Education spaces
Ceiling solutions for a better way to learn
Who we are

Create beautiful, comfortable and safe spaces with Rockfon® acoustic stone wool and metal solutions for ceilings.

As part of the ROCKWOOL group, Rockfon is a leading provider of acoustic stone wool ceiling solutions, metal ceiling panels and suspension systems. Providing a fast and simple way to protect people from noise, germs and the spread of fire is our way of making a constructive contribution toward a sustainable future. Our stone wool products are durable and easy to install, while offering aesthetic appeal.

New lessons to learn

As schools become less institutional, there is a greater focus on student and community needs. Many students are now spending more time at school in before and after activities and this affects the way we design and build for education. It forces us to innovate by using building materials that tackle specific challenges such as noise, indoor air quality, fire safety and lighting. Rockfon stone wool ceiling products can help you find the right balance between quality, performance and value for a learning environment that benefits both students and teachers.
Acoustics

The challenge: noise makes learning difficult

Schools are dynamic and complex environments full of acoustical challenges. In classrooms, poor acoustics put a strain on teachers’ voices and on students learning. The trend to use harder surfaces, e.g. glass, metal and concrete, which reflect sound, adds to the problem. This design approach creates very reverberant rooms – affecting how well a teacher is understood and how well students can concentrate.

Another complication is the mix of old and new school buildings in many cities that are not up to current standards for today’s acoustical recommendations. Schools built before the 1970s used many hard surfaces and had very high ceilings, further magnifying the acoustics problem.

Good acoustics is the answer

Creating a good acoustic experience improves learning and understanding. High-performance ceiling panels and other types of overhead sound control systems, such as baffles and islands, have become the primary way designers achieve positive acoustic conditions in more challenging settings.

In older school buildings, simply upgrading the ceiling panels inside the existing suspension system can make a dramatic improvement. It brings classrooms into compliance with today’s acoustics standards without much effort or cost. A ceiling material’s ability to reduce noise is measured by Noise Reduction Coefficient (NRC), and only certain materials can inherently achieve high NRC ratings. Due to its fiber structure, stone wool is one of those high-performing, sound-absorptive materials. It provides Rockfon ceilings, baffles and islands with excellent noise reduction capabilities. Independently tested in certified laboratories, our products give you the confidence that you’re using a sound solution for both new builds and refurbishments.

Why acoustics in the classroom matter

Every student should have the same opportunity to hear and understand what is being said. Poor acoustics affects everyone, but can be a particular problem for the following groups:

- Children under the age of 13 – this group has an underdeveloped sense of hearing and comprehension – a limited vocabulary means if they miss a word, they can’t easily fill it in.¹
- English as a Second Language (ESL) students – approximately 21% of American students speak a language other than English at home.²
- Students with learning disorders or hearing impairments
- Students with ear infections – as much as 25% of young children experience middle ear infections resulting in hearing loss.³
- Stressed teachers – trying to be heard over noise causes teachers to raise their voices, leading to increased stress and fatigue.⁴

Classrooms in the United States typically have speech intelligibility ratings of 75% or less, meaning every 4th word is not understood.⁵

Speech intelligibility: get the full story

Young children, in particular, experience difficulties in understanding speech in highly reverberant rooms. Providing an environment designed for clear sound through the right reverberation helps student comprehension. Efficient communication can only be accomplished with low reverberance, lack of echoes and high speech intelligibility – in other words, sound control with high-performing, sound-absorptive ceilings. Rockfon ceiling solutions reach the highest level in sound absorption for optimum speech intelligibility.

Noise reduction: listen up!

Even with the right reverberation time, intelligibility can still be negatively affected by background noise. From HVAC systems and environmental noise coming in through the windows to shuffling chairs, background noise can lead to poor student performance. A highly sound absorptive ceiling helps to reduce the noise, making understanding and learning more enjoyable and helping students make the grade.

