

Rockzero: build the 7 strengths of stone into every home



How the natural power of stone can enrich modern living

Stone and civilisation were made for each other. ROCKWOOL® makes the most of this relationship to improve our health, well-being and comfort.

There is something uniquely exciting about turning an abundant natural resource into products that enrich modern life. And our search is not yet over: there's still so much to be discovered. ROCKWOOL is leveraging the 7 strengths of stone to create products that meaningfully address the biggest challenges facing our world.

For millennia, humans have been building walls to shelter themselves from adverse weather conditions, to protect their beloved ones and their belongings. This has resulted in a wide variety of ways of constructing what we call 'homes'. More people move to cities every day, and cities themselves have grown and changed in response to the needs of their ever-increasing populations.

Our global challenges

As houses have evolved, the way we live has had an increasing impact on the environment. The result is that energy consumption, the impact of our buildings on the surrounding environment and on our own health and well-being have become one of the global issues of our time. Our homes have become part of the global challenge to ensure a sustainable future for ourselves and the planet. At the same time our house can provide an answer to these challenges.

Each of our products combines the 7 strengths of stone with one ambitious goal: to minimise the human impact on our surroundings, while maximising safety and well-being for anyone who interacts with our products.

Rockzero is our latest innovation and a complete wall system that integrates stone wool insulation into the structural elements of the home. A solution that enables us to build beautiful, nearly zero-energy homes that reduce the use of raw materials and can be fully recycled at the end of their lifetime, without penalising people's comfort and overall business case. It's all achieved by harnessing the natural power of stone – making it easier to protect the planet and our families for generations to come.



“Unlocking the secrets inside stone is more than our daily job: it is our passion. At ROCKWOOL, we have been using the natural power of such an abundant, natural resource to develop a broad product platform always with a goal in mind: make people's lives safer, richer, more productive and more aesthetically pleasing.”

Steen Lindby
Vice President, Group Research and Development

The

There is something truly remarkable about the natural power of stone.

So far, we have been able to break down this natural power into 7 strengths that are inherent in the versatile properties of stone wool. These are seven reasons why we believe the world's most abundant resource can be engineered to create uniquely useful and exciting solutions for our customers. And by applying these 7 strengths to everything we do, we passionately believe that we can address some of the biggest challenges facing our world. We're sure that there are even more strengths of stone to be discovered. And when we discover them, we'll turn those strengths into new products that improve the quality of life of everyone who comes into contact with them. That's why these 7 strengths lie at the heart of every ROCKWOOL product.

strengths of stone



Fire-resilience

Withstand temperatures above 1000°C.



Thermal properties

Save energy by maintaining optimum indoor temperature and climate.



Acoustic capabilities

Block, absorb or enhance sounds.



Robustness

Longer-lasting performance and robustness with easier installation



Aesthetics

Match performance with aesthetics.



Water properties

Manage our most precious resource.



Circularity

Reusable and recyclable material.

Introduction

At ROCKWOOL, we've been applying the 7 strengths of stone to the world's biggest challenges for decades. We keep a close eye on global megatrends to ensure that our product portfolio stays relevant to the most pressing issues facing our world. By seeing these megatrends as opportunities to improve the lives of people around the world, our products have become central to conversations on issues like climate change, health and well-being, urbanisation, and resource scarcity.

Urbanisation

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

41

mega-cities with 10 million inhabitants by 2030.

The world will need twice as much food for its growing population in

2050

Resource scarcity

A growing population is demanding more food and natural resources to continue to develop. The challenge is how to make it available in a sustainable way.

Megatrends

Harnessing the 7 strengths of stone to address the world's big challenges

Health and well-being

Our well-being 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.

Today, the average person living in a city spends

90%

of their time indoors.

