



# Building tomorrow today

Sustainability Report 2017 | ROCKWOOL Group





# We release the natural power of stone to enrich modern living

**This simple statement captures ROCKWOOL's purpose. We are committed to empowering everyone to rise to the challenges of modern living. We use a natural material – stone – to create products that have a positive impact on the environment and improve people's lives.**

Our 2017 Sustainability Report shares our progress in helping to shape a more sustainable world. You can read about the work we are doing to create new solutions and to measure and improve the impact of our products and operations. You'll find examples of how we are tackling the big issues, from climate change to urbanisation, creating healthier, more resilient places for people to live, work and play.





# Here we are

Stone is our core raw material and the bedrock on which our business is based. Since 1937 we have been making stone wool products to enrich modern living. We are the world's leading manufacturer of stone wool products, and we deliver specialist solutions for the building, horticultural, marine and offshore sectors.

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# 80 years

since our founding in Hedehusene, Denmark, the site of our first stone wool factory and still our headquarters today



# 45

manufacturing facilities

# 11,000+

employees

# 5

brands with one common purpose

# 39

countries of operation

# 61

nationalities



# 7 strengths of stone

that make our products unique and versatile



Fire safe insulation for all types of buildings and installations

- › Building insulation
- › Technical insulation
- › Core solutions



Acoustic ceiling solutions



Precision Growing for the horticultural industry



Exterior cladding for building facades



Engineered stone wool for composite applications, noise and vibration control, and water management

# Jens' message

What's good for our business is good for the world



Jens Birgersson, Chief Executive Officer

“ We need to innovate and improve the positive impacts of our products and to be vocal and visible advocates for meaningful climate action”.

Today more than ever, the world needs businesses that can provide solutions to the challenges of modern living. In order to tackle global challenges such as climate change, urbanisation and resource scarcity, businesses like ROCKWOOL that have the solutions and the know-how need to step up. We need to innovate and improve the positive impacts of our products as well as be vocal and visible advocates for meaningful climate action and collaboration.

### Energy efficiency is key

Across the C40, which includes almost 100 of the world's greatest cities, more than 50 percent of greenhouse gas emissions derive from energy use in buildings. By 2050, global building energy demand is expected to increase by 30 percent if no action is taken. New buildings today can achieve as a minimum nearly zero energy levels, though reaching the Paris Climate Agreement goals requires investing in energy renovation of the existing building stock. In the EU, for example, much of this building stock is considered energy-inefficient and will still be in use in 2050. Increasing the energy efficiency of buildings would be the most significant and cost-effective investment cities could make to reduce their impact on the climate.

Energy efficiency is a common theme in several of the 10 Sustainable Development Goals (SDGs) ROCKWOOL has committed to. And as you will read in this report, by far the biggest impact we have is through our products. Whether it's reducing energy consumption, creating healthier indoor environments, or enabling efficient food production, our products play a central role in creating a sustainable future.

### Business making a difference

Commercially, we had a strong year in 2017, with seven percent organic growth in sales. I firmly believe that this growth is influenced by the close alignment of our purpose with the genuine needs of society. What's good for our business is good for the world,

and that's a great position to be in. Everyone at ROCKWOOL is passionate about seizing the opportunity to make a positive impact on society.

Internally, within our operations, we continued to work towards our 2030 Group sustainability goals. We have reduced our carbon emissions by 3.8 percent per tonne stone wool, and reduced waste to landfill by 4.1 percent compared to the 2015 baseline year. Work carried out in 2017 together with approved investments help drive us towards our interim 2022 goals.

We launched a new Code of Conduct to articulate our principles and policies, and developed a more comprehensive approach to sustainable sourcing to improve the transparency of our supply chain. Implementing this new approach will begin in 2018. The gender diversity of our management teams also increased in 2017, with women now holding 18 percent of these roles, up from 15 percent the previous year.

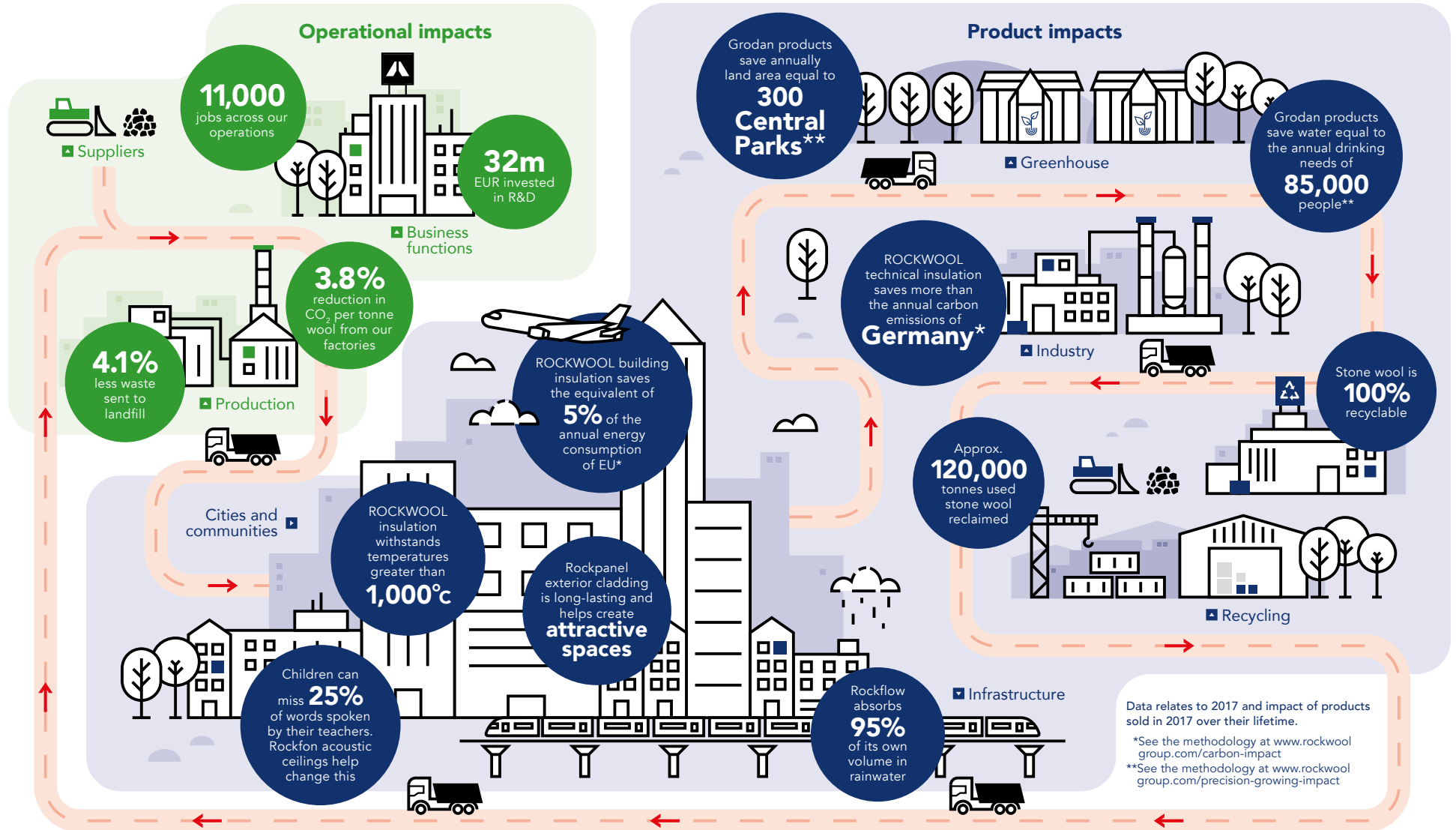
### Generations to come

2017 was a milestone year for us as a company, as we proudly celebrated 80 years of the ROCKWOOL Group. I am convinced that over the next 80 years we will continue to release the natural power of stone to enable today's generation and tomorrow's to rise to the challenges of modern living.

A handwritten signature in black ink, appearing to read 'Jens Birgersson'.

# The value of sustainable thinking

We create value for society by increasing the positive impacts of our products and reducing the negative effects of our operations.





# We ROCK global goals

Sustainability is central to our purpose



**Thomas Kähler**, Senior Vice President,  
Head of Systems Division

The United Nations Sustainable Development Goals (SDGs) encompass multiple global challenges, the most critical of which is climate change. Energy efficiency is a key part of the solution. Working together, business, government, and civil society can implement greater efficiency measures, which would contribute to ending poverty, protecting the planet and ensuring prosperity for all.

ROCKWOOL's approach to sustainability is closely aligned with the SDGs. We have committed to focusing on 10 of the 17 goals through maximising the positive impacts of our products and minimising any negative impacts from our operations.

Companies should be held accountable for their declared intentions to contribute positively to the SDGs. Over 2017 and 2018 we have actively participated in a number of collaborations to drive change within **SDG 11** Sustainable Cities and Communities. In addition, we are working with expert partners to develop robust, transparent methodologies to measure our progress against the following four SDGs:

- SDG 3** ▶ Good Health and Wellbeing
- SDG 6** ▶ Clean Water and Sanitation
- SDG 7** ▶ Affordable and Clean Energy
- SDG 13** ▶ Climate Action



ROCKWOOL is also among a select group of inaugural companies piloting the SDG Evaluation Tool being developed by Trucost. Launched in May 2018, this tool will help us and our stakeholders to better understand our quantitative performance against the SDGs. It looks across the entire value chain, from raw material inputs, to product use and end-of-life.

## Product impacts

Efforts in 2017 to measure energy and carbon savings confirmed the important role our building and technical insulation products have in addressing climate change. For example, over their lifetime, our technical insulation products save thousands of times more energy and CO<sub>2</sub> than is consumed or emitted from their raw material extraction, transport and production.<sup>1</sup>

[▶ Read more about our product impacts on pages 06–23](#)

## Partnering with the United Nations on the SDGs

ROCKWOOL is a participant in the United Nations Global Compact (UNGC) and in 2017, we engaged in two UNGC Action Platforms. The first – 'Pathways to Low-Carbon and Resilient Development' – brings leading businesses together with the aim of becoming catalysts for country-level action to fulfil the Paris Climate Agreement and the SDGs. The second – 'Health is Everyone's Business' – convenes a broad coalition of businesses, academics, and civil society partners to set a global business agenda for SDG 3 – Good Health and Wellbeing.

In 2018, we will launch a Group-wide employee engagement campaign on the SDGs to inspire everyone in ROCKWOOL to take action to increase the scale of impact.





### Operational impacts

While our products have a significant positive impact on people and society, we recognise that operating as a responsible and sustainable business is equally important and underpins everything we do. Our six Group sustainability goals reflect key material issues within our operations and will drive improvements in our safety and environmental performance to 2030.