Sound isolation: no distractions from next door

To prevent noise from one room disturbing students and teachers in adjacent ones, acoustic standards and guidelines require learning spaces be separated by sound isolation walls. This proven design approach leads to productive and distraction-free learning. Suspended, modular, acoustic ceiling systems alone are simply not able to block sound if the walls between learning spaces stop at the height of the ceiling. This is in part due to noise leaks caused by lights, grilles and diffusers penetrating the ceiling system. But the main reason is that acoustic ceilings do not have enough mass to block sound effectively.

All Rockfon stone wool products are UL/ULC certified for NRC.

What is Optimized Acoustics™?

Optimized Acoustics is our no-compromise solution for effective acoustic design, especially inside education facilities. The idea is simple. You select a ceiling system to optimize absorption and, where needed, you use walls or plenum barriers to successfully block sound. The result is designs that comply with the rigorous standards of school buildings, while achieving the best sound experience at the best price.
**Big rooms, big sound**

Classrooms are not the only rooms in schools that need optimal acoustics. Whether it’s a drama production, band concert or basketball game, big rooms such as cafeterias, gymnasiums and rehearsal rooms play an important role in student development. As the rooms get bigger, so does the need for high-performance acoustic control.

**Auditoriums: make every seat the best seat**

Auditoriums have the highest demands on their acoustic performance and design; sound should not just disappear up into the ceiling. The acoustic design of an auditorium or performance space must achieve correct reverberation time, as well as provide the optimal sound experience for each audience member – whether that person is sitting in the front row or the back. In this case, both sound reflection and sound absorption must be addressed.

**Gymnasiums: game-changing acoustics**

From a coach’s whistle to a cheering crowd, gymnasiums of the past were loud, chaotic echo chambers. Rockfon offers ceiling solutions that combine good acoustics with impact resistance for sports, including occasional ball impacts. Today’s gymnasiums are places where coaches’ directions can be followed and the play-by-play can be understood by the crowd.

**Acoustic guidelines and standards for education:**

<table>
<thead>
<tr>
<th>Guidelines &amp; standards</th>
<th>Absorption criteria*</th>
<th>Isolation criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>American National Standards Institute (ANSI) Standard S12.60</td>
<td>Maximum reverberation 0.60-0.70 sec.</td>
<td>Minimum STC 45-60 walls and floor/ceilings assemblies (CAC not permitted)</td>
</tr>
<tr>
<td>Collaborative for High Performance Schools (US-CHPS) (prerequisite)</td>
<td>Maximum reverberation 0.60-0.70 sec.</td>
<td>Minimum STC 43-60 walls and floor/ceilings assemblies (CAC not permitted)</td>
</tr>
<tr>
<td>Collaborative for High Performance Schools (US-CHPS) (enhanced)</td>
<td>See prerequisite – also applies to ancillary learning spaces</td>
<td>Minimum STC 45-60 walls and floor/ceilings assemblies (CAC not permitted)</td>
</tr>
<tr>
<td>Leadership in Energy and Environmental Design (LEED) BD+C: Schools v4 Minimum (prerequisite)</td>
<td>Maximum reverberation time 0.60-0.70 sec. or minimum ceiling NRC 0.70</td>
<td>Undefined</td>
</tr>
<tr>
<td>Leadership in Energy and Environmental Design (LEED) BD+C: Schools v4 Credit (1 point)</td>
<td>See Minimum (prerequisite)</td>
<td>Minimum STC 45-60 walls and floor/ceilings assemblies (CAC not permitted)</td>
</tr>
</tbody>
</table>

*The formula to convert reverberation time to NRC is: NRC = 0.05 x Room Volume x Area / RT60 x Area

Room Volume – Average length x average width x average height (all in feet)
Area – Area of the ceiling is length x width (both in feet). 0.05 is a constant when using feet as the units for volume and area. Use the constant 0.161 when the units for volume and area are in meters.
Indoor environment

The challenge: indoor air quality

Children are often more susceptible to pollutants emitted from materials in school buildings than adults. This is because children breathe in more air and as a result are absorbing more chemicals that can be harmful to their growing bodies. With recent studies indicating students spend the equivalent of two to three of their formative years in school buildings, the need to improve indoor air quality is critical. But it’s not only the students that are at risk; poorly ventilated classrooms, high levels of CO\textsubscript{2}, pollutants and contaminants can lead to loss of concentration, bad odors and irritation for adults and children alike, contributing to increased absenteeism.

