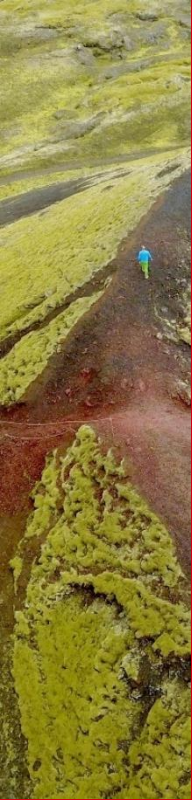




Building tomorrow today

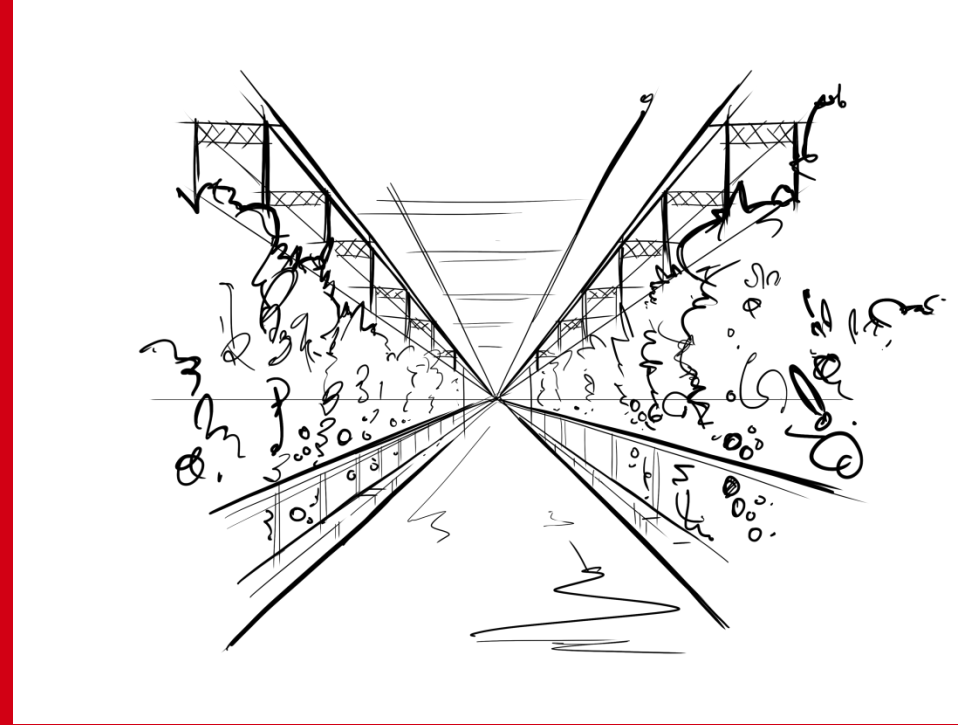
Sustainability Report 2017





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Here we are



Jens' message



What's good for our business

ROCKWOOL insulation is a highly cost-effective way to cut a building's energy use and CO₂ emissions, now and for decades to come.

Due to their excellent thermal and acoustic properties, our products are often the preferred choice when homes, schools, offices, or hospitals are being built or renovated.

With our pioneering product, Rockflow, ROCKWOOL enters a new market – one that offers new types of water management solutions for urban environments.

Innovative growing solutions enable modern horticulture to increase yields while using less water, land and fertilisers.

Our circular business model helps us to turn waste into new raw materials and to recycle used products.

Is good for the world



Significantly improving the energy efficiency of buildings is required if the Paris climate goals are to be met.

People need comfortable, quiet places to live, learn, work, and recover, especially in today's busy urban environments.

As extreme weather events like excessive rainfall become more frequent, communities will need better defences against urban flooding.

With a growing population putting traditional food production under pressure, we need to find ways to feed more people using fewer natural resources.

Embracing circularity will minimise resource consumption and waste going to landfill.



