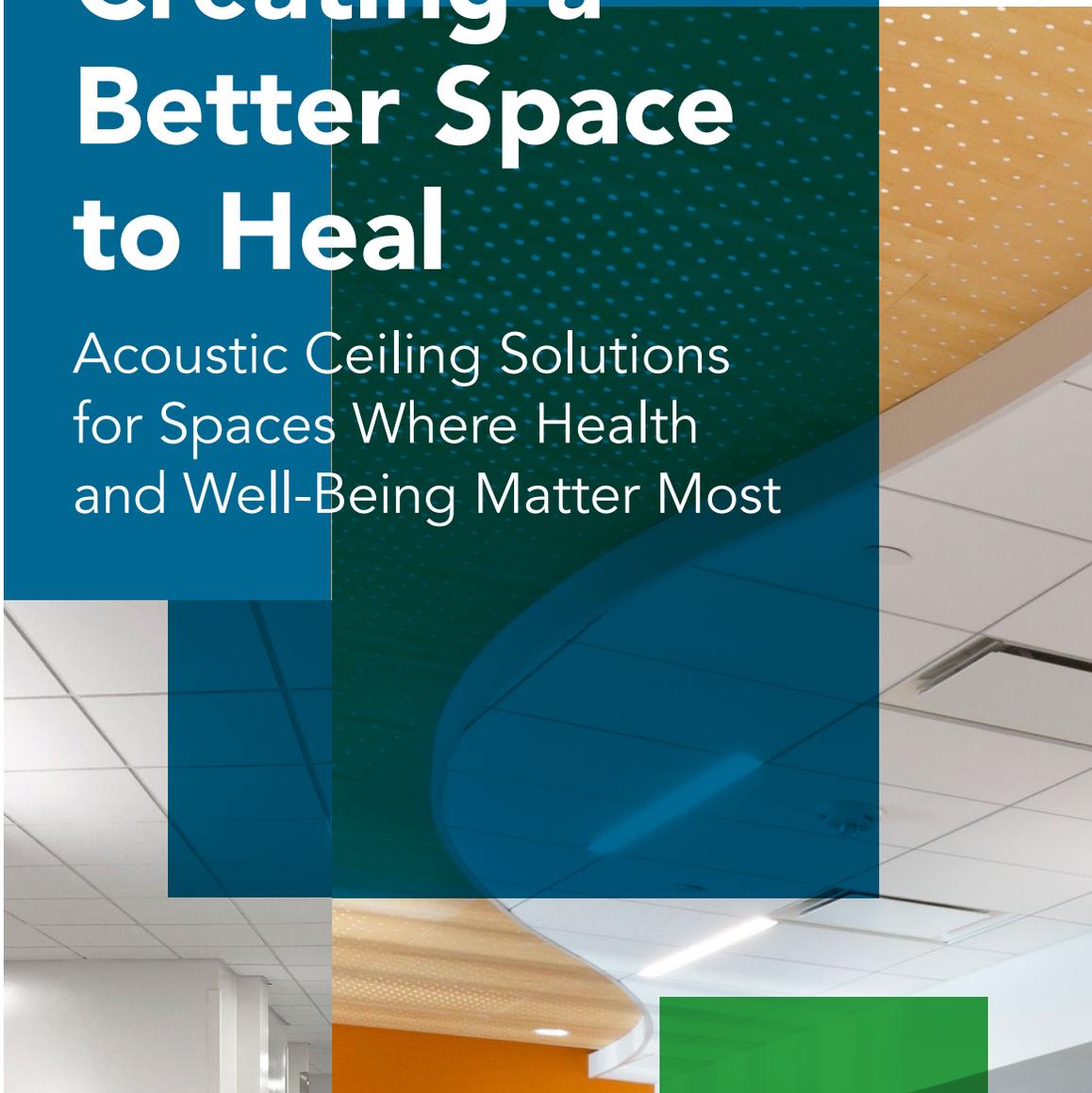


Healthcare: Creating a Better Space to Heal

Acoustic Ceiling Solutions
for Spaces Where Health
and Well-Being Matter Most



Ceiling Systems for High-Performing Healthcare Facilities

Now, more than ever, healthcare facilities need to be built and renovated with evidence-based design that supports their critical function in society. Creating an environment that enables patient care and healing means considering the vitally important acoustic, safety, maintenance and sustainability impact of the ceiling system.

Rockfon has a variety of acoustic ceiling solutions to help create beautiful and functional healthcare spaces. With stone wool tiles, metal ceiling panels, wood ceilings and suspension grid systems, Rockfon supports healthy and safe healthcare environments.



Learn more about how to impact care with high-performing ceilings at rockfon.com/market-sectors/healthcare/

The Sound of Patient and Staff Satisfaction



Quieter healthcare environments have been shown to lead to faster recovery times and greater patient satisfaction—one hospital increased their HCAHPS score by 26% merely by improving its acoustics.¹ It also benefits healthcare workers who are able to hear instructions more clearly, concentrate better and, as a result, report higher job satisfaction.² By using the ceiling to help optimize acoustics in patient rooms, treatment areas and nurses' stations, you create a comfortable, supportive working and healing environment.

