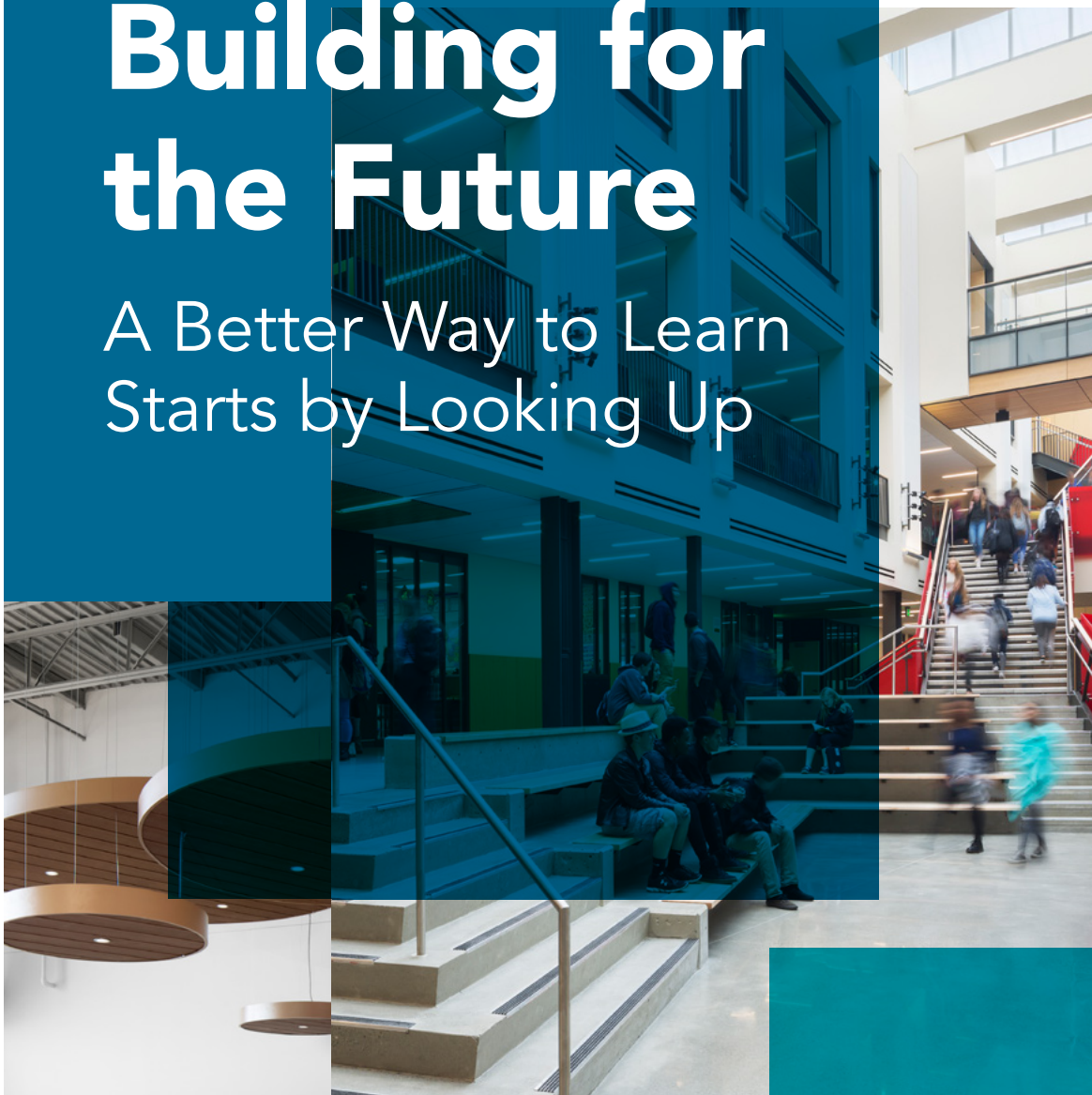


Education: Building for the Future

A Better Way to Learn
Starts by Looking Up





Transforming Learning Environments Starts at the Top

To create an optimal environment for learning, look up. Acoustics, air quality, natural lighting and aesthetics all impact how well students understand teachers, stay focused and even perform on tests. And your ceiling can play a critical role in optimizing each of these.