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

We ROCK global goals

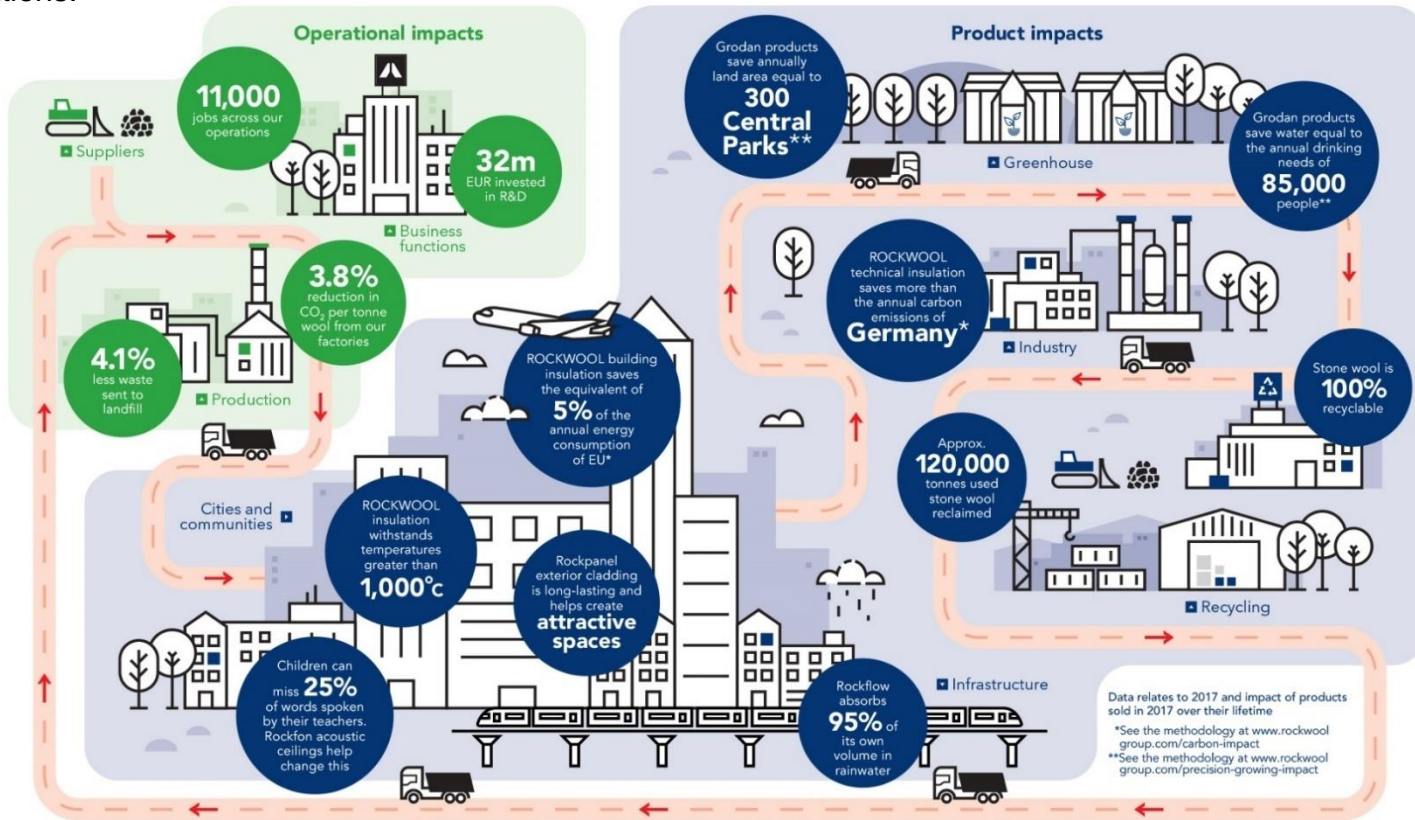
ROCKWOOL's approach to sustainability is closely aligned with UN's Sustainable Development Goals. We have committed to focusing on 10 of these 17 Global goals.