Top marks for a healthy learning environment

Rockfon ceilings provide a great line of defense against these indoor health hazards and enable you to meet the newest educational building codes and regulations. Made of natural stone wool, all Rockfon ceiling panels are GREENGUARD\textsuperscript{®} GOLD Certified for low volatile organic compounds (VOCs). This stringent certification process ensures that a product is suitable for use in schools and other education buildings. It takes into consideration safety factors that may impact people who are more vulnerable, such as children and seniors, and is referenced by the LEED Building Rating System.

Low VOCs, better air to breathe

VOCs are hydrocarbon compounds that have low boiling points, usually under 212°F (100°C), and therefore evaporate easily, even indoors. VOCs can be present in building materials and are considered harmful to your health. Choosing a low-VOC product like Rockfon ceilings improves the overall indoor air quality.

Mold and bacteria resistance

Schools are for growing minds, not harboring bacteria. But schools are also more susceptible to mold and bacteria growth, in part, because HVAC units are turned off during the summer months. This dramatically increases the moisture level in the building. Rockfon ceilings can help you achieve the highest health standards because stone wool has no nutritional value and therefore provides no sustenance to harmful microorganisms, helping create and maintain a hygienic environment.

Humidity resistance

Moisture often builds up in naturally “wet” rooms like kitchens, bathrooms and shower areas and can be tough on the material in the room. High humidity can weaken the structure of certain ceiling panels, causing them to lose shape and sag over time. It can also expose people to harmful damp conditions. Our ceiling panels are dimensionally stable up to 100% relative humidity—eliminating the risk of sagging, warping or breaking.

6 The United States Environmental Protection Agency found that up to half of the schools in the U.S. have problems linked to poor indoor air quality. This increases the risk of chronic allergies and asthma among children. Asthma is considered the number-one chronic childhood illness and the leading cause of absenteeism, with almost 14.7 million school days missed each year.\textsuperscript{7}


Rockfon ceilings are made from stone wool which has no nutritional value, providing no sustenance to harmful microorganisms.
The challenge: lighting

Light can impact a student’s performance, well-being and mood. Too much light can cause eye strain and make it hard to focus. Too little can lead to headaches, difficulty focusing and drowsiness. Several studies have found appropriate lighting improves test scores and can even reduce poor behavior. Students in particular also rely heavily on tablets and computers, further emphasizing the importance of proper lighting.

Lighting the way for improved learning

Our white ceilings reflect 83-86% of available light, dispersing natural light more effectively. They diffuse light to limit hot spots and glare so that shining spots do not disturb the eye. Because of this high light reflectance, energy efficiency is also enhanced. The better distribution of light means schools can lower their light loads and reduce cooling costs by up to 7%. Maximizing the use of natural light also reduces the number of light fixtures required, which translates into savings. Rockfon ceilings also have a homogenous surface without any visible holes or perforations for better performance and style.

A recent study found students were more alert and scored higher on their tests when they were in a classroom with improved lighting.8


Safety in case of fire

Fire safety is unquestionably an important consideration in school environments. As a result, there are high standards for how construction materials react to fire and resist flames. Withstanding temperatures up to 2150°F (1177°C), stone wool does not melt, burn or create significant smoke, making it an ideal solution for schools. Choosing a Rockfon ceiling means you are providing the fire resistance that helps improve overall fire safety, limits building damage and, most importantly, adds valuable time for people to exit the building. All Rockfon stone wool ceiling panels are UL tested and outperform the fire requirements for ceilings.