▶ [Read more about our operational impacts on pages 24–32](#)  
[See our material issues on page 33.](#)

### Collaborating for change

Our work in accelerating the change to a more sustainable world is not limited to our products or operations. Through our advocacy work, we engage with customers and a diverse range of stakeholders to influence policy and raise standards.





# Product impacts

## Meeting the challenges of modern living

### Harnessing the natural strengths of stone

Achieving a balance among fast-paced urban living, human wellbeing, and environmental sustainability presents many challenges – challenges that ROCKWOOL Group is determined to help overcome. We see enormous opportunity to leverage the natural power of stone to create products that accelerate progress towards a safer, healthier, low carbon future.

As a raw material, stone is both an abundant and replenishable resource. The earth makes 38,000 times more rock every year through volcanic and oceanic activity than we use to make stone wool.<sup>2</sup>

Stone wool has many versatile properties. We have broken these down into **7 strengths**, which lie at the heart of ROCKWOOL's products.





# Empowering our customers

## The 7 Strengths of Stone



Fire resilience



Thermal properties



Acoustic capabilities



Robustness



Aesthetics



Water properties



Circularity

### Solutions for modern living

We apply stone wool to create diverse and original solutions. That's why our products touch many aspects of everyday life. In cities around the world, ROCKWOOL building insulation is making homes and offices more fire-resilient and energy-efficient. Better energy efficiency is one of the most important strategies cities can implement to meet their climate change targets.<sup>3</sup>

In industries on land and at sea, ROCKWOOL technical insulation is helping to save energy, cut costs, and keep people safe from heat, fire, and noise. In schools, workplaces, and hospitals, Rockfon ceilings are enhancing acoustic performance and providing quiet spaces for people to learn, work, and recover. Studies show that the cognitive performance of children and adults is affected by noise and that their ability to listen and learn is reduced in noisy environments.<sup>4</sup>

In local towns and neighbourhoods, Rockpanel's adaptable cladding is helping architects to design spaces that inspire. Grodan's Precision Growing products are reducing the amount of land, water, and fertilisers needed to grow plants and crops, and at the same time increasing yields. Lapinus' stone wool solutions are helping to attenuate ground-borne vibration from trains and subways, and protect communities from urban flooding.

One-third of all global waste is produced in the building sector, much of which ends up in landfill.<sup>5</sup> Stone wool is both long lasting<sup>6</sup> and fully recyclable – and it can be recycled endlessly without any reduction in quality. This inherent circularity, together with ROCKWOOL's ability to upcycle materials from other industries that would otherwise end up in landfills, positions us well to support the transition to a sustainable, circular economy.



**Henrik Frank Nielsen**, Senior Vice President, Head of Insulation North East Europe

### Cities that are safe and resilient



In densely populated urban areas, more and more people are living and working in high-rise buildings. These buildings can be great solutions to the challenge of urban population growth, but if a fire strikes in a high rise, the consequences can be serious.

ROCKWOOL insulation is made from naturally fire-resilient stone wool. Created using the same process that occurs at the heart of a volcano, it withstands temperatures greater than 1,000°C and does not burn.<sup>7</sup> It works to contain fire and prevent its spread. At the same time, it does not contribute to the emission of significant quantities of toxic smoke.

Continued →

Built into walls and/or facades, ROCKWOOL stone wool products can help prevent fire from spreading through the interior or exterior of the building, which could make the difference between having a fire in a building, and a building on fire. It also gives the people inside the building more time to evacuate safely and fire fighters more time to extinguish the fire.

From apartment blocks to skyscrapers, from industrial facilities to schools and hospitals, the natural qualities of stone are helping us build safe and resilient cities.

**Strengthening fire safety regulations: an urgent need**

The Grenfell Tower disaster in London in June 2017 shocked the world. It shook people’s belief in the authorities’ ability to ensure safe homes and adequate protection for the people living in them.

This tragedy has rightly shone a spotlight on the building industry’s fire safety practices and lack of strong regulations in some markets. For ROCKWOOL, it has made our advocacy work more important than ever. In 2017, our expertise as leaders in non-combustible building materials was frequently called upon, as cities, local authorities, and construction companies sought to understand how to prevent a disaster like Grenfell from happening again.



# 1.5 million

people moving to urban environments every week.<sup>8</sup>

**Urbanisation**

With the urban population growing every week, we need to find ways to house everyone in our cities in a way that keeps them safe and helps them thrive.



**ROCKWOOL insulation**

Our building insulation is non-combustible and dimensionally stable, and designed for thermal, acoustic, and fire protection applications.

When properly installed, ROCKWOOL building insulation will provide perfect fitting with tight joints, eliminating excessive heat loss caused from gaps in the insulation.

- ▶ Non-combustible
- ▶ Provides excellent sound reduction, creating a comfortable environment inside the building
- ▶ Water repellent, keeps rainwater from penetrating the insulation
- ▶ Diffusion open product, enables moisture to pass through the wall



**Case study**

**Safety at great heights in Germany**

At 2,962 metres above sea level, the Zugspitze is the highest mountain in Germany and home to a popular ski resort. In 2011, planning began for a new, upgraded ‘Zugspitze Cable Car’, to replace the original, which had been operating since 1963.

Fire resilience was a top priority for the engineering and construction team. All components of the build, including a ceiling made of precast concrete on steel beams, were insulated with special aluminium-clad ROCKWOOL fire protection panels, which meet Germany’s strict fire safety standards.

The new cable car opened in December 2017 and can transport more than 500 people per hour to the Zugspitze summit.





### Advocating for a greater focus on safety

ROCKWOOL is constantly working to increase the focus on fire safety, through collaboration with groups such as the International Organization for Standardization (ISO), the European Committee for Standardisation (CEN), and Fire Safe Europe, of which we are a founding member. In North America we collaborate with numerous fire safety associations and councils, including the National Association of Fire Protection, and ASTM International.

Our advocacy work in Europe contributed to two important outcomes in 2017. Firstly, the EU's Energy Performance of Buildings Directive was officially amended and included a request to EU Member States to pay "due attention to fire safety". Secondly, the EU Commission created the 'Fire Information Exchange Platform' (FIEP), which brings EU member states and relevant industry associations together to discuss key challenges for fire safety in buildings. The FIEP's first meeting took place in October and five key work streams were agreed, setting the agenda for the group's work in 2018 and beyond.

### Fire safety in high-risk environments

Fire safety is crucial not only in high-rise environments but also in 'high-risk' ones – places like airports and shopping malls where large numbers of people gather, or specialist infrastructure like power plants where fire resilience is critical. In 2017, ROCKWOOL products were used to make high-risk places all around the world more resilient to fire.



**Gilles Maria**, Senior Vice President,  
Head of ROCKWOOL Insulation  
South West Europe and Asia

**“We need strong leadership from policy makers to require that only non-combustible insulation and cladding be used on high-rise and high-risk buildings.**

“The UK government has already made clear that this is an obvious option. What is not clear is why it has not been adopted as policy to provide urgent clarity to building owners and reassurance to residents.

“We owe it to the people who lost their lives at Grenfell Tower, and to all residents, to act now to keep their homes safe. Let's get on with it. Why take the risk to do otherwise?”

▶ This is an extract from an article published in February 2018 in the New Statesman: [www.newstatesman.com/spotlight/housing/2018/02/immediate-action-needed-fire-safety](http://www.newstatesman.com/spotlight/housing/2018/02/immediate-action-needed-fire-safety)

### Case study Safety and sustainability at Changi Airport, Singapore

Completed in October 2017, the new state-of-the-art terminal at Changi Airport will play an integral role in maintaining Singapore's position as a global air hub. Sustainability was an important consideration in the build, with the airport committed to continually improving its performance through energy efficiency and proactive management of water and waste.

ROCKWOOL products used in the building, for example in the roof and ceilings, were selected for their energy saving and fire safety credentials as well as for the thermal and acoustic comfort they provide to the 16 million passengers a year expected to pass through the new terminal.

In 2017 Changi Airport was rated the top airport in the world for the sixth year in a row by airport customer service rating scheme Skytrax.

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# Saving energy, protecting the climate

## Buildings and industries that are energy-efficient



The Paris Climate Agreement commits the world to keeping global temperature rise to less than 2°C above pre-industrial levels, so as to avoid the worst impacts of climate change. This is a formidable challenge, which requires global cooperation on an unprecedented scale.

Buildings account for 30 percent of global energy use, and 28 percent of global CO<sub>2</sub> emissions.<sup>9</sup>

According to the International Energy Agency, energy intensity per square metre of the building sector needs to improve 30 percent by 2030 to meet the Paris climate goals.<sup>10</sup> This will require a near-doubling of buildings' current energy performance and means that nearly zero energy buildings need to become the standard globally within the next decade. At the same time it becomes even more clear that investment is needed in energy renovation of the existing building stock.

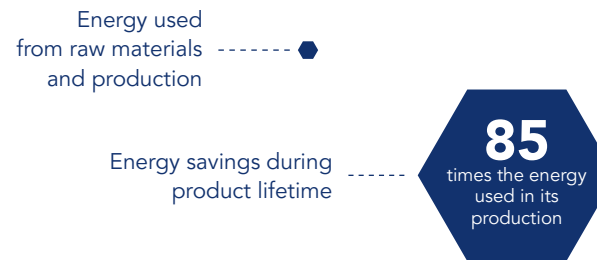
Over its lifetime, ROCKWOOL technical and building insulation has the potential to save thousands of terawatt-hours of heating energy.<sup>11</sup> For building insulation, this is the equivalent of five percent of the annual energy consumption of the EU.<sup>12</sup> Our products are helping business and building owners save energy and costs and reduce their impact on the climate.

Ecofys, a Navigant company, developed methodologies to calculate the energy and carbon emission savings in the lifetime of sold building insulation and technical insulation products. Ecofys endorsed that the 2017 energy and carbon emission savings calculated by ROCKWOOL correctly follow these methodologies.

 The methodologies are available on [www.rockwoolgroup.com/carbon-impact](http://www.rockwoolgroup.com/carbon-impact)

## Energy savings of products sold in 2017

### Building insulation



### Technical insulation







### The case for energy efficiency in buildings

Of the range of actions that can be taken to reduce the building sector's energy consumption and CO<sub>2</sub> emissions, reducing energy demand in buildings is the most cost-effective strategy. In fact, buildings have a 70 percent more cost-efficient abatement potential than any other sector.<sup>13</sup>

Building envelope improvements, including better wall insulation using ROCKWOOL stone wool, offer significant energy-saving potential. Governments and local authorities in Europe and around the world are increasingly recognising the need to demonstrate the long-term energy and cost savings to be gained from up-front investment in energy-efficient buildings.