Rockfon's acoustic tiles take advantage of stone wool's natural sound absorption, moisture resistance, and light reflectance to deliver high performing ceilings that help students excel. Learn more at Rockfon.com/application-areas/education/

Ceiling Systems for High Performing Schools

Good acoustics throughout a school can have a life-changing impact. Designing with the right ceiling makes a big difference for occupants of all ages.

A Solution for Every Challenge

Reducing Noise. Evidence suggests that decreased noise levels in schools can be associated with improvement in student achievement.¹ Ceilings with superior sound absorption play a critical role in noise reduction.


Rockfon products feature Noise Reduction Coefficient (NRC) ratings of .70 - 1.05, which are ideal noise reducing options for every school setting. The higher the NRC, the better acoustics in a space, which creates a more conducive learning environment.

Improving Speech Intelligibility. According to the Acoustical Society of America, U.S. classrooms typically have a speech intelligibility rating of about 75%. That means every fourth word is missed.

An investigation found that after treating a ceiling with sound absorbing materials—such as those in Rockfon tiles—students were able to hear teacher's speech more clearly.²

Allowing for More Complex Spaces.

Schools are full of multifunctional spaces that require complex design solutions, including different acoustic approaches depending on the size or purpose of each space. With so many stone wool, metal and wood options, Rockfon not only has an acoustic solution for every space, but one that can add style and beauty.



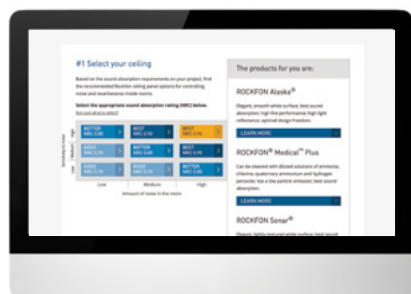
Get an A+ in Acoustics. Learn more about the Optimized Acoustics approach at Rockfon.com/product-benefits/acoustics/



Three Steps to Optimized Acoustics™



With acoustics playing a critical role in learning, Rockfon is committed to helping create comfortable spaces with our Optimized Acoustics approach. Optimized Acoustics is a 3-step architectural and acoustical design process.



Step 1:

Select the appropriate NRC rating for your ceiling panels

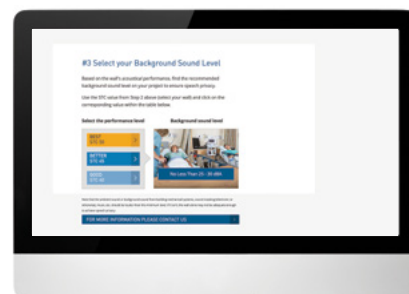
How loud are the sounds inside the room? For example, a classroom might have a lot of noise, while a private office space might not. As the amount of sound absorption is increased inside a room, the reverberation time and noise level decrease. This improves speech intelligibility, allowing students to better understand their teachers.



Step 2:

Select the appropriate STC rating for wall and floor/ceiling assemblies

How loud are the sounds outside the room? For example, is there a music room next door or gymnasium above? Sound blocking starts with your walls and floor slabs. If the adjacent room has a lot of people or equipment, you'll need a high STC rating to decrease the amount of noise getting through.



Step 3:

Ensure you have the proper background sound level

Some background sound is necessary to mask annoying or distracting noise and help achieve speech privacy. This background sound can be from music, nature, mechanical systems or electronic sound masking (or "white noise"). To ensure adequate sound privacy (SPP), you'll need to ensure the proper background sound is achieved.

Rockfon has created a set of interactive online design tools to help you determine the right performance ratings for your space, and provide you with the best product options and construction details. Start optimizing your acoustics at Rockfon.pub/designyourproject

Acoustic Standards for Education

Many school buildings must now comply with the stringent acoustic requirements and performance levels in one or multiple standards, guidelines or building rating systems. The table below compiles the absorption, isolation and background sound level requirements from organizations such as the Collaborative for High Performance Schools (CHPS) and the Acoustical Society of America (ASA).

