerate the roll-out of our AI-driven Knauf Energy Solutions technology to help housing providers decarbonise their building stock and reduce energy bills.

We advanced the decarbonisation of our company and products by setting in motion the electrification of our Rock Mineral Wool plants in Europe and initiated major energy saving refurbishments, including the transformation of our St Helens site in the UK.

We also started up a new plant in Târnăveni, Romania, featuring state-of-the-art energy efficient technology, and acquired an electric Rock Mineral Wool plant in Tashkent, Uzbekistan.

As well as future-proofing our business, these investments help us develop low carbon solutions that contribute to a better world and a more resilient energy system.

In increasingly complex times, it is a privilege to drive forward such a clearly defined purpose with Knauf Insulation.

Dominique Bossan | Knauf Insulation CEO for Europe, Middle East and Asia, Member of the Knauf Group Management Committee

2024 Highlights

About this report

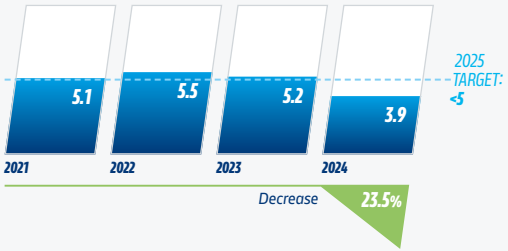
This report documents progress towards commitments established by our 'For A Better World' sustainability strategy. This strategy commits us to Put People First, Achieve Zero Carbon, Deliver A Circular Economy and Create Better Buildings. It sets benchmark targets for 2025 and 2032 against a 2021 baseline.

Status key:
- On track
- Work in progress
- Delayed

PUT PEOPLE FIRST

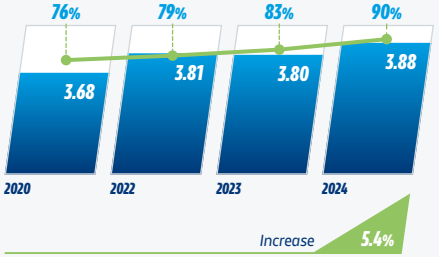
Ensure zero harm

Total Recordable Incident Rate (TRIR)



Have the most engaged employees

Engagement score (out of five)/Response Rate (%)



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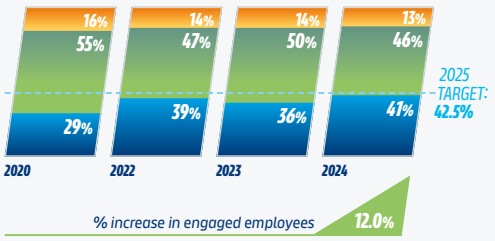
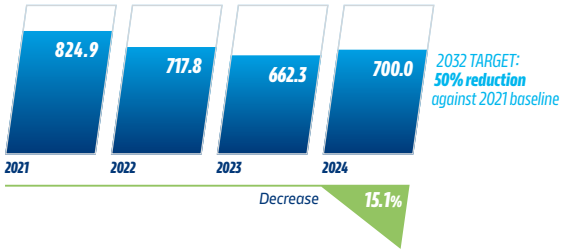


- % of engaged employees
- % of not engaged employees
- % of actively disengaged employees

ACHIEVE ZERO CARBON

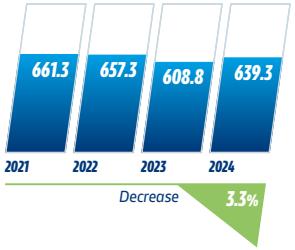
Deliver net zero embodied carbon solutions

Scope 1 + Scope 2 in absolute value (kT CO_2e *)



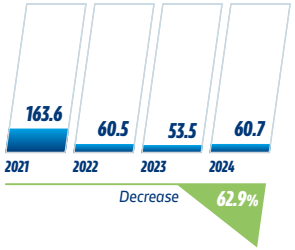
Scope 1

(kT CO_2e)



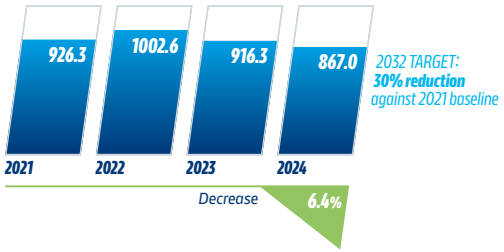
Scope 2

(kT CO_2e)



Scope 3

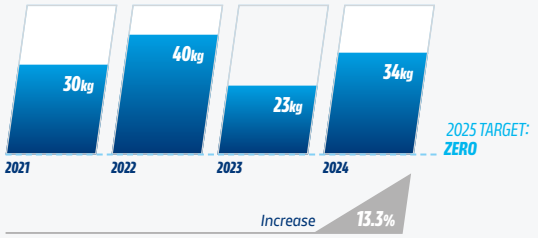
(kT CO_2e)



DELIVER A CIRCULAR ECONOMY

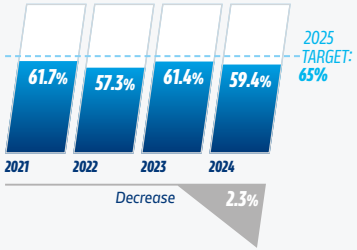
Send zero waste to landfill

(kg waste/tonne of net nominal output)

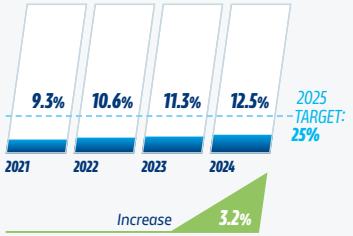


Increase recycled content in our batch

Glass Mineral Wool



Rock Mineral Wool



Reduce fresh water use in our plants

(m^3/tonne of net nominal output)

* kT CO_2e = kilotonnes (1,000 metric tonnes) of carbon dioxide equivalent

These figures relate to Knauf Insulation, part of the Knauf Group, and are based on data for Europe, Middle East and Asia-Pacific (EMEA & APAC) from 2021–2024 and activities during the same period, unless specified otherwise. For accuracy we may amend previous figures.

Foundations for tomorrow

Policy U-turns, regulation rollbacks and devastating world events are all competing with sustainability to have a place on national and international agendas.

At Knauf Insulation our commitment to creating energy-efficient buildings that contribute to a more sustainable future remains as strong as ever.

Our products are designed to save energy and reduce emissions, while sustainability inspires our strategy, influencing every aspect of our operations and decision-making process.

Sustainability matters

The need for an energy transition is not going away. The demand for resources is not going to disappear. Delaying action only intensifies the impact.

That is why we are continuously future-proofing our business and the environment in which we operate.

2024 marked a turning point for our company because it laid important foundations for long-term success.

We initiated investments that will be the basis of transformational improvements in years to come, including new electric lines, major refurbishments and expanded research and development projects.

Reinforcing transparency

We also strengthened our carbon roadmap through independent third-party audits. We improved our Carbon Disclosure Project (CDP) rating from a D to a B in just four years, reflecting our commitment to responsible carbon management.

In addition, Knauf Insulation France was awarded EcoVadis Gold, underlining the robustness of our environmental impact reporting.

Regarding resource use, our recycling initiatives gained major traction in 2024. We have expanded our RESULATION service – which collects and recycles customers' Mineral Wool off-cuts into new insulation – to six European countries with more on the way. In Australia, we established a new post-consumer glass collection system to supply cullet to our Malaysian plant.

Culturally, we worked to ensure sustainability is firmly anchored in everything we do.

Empowering colleagues

Through company-wide workshops, we empowered colleagues with the expertise they need to help customers navigate the fast-moving world of embodied carbon regulation for buildings.

By the end of 2024, 44% of our colleagues across 40 locations had taken part in Climate Fresk workshops, which provide science-based understanding of the causes of climate change and its solutions.

The workshops led to fascinating discussions and served as a powerful reminder of our shared purpose at Knauf Insulation: to create solutions that save energy, enhance energy efficiency, and contribute to reducing emissions, driving meaningful progress toward a more sustainable future.

Marc Bosmans | Group Sustainability Director

Collaborating for change

44% of colleagues across 40 locations in the EMEA region took part in Climate Fresk workshops in 2024.

Yaprak Nayir-Derks, our Sustainability Programme Manager, says: "Climate Fresk workshops help participants develop a clear understanding of the direct and indirect connections between the causes and consequences of climate change, with the goal of raising awareness and inspiring climate action."

Unlike passive lectures or webinars, Climate Fresk participants work together to understand climate challenges and map out solutions through discussion and problem-solving.

"The workshops encourage our colleagues to reflect on their daily actions as part of a team," says Yaprak. "This creates a great sense of combined company-wide purpose that is enhanced by the fact that participants are drawn from every level of the company from the boardroom to the factory floor.

"Each and every colleague must play a role in Knauf Insulation's sustainability transition to ensure its success, and the workshops effectively provide the actionable insight to help them achieve this objective."

Yaprak credits the success of the initiative to Knauf Insulation's growing network of Climate Fresk facilitators and the support of Plant Sustainability Engineers and Regional Sustainability Managers.

By the end of 2024, almost all our colleagues in Western Europe, Northern Europe and Central Functions had completed Climate Fresk sessions with a 100% participation rate in Central Europe.

Central Europe's 100% engagement

By the end of 2024, every one of our colleagues in Knauf Insulation Central Europe (KICE) had participated in a Climate Fresk workshop.

KICE Sustainability Manager, Joachim Wieltschnig, says the 100% success rate was due to a well-structured approach to training, strong support from plant managers and effective implementation by moderators in Bernburg, St Egidien and Simbach.

Building on the success of the workshops, KICE has now integrated Climate Fresk insight into the on-boarding of new colleagues and provides regular updates to ensure climate awareness is embedded into processes.

Central European teams from our Bernburg (1) and Simbach (2) plants in Germany enjoy Climate Fresk workshops

Closer than ever to customers

2024 was an important year for Knauf Insulation expansion. We completed a greenfield site in North America, opened our new factory in Romania and finalised the acquisition of a plant in Uzbekistan.

Energy efficient excellence in North America

Opened in October 2024, our new 56,000 m² plant in McGregor, Texas, is a showcase for energy efficiency excellence.

McGregor is the seventh plant in our North America manufacturing network and Knauf Insulation's biggest greenfield site to date.

To ensure the plant is at the cutting edge of energy-efficient production, we brought together our most experienced teams from around the world to share their expertise and installed the most efficient and innovative manufacturing technology available.

New state-of-the-art Glass Mineral Wool Plant in Romania

We have invested €140 million in the construction of a new Mineral Wool plant in Romania.

The new production facility site in Târnăveni in Mureș County was completed in 2024 and fully functional at the start of 2025.

The plant will be able to produce around 75,000 tonnes of Glass Mineral Wool annually to meet rising demand for our solutions across Central and Eastern Europe.