Impact resistance and durability

Schools by nature have a number of high-activity spaces – most notably the gymnasium. In these areas, building materials need to withstand wear and tear plus rough treatment, making the lifespan of a ceiling tile strongly dependent on its ability to resist impact. Rockfon offers high-impact ceiling solutions that are easy to clean and provide longevity, which in turn saves on maintenance fees.
Aesthetics

The challenge: attracting the top of the class
In most schools when it comes to design, functionality trumps aesthetics almost every time. But what many don’t realize is how vital a role design, aesthetic and color all play in attracting and retaining both teachers and students. Schools, universities and colleges need to create strong brands and identities that will appeal to top talent in numerous fields, while maintaining cost efficiencies.

Inspiring and inviting design solutions
When new findings suggest that design can impact a student’s progress over the academic year, positively or negatively, by as much as 25%, education spaces need to be inviting, accessible and inspiring to create enhanced learning experiences. New, modern designs focus on better circulation and thoughtful layouts, and take into consideration group work versus individual learning. Rockfon offers flexible design solutions using different colors, surfaces, edges and sizes to help achieve an inspired look.

The science of color
Color conveys a mood, function and atmosphere. In schools, the use of color can help define a room’s purpose, whether it’s for quiet study, collaboration or active play. But color also affects how we process information. For example, blues work well in science and math classrooms because they lower the heart rate and allow for better concentration. Greens are great for libraries, history and social studies classrooms because they blend the creativity of yellow with the calm of blue. To help you make a positive impact on the educational space you are designing, we have a complete selection of color choices and themes included in our Rockfon® Color-all™ line to create the right atmosphere.

The variety of nuances does not dilute the amazing power of color on humans and its ability to enhance our experience of the learning environment.¹⁰

Surfaces, edges and sizes
Creating the right atmosphere is much easier when there is maximum design freedom. Our products are available in a wide selection of dimensions and edges for visible, partially covered or completely concealed systems. There are options for microtextured or smooth, matte surfaces to accentuate color vibrancy. Special surfaces are also available for tough environments such as gymnasiums, where impact resistance is important, or school cafeterias, where easy-to-clean and hygiene factors are key.

A+ for refurbishment
When a project calls for refurbishing an older school rather than building a new one, a Rockfon ceiling is a cost-effective solution. Our products are easy and fast to install, which reduces the risk for mistakes or delays. Since Rockfon products are lightweight and easy to cut, there is also less risk of tile damage. Unsightly HVAC services can be hidden behind our ceilings, while providing easy access to integrated lighting and mechanical ventilation systems.
Rockfon® Color-all™ offers a vibrant palette of 34 colors to create inspiring learning environments for both students and staff.
Sustainability

Green schools, smart thinking
Green schools do more than reduce environmental impact, they positively affect student and teacher health, and teach valuable sustainability lessons to their students. Sustainable schools have also been proven to cost much less to operate over the life of the building – important when cuts to school budgets are the norm. At Rockfon, we’re dedicated to building a sustainable future too. From sourcing to production to logistics— it shows in everything we do.

Raw material in abundance
Basalt rock is the primary raw material used to make Rockfon stone wool products. Each year, volcanic activity and plate tectonics produce 38,000 times more volcanic rock than we use in our products.

Regional sourcing for reduced impact
To minimize our environmental impact, the majority of our facilities are strategically located in close proximity to extraction sites, reducing the production of greenhouse gases caused by transportation.

Reducing fossil fuel consumption
Whenever possible, we implement practices that reduce our reliance on fossil fuels in areas such as production and transportation.

Product certifications for a higher level of transparency
Rockfon Environmental Product Declarations (EPDs) help specifiers make informed decisions regarding the installation of sustainable building products. EPDs are available for select Rockfon panel products.

Waste not
Reducing waste. Safeguarding against pollutants. Conserving energy. Responsibly managing raw materials. These are the cornerstones of both Rockfon’s and parent company ROCKWOOL’s business models. Here are just some of the ways we’re reducing our impact on the planet:

- Whenever possible our plants are located close to both our mining operations and clients to minimize transport fuel costs.
- The volume of waste from other industries used by ROCKWOOL is now three times higher than the volume we dispose of ourselves.
- We support and finance sustainability projects around the world – from combating deforestation to improving air quality.