Beyond the positive environmental impacts, energy efficiency has many other benefits. It is recognised as one of the most effective long-term measures for reducing 'energy poverty', which is when people cannot afford to heat their homes. The EU's Energy and Climate Commissioner estimates that just a one percent improvement in energy efficiency could lift seven million people out of energy poverty.<sup>14</sup>

### Did you know? What do we mean by Nearly Zero Energy Buildings

Nearly Zero Energy Buildings are those that have an extremely high level of energy efficiency built in. The goal is to reduce the amount of energy a building consumes to the greatest degree possible – and that whatever energy is still required be supplied by the most environmentally beneficial and economically efficient sources available.

### Case study Insulation put to the test in the Arctic

Yamal LNG is one of the world's first Liquid Natural Gas (LNG) plants to be built above the Arctic Circle. It utilises the natural gas and liquid hydrocarbon reserves on the Yamal peninsula at Ob Bay, in the Russian Federation.

The plant is being developed in a phased, modular way. It will include three natural gas liquefaction facilities, each one constructed using prefabricated modules containing ROCKWOOL's high-quality technical stone wool insulation. Our insulation was chosen for its thermal capabilities, which can cope with extreme weather conditions, and for its superior acoustic and fire safety properties, which help protect workers from excessive noise and the risk of fire.

The first Yamal LNG facility was successfully commissioned in November 2017 and the first shipment of natural gas left Ob Bay in December.

Continued →

# Renovating today to benefit tomorrow



**Oliver Rapf**, Executive Director of the Buildings Performance Institute Europe

**Oliver explains the enormous potential for energy efficiency in the building sector.**

“Buildings are a key piece of the energy puzzle.

“To be in line with the Paris Climate Agreement, final energy consumption per square metre needs to decrease by 30% by 2030 globally. Energy efficiency could achieve this target.

“With the right efficiency solutions new buildings today can be Nearly Zero Energy Buildings and existing buildings can be retrofitted to reduce energy use by 50–90 percent. No other sector has the potential to achieve such deep cuts through existing and proven technology. Given the long lifespan of buildings, investment and policy change is needed right now to encourage the sector to realise this potential and avoid the risk of lock-in to a low-efficiency future”.



## Accelerating energy renovation

Around 97 percent of the European Union’s building stock, amounting to more than 30 billion square metres, is considered to be energy-inefficient. Between 75 to 85 percent of this stock will still be in use in 2050.<sup>15</sup>

If we are to deliver on the Paris Climate Agreement goals, a faster, deeper retrofit rate is crucial. Globally, it needs to increase from 1–2 percent per year today, to more than 2–3 percent in the coming decade.<sup>16</sup> By 2030 the majority of privately owned buildings need to have been retrofitted to high energy efficiency standards, if cities are to meet their climate targets.<sup>17</sup>

ROCKWOOL is a strong supporter of RENOVATE Europe, the EU-wide political campaign focused on renovating existing building stock. We are among the founders of the European Alliance of Companies for Energy Efficiency in Buildings (EuroACE) and are an active member of the European Council for an Energy Efficient Economy – a non-profit association looking at evidence-based policy analysis. ROCKWOOL is also a partner in Climate-KIC, Europe’s largest public-private innovation partnership for climate change mitigation and adaptation.

In 2018 we are partnering with C40 Cities – a network of mayors of the world’s great cities committed to addressing climate change – on a project to demonstrate the multiple benefits of accelerated retrofit programmes. The project aims to give the world’s largest cities the evidence and know-how they need to implement retrofit programmes at scale.



**Volker Christmann**, Senior Vice President, Head of Insulation Central Europe

# 30%

of global energy use and 28 percent of global CO<sub>2</sub> emissions derive from buildings.<sup>18</sup>

## Climate change

Our climate is changing, which brings new challenges as we seek to reduce our carbon footprint and live more sustainably.





**Kevin Austin**, C40 Deputy Executive Director  
ROCKWOOL Group and C40  
Cities Climate Leadership  
Group have formed a  
14-month joint research effort.

“C40’s research has shown precisely what the world’s great cities need to do in the years ahead if there is any hope of delivering on the Paris Agreement and preventing the worst effects of climate change.

“Cutting the greenhouse gas emissions generated by buildings is absolutely crucial and quantifying the economic, social and health benefits of these efforts will make it easier for C40 mayors to deliver on the bold climate action needed”.



**Case study**  
**A residential area gets a new identity**

Square Pastour is 150 social housing units in four buildings located in Madeleine, France. In 2017 it was renovated with ROCKWOOL solutions, including a range of our external facade insulation and cladding products.

Architecturally and socially, the aim of the project was to create a new identity for the community.

Helene Richet, Associated Architect, Atlante Architectes says: “At Square Pastour today, the inhabitants have a residential area with greater thermal comfort, lower energy bills, and more pleasing aesthetics”.

**Did you know?**

**Energy efficiency is a vital part of the solution to climate change**

The Intergovernmental Panel on Climate Change (IPCC) has developed a multitude of so-called 2 degrees C scenarios – scenarios on how to limit global temperature rises to 2°C. Looking at these, energy efficiency is clearly a prerequisite for mitigating climate change, accounting on average for 42 percent of the total emissions reduction needed.<sup>19</sup>

Fossil fuels will dominate the energy system for decades, so any increase in energy efficiency will reduce the demand for fossil fuels.<sup>20</sup>

Renewable energy will continue to be an important part of the equation. In fact, as energy efficiency measures reduce overall demand for energy, renewable sources can account for increasingly high percentages of overall consumption. For example, increased energy efficiency in the United States could lead to an additional eight percent renewable energy share by 2030 on top of what is currently considered to be feasible. In India, this grows to 12 percent.<sup>21</sup> At the same time energy efficiency is more cost-effective.<sup>22</sup>

Rapid urbanisation and increasing wealth also mean that energy demand from the built environment is likely to increase two to three times by 2050, based on the current trajectory.<sup>23</sup>

## Materials that are sustainable



There is a commonly held perception that sustainable buildings are significantly more expensive to design and build than 'conventional' buildings, which simply meet minimal regulatory requirements. This may have been true in the past. Sustainable buildings today, however, have clear environmental benefits and can deliver greater returns for investors, reduced operating and maintenance costs for owners, and healthier and more comfortable environments for occupants than their less sustainable counterparts.<sup>24</sup>

Sustainable building rating schemes such as LEED®, BREEAM, HQE, Passive House, and DGNB go beyond national building codes to set standards for sustainability across the whole lifecycle of a building – from materials, to construction, to operation, occupancy, and end-of-use.

A harmonised approach to sustainable building assessment is being developed by the European Commission – the Level(s) framework. ROCKWOOL is actively involved in evaluating this voluntary, open-source reporting framework advocating for the use of lifecycle criteria that cover the full breadth of sustainability of buildings.<sup>25</sup>

ROCKWOOL'S products contribute to achieving credits under all the major sustainable building rating schemes. Our stone wool insulation, ceiling panels and cladding solutions gain credits for:

- › creating energy-efficient buildings with high thermal comfort;
- › being durable, recyclable and non-toxic;
- › contributing to superior acoustic performance;
- › having Environmental Product Declarations (EPDs).

By choosing stone wool materials, our customers are future-proofing their buildings – making them more efficient, healthier, robust, and circular.



### Case study

#### Top marks for design and sustainability in Belgium

Les Trèfles Anderlecht primary school in Belgium combines an innovative learning environment with an ambition for a Passive House-certified sustainable building and beautiful architecture. The school, for children aged 4 to 12 years, consists of four overlapping circular-shaped buildings with an adjacent gymnasium.

With energy consumption of just 12 kilowatt hours per square metre per year, the school is almost a 'passive' zero energy building. To achieve this level of efficiency it uses a combination of technologies including a heat recovery system, quadruple window glazing with a built-in sun-protection system, green roofs, and rainwater recycling.

All of the building's materials were chosen based on their environmental impact across the whole lifecycle. Rockfon ceiling panels are used throughout the interior, while Rockpanel cladding is used on the exterior. The architects were drawn to the reflective colours of Rockpanel as well as its A+ rating in the Building Research Establishment's 'Green Guide'.

The end result is an attractive campus that has delighted pupils, school management, and local residents alike, and that is a shining example of how stunning architecture and sustainability can go hand-in-hand.

# Doubling

Number of global green building projects is doubling every three years.<sup>26</sup>





**Pat Sapinsley**, Managing Director of Cleantech Initiatives at the Urban Future Lab (UFL), part of New York University Tandon School of Engineering

Pat tells us why we need to learn from the past when creating sustainable buildings for the future.

“For millennia, we created resilient buildings, which protected people from harsh environments.

“In the 20th century, due to the advent of cheap oil, air conditioning, steel frame structures and curtain wall construction, we rapidly ‘unlearned’ thousands of years of ancient, sustainable building practices that largely relied on stone walls and cross ventilation.

“It’s time we re-learned how to build sustainable buildings again. It is now possible to use the technological advances of the 20th century combined with thousands of years of accumulated knowledge. We must, once again, use time-tested, durable and sustainable materials that contribute to creating resilient and sound built environments”.

Pat Sapinsley is a LEED Accredited Professional architect and an active member of the U.S. Green Building Council.

# Your wellbeing matters

## Places that enhance wellbeing



With people spending the majority of their time inside, our indoor environment is just as important as the conditions outside. Temperature, air quality, and acoustics all affect our wellbeing and quality of life.

### The effect of noise on health, wellbeing and productivity

There is clear and documented evidence connecting noise and human health. High noise levels are directly associated with an increased risk of hypertension and diabetes.<sup>27</sup>

Noise control is also vital in schools and workplaces. The cognitive performance of both children and adults is reduced by noise. For example, in schools with no sound absorption, children miss 25 percent of words spoken by their teachers,<sup>28</sup> while in offices, 70 percent of employees believe that their productivity would be higher if their environment was less noisy.<sup>29</sup>

### Continuously innovating

We're using sound intensity probes and high-definition acoustic cameras to visualise noise and how it behaves as part of our efforts to improve wellbeing in the built environment through optimal acoustics. Under the "Optimized Acoustics" banner in North America, we're collaborating with independent laboratories and acoustic engineers to help architects design simple and effective approaches to achieve superior indoor acoustics.



#### Rockfon ceiling tile

Rockfon Blanka acoustic ceiling has a smooth, deep matt, super white surface with high light reflection and light diffusion, which contributes to energy savings and a bright and comfortable indoor environment.