SUSTAINABLE DEVELOPMENT GOALS



The value of sustainable thinking

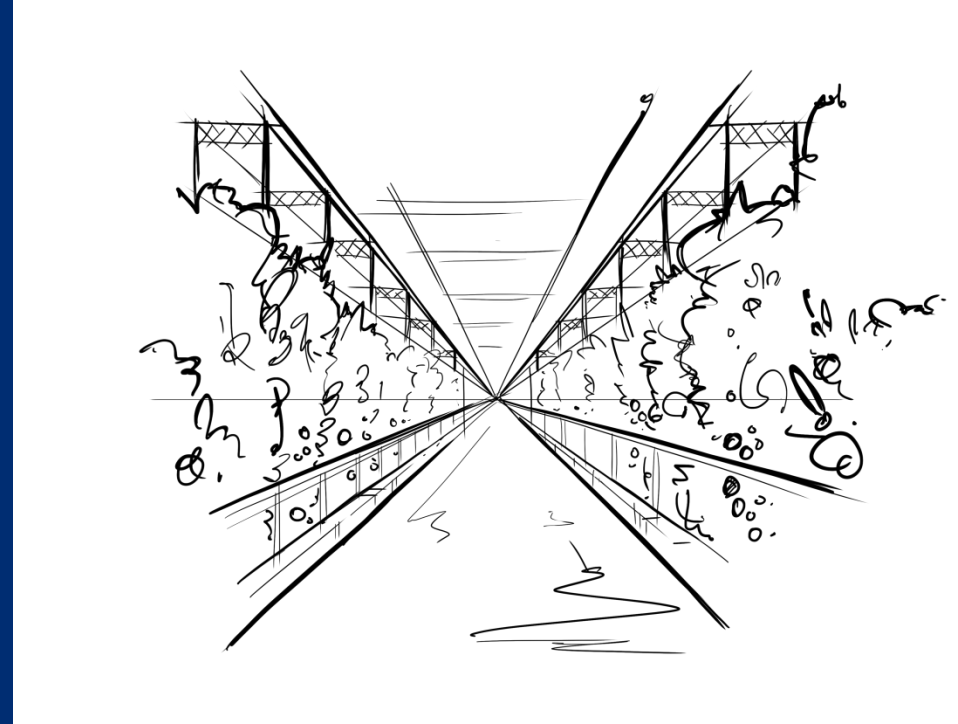
We create value for society by increasing the positive impacts of our products and reducing the negative effects of our operations.



[Watch animation](#)

1

Product impacts



Cities that are safe and resilient

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.

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.

Saving energy, protecting the climate

Over its lifetime, ROCKWOOL technical and building insulation has the potential to save thousands of terawatt-hours of heating energy.

Our products are helping business and building owners save energy and costs and reduce their impact on the climate.

Energy savings of products sold in 2017

Building insulation



Technical insulation



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



Renovating today to benefit tomorrow



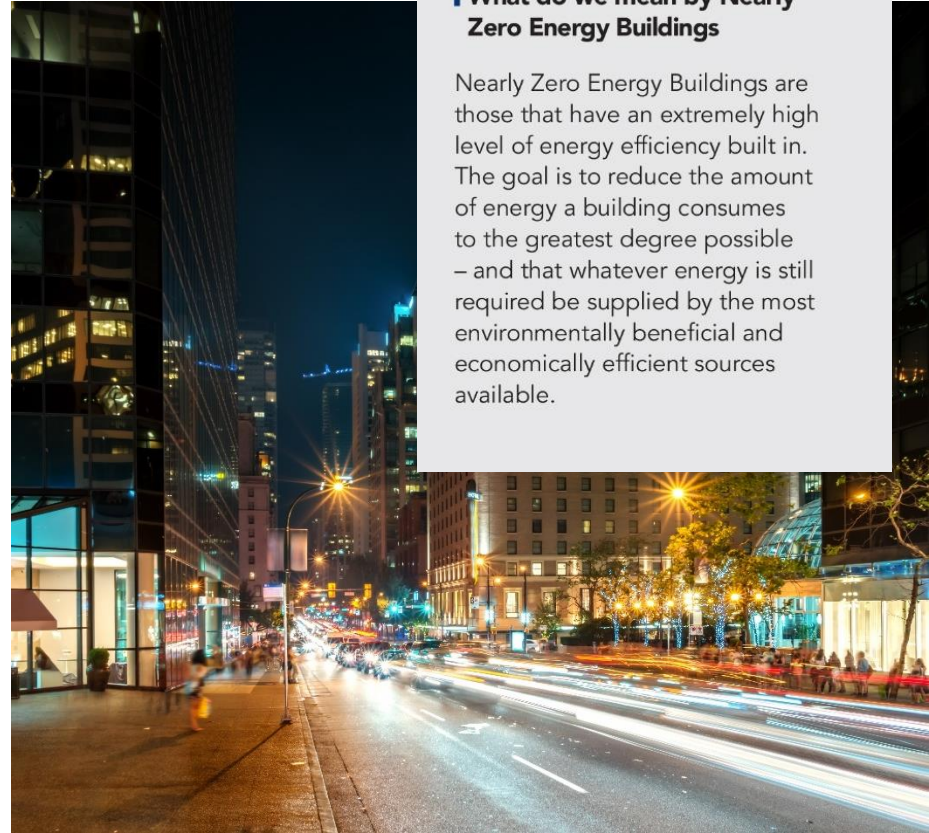
Oliver Rapf, Executive Director of the Buildings Performance Institute Europe

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”.



