

# At the heart of modern life

Sustainability Report 2016  
ROCKWOOL Group



# This is ROCKWOOL

At ROCKWOOL, we're committed to enriching the lives of everyone who experiences our product solutions. Our heritage is rooted in stone wool and we're the world leader in this field. From energy efficiency to acoustic comfort, water scarcity to urban aesthetics, ROCKWOOL solutions help customers meet the needs of modern living.

Our products are in many landmarks around the world, here are just a few examples.



**What's in stone wool?**  
ROCKWOOL stone wool products are made up of approximately 97 percent minerals such as volcanic rock, as well as upcycled and recycled materials from our factories and other industries.

# ROCKWOOL at a glance

**Five brands, one common purpose:** to release the natural power of stone to enrich modern living.

Our products are diverse and all contribute to shaping a circular economy, enhancing resource efficiency, and nurturing the safety, health and wellbeing of those who make and use our products.



Fire safe insulation for all types of buildings and installations

- Building insulation
- Technical insulation
- Core solutions



Precision Growing for the horticultural industry



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



Acoustic ceiling and wall solutions



Exterior cladding for buildings

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Welcome from our CEO

## Jens Birgersson on sustainability and modern life



### How is sustainability linked to ROCKWOOL's purpose?

Sustainability means meeting the needs of the present without compromising the future. This is also true of the ROCKWOOL Purpose. We take a massively abundant natural resource and transform it into products that match the needs of our customers today and make the world a better place for future generations.

We want our products to be at the heart of modern life by saving energy and water and reducing CO<sub>2</sub> emissions. All issues that are high on the global agenda today.

In addition, they protect people and buildings from the spread of fire; reduce waste in a building's lifecycle; improve acoustic comfort and aesthetics; and raise the efficiency in fresh food production – in short, tackling resilience to the physical, social and economic challenges of our century.

*“We need to continue working hard to produce even better products and leaving a smaller footprint in the process – that includes thinking sustainability into our products, operations, and R&D as well.”*



### What is your sustainability strategy?

Our sustainability and commercial strategy are one in the same. We are in the privileged position of creating a more positive impact on the planet by selling more of our product. That said, we need to continue working hard to produce even better products and leaving a smaller footprint in the process. This means that it is not sufficient to think sustainability into our products and our research and development, we also need to work on our operations and internal processes. Leveraging these efforts will not only strengthen our brand, it will support our efforts to attract and retain talented colleagues.

## Welcome



### Why have you committed to meeting UN Sustainable Development Goals?

The SDG framework highlights the needs of billions of people. By aligning our work with the global need for development we can focus our attention on the business opportunities this represents, while acting responsibly. In fact, we have chosen to pursue and prioritise the 10 SDGs that are most strategically aligned with our business competencies and where we can have the greatest impact.



### How are you progressing against your six sustainability 2030 goals?

We formally launched this effort in August 2016, so most of our performance last year reflects actions initiated before then. Nevertheless, we reduced our CO<sub>2</sub> emissions and the amount of production waste sent to landfill; and had zero fatalities in 2016. Less positively, we experienced a negative trend in terms of water efficiency, which we'll be working on to improve.



### An estimated one million people move to urban environments each week. What implications does this have for the future?

People spend up to 90 percent of their time indoors. This massive urbanisation presents many challenges in terms of people's general health and wellbeing, safety, and overall quality of life. By building new and renovating existing buildings to be energy efficient, fire resilient, and acoustically comfortable, we can make cities healthier, safer, and more sustainable. And the good thing is, we have the means to do so with existing technology and products.

*“By building new and renovating existing buildings to be energy efficient, fire resilient, and acoustically comfortable, we can make cities healthier, safer, and more sustainable.”*



Click here to view video interview with Jens Birgersson

## How we enrich society

Our purpose is simple and compelling: to release the natural power of stone to enrich modern living. ROCKWOOL products save energy and water and reduce CO<sub>2</sub> emissions, protect buildings from the spread of fire; reduce waste; improve acoustic comfort, building performance and aesthetics; and enhance Precision Growing, thereby improving the efficiency of fresh food production.

Stone is our core raw material and the bedrock on which our business is based. It is naturally resilient and essentially inexhaustible as the earth makes 38,000 times more rock every year (through volcanic and oceanic activity) than we use to make stone wool.<sup>1</sup>

While the stone we use may be millions of years old, what we do with it is cutting-edge. Every day, ROCKWOOL colleagues are developing and applying new technologies to release yet more potential of stone wool to enrich modern life.

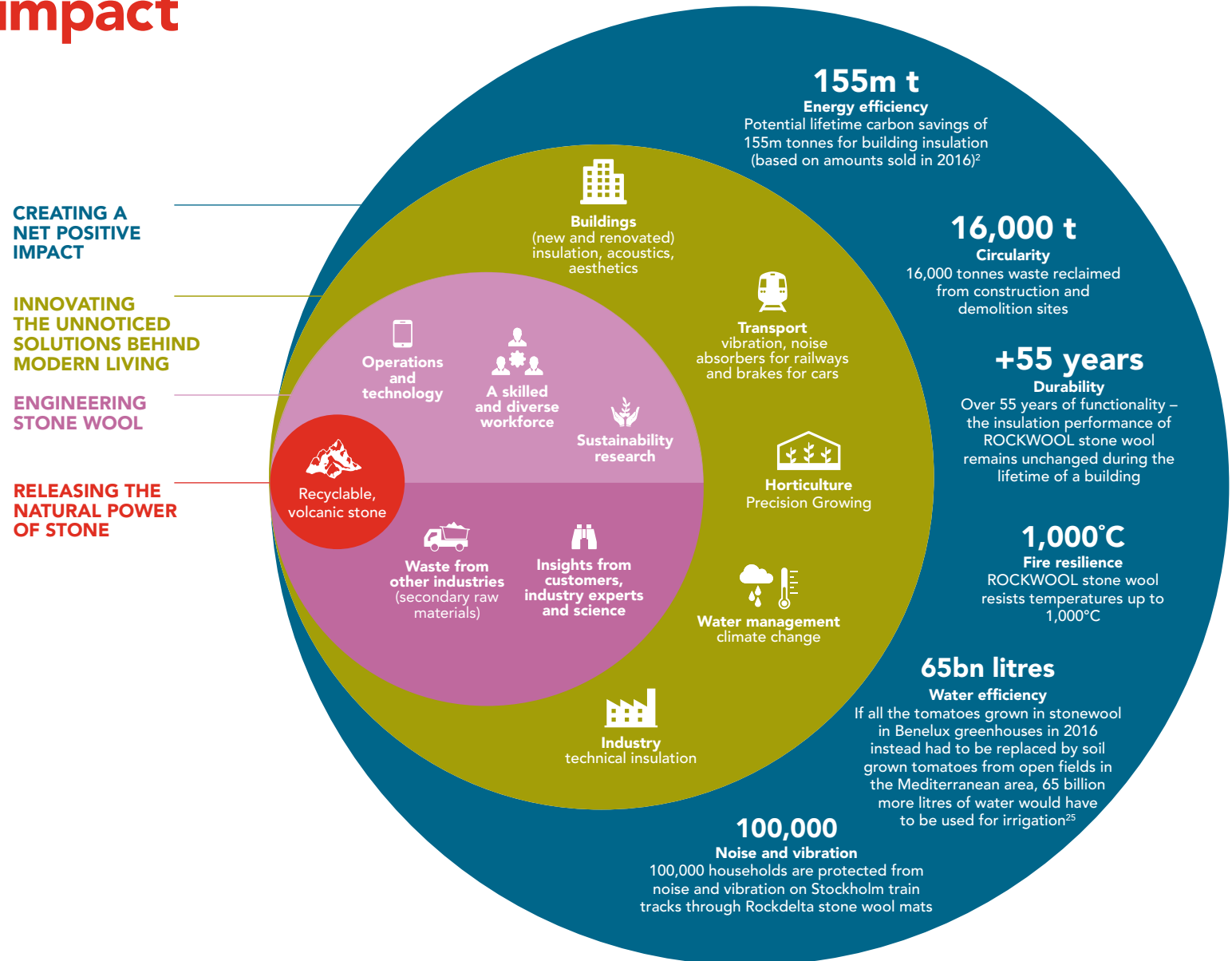


The Royal Arena in Copenhagen will host thousands of people for concerts, sports, and other cultural events. ROCKWOOL insulation and acoustic products contribute to creating enjoyable guest experiences – as well as to the sustainability and recyclability of the building.

# A net positive impact

From household walls and greenhouses; to power stations and railways – ROCKWOOL stone wool traps heat, keeps cold out, protects from fire, blocks sound, repels or retains water (depending on its application) and enables sustainable food production through horticultural systems.

By introducing ROCKWOOL products into your home, office or greenhouse, you'll save energy and reduce CO<sub>2</sub>; protect people from fire, and unwanted noise; improve building performance and aesthetics; enhance Precision Growing and save water.



# The world is changing...

In 2016, the world saw continued upward trends in population growth, urbanisation, and resource use, with downward trajectories in energy affordability and quality of living in cities.<sup>3</sup> Below are just some of the megatrends that drive us to think differently about the urban environment.



**1m**  
people move to urban environments every week<sup>4</sup>

**50%**  
of emissions in major cities are from buildings<sup>5</sup>

## Growing, urbanising population

In 2050, the earth's population will be 9 billion, 70 percent of whom will be living in cities. The combination of a larger future population together with increased demand for access to modern housing and energy is likely to result in a two- or three-fold rise in global energy use for the building sector by 2050 – with a similar impact on associated emissions if no further actions are taken.<sup>6</sup>

See page 21 for how we are contributing to energy efficiency in new and existing buildings.



**54m**  
Around 54m Europeans cannot afford to adequately heat their homes in winter<sup>7</sup>

**11%**  
Energy poverty affects 11% of the EU population<sup>8</sup>

## Energy poverty

The causes for energy poverty are everywhere the same: high energy bills and low quality and poorly insulated buildings. Energy renovation, including improving the insulation of the building envelope is the most efficient and readily available solution to alleviate energy poverty at scale.<sup>9</sup>

See page 21 for how we're finding ways to bring energy bills down, while enhancing life quality.



**2050**  
By 2050, the world will need to double the amount of food it produces, while using half the resources<sup>6</sup>

**3bn**  
3bn tonnes of raw materials are used to manufacture building products each year<sup>10</sup>

## Unsustainable consumption

The construction industry is the single largest global consumer of resources and raw materials.<sup>10</sup> Decoupling economic growth from runaway resource use remains an ongoing challenge, exacerbated by a growing world population, which is adding pressure on water, land and energy resources.

See page 15 for how we are working with circular business models.



**5x**  
Fires today develop more than 5 times faster than 50 years ago because buildings contain more flammable materials<sup>11</sup>

**20%**  
20% of the EU's population are exposed to noise levels that disturb their sleep<sup>12</sup>

## City living and wellbeing

Our built environment is changing. In urban areas where land is scarce, high rise buildings are the norm and made increasingly of lightweight materials. This increases the risks of fire and means potentially more devastating consequences should one occur. Furthermore, excessive noise has emerged as a leading public nuisance in Europe.<sup>12</sup>

See page 27 for how we're creating spaces that keep us safe and well.