At Târnăveni, we can use up to 80% recycled glass to manufacture our Glass Mineral Wool with ECOSE® technology which is less energy intensive and produces lower emissions than using virgin raw materials.

Acquisition in Uzbekistan

In December 2024, the Knauf Group acquired a new Rock Mineral Wool plant in Tashkent, Uzbekistan.

The facility is equipped with advanced electric melting technology to ensure an energy-efficient, low-emission manufacturing process.

The construction market in Uzbekistan is developing dynamically and our Tashkent plant is well placed to meet increasing demand for high quality insulation solutions to create energy efficient buildings.

The acquisition extends our global distribution network and makes our solutions more accessible to customers across Central Asia.

1-2. McGregor, North America: our biggest greenfield site to date
3. Târnăveni, Romania: a showcase for energy efficiency
4. Our new Rock Mineral Wool plant in Tashkent, Uzbekistan

Michael Rosskopf | Managing Director Systems Division

Insulation innovation

Knauf Insulation Systems Division brings together four unique business units to offer a broad spectrum of solutions, all driven by a shared goal: delivering customised innovations for maximum customer satisfaction.

Managing Director Michael Rosskopf explains: "Our strong partnerships with customers are the foundation of Systems Division's success. We offer the technology and expertise they need to make a difference and our customers trust us to go above and beyond to provide high-performance solutions."

Serving customers worldwide, Systems Division operates through its business units of OEM Solutions, Technical Solutions, Domestic Appliances and Green Solutions.

OEM Solutions

At OEM, we produce insulation for sandwich panels, fire-rated doors, chimneys and thermal-efficient bricks, as well as core solutions for 3D printers, highway sound barriers and many more applications.

"Since 2020, our OEM business has grown significantly and now represents around 25% of Knauf Insulation's Rock Mineral Wool sales in Europe, the Middle East and Africa," says Michael. "We are now expanding OEM's global presence and diversifying our solution offerings."

Technical Solutions

Technical Solutions (TS) specialises in advanced technical insulation, delivering energy-efficient and structurally optimised materials for heating, ventilation, air conditioning systems and passive fire protection, as well as insulation solutions for process industries and for marine applications. The business unit provides the optimal balance of energy efficiency, fire safety and acoustic performance for every application.

TS also supplies high-performance Mineral Wool insulation for industrial systems, including tanks, pipelines, boilers and storage units.

"In addition, the unit offers Expert-teK – a tool that helps industrial customers quantify potential reductions in emissions and energy consumption achieved with TS solutions," explains Michael. "It also estimates return on investment and payback periods, supported by Knauf's energy efficiency experts."

Domestic Appliances

Domestic Appliances (DAP) provides Mineral Wool insulation solutions for household appliances like refrigerators and ovens, as well as for car components. The unit continuously collaborates with leading global manufacturers to enhance their efficiency and sustainability.

"We have enjoyed decade-long partnerships with oven manufacturers and over the years we have honed their ability to rapidly customise products for specific needs," says Michael. "These collaborations inspire daily innovations that improve appliance energy performance and promote healthier cooking."

Green Solutions

The Green Solutions unit specialises in Urbanscape® building solutions, including green roofs and walls, landscaping and horticulture.

"These solutions help improve urban biodiversity, reduce heat island effect and building temperatures, manage stormwater and enhance air quality," says Michael. "The business unit also supports sustainable infrastructure development as well as global demand for eco-friendly solutions."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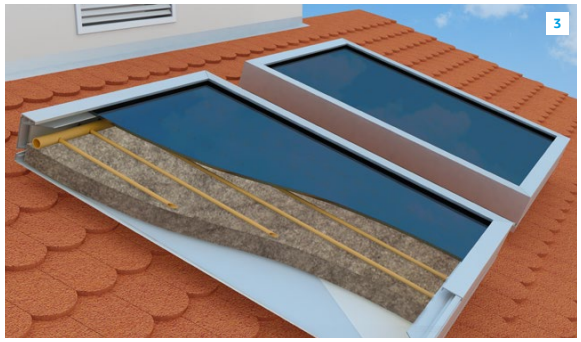

3

1. Technical Solutions' Power-teK® RL 220 was used to insulate tanks for the Nordic Sugar company in Sweden
2. OEM Solutions provides customised products for the machine manufacturing industry
3. OEM Solutions in thermal solar collectors improve efficiency and help prevent heat loss

Steen Lindby | Group Product Management and Innovation Director

Shape of things to come

Group Product Management and Innovation Director, Steen Lindby, discusses how sustainable building challenges are creating new opportunities for Knauf Insulation.

Circularity's great potential

"Landfill is a great example of how regulation is creating opportunity," says Steen. "Some countries impose prohibitively high costs on waste disposal and Austria, for example, is banning Mineral Wool waste from landfill from 2027."

At Knauf Insulation, we are exploring new ways to reclaim old Mineral Wool from demolished buildings to transform it into new solutions, as well as maximising our Mineral Wool RESULATION take-back service to save customers' landfill costs.

Importance of carbon

"More and more customers are saying they will only accept low embodied products as countries introduce strict regulations to reduce Whole Life Carbon in buildings," says Steen.

"This has led to increased focus on measuring embodied carbon through Environmental Product Declarations (EPD) which chart products' emissions from the cradle to the grave."

We are actively anticipating demands in different countries to ensure our EPDs deliver the quality data that specifiers can access in the formats they need.

New sustainable products

"Demand for new sustainable solutions will increase as the race to lower embodied carbon buildings accelerates," says Steen.

"Our teams have found an innovative way to take waste and transform it into a completely new type of low carbon building material. It is early days, but I am confident this solution will be a game changer when it reaches the market."

Why light is right

We are developing new light flat roof systems which have low embodied carbon, are easy to install and can be manufactured at scale, providing our customers with cost effective solutions.

"The move was inspired by Knauf Gypsum which has enjoyed great success with lighter products," says Steen. "In 2024' we also launched new systems for photovoltaic installations to meet growing demand for solar power installation."

Reinventing renovation

Experts generally calculate the energy performance of buildings using assessments based on assumptions and surveys instead of real data.

"This leads to concerns about the real return on investment on a renovation," says Steen. "That is why at Knauf Energy Solutions – a division of Knauf Insulation that delivers AI insight to help create more sustainable homes – we are deepening our knowledge of real performance measurement to provide more accurate insight into building energy use, for example, considering the impact of human behaviour."

1

2

1–2. New ideas take flight at a Knauf Insulation innovation meeting

PUT PEOPLE FIRST

Safety is integrated into everything that we do

Commitment: We are committed to zero harm

2025 target

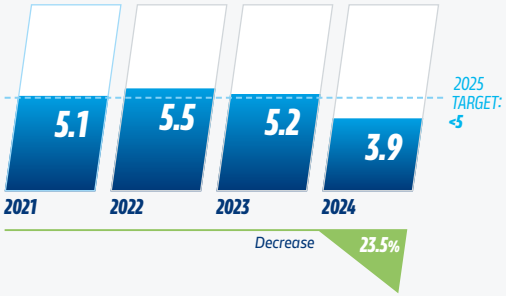
A maximum Total Recordable Incident Rate (TRIR) of <5.0 by 2023 (fast-tracked from 2025).

Progress

In 2023, we recorded a TRIR of 5.19 – almost reaching our fast-tracked TRIR target of <5.0 – and in 2024 we achieved 3.88.

Status: Target achieved

Total Recordable Incident Rate (TRIR)



Our Total Recordable Incident Rate (TRIR)[1] for EMEA and APAC has been reduced from 5.2 in 2023 to 3.88 in 2024.

Mark Thompson, Health, Safety, Environment, Energy and Quality Systems Director for EMEA & APAC, says: "These figures are a sign that the excellent work of our HSE teams, and everyone who takes an uncompromising approach to safety, are producing real improvements in safety performance.

"However, it is crucial to highlight that these figures are lagging indicators, they are the result of a huge amount of effort and activity, especially day-to-day risk management. To create a zero-harm culture, we must eliminate unacceptable risks and remain fully aware of all potential hazards to protect everyone."

Behavioural safety

It requires continuous vigilance to manage risks and encourage positive safety behaviours. "To achieve this, we need to provide everyone with the confidence, knowledge and tools to identify risk and in the moment do something about it," says Mark.

"That is why we reinforce safety behaviours through thousands of hazard-spotting tours, safety observations and dialogues, as well as at every daily meeting. Safety, not production, remains our top performance expectation.

"We are enhancing these interactions by sharing best practices and bringing together teams to continuously improve safety measures."

Recognition of risk

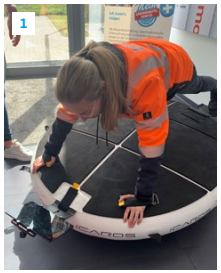
When an incident occurs, we investigate, perform root cause analysis and implement corrective actions.

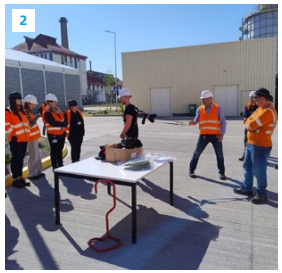
"However, it is just as important to identify risks before incidents occur," says Mark. "We focus on high risk areas and take precautions before there is an incident. Although, risk cannot be eliminated, it can be understood and managed effectively."

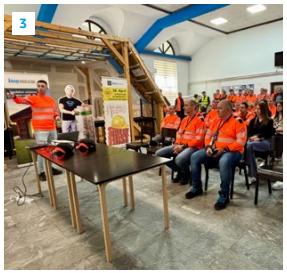
Positive reinforcement

Many of our plants implement positive feedback schemes, ensuring that any concerns raised receive serious management attention.

"These feedback systems take different forms, but local rewards are immediate, for example, employees may be invited to dinner as a 'thank you' for actions taken to keep colleagues safe," says Mark. "We are also implementing initiatives to provide instant constructive feedback during site visits."







Putting safety first: colleagues participate in safety exercises and demonstrations at our sites in Bernung, Germany (1), Tărnăveni, Romania (2), Surdulica, Serbia (3) Visé, Belgium (4),and at Johor Bahru, Malaysia (5)

1 TRIR at Knauf Insulation applies the industrial standard of calculation: dividing the number of recordable injuries by the total number of hours worked by all employees and multiplying the result by one million.

PUT PEOPLE FIRST

Survey's record response

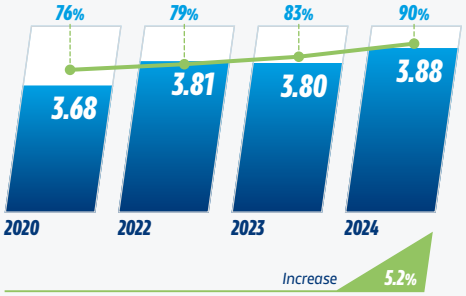
Commitment: We are committed to having the most engaged employees

Targets

Report a minimum of 42.5% engaged employees by 2025 with this figure rising to at least 50% by 2032.