Standards for Educational Facilities*			
	Background Sound Requires mechanical system noise to be below a maximum permissible level	Absorption – NRC ³ Requires sound absorbing finishes, such as acoustic ceilings, to control reverberation and noise	Wall Insulation – STC ⁴ Requires full-height, STC-rated walls between rooms to prevent noise transfer
American National Standard – Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools ⁷	✓ 35 dBA	✓ Reverb 0.60 - 0.70	✓ STC 50 for Classrooms
Collaborative for High Performing Schools (CHPS) ⁸	✓ 35 - 45 dBA	✓ Reverb 0.60 - 0.70	✓ Classrooms STC 43 (minimum) Classroom STC 50 (enhanced)
Leadership in Energy and Environmental Design (LEED)	✓ 35 dBA (preferred) 40 dBA (maximum)	✓ Ceiling NRC 0.70 (min) Reverb 0.60 - 0.70	✓ STC 50 for Classrooms
Acoustical Society of America (ASA) Technical Committee on Architectural Acoustics (TCAA) ⁹	✓ 35 dBA / NC ⁵ 25 - 30	✓ Ceiling NRC 0.75 (min) Reverb 0.40 - 0.60	✓ STC 50 for Classrooms ¹³
Green Globes Assessment Protocol for Commercial Buildings ^{10, 13}	✓ RC ⁶ 30 Classrooms	✓ Ceiling NRC 0.80 Reverb 0.60	✓ STC 50 for Classrooms
American Academy of Audiology (AAA) ¹¹	✓ Endorsed	✓ Endorsed	✓ Endorsed
American Speech Language Hearing Association (ASHA) ^{12, 13}	✓ Endorsed	✓ Endorsed	✓ STC 50 for Classrooms ¹³

*Every facility is different, and any single room may need to exceed the guidelines in this chart, depending on its purpose and its adjacent rooms. Values are current at the time of this publication but may change afterwards.

While all occupants benefit from good acoustics, students and educators have even more to gain.

Students

Little Learners. Children under 13 don't have a fully developed sense of hearing or comprehension¹⁴, so inaudible words take on greater significance. Ceilings that promote high speech intelligibility help ensure they don't miss a word.

English as a Second Language. About 21% of American students speak a language other than English at home¹⁵. Low reverberation times can improve concentration and keep words crisp.

Hearing Impaired. Every student deserves the same opportunity to learn, no matter if they have a hearing impairment, learning disability or experience chronic ear infections. Following acoustic standards helps ensure an inclusive and comfortable environment for all.

Educators and Staff

From voice strain to a loss of motivation and sleepiness, poor acoustics can add unnecessary challenges when working in a school.¹⁶ The right amount of sound absorption from the ceiling helps create a comfortable working environment, which not only encourages learning, but has been shown to increase job satisfaction.¹⁷



The Importance of Cleanliness and Safety

A clean and safe environment is critical to learning, and younger students are particularly vulnerable to chemicals and bacteria in the air. However, inadequately ventilated classrooms along with high levels of CO₂, pollutants and contaminants can lead to loss of concentration, bad odors and irritation for both adults and children.

However, the right ceiling can make a world of difference for learning.



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. They are harmful to people's health and are often present in building materials. At Rockfon, we only use low VOC materials, supporting overall indoor air quality and complying with green building standards.



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.¹⁸ Rockfon offers a solution with products that are GREENGUARD Gold Certified for low VOCs.



Sustainability

Many of Rockfon stone wool acoustics solutions are GREENGUARD Gold low VOC certified and meet the State of California's Department of Public Health Services Standard Practice for Specification Section 01350 (California Section 01350) for testing chemical emissions.