- › Optimal design freedom thanks to the large variety of formats and edges
- › Best sound absorption  $\alpha_w$ : 1.00 (Class A)
- › Best reaction to Fire class: Euroclass A1
- › Humidity and sag resistance: Up to 100% relative humidity



We're also researching ways to quantify the impact optimal acoustics have on building occupants. Many of these concepts are being adopted by the U.S. government for design and construction standards of federal buildings.

ROCKWOOL also initiated a collaboration with an international consultancy firm in 2018 to more fully understand the benefits of better acoustic performance in buildings. This will help us in measuring our performance against SDG 3 Good Health and Wellbeing.





### Case study Learning in the school of the future

Sammamish High School's new campus in Bellevue, Washington, is a three-storey, state-of-the-art educational facility serving nearly 1,000 students in grades 9–12. Designed by Integrus Architecture, it contains more than 23,000 square metres of Rockfon ceiling systems.

"Creating a good acoustic experience improves learning and understanding", explains Rockfon's acoustic specialist Gary Madaras. But optimal acoustics was not the only goal of this ambitious project. A healthy indoor climate, natural light, and sustainability performance were also paramount.

Rockfon stone wool ceiling panels, which are used throughout the building, are resistant to mould and humidity, and are GreenGuard® Gold Certified in North America for low VOCs. They are fully recyclable at the end of their useful life.

In the classrooms, corridors and common areas, the white surface of Rockfon ceilings reflects up to 86 percent of available light. This better distribution of natural light helps to lower electric lighting loads and reduce cooling costs, saving both energy and money.

"The amount of collaboration that went into this project was unprecedented. The goal was to create the high school of the future – for sustainability, learning environment, community outreach and safety".

**Ben Pedersen**, Rockfon district sales manager for the Pacific Northwest

## Spaces that enrich and inspire



Environments in which people enjoy spending time can improve social cohesion and make neighbourhoods safer and healthier. In order to create inspirational buildings, architects need flexible and versatile materials that can make beautiful spaces a reality for people everywhere.

With a combination of aesthetics, high product performance, and robust solutions ROCKWOOL helps create these attractive spaces that also promote fire safety and energy efficiency, enhance acoustic and thermal performance, and provide robustness and circularity. Our Rockpanel boards come in 144 different colours and shades, giving architects and contractors the freedom to create inspiring and bespoke building facades.

We regularly engage with the architecture and design community to share knowledge and advance thinking on topics such as urban design and regeneration. In city apartment blocks, public libraries, schools and stadiums, we are helping to create places that bring people joy.

In 2018 we will run a project with Climate-KIC looking at international experiences from the successful renovation of run-down urban areas, where energy renovation has contributed to delivering wider socio-economic benefits. The aim is to transfer best-practice learning into new projects and into national renovation strategies.



### Case study

#### From eyesore to eye-catching in Liverpool, UK

The Wellington Road affordable housing scheme in South Liverpool, UK underwent a complete renovation in 2017, transforming a neighbourhood ‘eyesore’ into a vibrant, energy-efficient landmark.

Prior to the renovation, poor insulation left tenants facing high fuel bills and excessive street noise. The ageing exterior also acted as a magnet for anti-social behaviour and dumping of waste.

Developer HMS chose ROCKWOOL insulation for the exterior and interior of the houses and used brightly coloured Rockpanel cladding to enhance kerb appeal. Now, residents of Wellington Road are proud of their neighbourhood and have warmer, more comfortable homes that are much more energy efficient.

The scheme was shortlisted for Best Regeneration Project in the 2017 Housing Excellence Awards.<sup>30</sup>

“It has become a stunning landmark and a much nicer place to live”.

**Wellington Road resident**



#### Rockpanel exterior cladding for buildings

Rockpanel boards are used for ventilated constructions, for facade cladding, roof detailing, soffits and fascias. The boards are robust and flexible. They fit perfectly with modern architectural trends such as organic shapes.

- › Available in a wide choice of colours and designs
- › Durable, lightweight, easy to install and resistant to the elements

# 85%

of people say that architecture affects the way they feel.<sup>31</sup>

#### Social cohesion

In densely populated cities, well-designed neighbourhoods and public spaces have the power to enhance social cohesion and community spirit.





### Innovative solutions that protect communities



Climate change has increased the risk of excessive rainfall and urban flooding. Communities, especially those in low-lying regions, need to protect their homes and other valuable assets from the effects of these extreme weather events.

Stone wool can be engineered to absorb or repel water as needed. By draining excess water from roofs and other hard surfaces quickly into underground stone wool basins, we can help minimise the impact of heavy rainfall in urban environments.

Lapinus has harnessed these characteristics to develop an innovative new water management system called Rockflow. Lapinus is the first producer to use stone wool elements as a water management system and to bring such a product to market.

# 35%

Wintertime extreme rainfall intensity is projected to increase by up to 35 percent in most parts of Europe during the 21st century.<sup>32</sup>

#### Did you know?

**The Rockflow system can absorb 95 percent of its volume in water**

Rockflow can buffer large amounts of precipitation in urbanised areas quickly and effectively. It can be used under built-up areas such as town squares, roads, streets and industrial estates, which can suffer from flooding in heavy downpours. It consists of thin, light stone wool elements, which absorb rainwater and then infiltrate it into the soil layer or drain it to the sewer.

Rockflow stone wool elements can absorb 95 percent of their volume in water. That means a cubic metre of Rockflow system can absorb 950 litres of water in 8 to 10 minutes.

“The system helps protect communities from heavy rainfall and to keep above-ground facilities functional and intact. Vehicles can continue to travel and vegetation can continue to grow on top”, explains Daan de Kubber, Marketing and Business Development Manager at Lapinus. “Because Rockflow helps prevent local flooding, towns are better able to remain vibrant and future-proof. Water damage to shops, homes and businesses can be substantially reduced, even during the most extreme rainfall”.



# Growing more with less

## Growing food sustainably and efficiently



The global food production system is under pressure. We need to find more sustainable ways of feeding a growing, more urbanised population. ROCKWOOL products enable modern horticulture to increase production while using fewer natural resources.

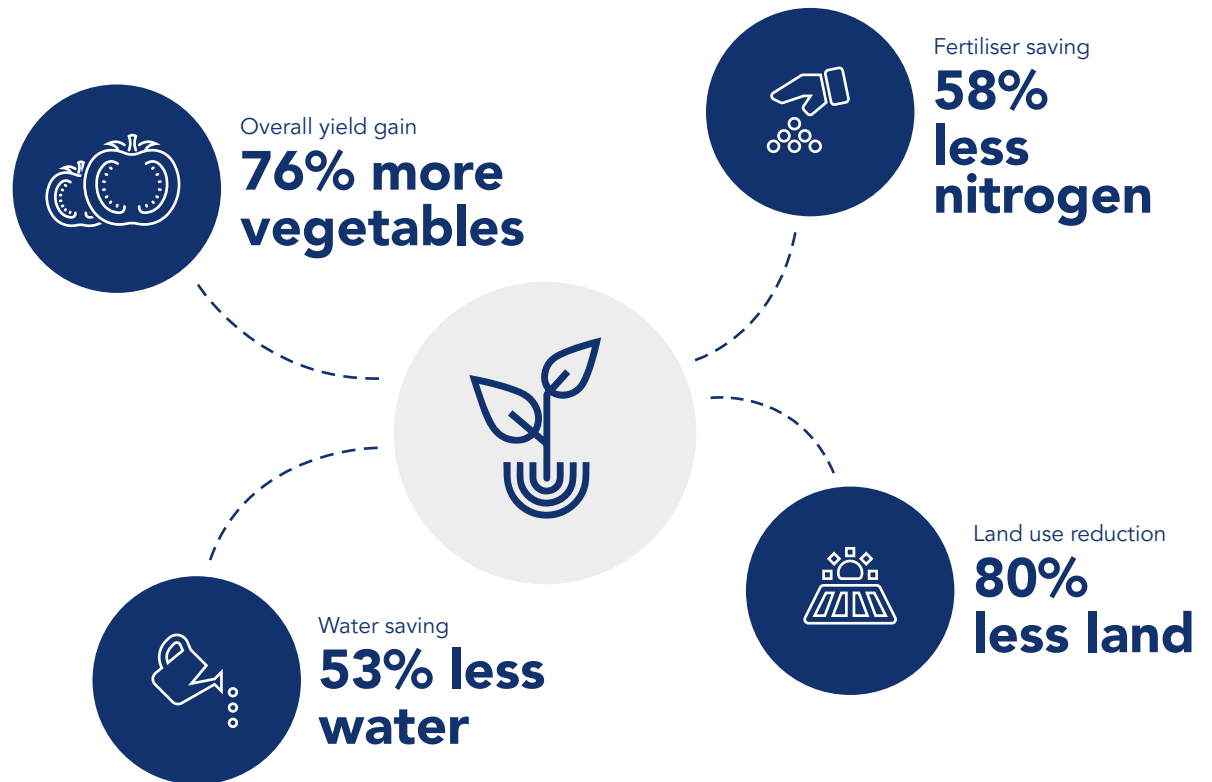
During 2017, ROCKWOOL Group collaborated with Wageningen University in the Netherlands to quantify the positive impact of growing tomatoes and cucumbers in Grodan horticultural growing media compared to greenhouse-grown, soil-based crops. The results were significant. For example, Grodan products sold in 2017 resulted in an estimated 90 million litres less water used, equivalent to the drinking water needed to sustain 85,000 people for a year<sup>33</sup>, and covered 26,000 fewer hectares, the equivalent of 300 Central Parks.<sup>34</sup>

In places where agricultural land is scarce, new and innovative forms of food production hold the key to feeding city dwelling populations. Grodan hydroponics can be sited anywhere, including in urban areas that would otherwise be completely unsuitable for traditional soil-based production.

For growers, horticulture professionals, and keen gardeners, Grodan is providing efficient, sustainable growing solutions for the future.

## Savings of water, land use, fertiliser and yield gain of products sold in 2017

*Impact in the use phase of Grodan growing media sold globally in 2017.*



Wageningen University & Research developed a methodology and estimation model comparing soil-based and stone wool-based greenhouse cultivation systems in three distinct climate zones for tomato and cucumber crops.

The methodology is available on [www.rockwoolgroup.com/precision-growing-impact](http://www.rockwoolgroup.com/precision-growing-impact)





**Case study**  
**Higher yield, fewer resources**

Prolific and award-winning Polish tomato growers, the Kazmierczak family adopted Grodan growing media solutions several years ago and haven't looked back since. They have experienced a tangible difference in their day-to-day work. Irrigation is better, easier, and more controllable, and they are now able to keep their crops growing for longer, right into mid-November.

