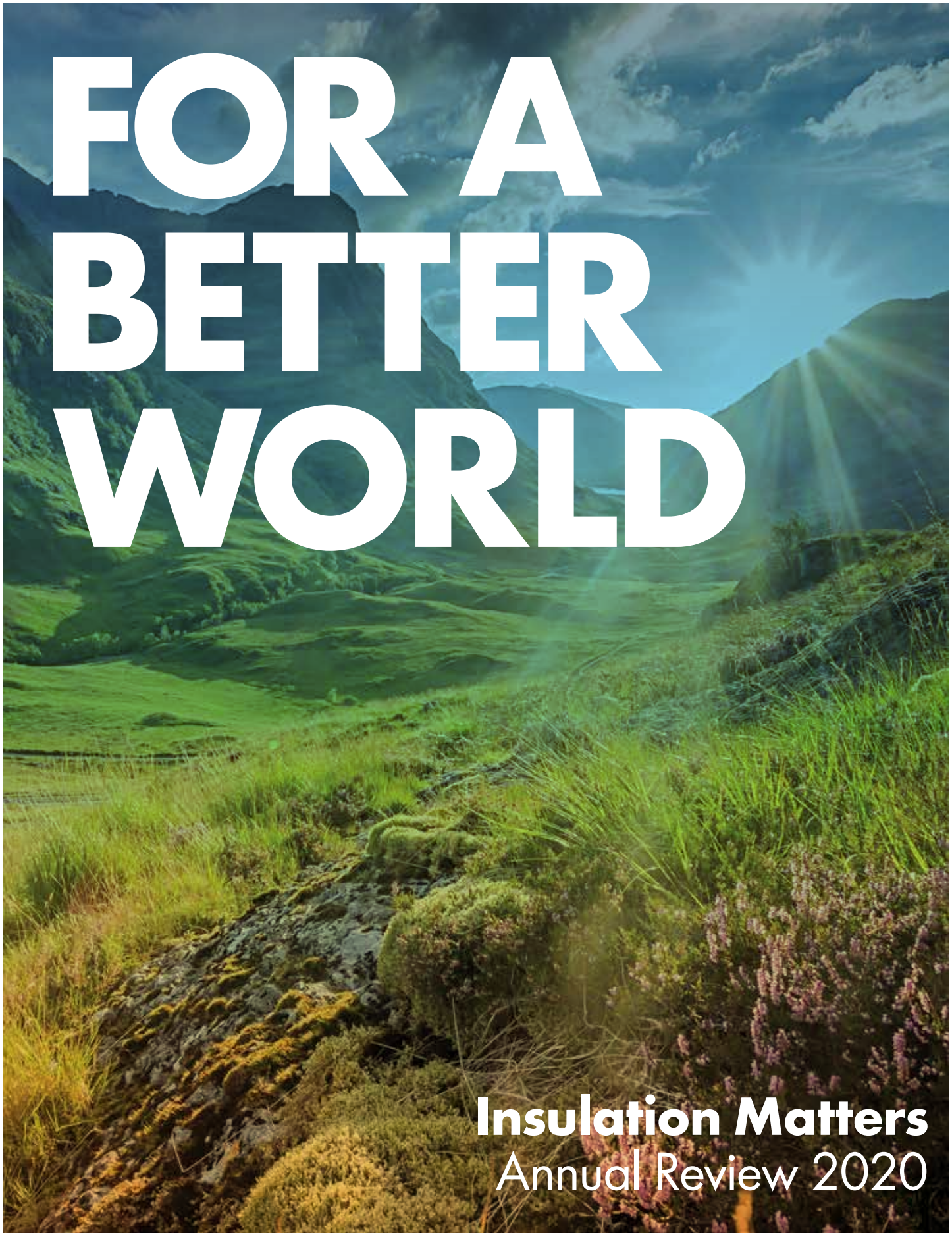


Insulation Matters
Annual Review 2020

challenge.
create.
care.

KNAUF INSULATION

CONTENTS

04 CARING FOR WHAT IS IMPORTANT
Around the world in 2020 we stepped up to support our communities and serve our customers

08 FOR A BETTER WORLD
We celebrate the launch of our new sustainability strategy and set ambitious targets for 2025

12 SUSTAINABILITY HEROES
Colleagues at our sites worldwide have committed to champion sustainability

14 OUR 2019 RESULTS
We continue to reduce our environmental impact per cubic metre of product despite soaring output

16 AS SAFE AS HOME
The pandemic inspired the best in us when it came to the safety of our colleagues around the world

20 LESSONS FROM A CRISIS
Our sustainability strategy commits us to sharpen our leadership skills further. 2020 taught us a lot

22 ACHIEVING ZERO CARBON
We have cut our CO_2 emissions by 23% in a decade. Our ambition is to reach zero

26 DO MORE WITH LESS
New projects are being developed to enable us to achieve zero waste to landfill by 2025

30 RENOVATION WAVE
How we are helping to drive Europe's commitment to double annual renovation rates

32 NORTHERN STAR
Our renovation work in the north of the UK has transformed lives and delivered real performance

36 GROWING AMBITION
Europe is calling for more green roofs and spaces in urban areas. We are here to help

38 FUTURE FOCUS
Our commitment to constant innovation continues to inspire us despite the challenges of 2020

44 NEW MALAYSIA PLANT
Johor Bahru opens in 2021. In addition to great solutions we are also exporting our values

46 WORLDWIDE NEWS
Our people, our products and our successes from around our global network

Another renovation success, this time in Germany, see page 34

THE YEAR OUR VALUES TOOK CENTRE STAGE

This report is a celebration of the power of our people and our inspired culture of challenge.create.care.

The ever-changing demands of COVID-19 continue to challenge everyone, but I am proud to say that across our company this has made us stronger. From the beginning of the crisis, we focused on what was really important — caring for ourselves, our colleagues, communities and our customers (page 4).

We kept everyone As Safe As Home (see page 16). We continued to serve our valued customers with the solutions they needed (page 6) and we took tough decisions to ensure the company would come out of this crisis as strong as possible (page 20).

And we were able to do all that because we are committed to the values that define us — challenge. create. care.

Thank you.

In October 2020 we also launched our new sustainability strategy For A Better World. In many respects, the timing of our strategy could not be more significant.

From the beginning of the crisis we focused on what was really important — caring for ourselves, our colleagues, communities and our customers.

COVID-19 has not only been a stark reminder of the frailty of the world, it has also challenged us to create something better. To build back better.

At Knauf Insulation sustainability has always been indispensable to our long-term growth. We are proud of our achievements but we are now determined to be even more ambitious.

Our new vision builds on our values and the successes of the past decade, setting a clear course for the future by defining how we will put people first, achieve zero carbon, deliver a circular economy and create better buildings. You can read about our new commitments on page 12, but what is so important to me about this strategy is that we have set ourselves challenging concrete targets for 2025.

Targets such as reducing our accident rate by 55%, sending zero production waste to landfill and reducing the embodied carbon of our products by 15%.

These milestones will keep our sustainability journey on track and ensure that we are all responsible for delivering success not leaving problems for the next generation. These milestones are an exciting challenge that I am confident will bring out the best in everyone. I look forward to reporting positive progress next year.

And I look forward to your views on our new report. It is a celebration of what makes our company unique — our people.

Best wishes

Jean-Claude Carlin
Member of the Knauf Group Management Committee
Insulation Europe/Middle East/Asia

challenge. create. care.

The COVID-19 crisis brought out the best in everyone at Knauf Insulation and highlighted our incredible power of community. Here are just a handful of examples from around our sites.

Summer Solstice 24-Hour Relay Run

A total of 75 Knauf Insulation colleagues across three continents and 12 countries took part in the first Summer Solstice 24-Hour Relay Run, which started on June 20 and finished the next day. For each 30-minute slot of the 24-hour relay, there was at least one person running somewhere in the world, whether Australia, Europe or the USA. Collectively the team ran approximately 550 km in the timeline. The event was organised by UK's Stephen Wise and Asif Dar.

SUPPLY HELP

Knauf Insulation provided regular donations of protective clothing and equipment to Liège University Hospital in Belgium including 3,000 shoe covers, a hundred Tyvek suits and protective glasses.

MINERAL PLUS INSTALLED IN TWO TURKISH HOSPITALS

Around 500,000 m² of our Mineral Plus IPB series Partition Wall Board was installed in two emergency hospitals in Turkey.

The hospitals with a total capacity of a thousand beds were built within five weeks to meet the demands of COVID-19.

One hospital was built on the site of the old Ataturk Airport, the other on the Asian side of the city.

The hospitals were financed by the government and work contracted to Rönesans Holding.

MEALS ARE DONATED TO FRONTLINE WORKERS

A total of 1,822 meals were bought from local businesses and donated to frontline health care workers and first responders such as police and fire departments by our colleagues across the **US** over a period of four weeks. The meals were provided to 20 facilities in all five local US plant locations. In addition, 1,250 free meals were also provided to all plant colleagues.

BELGIAN SUPPORT

At our **Visé** plant in Belgium daily meals were distributed to colleagues and their families. For home-workers returning to our Visé offices after two months of confinement, there were 'Welcome back' packs of guidelines, masks, disinfectant and even chocolates.

FOCUS ON SAFE RETURN

Our **US** corporate office ensured colleagues were safe and informed during the transition back to work. Signage and a handbook were created to keep safety front of mind, 'A Return to Office' task force provided support and special training was provided to everyone.

During the early months of the pandemic colleagues were issued with a bandana mask kit and a special Quarantine Family Cookbook was produced. Online events included virtual happy hours, wellness challenges, song list sharing and virtual team-building events. Our US colleagues also supported their communities by sewing face masks and donating blood.

UK VOLUNTEERS

Many of our colleagues in the **UK** have volunteered to help the country's National Health Service. Technical Advisor **Bradley Hirst** has been assembling PPE visors at home and Senior Graphic Designer **Andy Evans** has been delivering prescriptions. Meanwhile, Head of Communications **Jo Callow** has been entertaining colleagues with morale-boosting virtual quizzes.

IMPROVED COMFORT

A passion for 3D printing inspired a colleague in the **US** to create an innovative mask solution for front-line workers. Shelbyville Product Analyst **Jason Bates** said that when he first started wearing masks they fitted 'OK' but put stress on his ears. Using his 3D print skills he created a flexible neck buckle design that holds a mask comfortably in place while keeping it securely closed. More than 300 buckles have now been sent to frontline workers.

LAPTOP EXCHANGE

During the lockdown, colleagues in **Slovenia** donated private laptops to children who needed to follow online lessons at home. A special internal 'Laptop Stock Exchange' was created to enable employees to donate their unwanted private computers to parents that needed them for their children's school homework.

CARING FOR CUSTOMERS

At the height of the pandemic our interactions may have been defined by social distancing, video calls, masks and webinars, but ultimately the crisis brought us closer to our customers than ever before.

Sharing expertise

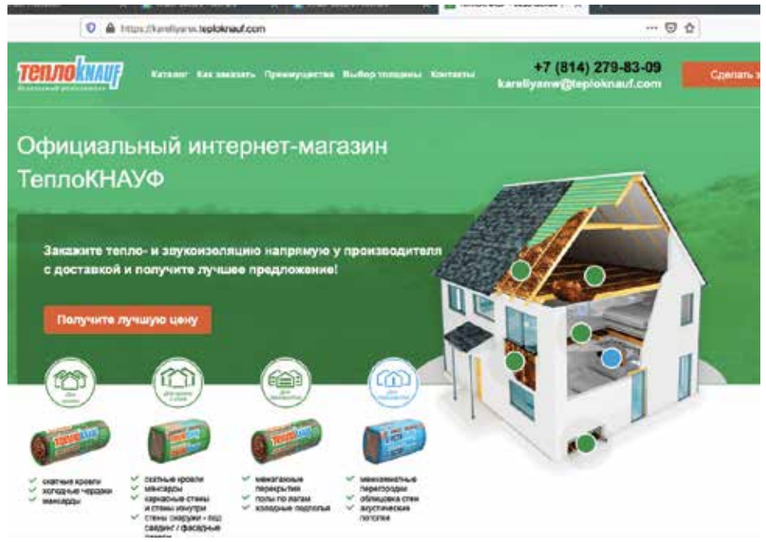
At Knauf Insulation, for our 'As Safe As Home' safety guidance we focused on distancing, air ventilation, surface cleanliness and personal hygiene (DASH). We supported the Confederation of Installers and Small Contractors in France by making this guidance available to all 350,000 members.

Maximising our resources

As online replaced face-to-face meetings, we used digital resources to support customers. For example, in **Austria**, **Switzerland** and **Lithuania**, among other countries, we held webinars for drywall builders, blowing wool customers and for architects. Using social channels, Knauf Insulation France reminded customers of ECOSE Technology's outstanding indoor air quality credentials and our **Asia Pacific** colleagues launched a digital campaign to boost DIY sales.

Supplying masks

At the start of the pandemic, masks were in short supply for many customers, we helped out where we could. In **Lithuania**, for example, we delivered hundreds of masks to members of our Captain K installers' programme while our Systems Division at Škofja Loka in **Slovenia** sent out packs of masks to members of our Installers Premium Club.