Selected potential applications: LEED, WELL, CHPS, Green Globes, BREEAM Int. and CALGreen

- ✓ GREENGUARD Gold available
- ✓ Environmental Product Declaration available
- ✓ Health Product Declaration available
- ✓ Declare Label available



No Added Biocides

Schools are for growing minds, not harboring bacteria. But many schools are susceptible to mold and bacteria growth, often because their HVAC units are turned off during the summer months which allows the moisture level to increase. Rockfon stone wool and metal ceiling tiles and panels provide no sustenance to harmful microorganisms and do not require added fungicides. This helps create and maintain a hygienic environment for the life of the building.

Rockfon stone wool ceiling systems are naturally moisture resistant, making them a safe choice for education spaces.



Fire Safety

When it comes to how building materials react to fire, schools must have high standards. Our tiles are fully compatible with the most restrictive regulations. Withstanding temperatures up to 2150°F, stone wool naturally does not melt, burn or create significant smoke. With Rockfon, you'll improve overall fire safety, limit building damage and add valuable time for people to exit the building.

All Rockfon stone wool ceiling panels have Class A Fire Performance per ASTM E84 and outperform the fire requirements for ceilings.

Moisture and Impact Resistant

When used in combination with Chicago Metallic® suspension grid, Rockfon's selection of stone wool and metal ceiling tiles and panels offer solutions to complex maintenance problems, like moisture and durability.

Moisture Management

While moisture can weaken the structure of some building materials, Rockfon's stone wool ceiling products are naturally hydrophobic and stand up to 100% humidity. That means no sagging, warping or falling out of the grid.

Impact Resistance and Durability

Schools by nature have a number of high-activity spaces such as gymnasiums, and the lifespan of a ceiling tile can depend on its ability to resist impact. Rockfon offers high-impact ceiling solutions that not only provide longevity, but are also easy to clean, which in turn saves on maintenance costs.





Design That Invites and Inspires

New findings suggest that design, including color and lighting, can impact student progress over the course of the academic year by 25%.¹⁹ With flexible solutions that offer different colors, shapes and surfaces, Rockfon helps bring inspiring design to the ceiling.

Lighting the Way for Improved Learning

Lighting plays a crucial role in high-performing schools—too much light can cause eye strain and make it hard to focus, while too little can lead to headaches and drowsiness. Natural light, however, contributes to mental and physical health and significantly improves test scores.²⁰

Complete Design Freedom

Whether looking to incorporate school colors, create visual interest or define a room's purpose, Rockfon has a ceiling solution. Stone wool, metal and even wood ceiling panels can be used to create a beautiful space that doesn't compromise performance and durability.



Rockfon Smooth, White Ceilings:

Disperse natural light more effectively by reflecting 83-86% of available light

Aid in limiting hot spots and glare

Enhance energy efficiency. The better distribution of light lets schools lower their light loads and reduce cooling costs.



Rockfon® Color-All™

offers a vibrant palette of 34 colors to create inspiring learning environments for both students and staff.



DID YOU KNOW...

The U.S. Green Building Council's LEED v4.1 rating system²¹ recognizes the power of natural light as part of the Interior Lighting Credit under Lighting Quality.

Inspired to learn more? Sign up for our accredited Ceiling Systems for High Performing Schools course at [Rockfon.com/learning/continuing-education/ceiling-systems-for-high-performing-schools/](https://www.rockfon.com/learning/continuing-education/ceiling-systems-for-high-performing-schools/)

Education Tiles

Education Standard

Made with naturally fire and moisture resistant stone wool, Rockfon® Education Standard acoustical ceiling tiles offer an NRC of .70 which is ideal for education spaces.

Compatible Suspension Systems Products:

Rockfon Chicago Metallic® 1200 15/16"

Rockfon Chicago Metallic® 200 Snap Grid 15/16"

Rockfon Chicago Metallic® 4000 Temptra™ 9/16"

Rockfon Chicago Metallic® 4500 Ultraline™ 9/16"

Rockfon Chicago Metallic® 4600 Ultraline™ 9/16"

Fire Rated Systems

Learn more about
Education Standard at
[Rockfon.com/products/
tiles-and-panels/](https://Rockfon.com/products/tiles-and-panels/)



Education Plus

Made with naturally fire and moisture resistant stone wool, Rockfon® Education Plus acoustical ceiling tiles offer an NRC of .80. With a clean, modern look and sound absorption properties, Education Plus is designed for optimized acoustics in classroom and office applications.