600K
ROCKWOOL factories receive 600,000 tons of waste material from other industries.

$44M
Altogether, ROCKWOOL has invested more than $44 million in recycling facilities over two years.

42%
Our products contain up to 42% recycled content.

10%
Over a five-year period, we’ve reduced our use of potable water in the production process by 10%.

10%
Rockfon SOLUTIONS can contribute to LEED® credits.
Case study

Arkansas state university and Rockfon

AMR Architects designed Arkansas State University’s Humanities and Social Sciences building exterior to complement the campus’ historic architecture. The interior was designed to offer quiet, comfortable learning spaces. The new building features Rockfon’s ceiling systems throughout its 120,000-square-foot facility, helping accomplish these goals.

The campus centerpiece

“The new building will be at the heart of every ASU student’s experience on this campus,” said Dr. Lauri Umansky, former dean of the Humanities and Social Sciences (HSS). The HSS building serves as a centerpiece linking multiple plazas. Inside, it encompasses more than 40 classrooms, laboratories, seminar rooms and approximately 140 faculty offices plus a large atrium for groups to gather.

The project challenges

“Academic buildings often equal noisy occupants. In campus-based offices, acoustic specifications typically are set to ensure privacy and a quiet work environment,” explains AMR Architects’ Jamie Borg, associate AIA. They needed a solution that would meet the project’s multiple performance objectives as well as their aesthetics and cost-efficiency goals.

The Rockfon solution

Rockfon’s district manager Jim Frasca presented Borg with the solution. “Rockfon® Tropic™ acoustic ceiling panels achieve an NRC of 0.85 with no upcharge and have a nice, smooth, white finish. Coupled with our Chicago Metallic® seismic suspension system, it was exciting to show AMR Architects a complete ceiling system that not only fit their aesthetic and performance needs, but their budget and schedule, too.”

The beautiful results

AMR Architects’ Borg concludes, “Working with Rockfon on the project has gone well. It’s exciting to be a part of Arkansas State University’s largest and most prominent building on campus.” Reflecting on the new facility, Umansky added, “How fitting that this beautiful new building sits at the center of our campus, here to welcome students to both the immediate and the enduring benefits of learning in a university setting.”
Find the right balance between aesthetics and performance, quality and value with Rockfon stone wool ceiling products.
Understanding industry ratings to find the right ceiling solution

Rockfon stone wool ceilings provide excellent sound absorption and isolation as well as light reflection. To help you compare the performance of different ceiling solutions, the following are definitions and guidelines on how to read industry ratings.

**Noise Reduction Coefficient (NRC):**
NRC is important in areas where people converse in groups and where there is a high level of noise, such as open-plan offices, lobbies and meeting rooms. Most of our products have an NRC of 0.85 or above, which provides good sound absorption.

Rockfon stone wool ceiling tiles are UL/ULC certified for NRC.

**NRC categories:**

- **BEST NRC 0.90**
- **BETTER NRC 0.80**
- **GOOD NRC 0.70**
- **AVOID NRC < 0.70**

Rockfon stone wool ceiling tiles are UL/ULC certified for NRC.

**Light Reflection (LR)**
Lighting is particularly important in work areas that rely heavily on computers. LR indicates the percentage that white ceilings reflect. The LR and diffusion of a ceiling should be as high as possible. Rockfon Alaska®, Rockfon Tropic® and Rockfon® Koral™ offer the highest levels of light reflectance.