Status: On track

Engagement score (out of five)/Response Rate (%)



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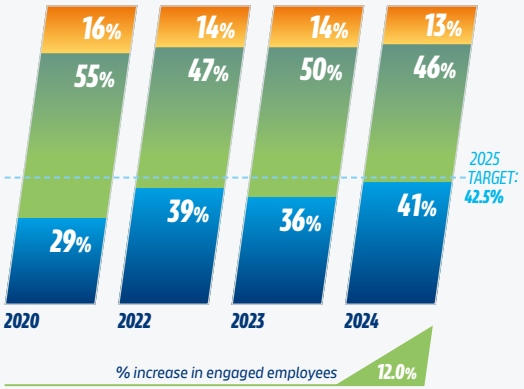


A record 90% of colleagues – 3,679 employees – participated in our Gallup engagement survey in 2024 compared to 83% in 2023.

The 2024 response rate is a major improvement upon the 76% of employees who completed our first survey in 2020.

Hélène Debard, Knauf Insulation's Chief Human Resources Officer for EMEA & APAC, said: "A high response rate is important because it provides precise, quality feedback and allows us to create action plans that more accurately reflect what our colleagues expect from Knauf Insulation.

"This increasing response rate over the past four years, demonstrates that our colleagues feel their opinion is valued and their feedback matters, reflecting a culture of openness and mutual respect."

Following workshop discussions and Management Committee review of the 2024 results, four key areas of focus have been considered for EMEA and APAC: recognition, care, development and quality. These focus areas are designed to strengthen existing regional and local action plans.

Positive feedback

Our Gallup Survey Engagement Mean Score rose to 3.88 out of five in 2024 up from 3.80 in 2023. This score is the mean average of responses from the survey and effectively takes the pulse of the company. Knauf Insulation's mean score ranks higher than 33% of companies in the Gallup database and exceeds 41% of companies in the manufacturing sector.

Hélène Debard | Chief Human Resources Officer for EMEA & APAC

Engagement increase

The percentage of engaged colleagues at Knauf Insulation rose to 41% in 2024 up from 29% in 2020. The increase puts us on track to achieve our 2025 target.

Learning new skills at an internal workshop

Nurturing future leadership

Knauf Insulation aims to ensure that more than 70% of its leaders are promoted from within the company by 2032. In 2024, 65% of leaders were promoted internally and we continuously implement initiatives to improve internal upward mobility and upskill our colleagues. For instance, our training platform, BuildU, offers colleagues online learning programmes and tools to shape their career path.

PUT PEOPLE FIRST

Creating a culture of respect

Commitment: We are committed to building on the diversity that has made the company such a success

2025 target

Develop and make available core diversity, equity and inclusion (DEI) training as part of our education and training offering.

Status: On track

"We all deserve to be supported, valued and nurtured to achieve our full potential. And we all deserve to be treated with respect."

These are the words of Lisa Flaherty, who leads Knauf Insulation's Diversity Equity and Inclusion (DEI) Working Group and is our HR Director for Northern Europe.

"Enhancing DEI to ensure everyone succeeds is a moral imperative and a powerful business proposition. Companies with diverse, inclusive cultures see improvements in innovation, creativity and reduced turnover."

At Knauf Insulation, we continuously refine our DEI awareness programme based on feedback and we are training more facilitators to roll out the initiative across the company.

In addition, we are including inclusion training as part of the induction for new employees and developing an online learning module to engage as many colleagues as possible.

"Our aim is to ensure everyone in the company receives the insight they need to create an inclusive and equitable workplace."

Kristin Barthel | Group Chief Financial Officer

> *"We are committed to creating an inclusive culture at Knauf Insulation where everyone — regardless of race, gender, age, ability, orientation or background — can feel valued and respected, and ultimately thrive."*
>
> **Kristin Barthel** | Group Chief Financial Officer

Walking the talk

To inspire greater understanding of diversity, we invited colleagues from the Jewish, Muslim and LGBTQ+ communities to talk about their life experiences with working group members. Understanding diverse experiences helps us to understand challenges facing our colleagues, ask appropriate questions and empower us to become their allies.

Attracting diverse talent

We are working to make our recruitment process more inclusive, for example, by changing the language we use to attract a more diverse pool of applicants and partnering with external organisations to promote careers in the construction industry to a more diverse audience.

Caring for carers

In 2024, we organised a communications campaign to support colleagues who have caring responsibilities outside of work. The campaign showcased support and resources available to carers — such as flexible working and the Employee Assistance Programme — and guided managers on supporting team members with caring responsibilities.

Nurturing mental health

Knauf Insulation aims to provide every manager, new hire and recently promoted team member with training in mental health, well-being and resilience by 2025. Throughout 2024, we used internal communication platforms to generate awareness of mental health challenges and the support we have available to help.

PUT PEOPLE FIRST

Making a difference in our communities

Commitment:
We will be a positive force in communities where we work

2025 target

By 2025, we want all our colleagues to become a global community of volunteers, participating in social and environmental projects in their local communities in every country where we have a site – as well as abroad.

Status: *Work in progress*

2024 was another great year of fund-raising highlights and positive community impact thanks to the commitment of our colleagues worldwide.

Charity tribute

Colleagues in New Zealand and Australia raised AUD$5,000 for the Cure Brain Cancer Foundation following a charity cycle ride in Brisbane. The foundation was selected in honour of Ross Benn, a long-time consultant to the APAC team, who sadly lost his battle with the disease.

Stepping up

The APAC Brisbane team in Australia enthusiastically took up the 2024 STEPtember challenge and set a target to collectively walk or run 2,600km in September to boost activity levels and encourage friendly workplace competition. By the end of the month the team had achieved 2,960km, almost 100km per day.

Better by bike

Colleagues at our Škofja Loka plant in Slovenia have cut their car trips to work by 4% following a range of sustainable mobility campaigns and activities. The site also provided 20 e-bikes for colleagues' use and dedicated a week to promoting environmentally friendly transport.

Lessons in climate action

Knauf Insulation co-hosted the Beyond COP21 Symposium in Ljubljana, Slovenia, in 2024. The event brought together 140 students and teachers from eight schools as well as sustainability experts for a day of discussions, workshops and presentations focused on climate action and the United Nations Sustainable Development Goals.

Community support

In 2024, Visé colleagues in Belgium participated in a 24-hour bicycle ride organised by Liège Hospital Emergency Services to raise funds for cancer research. A colleague from our Visé plant in Belgium also took part in the humanitarian 4L Trophy car rally to transport much-needed food and school supplies overland from France to Morocco.

Race for Autism

Our Knauf Insulation Iberia team participated in the annual Race for Autism for the fourth time in 2024. The race raises funds for initiatives to support those affected by autism.

1. Colleagues from New Zealand and Australia gear up for a charity cycle ride in Brisbane
2. Our APAC Brisbane team have fun on the run during STEPtember
3. Slovenian colleagues demonstrate a better way to commute
4. Students and teachers join the Beyond COP21 Symposium in Slovenia
5. Our Belgian team prepares for a 24-hour charity bicycle ride organised by the Liège Hospital Emergency Services

Charity support in Paris

Colleagues from Knauf Insulation France took part in the first edition of the Construction Telethon in Paris. The event brought together industry professionals for sporting challenges to raise funds for research into neuromuscular diseases.

Musicals with impact

Our colleagues in Italy regularly support musical performances in Turin which raise funds for charity. In 2024, the team bought 10 tickets for a show where the proceeds were donated to charities supporting female victims of violence.

UK's fundraising success

More than £29,000 was raised for charity, thanks to activities by our UK teams. Activities included a charity football tournament to increase awareness of suicide prevention, a Liverpool golf day to support PERTH Community Centre and Come Together, a coffee morning to help the Macmillan cancer care charity. Teams also completed a 10-hour trek to support the Youth Adventure Trust, a night walk in Liverpool to raise funds for Cancer Research UK and a golf day and football tournament to support the Hospice of the Valleys and Ty Hafan Children's Hospice in Wales.

Month of giving

Our Knauf North America teams collected more than 4,100 food items for food banks and donated US$4,600 to charities during a month of community impact in 2024. Throughout June, colleagues also volunteered for charitable causes, including nature conservation and cancer research. Our McGregor plant in Texas recorded the most volunteered hours – over 700 as a group – and our Lanett plant in Alabama collected the most food items and were awarded an additional US$5,000 to donate to a food bank of their choice.

Sustainability insight

In collaboration with the Young Researchers Initiative e.V, we invited 20 secondary teachers to our Simbach plant in Germany to learn about renewable energy, insulation and future skills. The aim of the training event was to provide teachers with expert insight and practical approaches to lessons on energy efficiency, climate and sustainability.

Tree planting success

Colleagues at our St Egidien site in Germany took part in their third annual tree planting scheme in 2024. During the initiative, our colleagues planted more than 200 trees to enhance the community.

Funding good causes

Our plant in Bernburg, Germany, made donations to a range of local community organisations in 2024, including the Bernburg Volunteer Fire Brigade, the Bebitz Gymnastics and Sports Club and Zukunft e.V., Die Tornados gymnastics department, the Federation of Scouts e.V, Sports Club Bernberg e.V. They also supported the participation of a young rower in the U19 World Championship.

Special festive celebrations

Colleagues from our Surdulica plant in Serbia paid a festive visit to elderly residents at the Social Welfare Shelter in Vranje to celebrate Christmas and hand out gifts. Meanwhile, the festive team at our Târnăveni plant in Romania organised a special visit by Santa Claus for children from neighbouring kindergartens and nurseries.

1. Teeing off for a good cause at our Liverpool Golf Day in the UK
2. St Egidien colleagues in Germany kick off their third annual tree-planting initiative
3-5. Celebrating a remarkable month of community impact with our North American teams

A year of focus

Commitment:
Deliver net zero embodied solutions

2032 target

Reduce absolute Scope 1 and 2 emissions by 50% and absolute Scope 3 by 30%.

Status: On track

Robin Drouguet | Decarbonisation Manager

In 2024, we achieved major milestones in our 2032 journey to cut absolute Scope 1 and 2 emissions by 50%.

Although the combined Scope 1 and 2 emissions for Rock Mineral Wool and Glass Mineral Wool were 5.7% higher than 2023 due to plant start-up challenges, rebuilds and complex market conditions, we consolidated key initiatives to pave the way for future decarbonisation success.

These included continuous improvement in energy efficiencies, better raw material substitution, energy efficient site refurbishments, increased lower carbon energy supplies and the start of work on the installation of a new electric line at Novi Marof in Croatia.