Compatible Suspension Systems Products:

Rockfon Chicago Metallic® 1200 15/16"

Rockfon Chicago Metallic® 200 Snap Grid 15/16"

Rockfon Chicago Metallic® 4000 Temptra™ 9/16"

Rockfon Chicago Metallic® 4500 Ultraline™ 9/16"

Rockfon Chicago Metallic® 4600 Ultraline™ 9/16"

Fire Rated Systems

Learn more about
Education Plus at
[Rockfon.com/products/
tiles-and-panels/](https://Rockfon.com/products/tiles-and-panels/)



Education Premium

Made with naturally fire and moisture resistant stone wool, Rockfon® Education Premium acoustical ceiling tiles offer an NRC of .90 and support healthy indoor air quality. This new education product is perfect for library and media center applications.

Compatible Suspension Systems Products:

Rockfon Chicago Metallic® 1200 15/16"

Rockfon Chicago Metallic® 200 Snap Grid 15/16"

Rockfon Chicago Metallic® 4000 Temptra™ 9/16"

Rockfon Chicago Metallic® 4500 Ultraline™ 9/16"

Rockfon Chicago Metallic® 4600 Ultraline™ 9/16"

Fire Rated Systems

Learn more about
Education Premium at
[Rockfon.com/products/
tiles-and-panels/](https://Rockfon.com/products/tiles-and-panels/)



A Higher Level of Education



We're helping raise the bar on education with ceiling tiles created to enhance learning environments. Across North America, Rockfon ceiling products have been used to create high-performing education spaces.

Sammamish High School

When designing the new three-story high school, the school's design team and Integrus Architecture developed a set of guiding principles, ranging from establishing the school identity to fostering flexible learning spaces that focused on the environment. To accomplish these goals, they needed a ceiling solution that would provide a good acoustic experience, maximize natural light and support a safe and sustainable environment.

The school now features 250,000 square feet of Rockfon ceiling systems.

Products:

Rockfon Alaska®

Rockfon Sonar®

Chicago Metallic® 4000 Tempra™
9/16" Suspension System

Chicago Metallic® 1200 Seismic
15/16" Suspension System

Explore all stone wool ceiling products at
[Rockfon.com/
products/
tiles-and-panels/](https://Rockfon.com/products/tiles-and-panels/)



Cushing District Schools

With economic growth in the area, Cushing School District sought to build a durable new middle school and a high school fieldhouse that could withstand constant student use without sacrificing appearance. Using Rockfon's suspension and metal ceiling system, BWA Architects designed a ceiling that created interest, kept spaces open and incorporated Cushing Tiger Orange accents.

Products:

Rockfon® Cubegrid®

Rockfon® CurvGrid™

Rockfon® Infinity™

Rockfon® Planostile™ Lay-in

Explore all metal ceiling products at
[Rockfon.com/
products/metal-
ceilings/](https://Rockfon.com/products/metal-ceilings/)



A Long-Lasting Impact

Schools are about preparing for a better future. At Rockfon, we are also dedicated to building a better future, which is why we take great pride in our sustainability practices.

Creating a green school not only lessens its environmental impact, it also costs less to operate over the life of the building. Our stone wool products are GREENGUARD Gold Certified for low VOCs, and our ceiling solutions can contribute to meeting green building standards, including LEED v4.1. Furthermore, our third-party Environmental Product Declarations (EPDs) help specifiers make informed decisions.

At Rockfon, we're dedicated to contributing to a sustainable future during every step of our process—from sourcing to production to logistics.