Climate change

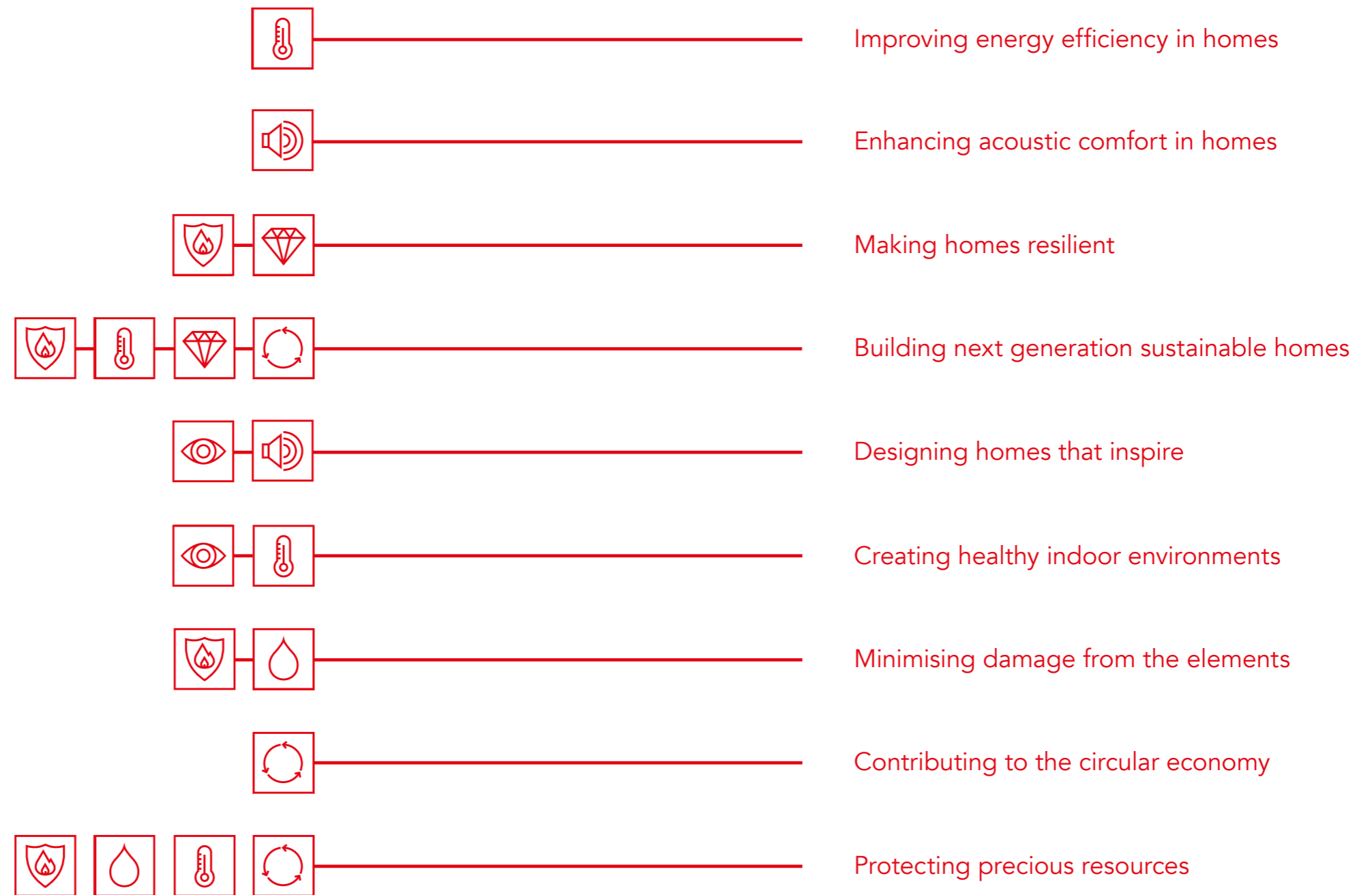
Our climate is changing, which brings new challenges as we seek to reduce our carbon footprint and live more sustainably.

33%

Buildings account for over one-third of the energy used globally.

Rockzero: Applying our purpose

The challenges of modern living have a huge impact on the growing needs of our customers and the type of ambitious projects they take on. But we are in a fortunate position to make an impact. Rigorous energy efficiency regulations, and the need for safer and more resilient homes all favour our stone wool solutions. That's why we've created Rockzero and have identified nine different areas that demonstrate how, with Rockzero, we are applying our purpose of enriching modern living. This is made possible by our expertise in the 7 strengths of stone.





Welcome to homes with fire safety built in

Urbanisation brings new challenges to the building sector.

As more people live closer together, fire safety is important in every home. Especially since a fire that originates in one home could spread to neighbouring structures.

ROCKWOOL insulation is extremely resilient to fire and heat-resistant to high temperatures. It contains fire and prevents its spread: which can make the difference between a fire in one room and a fire in an entire home or neighbourhood. At the same time, ROCKWOOL does not contribute to the emission of significant quantities of toxic smoke, a serious threat in its own right.