## ...and so are we

Our goal is for ROCKWOOL products and operations to make a net positive impact to society and the environment – in other words, we want the benefits of our products to significantly outweigh any impacts associated with our operations.

Our six Group Sustainability Goals to 2030 help us drive this focus across our product range as well as in our direct operational footprint. The aim is to maximise the net positive contribution to society and environment, while at the same time minimising day-to-day impacts of operations. The SDGs help guide businesses in addressing key global challenges while at the same time identifying business opportunities. Last year we publicly declared we would work strategically with the SDGs. Based on a materiality assessment, we selected 10 SDGs where ROCKWOOL can have the most impact, adding the Partnership goal this year, as it is through external collaboration that we can maximise this impact.

### How do we know we're making a difference?

We measure the impact of our products on society where feasible. For several years, we've tracked the net positive carbon impact of our offering. For example, our building insulation throughout its lifespan typically saves approximately 85 times the carbon emitted during its production. This positive impact increases to saving on average 15,000 times the carbon emitted when using technical insulation for large-scale industrial applications.<sup>13</sup> We will continue working with external partners to widen the scope of our assessments to include additional impacts and products. As an example, in a study endorsed by Wageningen University, we recently calculated the potential water savings of our Grodan growing media in the Benelux countries (see page 21).

You will see how we're performing against the SDGs and our own Sustainability Goals in each section of this report, with a summary of performance on page 32. In line with our commitment to transparency, this report shows where progress is being made, as well as where we need to do better going forward – and how we plan to do so.






### The ROCKWOOL Group actively contributes towards achieving 10 of the 17 SDGs



# Focusing on 10 SDGs

Contributing to 10 SDGs requires minimising ROCKWOOL's operational footprint and maximising the positive impact of our products. We will measure progress against selected targets within each SDG either through the Group's Sustainability Goals or through the positive impact of our products where feasible. See page 32 for our sustainability goals progress.

- Positive impact on society through use of our products
- Reduction in operational impacts
- SDG target selected by ROCKWOOL
- Sustainable Development Goal selected by ROCKWOOL

<p>More effective food production systems through sustainable, soilless, Precision Growing solutions.</p> <p>Sustainable food production systems</p>  <p><b>Zero Hunger</b></p>	<p>Positive health &amp; economic impact of acoustically sound buildings and reduced noise and vibration from cars and trains.</p> <p>Reduce deaths/illnesses from hazardous chemicals, air, water and soil pollution.</p>  <p><b>Good Health and Well-being</b></p>	<p>More efficient water-use in horticulture through sustainable, soilless, Precision Growing solutions.</p> <p>Increase water efficiency in factories.</p> <p>Increase water-use efficiency.</p>  <p><b>Clean Water and Sanitation</b></p>	<p>More energy efficient buildings and industry through insulation.</p> <p>Increase energy efficiency in own buildings.</p> <p>Double the global rate of improvement in energy efficiency.</p>  <p><b>Affordable and Clean Energy</b></p>	<p>Zero fatalities and reduction in Lost Time Incidents.</p> <p>Protect labour rights and promote safe and secure working environments.</p>  <p><b>Decent Work and Economic Growth</b></p>
<p>More durable and resilient infrastructure through fire resilient insulation and more.</p> <p>Develop sustainable and resilient infrastructure.</p>  <p><b>Industry, Innovation and Infrastructure</b></p>	<p>More safe and affordable housing and thereby less energy poverty through energy efficient insulation solutions.</p> <p>Access to safe and affordable housing.</p>  <p><b>Sustainable Cities and Communities</b></p>	<p>Increase the number of countries where we offer take back services.</p> <p>Reduce landfill waste from production.</p> <p>Substantially reduce waste generation.</p>  <p><b>Responsible Consumption and Production</b></p>	<p>More carbon efficient buildings and industry through insulation.</p> <p>Reduce CO<sub>2</sub> emissions in factories.</p> <p>Strengthen resilience and adaptive capacity.</p>  <p><b>Climate Action</b></p>	<p>Effective collaboration within our key business areas across sectors and geographies.</p> <p>Encourage and promote effective public, public-private and civil society partnerships.</p>  <p><b>Partnerships for the Goals</b></p>

# Collaborating to make your homes and cities more sustainable

ROCKWOOL has been selected to be a member of the Hanover and Hamburg stock exchanges Global Challenges Index of 50 international stocks of sustainability-conscious businesses that make significant or pioneering contributions to overcoming the largest global challenges (2017).

ROCKWOOL Group had the highest sustainability rating improvement amongst the OMX Nasdaq Nordic Large Cap companies (2014–2016).<sup>14</sup>

ROCKWOOL achieved a score of 97 in CDP (Carbon Disclosure Project), performance band B.

We have committed to the 10 universal principles of the UN Global Compact, a voluntary initiative for sustainable, responsible business (2016).



“Copenhagen wants to be the world’s first carbon neutral capital in 2025. This is an ambitious plan requiring long-term action, but it is realistic. We are already well underway. Copenhagen has reduced CO<sub>2</sub> emissions by 50% from 1995 to 2014. It is extremely valuable for cities like Copenhagen with ambitious climate plans that we can develop and implement new, innovative solutions in cooperation with companies and research institutions.”

**Frank Jensen**  
Lord Mayor of the City of Copenhagen

“Circular business models have enormous innovation and sustainability potential for industry. They often allow companies to go into new customer segments, develop new offerings, and improve profits. Equally important, they create a new type of growth, one that is positive for both prosperity and planet. For cities, this means durable, mixed-use buildings designed for disassembly and constructed with looped and non-toxic materials.

**ROCKWOOL’s stone wool products are a natural fit with that vision, and they are on the leading edge of evolving and accelerating circularity.”**

**Per-Anders Enkvist**, Founder and CEO of Material Economics. Author of ‘A Good Disruption – Redefining Growth in the Twenty-First Century’.



“The success of our ambitions to keep global warming to within 1.5°C to 2°C will depend on our ability to advance net zero buildings – those that are highly energy efficient and produce no net carbon emissions.

**The support of major companies such as the ROCKWOOL Group demonstrates the huge appetite amongst businesses to design, build, invest in and operate net zero buildings.”**

**Terri Wills**  
Chief Executive Officer  
World Green Building Council

“At Van Alen Institute, we believe design can transform cities, landscapes, and regions to improve people’s lives. We collaborate with communities, scholars, policymakers, and professionals on local and global initiatives that rigorously investigate the most pressing social, cultural, and ecological challenges of tomorrow.

**Because ROCKWOOL pursues this same passion, we are delighted to work closely together to share with, learn from and inspire each other.”**

**David van der Leer**  
Executive Director, Van Alen Institute



# Built to last: shaping a circular economy

Linear consumption – the ‘take, make, waste’ approach to products that dominates today – is reaching its limits. Along with many other businesses, governments and civil society groups, at ROCKWOOL we see immense opportunities in the ‘closed material loops’ of a circular economy. But it’s in the unique durability and recyclability of innovative products where we see the greatest potential to create more resilient buildings and cities – and ultimately for enriching modern living.

**ROCKWOOL**  
Circular economy

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## The potential



We believe a circular perspective helps us become an even stronger, more commercially successful business. We’ve already incorporated this thinking into our production: we upcycle waste materials and recycle own waste in closed loops. In a circular economy, products should be used as long as possible. ROCKWOOL provides solutions for buildings that last more than 50 years and can be recycled indefinitely. See page 15.



Grodan solutions are designed for Precision Growing, a method that ensures an optimal growing environment for plants. It means that growers can produce more yield on less land, using less water and fertiliser compared to soil-based cultivation. What’s more, Grodan growing media are fully recyclable – today approximately 70 percent of our sold volume is recycled. See page 15.



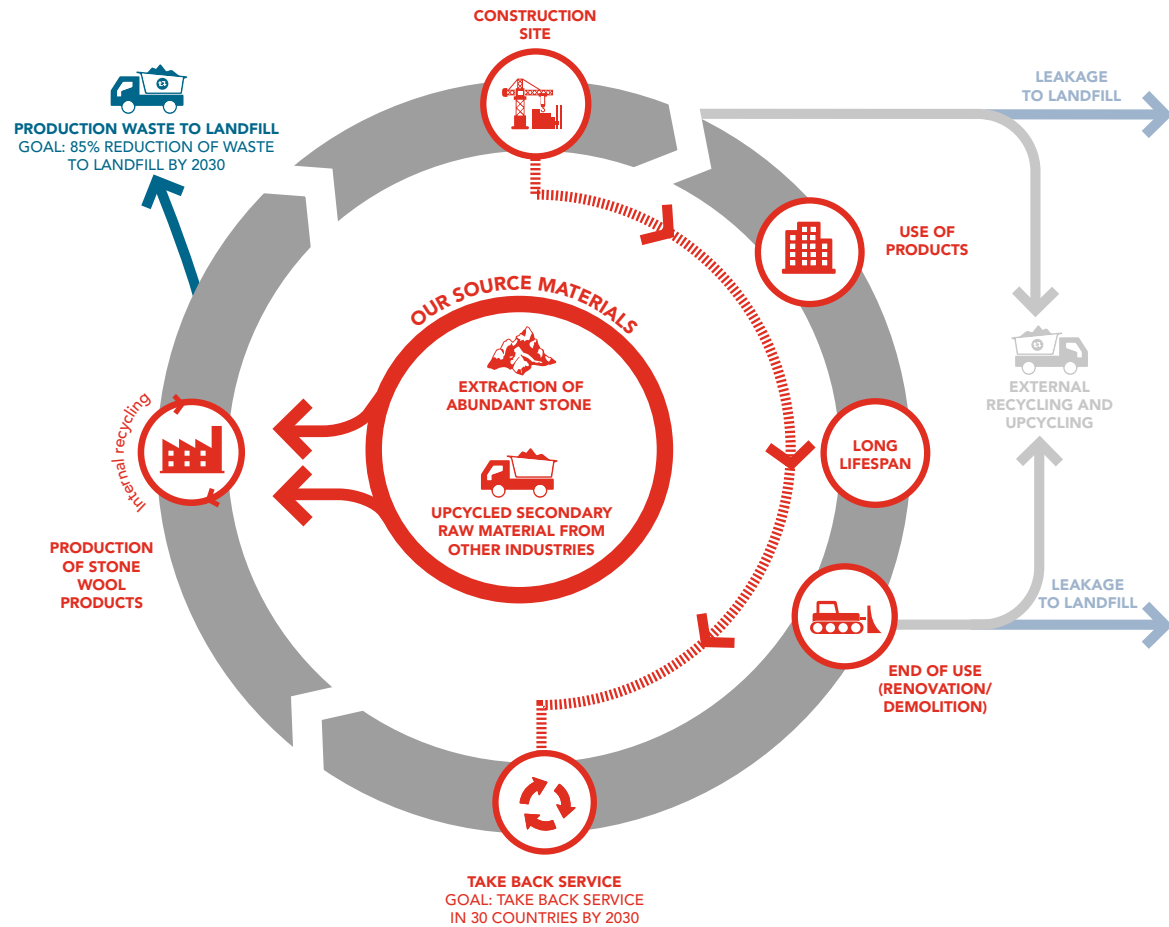
*“Very few have tried to apply circular economy principles to the built environment. By participating in this experiment our aim has been to test if this approach could be widely adopted. The Circular Building shows that through collaboration and digital technology, we can design buildings where the materials can be re-used. As an industry, we should aim to eliminate waste and design for re-use.”* See page 17.