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

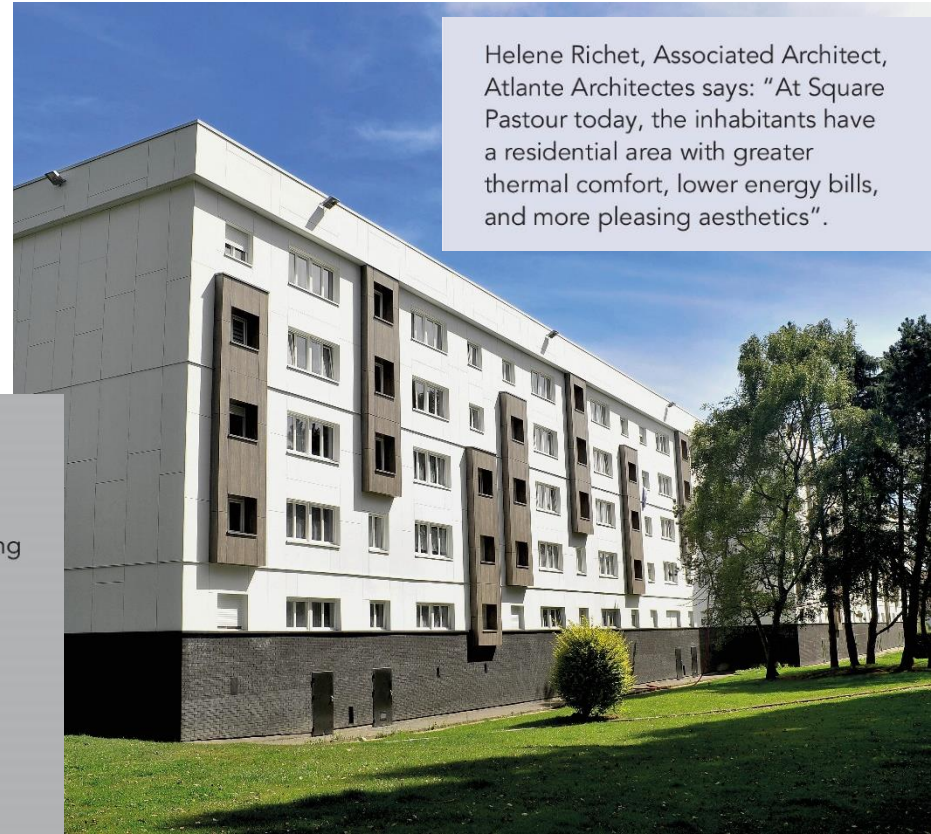
Nearly Zero Energy Buildings are those that have an extremely high level of energy efficiency built in. The goal is to reduce the amount of energy a building consumes to the greatest degree possible – and that whatever energy is still required be supplied by the most environmentally beneficial and economically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

Accelerating energy renovation

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

Energy intensity per square metre of the building sector needs to improve 30 percent by 2030 to meet the Paris climate goals.

Around 97 percent of the European Union's building stock, amounting to more than 30 billion square metres, is considered to be energy-inefficient.



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".

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.



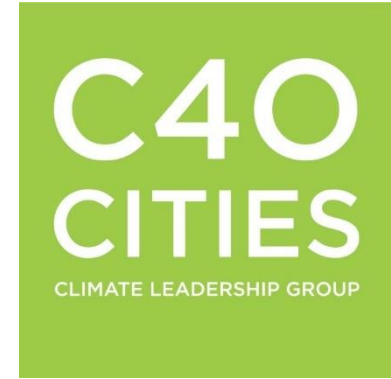
Making the case for energy efficiency in buildings



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”.