The natural qualities of stone are helping us to build sustainable and safe homes, which have fire-resilience built in.

ROCKWOOL insulation is heat-resistant above **1000°C**

Did you know?

Our solutions are produced using the same process that occurs at the heart of a volcano. That means our products remain stable – even at extremely high temperatures. This makes the stone fibres suitable for a suite of high temperature applications – from car brakes to fire protective coatings.





The optimal temperature, whatever the weather outside

Did you know?

Our products derive their thermal properties from tiny pockets of air trapped within the physical structure of the stone wool. These air pockets allow the insulation to keep hot air out in hot climates and to retain warm air in cold climates.

Maintaining a consistent indoor temperature is better for you and for the environment.

It makes living and working conditions more healthy and comfortable, helping people to thrive, especially in urban environments. Temperature maintenance can dramatically reduce heating, cooling, and ventilation costs, and reduce a building's carbon footprint.

ROCKWOOL insulation is a highly flexible material, which works in all spaces as a buffer against fluctuations in temperature. By reducing airflow and heatflow, our products maintain their shape and density, so they perform at their peak throughout the lifetime of the building. It's part of our commitment to building sustainable cities that promote human flourishing.

ROCKWOOL products keep hot and cool air where they're needed most.

66%

of energy consumption in buildings is used for heating, cooling, and ventilation.





Our building insulation is a breath of fresh air

Stone wool products create healthy indoor environments for everyone.

As well as maintaining optimal temperature, stone's thermal properties mean it can protect people and properties from mould and other fungi. So architects can create buildings that not only shelter us from the weather, but also provide a safe and comfortable indoor environment that empowers us to lead healthy lives.

Buildings, like people, need to stay healthy. Stone wool is vapour-permeable, which means it allows moisture to pass through walls and out of the building. This protects buildings against rot, mould, and humidity damage.

ROCKWOOL products let buildings breathe, which helps you breathe better.