**Stuart Smith**  
Director  
Arup Associates

See how we’re working in partnership with others to shape a circular economy on page 17.

# Our opportunity: closed loop products for modern living

The building sector produces approximately a third of all waste, much of which ends up in landfill.<sup>15</sup> But it doesn't have to be this way. We turn abundant raw materials and upcycled secondary materials into a range of long-lasting stone wool products. Owing to the ease with which they can be separated when a building is renovated or demolished, they can be transformed back into materials with commercial value, including via our take back services.

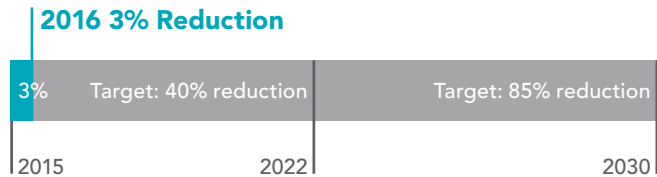


# Inside ROCKWOOL: how we're doing



## Landfill waste

**Our goal:** Reduce landfill waste from our factories (tonnes)



### 2016 highlight:

- We have been preparing action plans to install recycling equipment at a number of factories.

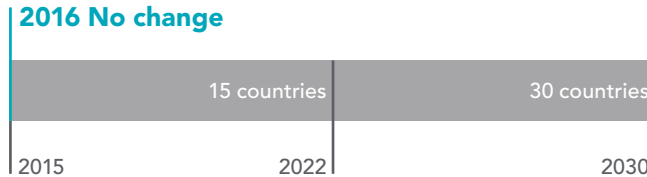
### What's next?

In 2017, we will establish internal closed loop stone wool recycling systems at factories in Malaysia, Thailand and Czech Republic.



## Reclaimed waste

**Our goal:** Increase the number of countries (currently five) where we offer the reclaiming of product waste from market

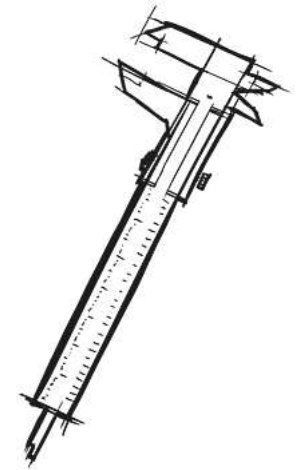


### 2016 highlights:

- Approximately 16,000 tonnes of reclaimed products received at 16 factories – 14 in Europe and one each in Russia and China equivalent to increase of 28 percent on 2015.
- 32 percent average recycled content of our products, a decline of 5 percent on 2015. This is mainly due to a more consistent methodology for calculating recycled content in accordance with best practice.<sup>16</sup>

### What's next?

In 2017, we will be completing and rolling out our reclaimed waste plans. We will also continue developing our existing reclaimed waste scheme in France.



### Challenges:

The 70 percent recycling target in the EU is based on weight, which means that the collection of lightweight product waste like stone wool is not prioritised.

Transportation distances in a number of our markets are so great that it is not economically or sustainably feasible to take back waste.

For take back systems to work effectively, methods for waste separation at demolition and construction sites need to be developed.

See our collaboration efforts to address these barriers on page 17.

# Shaping a circular economy

## Re-using raw materials

Due to the nature of stone wool production, it's possible to use materials that might otherwise be landfilled or downcycled. Approximately one-third of our raw materials is repurposed waste from amongst others the steel and aluminium industries, power plants and municipal waste water treatment. The exact proportion varies by region, depending on market maturity and regulatory frameworks.

## A long-lasting product

The insulation performance of stone wool remains unchanged during the lifetime of the building. Long-lasting, easy to dismantle products that can also be reused and recycled are key to a circular business model. Rockfon ceilings are very flexible and versatile, allowing quick and easy installations. They also allow for easy access to services in the ceiling void, all of which helps make spaces more modular.

### Did you know?

Stone wool is fully recyclable. In fact, it can be recycled again and again without degrading its quality.



## The high yields of soilless horticulture

Hydroponic cultivation on stone wool growing media results in a higher yield per square meter compared to cultivation in soil. Furthermore, professional growers can return our products after use. Once the growing season is over, stone wool can be recycled into raw material for the brick making industry amongst others.

More than 90 percent of EU Grodan customers have access to recycling solutions, and we're continuously working on extending the availability of recycling solutions for non-EU customers.

## Sustainable Building Rating Schemes

Our products contribute to customer credits under sustainable building rating schemes such as LEED®, BREEAM, DGNB (German Sustainable Buildings Council) and HQE (Haute Qualité Environnementale).

The majority of Rockpanel products are certified within the BRE Environmental Profiles Scheme, all of which earn the highest rating of A+.

### Did you know?



#### Unchanging thermal properties

Recent studies have shown that even after 55 years of use, the thermal property (lambda value) of ROCKWOOL products remains the same. Stone wool delivers a consistent performance without degrading over time.<sup>17</sup>



## Our Rockcycle® service

### CASE STUDY

Business: ROCKWOOL building insulation

### Daimler roof renovation

**Working with Daimler on a fire-safe, sustainable roofing system at its warehouses in south-west Germany.**

Daimler's global parts distribution centre was looking to upgrade its 20-year-old warehouse roofs to meet new building regulations for energy efficiency and fire safety. We worked with the roofing contractor to install non-combustible insulation and achieved a higher level of energy efficiency than required by current building regulations. But more than this, we also managed the process of removing the old roof material for recycling in our Rockcycle® service.

*"Offering a waste take back service increasingly is a differentiator for us when we supply insulation material. Many customers insist on knowing what happens to the waste post-construction or renovation. The fact that stone wool is recyclable is definitely a plus."*

**Peter Peters**  
Sales Director  
ROCKWOOL Central West Europe



## Pioneering reclaimed waste

### CASE STUDY

Business: ROCKWOOL building insulation

### Danish take back system

**For more than 20 years, we have offered a take back service from construction sites in Denmark. In 2012 we expanded this to take back stone wool insulation from renovation and demolition sites.**

In 2016 we reclaimed just under 2,000 tonnes of stone wool from building waste in Denmark. While we are experts in producing quality stone wool, we recognise the need to partner with others to handle 'waste'. We have a take back system in Denmark in cooperation with our partners Combineering and RGS90.

Through this partnership, we've learned several valuable lessons to replicate our approach in other countries. For example, it's important that incentives are provided to recycle, such as via landfill prices and taxes as well as legislation requiring separation and recycling of building waste.

*"Working closely with ROCKWOOL and other stakeholders, we are demonstrating that the building sector of the future can pursue closed resource loops such that waste or end-of-life products can profitably be reused."*

**Henrik Grand Petersen**  
CEO of RGS90





# In partnership for a circular European economy



Redesigning the EU economy into a circular system is a challenge far beyond the reach of our business alone. However, when we work with governments, businesses and non-governmental organisations, we begin to see small steps adding up, showing that a transition is both possible and commercially beneficial.

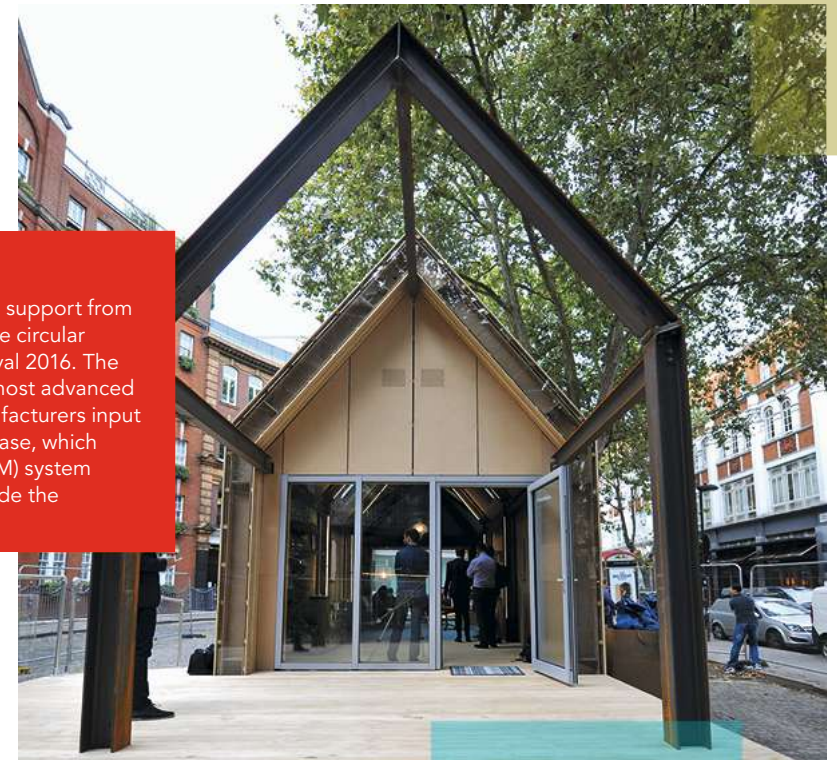
As the largest stone wool manufacturer in the world, we work with key stakeholders to scale our ambitions and shape the agenda. This means continually advocating for a policy framework that will expand the circular economy. At a time of change for the EU, there is an opportunity to show global leadership on alternative production and consumption models.

In 2016, we continued to support an EU circular economy vision by:

- advocating for actions to tackle construction and demolition waste and by contributing insight to the European parliament's response to the European waste directive;
- stimulating circular building approaches in the construction sector around green public procurement together with GLOBE EU Parliament group and front-running companies;
- actively engaging in projects resulting from the European Commission's Circular Economy package; and,
- contributing to European standardisation work for sustainable construction (we strongly support a full sustainability assessment, including environmental, social and economic aspects of buildings).

## The circular building of the future

Alongside Arup, Frener & Reifer and BAM, with support from The Built Environment Trust, we were part of the circular building exhibition at the London Design Festival 2016. The partnership demonstrated a prototype of the most advanced and reusable building yet. Designers and manufacturers input information into a cloud-based materials database, which feeds into a building information modelling (BIM) system that can be viewed via QR codes displayed inside the circular building.



# More with less: spaces that enrich our planet

Thermal insulation has the potential to reinvent buildings and infrastructure into spaces that enrich modern living and avoid carbon emissions. At the same time, Precision Growing techniques are showing greater yields while using less land, water and fertilisers than conventional horticulture.