The Kazmierczaks can also monitor their operation remotely using the e-Gro app, which gives them real-time information about the water content, fertiliser level and temperature of the stone wool growing media. And through the Young Grower Project, they can benefit from advice at seminars, at the point of installation, and via service from Grodan professionals throughout the year.

**Did you know?**  
**What is hydroponic growing?**

Hydroponics is a method of growing plants without soil, in an aquatic-based environment, using mineral nutrient solutions to feed the plants. Stone wool is the most widely used growing medium in hydroponic systems. It can be precisely produced to allow the retention and movement of water and air in proportions that are ideal for particular crops, promoting healthy root growth and nutrient uptake. Stone wool's fibrous nature also creates a stable anchorage for plant roots.<sup>35</sup>

**50%**

more food will be needed for the world and its growing population by 2050.<sup>36</sup>

**Resource scarcity**

A growing population demands healthier, tastier fresh produce – grown sustainably and safely.

**Grodan Grotop Master**  
The Grodan concept consists of a plug for seeding and germination. Young seedlings are then transplanted into a block for their remaining time at the propagator. On delivery to the production greenhouse the young plants are placed onto a slab where they grow and produce vegetables.

- › A wide range of plugs and blocks to grow uniform plants under various conditions
- › Highly uniform and controllable retention of water
- › Crop-specific growing media for vegetable growing
- › A clean start for a healthy crop



# Circularity – the shape of the future

## Solutions that are circular



To build our homes, workplaces, roads and other infrastructure we consume 42 billion tonnes of resources annually.<sup>37</sup> As well as being a heavy consumer of resources, the building sector produces approximately a third of all global waste, much of which ends up in landfill.<sup>38</sup>

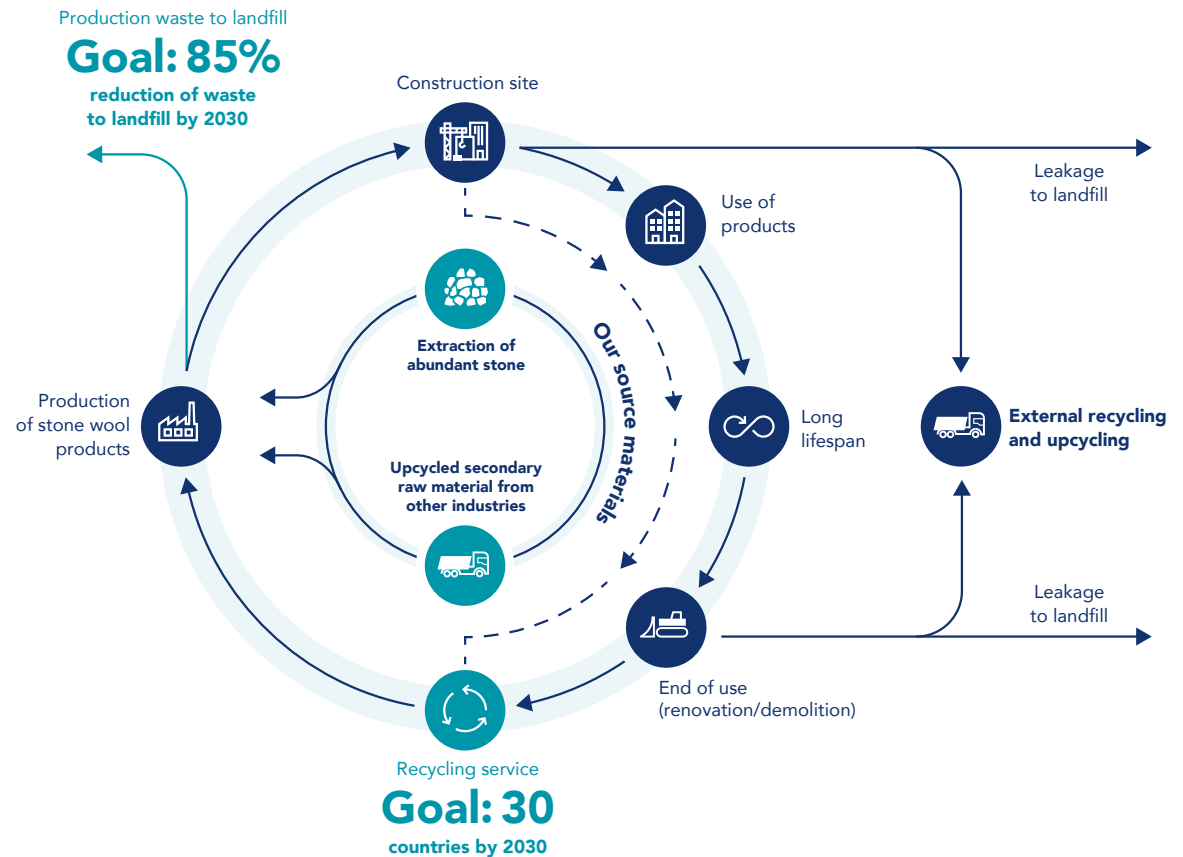
In a circular economy, waste is not waste, but a valuable resource, which can be regenerated or repurposed and turned into something new. Stone wool products are long-lasting, easy to dismantle and can also be reused and fully recycled. In fact, stone wool can be recycled again and again without degrading its quality.

In addition to ROCKWOOL products being naturally recyclable, we have developed our technology in a way that allows us to use waste from other industries as alternative raw material. We repurpose waste from the likes of the aluminium industry, power plants, and municipal wastewater treatment. In 2017, our stone wool products had a recycled content of up to 50 percent with a global average of 31 percent. This excludes recycled waste generated in the factory.

In 2017, ROCKWOOL ensured that approximately 120,000 tonnes of used stone wool was collected for reuse and recycling. This includes stone wool waste from both the construction and horticultural sectors. The majority of the recycled stone wool from greenhouses is used for external clay brick manufacturing and potting mix.<sup>39</sup>

By recycling our own and other industries' waste, we minimise the waste going to landfill and reduce our use of virgin raw materials. And by making it easy for our customers to dismantle and recycle our products at the end of their useful life, we are taking part in the shift to a circular economy.

[▶ Read more about our recycling services on page 29](#)





### Shaping the circular economy

In 2018 ROCKWOOL will initiate a number of new, exciting collaborations designed to shape the circular economy agenda and further develop our own circular business models. As highlighted in a recent report by Circle Economy, in the construction sector in particular, there is a need for more collaboration across the supply chain to create shared value and resolve split incentives.<sup>40</sup>

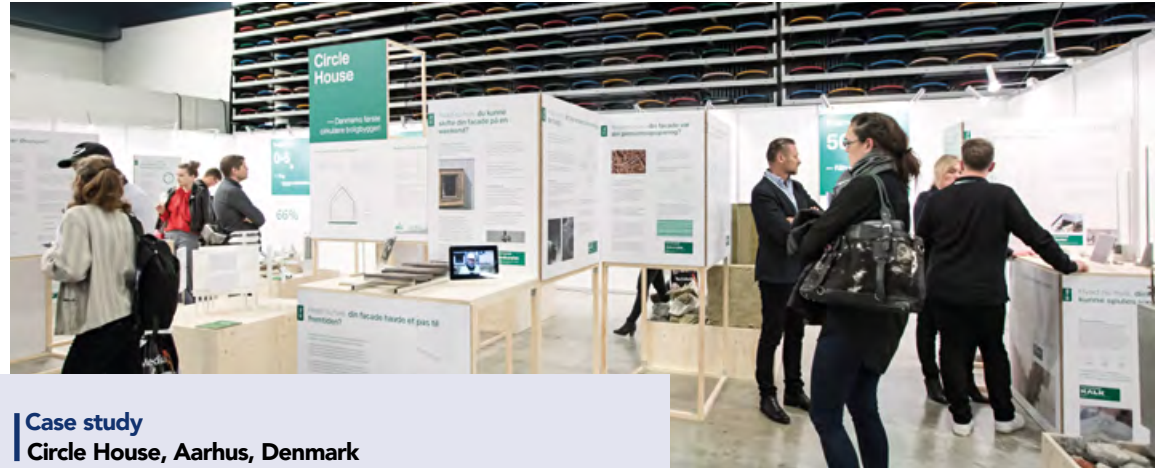
For example we will be participating in a landmark project in Denmark designed to demonstrate the possibilities for circular housing (see case study).

# €1.8 trillion

could be generated from a circular economy in Europe.<sup>41</sup>

### Commercial opportunity

Adopting circular economy principles could generate huge economic value as well as social and environmental benefits.



### Case study Circle House, Aarhus, Denmark

Circle House is a public housing development of 60 new homes in Lisbjerg, just outside Aarhus in Denmark. It is a scalable demonstration project, where the homes are being designed and built using circular economy principles.

In the last 10 years the construction industry has relied on efficiency measures to reduce consumption and emissions. But in circular construction, the focus is on total resource use and emissions – both embedded in the building’s fabric, and created from its construction and use.

With Circle House, any material used must be able to be disassembled, priced, and recycled or reused at the end of its useful life. The goal is for 90 percent of all materials to be circular in this way. A ‘demonstrator’ of how this is achievable in practice is to be showcased in Copenhagen, six months ahead of the formal project tender. We are proud that Rockzero, our pioneering new wall system, will be used, as will ROCKWOOL building insulation. Both fulfil the criteria for circular materials.

Circle House will provide invaluable insights on the business models, value chains, and framework conditions required to enable circular construction. It will also be a good investment for the developer and the homeowners who will have durable, flexible, reuseable and recyclable buildings.

The project is expected to be complete by 2020.

### Did you know? Our pioneering wall system Rockzero builds in circularity

Our new, pioneering wall system, Rockzero, integrates natural stone wool insulation into the loadbearing structure of walls, which are traditionally made with masonry. Light and energy efficient, Rockzero helps to achieve low and predictable energy consumption while still providing all of the excellent stone wool benefits, including superior insulation performance, fire resilience, robustness, and recyclability.

Rockzero is particularly suited for circular builds, as it is designed for easy mechanical assembly and disassembly. It also reduces the number of different materials used in a build, creating an entire wall system made of stone wool.



# Operational impacts

## Becoming a more sustainable business

**The most significant positive impact on sustainable development is through the use of our products.**

But it is important to us that we achieve this by operating in a responsible and sustainable way. Whether it's keeping our people safe, continuously reducing the footprint of our operations, making our workplace more inclusive, or respecting human rights, our day-to-day practices and behaviours create the solid foundations on which everything else is built.





## Sustainability goals



### CO<sub>2</sub> emissions

Our goal: Reduce CO<sub>2</sub> emission intensity from our factories by 20 percent by 2030.



### Energy efficiency

Our goal: Reduce energy consumption within own (non-renovated) offices by 75 percent by 2030.