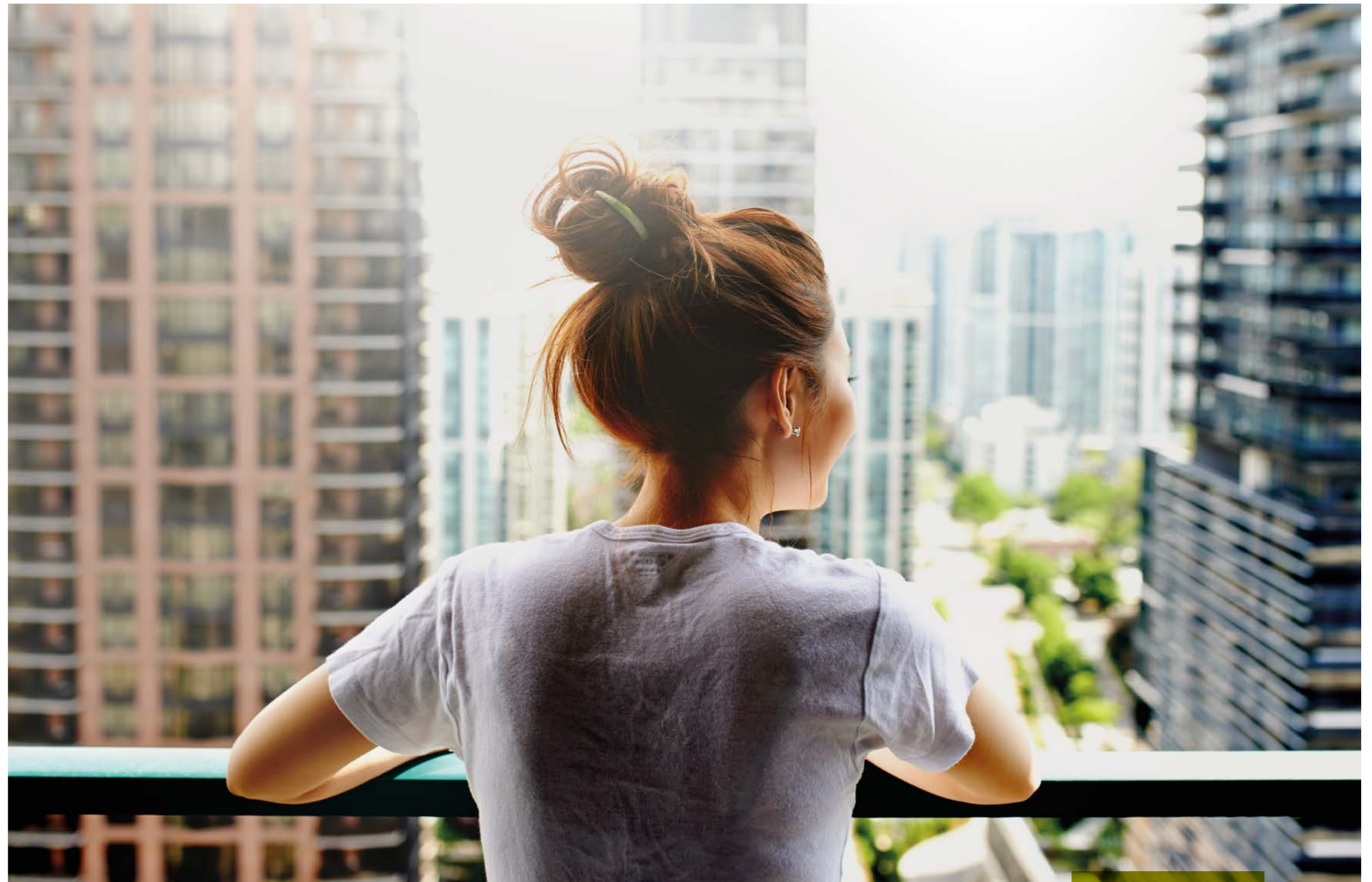
We spend

90%

of our time indoors, so buildings have a major impact on our health and well-being.

Did you know?

Damp and mould can have a detrimental effect on the health of building fabric, the thermal performance of the building, and the respiratory health of occupants. Understanding breathability is crucial to creating healthy, robust, working buildings.





A city that never sleeps never keeps him awake

Urbanisation often brings infrastructure and domestic buildings closer together.

From railways to tramways, roads to airports, good infrastructure is crucial to urban life, which can be very noisy. The resulting ground-borne vibration, traffic noise – and not to mention human noise pollution – all have a serious and negative impact on our well-being, especially in densely populated areas.

Protection from unwanted noise can have a positive effect on our physiology, learning capacity and social behaviour. ROCKWOOL products are high-density, which makes them extremely resistant to airflow and excellent at noise reduction and sound absorption, meaning that even the noisiest infrastructure sounds quieter.

ROCKWOOL products turn down the volume of the city.

50%

of the population are regularly exposed to traffic noise at a level harmful to health.

Did you know?

Stone wool structure can be engineered to isolate and control vibrations and noise from urban transport systems, reducing its detrimental impact on people and buildings. Living close to an airport, the noise you hear inside your house is reduced by 40 percent if your roof is insulated with ROCKWOOL stone wool.





Buildings where you could hear a pin drop

Controlling the sounds we take in is key to acoustic comfort.

Our well-being goes hand-in-hand with the comfort of our indoor environments, and a big part of maintaining that comfort is controlling sounds.

Sometimes that means making sure that buildings like hospitals are quiet spaces in which to recover. For other buildings, like offices, it's about reducing noise bleed from outside and room-to-room, which reduces stress and increases concentration. For projects like schools, it's about controlling sound so that teachers can be heard clearly, but noise from the playground and echoes from the corridors are quietened.

ROCKWOOL products create quiet spaces where they're needed most.

In schools with no sound absorption, children miss

25%

of words spoken by their teacher.

Source: Primacoustic Educational White Paper, 2013



Did you know?

Stone wool has an open, porous structure, which makes ROCKWOOL products highly efficient sound absorbers by nature.



Now our homes can last into the future

1,000,000 people move to urban environments every week.

The challenge is to build long-lasting, sustainable homes that can support our living requirements now and in the future.

ROCKWOOL insulation has a built-in robustness that is totally unique. It keeps its shape and toughness in all conditions – so compression, impacts and changes in temperature or humidity do not affect it.

Studies show that ROCKWOOL products still perform at their peak after many decades, lowering energy and maintenance costs for a home's lifetime. Due to its exceptional structure, our stone wool is also easy to install and needs no special tooling. It adapts to all types of irregularities, leaving no gaps in the insulation layer and no sagging. This helps keep heat or fresh air in, preserving your indoor comfort, and creating homes fit for the future.

Studies on ROCKWOOL products show they still perform at their peak at

55

years old.