## ROCKWOOL Resource efficiency

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## The potential



The International Energy Agency calls energy efficiency the 'first fuel' for decarbonisation.<sup>18</sup> With insulation being one of the most cost-effective ways to save energy,<sup>19</sup> ROCKWOOL has a responsibility – and a unique commercial opportunity – to help customers transform spaces where people live, work, play, study into net zero energy/ carbon environments. Increasing the energy renovation rate of existing buildings is the most effective way to do this, and the Global Alliance for Buildings and Construction

reports that we need to be renovating at three-times the rate we are today.<sup>20</sup>

Governments, businesses, and consumers are increasingly adapting their investment and consumption decisions to bring global climate temperatures within levels identified by the COP21 Paris Agreement. In addition to its energy and climate benefits, an ambitious energy-efficient building renovation programme could also result in two million more direct, local jobs by 2020.<sup>21</sup>



By using Precision Growing techniques, Grodan growing media allow growers to recirculate water. This can result in the use of 75 percent less water in crops grown in stone wool growing media in a high tech greenhouse in the Benelux compared to soil grown tomatoes from open fields in the Mediterranean area.<sup>22</sup>



*"ROCKWOOL is using its partnership with Climate-KIC<sup>23</sup>, to actively participate in innovative projects with real climate impact. It is businesses like ROCKWOOL that can and do contribute significantly, both through maximising the positive impact their products have as well as minimising the negative impact of their operations. ROCKWOOL is on the right track with ambitious efforts on both fronts..."*

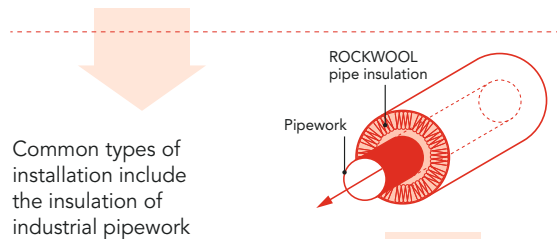
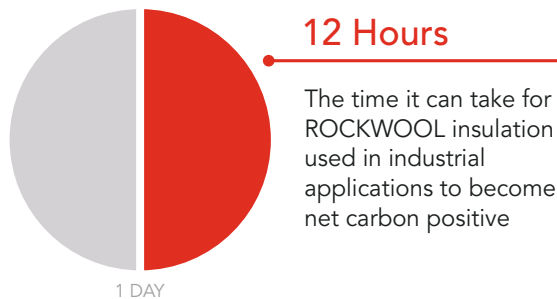
**Susanne Pedersen,**  
Managing Director  
Climate-KIC Nordic

See how we're working in partnership with others to achieve better resource efficiency on page 23.

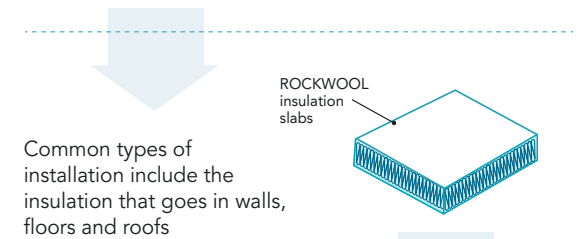
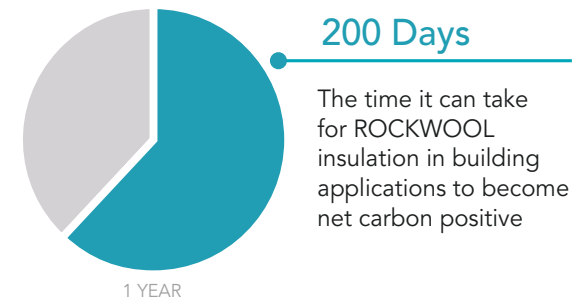
# Our opportunity: net carbon positive<sup>2</sup>

From household walls and roofs, to the vast tanks and pipes of a power station – stone wool keeps heat where it's needed. ROCKWOOL building insulation can become 'net carbon positive' in as little as 200 days – meaning the carbon emitted during the production of building insulation is offset by the avoided emissions of the insulation's use in buildings. For industrial insulation, this can happen in as little as half a day.

## Technical



## Buildings



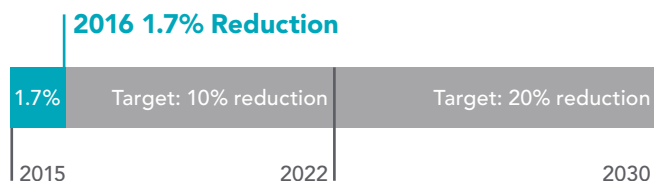
Potential carbon savings of stone wool insulation product segments of the ROCKWOOL Group and corresponding global warming potential of those segments and the corresponding assurance report issued by PwC in May 2017. This calculation assumes a zero insulation baseline for technical insulation. [www.rockwool.com/carbonsavings](http://www.rockwool.com/carbonsavings)

# Inside ROCKWOOL: how we're doing



## CO<sub>2</sub> Emissions

**Our goal:** Reduce CO<sub>2</sub> from our factories (t CO<sub>2</sub> / t wool)



**2016 highlight:**

– Introduced new melting technology at a factory in Poland.

**Challenge:**

As an energy intensive business, we have been continuously implementing energy efficiency improvements for many years. Making step-change improvements remains a challenge and we recognise the need to intensify our efforts in energy efficiency as well as looking at ways to further develop our melting technologies, which are currently predominantly based on foundry coke.

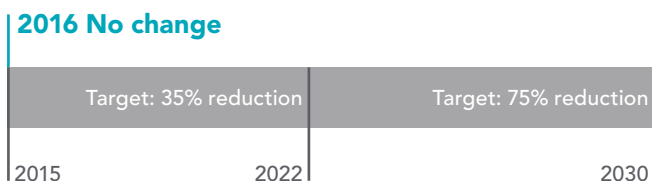
**What's next?**

In the coming year, we will run a group-wide energy efficiency workshop with all factories to share best practice. We will also further develop our energy efficiency action plans and implement energy efficiency improvements at a number of factories.



## Energy Efficiency

**Our goal:** Reduce energy usage within own (non-renovated) building stock (kWh/ m<sup>2</sup>)



**2016 highlight:**

– Initiated an energy efficiency baseline mapping of all owned building stock using a consistent methodology developed together with the external consultancy firm INNAX.

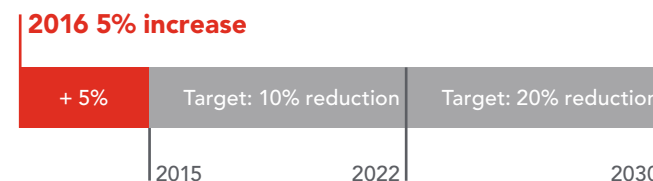
**What's next?**

In 2017, we will complete our energy efficiency baseline mapping and develop our renovation strategy.



## Water consumption

**Our goal:** Reduce water consumption within our factories (m<sup>3</sup>/t wool)



Whilst actions to achieve the goal have yet to be implemented, this increase was nonetheless unsatisfactory. Actions going forward will therefore be intensified.

**2016 highlight:**

– Initiated a global water mapping of our factories.  
 – Environmental engineering firm Ramboll Environ conducted a water scarcity assessment of all ROCKWOOL stone wool production sites in early 2017. See Appendix page 36 Key performance data, Note 11.

**What's next?**

Over the next year, we plan to finalise our global water mapping and implement water efficiency improvements at a number of factories.

# Preserving resources: enriching modern living

## Products that avoid carbon emissions

Throughout its lifespan ROCKWOOL stone wool building insulation typically saves approximately 85 times more carbon than is emitted during its production. This is equivalent to 155 million tonnes of carbon savings over the lifetime.<sup>2</sup> (see page 7).

## BiosPHera

Unveiled in 2016, BiosPHera is a 25m<sup>2</sup> prototype house that enables high quality living without the need for external power. Using PassivHaus and Minergie standards in energy efficiency, it was built using innovative technologies and materials to optimise temperature, acoustics and interior comfort. Our expertise in energy, safety, comfort and aesthetics contributed to the house. In parallel, we established partnerships with academic organisations and think tanks to show the potential for models like BiosPHera in cities of the future.

*“Collaboration with academia and other industries to drive innovation is a core activity for ROCKWOOL. City planners and researchers have welcomed this very tangible showcase.”*

## Steen Lindby

Vice President, Group Development  
ROCKWOOL Group

## Reducing energy poverty

Energy efficiency has benefits beyond mitigating climate change; it's recognised as one of the most effective long-term measures for lifting people out of energy poverty. In the EU, the Energy and Climate Commissioner estimates that just one percent improvement in energy efficiency could lift seven million people out of energy poverty.<sup>24</sup>

## Treehouses – without the trees

Rockpanel<sup>®</sup> Woods looks like wood but are made from stone wool. In addition to the clear fire safety and environmental benefits compared to timber, these panels allow the architect to express a vision with natural-looking shapes and varied colour tones that create beautiful facades and roofs.

## Water management

Precision Growing with Grodan products use significantly less water and nutrients compared to conventional cultivation in soil – in fact, tomatoes grown in the medium, consume three to four times less water per kilogram, compared to in a field.

Grodan's wireless growing tool, GroSens Multisensor<sup>®</sup> enables growers to optimise irrigation by measuring parameters such as temperature, fertiliser and water content in the root zone. In 2016, e-Gro<sup>™</sup> was introduced to help customers link GroSens<sup>®</sup> to an app.

Lapinus products can help customers manage extreme rainfall by absorbing up to 95 percent of their volume in water, while acting as a natural filter.

## Off-grid sanitation

The BIOROCK system uses Lapinus materials to filter domestic effluent into a quality clean enough for discharge into the environment. The system has been installed in hundreds of off-grid locations around the world, working silently without the need for external electricity and requiring minimal maintenance.



## Did you know?

If all the tomatoes grown in stone wool in Benelux greenhouses in 2016 instead had to be replaced by soil grown tomatoes from open fields in the Mediterranean area, 65 billion more litres of water would have to be used for irrigation.<sup>25</sup>



BIOROCK showed 99 percent cleaning efficiency at a holiday home in South Africa.

## Helping Marriott meet Manhattan's energy goals

### CASE STUDY

Business: ROXUL building insulation

### Marriott Hotel

**Around three quarters of greenhouse gas emissions in New York City come from buildings,<sup>26</sup> 90 percent of which is from heating and cooling. Marriott selected ROXUL insulation for its planned downtown hotel due to its energy efficiency, fire and water barrier properties.**

With the target to halve Lower Manhattan's CO<sub>2</sub> emissions by 2030 and reduce citywide emissions by 80 percent by 2050, businesses, households and municipal authorities all have important roles to play. We supplied CAVITYROCK for exterior wall insulation for the 31-story Courtyard by Marriott hotel, opposite the World Trade Center memorial. Selected for its fire resistance, the insulation also appealed to the customer for its ability to enhance guest comfort and the acoustics of open spaces.



## ROCKWOOL Technical Insulation delivers for world's largest solar power complex

### CASE STUDY

Business: ROCKWOOL technical insulation

### Government of Morocco

**Rapid development is leading to swiftly rising energy demand across Africa. And sustainability objectives mean that many countries are prioritising renewable development in order to meet this demand. Ensuring that solar energy is not lost through poor insulation is key to the success of solar plants.**

To deliver this, ROCKWOOL Technical Insulation is providing several thousand square metres of wire mats, pipe sections and slab insulation, which will be used in tank roofs and walls, as well as pipework. The first deliveries have already taken place and continue into 2017.

The government of Morocco aims to generate 42 percent of its electricity from renewables by 2020 and 52 percent by 2030. Through the Morocco Solar Plan it aims to install 2,000 megawatts of solar capacity by 2020, which will constitute around 14 percent of the country's energy mix.

In 2016, ROCKWOOL Technical Insulation won the tender for the Noor Ouarzazate II and III plants, part of the world's largest solar power complex. When complete, these plants will provide electricity to more than 1 million people, lowering carbon emissions by an estimated 760,000 tonnes per year.