Robin Drouguet, Knauf Insulation's Decarbonisation Manager, says: "Our figures increased for 2024 due to the start-up of new plants and challenging market conditions that impacted peak efficiency.

"We also improved our data collection by including process emissions from glass cullet and briquettes – key raw materials in our manufacturing processes – and this update added 14 kT CO_2e to our Scope 1 total.

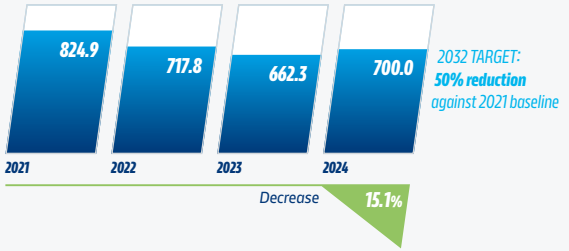
"In addition, higher sales of Rock Mineral Wool led to our plants using more coke for production which added an additional 22 kT CO_2e of emissions.

"However, we are on track to achieve our 50% reduction in Scope 1 and 2 by 2032. Compared to 2021, we have cut emissions by 15.1%.

"From 2025, we expect to see our Scope 1 and 2 emissions continue to reduce significantly following the phased electrification of our Rock Mineral Wool lines, starting with Novi Marof, major refurbishments at our plants and the increased maturity of our carbon roadmaps for every plant."

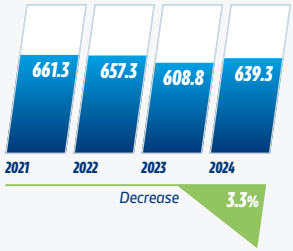
Deliver net zero embodied carbon solutions

Scope 1 + Scope 2 in absolute value (kT CO_2e*)



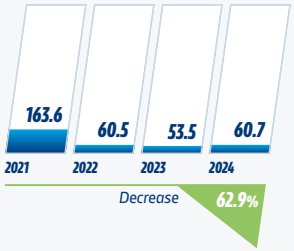
Scope 1

(kT CO_2e)



Scope 2

(kT CO_2e)



* kT CO_2e = kilotonnes (1,000 metric tonnes) of carbon dioxide equivalent

Simbach's decarbonisation breakthrough

Energy efficiency initiatives at our Simbach plant in Germany are shrinking the site's carbon footprint.

Investments have included rebuilding the plant's main line using the latest energy efficient technology, insulating two storage halls with our high performance SUPAFIL® Blowing Wool and recuperating waste heat from the plant dryer to use for heating.

We have also electrified our forklift trucks, fitted LED lights and installed photovoltaic panels. In addition, we are exploring the opportunities offered by geothermal energy. A geothermal borehole provides a large percentage of the energy used to heat the town of Simbach and is just 50 metres from the plant.

Simbach colleagues: focused on a lower carbon future

Initiatives to reduce Scope 1 and 2

Sustainability engineers

Dedicated sustainability engineers have been appointed at all our plants since 2023. The move has led to the upgrading of data collection and driven energy efficiency improvements and site-specific projects, such as replacing old equipment.

Constant engagement

We are always in contact with our colleagues to keep everyone up to speed with our carbon roadmap and to discuss ideas and feedback. We carry out regular exchanges between sites and regions to provide practical insight into carbon abatement and organise annual workshops with regional teams to understand their needs, as well as incorporating specific market requirements into our carbon roadmap updates.

Low emitting materials

We are improving our Rock Mineral Wool batch formula by substituting CO_2-emitting materials such as dolomite with low-carbon alternatives and using more recycled slag, a by-product of the steel industry. Incorporating slag into our batch reduces Scope 1 emissions and delivers improved energy efficiency. We expect to significantly increase the volume of recycled content into our batch with the introduction of new technology. For example, after installing desulphurisation units at our plants at St Egidien in Germany and Illange in France, we were able to replace more dolomite with slag.

Best in class technology

A new electric line at our Rock Mineral Wool plant in Novi Marof in Croatia is scheduled to open in late 2025. We install highly energy efficient technology supported by state-of-the-art energy management systems whenever we upgrade a plant or build a greenfield site. For example, we invested in a new furnace at our St Helens plant in the UK which will increase capacity by up to 25,000 tonnes and further reduced the embodied carbon of products made at the site.

Electrification of packaging equipment

We are replacing natural gas burners in our packaging process with energy efficient electric air heaters. The replacement will be rolled out across all our plants over two years leading to savings of around 2,500 tonnes of CO_2e.

Targeting high energy hotspots

Target values have been set for high-energy-use equipment and are clearly displayed at our sites to enable operators to quickly identify and address areas of over-consumption more efficiently.

Improving control and efficiency

Our plants are increasingly using and optimising Model Based Control (MBC) systems to drive down energy consumption and improve process control. MBCs use sensor data and model inputs to improve the performance of equipment such as furnace control which is our largest energy consumer. Additionally, we have implemented MBC systems to regulate the speeds of large extraction fans in the forming process and to dynamically adjust the energy use of our curing ovens.

Optimising equipment

We constantly improve and upgrade inefficient equipment. For example, we have improved the lining of cupolas to minimise heat loss, reduced set-points for compressed air pressure to optimum settings, upgraded combustion systems and replaced electrical equipment, such as transformers or motors with higher efficiency models.

Securing low carbon energy

Six of our Glass Mineral Wool plants have been using green energy since 2022. This means we buy electricity certified from low carbon sources, such as wind, solar or hydro. Since 2023, we also procure certified green energy to power our Novi Marof plant in Croatia in anticipation of our new low-carbon line in 2025. The electrification of Rock Mineral Wool plants is a key component of our zero carbon roadmap and needs to be coupled with low-carbon electricity.

Power Purchase Agreements

Developers who need to finance renewable energy projects, for example a wind or solar farm, look to secure Power Purchase Agreements (PPAs) which guarantee they will be able to sell their energy. Knauf Insulation is in talks with several developers to explore the possibilities of PPAs.

Installing solar

On-site solar power is already online at Škofja Loka in Slovenia and Visé in Belgium. Many other plants are also planning to install photovoltaic panels with Visé set to announce a major expansion in 2025.

Alternative power sources

Solar power access is becoming widespread in many European countries, but storing that energy is a challenge. As our plants run 24/7 and require constant supply, we are examining the potential of batteries for energy storage. In addition, our teams are researching opportunities offered by hydrogen and biomethane technology.

Electric truck cuts CO_2 by 10%

Thanks to our fully electric truck, we cut CO_2 emissions by 9.88% on deliveries to a Slovenian sandwich panel producer in February and March 2025. Operating from our Škofja Loka plant in Slovenia, the truck completes three 200km return trips to Trimo every day. After overcoming initial challenges, the electric deliveries grew from 6% of total volume in February to 15% in March, saving 768.74 kg of CO_2 or 9.88% of the emissions produced for the deliveries planned during the two months.

On-site solar power is already operational at several of our plants including our Visé site in Belgium (1) and our Škofja Loka plant in Slovenia (2)

1-3. Colleagues attend a seminar at our Škofja Loka plant in Slovenia to discuss how our solutions improve building energy efficiency and reduce emissions

Initiatives to reduce Scope 3

Deeper insight

In 2024, we improved the methodology and the quality of our Scope 3 data collection to assess the impact of our entire carbon footprint.

Scope 3 emissions are divided into 15 categories related to downstream and upstream activities in a company's value chain and previously we had reported on a limited range of these categories.

We have now expanded our focus to include every category that has a material impact on Knauf Insulation to ensure a more accurate and transparent understanding of our total emissions.

From 2023 to 2024, we reduced our Scope 3 emissions by 5.4% – marking a 6.4% decrease against our 2021 baseline year.

Initiatives to cut these emissions included:

Engaging with suppliers

Sustainability is a key factor when we compare and select products for Knauf Insulation. We engage with our suppliers to help them to minimise their environmental impact, reaching out to our top 50 centrally managed suppliers to provide specific emission factors for their products and to understand their plans to reduce their impact. We are developing systems and processes to unlock more precise quality data from our suppliers to further develop our Scope 3 roadmap.

Sourcing alternative products

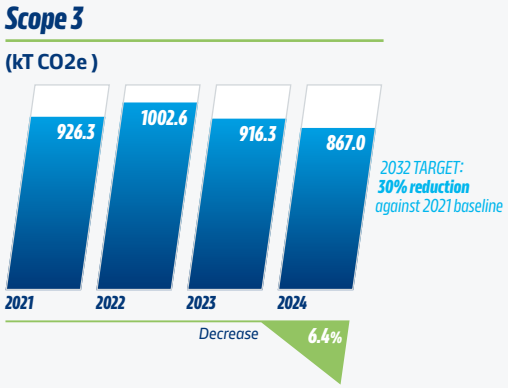
We are researching the use of alternative low carbon products, such as materials of biogenic origin. Moving from synthetic to natural raw materials often provides sustainability advantages beyond CO_2 reduction.

Smarter sourcing

We are constantly working to source suppliers closer to our plant to reduce our carbon footprint and we are assessing the opportunities of using rail where reliable networks are in place.

Packaging better

We are using 30% recycled content plastic packaging wherever possible, we use compression technology to maximise transportation loads and work to reduce the thickness of our plastic packaging to lower consumption.



Partners in impact

In 2024, we offset our emissions from business travel for the first time.

The move followed the signing of a partnership with PNZ, a UK-based company, which finances housing upgrades, such as energy efficiency improvements, the replacement of outdated heating systems or the installation of photovoltaic panels in housing.

The CO_2 reductions generated by these initiatives are converted into carbon credits which are purchased by Knauf Insulation to partially offset emissions from business travel.

The revenue is reinvested by PNZ into new housing decarbonisation projects, creating a virtuous cycle of environmental impact and social value.

We offset
1,875 tonnes
of CO_2 equivalent
in 2024.

Sustainability rating milestones

Knauf Insulation received a B rating in Climate Change and a B- in Water Security in its 2024 assessment by the Carbon Disclosure Project (CDP), a leading non-profit organisation that independently discloses the sustainability performance of companies worldwide.

The ratings put Knauf Insulation in CDP's 'management level' and mark significant progress. In just four years, we have transitioned from a D level to a C level and now to a B level.

Yaprak Nayir-Derks, our Sustainability Programme Manager, says: "CDP is recognised as the one of best-known global Environmental, Social and Governance (ESG) ratings in terms of assessing a company's management of its environmental impacts and environmental strategies, climate change mitigation efforts, and leadership practices.

"Our CDP 'management level' rating is an important external recognition of the success of our initiatives, policies and investments, as well as the hard work of our colleagues over the past four years."

Third party verification of GHG emissions

In 2024, an independent third party verifier carried out an external verification of Scope 1, Scope 2 and Scope 3 emissions for our plants in Europe, Middle East and Asia Pacific.