Optimized for Better Performance

Creating a good acoustic experience with sound absorbing ceiling tiles in healthcare spaces benefits patients, caregivers and staff.

Rest and Recover. In hospital environments, noise control is very important for the recovery of patients. Unwanted sound can increase heart rate, blood pressure and respiration rate.³ But highly sound absorptive ceilings improve acoustics and help reduce the distracting sounds so that patients can rest easy.

Protect Patient Privacy. Increasing speech intelligibility while protecting patient privacy means patients and doctors can clearly communicate in a private environment. With ceilings that absorb sound and walls to block it, conversations stay private and aid with HIPAA compliance.

Reduce Workplace Stress. Healthcare providers have an important job to do. Their work environment should support their sense of wellbeing, not cause more stress. Noise control can help. A Swedish study found that with improved acoustic conditions staff reported feeling less pressure and less "emotional exhaustion." The same study also reported fewer performance conflicts and error.⁴

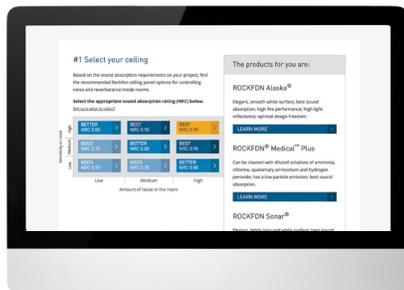


Get a healthy understanding of acoustics. Learn more about the Optimized Acoustics™ approach at rockfon.com/products/product-benefits/acoustics/

Three Steps to Optimized Acoustics™



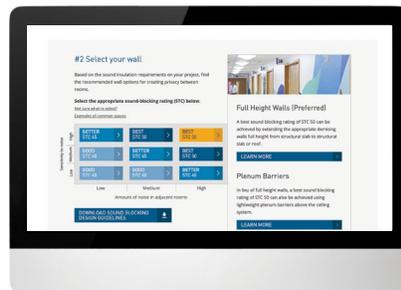
Optimizing acoustics in hospitals, medical centers, senior care facilities—anywhere health and safety is a top priority—requires design that combines sound absorbing ceilings with full-height walls. Rockfon is committed to helping create comfortable spaces with our Optimized Acoustics approach. This 3-step architectural and acoustical design process will help you determine the correct amount of sound absorption, noise blocking and background sound for your project.



Step 1:

Select the appropriate NRC rating for your ceiling panels

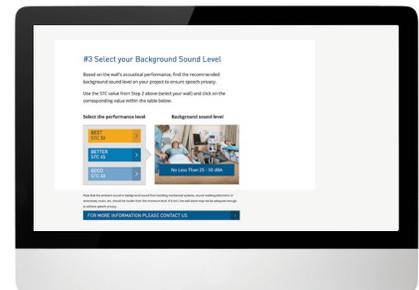
How loud are the sounds inside the room? For example, a nurses' station might have a lot of noise, while a private exam room might not. As the amount of sound absorption is increased inside a room, the reverberation time and noise level decrease. This improves speech intelligibility and privacy.



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 reception area next door or busy hallway 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 (SPP⁵) and improve HIPAA compliance, 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 in Healthcare

With patient satisfaction and recovery directly linked to acoustics, leading organizations have implemented absorption, isolation and background sound level guidance and requirements.

HIPAA—The Healthcare Insurance Portability and Accountability Act requires that institutions handling private medical and financial information make a reasonable effort to keep the information, even when spoken, private for the protection and dignity of the patient, but does not have any specific acoustic requirements.

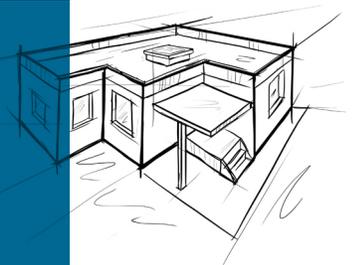
Evidence Based Design—The Center for Health Design categorizes the use of high-performing, sound-absorptive, acoustic ceilings (NRC 0.90 or higher) as a priority design recommendation based on the strength of the evidence available and the impact on safety, quality and cost.^{2,6}

Accepted Standards for Healthcare Facilities*			
	Background Sound Requires mechanical system noise to be below a maximum permissible level	Absorption – NRC⁷ Requires sound absorbing finishes, such as acoustic ceilings, to control reverberation and noise	Wall Insulation – STC⁸ Requires full-height, STC-rated walls between rooms to prevent noise transfer
Facilities Guidelines Institute (FGI) – Guidelines for the Design and Construction of Hospitals (2018)	45 dBA for Patient Rooms		STC 45 for Patient Rooms
Leadership in Energy and Environmental Design (LEED) ¹²	35 - 45 dBA		STC 45 for Patient Rooms
Green Globes Assessment Protocol for Commercial Buildings ¹⁰	45 dBA for Patient Rooms	Ceiling NRC 0.90 Reverb 0.50	STC 50 for Healthcare
National Institutes of Health (NIH) – Design Requirements Manual	NC ¹¹ 40 - 45 for Laboratories	Ceiling NRC 0.80 (min) in Laboratories	STC 50 Between Areas NIC ⁹ 45 Within Areas

*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.