# In partnership for low-carbon, high-quality living



To realise our vision for a built environment that enriches modern life while using fewer resources, we need to share and learn from others; and we're working together to create a policy framework that supports this vision.

In 2016, we actively engaged in the COP22 climate conference, including having provided insulation to the conference buildings. ROCKWOOL is one of three major global businesses that backed the World Green Building Council's ambitious long-term target to ensure that all buildings are, through high levels of energy efficiency, net zero carbon emission by 2050, as official sponsors of the Advancing Net Zero project.

## Europe

In Europe, we support RENOVATE Europe, the only EU-wide political campaign focusing exclusively on renovating the existing building stock. We are among the founders of the European Alliance of Companies for Energy Efficiency in Buildings and are actively involved in Climate-KIC, Europe's largest public-private innovation partnership for climate change mitigation and adaptation. We're a long-standing member of the European Council for an Energy Efficient Economy, a non-profit association looking at evidence-based policy analysis. Additionally, we are members of or support projects in national associations, NGOs, and think tanks promoting energy efficiency and other relevant issues.

## BetterHome, Denmark

ROCKWOOL and three other Danish manufacturers of energy-saving solutions – Danfoss, GRUNDFOS, and VELUX – have launched the BetterHome initiative to help Danish homeowners invest in cost-effective energy-saving home improvements tailored specifically for each individual home. In addition to working with local tradesmen, BetterHome also engages financial institutions and energy companies to identify customers that will benefit from energy retrofits.

*"Home owners have told us that the collaborative approach of BetterHome, where all technical and financial options are presented together, makes it much easier for them to make decisions on improving their home."*

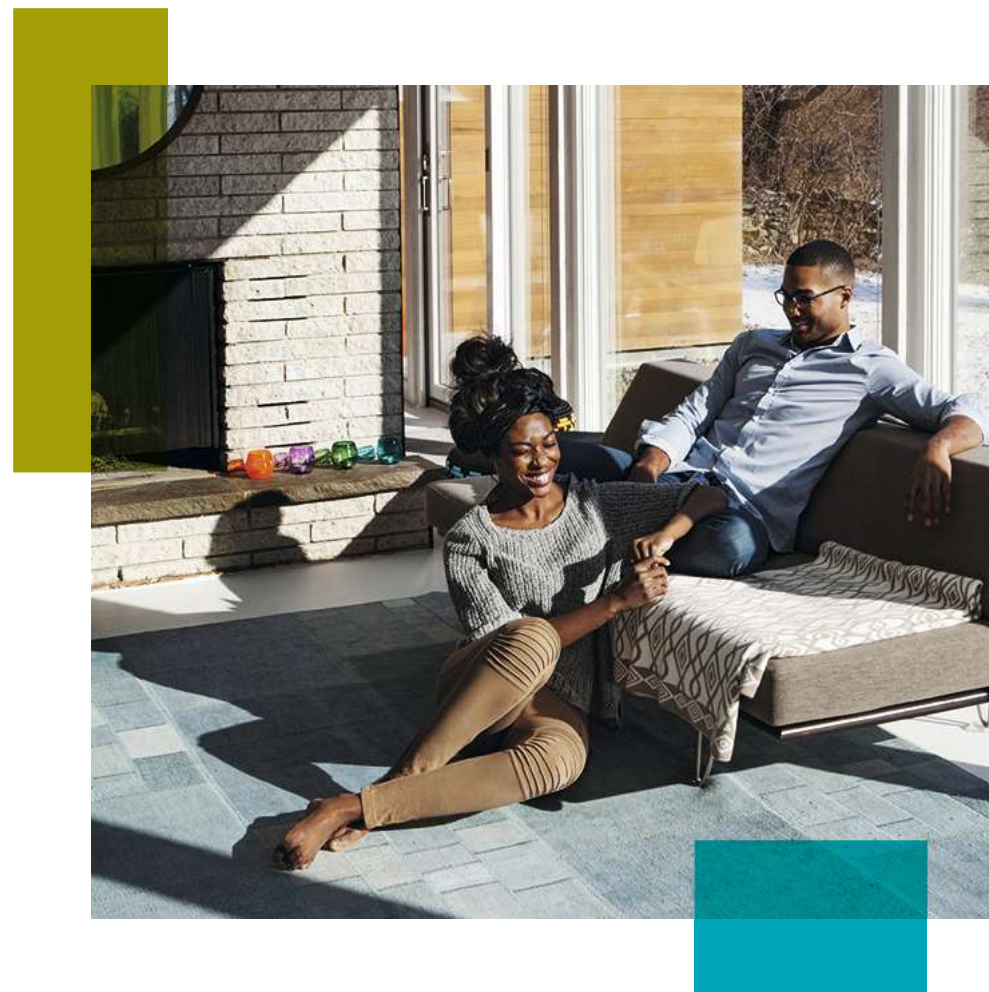
**Niels Kåre Bruun**  
Director of BetterHome

## North America

We sponsored a feasibility study to determine the viability of implementing the PassiveHaus standard for tall residential buildings in New York and continued support of City University of New York's high-performance wall assemblies.

## Asia

Together with members in Melaka Green Development Organisation in Malaysia, ROCKWOOL South Asia has contributed to developing a local green building rating tool, with state-wide compliance in using the tool to start in 2018.



# Safe and sound: spaces that enrich our lives

If you live in a city anywhere in the world, you will most likely spend up to 90 percent of your time in a building.<sup>27</sup> Our wellbeing goes hand-in-hand with the comfort of the environment where we work, live, learn, play or even – in the case of a hospital – recover.



**ROCKWOOL**  
Safety, health and wellbeing

**IN THIS SECTION**

The solutions behind modern living often go unnoticed	25
Inside ROCKWOOL: how we're doing	26
Safe, silent, sustaining	27
In action	28
Insights	29

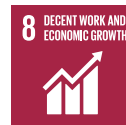
## The potential



Because stone wool can resist temperatures up to 1,000°C, it can help contain fires and avoid significant toxic smoke. This buys more time for those inside the building to escape safely and for fire brigades to extinguish the fire.



Stone wool is an important component of comfortable and healthy living. As well as its thermal properties, the fibrous structure provides noise and vibration control. ROCKWOOL insulation attenuates noise passing through building assemblies. Rockdelta products damp ground-borne noise and vibration from trains. Rockfon ceilings provide sound absorption, making rooms more comfortable to be in and improving our ability to communicate effectively.



Creating products that protect and nurture millions of people around the world begins with protecting our own people. We have always prioritised the safety and wellbeing of the 10,500 people who come to work at ROCKWOOL each day.

See how we're working in partnership with others to enrich modern living on page 29.

*"It gives you a feeling of wellbeing, safety and peace in mind that a sustainable and non-combustible insulation system with the Blue Angel certificate protects our facade."*

**Irmgard Wittmann**  
Head Master  
Plößberg primary school  
Bavaria, Germany

*"The primary aspects of the lab design were its functionality and flexibility. Limiting noise from equipment was a significant consideration, given the research labs are an open concept. Rockfon was a new product to us and, so far, we are very pleased with the performance and durability."*

**Hovan Stepanian**  
Project Manager at Aecon Group Inc. and  
Project Manager of Toronto Scarborough  
Campus project



# The solutions behind modern living often go unnoticed

The beauty of our products is that they are all around us, all the time, no matter where we are. They are quiet and sometimes go unnoticed, but the silent, often-hidden existence of these products makes our lives measurably more comfortable and enjoyable.



## Places for learning

Increasing cognitive performance.

### Product feature

Partition wall insulation and Rockfon acoustic solutions improve the ability of students to hear and thereby understand what the teacher has said.



## Offices

Not too hot, and not too cold.

### Product feature

Our insulation products fit all types of buildings and can be applied to roofs, lofts, walls and floors, creating spaces with a comfortable indoor temperature without cold surfaces. In warm climates they help to insulate against heat and reduce the need for air-conditioning. This thermal comfort increases productivity and efficiency in the workplace.



## Iconic buildings

Places to marvel at.

### Product feature

Our products might go unnoticed yet are present in landmarks like the Eiffel Tower, Empire State Building, Bolshoi Theatre, Torre Agbar, Marina Bay Sands, and The Shard.



## Hospitals

Places to recover.

### Product feature

Rockfon products absorb sounds and do not support the growth of harmful micro-organisms or bacteria, contributing to creating healthy indoor environments.



## Homes

A safe haven.

### Product feature

ROCKWOOL insulation built into the walls and/or facades will withstand a fire for hours, which could make the difference between having a fire in a building and a building on fire.



## Attractive neighbourhoods

Positive social impact through aesthetic improvements.

### Product feature

Rockpanel facade boards feature unique material properties due to the stone wool composition with a large number of design variations and high durability.

Rockpanel boards are specified for their aesthetic benefits as well as their fire resilience and hard wearing, low maintenance design. Combined, these attributes help minimise lifecycle costs.

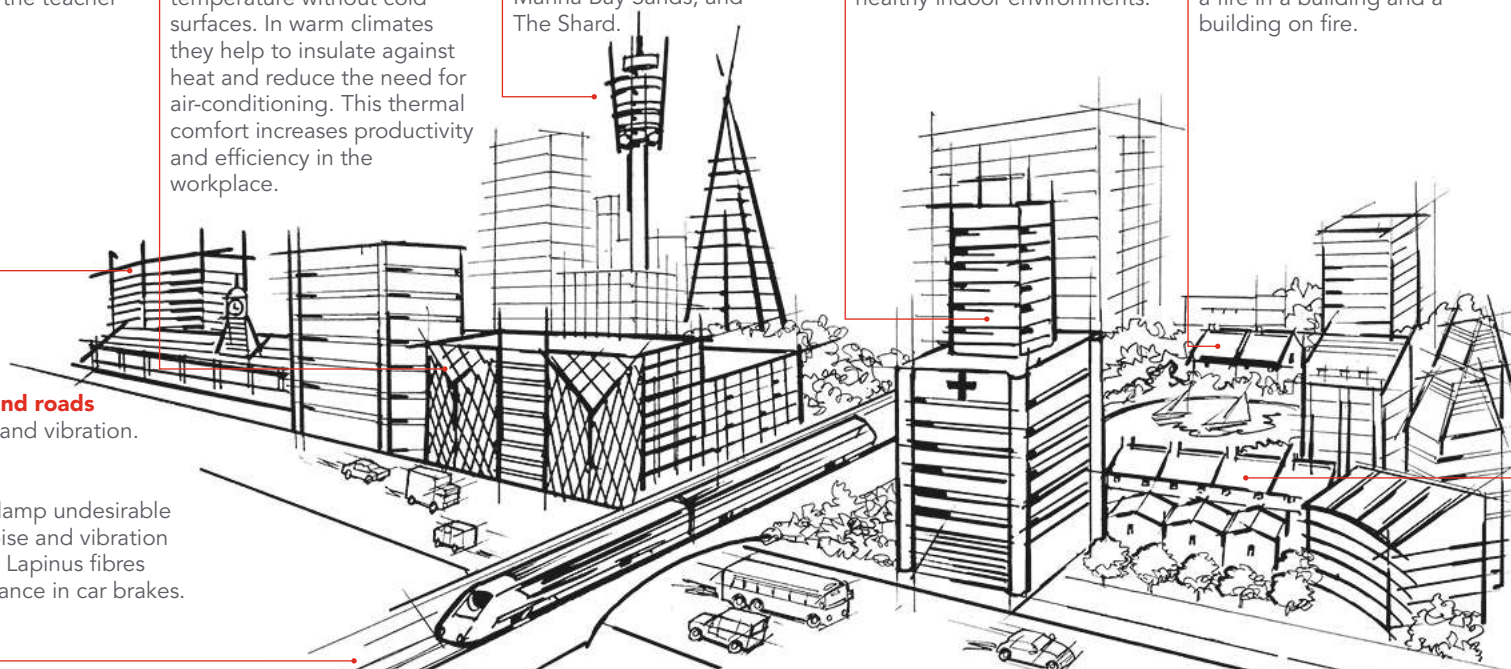


## Quiet railways and roads

Absorbing noise and vibration.