By engaging an independent third-party verifier for our greenhouse gas (GHG) emissions, we ensure the accuracy and transparency of our data, building trust with stakeholders and demonstrating our genuine commitment to tackling climate change.

The feedback was positive. "Knauf Insulation has established sufficient systems for the collection, aggregation and analysis of quantitative data for determining these GHG emissions for the stated period and boundaries."

We acknowledge the importance of data. That is why we are constantly improving data management systems to meet new regulatory demands and drive sustainability reporting leadership.

Yaprak Nayir-Derks |
Sustainability Programme Manager

GOLD | Top 5%
ecovadis
Sustainability Rating
MAR 2025

EcoVadis Gold Medal award for Knauf Insulation France

Knauf Insulation France was awarded a prestigious Gold Medal by EcoVadis in 2025.

EcoVadis is a global independent organisation that rates and assesses a company's performance across four key areas of sustainability – the environment, social and human rights, ethics and responsible purchasing.

Knauf Insulation France was awarded a score of 81 out of 100 putting it in the top 5% of companies assessed over the previous 12 months.

The score marks an improvement on 2024 when Knauf Insulation France achieved a Silver Medal with 67 out of 100.

Delphine Girard, Knauf Insulation France's Sustainability Manager, says: "Achieving EcoVadis certification enables us to meet the high standards that our customers and suppliers demand. It also transparently demonstrates our commitment to continuous improvement in essential areas of sustainable best practice."

Zero waste ambition

Commitment:
We will send zero waste to landfill

2025 target

We will be sending zero production waste to landfill from our Glass Mineral Wool and Rock Mineral Wool plants.

Status: Work in progress

2024 was a difficult year for Europe's building industry, creating two key challenges for our circular economy ambitions in EMEA and APAC.

First, several of our plants were unable to operate at optimal capacity, resulting in higher waste production than usual. Second, some of our recycling routes fed into industries experiencing a slowdown. This reduced their demand for our materials and impacted our recycling options.

Marc Bosmans, Group Sustainability Director, says: "To ensure we successfully manage these challenges and remain resilient and agile in future, we are constantly working on developing new recycling routes and continuously optimising our production processes."

Optimising production

Every plant now has a sustainability engineer who focuses on providing accurate data, examining areas where processes can be optimised for minimising waste and exploring future initiatives.

We share best practices across the company, especially to address waste-generating challenges, such as starting new plants, switching product types or operating below optimal capacity.

"We are getting better at identifying the type and source of waste we are creating and solving specific issues," says Marc.

"At our Lannemezan site in France and our Visé plant in Belgium, for example, we introduced 'crocodile-screw' technology to press out water from wet fibre waste, which increases its possibility of being recycled.

Recycled Mineral Wool, ready for a second life.

"At our Krupka site in Czechia, cutting-edge technology now recycles cured scrap, saving 75 tonnes of waste annually from landfill. These are technologies we can roll out across our different plants."

Developing new recycling routes

We are building on the expansion of our network of recycling partners. Already our scrap is recycled in a range of creative ways, such as compacted pellets for heating products, ceiling tiles and building bricks.

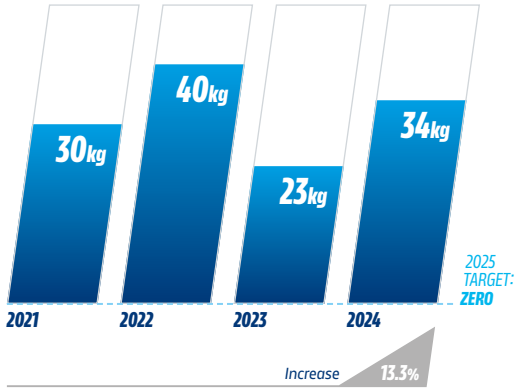
But we know we need to diversify our recycling solutions to do more and extend our network to find innovative new ways to recycle our production waste.

We also need to tackle business realities in countries where there are not enough recycling routes or where landfill is a significantly cheaper option than recycling.

One way we plan to overcome these challenges is by introducing reward systems at our sites to incentivise waste reduction and recycling so landfill becomes a last resort.

Our waste to landfill journey

(kg waste/tonne of net nominal output)



Novi Marof, Croatia

Success stories

In 2024, our plants at Novi Marof (Croatia), Bernburg (Germany), and Škofja Loka (Slovenia) achieved zero waste to landfill. Meanwhile, our Wood Wool plant at Simbach (Germany) has maintained zero scrap to landfill since 2022.

Recycled content challenge

Commitment:
Use resources that have minimal environmental impact

2025 target

We are committed to using more than 65% external recycled material for our Glass Mineral Wool and more than 25% external recycled material for our Rock Mineral Wool by 2025.

Status: **Work in progress** (Glass Mineral Wool)
On track (Rock Mineral Wool)

Recycling material into new Mineral Wool creates a circular economy win-win by lowering the consumption of virgin raw materials, reducing energy use, lowering our carbon footprint and keeping waste out of landfills.

However, increasing the volume of recycled content in our batch can be challenging due to limited access to qualitative secondary raw material in different countries in reliable quantities.

François Leroy, our Group Procurement Category Manager, says: "For our Glass Mineral Wool production, we are edging towards our 65% recycled content target, mainly using external glass cullet.

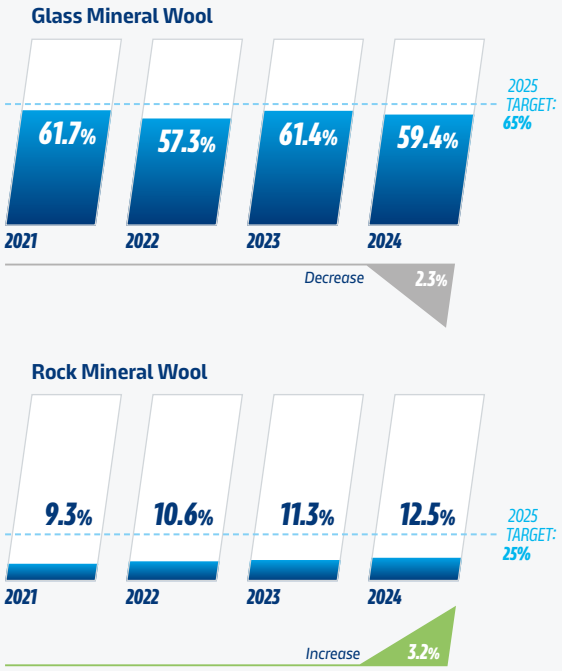
"However, the landscape has changed compared to five or 10 years ago when glass cullet volumes were more readily available.

"Now all glass industries are demanding the same material as well, so we are setting up long-term, reliable partnerships to secure our production needs in the future."

Increasing the percentage of recycled material for our Rock Mineral Wool – comprising mainly blast furnace slag from the steel industry – is still a work in progress.

"We are far from our 25% goal, however technological upgrades now allow our sites to process more recycled material," says François. "There have been improvements at plants such as Illange in France, Surdulica in Serbia and St Egidien in Germany where we have doubled our recycled content from the previous year."

Percentage of recycled material



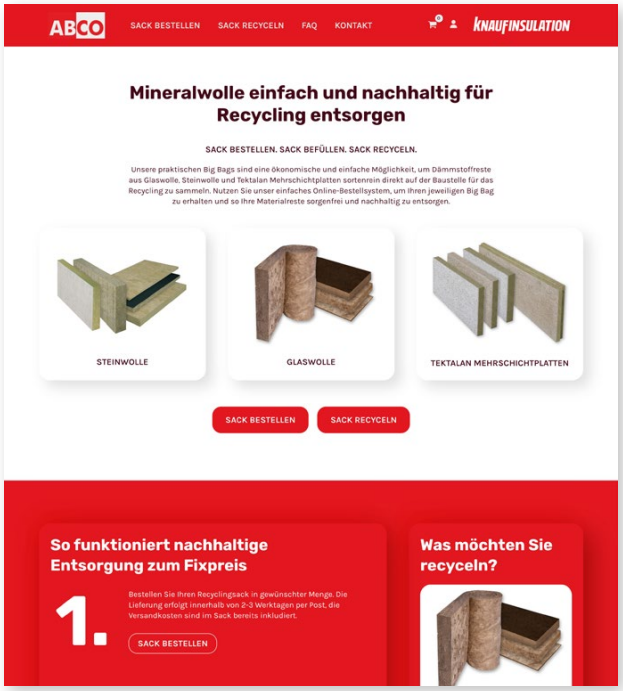
Blowing Wool

Our Blowing Wool solutions are created from 99% glass, of which up to 80% is from recycled materials.

DELIVER A CIRCULAR ECONOMY

Bags of progress

Knauf Insulation has committed to take back 25% of customer installation waste from job sites wherever possible by 2025. Through our RESULATION service we have been reclaiming Mineral Wool from Austrian and German construction sites since 2020 and will expand this to Switzerland in 2025. The scrap is sent to our sites for recycling.



RESULATION provides a simple way to collect and recycle scrap Mineral Wool from construction sites

Recycling revolution

At our RESULATION facility in Visé, Belgium, we are transforming the future of Glass Mineral Wool waste.

At this cutting-edge plant, we transform discarded Glass Mineral Wool into high-quality secondary raw materials, ready to be reintegrated into the production of new Glass Mineral Wool solutions.

Our source material comes from diverse sources – plant scrap, prefab customers, off-cuts from construction sites and even waste from demolition sites.

To date, we have successfully collected Glass Mineral Wool waste from six different European countries.

Transforming the future of waste: our RESULATION facility at Visé, Belgium

Used bottles given new purpose

In Australia, we can transform around 40 million used bottles[1] into the raw material needed to produce our Glass Mineral Wool every year. The bottles are sourced from the Containers for Change Scheme and crushed into glass cullet at our purpose-built 20,000-tonne-capacity glass recycling facility in Queensland. The cullet is then taken to our plant to be turned into energy saving insulation.

* Calculations based on an average wine bottle weighing 500g

Reducing water use

Commitment:
Use resources that have minimal environmental impact

2025 target

We will have implemented a range of new projects to reduce the amount of fresh water we use in five plants.

Status: *Delayed*

"Water is obviously important, particularly in the light of droughts in 2024," says Marc Bosmans, our Group Sustainability Director. "Lacking sufficient access to fresh water poses a long-term risk to production.

"We have a long way to go in terms of tackling our water challenges. However, we now have a more granular view of our usage.