Materials that are sustainable



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

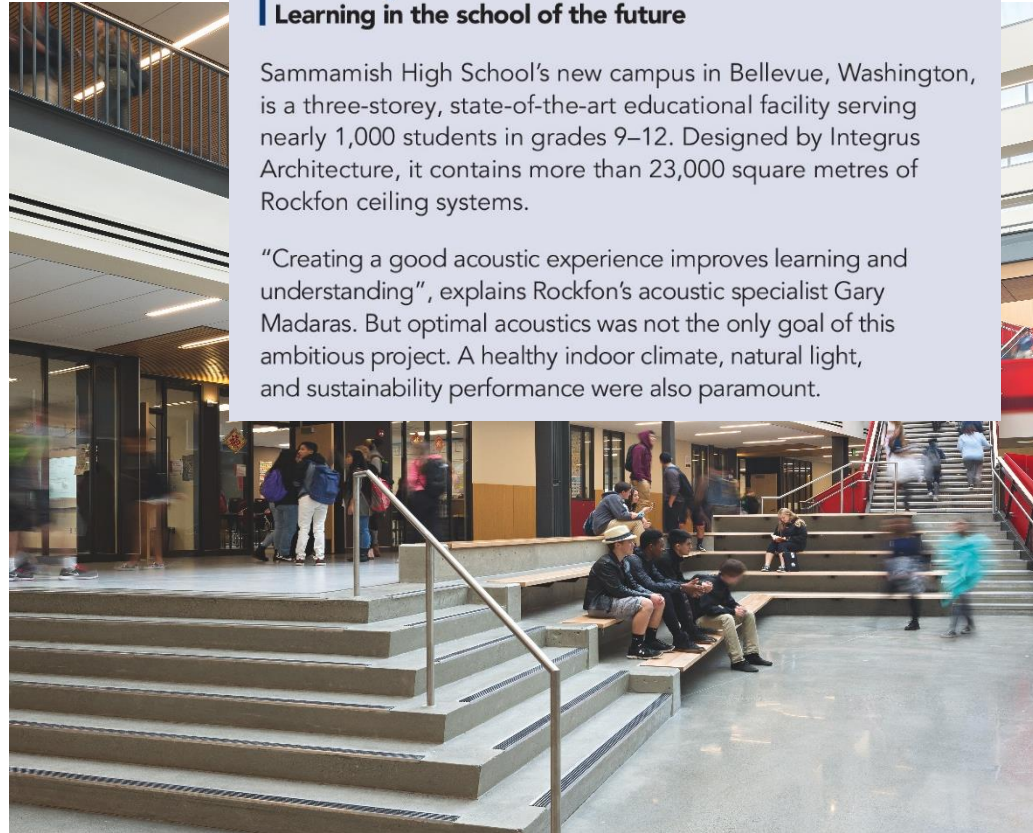
With people spending the majority of their time inside, our indoor environment is just as important as the conditions outside.

Temperature, air quality, and acoustics all affect our wellbeing and quality of life.

There is clear and documented evidence connecting noise and human health.

Noise control is vital in schools and workplaces. The cognitive performance of both children and adults is reduced by noise.

ROCKWOOL is collaborating with independent laboratories and acoustic engineers to help architects design simple and effective approaches to achieve superior indoor acoustics.



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.

Spaces that enrich and inspire

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.

85%

of people say that
architecture affects
the way the feel

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

Wellington Road resident

Innovative solutions that protects communities

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.