Did you know?

On average, it costs five times more to manage and maintain a building over its life than to build it. Buildings made of robust components require less technical supervision and refurbishment, which means savings in energy and materials used for maintenance and repair over the lifetime of the building.





Our facades aren't just pretty faces

A building's aesthetic appeal need not compromise its performance.

When people live and work in aesthetic spaces, they feel comfortable and motivated. Environments in which people enjoy spending time can improve social cohesion and make neighbourhoods safer and healthier.

In order to create inspirational buildings, architects need flexible and aesthetically versatile materials that can make beautiful spaces a reality for people everywhere. With a combination of aesthetics and high product performance, ROCKWOOL can create these harmonious spaces that also protect and promote fire safety, acoustic and thermal performance, along with robustness and circularity. We have harnessed the natural beauty and adaptability of stone to make it easy for architects to design and customise in an almost unlimited range of colours, shapes, and forms.

ROCKWOOL products allow you to combine aesthetics with high performance in every building project.

85%

of people agree that 'better quality buildings and public spaces improve the quality of people's lives.'

Did you know?

Over 25 years, construction accounts for just 5.5 percent of the cost of a building. The cost of occupancy, which includes energy bills, makes up 86 percent. Small investments in design and materials can make a big impact on the cost of occupancy.





Stone counters moisture, water, mould and rot

Did you know?

ROCKWOOL can engineer stone wool to either repel or absorb water, depending on the application.

Stone wool is completely immune to issues that can affect other materials.

Stone wool retains heat while discharging moisture, in a natural way, which improves the air quality in your home. Any exposure to leaks or rain will result in water simply running off the surface and draining away. This inherent ability to dry out means that the thermal performance of stone wool is unaffected by moisture over time.

Since there is no organic material within our stone wool insulation, the risk of fungus formation, mould and especially rot is also drastically reduced. As any moisture can pass through and escape, it means homes can breathe which makes for a healthy, safe and comfortable living environment.

Stone wool can be engineered to absorb or repel water as required, and can absorb up to 95% of its volume in water without becoming weakened. This can help to protect people and homes against economic, social and environmental damage.

Stone wool can be engineered to

repel water





Continuously creating new value from old materials

Did you know?

We also have a take-back system for our horticultural product Grodan used in greenhouses. Today more than 90 percent of EU Grodan customers can use our recycling solutions, and we're continuously working on extending these services.

Stone wool can be indefinitely recycled.

Rock is one of the most abundant raw materials on the planet, but we still need to make better use of our planet's resources. We have developed our technology in a way that allows us to use waste from other industries as alternative raw material.

The building sector produces a third of all waste, much of which ends up in landfill today. So we also have to prevent our building products becoming waste. We do that by making recyclable, long-lasting products and offering a recycling service. Our products can be easily removed when a building is renovated, or demolished and recycled back into new products.

In fact, stone wool can be recycled again and again into new stone wool. This is an important element of a "circular" business model – another way you can be a part of our vision for sustainable cities of the future.

ROCKWOOL products allow everyone to be a part of the circular economy.

Stone wool is

100%

recyclable.



Fully established schemes currently available in Germany, Benelux and Denmark with extension into more countries planned.



CONTRIBUTING TO THE CIRCULAR ECONOMY
PROTECTING PRECIOUS RESOURCES

Closing the loop in Denmark

To enable our customers to build sustainably, and avoid waste in the construction phase, ROCKWOOL has a recycling service for building sites in many countries. In Denmark, we've offered this service to our customers for more than 20 years. And since 2012, a pioneering ROCKWOOL recycling scheme also reclaims old stone wool from demolition sites.

It's a well-known fact in the building industry that cut-offs and excess material create a great deal of waste at a building site. If you do a DIY project at home, you often have the same issue. We provide big bags dedicated to ROCKWOOL cut-offs. When we deliver new supplies, we take the bags back to the factory and reuse the stone wool as raw material. It's a great source of raw material for us and a win for the environment too. It gives us longevity, and we plan to offer this service across 30 countries by 2030.

Stone wool is extremely robust – it will last for many years. But when buildings are demolished

or renovated, insulation often becomes building waste, which is frequently landfilled. In Denmark, we pioneered a national recycling scheme for end-of-use stone wool. We partnered with the recycling company RGS Nordics to collect, handle and bring back used stone wool from municipal recycling sites and large refurbishment or demolition sites to our production site – in 2016, we reclaimed just under 2000 tonnes of stone wool from building waste in Denmark. Through this pioneering partnership, we've learned valuable lessons that have helped us replicate our approach in other countries.