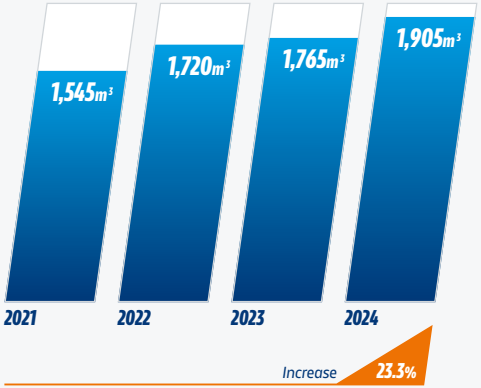
"At several of our plants, we also harvest water from our cooling systems for lower-quality applications and certain mandatory irrigation processes.

"Solutions exist to improve water use, but many require high-energy use equipment. We are examining the research and development opportunities of lower carbon options."

In 2024, Knauf Insulation EMEA and APAC was awarded a B- rating for water security by the Carbon Disclosure Project (CDP) in recognition of the company's water management initiatives (see page 18).

Fresh water consumption

(m^3/tonne of net nominal output)



Lower impact packaging

Our target is to reduce our virgin plastic film packaging by more than 25% by 2025 by optimising film thickness and dimensions and introducing more recycled content. At our Glass Mineral Wool plants, the share of packaging containing 30% recycled material increased from 2% of packaging used in 2021 to over 50% in 2024.

Sustainable by design

Our packaging features a maximum of two colours and uses up to 70% less ink. The ink also only covers 15% to 18% of the overwrap film. This increases the recyclability of the packaging.

New vision of sustainability

Dr Vanessa Taveras-Dalmau | Regional Sustainability Manager for APAC

Knauf Insulation is helping customers navigate the changing building landscape of Asia Pacific with a new generation of high performing, low carbon solutions that are free of harmful ingredients.

Increasing importance of carbon

What has changed? The future of buildings in the region is low carbon. Regulation to mandate the reporting of embodied carbon in buildings is in the pipeline in Australia and is already compulsory for government buildings in New Zealand. Other countries in the region are expected to follow their lead.

How Knauf Insulation can help: "Our EPDs show that the embodied carbon of our solutions is much lower than other mainstream insulation products with published EPDs," says Dr Vanessa Taveras-Dalmau, Regional Sustainability Manager for Asia Pacific. "For example, when compared with one of the average glasswool insulations from the EPiC Database — a model for assessing embodied carbon of construction products in Australia — our glasswool is 10 times lower in embodied carbon* for a product with a similar thickness and R-value".

Demand for Environmental Product Declarations (EPDs)

What has changed? EPDs are growing in importance because they transparently reveal the environmental impact of a product — including emissions — across its entire lifecycle. We have an externally verified EPD management system, making our EPDs a tangible data-based source of comparable product information, particularly for the growing number of online comparison sites in the region. In addition, more and more Green Building Rating Schemes are offering credits for products with EPDs.

How we can help: Vanessa says, "We will soon offer EPDs for all our products in all our APAC markets. In 2024, we published EPDs for 100% of our unfaced solutions in Malaysia, Singapore and Korea and made great progress in Japan, Australia and New Zealand. Customers can download verified EPDs for our product range across our markets in APAC on our website."

1-2. Construction work gets underway at Western Sydney Airport, Australia

More emphasis on material ingredients

What has changed? An increasing number of Green Building Rating Schemes, such as Greenstar, are offering credits to products that contribute to improved indoor air quality and are free of harmful ingredients.

How we can help: Our glasswool solutions in APAC are produced using our bio-based ECOSE® binder and have been awarded the EUROFINS Gold Certificate for Indoor Air Comfort — the highest possible standard. They have also been certified by DECLARE to be free of any harmful chemicals on the international Red List.

Year of achievement

In 2024, our APAC glasswool solutions received certification in three countries in recognition of their low environmental impact. These were the MyHIJAU Mark in Malaysia, the Korean Eco-Label, in Korea, and Singapore Green Building Product Certification from the Singapore Green Building Council. Knauf Insulation also became the official industry partner of the Malaysia Green Building Council.

* A glasswool insulation product from the EPiC database, with a functional unit of 1m², 100mm thickness and an R-value of R2.5, has 10.1 kg CO_2e embodied carbon. The equivalent glasswool by Knauf Insulation has 1.22 kg CO_2e embodied carbon.

CREATE BETTER BUILDINGS

Driving change for energy-efficient buildings

The revised Energy Performance of Buildings Directive offers Member States a golden opportunity to transform the built environment for the good of people and the planet.

Tackling the worst first

The revised Energy Performance of Buildings Directive (EPBD) puts a major focus on the renovation of Europe's worst-in-class energy-draining 'vampire' buildings.

The directive introduces mandatory Minimum Energy Performance Standards — rules setting the lowest acceptable energy efficiency level for buildings — that will be leveraged to renovate 26% of non-residential buildings by 2033.

As for residential buildings, each Member State will adopt its own national plan to reduce their average energy use by 16% by 2030 and 20% to 22% by 2035.

Driving these targets is the renovation of the worst performing buildings which must contribute to 55% of the decrease.

"Renovation generates green jobs, stabilises energy prices, strengthens energy security, improves living conditions for millions and accelerates action toward Europe's climate goals," says Quentin Galland, our Group Public Affairs Director.

"By banishing the curse of vampire buildings, the EPBD offers a golden opportunity to ensure the built environment contributes to a better future for people and the planet. It is essential that Member States maximise the opportunities it offers."

Measurements that matter

Energy Performance Certificates (EPCs) are widely used to rate the energy efficiency of buildings and are issued following an assessment.

The revised EPBD introduces an A to G scale of performance rating for EPCs across all EU Member States with an A rating corresponding to zero-emission buildings and G to the very worst performing.

The directive also allows for measured performance as an alternative to EPCs, which has been welcomed by Knauf Insulation.

"Digital solutions are the way to go to provide meaningful results compared to existing EPCs which are based on theoretical assessments," says Catho Fontaine, our Junior EU Public Affairs Manager.

"Digital technology is a game changer for the industry and for governments. It provides real time insight into a building's performance and pinpoints where renovation can deliver the most effective results.

"When you upscale this technology it allows governments to map their building stock faster than EPCs and with greater accuracy."

One stop solutions

The EPBD calls for the introduction of one-stop shops in Member States to simplify the process of renovation.

"Building renovation is complicated. It requires technical insight, specialised services, quality products, financial resources and time," says Quentin.

"One-stop shops will make a significant impact by providing the experience and expertise needed to cut through the complexities of renovation projects and make the process more efficient.

"The construction industry can help governments to accelerate the initiative by facilitating the role of the one-stop shops."

Passports to success

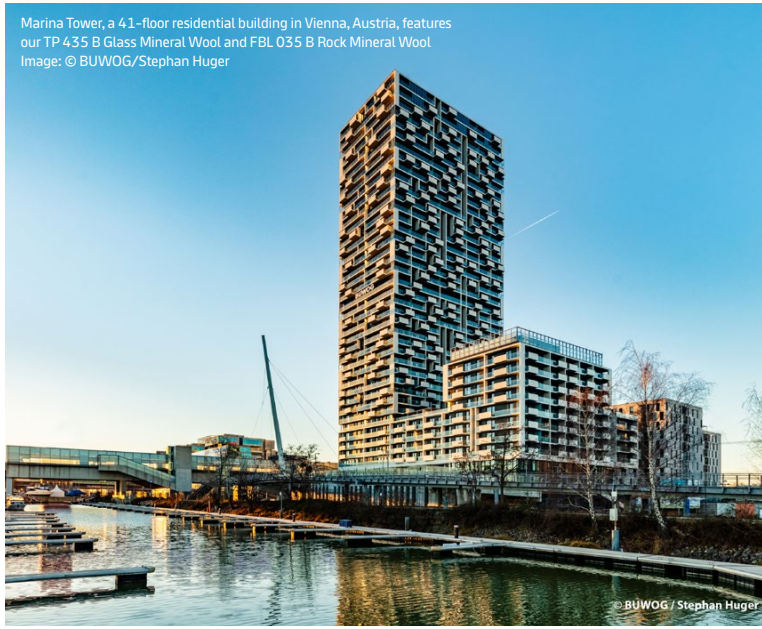
Under the EPBD, Member States must introduce building renovation passport schemes.

"The scheme is a great way to help building owners roadmap the renovation work of a building in stages," says Quentin.

"Member States can voluntarily include a low temperature readiness indicator in their passport schemes which shows if a building is ready for clean heat technologies.

"This is a welcome addition to the passport because it helps owners get the renovation sequence in the right order and achieve maximum performance by first making the building envelope energy efficient before adding low carbon technologies."

Quentin Galland | Group Public Affairs Director



Marina Tower, a 41-floor residential building in Vienna, Austria, features our TP 435 B Glass Mineral Wool and FBL 035 B Rock Mineral Wool
Image: © BUWOG/Stephan Huger

CREATE BETTER BUILDINGS

How to save €312 billion every year

Study reveals how increased renovation rates can flatten energy peak demand by 49%, save billions in energy costs and significantly cut emissions.

At Knauf Insulation, we have consistently campaigned to increase Europe's building renovation rates to reduce energy use, reinforce energy security, create green jobs and improve living conditions.

It is the ultimate win-win.

Buildings are also responsible for 35% of Europe's energy-related greenhouse emissions. This means that if the European Union is to achieve carbon neutrality by 2050, renovation rates need to increase and the transition from fossil fuel heating to low carbon electric alternatives must be accelerated.

However, there is a challenge. During peak times, millions of electrified building heating systems will put additional pressure on electric grids, which are already struggling to supply a growing number of electric transport systems and manufacturing facilities, while also coping with the intermittent nature of solar and wind power.

According to Open Energy Transition (OET), a non-profit think-tank, failing to manage these peaks could overstretch grid capacity, cause congestion, slow industrial decarbonisation, drive up energy prices and even lead to blackouts.

How the survey was modelled

The peak demand study examined how maintaining today's renovation rates would compare with a cost-optimal annual renovation rate of 2.77% if both scenarios were in the context of a fully decarbonised energy system. The research was supported by the European Climate Foundation, the International Copper Association and the European Insulation Manufacturers Association of which Knauf Insulation is a member.

The solution?

Increase Europe's annual building renovation rate.

David Ducarme, Knauf Insulation's Chief Operating Officer, says: "New research and modelling by OET shows that by improving energy efficiency and increasing annual renovation rates to more than 2%, we can reduce peak demand by 49%.

"This would save €312 billion every year in associated total energy system costs – around €1,380 per European household* – and accelerate emissions reduction by cutting 0.2 billion tons of CO_2 by 2030.

"Despite the European Union's Renovation Wave initiative calling for a doubling of annual renovation rates to 2% by 2030, many Member States are still falling short. Rates are hovering around 1% – and even lower in some cases. For example, Germany's renovation rate stands at just 0.7%.

"The OET research demonstrates that scaling up renovation is more important than ever. Energy efficient buildings reduce energy bills, stabilise grids, accelerate the roll-out of renewable energy and strength Europe's energy system, making it more reliable, affordable and competitive."