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**Rockfon Tropic®**

**Features & benefits:**
- Smooth white surface
- Better sound absorption (NRC = 0.85)
- High fire performance
- High light reflectance (LR = 0.86)
- Available in square lay-in and tegular

**Applications:**
- Classrooms
- Single offices

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**Rockfon® Koral™**

**Features & benefits:**
- Lightly textured white surface
- Better sound absorption (NRC = 0.85)
- High fire performance
- High light reflectance (LR = 0.86)
- Available in square lay-in and tegular

**Applications:**
- Classrooms
- Food preparation
- Sanitary areas (bath, shower rooms)
- Corridors

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**Rockfon Alaska®**

**Features & benefits:**
- Elegant smooth white surface
- Best sound absorption (NRC = 0.90)
- High fire performance
- High light reflectance (LR = 0.86)
- Optimal design freedom thanks to a large selection of edges (lay-in, tegular and concealed)

**Applications:**
- Classrooms
- Corridors
- Meeting rooms
- Foyers, lobbies and reception areas
- Multifunctional rooms
- Single offices
Products

Feature products

Rockfon Sonar®

**Features & benefits:**
- Elegant lightly textured white surface
- Best sound absorption (NRC = 0.70-0.95)
- High fire performance
- High light reflectance (LR = 0.85)
- Optimal design freedom thanks to a large selection of edges (lay-in, tegular, concealed)
- Available in a variety of sizes and formats, including planks

**Applications:**
- Classrooms
- Corridors
- Meeting rooms
- Foyers, lobbies and reception areas
- Single offices
- Multifunctional rooms

Rockfon® Impact™

**Features & benefits:**
- A reinforced glass scrim enhancing impact resistance
- Better sound absorption (NRC = 0.85)
- High fire performance
- High light reflectance (LR = 0.86)
- Available in square lay-in

**Applications:**
- Corridors
- Sports Halls
- Multifunctional rooms
- Classrooms

Rockfon Sonar® Activity

**Features & benefits:**
- Elegant lightly textured white surface
- Best sound absorption (NRC = 0.90), both suspended and direct installed on to soffits
- High fire performance
- High light reflectance (LR = 0.85)
- Makes direct installation on to various substrates, like gypsum, wood or concrete possible, maximizing ceiling height

**Applications:**
- Classrooms
- Single offices
- Foyers, lobbies and reception areas

Rockfon® Color-all™

**Features & benefits:**
- 34 exclusive colors organized in 6 themes
- Smooth surface
- Best sound absorption (NRC = 0.85-0.95)
- High fire performance
- Optimal design freedom due to the variety of edges (lay-in, tegular and concealed) and colors

**Applications:**
- Foyers
- Cafeteria
- Auditoriums

Rockfon® Contour™

**Features & benefits:**
- Innovative and aesthetically pleasing frameless acoustical baffle
- High sound absorption contributes to acoustic comfort
- Fast and easy to install
- Ideally suited for acoustical corrections

**Applications:**
- Cafeteria
- Common areas
Rockfon® Multiflex™ Baffles

Features & benefits:
• Vertically installed baffles
• Three-sided white frame or two-sided galvanized frame
• High sound absorption contributes to acoustic comfort
• Fast and easy to install
• Ideally suited for acoustical corrections
• Also available in Black

Applications:
• Cafeteria
• Common areas

Rockfon® Island™

Features & benefits:
• Innovative and aesthetically pleasing frameless acoustical island
• Available in square and rectangular format
• High sound absorption contributes to acoustic comfort
• Fast and easy to install
• Ideally suited for acoustical corrections

Applications:
• Cafeteria
• Common areas

Quality and customer service

Dedicated to keeping your projects running smoothly
At Rockfon, we constantly seek new ways to satisfy existing customers and win new ones. This means constantly challenging ourselves and our ideas to improve our products and service, and reduce costs.

Quality we stand behind
Produced with integrity and excellence, we’re so confident in the quality and durability of our products, our stone wool panels come with a 30-year warranty.

Flexibility to meet various needs
We understand that one size rarely fits all. That’s why our solutions can be adapted to practically any space and our services tailored to your needs.

Availability you can count on
We strive to have a large selection of products available for fast delivery at all times.

On-time delivery, every time
In the building industry, time lost is money lost. So when we commit to a deadline, we meet it so that you can deliver your projects on time.

Expert advice and easy to work with
We put our passion, heart, design and engineering into our products and your projects, so you can be sure to get the expert advice you need and a total commitment.