### Product feature

Rockdelta mats damp undesirable ground-borne noise and vibration from trains, while Lapinus fibres improve performance in car brakes.

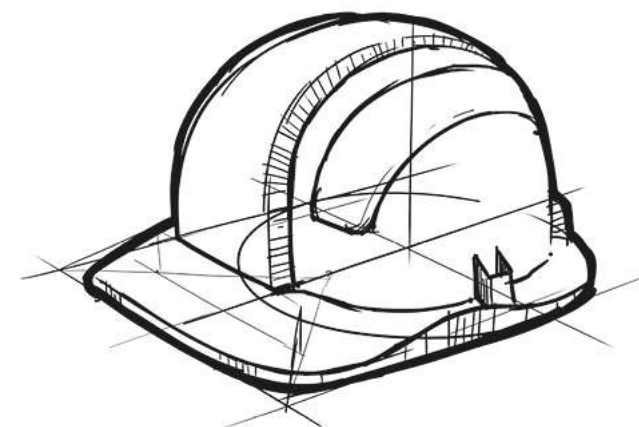
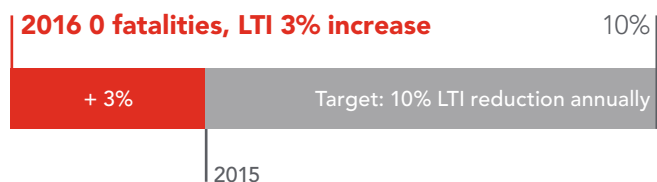


# Inside ROCKWOOL: how we're doing



## Safety, health and wellbeing

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



### 2016 highlights:

- The most important safety achievement in 2016 is that we met our goal of zero fatalities. Taking into account that we operate in a heavy industry, this is very significant.
- Whilst not quite achieving the LTI goal, we still remain best in class in our industry. Furthermore, the safety performance in non-mineral wool production activities saw major improvements.

### Challenge:

In 2016, there was one serious incident at one of our factories in Denmark when a lifting hoist broke and struck the employee. We take all incidents seriously and learn from them. Prioritising the use of leading indicators to prevent incidents, such as reporting unsafe conditions or situations, safety inspections and safety trainings, aims to help further reduce safety risks.

### What's next?

In the year ahead, we plan to roll out our online safety system to the whole Group, allowing better incident investigation, root cause analysis and corrective actions management. We will assess more job roles for safety risks, implement best practice safety KPIs and pay particular attention to factories with poorer performance. We will also maintain our focus on safety during travelling and driving.

We issued a new chemical management policy and manual that will be anchored in the organisation in the coming year in order to strengthen chemical management including more transparency in the supply chain. We also began making our internal processes for selecting new melting raw materials more robust by lowering the risks of non-compliance and by linking them closely to the procedure for quality assurance of raw materials.

# Safe, silent, sustaining

## Fire protection

ROCKWOOL insulation built into the walls and/or facades can withstand a fire for hours, depending on the thickness of the wall. This can prevent the fire from spreading throughout the interior or exterior of the building, which could make the difference between having a fire in a building and a building on fire.

## Comfort and wellbeing

As well as ensuring fire safety, we provide affordable retrofitting that improves comfort and wellbeing. For example, studies show that the cognitive performance of both children and adults is affected by noise and that their ability to work and learn is therefore impaired in noisy environments.<sup>28</sup> In 2016, Frederiksbjerg School designed by Henning Larsen Architects won Denmark's School Building of the Year award. The highly creative design of this school will help encourage pupils to move around within a series of innovative acoustically optimised rooms with ceilings from Rockfon.

### Did you know?

We will be helping ensure fire resilience and lasting durability of Central Park Tower in New York City, designed to become the tallest residential building in the world.



## Reducing Moscow's noise stress

Almost three quarters of Moscow's population suffer from noise stress.<sup>29</sup> In 2016, ROCKWOOL Russia launched Acoustic ULTRATHIN, a product designed for people living in small flats who suffer the physiological effects of urban noise. With a width of just 27mm, this was the first such product in Russia and has been welcomed by residents who now enjoy more privacy.

*"We have had really good feedback from consumers and customers about this product. It is one of those things that once you have it, you cannot imagine how you managed without it. Quiet privacy in your own home – we should all be allowed that."*

### Maxim Tarasov

Sales Director  
ROCKWOOL Russia

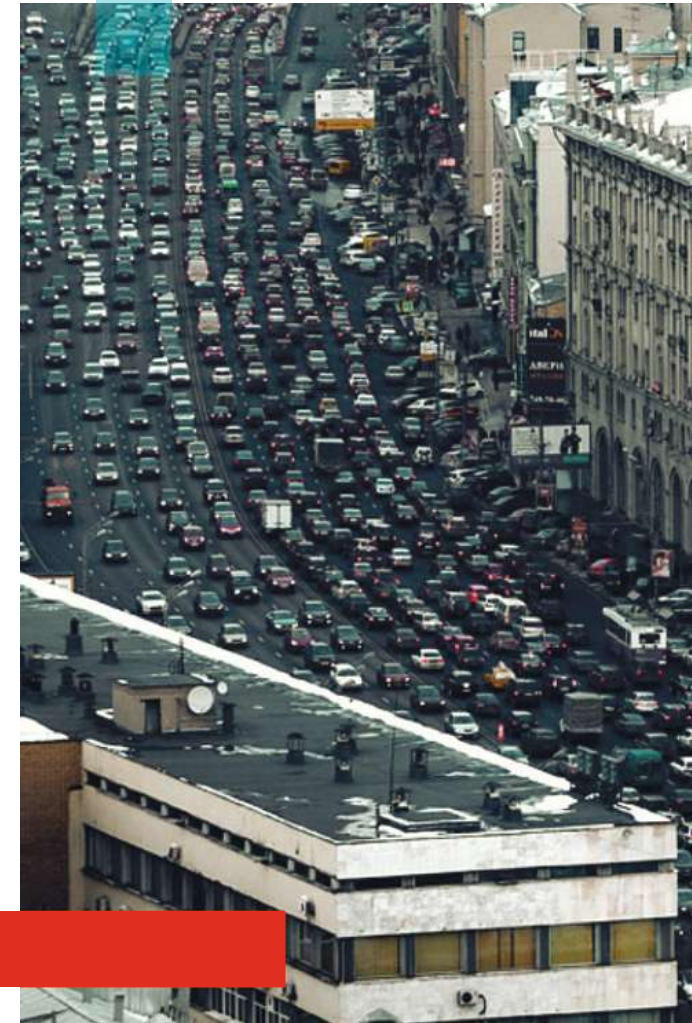
## Stockholm's quiet railway

In 2016, we helped complete the six-kilometre commuter train tunnel beneath central Stockholm, with an estimated 56,000 daily passengers. Around 60,000 square metres of Rockdelta mats will mean that more than 100,000 households will be protected from noise and vibrations – and so will the many historic buildings above the tracks.

More than

# 100,000

households are protected from noise and vibrations through Rockdelta stone wool mats.



Garden Ring, Moscow.

## Taking the stress out of travel

CASE STUDY

Business: ROCKWOOL building insulation

### Terminal Bersepadu Selatan

**ROCKWOOL roof insulation was the ideal solution to keep passengers comfortable at Kuala Lumpur's main bus terminal.**

Architects at Bersepadu Selatan, the main long distance bus terminal in the city, were looking for a roof that would keep 52,000 daily passengers cool, while also blocking out bus noise and meeting world-class fire standards. They chose ThermalRock B50, which helps keep passengers cool by reducing the heat penetrating through the roof, protects them against noise and is simple and fast to install, meaning minimum disruption. And of course, it offers those using the building a high level of fire protection.



## Learning in peaceful surroundings

CASE STUDY

Business: Rockfon ceilings

### University of Toronto

**Rockfon acoustic stone wool ceiling panels and suspension systems are helping the University of Toronto's Scarborough campus meet LEED Gold building standards.**

As well as meeting high sustainability criteria such as recycled content, the panels also absorb noise, vital for spaces like this where people gather and converse in groups. The smooth white surface of the ceiling panels reflects up to 86 percent of available light, dispersing it more effectively. Another advantage is that the ceiling panels do not support the growth of harmful micro-organisms or bacteria, contributing to creating a healthy indoor environment for building users and meeting UL® Environment's GREENGUARD low emissions Gold certification.



# In partnership for healthy buildings



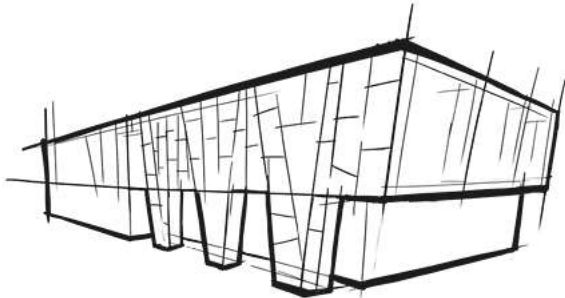
We are part of global and local alliances that bring together urban planners, architects and construction firms to create healthy, sustainable buildings. These include the Active House Alliance and a number of Green Building Councils globally. We also advocate that acoustic criteria are integrated into sustainable building standards such as WELL (for buildings that support health and wellbeing), LEED and Green Globes.

## Europe

Making cities safe and healthy places to live calls for the right regulatory frameworks, as well as voluntary sustainable building rating schemes. As founding members of Fire Safe Europe, we join others to draw regional attention to facade fire safety and the threats of smoke toxicity. Engaging with a wide variety of stakeholders to support research and awareness is also critical and in 2016 we supported research at the Technical University of Denmark; University of Central Lancashire, UK; University of Edinburgh, UK; and University of Waterloo, Canada looking at fire performance of stone wool products, smoke toxicity, fire protection of cross laminated timber, scaling of fire test methods and fire performance of roofing with solar photovoltaic panels.

## North America

We are strongly committed to Optimized Acoustics, an initiative launched at the 2016 American Institute of Architects conference and subsequently in Canada to draw attention to building acoustics and wellbeing. The campaign includes research, awareness and education and is beginning to catalyse wider collaboration. Our role includes supporting research in independent laboratories, drafting white papers, helping develop a dedicated website and awareness materials, and contributing to the initiative's continuing education units for architects, including online options. Rockfon has been invited to present Optimized Acoustics at the U.S. National Institutes of Health in 2017.



# Driving sustainable and responsible performance

At the ROCKWOOL Group, we are committed to conducting ourselves sustainably, responsibly and transparently. ROCKWOOL has signed up to the United Nations Global Compact and expresses our continued support for the Global Compact, hereby renewing our ongoing commitment to the initiative and its principles. This commitment means continuously evolving our governance, policies, training and stakeholder dialogue.