* Based on 226 million households in Europe

David Ducarme | Chief Operating Officer

Renovation's peak demand payback

Study highlights key advantages of increasing renovation rates by more than 2%.

Economic benefits: Cutting peak demand by 49% will reduce total energy system costs by €312 billion every year, freeing up significant resources for economic growth.

Grid benefits: Widespread renovation will save €44.2 billion in distribution grid investments while enhancing grid stability and reducing vulnerability to blackouts.

2050 benefits: Energy efficient renovations will accelerate the phase out of coal and gas and supercharge progress towards Europe's 2050 net zero goal.

Renewable benefits: Flattening the curve will ease pressure on the expansion of renewable energy and decrease the need for up to 600 gigawatts (GW) of additional onshore and offshore wind capacity and 872 GW solar PV capacity.

Energy price benefits: In 2030, widespread renovation could produce energy price savings of between 30% and 45% in countries, such as Belgium, Romania and the Netherlands lowering household energy bills and making industry more competitive.

CREATE BETTER BUILDINGS

Bright future for solar flat roofs

Knauf Insulation's new range of customisable future-proof flat roof solutions supports all types of photovoltaic installation. Featuring our non-combustible Rock Mineral Wool with a Euroclass A1 reaction to fire, they deliver peace of mind as well as long-lasting thermal and acoustic performance.

In the past, Europe's flat roofs were under-utilised areas that nobody thought about. They were the forgotten spaces of buildings.

Today, they are front of mind as essential players in the energy transition and being transformed into spaces for solar power generation and storage.

Driving this transformation is Europe's REPowerEU Plan and the Energy Performance of Buildings Directive (EPBD) which are accelerating the move from fossil fuel heating and cooling and setting future timelines for Europe's buildings to be 'solar ready'.

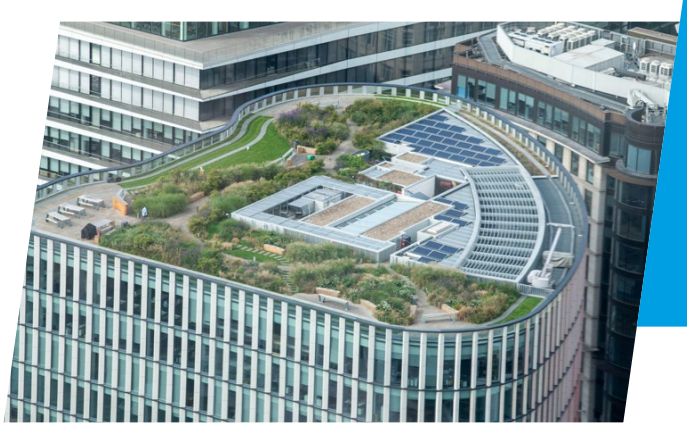
Building owners are also driving the change. The International Energy Agency says that the growth in roof top photovoltaic (PV) panels is expected to outpace large-scale energy plants by 2028 "as consumers seek to reduce their electricity bills" and solar technology becomes cheaper than ever.

Fire safety, access and risk

However, before installing solar panels on a flat roof, it is essential to assess aspects such as fire risk, roof access and use, weight-bearing strength, safety and long-lasting performance.

At Knauf Insulation, we can help. Our future-proof flat roof solutions improve energy efficiency and acoustic comfort and can be customised to withstand increased loads from different types of PV systems, extra footfall or heavy weather conditions, such as snow or rain, that add weight to roofs.

As they are A1 classified non-combustible, our solutions also reduce the risk of roof top fires spreading and provide peace of mind for building owners.



Range of new solutions

Our flat roof solutions include the **Standard**, ideal for simple roofs with no access needs, the **Solar-Ready** with enhanced strength to support PV panels and accessibility, and the **Solar-Plus** providing maximum mechanical strength to meet any weight requirements. We can also incorporate **Urbanscape®** vegetated roof solutions into our systems to create a bio-roof that features all the benefits of green roofs with the performance of our Rock Mineral Wool.

Insurance industry's fire risk concern

Michael Leibold, Head of Product Management Knauf Insulation Germany, says: "Customers appreciate that our flat roof products comfortably meet technical parameters for tenders and we have seen sales of our **Solar-Plus** solution grow annually by between 25% and 40% in Central Europe over the past five years."

Silke Kleeberg, our Flat Roof Product Manager for Germany, says: "The German insurance industry has consistently published reports linking PV systems to fire risk and recommends using non-combustible solutions to support roof top PV panels. The fact that our solutions are classified A1 non-combustible really resonates with our customers."

Avoiding costly over specification

"We always customise our solutions according to customers' specific roof requirements, for instance, if they will need solar panels now or in future," says Andjelina Kuzmanovic, Marketing Director at Knauf Insulation Eastern Europe and Middle East.

"We then calculate the optimal, most cost-effective solution to deliver that performance using calculation methodology backed by data from the Czech Technical University in Prague.

"Our focus is always on customer requirements rather than over-engineering products. That means, providing solutions that fit the real needs of solar flat roofs to avoid over-specification."

Europe's housing crisis deepens

Europe's housing crisis and the burden of energy poverty are disproportionately impacting the most vulnerable.

Surging housing costs and increasing energy poverty are putting Europe's most vulnerable households under severe pressure.

Between 2010 and 2023, house prices in the European Union soared by 47% and rents by 18% due to a lack of affordable housing, with one in every 10 residents in Europe's cities paying more than 40% of their income on housing.

As a result of a lack of affordable homes, many low-income households — often single parents and their children — are forced to live in unhealthy, poor quality, cold buildings that drain energy and are expensive to heat, leading to high bills.

The European Commission says that the percentage of people struggling with energy poverty — the inability to pay for heating — rose by 54% from 6.9% of the population in 2021 to 10.6% in 2023. This amounts to around 47 million people.

Behind these statistics is a legacy of inefficient buildings. More than 18% of buildings in Europe do not have sufficient insulation or heating systems to keep households warm, according to a 2025 report by the Joint Research Centre (JRC).

This poor housing stock will be around for a long time. The European Commission says most European buildings were built before 2001 and around 90% of them will still be standing in 2050.

"Issues of housing affordability and energy poverty are deeply interconnected," says the JRC report, entitled Addressing Housing Affordability and Energy Poverty: A Dual Challenge for the EU. "Rising housing costs and energy inefficient buildings intensify the financial pressure on vulnerable households and limit their access to essential energy services."

Shiraz Dromi, our Group Public Affairs Director, says: "Resolving the housing crisis and making housing affordable goes hand in hand with tackling energy-draining vampire buildings.

"Creating safe and affordable housing must place the renovation of these buildings at its core. Addressing the worst performing buildings is not just an energy concern — it is a social and economic priority.

"Legislation, such as the Energy Performance of Buildings Directive, is a critical lever to improve living conditions and future-proof our homes so that tomorrow can provide an affordable home for all of us."

How we are tackling energy poverty

Knauf Insulation solutions save energy, reduce bills and create better buildings for people.

Installing our Mineral Wool products improves the thermal efficiency of buildings which cuts costs by reducing the amount of energy needed for heating or cooling.

Every euro invested in our solutions is a euro towards lower bills.

Insulation is also the cornerstone of a healthy home.

Knauf Insulation solutions keep indoor temperatures comfortable when it is hot or cold outside which is essential for people who require extra care.

Social housing

Knauf Energy Solutions (KES), part of Knauf Insulation, delivers data-driven insights to housing providers and private landlords to help them improve living conditions and reduce tenants' energy bills.

KES' AI-driven technology measures the actual performance of homes and provides the actionable, reliable insights they need to carry out renovation work that delivers maximum impact.

KES has worked with housing associations in Europe and the UK, supporting the energy efficient renovation of hundreds of social homes.

Our campaigns

At Knauf Insulation, we have campaigned constantly to accelerate renovation across Europe to improve living conditions for the most vulnerable.

In 2024, we supported research into how renovation can improve peak grid demand and explored new ways to develop more affordable housing in urban areas by building lightweight, modular vertical extensions on existing buildings. We also stepped up our work with policy makers to unlock finance to close affordable housing gaps and drive renovation.

Barry Lynham | Managing Director of Knauf Energy Solutions

Catalyst for change

Knauf Energy Solutions delivers actionable insights that housing providers can maximise to cut energy bills, reduce emissions and improve living conditions for tenants.

Funding cuts, rising costs, changing regulations, building safety, decarbonisation targets, soaring demand, maintenance backlogs, skills shortages and the unique needs of tenants.

Housing providers face endless challenges, so how can they ensure maximum impact with minimum resources?

Start with data. As the cliché goes, if you cannot measure it, you cannot manage it.

At Knauf Energy Solutions (KES), we can help. Our AI-powered technology measures the real energy performance of buildings and provides energy efficiency data and greenhouse gas emission insights, as well as health and well-being metrics.

Barry Lynham, Managing Director of Knauf Energy Solutions, says: "KES technology can map an entire housing portfolio to enable estate managers to tackle the buildings and tenants that are most in need of the benefits of renovation.

"KES technology delivers data-led recommendations that support targeted retrofitting decisions and cost-effective implementation.

"Our technology also accurately reveals the energy savings and emissions reductions that have been achieved after renovation has taken place — data which can be used to unlock future finance."

> *"Our technology can map an entire housing portfolio to enable estate managers to tackle the buildings and tenants that are most in need of the benefits of renovation."*

Barry Lynham | Managing Director of Knauf Energy Solutions

Steven Heath, our Technical Director for Northern Europe, outlines the benefits of KES technology

Key benefits for housing associations

- Providing healthy homes is a top priority for housing associations. KES data delivers accurate insight into key well-being metrics, including humidity levels and indoor temperature, as well as supporting the detection of mould risk.
- KES technology can help identify tenants who are at risk of fuel poverty caused by inefficient buildings that require high energy costs to keep warm. KES measurements can help pinpoint where renovation will make the biggest difference, resulting in lower bills and improved living conditions.
- When applying for financial support, associations need to show the potential return on investment of a renovation. KES data accurately measures the before and after impact of a retrofit in terms of energy savings and reduced carbon emissions.
- In the UK, housing associations that can demonstrate they are reducing the carbon footprint of their properties can apply for carbon credits to unlock money for renovation. KES technology is already approved to measure actual carbon emission reductions, supporting social housing's access to carbon credits.
- The energy performance of buildings is traditionally assessed using Energy Performance Certificates (EPCs) which are based on calculated assessments. KES technology provides more valuable, accurate and meaningful real time real performance data.

ECOSE® celebrates 15 years of trusted performance

Our bio-based ECOSE® binder has been delivering sustainable building solutions that create better buildings for people and the planet since 2009.