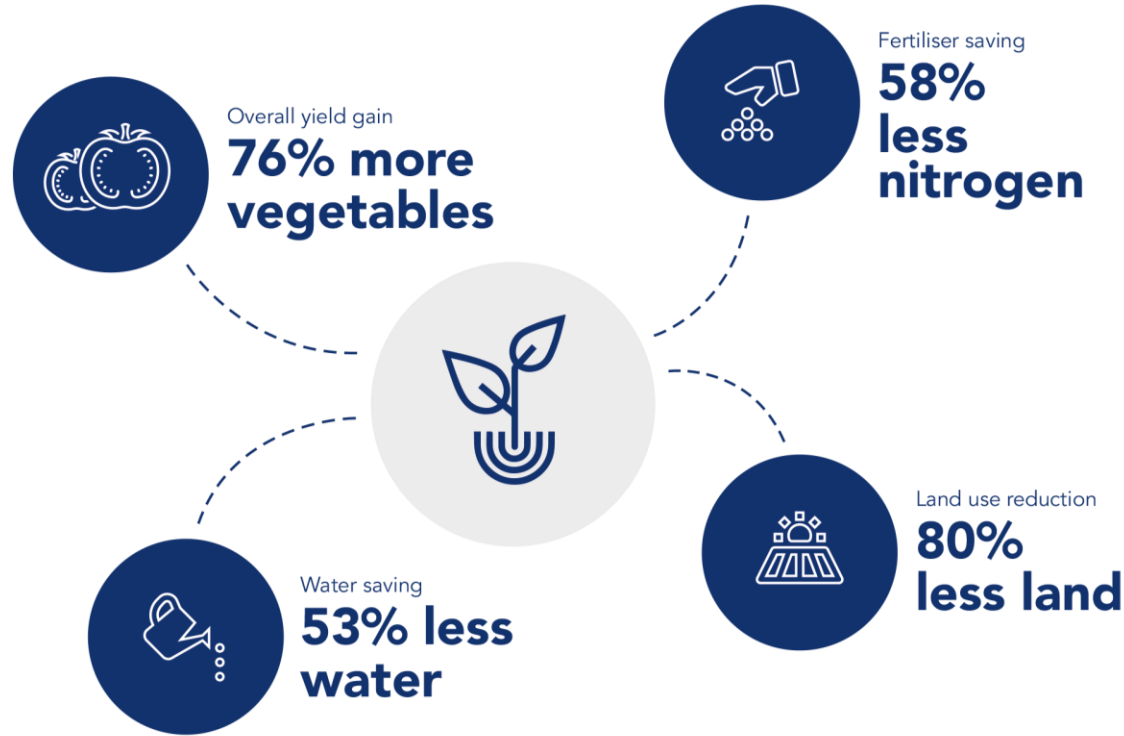
Growing more with less

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.

The global food production system is under pressure. We need to find more sustainable ways of feeding a growing, more urbanized population.

ROCKWOOL products enable modern horticulture to increase production while using fewer natural resources.



 The methodology is available on

www.rockwoolgroup.com/precision-growing-impact



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.

Higher yield, fewer resources

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.



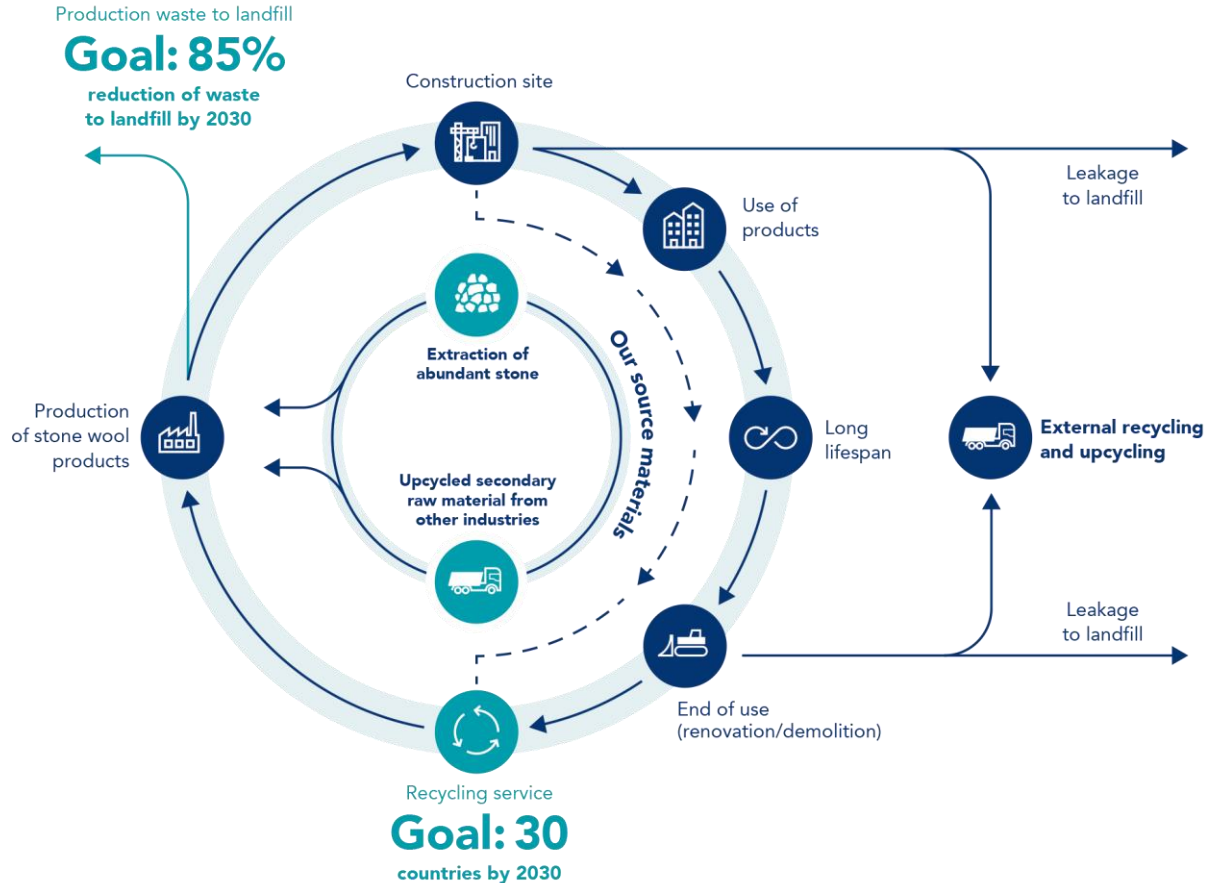
Did you know? What is hydroponic growing?