### Safety, health and wellbeing

Our goal: Reduce Lost Time Incident (LTI) frequency rate by 10 percent and ensure 0 fatalities annually.



### Water consumption

Our goal: Reduce water consumption intensity within our factories by 20 percent by 2030.



### Reclaimed waste

Our goal: Increase the number of countries to 30 (currently five) where we offer recycling services for our products by 2030.



### Landfill waste

Our goal: Reduce landfill waste from our factories by 85 percent by 2030.

Note: The baseline for five of the six Group Sustainability Goals is 2015. Our safety goal baseline is revised annually.



**Mirella Vitale**, Senior Vice President, Group Marketing, Communications and Public Affairs

## Long-term goals

In 2016 we set six ambitious Group Sustainability Goals to drive substantial improvements in our environmental and safety performance by 2030. Five of the goals are based on a baseline of 2015 with intermediate goals for 2022 to make sure that we are on the right track. Our safety goal baseline is revised annually.

Achieving the goals in the long term will require innovation and investment over the coming decade. To help with this, our standard internal payback timeframe on sustainability-related investments has been relaxed. ROCKWOOL Group Management recognises that these investments will have a lasting, transformative impact on our business and its future.

## Seizing our opportunity

Since ROCKWOOL was founded in 1937 our people have taken pride in the innovative, high quality products we make and the benefits they bring to those who use them – protection from fire; thermally comfortable homes; peace and quiet in a noisy world.

We realise just how big an opportunity we have to help solve global challenges – from climate change, to urbanisation, to food security – and contribute towards the Sustainable Development Goals (SDGs).

Through our people's talent, skill and ingenuity we will continue to discover new and exciting ways to harness the natural power of stone to make the world more sustainable.

# The big picture

## Did you know?

### Getting the proportions right

The carbon emissions saved in the lifetime of ROCKWOOL's technical insulation sold in 2017 exceeds the annual carbon emissions of Germany.



## Carbon emission savings of products sold in 2017

### Building insulation

Carbon emissions from raw materials and production ----- ●

Carbon emission savings during product lifetime -----

**80**  
times the carbon emitted in its production

### Technical insulation

Carbon emissions from raw materials and production ----- ●

Carbon emission savings during product lifetime -----

Ecofys, a Navigant company, developed methodologies to calculate the energy and carbon emission savings in the lifetime of sold building insulation and technical insulation products. Ecofys endorsed that the 2017 energy and carbon emission savings calculated by ROCKWOOL correctly follow these methodologies.

▶ The methodologies are available on [www.rockwoolgroup.com/carbon-impact](http://www.rockwoolgroup.com/carbon-impact)



**4,000**  
times the carbon emitted in its production



63

score from CSR Hub, which is the biggest rating improvement of any Danish company between 2015 and 2017

18%

of management team positions and 37% of white-collar positions held by women

## External recognition



Leadership level (A-) from CDP for our carbon disclosure and climate change performance



3.8%

reduction in CO<sub>2</sub> emission intensity within our factories compared to 2015 baseline

23%

of ROCKWOOL Group dividend went to the ROCKWOOL Foundation



Rated 'Prime' – the highest rating category – by leading sustainable investment rating agency Oekom Research

One of 50–100 companies selected out of 65,000 screened companies

2

new product innovations – wall system Rockzero and water management system Rockflow

1

new Code of Conduct, which sets out our policies and principles for operating as a responsible, sustainable business

## New collaborations

with C40 Cities, Trucost and the UNGC Action Platforms to accelerate progress on the SDGs

230

employees from Swiss stone wool company Flumroc became full members of the ROCKWOOL family

ca. 100

jobs created at our new state-of-the-art Rockfon manufacturing facility in Mississippi, United States

€2,374m

sales across 100+ markets representing 7.1% organic sales growth

# 2017 Highlights

# Operational update

## | New Rockfon facility in United States

In July, a new Rockfon manufacturing facility opened in the U.S. state of Mississippi. The 12,000 square metre state-of-the-art facility is the Group's fifth stone wool ceiling production site globally.

ROCKWOOL Group invested EUR 33 million in the design and construction of the new site. It brings almost 100 new jobs to the local area.



## | New facility to be built in Romania

In November we announced we will build a new stone wool manufacturing facility in Romania. With an initial investment of €50 million, the new factory will create around 150 direct jobs and another 300 indirect jobs for services and logistics. It will be ROCKWOOL's first stone wool factory in Romania and is expected to begin production in 2019.



## | Acquisition of Swiss stone wool company Flumroc

Also in November ROCKWOOL acquired Swiss stone wool producer Flumroc AG, which we have had a minority stake in since 1969.

The company employs about 230 people and its sales are primarily in Switzerland, with limited exports to France and Italy. Flumroc shares ROCKWOOL's strong commitment to outstanding quality, excellent customer service, sustainability, responsibility, and efficient manufacturing.





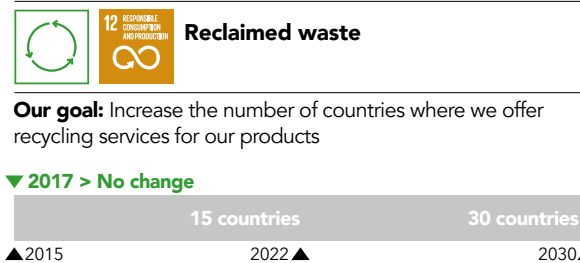
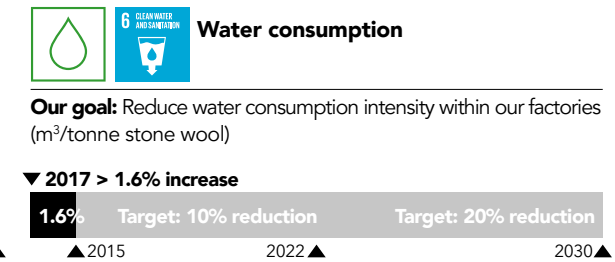
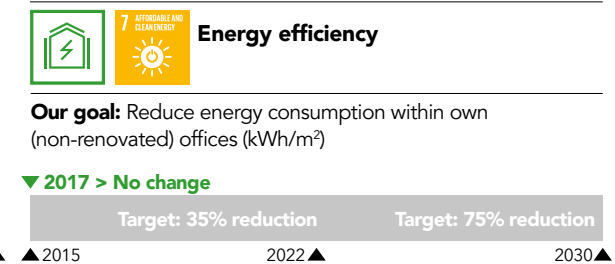
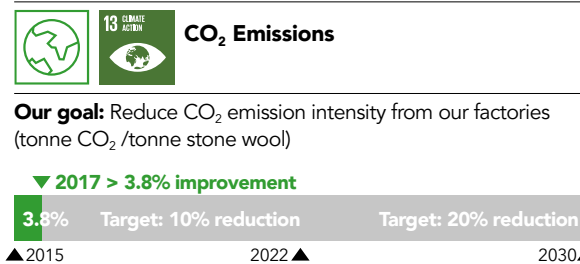
### Goals that improve performance

Work carried out in 2017 together with approved investments will help drive us towards our interim 2022 sustainability goals. We have cut CO<sub>2</sub> emissions per tonne stone wool from our factories by 3.8 percent compared to 2015 through implementing efficiency measures, such as optimising our compressors and installing LED lighting, and higher utilisation of the factories. In terms of improving energy efficiency within our own (non-renovated) offices, we will be selecting buildings for renovation in the course of 2018.

Our performance on waste to landfill has improved slightly from 2016 and we have now reduced it by 4.1 percent compared to the 2015 baseline. Specific recycling investments were approved in 2017, e.g. new briquetting equipment at our factories in Malaysia and Russia.

During 2017 we reclaimed 120,000 tonnes of stone wool waste. We developed a clear roadmap for meeting our reclaimed waste goal and progressed plans for the introduction of new recycling services in three countries in 2018.

Disappointingly, while our performance on water efficiency improved compared to 2016, the performance remains above the baseline level. We will be intensifying our efforts in the coming months and years.



# Safe and responsible business conduct

## Putting safety first at the workplace

We have zero tolerance when it comes to anything that could potentially jeopardise the health and safety of our employees or anyone working at our sites or in transit. In April, we held our second Group-wide Global Safety Day, which is part of our ongoing programme of safety awareness.

Our Lost Time Injury (LTI) frequency rate increased slightly in 2017, from 3.2 to 3.5 (number of lost time incidents per one million work hours). While this reflects a relatively strong performance within our sector, we will continue striving to improve safety in all aspects of work at ROCKWOOL.

We had zero fatalities across the Group in 2017, but regrettably there were four serious incidents – two in Poland and one each in China and Russia. Three of them involved contractors working at our premises. Investigations and subsequent detailed reports resulted in corrective actions being implemented.

During the year we rolled out a new IT tool to help improve safety beyond our manufacturing facilities, for example in offices and during travel. We are now able to monitor, report, and share learnings on a broader range of safety metrics across the whole Group.

ROCKWOOL Group's approach to health and safety is set out in our Group Code of Conduct and in our Safety, Health, and Environmental Policy, which was revised in 2017. We assess facilities' compliance with the policy through SHE audits, and we conducted eight of these audits at our manufacturing facilities over the year. We also conducted fire safety audits at 18 ROCKWOOL locations.



**Bjørn Rici Andersen**, Senior Vice President,  
Group Operations & Technology

“When you are having a busy day at work it can be tempting to take shortcuts when it comes to safety.

“At ROCKWOOL we constantly remind people not to fall into this trap and to put their personal safety, and that of their colleagues first, every minute of every day. It's vital to keep the focus and not let standards slip. Our goal is for everyone to get home safe and unhurt after every day of work”.

## More diversity, better results

Our ambition is to continuously increase diversity across the Group. We believe that bringing different experiences, perspectives and cultures together will benefit our business in the long run.

In 2013, we set a goal to have 15–30 percent women on our management teams by 2017. We have achieved that goal, with 18 percent of management teams in 2017 made up of women (15 percent in 2016). In addition, of all line managers hired during 2017 into our office environment, 34 percent were female (31 percent in 2016). We set a new target in 2017 to have at least one female Board member by the end of 2020. Currently, all Board members are male.

We have global policies and practices to provide equal opportunities, promote diversity and prevent discrimination. In 2017, we updated our Compensation & Benefits and Recruitment policies, and published new policies concerning the employment of relatives and hiring of interns and students.

## Respecting human rights

We oppose any kind of discrimination due to age, gender, race, colour, religion, political opinion, social origin, or any other aspect of human rights. We do not tolerate child labour and do not use forced or compulsory labour or knowingly engage with business partners that do so. We respect employees' right to exercise freedom of association and collective bargaining.