38,000x

There is 38,000 times more volcanic rock produced each year than the amount we use in our stone wool products



UP TO 49%

49% of our stone wool tile is made of recycled content



100%

Our metal ceiling systems are 100% recyclable



A Partner for Today and Tomorrow

Education is too important to be interrupted by needless distractions, or to be impaired by poor air quality. At Rockfon, we provide our customers with complete ceiling systems, combining stone wool ceiling panels with suspension grid systems, metal ceiling solutions, and now wood ceilings. Our products help create beautiful, comfortable spaces. Easy to install and durable, they protect people from noise and the spread of fire while making a constructive contribution toward a sustainable future.

To get started contact us at
Rockfon.com/contact-us



Rockfon stone wool products have EPDs, HPDs and Declare Labels, GREENGUARD Gold Certified, mindful MATERIALS and come with a 30-year warranty.



Technical Notes

1. Source: National Research Council, *Review and Assessment of the Health and Productivity Benefits of Green Schools: An Interim Report*, Washington, DC: The National Academies Press (2006)
2. Source: Peng, Jianxin, Wang, Dan, Lau, Siu-Kit, et al., *An investigation of acoustic treatment for children in a classroom of an elementary school*. Applied Acoustics (2015)
3. NRC is Noise Reduction Coefficient, the metric used to describe the sound absorbing capability of an architectural surface material or finish. It is measured in a laboratory per ASTM C423.
4. STC is Sound Transmission Class, the metric used to describe the sound blocking capacity of an architectural assembly. It is measured in a laboratory per ASTM E90 and ASTM E413.
5. NC is Noise Criterion, one of several methods of specifying maximum permissible noise levels for building mechanical, electrical, plumbing and conveying systems.
6. RC is Room Criterion, one of several methods of specifying maximum permissible noise levels for building mechanical, electrical, plumbing and conveying systems.
7. The ANSI/ASA S12.60 Standard can be downloaded at webstore.ansi.org/.
8. The CHPS National Core Criteria can be downloaded at chps.net.
9. The ASA-TCAA booklet *Classroom Acoustics I – A resource for creating learning environments with desirable listening conditions* can be downloaded at acousticalsociety.org/classroom-acoustics.
10. The Green Globes Assessment Protocol for Commercial Buildings (ANSI-GBI 01-2019) can be downloaded at thegbi.org/ansi.
11. The AAA Position Statement on Classroom Acoustics (August 2011) can be downloaded at audiology.org.
12. The ASHA Position Statement on Acoustics in Educational Settings (Jan 2005) can be downloaded at asha.org.
13. The ASA-TCAA and the ASHA specifically require that partitions must continue all the way to structural deck above to be effective sound barriers. Otherwise, sound from one room can easily pass through a lay-in acoustical tile ceiling, over the partition wall, and down through the lay-in acoustical tile ceiling of the next room.
14. Source: Nelson, P., *Sound in the classroom: Why children need quiet*. ASHRAE (2003)
15. Source: Wang, L., *Room Acoustic Effects on Speech Comprehension of English-as-Second-Language Talkers and Listeners versus Native-English-Speaking Talkers and Listeners*. Architectural Engineering-Faculty Publications (2015)
16. Source: Kristiansen, Jesper, Persson, Roger, Lund, Soren Peter, et al., *Effects of Classroom Acoustics and Self-Reported Noise Exposure on Teachers' Well-Being*. Environment and Behavior (2013)
17. Source: Udemy 2018 Workplace Distraction Report
18. Source: United States Environmental Protection Agency, *Indoor Air Quality Tools for Schools: Actions to Improve Indoor Air Quality*. Publication #402-F-99-008 (1999)
19. Source: Barrett, P.S., Zhang, Y., Moffat, J., and Kobbacy, K., *A holistic, multi-level analysis identifying the impact of classroom design on pupils' learning*. Building and Environment (2012)
20. Source: Mirrahimi, S., Ibrahim, N. L. N., Surat, M., *Effect of daylighting on student health and performance*. Architecture Faculty of Engineering and Built Environment, National University of Malaysia (2013)
21. Source: LEED v4.1 rating system selection guidance. United States Green Building Council (USGBC)

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