Online success in Russia and Slovakia

The crisis closed stores in many countries, so it was vital that customers could still access our products online. This often meant revitalising our channels or creating new ones. In **Russia and CIS,** for example, we launched a new online store that attracted 14,000 visitors in the first two weeks. It was an incredible response and included one loyal customer who ordered 190 packs of premium TeploKNAUF NORD to insulate his entire house. In **Slovakia** we launched a new e-commerce channel to reach single-family homeowners offering customers some of our most important applications including our Rock Mineral Wool external wall insulation (ETICS) and Glass Mineral Wool pitched roof, while at our Systems Division in **Slovenia** we carried out a survey to support customer challenges and identify new ways that we could help.

Academy adapts to support customers

With the onset of COVID-19 and stay-at-home orders, our Knauf Academy in the **US** was able to pivot directions practically overnight. The team that typically meets with customers in a setting that allows for hands-on applications was able to create dozens of fun videos, webinars, and presentations to engage our customers and sales team with enriching content. Like so many of the stories from our Knauf family around the globe, this swift action and innovation was a testament to what an effective team we have at Knauf Insulation.

Border challenges

Keeping customers supplied as borders closed inspired simple, but effective, innovations. For instance, to avoid truck drivers having to face a 14-day quarantine when they crossed the border from Greece to Turkey, our East European region developed a system of changing drivers at the border.

Specialist digital training in Italy

Our expert insight has always been just a call away. Our colleagues in **Italy**, for example, have being offering a wide range of digital learning webinars for our customers — particularly architects, engineers and designers — that focused on topics such as sustainability, green buildings, fire safety, acoustics and hygrothermal insulation. 2020 may have changed our habits, but customer-centricity remained at the heart of everything we do.

And in the days before COVID-19

When social distancing was unheard of and masks only for Halloween, more than 4,000 free breakfast sandwiches were given out to builders and branch staff across the **UK** as we celebrated the 10th anniversary of ECOSE Technology®. The 'Feel Good Factor' roadshow visited 36 locations of builders' merchants and distributors handing out sandwiches, hot drinks and, of course, samples of products with ECOSE Technology.

OUR NEW VISION OF SUSTAINABILITY

We have unveiled our new sustainability strategy for Knauf Insulation — inspired by long-term commitments and defined by clear targets for 2025.

After the complex challenges of 2020, we are delighted to announce a bright new vision of positivity — our new long-term sustainability strategy for Knauf Insulation, For A Better World.

The strategy reveals our future ambitions and focuses on four key sustainable goals: putting people first, achieving zero carbon, delivering a circular economy and creating better buildings.

We have made a series of **long-term commitments** to show how each goal will be achieved and — critically — we have also set concrete **short-term targets** for 2025 that everyone can start achieving now (see page 10).

We believe that it is important to set aspirational goals for the long term while also ensuring that in the short term our current leadership is accountable for making progress against these goals to avoid leaving the problem entirely to the next generation.

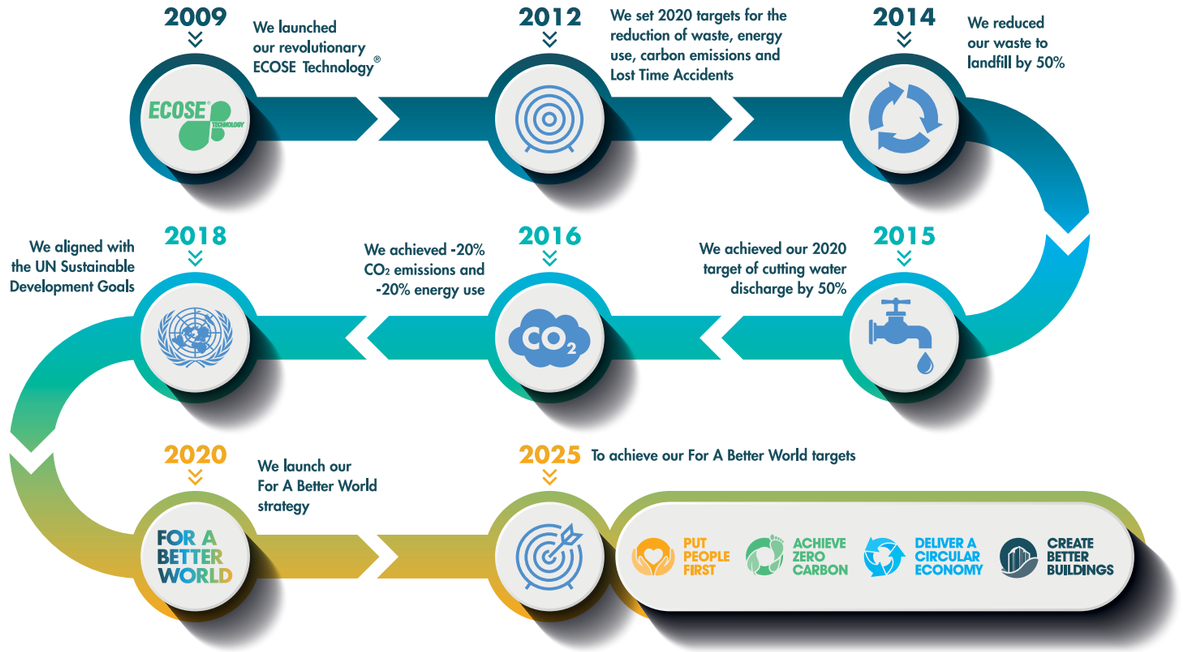
Our company is defined by sustainability. Our products contribute to saving energy, cutting emissions and are designed to make sure buildings are good for the environment and safe and comfortable for those who use them.

What's in a name?

We have called our new sustainability strategy 'For A Better World' because it builds on the success of our vision: "We lead the change in smarter insulation solutions for a better world."

Solutions such as our ground-breaking ECOSE Technology®, our revolutionary binder with no added formaldehyde, and our green roof solution Urbanscape® have both transformed the market with their eco-credentials.

We are also here to help. We are supporting our customers as they navigate an ever-changing landscape of demanding green building requirements and increasingly stringent environmental regulation. We have the experience and expertise to support our customers to achieve their sustainable ambitions.



OUR SUSTAINABILITY JOURNEY

We believe sustainability success is a process of Continuous Improvement. Since we started our journey we have consistently worked to reduce our environmental impact and recorded significant achievements (see below). Our new sustainability strategy builds on the success of the past decade.

OUR 2010 TO 2020 HIGHLIGHTS

ENERGY AND RELATED EMISSIONS

22.7% Reduction in **energy use**

23.2% Reduction in **related emissions**

SAFETY

Lost Time Accidents reduced by **56%**

WASTE

Waste to landfill reduced by **67.3%**

NOx

NOx reduced by **42.7%**

WATER USE

39.8% Reduction in **Water use**

80.7% Reduction in **water discharge**

Despite manufacturing output achieving record levels during the past decade, we have continued to reduce our environmental impact per cubic metre of product.

HOW WE WILL BRING OUR VISION TO LIFE

It is not enough to set long-term goals. It is essential to show how they will be delivered. And when. Here are our goals, commitments and targets.

People make our company: family day at Tyumen, Russia

GOAL 1
PUT PEOPLE FIRST

Ensure our communities and people thrive. Safely.

- We are committed to zero harm and building a culture of health, safety and well-being.
- We will have the most engaged employees and committed and focused leaders in our industry.
- We will build on the diversity that has made the company such a success.
- We will be a positive force in the communities where we work.

GOAL 2
ACHIEVE ZERO CARBON

Minimise the impact of our products and plants.

- We will aim to deliver net zero embodied carbon products and solutions.
- We are committed to reduce the environmental footprint of the entire organisation beyond embodied carbon.

GOAL 3
DELIVER A CIRCULAR ECONOMY

Do more with less.

- We will find ways to use resources that have minimal environmental impact.
- We will send zero waste to landfill.
- We will reduce the environmental impact of our packaging.

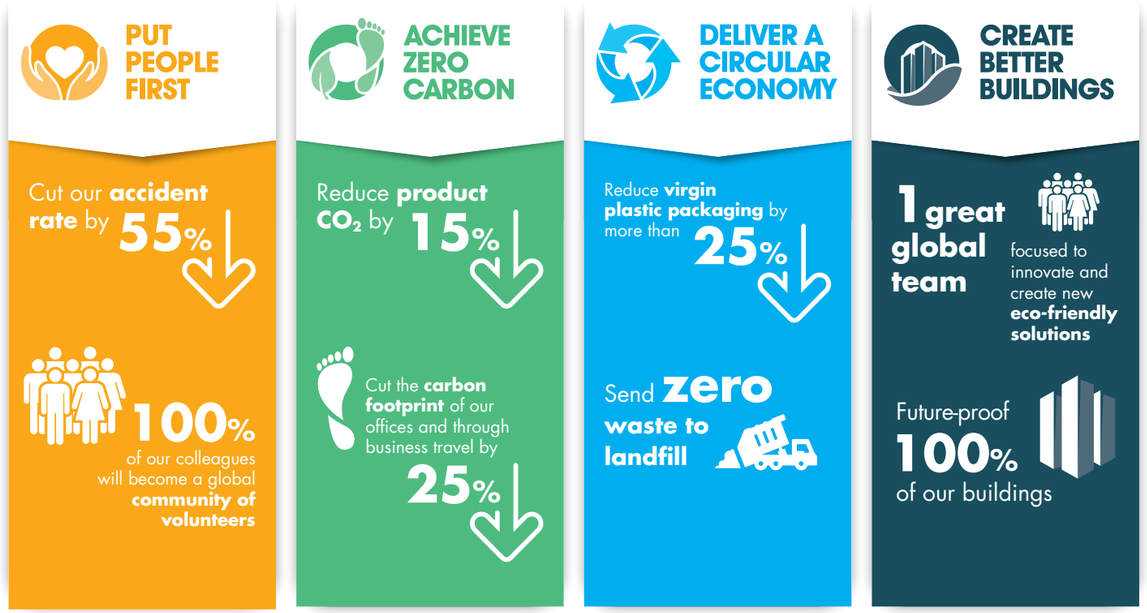
GOAL 4
CREATE BETTER BUILDINGS

Make buildings fit for the future.

- We will continue to innovate and create new eco-friendly solutions.
- We will continue to campaign for efficient, safer, sustainable buildings that are fit for the future, including our own.

Why do we need to be sustainable?

- **People:** now more than ever, we realise the importance of keeping people safe and healthy, being a company where everyone can thrive and be their best selves no matter what their difference, helping our customers achieve their sustainable ambitions and building on our community successes. When we care about our colleagues, customers and communities, we all succeed.
- **Planet:** world resources are finite, we produce more waste than ever and there is an urgent need to decarbonise our economies. We can all do more with less and find new ways to shrink our carbon footprint.
- **Profit:** selling more insulation to make buildings energy efficient and reduce their carbon footprint helps everyone thrive. Saving energy, saves money. Cutting waste, reduces landfill costs. Cutting carbon, reduces the price we pay for emissions. It is essential that any post-pandemic economic recovery is driven by decarbonisation and a commitment to lower our environmental impact. We need to build back better in every respect.



HIGHLIGHTS OF OUR 2025 TARGETS

We have set ourselves milestone sustainability targets for 2025. This landmark year keeps our strategy on track and ensures we take ownership of achieving our targets, rather than leaving them to the next generation. Our key targets are above. For further details explore **www.knaufinsulation.com/sustainability/for-a-better-world**

"An important 2025 target is to make available core diversity and inclusion (D&I) training for our colleagues. Diversity takes careful nurturing and we realise that we need to implement conscious and deliberate strategies that bring diversity to life. We have made a commitment to work with a group of colleagues from across the business to co-create a D&I programme based on individual and collective experiences. We want to encourage everyone to take off their lenses – because if you take off your lens to understand another perspective that allows more inclusion and it helps us identify where we need to focus."

Siân Hughes, Group HR & Corporate Affairs Director

OUR COMMITMENT TO THE UN'S SUSTAINABLE DEVELOPMENT GOALS

SUSTAINABLE DEVELOPMENT GOALS

Our sustainability strategy is aligned with the Sustainable Development Goals (SDGs) adopted by the United Nations. These goals set specific targets for 2030 and are described by the UN as the "world's best plan to build a better world for people and our planet by 2030". Knauf Insulation is also a signatory of the UN Global Compact which is a public commitment to operate in line with UN SDGs, ensure sustainability is at the heart of our DNA and report annually to the UN on company progress.

Looking ahead to new sustainable challenges: our Knauf Insulation Italy team

INSPIRED BY OUR PEOPLE

Colleagues from around the world gathered online and in person where possible to see how they could make a difference when we launched our new sustainability strategy For A Better World. Reflecting our values of challenge.create.care. the mood was upbeat, the energy high and the commitments inspiring.

Vincent Briard and Siân Hughes, leading a workshop, collect a wall full of exciting sustainability ideas

Our Polish Climowool team together For A Better World

Essential new additions to our colleagues' wardrobes

Ready to change our world: members of the Western European team at our Illange site in France

Socially distanced but united in our sustainability mission: colleagues at our Visé headquarters in Belgium

"Sustainability, like many aspects of life, is not a destination. It is an ongoing commitment to leave the world better than we found it. We need plans, goals, and metrics to help focus our collective efforts, but ultimately we need the commitment from each of us to get a little better every day. This 'infinite mindset' gives us the opportunity to find fulfillment within our work and draws on our core value of menschlichkeit.