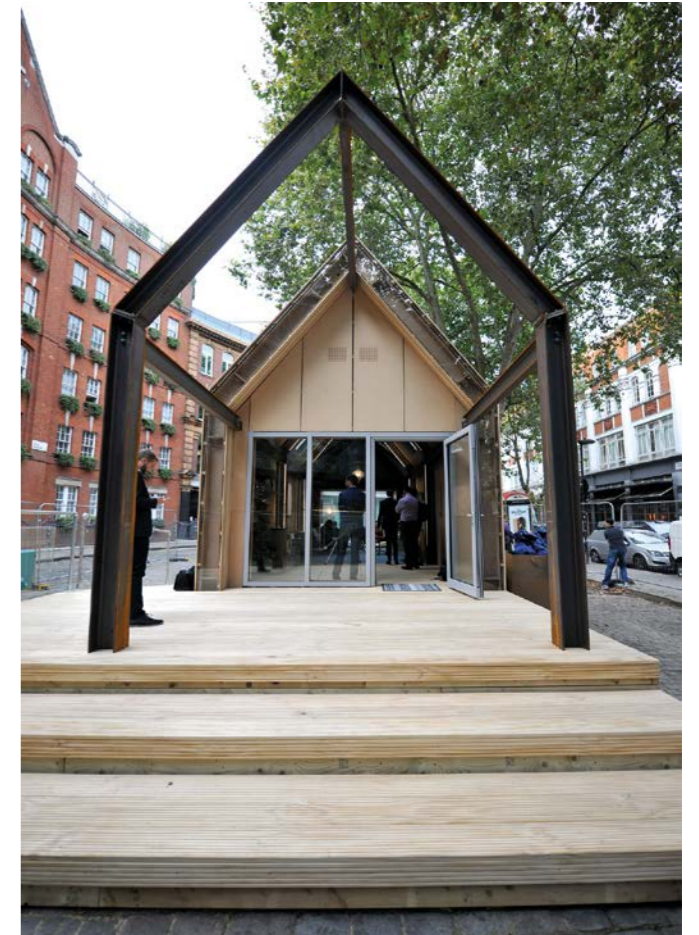


Denmark

CONTRIBUTING TO THE CIRCULAR ECONOMY
BUILDING SUSTAINABLE CITIES

Imagining the circular building of the future

To push circular economy thinking in the UK, we worked with partners to help design the circular building exhibition at the London Design Festival 2016. The partnership was led by Arup, alongside Frener & Reifer and BAM, with support from The Built Environment Trust, and demonstrated a prototype of the most advanced and reusable building yet.



London, UK. Products: ROCKWOOL FLEXI®

“Very few have tried to apply circular economy principles to the built environment. . . as an industry, we should aim to eliminate waste and design for re-use.”

Stuart Smith, Director, Arup Associates

The Circular Building Exhibition was a great opportunity for us to work with partners and apply the circularity strength of our stone wool solutions to a prototype. 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. This way it's clear to all what the building is made of.

Today, the UK construction industry produces three times more waste than households, half of which is not recycled. The Circular Building Exhibition pushed the thinking around this idea of the circular economy. Can we design a building where, at the end of its life, all its components and materials can be reused, re-manufactured or recycled? ROCKWOOL building insulation is a perfect match for a circular building. It is made of one material only, is easily separated – it just lifts out – and can be infinitely recycled. We were delighted to be a part of a project with partners who share the belief that the circular economy can drive a shift towards more sustainable forms of value creation and economic growth.

Rockzero: the pioneering way to build nearly zero-energy homes

Did you know?

Rockzero meets nearly zero-energy ratings and starts saving energy from day one, without the need for additional components like solar panels. This means your home will perform at its best for a lifetime without further maintenance, giving a lower total cost of home ownership. Our insulation can even add value to your property.

Rockzero stands for beautiful sustainable homes without compromise.

Now the 7 strengths of stone can be built into the walls of every home, to deliver nearly zero-energy performance without compromising practicality, beauty and creativity.

Rockzero is an innovative insulated wall system that integrates the natural benefits of stone wool insulation with the structural support of the home, revolutionising the way nearly zero-energy homes are built.