ECOSE® has been installed in thousands of buildings worldwide and its trusted benefits are proven by 15 years of testing and certification. It is a legacy that continues to drive the success of ECOSE®.

Transparent carbon reduction

The construction industry is under increasing regulatory pressure to reduce the carbon footprint of building materials. ECOSE® can help.

ECOSE® has a lower carbon footprint than traditional binders and is made from up to 98% rapidly renewable materials.

The low impact of our bio-based ECOSE® binders is clearly reflected in our Environmental Product Declarations (EPDs), ensuring transparent disclosure.

Proven performance

The impact of Volatile Organic Compounds (VOC) is now top of the indoor air quality agenda.

Our ECOSE® solutions have been awarded Eurofins Indoor Air Comfort Gold for low VOC emissions — the highest possible standard — and achieved the DECLARE 'Red List Free' label certifying they are free of any harmful chemicals on the international Red List.

Thanks to these outstanding credentials, ECOSE® solutions can help specifiers earn extra points in green rating schemes such as BREEAM for air quality.

Meeting demand for carbon clarity

Product-specific Environmental Product Declarations are taking centre stage as demand soars for low embodied carbon building solutions.

The EU's revised Environmental Performance of Buildings Directive and strict new low carbon building regulation in countries such as Denmark and France are driving a rapidly expanding market for low embodied carbon building products.

As a result, Environmental Product Declarations* (EPDs) are playing an increasingly important role in helping customers choose which products to use for low carbon building projects.

Specificity is our strength

Justin Fraselle, our Product Sustainability & LCA Manager, says: "At Knauf Insulation, our EPDs offer a huge advantage because they are published specifically for our individual branded solutions. We do not produce generic catch-all EPDs to cover hundreds of products.

"This specificity builds trust with our customers by removing any uncertainty that may arise from using generalised data."

"In turn, this allows clearer comparability between products and makes our EPDs more user friendly by removing the need for extensive further calculations.

"At Knauf Insulation, we are well positioned for the future under the European Union's Construction Products Regulation (CPR) as building materials will require digital product passports that feature product-specific Life Cycle Assessment (LCA) data which examines the environmental impact of a product across its entire life cycle, from raw material extraction to disposal."

* EPDs provide independently verified insight into the impact of a product across a range of environmental categories throughout its complete life cycle, from the sourcing of raw materials to final disposal, including manufacturing, transport and use. EPDs make it easy to understand and compare a range of environmental impact indicators — including embodied carbon — for similar building products manufactured by different companies for any given application.

Quantity with quality

At Knauf Insulation, our EPD certification process allows us to effectively publish a large volume of EPDs. Certified by Bureau Veritas, this process is highly accurate and efficient.

By 2024, we had published around 500 EPDs which is more than 2% of the 23,000 EPDs verified to EN15804 standards and registered with EPD programmes globally.

"This is an incredible achievement considering the size of our company. Knauf Insulation's turnover in the context of the global construction product sector is less than 0.05%."

Justin's department has also been successfully driving the publication of EPDs for Knauf Insulation products in Asia Pacific to meet future regulation across the region.

By 2024, there were already EPDs for all our unfaced products in Malaysia, Singapore and Korea.

Building EPD expertise

Knauf Insulation has always been a centre of EPD excellence which is recognised at Knauf Group level.

In 2024, our previous head of department Jean-Pierre Pigeolet was promoted to oversee EPDs for the entire Group and the Knauf Insulation EPD team was expanded

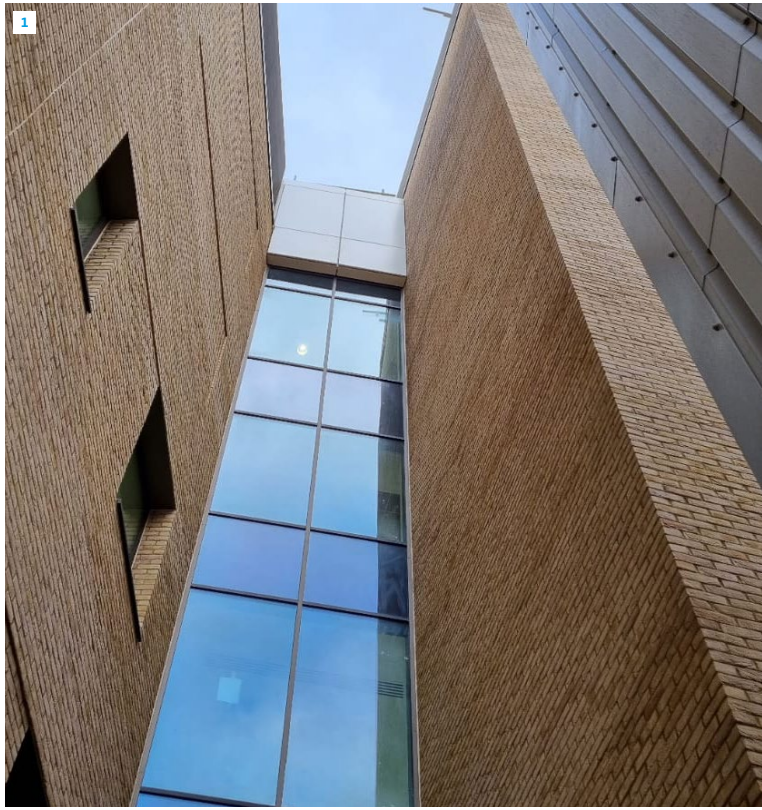
"We have also introduced regular company-wide EPD training and workshops to enable our colleagues to support our customers with a greater range of expertise," says Justin.

Making better choices

Environmental Product Declarations (EPDs) are developed by our expert team and the results can be challenging to understand and use if they are not correctly explained.

To address this, the Central Sustainability team developed a training programme and EcoIndex-Carbon Calculator.

The tool makes it easy to understand and compare a range of environmental impact indicators — including embodied carbon — for similar building products manufactured by different companies for any given application.



1- 2. The Oak Cancer Centre at the UK's Royal Marsden Hospital features our Rocksilk® RainScreen Slab which provides high thermal performance, excellent sound reduction and is Euroclass A1 non-combustible

KNAUF INSULATION

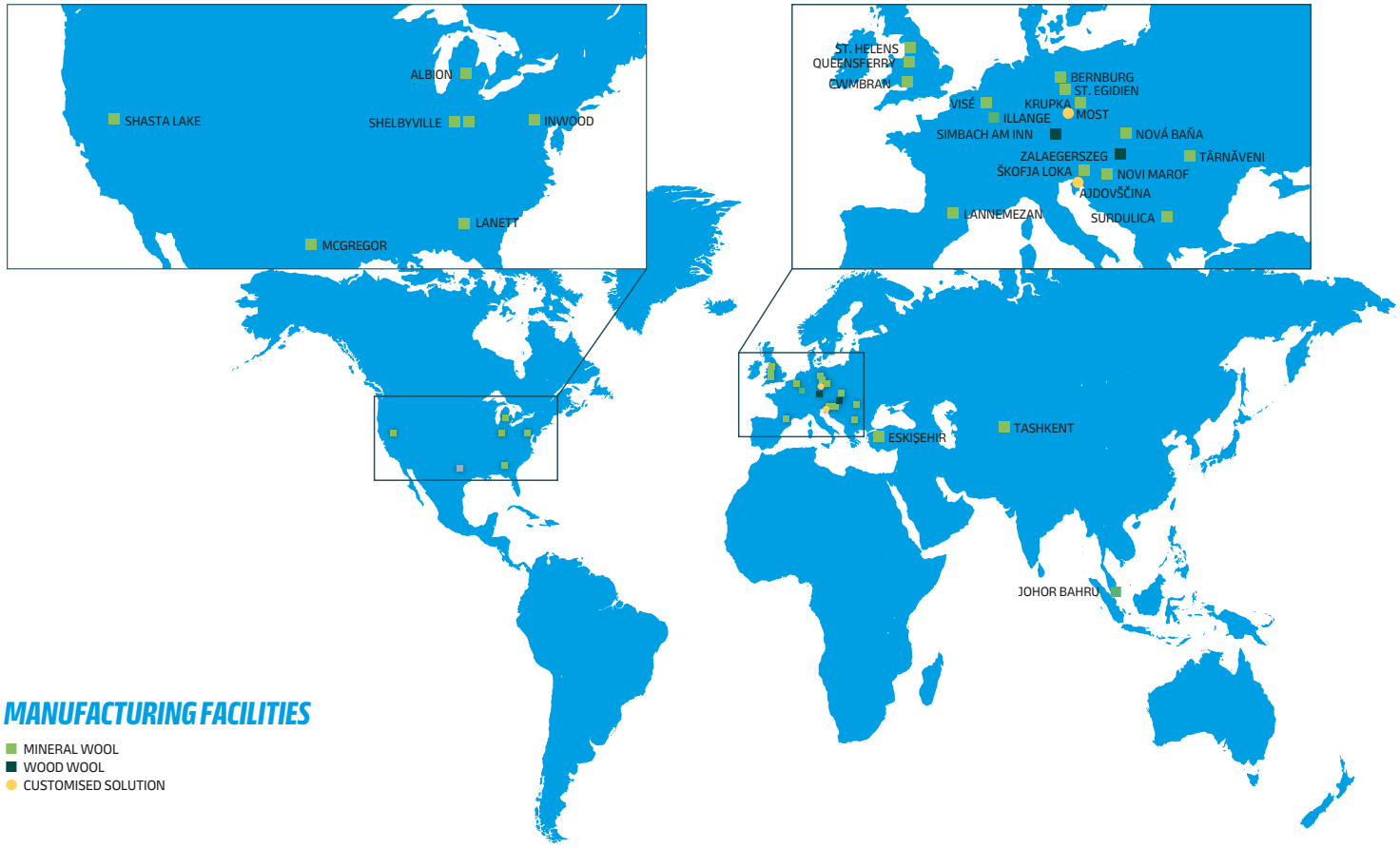
ABOUT KNAUF INSULATION

With more than 40 years of experience in the insulation industry, Knauf Insulation represents one of the fastest growing and most respected names in insulation worldwide.

Knauf Insulation is committed to helping its customers to meet the increasing demand for energy efficiency and sustainability in new and existing homes, non-residential buildings and industrial applications. The company shows a strong and steady financial performance with turnover exceeding €2.5 billion. Knauf Insulation currently has nearly 6,000 employees in more than 40 countries and 28 manufacturing sites in 15 countries.

OUR BRAND PROMISE

We deliver the best results to our customers by providing high-performing solutions, strong partnerships and trustworthy hands-on support . At Knauf and Knauf Insulation our customers know they can **Build On Us**.



MANUFACTURING FACILITIES

- MINERAL WOOL
- WOOD WOOL
- CUSTOMISED SOLUTION

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Build on us.

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