"I am proud to work for a company that is committed to a long-term view. Even thinking about goals we would like to achieve 30 years from now takes leadership and courage. The leaders making those commitments may have to make short-term sacrifices in their time to lay the groundwork for the organisation to be more successful in the future. Fortunately, at Knauf, we have generations of success to draw on for inspiration."

Brett Welch, Director of Sustainability and Academy, North America

CELEBRATION OF SUCCESS

Our manufacturing output has increased dramatically since 2010, but despite this growth we continue to significantly reduce our environmental impact per cubic metre of product.

Despite our production output increasing to record levels in the past decade, we have continued to achieve major success in terms of reducing our environmental impact per cubic metre of product.

Since our 2010 baseline year we have seen our energy consumption fall by 22.7%, our energy-related emissions cut by 23.2% and our waste to landfill reduced by 67.3%.

Our water use has been cut by 39.8% in the same period, and our water discharge is down by 80.7%. Even more significantly we have seen our Lost Time Accident rate fall by 56.5%.

Key 2020 targets such as cutting emissions and energy use by 20% and reducing our accident rate by 50% were all achieved at least three years ahead of deadline.

In 2019 our SOx emissions increased by 4.6% compared to 2010. This was due to the larger volumes of recycled material we have been using as production has increased.

SOx is emitted from processing recycled material such as briquetted Rock Mineral Wool or recycling used glass.

We are also unlikely to reach the 2020 zero waste to landfill target we set ourselves in 2010.

However, we are continuously improving — as well as exploring — an exciting new range of recycling initiatives for all our solutions (page 26) in addition to helping customers tackle their own waste challenges.

“Thanks to continuous improvement we have achieved significant reductions. Sustainability success runs parallel to production success.”

Philippe Coune, Group HSE Lead EMEA

SAFETY

Lost Time Accidents reduced by 56.5% since 2010
2019 accidents down by 4.5% compared to 2018.

We achieved our 2020 goal to reduce Lost Time Accidents (LTA) by 50% compared to 2010 three years ahead of schedule in 2017.

Case in point: In June 2020 we achieved one hundred days without a Lost Time Accident company-wide. This reflects initiatives that have contributed to our safety such as increased safety dialogues, HSE behaviour frameworks, hazard spotting tours, LTA monthly calls, safety audits, ISO audits and Root Cause Analysis among many others.

“Compared to our 2010 baseline year we have seen our energy consumption and CO_2 emissions fall by 23% by 2019.”

ENERGY AND RELATED EMISSIONS

Energy use reduced by 22.7% and related emissions by 23.2% since 2010. Energy cut by 1.4% and emissions cut by 1.5% in 2019 compared to 2018.

We have achieved significant success in terms of energy efficiency and emissions. The next stage will require new technology and process changes.

Case in point: Our **St Helens** and **Cwmbran** sites in the **UK** saved 5,000 tonnes of carbon a year following an energy improvement programme with partner Siemens.

WATER USE

Water use is down by 39.8% and water discharge down by 80.7% since 2010. Water use was down by 15.3% and discharge down by 5.3% in 2019 compared to 2018.

Our year-on-year water use decrease is a result of reusing more water in our closed-loop processes. With water discharge, we achieved our 50% reduction target in 2012, eight years ahead of deadline.

Case in point: Our new plant in **Malaysia** will have a system to utilise tropical rain water.

WASTE

Waste to landfill has been cut by 67.3% since 2010. However, waste went up 1.1% in 2019 compared to 2018.

We are plateauing in terms of waste to landfill. To improve we are developing new recycling projects.

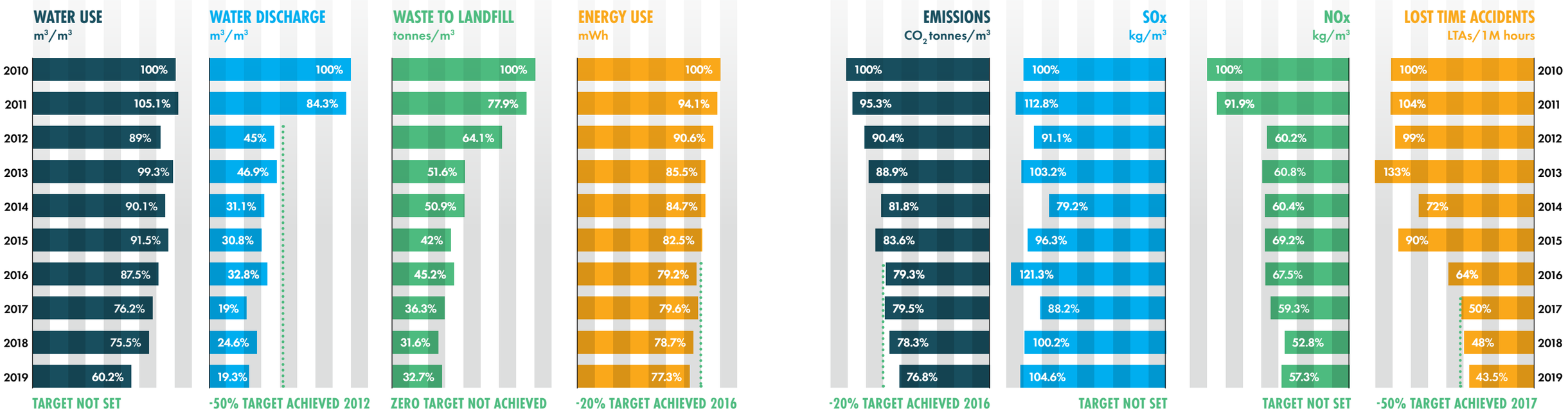
Case in point: In addition to internal projects we are helping customers tackle their waste challenges. In **Germany**, for example, we have launched a scheme which takes back our scrap Mineral Wool from construction sites and recycles it. For Rock Mineral Wool the residue is transformed into ‘recycling bricks’ which can be used in our production, while Glass Mineral Wool scrap is being converted into ceiling tiles.

SOx and NOx

SOx up by 4.6% and NOx down by 42.7% since 2010. SOx was up by 4.4% and NOx up 4.5% in 2019 compared to 2018.

SOx is produced when we convert scrap off-cuts of Rock Mineral Wool into ‘recycling bricks’ that we can reuse as raw material, when we recycle ‘slag’ from the steel industry and when we process cullet from recycled glass for our Glass Mineral Wool. We are committed to send zero waste to landfill while reducing SOx. To achieve this we are improving our recycled raw material collection and the efficiency of our technology.

Case in point: Our NOx and SOx emissions are well below required levels of regulation.



This report relates to Knauf Insulation, part of the Knauf Group, and uses data from 2019 and activities from 2019 and 2020. For accuracy we may amend previous figures.

SAFETY IN A TIME OF GLOBAL CRISIS

Jean-Claude Carlin, Member of the Knauf Group Management Committee Insulation Europe/Middle East/Asia, discusses how we continue to stay As Safe As Home.

What impressed you about the company's response to COVID-19?
People knew what to do and did it. Quickly. Our decentralised structure, teamwork and solidarity were a great combination. Across the world, our sites knew what to do even before it was discussed centrally. Safety and health were naturally top of every agenda and the execution was fast. This was largely thanks to all the work we have been doing to build a safety culture.

Teamwork was critical?
In moments of crisis — when the boat is facing a storm and people have to decide what to do to save that boat in just a quarter of a second — you see the power of a company's culture. Our people responded quickly and naturally. And this is a tribute to our teamwork, training and agility which continues to be demonstrated today.

There have been record periods of time without a Lost Time Accidents.
Yes. On June 11, 2020, the entire company recorded a hundred days without an LTA and we continue to break safety records in the plants. There are still recordable safety incidents but we are on the right path and have made a significant difference to changing our safety culture.

> **"On June 11, 2020, the entire company recorded a hundred days without an LTA and we continue to break safety records in the plants."**
> **Jean-Claude Carlin**

April also saw the launch of the As Safe As Home campaign, why was this significant?
The message was clear. At home or at work, we needed to take a 24/7 approach to health and safety. And we still need to maintain this approach. There is no room for compromise when it comes to the care of our colleagues and our communities.

As Safe As Home has been on-going.
Of course, we need to be vigilant about DASH standards — distancing, circulating air, surface cleanliness and hygiene — because they save lives. We have consistently updated our information posters, videos and messaging. For example, we had a campaign to remind everyone not to let standards slip on holiday.

Did plants have to close?
We stopped some plants but that was due to demand issues for a short time. The company continued to operate successfully, people turned up for work, we continued to trade well, but most importantly people took care of their health and safety. And continue to do so.

Safety has always been an important pillar for you.
Safety first has been my priority since joining the company in 2017.
We have been pushing our safety message every day for the past four years and consistently challenged ourselves to be better. And I am unapologetically scrupulous about this. In the crisis moment, in the storm, all these efforts paid off. We should be proud of what's been done.

What are the next steps?
Our safety achievements demonstrate the unique power of teamwork. Not just one team, but many, all working together across departments, often under enormous pressure. Teamwork like this produces exceptional results. What we have learned will be fundamental as we enter the recovery phase of the crisis.

LOST TIME ACCIDENTS DOWN BY 56.5%

In 2019 our Lost Time Accident (LTA) rate was reduced to 43.5% from 48% in 2018 — marking a 56.5% drop since our 2010 baseline. We achieved our 2020 commitment to reduce LTAs by 50% compared to 2010 three years ahead of schedule in 2017.

OUR RECORD-BREAKING PLANTS

As of November 6, 2020, our North American **Albion** team had gone 1,850 days without an LTA and our **Inwood** team marked 1,528 days without an LTA. Our **Krupka** site in the **Czech Republic** achieved 909 days without an LTA by October 1, 2020 and our **Stupino** plant in **Russia** has not had a Lost Time Accident since 2014.

Our sites around the world have adapted stringent safety measures

Improving analysis

In 2019 we changed from recording accidents as Lost Time Accidents (LTA) to using the Total Recordable Incident Rate or (TRIR).

The number of people who suffered recordable injuries fell from 78 in 2018 to 65 in 2019. In other words, 13 people less people were injured in 2019 than the year before.

The reason for our change from LTA is that TRIR records all accidents minor or severe.

TRIR is calculated by dividing the number of injuries by the total number of hours worked by all employees and then multiplied by a million. It sounds complicated but is used across industries to compare the effectiveness of safety programmes.

In 2013 our TRIR hit a high of 21.12. By 2019 it had fallen to 9.1 from 10.6 in 2018. We are committed to reduce this to at least 5.0 by 2025.

A picture of positivity: colleagues at our Illange plant in February 2020

MINDFUL OF MENTAL HEALTH

We are making resilient mental health and well-being a priority for 2025. We learned a great deal about nurturing positivity in 2020.

Knauf Insulation has always put the care of its people first and foremost – it is embedded in our promise to challenge.create.care. When it came to COVID-19, our teams set up initiatives to support mental health and well-being including workshops, coaching sessions, online assistance for those in need as well as leadership development and online courses.

CASE STORY 1

'The well-being of our colleagues is our priority'

"We want to implement a holistic approach to the well-being of our colleagues in Systems Division," says HR Director **Katja Pruša.**

"This means looking at their physical, mental, social and financial health and implementing programmes and activities which provide opportunities to raise awareness and build skills to positively impact well-being."

Although the initiatives are at an early stage, says Katja, the aim is to inspire a journey of cultural development. "This journey has to be appreciative of our colleagues. We aim to take an employee-centric perspective and ensure their well-being is prioritised across their entire work life cycle." The baseline for this is in the positive psychology, strength-based approach and appreciative inquiry philosophy which are relevant and innovative approaches to organisational change. "When we experience positive emotions, we score highly on tests of creativity and are better at solving problems," says Katja. "And this is very relevant for productivity and innovation."

"When we experience positive emotions we are better at solving problems," says HR Director Systems Division Katja Pruša.

CASE STORY 2

'Colleagues can access face-to-face counselling'

In 2020, **Julie McKean**, our Human Resources Manager for Knauf Insulation Northern Europe (KINE), received a Knauf Insulation Leadership Award and Knauf Group Award for championing initiatives to support mental well-being and increase awareness of mental health issues.

What were the key challenges facing KINE colleagues?
Supporting employees working from home who could feel isolated from others, especially those living alone. We also had people feeling anxious about coming back to work and the impact this could have on family members who are high risk.

Julie McKean: award-winner

What has KINE done to support mental well-being?
Our colleagues can benefit from our assistance programme provider. This is a 24/7 helpline and website available 365 days a year that offers free confidential support on personal, financial and legal issues. Colleagues can also have face-to-face counselling sessions and on-line Cognitive Behaviour Therapy sessions.

What have we learnt about well-being from the crisis?
We conducted a return-to-work survey to understand what extra support we could offer. The most cited reason of the benefit of returning to their normal work location was the increased social interaction with co-workers. Routine was also very important.

What will inform KINE's future approach?
We plan to train more Mental Health First Aiders who have in-depth insight into mental health and well-being to help colleagues. We will continue to train colleagues to help them identify what good mental health looks like and how they can help.