With Rockzero, your home has superior energy efficiency, fire protection and indoor comfort. It will deliver on energy performance as calculated. And it will be airtight, yet breathable.

Rockzero could reduce a home's running costs by

80%



How our innovative wall system uses the 7 strengths of stone



Protects against fire

Rockzero doesn't burn. It is extremely resilient to fire and works to isolate and prevent its spread. It also does not contribute to the emission of significant quantities of toxic smoke. This increases safety for your family, for generations to come.



Saves energy for life

Rockzero meets nearly zero-energy ratings and starts saving energy from day one, without the need for additional components like solar panels. This means your home will perform at its best for a lifetime without further maintenance, giving a lower total cost of home ownership. Our insulation can even add value to your property.



Increases acoustic performance

Rockzero provides excellent sound absorption to reduce unwanted sound and make home living more comfortable. You will hear less noise from adjacent houses and other external influences. And since stone wool also prevents the spread of noise, you make the whole neighbourhood quieter too.



Retains its robustness

Rockzero has unique built-in robustness. Compression, impacts and changes in humidity don't affect its shape or form. This means you will enjoy predictable, unchanged energy performance for your home's lifetime.



Enhances aesthetics

Using the Rockzero wall system, there are no constraints on how your home looks, inside or out. It can be finished any way you choose, with cladding, sheet metal, stone strips or bricks to create a beautiful sustainable home of your dreams.



Improves indoor comfort

Rockzero retains heat while at the same time discharging moisture naturally. This keeps buildings warm in the winter and cool in the summer, improving the indoor comfort of your home. It's a sleek design solution that delivers on a nearly zero-energy promise to reduce energy consumption.



Fully recyclable

Decades from now, the Rockzero wall system will be fully recyclable or can even be disassembled to make new products. It's how we use an abundant resource – stone – to create highly sustainable homes that lower energy consumption.

And brings innovation to sustainable building



Design freedom

Rockzero is an entirely modular solution which gives you greater design scope and flexibility. You can freely choose your home's layout and orientation, increase interior space and use a wide range of finishes to create the stylish home you want.



Faster, easier to build

Compared to traditional methods Rockzero can significantly reduce construction time on-site since our modular system can be built quickly, easily and reliably. This means substantial savings on labour costs.



Predictable energy performance

Real-world calculations of energy performance are often ruined by thermal bridges (also called cold bridges). Since the Rockzero insulated wall system has no thermal bridges, it performs consistently, regardless of the layout of your home, to deliver energy savings as calculated.



More living space

Rockzero is designed to be compact, to create more space. Its innovative design means your home doesn't need layers of insulation: energy-saving performance is built into the very structure of your home, without loss of space.

Rockzero stands for good

By bringing the natural power of stone into the walls of your home you'll be doing your part to build a better tomorrow today, while protecting your family for generations to come. Build a more sustainable nearly zero-energy home with the remarkable properties of stone wool from ROCKWOOL.

Discover more about the benefits of Rockzero today.

Visit rockwoolgroup.com/rockzero

ROCKWOOL GROUP at a glance

Our world is developing and ROCKWOOL is helping to shape it. We're finding ever more innovative ways to tackle big global challenges and build the cities of tomorrow – better for the environment and for the people who live in them. All this is made possible because we have released the 7 strengths of stone.

ROCKWOOL has five brands, all working together to achieve our common purpose.



Fire-safe insulation for all types of buildings and installations



Innovative and sustainable growing media solutions for the horticultural industry



Engineered stone wool solutions for global industries



Acoustic ceiling and wall solutions



Exterior cladding for buildings

	ROCKWOOL Building Insulation	ROCKWOOL Technical Insulation	ROCKWOOL Core Solutions	Rockpanel	Rockfon	Grodan	Lapinus
	■	■	■	■	■		■
	■	■	■	■		■	
	■	■	■	■	■		■
	■	■	■	■	■		■
	■		■	■	■		
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	■	■	■	■	■	■	■

At the ROCKWOOL Group, we're committed to enriching the lives of everyone who experiences our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution, to fire-resilience, water scarcity and flooding. Our range of products reflect the diverse needs of the world, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With over 11,000 passionate colleagues in 39 countries, we're the world leader in stone wool solutions, from building insulation to acoustic ceilings; external cladding systems to horticultural solutions; engineered fibres for industrial use to insulation for the process industry – as well as marine and offshore.