In 2017, we worked to enforce these policies through the dissemination of our new Code of Conduct in relation to employees and suppliers. We published our annual statement in response to the Modern Slavery Act. The statement describes the Group's supply chain and explains what initiatives we have in place and what actions we take to avoid modern slavery.





**Camilla Grönholm**, Senior Vice President,  
Group Human Resources

**18%**

In 2017, women made up 18 percent of ROCKWOOL management teams, and 34 percent of all line manager new hires were women.

**A company that acts with integrity**

The Code of Conduct confirms ROCKWOOL Group’s commitment to the UN Global Compact’s 10 principles and other guidelines for multinational enterprises and is a strengthening of our Business Ethics Manual that it replaces. All new employees are introduced to the Code of Conduct as part of the onboarding process, which also includes training in business ethics.

**Supporting and engaging our employees**

Helping our people progress in their careers is another key part of our strategy. In 2017 we began implementing a new digital cloud-based learning platform to broaden our reach and impact on people development.

We had high levels of engagement with our employee survey, with 87 percent of white-collar employees and 77 percent of blue-collar employees completing it. The survey asks employees about numerous topics, including their perceptions of how the company is behaving in terms of sustainability and integrity as well as day-to-day experiences regarding career opportunities, safe working conditions, fair pay, and leadership. Relative to a High-Performance Norm benchmark, employees rate ROCKWOOL very highly on ‘sustainable engagement’ and ‘trust and empowerment’. Overall results show a slightly positive trend relative to last year.



**Greater awareness, greater integrity**

In 2017 we investigated 12 integrity cases, nine of which were reported as a result of whistleblowing. Eight of these led to corrective action, three concerning bribery.

We are promoting increased awareness among employees and encourage reporting of suspected Code of Conduct violations. The Audit Committee is informed about all integrity cases and we communicate broadly about these to create awareness of unethical behaviour in the Group and to underline our zero-tolerance policy.



**Kim Junge Andersen**, Senior Vice President,  
Chief Financial Officer (CFO)

## 2017

We worked to enforce our policies through the dissemination of our new Code of Conduct in relation to employees.

### Tackling corruption

The purpose of our anti-corruption policy is to create awareness and avoid instances of corruption, bribery and facilitation payments in our organisation and value chain. The anti-corruption policy is based on the requirements of the UK Bribery Act. It is also available to suppliers, customers and other third parties on the Group's website.

Our whistleblower policy outlines the procedure for handling integrity cases, including corruption and bribery. The policy requires employees to report any suspicion of non-compliance to Management, to the Integrity Officer or via the whistleblowing procedure.

### Responsible and sustainable sourcing

Our Supplier Code of Conduct sets out, in detail, expectations of our suppliers. All suppliers must sign up to it as a prerequisite for doing business with ROCKWOOL Group.

### Making strides in sustainable sourcing

We recognise the importance of being responsible and transparent in our approach to sourcing raw materials and other products and services across our supply chain. To strengthen our approach to sustainable sourcing, a cross-functional project team carried out a gap analysis in 2017 of our current policies and practices. It led to the development of a new supplier due diligence process with a more comprehensive and systematic approach to sustainable sourcing. We will start implementing this in 2018 with a particular focus on our stone suppliers.

Six suppliers were selected for external, third-party sustainability audits in 2017. These audits will be carried out in 2018 and the results will help form the new due diligence process.

We expect suppliers to comply with all international, national and local laws and guidelines relating to employment, environmental and manufacturing practices as well as ethics and bribery, particularly in relation to purchasing. We also expect suppliers to enforce these guidelines with their own suppliers.

The ROCKWOOL Procurement & Purchasing Manual was updated in 2017 to reflect a new approach to supplier due diligence, selection and contracting, which is now done through an online tool.

During 2017, we also strengthened our approach to sustainable sourcing (see box-out) and implemented our REACH management system for substances of very high concern. The new system means all direct suppliers are now required to report on REACH compliance in order to register.

### The ROCKWOOL Foundation

The ROCKWOOL Foundation is an impartial, financially self-supporting institution that engages in activities for the public good. It carries out independent research on issues relevant to society and develops innovative solutions to social problems in the form of practical interventions. The focus is on five key areas: immigration and integration; tax and undeclared work; family economics and the labour market; marginalised groups and risk behaviour; and a special area of emphasis: disconnected youths.

## 23%

of the ROCKWOOL Group dividend goes to the ROCKWOOL Foundation.

▶ For more information on the Foundation's activities in 2017, see its annual report at [www.rockwoolfonden.dk](http://www.rockwoolfonden.dk)

## Appendix

# Key performance data and GRI index

### Sustainability governance

The Group Sustainability function is led by the Director of Group Sustainability who reports to the Senior Vice President for Group Marketing, Communications and Public Affairs, a member of Group Management. The Director of Group Sustainability is responsible for driving the sustainability agenda in ROCKWOOL Group, including coordinating and tracking progress of Group Sustainability Goals, which are reported directly to Group Management. The Audit Committee is informed about all integrity cases and also reviews progress on key sustainability projects.

Key sustainability-related decisions are made within the Group Sustainability Steering Group comprising three members of Group Management; a Managing Director; the Director of Group Safety, Health, Environment and Quality; and the Director of Group Sustainability.

### Stakeholder engagement

We regularly engage with stakeholders across our value chain to understand their needs and expectations of us as a business.

The key groups we engage with are:

- › Customers
- › Employees
- › Suppliers
- › Shareholders and investors
- › NGOs and think tanks
- › Sustainability thought leaders
- › Multi-stakeholder organisations (such as the UNGC)
- › City mayors and local authorities
- › National, regional and local government
- › Industry bodies and associations (especially for the construction and fire safety sectors)
- › Journalists and the media
- › Local communities near our operations

### Materiality

In 2015 we conducted a materiality assessment to identify our key social and environmental impacts. Six topics emerged as being highly material and they remained our most material topics in 2017:

- › Energy efficiency and carbon management
- › Circular economy
- › Fire resilience
- › Safety, health and wellbeing
- › Water efficiency and management
- › Public and private sector collaboration

We continuously assess the validity of our materiality assessment in order to determine whether any new or emerging issues need to be added to our priority list.



- ▶ Additional COP content can be found at [www.rockwoolgroup.com/sustainability](http://www.rockwoolgroup.com/sustainability)



## Appendix – Key performance data

Category	Indicator	GRI-G4	Unit	2015	2016	2017	Note
<b>Anti-corruption</b>	Confirmed incidents of corruption and actions taken	SO5	Number	3	1	3	
	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	SO8	kEUR	–	–	–	
<b>Workplace safety</b>	Fatalities	LA6	Number	–	–	–	
	Frequency of LTI — employees & contractors (per million hours worked)	LA6	no./mill hrs	3.1	3.2	3.5	1
<b>Environmental laws and regulations – non-compliance</b>	Factories certified to ISO 14001 and/or OHSAS 18001 and/or ISO 50001		Number	17	17	22	2
	Percent of factories certified to ISO 14001 and/or OHSAS 18001 and/or ISO 50001		%	63	61	79	2
	Audits for environment, health, safety		Number	123	107	91	3
	Fines – monetary value	EN29	kEUR	1	2	3	
<b>Energy</b>	Energy consumption	EN3	GWh	4,484	4,466	4,761	4
	Energy per tonne stone wool	EN5	MWh/t	1.95	1.93	1.87	4
<b>Greenhouse gas emissions (GHG)</b>	Total direct and indirect greenhouse gas emissions		Mt CO <sub>2</sub> e			2.0	5
	Total direct and indirect CO <sub>2</sub> emissions	EN15, EN16	Mt CO <sub>2</sub>	1.60	1.59	1.70	4, 6, 7
	CO <sub>2</sub> direct (Scope 1)	EN15	Mt CO <sub>2</sub>	1.25	1.28	1.40	4, 6
	CO <sub>2</sub> indirect (Scope 2)	EN16	Mt CO <sub>2</sub>	0.31	0.30	0.30	4, 7
	CO <sub>2</sub> direct (Scope 1) per tonne stone wool	EN15	kg CO <sub>2</sub> /t	561	548	551	4, 6
	CO <sub>2</sub> indirect (Scope 2) per tonne stone wool	EN16	kg CO <sub>2</sub> /t	135	129	119	4, 7
	CO <sub>2</sub> direct and indirect (Scope 1+2) per tonne stone wool	EN15, EN16	kg CO <sub>2</sub> /t	696	677	670	4, 6, 7
<b>Air emissions</b>	NOx per tonne stone wool	EN21	kg/t	0.62	0.77	0.76	8
	SO <sub>2</sub> per tonne stone wool	EN21	kg/t	3.22	3.24	2.82	8
	CO per tonne stone wool	EN21	kg/t	7.76	2.24	2.52	8
	Ammonia per tonne stone wool	EN21	kg/t	1.3	1.17	1.13	8
	Phenol per tonne stone wool	EN21	kg/t	0.16	0.15	0.16	8
	Formaldehyde per tonne stone wool	EN21	kg/t	0.05	0.05	0.06	8
	Particulate matter (PM10) per tonne stone wool	EN21	kg/t	0.43	0.63	0.63	8
	<b>Water</b>	Water consumption total	EN8	million m <sup>3</sup>	3.14	3.28	3.43
Water consumption excl. rain water			million m <sup>3</sup>	2.92	3.15	3.29	9
Water consumption per tonne stone wool			m <sup>3</sup> /t	1.36	1.41	1.35	9
Water consumption excl. rainwater per tonne stone wool			m <sup>3</sup> /t	1.27	1.35	1.29	9
<b>Water withdrawal by source</b>	Groundwater own abstraction	EN8	million m <sup>3</sup>	0.93	1.0	1.0	9
	Municipal water a.o. utilities	EN8	million m <sup>3</sup>	1.75	1.85	1.95	9
	Rainwater own abstraction	EN8	million m <sup>3</sup>	0.22	0.13	0.15	9
	Surface water own abstraction	EN8	million m <sup>3</sup>	0.29	0.30	0.32	9
	Waste water from external source	EN8	million m <sup>3</sup>	–	–	–	
	Water consumption significantly affecting water resources	EN9	million m <sup>3</sup>	–	–	–	10
	Percent of water consumption with significant effect	EN9	%	–	–	–	