CASE STORY 3

'70% of participants said the courses made them feel calmer'

More than a hundred colleagues joined supportive webinars in Russia & CIS organised by **Glafira Kaliuzhnaya** our Training & Development Manager the region.

Topics included handling thoughts, emotional comfort, balancing emotions against rationalisation, supporting family, older relatives and generating positivity, self-care, effective home working and planning days to be as stress-free as possible.

Glafira said: "At the start of the quarantine it was difficult to make time for family, work and online schooling.

"We managed to focus the whole organisation on what matters most – our employees' well-being and health, great teamwork, sharp customer focus and outstanding results. Personally it was a touching moment to realise how strongly we care about and support each other in the company."

Pavel Vishnyakov, Managing Director, Russia & CIS

So, we shared stories of how different people were coping, what helped people stay positive and what advantages the crisis had created. "In a survey following the webinars,

Pavel Vishnyakov: great teamwork

70% of participants said the courses helped them to feel calmer, more inspired, and proud of the company.

"The webinars provided self-knowledge. You can say, 'I don't know what to do because I've never been in this situation. And it's OK. I just need time to build a new plan and attitude. And my partner and children also need time.' In other words, help people ground themselves."

CASE STORY 4

'Having support helps in so many ways'

At the height of COVID-19 it was not just the uncertainty of the unknown but also the fact that colleagues were playing so many roles, says **Tania Orglerova**, Regional HR Director Eastern Europe & Middle East.

"They became teachers for home school children, they were managing complex family situations and they were trying to do their job. Naturally it was challenging," she says.

Across all the countries in her region, Tania organised webinars to support colleagues with well-being issues such how to stay mentally fit and how to be optimistic.

Tania Orglerova: new initiatives

The initiative was followed by a survey to see how the company could help more. "Now a pilot Employee Assistance Programme has been launched in **Slovakia** and the **Czech Republic** which includes a 24/7 free hotline offering counselling, legal and financial consulting support. Stress can come from different sources," says Tania.

Further initiatives have included new webinars for colleagues in **Hungary** and a project in the South Balkans focusing on emotional intelligence. Meanwhile, colleagues across the region have taken up roles as engagement champions in their plants. "This is a bottom-up project, where they learn how to support teams and come to management with initiatives. Having support helps in so many ways, such as fewer accidents and more engaged people," says Tania.

> A team of like-minded people can move mountains.
>
> Leonid Ababilov, the manager of our plant in Stupino, Russia

LESSONS FROM THE PANDEMIC

We are committed to having the most engaged employees and focused leaders in our industry as a key part of our long-term sustainability vision. COVID-19 was a test of everyone's leadership, but it also brought to life our values of challenge.create.care. This is what we learned from the front line of production.

COMMUNICATE CLEARLY

Erkan Üçok, plant manager at Eskişehir, Turkey: "Our crisis team ensured constant communication, especially during lockdown when workplaces in Eskişehir were closed and our plant team kept working seven days a week, 24 hours a day — worried about themselves and their families. A safe environment and communicating constantly were vital to motivation."

Branislav Popović, plant manager at Surdulica, Serbia: "Throughout the pandemic, communication has been key. The plant has strictly followed safety and production instructions and guidelines provided by Central teams and management. Every employee is highly aware of the potential risks and they all want to contribute to safety measures."

PRIORITISE EMPATHY

Darren Holt, plant manager at St Helens, UK: "It is absolutely vital to offer continual reassurance, communication and empathy. Make yourself accessible, be visible and empathise with personal circumstances. Recognise that people will follow your journey at different speeds. Now the team is closer, we really recognise the need to support each other and take more time out to talk about the well-being of friends and family."

Stjepan Mršić, plant manager at Novi Marof, Croatia: "We demonstrate more empathy and concern for one another than we ever did before. I want to maintain this positivity because it guarantees long-term sustainability for our people and for our business."

KEEP THE TEAM UNIFIED

Olivier Douxchamps, plant manager at Visé, Belgium: "The key to a plant like Visé — with a high level of complexity — is to be agile but to have high team cohesion. This is vital: maintaining strong partnerships means solving challenges — together."

Uwe Kaufmann, plant manager at St Egidien, Germany: "Every employee now has a high degree of responsibility for their own health and the health of their team. This is the main point of change caused by this pandemic."

ENSURE TRUST AND DIRECTION

Franck Vincens, plant manager at Lannemezan, France: "Discussion, listening and building trust are key to overcoming challenges."

Left to right, each row, from top: Matevž Fazarinc, Erkan Üçok, Stjepan Mršić, Marián Tkáč, Mark Jolliffe, Mohamed Elkhamlichi, Oleg Gorun, Olivier Douxchamps, Branislav Popović, Róbert Smalekker, Darren Holt and Uwe Kaufmann

Leonid Ababilov, plant manager at Stupino, Russia: "A team of like-minded people can move mountains; simplifying processes brings value to people and improves performance; visualising key performance indicators helps people achieve them."

FIND THE POSITIVE

Jan Brázda, plant manager at Krupka, Czech Republic: "Bad times and pain make teams stronger and prove character. This is a great opportunity to learn how good our people are. What a gift, going through difficult times."

Mohamed Elkhamlichi, plant manager at Illange, France: "We used confinement as an opportunity to train people and define our restart."

FOCUS ON MOTIVATION

Matevž Fazarinc, plant manager at Škofja Loka, Slovenia: "Many of our people were scared of the unknown and wanted answers from leadership. We didn't have the answers. We all have fears but when we share them, they can easily be overcome."

> Bad times and pain make teams stronger.
>
> Jan Brázda, plant manager, Krupka, Czech Republic

Marián Tkáč, plant manager at Nová Baňa, Slovakia: "It is vital to be present, spend time with the team, motivate them. I like to see people achieve something they never believed they could achieve."

ENSURE CONSTANT UPDATES

Mark Jolliffe, plant manager at Queensferry, UK: "We brief everyone regularly and make sure they are aware of what we are doing and why. Everyone on site is given an updated induction and instructed on the latest rules. We are looking after each other which is the best way to look after ourselves."

Oleg Gorun, plant manager at Tyumen, Russia: "Keep your team well informed, ask for feedback, trust them and they will deliver incredible results."

GO THE EXTRA MILE

Róbert Smalekker, plant manager at Zalaegerszeg, Hungary: "We have learnt if we focus more on our job and colleagues, we handle difficulties well and achieve better results. Our daily production record has been broken three times in this crisis."

Karl-Heinz Pasch, supply chain manager at Simbach, Germany: "Despite the COVID-19 crisis all our lines at Simbach were running at a 100%. The plant really over-performed."

OUR ZERO CARBON AMBITION

Photovoltaic panels on our Škofja Loka site in Slovenia

We have set ourselves a long-term goal to achieve zero carbon by minimising the environmental impact of our products and manufacturing processes.

Knauf Insulation has always been in the business of saving energy and reducing carbon emissions.

Today one unit of energy used to manufacture a Glass Mineral Wool product saves 570 units over its 50-year-use phase.

And this has massive long-term positive environmental advantages. In the European Union, for example, buildings are responsible for generating 36% of carbon emissions.

Around 85% of this carbon comes from 'operating' the building – such as heating or cooling – so it is vital that buildings are as energy efficient as possible through the insulation of the building envelope.

The remaining 15% from buildings is made up from the embodied carbon generated and released during the life cycle of the materials used to create buildings (in a near-zero energy building this figure is between 30% to 45%).

At Knauf Insulation we continue to campaign for annual rates of efficient building renovation to be dramatically increased, but we have also committed to a long-term goal of achieving zero carbon for our products and organisation.

It is a goal that is in line with the European Union's commitment to make Europe the first continent in the world to be carbon neutral by 2050.

We want to help. The majority of our sites are in Europe and we relish the challenge of taking climate action and meeting the EU's goals.

CUTTING EMBODIED CARBON

We have set ourselves a target to reduce the embodied carbon of our products by 15% by 2025 – against a 2019 baseline – as a landmark step towards our long-term company goal of being zero carbon. Tackling embodied carbon will mean examining every stage of our processes including our raw material (such as binder, recycled content and supply chains); our manufacturing processes (melting and fiberising); our packaging and distribution (plastic use, plant allocation and delivery) and our circular economy (production off-cuts and recycling construction scrap and demolition waste).

We have been measuring our embodied carbon for more than 15 years using Life Cycle Assessments and over the past 10 years we have reduced company carbon emissions by more than 20% through improved performance and optimisation.

Vincent Briard, our Director of Sustainability, says it is now time to be more ambitious. "To achieve a reduction of 15% we will have to be really innovative. There are no more easy wins.

> **"We are investigating different types of fuels such as bio-gas or hydrogen and preparing technology roadmaps."**
>
> **David Ducarme, Group Chief Operating Officer**

"We are talking about step changes about the way we manufacture our product, not just at the margins, but fundamental change. It's never happened before and we are very excited by the idea."

OUR ENERGY TRANSITION

David Ducarme, our Group COO, says: "At Knauf Insulation we want to approach carbon neutrality with the proven right technologies available to implement at the right time. It's an energy transition and it's important to understand that converting everything today to electricity would be a disaster in terms of cost and environmental impact. The electricity in most places where we operate today is still loaded with carbon emissions so the parameters that will dictate how we transition are the cost and availability of green electricity as well as the cost of the right to emit CO_2. "The accent is on technology readiness, we are investigating different fuels such as bio-gas or hydrogen and we are preparing technology roadmaps to investigate when they can be ready. Already we are using coke-free technology in two locations and over the next decade we will upgrade our footprint with these technologies."

SHRINKING OUR FOOTPRINT

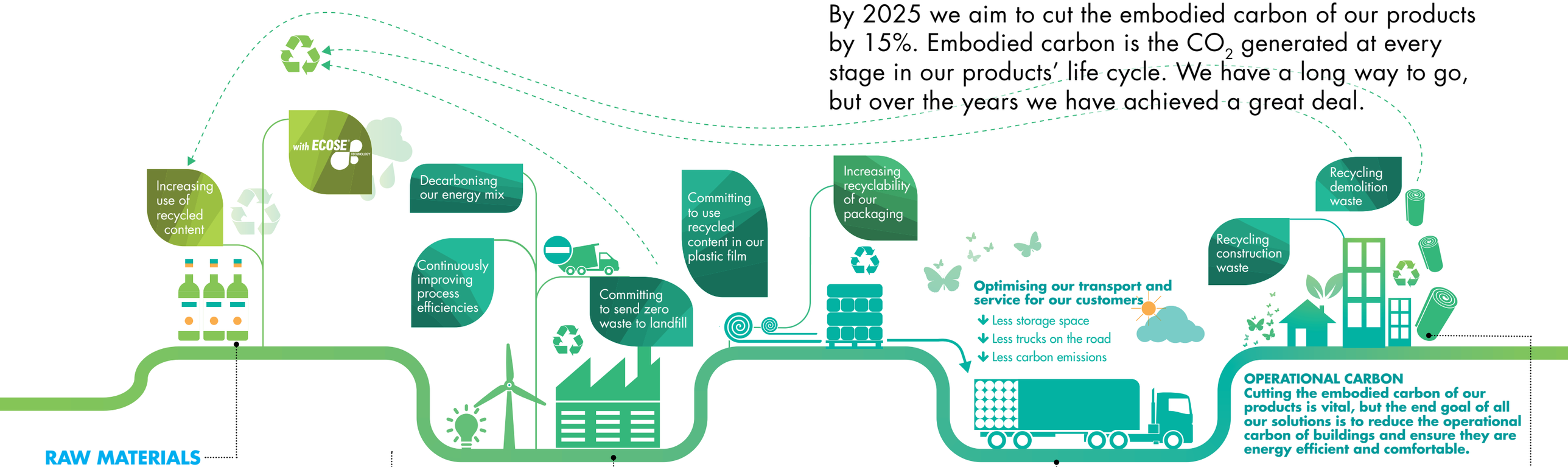
An important commitment of our zero-carbon vision is to shrink the carbon footprint of our business activities outside of manufacturing by 25% by 2025. We will assess all aspects of our daily working life — including activities such as commuting or business travel — to allow the implementation of improvement programmes.

SIX PLANTS WIN FUNDING FOR SUSTAINABLE PROJECTS

In addition to the continuous improvement of our manufacturing facilities, we have allocated 10% of general capital expenditure to fund more energy-saving and recycling ideas. The annual competition assesses plant projects that can demonstrate sustainability improvements with pay-back taking into account current and future parameters such as cost of carbon and landfill. Twenty-two projects were submitted and six winners chosen. The winning sites in 2020 were **Krupka** in the Czech Republic (smart compressed air production project); **Stupino**, Russia (LED lighting installation initiative); **Queensferry** in the UK (waste return project); **Škofja Loka**, Slovenia (mill for side products treatment); **Novi Marof**, Croatia (new energy management system) and **Simbach**, Germany (waste water treatment paint).

HOW WE ARE TACKLING EMBODIED CARBON

By 2025 we aim to cut the embodied carbon of our products by 15%. Embodied carbon is the CO_2 generated at every stage in our products' life cycle. We have a long way to go, but over the years we have achieved a great deal.