## Driving sustainability performance

During the year, we continued to strengthen the relevant governance structures to support the Group's sustainability ambitions. We established a Group sustainability function and steering committee in 2016. The steering committee met on five occasions. Further steps to ensure that business decisions reflect our sustainability commitments included updating investment processes to align with sustainability goals. In early 2017 the Board of Directors decided to increase the focus on sustainability and consequently asked the Audit Committee to include monitoring of the Group's sustainability performance as a part of the Committee's area of responsibility.

## Supply chain and human rights

Sourcing is done in accordance with the Group Procurement Policy, which requires that suppliers of direct materials with an annual spend more than EUR 100,000 sign the Code of Conduct, aligned with the 10 principles of UN Global Compact and now available in 12 languages. So far, 94 percent have signed the Code, up from 76 percent in 2015. We carried out 121 supplier evaluations in 2016, two of which led to corrective actions. A project was initiated to review current internal procedures within the supply chain to ensure they are sufficiently robust. Human rights are part of the ROCKWOOL Group's Social Charter. Read more about our approach to human rights in the ROCKWOOL Group Annual Report available at [rockwool.com/investor-relations/financial-reports](http://rockwool.com/investor-relations/financial-reports).

## Anti-corruption

The ROCKWOOL Group recognises that corruption is a potential risk in business and is dedicated to responding to this risk as comprehensively and systematically as possible. The fight against corruption is part of the Business Ethics Manual of the Group. The Group's Integrity Committee consists of the CEO, Chief Financial Officer, a senior member of Group Management and the Group General Counsel. It oversees the Group's compliance within competition law, anti-bribery, data privacy and export control. It takes a zero tolerance stance on corruption in any form, as outlined in our Business Ethics Manual, while at the same time offering a timely and consistent response to all issues raised through our anonymous whistle blower system.

## Engaging our people

All employees with third party contacts and indirect employees must undertake e-learning training in Business Ethics. Additional training is given in countries with high corruption ratings and for Group sourcing and procurement staff. The Group's whistle blower policy encourages employees, suppliers, distributors and customers to expose any corrupt practices or misconduct with their anonymity protected. In 2016, we investigated eight integrity incidents, three of which were reported and investigated as a result of whistle-blowing.



## 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 into issues relevant to society and develops innovative solutions to social problems in the form of practical interventions.

With 23 percent of the ROCKWOOL Group dividend going to the ROCKWOOL Foundation, its focus is on five key issues: 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. In 2016, the Foundation conducted research across the five issues and shared its findings with policy makers and the wider public, contributing insight to a number of publications, TV and radio broadcasts and presentations to parliamentary committees.

The Foundation was also particularly involved in trialling initiatives aimed at raising rates of employment and levels of education among disconnected young people, including young people from ethnic minority backgrounds, and this work will continue in the coming years.

As well as research, the Foundation works to find practical solutions to societal challenges. Interventions are tried and tested in collaboration with expert partners, with the joint goal of scaling any successful interventions to a national level. In 2016, the interventions unit added two new initiatives: an integration programme addressing why young people from ethnic minorities are more frequently in neither education nor employment; and an initiative that looks at drop-outs from education.

See the Foundation's annual report at [www.rockwoolfonden.dk](http://www.rockwoolfonden.dk)

**23%**

of the ROCKWOOL Group dividend going to the ROCKWOOL Foundation



### Did you know?

In 2016, the ROCKWOOL Foundation focused on the issue of social mobility, funding a study by Rasmus Landersø at the Research Unit and Nobel laureate James Heckman, Professor of Economics at the University of Chicago.

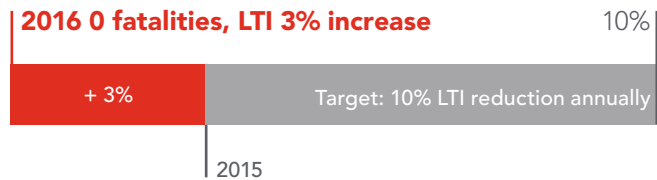


# Progress on our sustainability goals



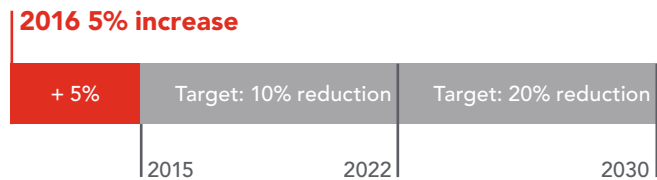
## Safety, health and wellbeing

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



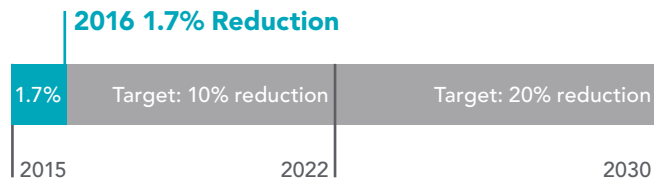
## Water consumption

**Our goal:** Reduce water consumption within our factories (m<sup>3</sup>/t wool)



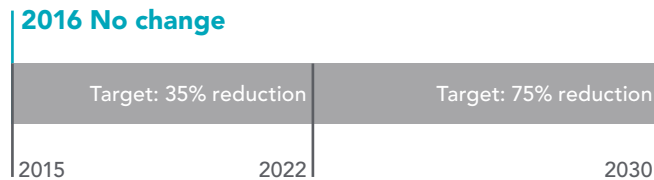
## CO<sub>2</sub> Emissions

**Our goal:** Reduce CO<sub>2</sub> from our factories (t CO<sub>2</sub> / t wool)



## Energy efficiency

**Our goal:** Reduce energy usage within own (non-renovated) building stock (kWh/ m<sup>2</sup>)



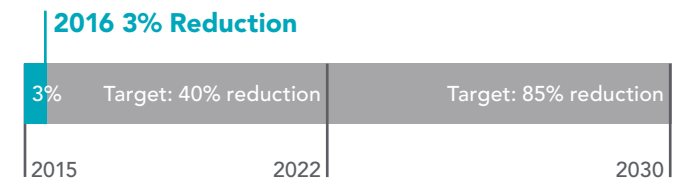
## Reclaimed waste

**Our goal:** Increase the number of countries (currently five) where we offer the reclaiming of product waste from market



## Landfill waste

**Our goal:** Reduce landfill waste from our factories (tonnes)



All baselines were set at 2015



# Performance data and GRI index

## Sustainability governance

The Group Sustainability function is led by the Head of Group Sustainability who reports to the Senior Vice President for Group Marketing, Communication and Public Affairs, a member of Group Management. The Head of Group Sustainability is responsible for coordinating and tracking progress of Group Sustainability Goals, which are reported directly to Group Management. Key sustainability-related decisions are made within the Group Sustainability Steering Group comprising two members of Group Management; a Managing Director; Group Safety, Health, Environment and Quality Director; and Head of Group Sustainability.

## Reporting criteria

This 2016 report covers the calendar year and is in line with the Global Reporting Initiative (GRI G4) guidelines. A materiality analysis was conducted in 2016 in collaboration with an external party in order to determine the most material topics for ROCKWOOL Group and its stakeholders. These material topics are listed in the GRI table in this appendix and throughout this report.

## Reporting boundary

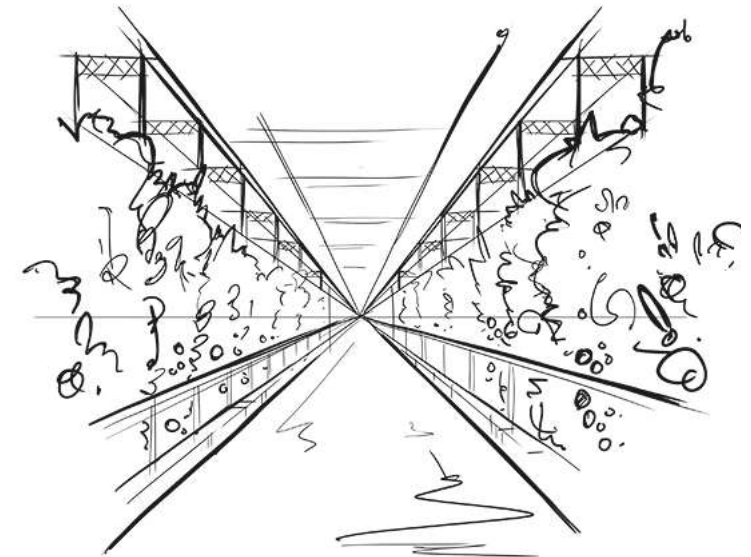
The scope of this report is the ROCKWOOL Group and all our mineral wool producing companies in which we hold the majority of shares. This means a total of 70 legal entities in 35 countries and 28 factories in 18 countries. For safety data, this scope is extended to cover the whole Group. You can find the list of our companies (including the degrees of ownership) on page 117 of our 2016 Annual Report available at [www.rockwool.com/investor-relations/financial-reports](http://www.rockwool.com/investor-relations/financial-reports).

## Reporting methodology

Based on stakeholder dialogue and the GRI standards, key performance indicators (KPIs) were selected and reported in order to provide a balanced and representative picture of our business. Most of the data in this report was gathered by individual business units and reported to the Group head office. The data was then consolidated and verified internally. Some data in this report including financial, governance, some social and, to a limited extent, environmental data comes from our Annual Report, which has been assured by external auditors.



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



## Appendix – Key performance data

Category	Indicator	GRI-G4	Value	2012	2013	2014	2015	2016	Note
<b>Tonnes wool produced</b>			Mt	2,18	2,22	2,29	2,30	2,34	1
<b>Anti-corruption</b>	Confirmed incidents of corruption and actions taken	SO5	Number	–	2	3	3	1	
	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	1	–	–	–	–	
	Frequency of LTI – employees and contractors (per million hours worked)	LA6	no./mill hrs	3.7	4.5	3.2	3.1	3.2	2
<b>Environmental management</b>	Factories certified to ISO 14001 and/or OHSAS 18001		Number	12	12	18	17	17	
	Percent of factories certified to ISO 14001 and/or OHSAS 18001		%	44	44	67	63	61	
	Audits for environment, health, safety		Number	60	65	94	123	107	3
<b>Environmental laws and regulations — non-compliance</b>	Fines – monetary value	EN29	kEUR	–	2	–	1	2	
	Non-monetary sanctions	EN29	Number	–	–	–	–	–	
<b>Energy</b>	Energy consumption (in 28 factories)	EN3	GWh	4,139	4,361	4,444	4,474	4,466	1
	Energy per tonne stone wool (28 factories)	EN5	MWh/t	2.06	1.97	1.94	1.94	1.91	1
<b>Greenhouse gas emissions (GHG)</b>	Total direct and indirect greenhouse gas emissions	EN15, EN16	Mt CO <sub>2</sub>	1.60	1.58	1.64	1.59	1.59	1, 4, 5
	CO <sub>2</sub> direct (Scope 1)	EN15	Mt CO <sub>2</sub>	1.26	1.24	1.28	1.28	1.27	1, 4, 5
<b>Greenhouse gas emissions (GHG)</b>	CO <sub>2</sub> indirect (Scope 2)	EN16	Mt CO <sub>2</sub>	0.34	0.34	0.35	0.31	0.32	1, 4, 6
	CO <sub>2</sub> direct (Scope 1) per tonne stone wool (28 factories)	EN15	kg CO <sub>2</sub> /t	585	562	561	555	544	1, 4, 5
	CO <sub>2</sub> indirect (Scope 2) per tonne stone wool (28 factories)	EN16	kg CO <sub>2</sub> /t	155	152	153	136	135	1, 4, 6
	CO <sub>2</sub> direct and indirect (Scope 1+2) per tonne stone wool (28 factories)	EN15, EN16	kg CO <sub>2</sub> /t	740	714	714	691	679	1, 4, 5, 6
	CO <sub>2</sub> from downstream transportation – European Division	(EN30)	tonnes CO <sub>2</sub> e		23,162	26,899	30,821	30,760	