## Appendix – Key performance data

Category	Indicator	GRI-G4	Unit	2015	2016	2017	Note
Waste & Recycling	Total waste generated	EN23	tonnes	189,252	201,531	222,148	9
	Total waste per tonne stone wool	EN23	kg/t	82	86	88	
	Total hazardous waste generated	EN23	tonnes			26,511	11
	Waste landfilled	EN23	tonnes	93,327	91,189	89,538	9, 12
	Waste to landfill per tonne stone wool		kg/t	41	39	35	9
	Factories with zero waste to landfill		Number			9	13
	Waste for external recycling	EN23	tonnes	73,550	84,673	96,239	9
	Waste for external recovery (energy)	EN23	tonnes	8,600	13,160	2,547	
	Other external waste disposal		tonnes			33,824	14
	Recycling of residue from other industries		tonnes	845,950	740,550	787,240	
	Average % recycled content (secondary raw materials + reclaimed waste per tonne stone wool)	(EN2)	%	36.1	31.6	30.9	15
	Products and packaging reclaimed	EN28	tonnes	14,200	18,110	195,600	16

### Notes

- 1 Lost time incidents (LTI) count begins the day after the accident and connotes scheduled work days. Minor (first-aid level) injuries are not included.
- 2 Factories certified to ISO50001 included in 2017.
- 3 The number includes external audits related to environment and health and safety carried out by authorities, certified bodies etc. together with Group SHE audits carried out at the factories .
- 4 Baseline 2015 updated with oil consumption.
- 5 New indicator including estimated N<sub>2</sub>O emissions.
- 6 Scope 1 updated to verified data for EU factories.
- 7 Scope 2 2016 (updated) and 2017 values based on 2016 emission factors. In 2017 the emission factor for UK , Netherlands and Spain was zero (RECs).
- 8 Significant emissions are in accordance with G4-EN21. 2017 covers 28 factories; values for 5 factories in South East Asia and China based on representative average.
- 9 Data corrected for 2015 and 2016.
- 10 An international consultancy firm conducted a water scarcity assessment of all ROCKWOOL stone wool production sites in early 2017. The assessment identified four factories in Malaysia, India and Russia as being in either highly or extremely highly water stressed areas, while two factories in Spain and Hungary were in potentially highly or extremely highly water stressed areas. In each of the six cases, the results indicate that the factories' overall water consumption is unlikely to be materially relevant when compared to the overall availability of water in the basin where each factory is located. Nevertheless, we will ensure going forward that the implementing water efficiency measures in these factories is prioritised in line with the Group goal of 20 percent improvement by 2030.
- 11 New indicator for waste classified as hazardous included from 2017.
- 12 Waste to landfill according to G4-EN23 definition: Deep well injection and on-site not part of landfill.
- 13 New indicator included from 2017.
- 14 New indicator included from 2017. Other waste disposals, e.g. composting, deep well injection, incineration.
- 15 Waste generated and recycled in factories excluded.
- 16 Building insulation and packaging received at our production facilities. Grodan stone wool reclaimed by external partners included from 2017 (175,000 tonnes incl. water used here. This is estimated to equal 120,000 tonnes without water).

## Appendix – GRI index (G4)

Indicator	Level	Description	Value	Reference
<b>Strategy &amp; analysis</b>				
G4-1	core	Statement of CEO about relevance of sustainability to organisation and strategy		SR: p.2 Jens' message
G4-3	core	Name of the organisation		AR: p.99-100 Group Companies
G4-4	core	Primary brands, products, and services		AR: p.18-23 Business Update
G4-5	core	Location of the organisation's headquarters		AR: p.99-100 Group Companies
G4-6	core	Number of countries operating		AR: p.4 ROCKWOOL Group at a glance AR: p.108-109 Map
G4-7	core	Report the nature of ownership and legal form		AR: p.99-100 Group Companies
G4-8	core	Markets served		AR: p.4 ROCKWOOL Group at a glance AR: p.108-109 Map
G4-9	core	Scale of the organisation		AR: p.4 ROCKWOOL Group at a glance AR: p.6 5 Year overview AR: p.108-109 Map
G4-10	core	Total number of employees		AR: p.4 ROCKWOOL Group at a glance
G4-11	core	Total employees covered by collective bargaining agreements	There are collective bargaining agreements in the majority of the countries where we are active. In the countries where we have collective bargaining agreements in place the majority of employees are covered	
G4-12	core	Describe the organisation's supply chain.		AR: p.32-33 Sustainable sourcing SR: p.32 Operational impacts
G4-13	core	Significant changes during reporting period	None	
G4-14	core	Precautionary approach or principle addressed by the organisation	The ROCKWOOL companies have acceded to the International Chamber of Commerce (ICC)'s Environmental Charter for Sustainable Development – Principles for Environmental Management	
G4-15	core	Externally developed economic, environmental and social charters, principles or other initiatives subscribed to or endorsed	ROCKWOOL is a participant in the United Nations Global Compact and would like to express our continued support for the Global Compact and hereby renew our ongoing commitment to the initiative and its principles	
G4-16	core	Memberships of associations and national or international advocacy organisations (refers to primarily memberships at organisation level)		SR: p.4-5 We ROCK global goals SR: p.9-10, p.12-14, p.16, p.18, p.20, p.23 Product impacts
G4-17	core	Entities included and excluded in consolidated financial statements		AR: p.97-98 Notes 5.8
G4-18	core	Process report content (Materiality Assessment, etc.)		SR: p.33 Appendix



## Appendix – GRI index (G4)

Indicator	Level	Description	Value	Reference
G4-19	core	Material aspects		SR: p.33 Appendix
G4-20	core	Boundary for material aspects within organisation	The scope of this report is the ROCKWOOL Group and all our manufacturing facilities in which we hold the majority of shares. This means a total of 71 legal entities including our associated companies in 37 countries and 45 manufacturing facilities in 19 countries	
G4-21	core	Boundary for material aspect outside organisation	The scope of this report is the ROCKWOOL Group and all our manufacturing facilities in which we hold the majority of shares. This means a total of 71 legal entities including our associated companies in 37 countries and 45 manufacturing facilities in 19 countries	
G4-22	core	Restatements of information	No	
G4-23	core	Significant changes in scope and boundary	No	
G4-24	core	List of stakeholder groups engaged by the organisation		SR: p.33 Appendix
G4-25	core	Basis for identification and selection of stakeholder		SR: p.5, p.33 Appendix
G4-26	core	Approach to stakeholder engagement		SR: p.5 Collaborating for change SR: p.33 Appendix
G4-27	core	Key topics and concerns raised through stakeholder engagement		SR: p.7-23 Product impacts SR: p.33 Appendix
G4-28	core	Reporting period	1st January 2017 – 31st December 2017	
G4-29	core	Date of most recent previous report	The previous report covered financial year 2016 and was published in May, 2017	
G4-30	core	Reporting cycle	Annual	
G4-31	core	Contact points	Director of Group Sustainability Anthony Abbotts: sustainability@rockwool.com	
G4-32	core	GRI indicators	The GRI index is part of the Sustainability Report	
G4-33	core	Assurance	The report has not been externally verified	
G4-34	core	Governance structure		SR: p.33 Appendix
G4-56	core	Organisation's values, principles, standards and norms of behaviour such as codes of conduct and codes of ethics		SR: p.24-25, p.29-33 Operational impacts

## Appendix – GRI index (G4)

Indicator	Level	Description	Value	Reference
<b>Specific Standard Disclosures</b>				
<b>Economic performance</b>				
G4-EC1	specific	Direct economic value generated and distributed		AR: p.54-62 Financial Statement
<b>Materials</b>				
G4-EN2	specific	Percentage of recycled input used		SR: p.22 Product impacts SR: p.35 Appendix
<b>Energy</b>				
G4-EN3	specific	Energy consumption (in factories)		SR: p.34-35 Key performance data
G4-EN4	specific	Energy consumption outside of the organisation		SR: p.34-35 Key performance data
G4-EN5	specific	Energy intensity		SR: p.34-35 Key performance data
G4-CRE3	specific	Greenhouse gas emissions intensity from buildings		SR: p.34-35 Key performance data
<b>Water</b>				
G4-EN8	specific	Water consumption total		SR: p.34-35 Key performance data
<b>Emissions</b>				
G4-EN15, G4-EN16	specific	Total direct and indirect greenhouse gas emissions		SR: p.34-35 Key performance data
G4-EN17				
G4-EN21	specific	Significant air emissions		SR: p.34-35 Key performance data
<b>Waste and Recycling</b>				
G4-EN23	specific	Total weight of hazardous and non-hazardous waste by disposal method		SR: p.34-35 Key performance data
<b>Products and services</b>				
G4-EN27	specific	Extent of impact mitigation of environmental impacts of products and services		SR: p.6-23 Product impacts
<b>Supplier environmental assessment</b>				
G4-EN32, LA14, SO9	specific	Percentage of new suppliers that were screened using environmental criteria, labour practices, society and human rights		AR: p.32-33 Sustainable sourcing SR: p.32 Operational impacts
<b>Occupational Health and Safety</b>				
G4-LA6	specific	Type of injury and rates of injury		SR: p.30 Operational impacts SR: p.34-35 Key performance data
<b>Training and education</b>				
G4-LA9	specific	Average hours of training per year per employee by gender, and by employee category		AR: p.30 People SR: p.30-31 Sustainability
<b>Supplier assessment for labour practices</b>				
G4-LA14	specific	Percentage of new suppliers that were screened using labour practices criteria		AR: p.32-33 Sustainable sourcing SR: p.32 Operational impacts

## Appendix – GRI index (G4)

Indicator	Level	Description	Value	Reference
<b>Customer health and Safety</b>				
G4-PR1	specific	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement		SR: p.6-23 Product impacts
<b>Supplier Human Rights Assessment</b>				
G4-HR10	specific	Percentage of new suppliers that were screened using human rights criteria		AR: p.32-33 Sustainable sourcing SR: p.32 Operational impacts
<b>Anti-corruption and Compliance</b>				
G4-SO5	specific	Confirmed incidents of corruption and actions taken		SR: p.31 Operational impacts SR: p.34 Key performance data
G4-SO8		Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations		SR: p.34 Key performance data
<b>Supplier assessment for impacts on society</b>				
G4-SO9	specific	Percentage of new suppliers that were screened using criteria for impacts on society		AR: p. 32-33 Sustainable sourcing SR: p. 32 Operational impacts



## Appendix – References

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## Appendix



ROCKWOOL Group Management team

### ROCKWOOL® – Our trademark

The ROCKWOOL trademark was initially registered in Denmark as a logo mark back in 1936. In 1937, it was accompanied with a word mark registration; a registration which is now extended to more than 60 countries around the world.

The ROCKWOOL trademark is one of the largest assets in ROCKWOOL Group, and thus well protected and defended by us throughout the world.

### ROCKWOOL Group's primary trademarks:

ROCKWOOL®  
Rockfon®  
Rockpanel®  
Grodan®  
Lapinus®

Additionally, ROCKWOOL Group owns a large number of other trademarks.

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