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.

Circularity – the shape of the future

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.

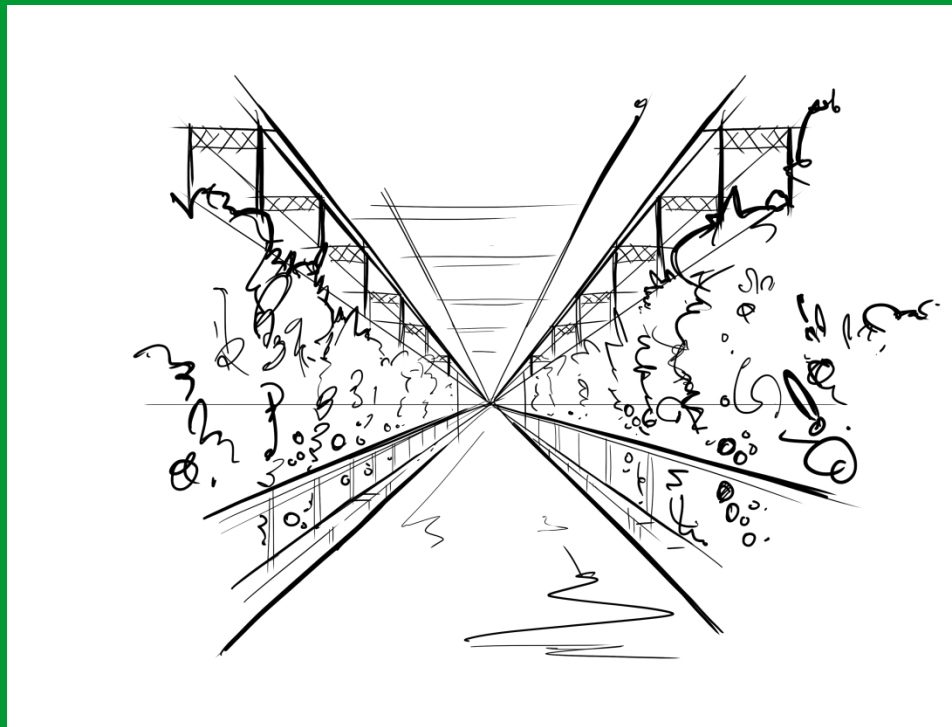


▶ Read more about our recycling services on page 29



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Operational impacts



The big picture

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

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

But it is important to us that we achieve this by operating in a responsible and sustainable way.

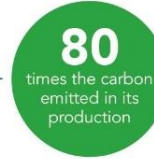


Carbon emission savings of products sold in 2017

Building insulation

Carbon emissions from raw materials and production

Carbon emission savings during product lifetime



Technical insulation

Carbon emissions from raw materials and production

Carbon emission savings during product lifetime



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2017 Highlights

External recognition



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

SDG Invest 

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



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

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

3.8%

reduction in CO₂ emission intensity within our factories compared to 2015 baseline

23%

of ROCKWOOL Group dividend went to the ROCKWOOL Foundation

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



Read the full report at www.rockwoolgroup.com/sustainability

Thank you