## Appendix – Key performance data

Category	Indicator	GRI-G4	Value	2012	2013	2014	2015	2016	Note
<b>Ozone depletion</b>	Emissions of ozone-depleting substances	EN20	t CFC11 eq	negligible	negligible	negligible	negligible	negligible	
<b>Air emissions</b>	NOx per tonne stone wool	EN21	kg/t	0.63	0.66	0.76	0.62	0.77	7
	SO <sub>2</sub> per tonne stone wool	EN21	kg/t	2.69	2.97	3.32	3.22	3.24	7
	CO per tonne stone wool	EN21	kg/t	15.39	15.15	12.45	7.76	2.24	7
	Ammonia per tonne stone wool	EN21	kg/t	1.11	1.41	1.33	1.3	1.17	7
	Phenol per tonne stone wool	EN21	kg/t	0.18	0.18	0.15	0.16	0.15	7
	Formaldehyde per tonne stone wool	EN21	kg/t	0.1	0.06	0.09	0.05	0.05	7
	Particulate matter (PM10) per tonne stone wool	EN21	kg/t	0.44	0.49	0.6	0.43	0.63	7
<b>Water</b>	Water consumption per tonne stone wool		m <sup>3</sup> /t	1.31	1.37	1.32	1.35	1.39	8
	Water consumption excl. rainwater per tonne stone wool						1.27	1.33	9
	Water consumption total	EN8	million m <sup>3</sup>	2.86	3.04	3.02	3.05	3.24	8
<b>Water withdrawal by source</b>	Groundwater own abstraction	EN8	million m <sup>3</sup>	1.04	0.97	0.96	0.92	1.0	8
	Municipal water a.o. utilities	EN8	million m <sup>3</sup>	1.36	1.67	1.61	1.63	1.81	8
	Rainwater own abstraction	EN8	million m <sup>3</sup>	0.18	0.16	0.21	0.22	0.13	8
	Surface water own abstraction	EN8	million m <sup>3</sup>	0.27	0.25	0.25	0.29	0.30	8
	Waste water from external source	EN8	million m <sup>3</sup>	–	–	–	–	–	
	Water consumption significantly effecting water resources	EN9	million m <sup>3</sup>	–	–	–	–	–	10
	Percent of water consumption with significant effect	EN9	%	–	–	–	–	–	
<b>Waste &amp; Recycling</b>	Total waste generated	EN23	tonnes	358,200	197,100	185,140	189,730	201,573	
	Total waste per tonne stone wool	EN23	kg/t	164	89	81	82	86	
	Waste landfilled	EN23	tonnes	150,500	87,900	86,900	93,960	91,230	1, 11
	Waste for external recycling	EN23	tonnes	174,200	77,600	91,750	73,550	84,673	
	Waste for external recovery (energy)	EN23	tonnes	8,300	7,300	10,900	8,600	13,160	
	Waste to landfill per tonne stone wool		kg/t	69	40	38	41	39	1
	Recycling of residue from other industries		tonnes	564,900	619,400	543,815	845,950	740,550	
	Percent recycled content (secondary melt raw materials + reclaimed waste per tonne stone wool)	(EN2)	%	25.9	27.9	23.7	37.4	31.7	
	Products and packaging reclaimed	EN28	tonnes	12,600	23,200	15,280	14,200	18,110	12

## Appendix – Key performance data

### Notes

- 1 2015 adjusted to 28 factories compared to last year's report, as 2015 is baseline year for sustainability goals. 2016 covers 28 factories.
- 2 Lost days count begins the day after the accident and connotes scheduled work days. Minor (first-aid level) injuries are not included.
- 3 2014 and 2015 values adjusted.
- 4 Our methodology for calculating the Group's direct (Scope 1) and indirect (Scope 2) CO<sub>2</sub> emissions is based on 'The Greenhouse Gas Protocol'. We used 'The IPCC Second Assessment Report (SAR-100 year)' as reference for calculating our global warming potentials. Other indirect emissions (Scope 3) are not included as these are considered negligible compared to the enormous savings of the products.
- 5 Scope 1 is verified for European factories for 2015. As verification data for 2016 has yet to be submitted, 2016 data is based solely on internal data.
- 6 Scope 2 emission calculated with market based values for 2015 (baseline year) and 2016. Emissions factors are from 2015.
- 7 2016 covers 28 factories; 5 factories in South East Asia and China replaced with representative average.
- 8 2015 data adjusted to cover new definition (entire site).
- 9 New parameter.
- 10 Environmental engineering firm Ramboll Environ 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 2015 corrected value.
- 12 Products and packaging reclaimed by external partners are not covered in the Group figures, only the part directly from our factories.

## 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.4-5
G4-3	core	Name of the organisation		AR: p.117 Group Companies
G4-4	core	Primary brands, products, and services		AR: p.22-31 – Market and trends
G4-5	core	Location of the organisation’s headquarters		AR: p.117 Group Companies
G4-6	core	Number of countries operating		AR: p.6-7 – ROCKWOOL 2016
G4-7	core	Report the nature of ownership and legal form		AR: p.117 – Group companies
G4-8	core	Markets served		AR: p.8-9 – World leader with local presence
G4-9	core	Scale of the organisation		AR: p.6-7 – ROCKWOOL 2016 AR: p.8-9 – World leader with local presence AR: p.42 – 5 year overview AR: p.117 – Group companies
G4-10	core	Total number of employees		AR: p.6-7 – ROCKWOOL 2016
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.39 – Fulfilling the UN Sustainable Development Goals
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 has signed up to 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.17, 23, 29
G4-17	core	Entities included and excluded in consolidated financial statements		AR: p.114 – Note 30 – General accounting policies applied AR: p.117 – Group companies

## Appendix – GRI index (G4)

Indicator	Level	Description	Value	Reference
G4-18	core	Process report content (Materiality Assessment, etc.)		SR: p.33
G4-19	core	Material aspects	Energy efficiency; Circular economy; Fire resilience; Safety, health & wellbeing; water efficiency and management; public/private sector collaboration	
G4-20	core	Boundary for material aspects within organisation		SR: p.33
G4-21	core	Boundary for material aspect outside organisation		SR: p.33
G4-22	core	Restatements of information	As a new goal for reduction of CO <sub>2</sub> emissions has been made, the baseline year has been changed to 2015	
G4-23	core	Significant changes in scope and boundary		SR: p.33
G4-24	core	List of stakeholder groups engaged by the organisation		SR: p.17, 23, 29
G4-25	core	Basis for identification and selection of stakeholder		SR: p.17, 23, 29
G4-26	core	Approach to stakeholder engagement		SR: p.17, 23, 29
G4-27	core	Key topics and concerns raised through stakeholder engagement		SR: p.17, 23, 29
G4-28	core	Reporting period	1st January 2016 – 31st December 2016	
G4-29	core	Date of most recent previous report	The previous report covered financial year 2015 and was published on 25th August, 2016	
G4-30	core	Reporting cycle	Annual	
G4-31	core	Contact points	Head of Group Sustainability Anthony Abbotts: sustainability@rockwool.com	
G4-32	core	GRI indicators	The GRI table 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
G4-56	core	Organisation's values, principles, standards and norms of behaviour such as codes of conduct and codes of ethics		SR: p.30

## 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.72-78 Financial statements
<b>Materials</b>				
G4-EN2	specific	Percent of recycled content (secondary melt raw materials per tonne stone wool)		SR: p.34-35
<b>Energy</b>				
G4-EN3	specific	Energy consumption (in factories)		SR: p.34-35
G4-EN4	specific	Energy consumption outside of the organisation		SR: p.34-35
G4-EN5	specific	Energy intensity		SR: p.34-35
G4-CRE3	specific	Greenhouse gas emissions intensity from buildings		SR: p.34-35
<b>Water</b>				
G4-EN8	specific	Water consumption total		SR: p.34-35
<b>Emissions</b>				
G4-EN15, G4-EN16	specific	Total direct and indirect greenhouse gas emissions		SR: p.34-35
G4-EN17	specific	Other relevant indirect GHG emissions		SR: p.34-35
G4-EN21	specific	Significant air emissions		SR: p.34-35
<b>Products and services</b>				
G4-EN27	specific	Extent of impact mitigation of environmental impacts of products and services		SR: p.3-29
<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		SR: p.30
<b>Occupational Health and Safety</b>				
G4-LA6	specific	Type of injury and rates of injury		SR: p34-35
<b>Training and education</b>				
G4-LA9	specific	Average hours of training per year per employee by gender, and by employee category		SR: p.30

## Appendix – GRI index (G4)

Indicator	Level	Description	Value	Reference
<b>Supplier assessment for labour practices</b>				
G4-LA14	specific	Percentage of new suppliers that were screened using labour practices criteria		SR: p.30
<b>Customer health and Safety</b>				
G4-PR1	specific	Percentage of significant product and service categories for which health and safety impact are assessed for improvement		SR: p.24-29
<b>Supplier Human Rights Assessment</b>				
G4-HR10	specific	Percentage of new suppliers that were screened using human rights criteria		SR: p.30
<b>Anti-corruption and Compliance</b>				
G4-SO5	specific	Confirmed incidents of corruption and actions taken		SR: p.30, 34-35
G4-SO8		Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations		SR: p.34-35
<b>Supplier assessment for impacts on society</b>				
G4-SO9	specific	Percentage of new suppliers that were screened using criteria for impacts on society		SR: p.30



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# The ROCKWOOL Trademark

### 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 the ROCKWOOL Group, and thus well protected and defended by us throughout the world.

Please help us protect our trademark:

- The ROCKWOOL® trademark must always be written in capital letters.
- The ROCKWOOL trademark must always be followed by a descriptive noun. Example: We produce ROCKWOOL products, ROCKWOOL insulation or ROCKWOOL stone wool.
- Always write the ROCKWOOL trademark completely. Never abbreviate, change or modify it.
- The ROCKWOOL word is not the generic term for insulation or stone wool, and may not be used as such. Use instead e.g. the term ROCKWOOL insulation.
- The first time you mention the ROCKWOOL trademark, it must include the registration symbol ®. Using ROCKWOOL as a company name is without registration symbol and may be used without a descriptive noun. Example: At ROCKWOOL we are rising to the challenges of modern living.

### Trademarks

ROCKWOOL®, ROXUL®, Rockfon®, Rockpanel®, Grodan®, Lapinus®, Rockdelta®, Chicago Metallic®, Fast® and Heck®

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