RAW MATERIALS

Extraction, transformation, transportation, storage
Approximate CO_2 generated at this stage: 15%

How we are lowering our material emissions
Using recycled materials such as used glass requires less energy and emits less CO_2 than processing and extracting virgin materials. We believe that as a minimum, 65% of our Glass Mineral Wool should be made up of recycled glass with an ambition to raise that percentage higher, providing we can find the right quality cullet from used bottles and other glass. For our Rock Mineral Wool we are aiming for a minimum of 25% external recycled material.

- Our plant at **Nová Baňa, Slovakia**, already uses 22% external recycled material.
- We choose suppliers close to sites. This matters in huge countries such as **Russia** where tonnes of carbon are generated by transporting vast distances. Rather than trucks, we have used railways in the **Czech Republic** and waterway deliveries for **Illange**, **France**.
- At our **UK St Helens** site a partnership with leading resource management company Veolia led to the building of a facility which every year refines 60,000 tonnes of used glass into the high quality raw material we need for our insulation.
- In **Stupino, Russia**, we set up a network of used collection points that provides 350 tonnes of used glass to our plant every year.

MANUFACTURING

Melting, fiberising, curing and packaging
Approximate CO_2 generated at this stage: 65%

How we are lowering manufacturing emissions
Since 2009 we have cut energy use and emissions per cubic metre of product by 23% despite record levels of output.

- Our **UK** plants **St Helens** and **Cwmbran** site have partnered with Siemens for an improvement programme which achieved energy savings of over 10,000 MWh/year with a yearly reduction of over 5,000 tonnes of carbon.
- At **Visé** in **Belgium** we switched all lighting to LEDs marking an electricity gain of 3.5%. A total of 6,000 photovoltaic panels now contribute 2% of the plant's energy and we plan to increase the number of panels by 5,000. We aim to install a wind turbine and an exchanger to recuperate fume energy to heat cullet.
- New fans for the manufacturing process at our **UK Queensferry** plant helped considerably to reduce energy use.
- At **Škofja Loka, Slovenia** our first furnace has already been changed from coke to natural gas, and plans are in the pipeline to change the other two.
- Many of our plants, such as **St Egidien** in **Germany**, have energy load management systems that limit peak load and reduce the consumption of raw materials.
- Replacing heating oil with gas at our **Surdulica** plant in **Serbia** reduced CO_2 emissions by more than 20%.

DISTRIBUTION

Delivery, installation
Approximate CO_2 generated at this stage: 17.5%

How we are lowering our distribution emissions
Improving plant allocation and distribution is vital. For instance, just reducing a distance from 1,000 km to 500 km can cut total embodied carbon by up to 3%.

- We compress products to ensure fewer distribution trucks are needed. For example, 5,800 m^2 of 50 mm Mineral Plus can be delivered in one 80 m^3 truck rather than the 3.6 trucks required for our traditional Rock Mineral Wool.
- On a 300 kg pallet of Glass Mineral Wool we need 7 kg of plastic packaging. Just recycling 30% of this plastic would cut the embodied carbon of our products by 1%. We are looking at ways to use less plastic.
- 80% of the contractor trucks that work with our **Surdulica** plant in **Serbia** have low-emission EUR5 or EUR6 engines.
- Our Glass Mineral Wool from **Krupka** in the **Czech Republic** is sent to **Serbia** by train — replacing 1,500 truck trips a year. Trains are also used to send our products from **Krupka** to **Bulgaria** to supply the Greek market cutting the previous truck trips by up to 50%.
- In **Belgium** we use 25.25 m ECO-COMBI trucks for haulage to the Dutch market. One ECO-COMBI can deliver up to 30 pallets of our Glass Mineral Wool. This enables us to transport the same quantity of product using 30% fewer standard trailers while cutting CO_2 emissions by an estimated 20%.

END OF LIFE

Removal, landfill
Approximate CO_2 generated at this stage: 2.5%

How we are lowering end-of-life emissions
We are exploring new ways to recycle insulation scrap from our production as well as construction and demolition sites rather than sending to landfill.

- Construction and demolition waste accounts for 35% of all waste in Europe. We want to see demolition waste recycling programmes in place in five countries by 2025.
- Already we are taking back construction cut-off from customers in the **Netherlands**, **Germany** and **Slovenia**. By 2025 we will take back 25% of the scrap generated by our customers on job sites wherever possible.

SAVING THE EMISSIONS OF AN ENTIRE COUNTRY

We know that 570 units of energy are saved for every unit of energy used to manufacture one of our typical Glass Mineral Wool products over its 50-year-use phase. But over the past decade our sites in Europe and North America have produced almost 14 million tonnes of Rock and Glass Mineral Wool – enough insulation to save more than the annual carbon emissions of Belgium.

NEW ERA OF RECYCLING

Our Circular Economy Manager in Western Europe Marc Bosmans and his team are exploring new ways to recycle Glass Mineral Wool waste

We are exploring new ways to recycle our Glass Mineral Wool and Rock Mineral Wool to meet our target to take back 25% of the scrap generated from our customers' job sites by 2025 and to have programmes in place to recycle insulation from demolition.

The construction industry is responsible for more than 35% of total waste in Europe and devours more than 50% of all extracted raw materials.

The total amount of insulation waste generated by European countries is significant. In **France**, for example, the volume of glass mineral wool waste is 85,000 tonnes a year — a figure that is expected to triple as renovation initiatives are accelerated as part of the European Green Recovery.

In **Belgium** and the **Netherlands** there are about 30,000 tonnes of mineral wool insulation waste every year with 26,000 tonnes of that total coming from demolition.

The moral imperative to reuse, reduce and recycle this waste is overwhelming, but the business case is equally compelling.

At present the majority of all insulation waste — construction and demolition — is destined for landfill and in Europe prices can reach up to €400 per tonne.

Another key concern for many customers is whether they will be able to landfill at all in the future. Countries such as **Austria**, are already considering a landfill ban for mineral wool.

Heading up our project team to find new recycling solutions for Glass Mineral Wool from construction and demolition in Western Europe is **Marc Bosmans**, the region's Circular Economy Manager.

"If all the insulation waste generated in Europe was channelled to recycling it would be enough raw material for two of our plants for a year," he says.

"The challenge, however, is that although most Glass Mineral Wool products are infinitely recyclable, they are light density which makes them harder to process. In addition, demolition waste is usually between other layers such as bricks and plaster which means it has to be separated.

"We are exploring ways to navigate these issues and transform used Glass Mineral Wool into glass cullet which could be again fed into our manufacturing process."

This would mean after years of saving energy first time around, the recycled insulation is ready for a second energy-saving life cycle.

New sustainable system to take back customer construction cut-offs

Knauf Insulation in **Germany** has developed a scheme to take back scrap Mineral Wool from construction sites and recycle it.

The new system — '**RE**SULATION' — is designed to maximise resource use through recycling and contribute to minimising the environmental impact of construction waste.

In the past, businesses had no choice except to collect off-cuts of insulation and give it to waste disposal companies.

Now thanks to **RE**SULATION it is possible to transform Rock Mineral Wool residue into 'recycling bricks' which can be used in the production of new Rock Mineral Wool insulation boards and allow Glass Mineral Wool scrap to be transformed into ceiling tiles.

For customers the **RE**SULATION process is simple. After an order is placed, businesses are given empty **RE**SULATION bags, which are collected when filled and sent for recycling.

Siegfried Huber, Operations Coordinator Germany, says: "Our aim is to ultimately offer a full service to customers so that they never have to concern themselves with construction cut-offs or their removal — Knauf Insulation will take care of everything from the delivery of products to the disposal of any scrap."

OUR QUALITY CHALLENGE TO RECYCLE MORE USED GLASS

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

The figure of 65% recycled cullet — made from high quality used bottles and glass — is an optimal level for our fibrising processes, furnaces and quality of our fibres. However, by going higher, for example, using 75% cullet across our plants the advantages become greater.

"Using high levels of recycled material saves huge amounts of manufacturing energy — compared to processing raw virgin materials — and that means saving more emissions and reducing the embodied carbon of our products," says **Vincent Briard**, our Director of Sustainability.

"But in the case of our Glass Mineral Wool this positive outcome depends on finding plenty of quality cullet and in many countries the resources are simply not available in the volumes we require.

"This is a challenge we will be addressing over the next five years and we are examining all options available."

Recycled glass cullet

"Using high levels of recycled material saves energy, emissions and reduces the embodied carbon of our products."

Vincent Briard, Director of Sustainability

For example, we are looking at increasing access to more used glass. In **Stupino, Russia**, for example there was zero glass collection in 2013. Today after working with the local municipality we now collect 350 tonnes of used glass as raw material at our Stupino plant every year via 10 local government supported collection and recycling points.

In the **UK** we partnered with the waste management company Veolia to build a used glass facility at our **St Helens** plant which cleans, sorts and refines around 60,000 tonnes of used bottles and jars into high quality cullet every year.

HOW WE ARE RECYCLING MULTILAYER WASTE

Among the recent examples of achievement at Heraklith has been the elimination of significant quantities of production waste that used to end up in landfill.

This has been achieved thanks to cooperation between our plants at **Simbach** and **St Egidien** in **Germany** and our central technical department.

Material dust, produced during the manufacture of Heraklith Wood Wool multilayer panels, can now be separated and the Expanded Polystyrene (EPS) and Wood Wool residues collected for recycling.

The Rock Mineral Wool sawdust from Simbach in Bavaria is sent to St Egidien in Saxony where it is cleanly and efficiently processed into a new Rock Mineral Wool product.

The process now saves more than 1,700 tonnes of waste which previously went to landfill.

The project is not only a commendable example of great cooperation between two plants with different technologies; it also marks a significant contribution to enabling a circular economy and reducing the amount of waste that goes into landfill.

"This is a huge step forward for Wood Wool and shows the incredible strength of the group to work together to find solutions — especially the collaboration between the plants and the central technical teams during the years of development," says **Joachim Wieltschnig**, our Technical Director Wood Wool.

We are taking back waste from Dutch modular building companies

TAKING BACK MODULAR SCRAP FROM CUSTOMERS

Knauf Insulation has rolled out a pilot scrap recycling initiative for modular building companies in the **Netherlands** who use our Glass Mineral Wool.

The process is provided for a small fixed fee every month. Our system measures the scrap produced at a customer's site and automatically tells our partner company when it is ready for collection. The cut-offs are then picked up and recycled into bricks and tiles.

The scheme saves customers costs, gives them peace of mind that waste is being dealt with responsibly and lowers the environmental impact of their products.

CIRCULAR ECONOMY IN ACTION AT OUR PLANTS

NOVÁ BAŇA, SLOVAKIA
The briquetting facility in the plant enables the reuse of production waste to achieve zero waste at the site.

SURDULICA, SERBIA
We are taking back a remarkable amount of Mineral Wool off-cuts from a local panel producer as well as wooden pallets. The briquetting plant in Surdulica enables the closing of the recycling loop for production waste and material coming back from customers. Plans for the future will enable us to increase those volumes significantly.

KRUPKA, CZECH REPUBLIC
We recycle waste from wash water — there is no waste to landfill — and it is used as raw material for a brick manufacturer. We also replaced high-quality city water for the plant with well water from a deep drill at our site.

ŠKOFJA LOKA, SLOVENIA
We take back Rock Mineral Wool waste from local panel producers, our OEM customers.

ESKIŞEHIR, TURKEY
In 2020 we reused 6,270 pallets which saved 87 tonnes of timber.

VISÉ BELGIUM
We have reduced our landfill waste at Visé by 80% in the past six years.

RECYCLING ROCK

We have set ourselves an indicative 2025 target of using more than 25% external recycled material for our Rock Mineral Wool production. Almost all of our plants briquette production waste and feed it back into the manufacturing process, but we are aiming to increase the use of waste from our customers' construction sites which are normally large scale projects — such as commercial buildings — where the waste is relatively straightforward to process. We also want to increase our use of 'slag' — waste from the steel industry — that can also be recycled.

OUR PLASTIC AMBITIONS

The plastic packaging we use is strong, which allows us to compress our products and get more packs per truck than before. For example, 5,800 m^2 of 50 mm Mineral Plus can be delivered in one truck with an 80 m^3 capacity. The same amount of Rock Mineral Wool would need 3.6 trips.

Compressed packs save fuel and emissions, but still require a lot of plastic. For a pallet of 300 kg of Glass Mineral Wool, for example, you would need up to 6 kg of virgin plastic to wrap the product. In our new sustainability strategy we have set a 2025 target to reduce our virgin plastic film packaging usage by more than 25% and where possible between 25% and 50% of our plastic film will be taken back from our customers and recycled.

We are working with our suppliers to explore new ways to make our packaging more and more sustainable, such as continuing to reduce packaging weight, while maintaining the same level of compression strength.

Just recycling 30% of plastic would cut the embodied carbon of our products by 1% — we are committed to a 15% reduction by 2025.

REUSING PALLETS

In Europe 25 million cubic metres of timber are used every year for pallets and packaging. We provide a service in the **Netherlands** and **UK**, where we collect and reuse customer pallets.

ENERGISING A NEW RENOVATION WAVE

The European Commission aims to renovate 35 million buildings across Europe by 2030. It is a massive task that is in tune with one of our key sustainability strategy goals – Create Better Buildings. We are here to help.

The European Commission has unveiled its plans to at least double the annual rate of renovation in Europe and renovate 35 million buildings by 2030.

The target is included in the Renovation Wave strategy, a package of plans designed to drive post-pandemic growth, take climate action and improve living conditions for millions.

Our EU Public Affairs Manager **Katarzyna Wardal** said: "The Renovation Wave pictures more sustainable, energy efficient, comfortable, healthy buildings by 2030 and beyond.

"This is in tune with Knauf Insulation's vision for a sustainable future and our goal to Create Better Buildings. We have been campaigning for a strategy such as this for years and we are here to help drive these proposals and make them a reality."

As buildings are responsible for 36% of Europe's CO_2 emissions, the Renovation Wave will contribute significantly to the EU's ambition to make Europe climate neutral by 2050.

Katarzyna added: "By doubling annual building renovation rates, the strategy will create hundreds of thousands of desperately needed new jobs, seriously tackle the fuel poverty that impacts 34 million Europeans, while focusing on improving Europe's worst performing buildings from social housing to schools and hospitals.

"In such challenging times, ensuring better buildings has become more important than ever and this strategy offers a positive legacy we can all be proud of."

ENSURING QUALITY AND PERFORMANCE

The strategy proposes better regulations and standards for the energy performance of buildings including mandatory minimum energy performance standards for all types of existing buildings — through a revision of the Energy Performance of Buildings Directive — and the possibility of deep renovation standards and energy audits for non-residential buildings.

How we can help

We have always campaigned for quality and real performance when it comes to renovation. Renovation must deliver what is promised — buildings that provide a comfortable temperature with low energy bills and low emissions. Setting and ensuring standards that incentivise high standards of renovation is essential. At Knauf Insulation, we offer a full range of high performing products and we have the technical insight to ensure these solutions deliver maximum performance. Plus, our Knauf Energy Solutions team has the expertise to ensure every renovation they carry out delivers the energy savings promised.

"The strategy will create new jobs, tackle fuel poverty and improve Europe's worst performing buildings."

Katarzyna Wardal, EU Public Affairs Manager

UNLOCKING EFFECTIVE FUNDING

Another important area highlighted by the Renovation Wave is accessible and simpler, clearer European rules for the public funding of renovation particularly for residential and social housing. Other developments include the European Investment Bank's European Initiative for Building Renovation to align complex finance with portfolios of renovation projects and the possibility of using funding from the EU Emission Trading Scheme for renovation.

How we can help

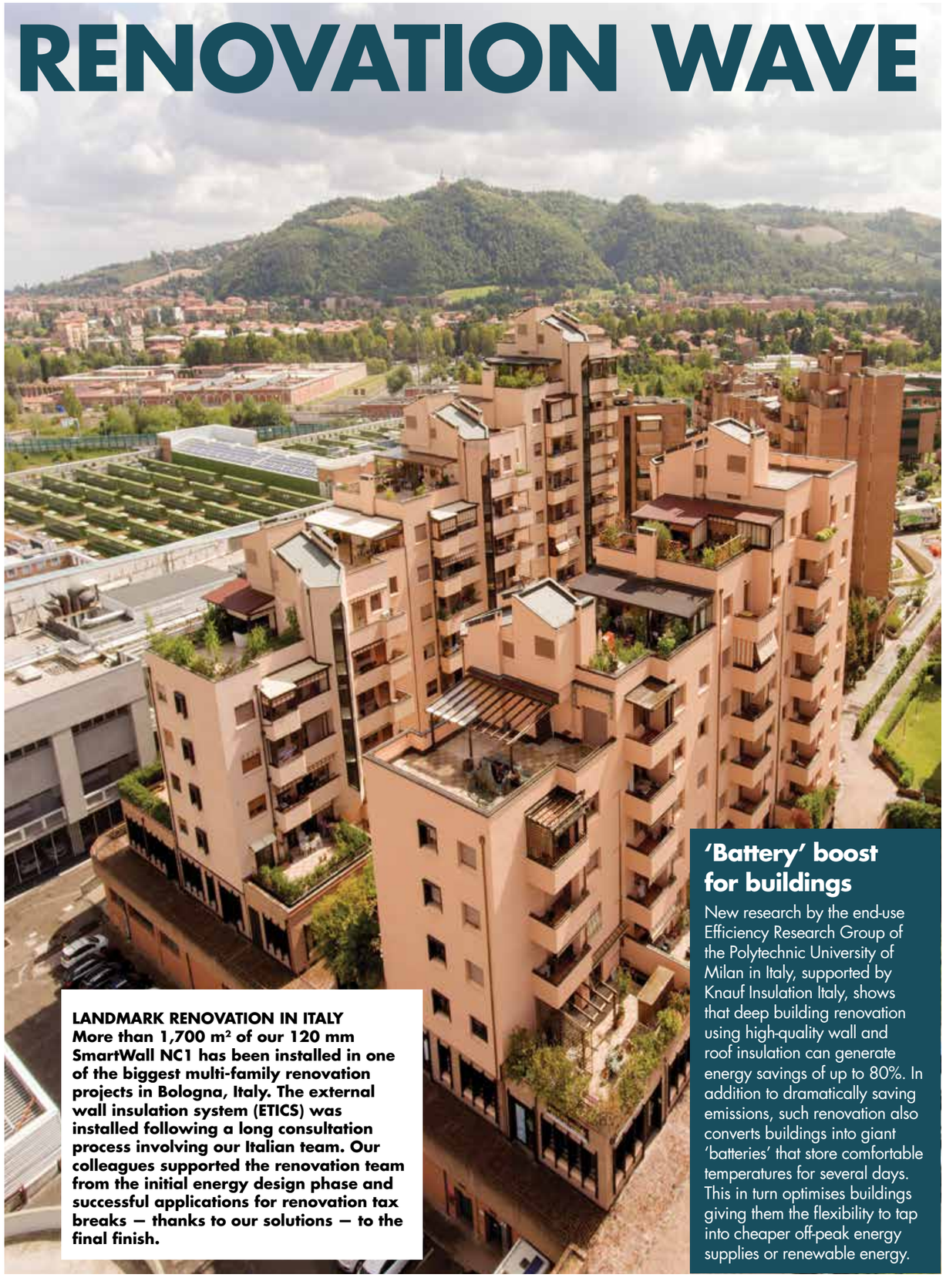
We have been campaigning with partner associations for more straightforward European procedures for national renovation programmes. We are here to support policy makers. For example, we have experience of using EU Emission Trading System funds for renovation initiatives in **Germany** and **Czech Republic**.

MORE SUSTAINABLE CONSTRUCTION

The Renovation Wave focuses on reviewing targets for tackling the problem of construction and demolition waste — which accounts for 35% of total waste in Europe — guided by circular economy principles as well as improving understanding of how to make buildings more sustainable through a new tool launched by the European Commission known as Level(s). In addition, the strategy calls for expanding the market for sustainable construction products and services.

How we can help

In our new sustainability strategy, we are committed to using more recycled content, delivering zero production waste to landfill by 2025 and taking back more construction waste from our customers across Europe and recycling it into new insulation. Long term, we have also committed to achieve zero carbon and have set a 2025 target to reduce the embodied carbon of our products by 15%. We also supported Level(s) — from pilot project to launch — with research from our Experience Center in **Slovenia** and expertise from our green building teams.



LANDMARK RENOVATION IN ITALY
More than 1,700 m² of our 120 mm SmartWall NC1 has been installed in one of the biggest multi-family renovation projects in Bologna, Italy. The external wall insulation system (ETICS) was installed following a long consultation process involving our Italian team. Our colleagues supported the renovation team from the initial energy design phase and successful applications for renovation tax breaks — thanks to our solutions — to the final finish.

'Battery' boost for buildings

New research by the end-use Efficiency Research Group of the Polytechnic University of Milan in Italy, supported by Knauf Insulation Italy, shows that deep building renovation using high-quality wall and roof insulation can generate energy savings of up to 80%. In addition to dramatically saving emissions, such renovation also converts buildings into giant 'batteries' that store comfortable temperatures for several days. This in turn optimises buildings giving them the flexibility to tap into cheaper off-peak energy supplies or renewable energy.

HOME COMFORT

Our pioneering 28-home project in the UK highlights how to achieve – and verify – real energy savings from quality renovation work and dramatically improve the living conditions of residents.

A high-quality renovation of 28 homes by **Knauf Energy Solutions** (KES) and **Knauf Insulation Northern Europe** should pave the way for a radical new approach to making UK homes more energy efficient and millions of families more comfortable.

Carol Valentine, one of the residents who benefited from the innovative scheme, said that prior to the retrofit she had to wear extra clothes to keep warm when it was cold. "Now I can really feel the difference," she says.

The renovation of the social housing properties in Trafford, **Manchester**, was carried out to the highest possible standards, rigorously assessed by KES and customised to meet the individual dimensions and challenges of each individual building.

Prior to the renovation, the energy efficiency of 12 of the buildings – reflecting the full architectural range of the homes on the estate – was measured using sophisticated KES technology over a period of three months.

Following the deep renovation work, all 28 of the buildings were continuously assessed by machine-learning sensors to deliver real life information based on thousands of data points ranging from climatic conditions and internal temperature to carbon emissions and energy use.

Carol Valentine, one of the residents whose two-bedroomed home was renovated, says she used to wear extra clothes to keep warm in her "really cold" home.

The results were significant. The energy efficiency of the average home was found to have been improved by 31% — adding up to energy savings of £400 a year. Overall, across all the buildings, energy efficiency improved between 20% to 51% creating energy savings of between £228 and £660.

The results come at a turning point in UK housing. As part of a £2 billion recovery programme to create jobs, reduce carbon emissions and shrink energy bills, the UK has launched a scheme that offers grants between £5,000 and £10,000 to cover the cost of home energy efficiency improvements including insulation.

Steven Heath, our Technical & Strategy Director for Northern Europe, says: "We welcome government funding for efficiency measures as part of the Green Homes Grant, but building energy efficiency schemes cannot be allowed to simply subsidise insulation. It is vital they give the government, homeowners, landlords and residents what is actually being paid for — a warm, comfortable home with low energy bills.

"The KES approach delivers that assurance. The Manchester project demonstrates the importance of documented high-quality renovation work and the essential component of measuring the effectiveness of those improvements with real life quantifiable data."

RETROFIT INSPIRES TRUST

"Knauf Energy Solutions brought a level of quality control we haven't experienced in other retrofit projects," says **Sarah McClelland**, Environmental Manager of Great Places, the association that owns the renovated homes (pictured right).

Prior to the KES renovation, Sarah says the association was receiving complaints that residents were struggling to heat their homes even though they had been given reasonable Energy Performance Certificate ratings.

These ratings are based on Standard Assessment Procedure (SAP) which assesses how much energy a home will consume using standardised assumptions about occupancy and behaviour.

Speaking to the UK's publication *Inside Housing*, Sarah added: "We realised that while on paper the homes looked like they were insulated, maybe in reality things weren't working as well as they could have been. This measurement service is the first time we have been offered certainty that our homes have actually been improved."

The renovation of 28 homes was carried out by Knauf Energy Solutions and Knauf Insulation Northern Europe

WHY IS THIS PROJECT IMPORTANT?

A Knauf Energy Solutions (KES) home guarantees real return on investment for customers.

"Working in partnership with Knauf and using real time data, this project has helped us to demonstrate the savings in terms of carbon and money for our customers," says Matt Harrison, CEO, Great Places.

A KES home contributes to UK 2050 net zero carbon commitments.

The Trafford homes were built between 1972 and 1980. Like these, approximately 80% of the UK's buildings will still be around in 30 years. KES renovation demonstrates real life carbon reductions. Energy inefficient homes account for about a quarter of UK greenhouse emissions.

"Knauf Energy Solutions is an environment which is showing the edges of what is possible. It is a one-stop-shop that promises energy savings and delivers — from the installation of energy solutions to the measuring of results. It is a business model for the future."

Frédéric Deslypere, Group Chief Financial Officer

CAMPAIGNING FOR CHANGE

ROOF RETROFIT SUCCESS
Our KombiPlan system – incorporating our Glass and Rock Mineral Wool as well as our vapour barriers – was installed into the roof of this 1950s six-storey corner building featuring shops and apartments in the German city of Würzburg. The insulation was applied from the outside without disturbing the residents who stayed in the attic throughout the work while an impressive PassivHaus standard for U-value was achieved with 0.13 W/m²K.

How we are working to put renovation at the heart of national recovery plans across the European Union.

The European Union has agreed on a recovery plan to help re-build economies shattered by COVID-19. Member States have the opportunity to access funding from the EU's €1.1 trillion long-term 2021-7 budget and a €750 billion recovery fund. National plans must prioritise sustainable growth, and this includes the opportunity to contribute to a 'Renovation Wave' of Europe's buildings (see page 30). Countries must create three-year recovery plans to show how the money would be used. Our Public Affairs teams have been working round the clock to ensure renovation is at the heart of every national recovery plan.

SLOVAKIA

Peter Robl, Public Affairs Manager Eastern Europe

"In **Slovakia**, renovation projects of municipal buildings worth more than €100 million are ready to be applied. We are now campaigning to ensure these projects take priority in Slovakia's national recovery plan."

BULGARIA

Tsvetelena Mladenova, Technical Specialist

"We established the campaigning association BAIS which aims to keep renovation central to public agendas and offer support in the preparation of national renovation programmes. **Bulgaria** has a successful track record of multi-apartment building renovation, but now some projects are on hold due to budget issues. We aim to get these programmes back on track with EU funding."

POLAND

Agnieszka Strzemińska, Marketing Manager for Poland and the Baltics with Katarzyna Wardal, EU Public Affairs Manager

"Together with other companies we established a business-driven coalition called Renovation Wave. A robust Polish renovation programme would create almost 300,000 new jobs and we have produced a report for policy makers highlighting how to unlock this potential. The EU Recovery Fund is a historic opportunity to increase investment in renovation in **Poland**."

ITALY

Francesco Cavicchioli, Public Affairs & Technical Marketing Manager

"The Super EcoBonus scheme in **Italy** provides a 110% fiscal incentive to meet the cost of a house or apartment covering insulation installation – up to a cost of €50,000 for a single-family house and up to €40,000 or €30,000 for multi-family buildings. The scheme also covers A-class heating and cooling systems and new window installation, but only if heating/cooling systems and insulation are in place first. Renovation must be a pillar of recovery for the rest of Europe and this scheme can be easily replicated."

ROMANIA

Maria Vicol, Technical Specialist

"We have founded ROENEF, a renovation advocacy association, and successfully campaigned for a €90 million programme to reduce energy use in almost 9,000 single family homes. The interventions must improve energy consumption by up to a minimum of one energy class to receive funds and can include the installation of roof and exterior wall insulation, efficient boilers, solar panels, ventilation systems and LED lighting fixtures."

GERMANY

Christopher Dürr, Head of Public Affairs, Knauf Berlin office

"Our Knauf Group German Public Affairs team has been highly successful in ensuring renovation is prioritised by the Federal Government. Since January 1, 2020, there has been a 20% tax reduction over three years for homeowners who carry out energy efficient renovations. This incentive lasts for 10 years and allows renovation investments of up to €200,000. At the same time, finance institution KfW has allocated €3.25 billion in funds for 2020 exclusively for the renovation of the building envelope."

New climate strategy

"**New Zealand** is launching a 'Building for Climate Change' strategy designed to ensure buildings contribute fully to the country's ambition to achieve net zero carbon emissions by 2050," says Technical Product Manager **Guy Manthel**. "This will involve changing the building code and standards to make buildings more energy efficient, reduce their emissions, improve resource use and provide better living conditions. Through the Insulation Association of New Zealand, we are actively involved in the consultation phase of this strategy."

Ensuring trust in renovation

"We are working to ensure that insulation in **Australia** is installed in a way that is safe and delivers quality outcomes," says **James Bedford**, our Market and Product Portfolio Manager. "We are contributing to an Insulation Task Group that is responsible for helping to shape a framework of solutions that could guide policy makers in future. The group brings together a wide range of government, industry and community expertise and highlights issues such as training, accreditation and a focus on performance which are vital to ensure public confidence in future renovation programmes in Australia."

One of the green roof 'swoops' created with Urbanscape for the Kennedy Performing Arts Center in Washington, D.C., USA

GREEN INSPIRATION

Green roofs create better buildings for people and show we care for the environment. That is why our Urbanscape Green Solutions division has been campaigning for green roofs to be put at the heart of urban planning policies.

Knauf Insulation is a member of the international non-profit World Green Infrastructure Network and in 2019 led the creation of a dedicated European chapter. Here are four key areas where we have focused attention.

1 GREEN ROOFS BOOST WELL-BEING

The European Commission's EU Biodiversity Strategy 2030 wants to see cities with more than 20,000 residents develop Urban Greening Plans by the end of 2021 to promote "healthy ecosystems and urban greening by implementing nature-based solutions — such as green roofs and walls".

How can Urbanscape® help?

Our Urbanscape® Green Roll multi-purpose growing media is up to 10 times lighter than other regular green substrates. Our Green Roof System is easy and quick to install — no special equipment is required — and it offers good acoustic and thermal performance. The system is also great for biodiversity and for absorbing air pollution, storm water and CO_2.

2 POLLINATORS NEED GREEN ROOFS

"Green infrastructure such as green walls and roofs can improve the natural conditions... needed to sustain thriving pollinator habitats," says the Commission outlining its EU Pollinators Initiative. The net worth of insect pollination is estimated to be around 10% of total worth of agricultural production.

How can Urbanscape help?

Green vegetation is better than concrete for pollinators. For four months two Urbanscape Green Roofs were monitored by experts from the National Institute of Biology in **Slovenia**. **Danilo Bevk**, PhD, who led the research, said: "During our study more than 1,270 pollinators were counted and in the summer the density reached a high of up to 11 per square metre."

3 GREEN ROOFS HELP TACKLE CLIMATE CHANGE

€750 billion has been earmarked for a Europe-wide economic green recovery plan as a response to the COVID-19 crisis. At the heart of this plan is a commitment to make Europe the world's first carbon neutral continent. What better way to contribute than by adding a CO_2-absorbing green roof?

How can Urbanscape help?

Urbanscape absorbs up to 15 kg of CO_2 for every square metre over its lifetime and has a positive impact on 'heat island effect' by cooling hot air around buildings.

Urbanscape helps 'green the impossible'

Our Urbanscape solution growing concepts have helped "achieve the impossible" by playing an essential role in a 6,400 m^2 swooping green roof on the new US$250 million extension to the Kennedy Performing Arts Center in **Washington, D.C.**

The most impressive aspects of the design are the huge green roof swoops which feature Urbanscape and rise from flat green surfaces and then corkscrew into almost vertical green walls along the new buildings' curved titanium concrete structures.

The corkscrew vegetative design was described by Edmund D Hollander Designs' Landscape Architect **Geoffrey Valentino** as "greening the impossible". Of course, this was an irresistible challenge.

To achieve the swoops, a combination of LiteTop soil from American Hydrotech and Urbanscape Green Roll growing media from Knauf Insulation was used for the flat space. This was then merged into a LiteTop/Urbanscape Green Roll & ECOSE Technology® Green Wall Boards growing media which in turn was transformed into a green wall by being added inside Hydrotech's GardNet.

4 GREEN ROOFS HELP FLOOD CONTROL

Between 1980 and 2013 there were 1,500 flood events in Europe causing over 4,700 deaths and €150 billion worth of damage. One way to minimise flooding is by managing rainfall. Green roofs absorb vast volumes of water taking the pressure off out-dated water systems. Cities such as **Copenhagen** have introduced regulation to increase green roof numbers. "Due to the growing challenges of cloud bursts as well as flooding, green roofs are a growing trend worldwide," says Copenhagen's Chief Architect **Tina Saaby Madsen**.

How can Urbanscape help?

A simple solution is to retain water on a green roof for as long as possible and gradually release it over time to avoid flooding. The new Urbanscape® Detention Green Roof System can help. During heavy rainfall, the water table in the system rises and fills air spaces. Afterwards the detention layer slowly allows excess water to run off while leaving the green roof fully saturated to maximum retention capacity.

Lighter solution for Tokyo office

A total of 800 m^2 of our Urbanscape Green Roof has been installed on the prestigious Roppongi Boatrace Office Building in **Tokyo**, **Japan**. Green roofs in Tokyo are normally installed with up to 40 cm of green roof soil, but as the office roof was sloped with limited bearing, we had to find a lighter alternative. Our customised 20 cm solution combined Urbanscape mineral growing media with green roof soil and was at least 50% lighter than traditional green roofs in the city with no compromise in water retention.

SHAPE OF THINGS TO COME

Our innovations are defined by our values of challenge.create.care. Despite the challenges of 2020 we continue to work on exciting new solutions that will reshape the market and support our commitment to better environmental sustainability.

BUILDING BETTER WITH LEVEL(S)

Our green building specialists have been contributing expertise to a newly launched European Commission sustainability tool known as Level(s) that aims to reshape Europe's built environment. Our Experience Center in Škofja Loka, Slovenia has been providing research to the tool which assesses the environmental impact of buildings throughout their life cycle and presents the information in an accessible format. In addition, our sustainability experts provided feedback and insight from the initial pilot stage of Level(s) until its successful launch in October 2020. Their input also led to the inclusion of acoustic and noise protection indicators.

A total of 10,000 m² of Knauf Insulation TP138 Natural Mineral Boards was installed in partitions of the Orbit office buildings in Athens, Greece, in addition to 5,000 m² of Knauf Insulation Ultracoustic P Natural Mineral Boards and 5,000 m² of Knauf Insulation NaturRoll Plus

This striking new student extension at the HBLA Pitzelstätten College in Austria can accommodate 200 students, is constructed from 2,000 m³ of cross laminated timber and in 2019 won the Carinthian Timber Construction Prize. A total of 15,000 m² of Knauf Insulation solutions were installed in the new wing: UNIFIT 037 for rafter spaces, TP-432B for the ventilated façade, TPE and TPS for floors, FKD-MAX C2 for the ETICS external wall and Tektalan A2 for hallways and stairwells

Photo: Ferdinand Neumüller

COVID-19 may have provided unprecedented challenges for our company, but we are committed to producing a large portfolio of exciting new innovations for our customers throughout 2021.

Managing Director Systems Division and Group Marketing Director **Saša Bavec** says: "Our award-winning ECOSE Technology® — a revolutionary binder with no added formaldehyde — has been very successful in Glass Mineral Wool, now we are bringing this to our Rock Mineral Wool portfolio."

Marc De Roeck, our Innovation Director, says: "The year 2020 may have been defined by challenges of the crisis but we have already announced some very exciting innovations such as the creation of a new tool to help customers understand the environmental impact of our products (see story opposite) and our new Urbanscape® Detention Green Roof System (see page 37).

> **"Customers can expect plenty of new innovation from Knauf Insulation in 2021."**
>
> **Saša Bavec, Managing Director Knauf Insulation Systems Division & Group Marketing Director**

"We have also prioritised technological improvements which can improve the thermal, fire and acoustic performance of our products. We have really put resources behind these products."

Saša adds: "Customers can expect plenty of new innovation from Knauf Insulation in 2021."

Better eco-understanding of our products

Imagine buying a product and understanding at a glance its environmental impact — and then being able to easily compare that impact with other products in the market.

This is the ambition behind our new Eco-Design tool which will help our teams and our customers make informed choices about insulation solutions.

For more than a decade we have analysed the environmental impact of our products and systems based on Life Cycle Assessment, and produced documents known as Environmental Product Declarations or EPDs.

These EPDs reveal the environmental impact of our products at every stage of their life — from the sourcing of raw materials, manufacture, packaging, distribution, use in buildings and ultimate disposal. With data from our EPDs, our new tool uses the principle of shadow pricing to sum up the environmental impact of our products across their entire life cycle in one simple measure — euros.

Shadow pricing attaches a price to something that is not often quantified financially, for example, the social cost of replacing a city park in terms of community or value to children's play.

Our tool will put a shadow price on environmental indicators — such as global warming potential, acidification and resources used — which are influenced by aspects of the product's life cycle.

The tool will be adaptable to incorporate other aspects such as health-related issues or product content. Our aim is to start testing a pilot model in early 2021.

The new Green Hearth complex in Belgrade, Serbia, offers 46,000 m² of office space in five buildings. Knauf Insulation solutions installed include 5,000 m² of ventilated façades and 3,200 m² of garage ceiling solutions, 2,400 m² of contact façade and 2,500 m² of floor boards

SUPAFIL CERTIFIED BY DECLARE

Our SUPAFIL blowing wool has been certified free of Red List ingredients by the DECLARE label. The list is a database of substances that are designated harmful to health by international health organisations and centralised on a Red List by the International Living Future Institute. The certification publicly reveals the composition of ingredients down to every 0.01%. DECLARE certification also helps specifiers achieve credits in Green Building Rating Systems that focus on healthy materials.

This social health building was designed by renowned architect Mario Cucinella for Italy's San Felice sul Panaro municipality. Built with European reconstruction funds after the Emilia-Romagna earthquake, the building features our NaturBoard solutions in the ventilated façade system

APPROVALS BREAKTHROUGH

Twelve of our flat roof solutions have been certified by the world-renowned FM Approvals Fire and Natural Hazard's laboratory in **North America** after being subjected to a range of demanding fire and weather tests. Having FM Approvals allows our teams to participate in tenders for flat roofs projects across **Europe** and the **UK**. It also instils market confidence.

SOLUTION'S HOSPITAL DEBUT

Knauf Insulation Serbia has developed its own Rock Mineral Wool lamella in the **Balkans** as demand grows for efficient sound, thermal and fire insulation for garages, basements and technical rooms. A local division of Knauf contributed mortar for fixing the lamellas and colour finishing and the new CLT system was launched in 2020. A total of 1,900 m² of our new solution has already been installed in the corridors of the new wing of **Belgrade** cardiovascular hospital.

NEW GREEN BUILDING RATING SCHEMES FACTSHEETS

As Green Building Rating Systems are upgraded we ensure our factsheets are updated so specifiers know how to achieve maximum credits. Our new LEEDv4.1 fact-sheets are now available on knaufinsulation.com along with factsheets for the latest versions of BREEAM International New Construction, DGNB and WELL.

Countdown to production: our colleagues prepare for the launch of our new Malaysia plant in 2021

REGIONAL AMBITION

Our new €120 million plant in Malaysia starts production in early 2021. Having created 180 new jobs and with an annual capacity of 75,000 tonnes, the new plant at Johor Bahru brings us closer than ever to customers in Asia Pacific. The pandemic may have created unprecedented challenges, but our teams have always kept the project successfully on track.

Two years ago, we made a commitment to bring our high-quality solutions closer to our customers in the Asia Pacific region by building a new €120 million plant at Johor Bahru in Malaysia.

Despite the complexity of the pandemic, we are now honouring that commitment.

David Ducarme, our Group Chief Operating Officer, says: "Of course, throughout 2020, we were consistently challenged by the changing circumstances of COVID-19, but we have stuck to our plan to serve our customers in Japan, Korea, New Zealand and Australia.

"We have been able to keep our commitment and build our new site because all the teams have gone the extra mile in extraordinary circumstances to create the solutions needed to overcome every challenge they faced."

After months of work carried out online between Europe and Asia, we mobilised our teams in October for the second time.

Our technical experts flew into Malaysia from countries across Europe, joining specialists from our European equipment suppliers. Following an enforced fortnight of quarantine, the teams joined forces with local colleagues and regional suppliers to oversee construction, install equipment and ensure the commissioning process ran smoothly while respecting our As Safe As Home protocols and local restrictions.

These teams were soon followed by more than 50 colleagues from production who arrived from Knauf Insulation plants in Europe and the United States to support the early weeks of manufacture in 2021. This work is now set to pay off for our customers, for our community in Malaysia, for our company and for our colleagues.

Johor Bahru is our first plant in Asia Pacific and in addition to serving established customers such as Australia and New Zealand we are also exploring opportunities in new markets such as Malaysia, Singapore and other South-East Asian countries.

It also positions our company for the future. Asia is the fastest growing region for insulation and the development potential is strong. That is why the plant has been built bigger than current demand to maximise growth opportunities with an annual production capacity of 75,000 tonnes.

Economically the plant is important. In addition to 180 new jobs at the site, around 20 more positions will be created in the region. The local economy is expected to benefit from US$40 million a year (around €34 million) in terms of services, jobs and materials, as well as US$10 million (around €8.5 million) for services in other countries.

And for our colleagues? David says: "At Knauf Insulation we relish a challenge. The fact that we have so successfully navigated 2020 is a tribute to the power of our people and our values of challenge.create.care."

Exporting our values across Asia Pacific

Our new Malaysia plant not only offers an opportunity to supply regional customers with outstanding products, but also provides the chance to export our values of challenge.create.care. across Asia.

How is this being achieved? First, we started with our most important brand ambassadors — our colleagues in Johor Bahru — who have been supported by a team of specialists from Europe led by **Cyrille Lerat**, Glass Mineral Wool Technical Director EMEA.

Challenge For all our plants, a commitment to continuous improvement or CI — continuously finding innovative ideas to tackle challenges — is critical to our company's success.

The specialist team worked with our new colleagues to establish CI processes in terms of communication, meetings and behaviour; months were invested in establishing work instructions and training senior plant members and we have already introduced a plan to cut waste during start-up next year.

Create At the heart of every Knauf Insulation plant is a focus on customer-centricity and the commercial imperative of creating premium products for the market.

Our new plant brings our high-quality solutions with ECOSE Technology® physically closer to customers. And our state-of-the-art facilities allow us to respond rapidly in terms of product development and customer service.

Care The safety of our people comes first at Johor Bahru. Nothing is so important that it cannot be done safely. That is why safety procedures such as hazard spotting, 'Lock Out Tag Out' and safety inductions are given such emphasis by our teams and trainers. And repeated. And repeated.

There is constant support — through training and videos — for all work instructions whether it is how to start a job or showing how Personal Protection Equipment must be used. "Our will and desire to keep everyone safe is key for our team and understood — we will not accept any deviation from this," says Cyrille.

"We want our plant to be the regional gold standard for best practice in Asia when it comes to safety."

Cyrille Lerat, Glass Mineral Wool Technical Director EMEA

NEW FLAGSHIP SHOPPING MALL

A new 32,000 m² flagship shopping mall has opened in the Slovenian capital of **Ljubljana**. More than 12,000 m² of our flat roof insulation was installed in the ALEJA mall — which also includes a social and sports centre — and 20,000 m² of ceiling insulation in the parking areas. In addition, Knauf Insulation provided all the solutions for the centre's partition walls. The complex project involved support over two years from all our departments including sales, technical team, logistics and customer service.

ILLANGE'S FIRST BIRTHDAY

Our team in **Illange**, **France**, were delighted to welcome members of the Knauf family to the plant in October, 2020. A total of 120 new jobs were created when the €110 million site opened for business in September 2019. Illange has the capacity to produce more than 100,000 tonnes of our Rock Mineral Wool solutions every year — enough insulation to renovate 25,000 homes.

FOUR DECADES OF SUCCESS

Our **Novi Marof** plant in **Croatia** is celebrating 40 years of success. The plant started with a modest production of 17,000 tonnes and has now grown into a large-scale operation producing technical insulation for countries throughout the European Union and beyond. The plant is now one of the biggest exporters in Croatia. Novi Marof also enjoys the distinction of being the first Knauf Insulation Rock Mineral Wool plant to use ECOSE Technology® for the majority of its Rock Mineral Wool solutions.

WOMEN'S FORUM

Knauf Insulation took part in the Women Economic Forum in **Slovenia** in February 2020. The event brought together women from around the world to expand their business opportunities, network and be inspired. This year's forum attracted more than 200 participants from 30 countries including our Group Marketing Director Knauf Insulation Systems Division & Group Marketing Director **Saša Bavec** who spoke about, 'When we follow our unique creative flow, we have no competition'. Knauf Insulation received a special award as a supporter of the event.

AIRPORT'S ACOUSTIC PRIORITY

Knauf Insulation Acoustic Partition and Earthwool Wall Batt have been installed in Adelaide Airport Terminal in **Australia**. The products met requirements to be non-combustible and deliver great acoustic performance. Acoustic Partition can improve Rw ratings by up to 10 decibels.

GREEN ROOF FOR YOUTH BUS

An old bus has been refurbished and converted into a mobile youth centre in the Slovenian capital of Ljubljana. The bus will provide the focus for cultural projects and mentoring initiatives and tour neighbourhoods around the city. Adding an inspirational green touch to the vehicle is a roof created from our Urbanscape® Green Roof solution.

Škofja Loka Masterplan

Our colleagues at **Škofja Loka** have drawn up an ambitious sustainable 'masterplan' for the site which is defined by economic, environmental and social criteria. **Danilo Kolenc**, Director of Škofja Loka, said: "The Masterplan has become our compass and articulates our vision of development and it is crucial for communication with all our external and internal partners and collaborators." The strategy focuses on future plans such as technological modernisation, raw material optimisation, wide-spread automation, robotisation, new traffic systems, storage systems and creating a green band between the nearby village and the factory.

PRODUCTION LANDMARK FOR KRUPKA

Our **Krupka** Glass Mineral Wool plant in the **Czech Republic** achieved a major milestone in June 2020 — 600,000 tonnes of plant output since start-up in May 2006. The site produces insulation in two brands for more than 20 countries.

CHARITY SUPPORT IN AUSTRALIA

Our Australian cycling colleagues completed the 50 km Tour de Brisbane to raise money for the Steve Waugh Foundation which supports young people living with rare diseases. In November or 'Movember' the 'Mo Bros' of our Australia team grew sponsored moustaches to raise funds for cancer and mental health charities.

MILLION-TONNE ACHIEVEMENT

Our **St Egidien** plant marked the production of one million tonnes of Rock Mineral Wool in May 2020. The landmark tonnage was created on Line 2 which started operations in October 2009. This achievement is a tribute to exceptional teamwork and extraordinary flexibility to meet customer needs.

Industry double

Knauf Insulation swept the board at 2020's *Builders Merchants Journal* (BMJ) Industry Awards in the UK, winning both Best Insulation Manufacturer and Best Heavyside Manufacturer – the latter for the second year in a row. Commercial Director **Steve Duke** said: "We'll continue to adapt so we can deliver exceptional service and be the best possible partner for our customers. Thank you to everybody who voted, and a special mention to all our staff for their hard work and commitment."

NEW FIRE SAFETY COMMUNITY

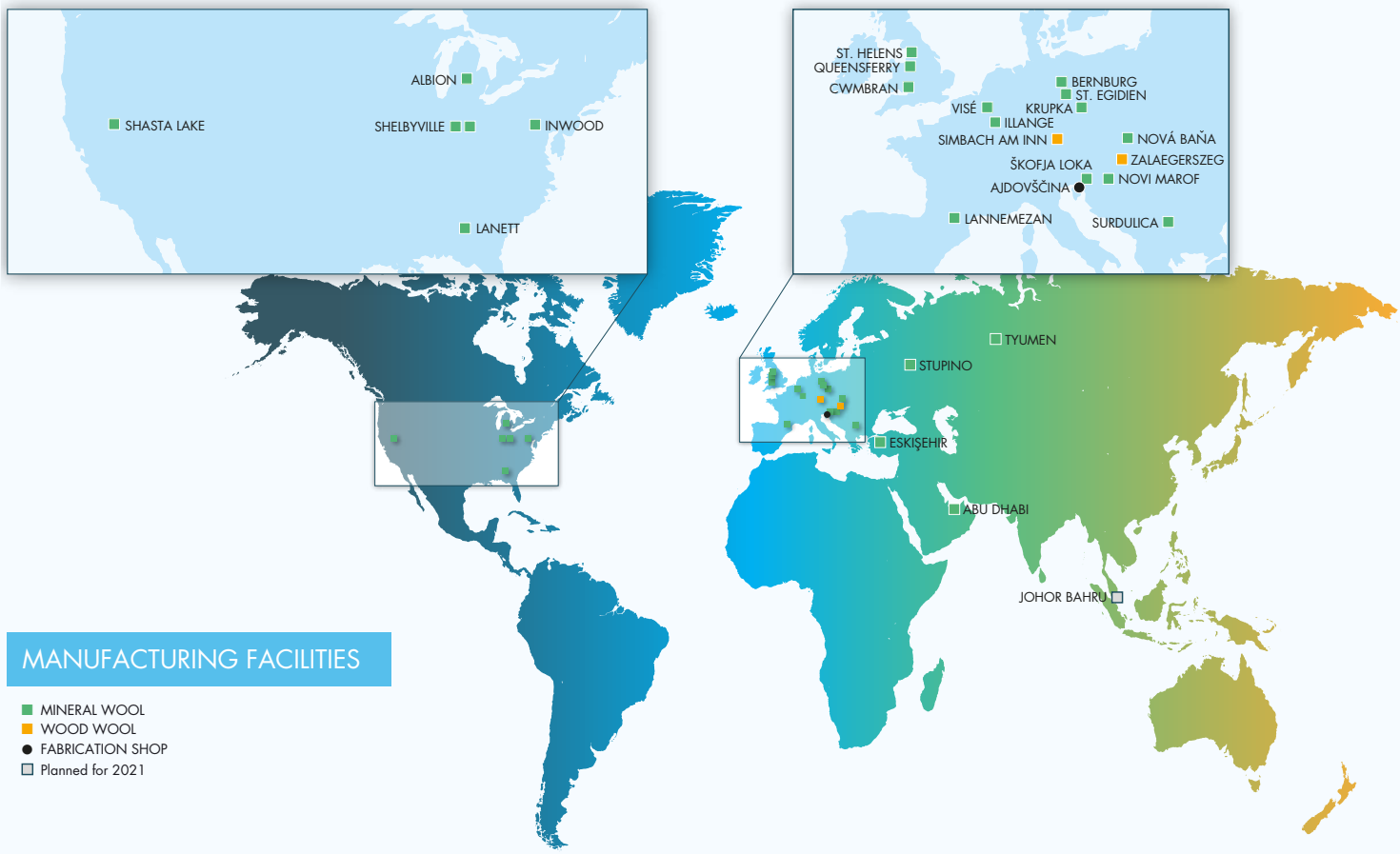
A new digital community is bringing together fire experts and policy makers to share expertise and insight while working to improve building fire safety in Europe. The aim of the European Fire Safety Community is to develop ideas and deliver projects that can provide the foundations of policies that ensure Europe's buildings are fire safe. The community was created as an extension of Fire Safe Europe, a campaigning organisation supported by Knauf Insulation.

FIRST PASSIVHAUS APARTMENT BLOCK

Knauf Insulation solutions have been installed in **Australia**'s first Passive House (Passivhaus) certified apartment building. The block built in **Sydney** is comprised of 11 one-bedroom serviced apartments and was designed by architect Olivier Steele who said: "Passivhaus creates healthy living spaces that stay cool in summer and warm in winter with ultra-low energy use. With a super-insulated envelope and heat recovery ventilation... you have comfortable temperatures year round."

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 around 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 80 countries and sales of 10 billion Euro (in 2019). 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.

FOLLOW US ON

LINKEDIN AT **LINKEDIN.COM/COMPANY/KNAUF-INSULATION**

TWITTER AT **@KNAUFINSULATION**

RUE DE MAESTRICHT 95, 4600 VISÉ, BELGIUM

CONTACT@KNAUFINSULATION.COM

WWW.KNAUFINSULATION.COM