Want a healthier understanding of the role ceilings can play in healthcare spaces?

Sign up for our accredited course Ceiling Systems for High-Performing Healthcare Facilities at rockfon.com/knowledge-center/continuing-education/ceiling-systems-for-high-performing-healthcare-facilities/



Keeping Occupants Healthy



Designers and builders should pay close attention to the materials they use in healthcare settings—materials, such as stone wool, can play a large role in helping control the spread of infection and bacteria.

- The materials used should not provide nourishment for potentially harmful microorganisms
- Surfaces need to be easily cleanable without affecting performance
- Panels should be durable and provide easy access to the plenum for maintenance

The Natural Strengths of Stone Wool



Sound Absorption

Typically, when sound hits hard surfaces, the noise level in the room increases. However, stone wool's composition makes it highly sound absorptive, meaning it helps create an acoustically comfortable environment.



Fire Resistant

Because the core material is non-combustible, stone wool ceiling products resist fire. Rockfon stone wool products have Class A Fire Performance with a Flame Spread Index of 0, and a maximum Smoke Developed Index of 5. Their natural resistance means they are free from flame retardants, many of which have been shown to cause health issues.¹⁴



Moisture Resistant

Stone wool ceiling tiles naturally resist water. Even in high humidity areas, the tile will not sag, warp or fall out of the grid due to moisture. This resistance makes Rockfon's stone wool ceiling tiles a durable solution for healthcare spaces.



Cleanability

To minimize maintenance while maximizing infection control, ceilings need to be easily cleaned and durable. Rockfon's stone wool and metal ceilings are durable enough to stand up to repeated cleanings. Our Rockfon® Medical Plus™, Rockfon® Medical™ Air and Rockfon® Hygienic Plus™ tiles are designed specifically for healthcare spaces and are specially treated to allow cleaning with diluted disinfectants.



Aesthetics

Stone wool delivers exceptional surface smoothness in Rockfon ceilings, enabling monolithic, concealed, semi-concealed and visible edges, plus a number of design options such as color, shapes and sizes to help designers bring their vision to life.

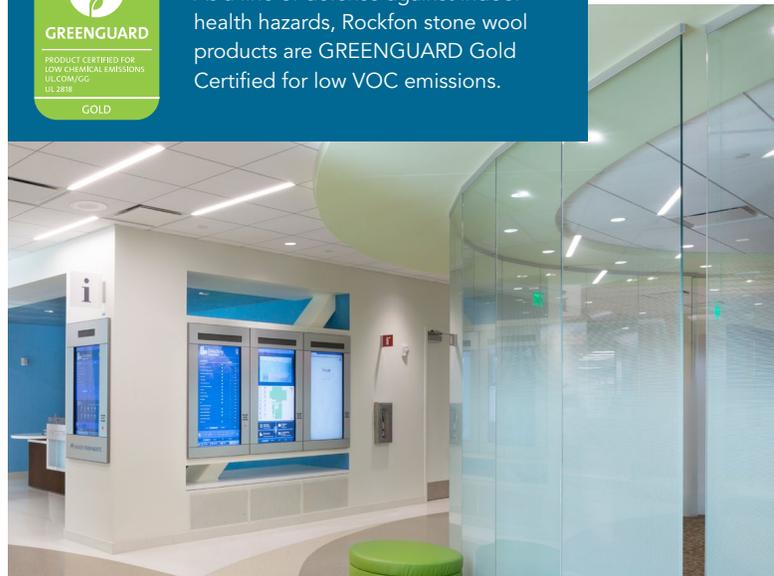


Mold Resistant

Stone wool, made from naturally occurring basalt rock, does not provide sustenance for mold or bacteria. As a result, stone wool helps maintain indoor air quality and cleanliness without the addition of antimicrobials.



As a line of defense against indoor health hazards, Rockfon stone wool products are GREENGUARD Gold Certified for low VOC emissions.





Design That Improves Healthcare

Healthcare facilities are moving away from harsh, institutionalized atmospheres, and toward warm, welcoming environments that promote comfort and healing. The ceiling provides the opportunity to combine style with function. Rockfon's selection of stone wool, wood and metal ceiling options give designers the freedom to help healthcare spaces evolve.

Color and Comfort

The right color and design have the power to impact everything from emotions to operations. Calming colors can soothe anxious patients while bright, strong ones can stimulate activity. More practically, color that extends to the ceiling can help signify a room's purpose.

Rockfon® Color-All™ ceiling tiles are available in 34 colors and offer excellent sound absorption.

Enhancing Natural Light

Impacting our psychological and physiological condition, lighting in healthcare spaces is an important aspect in the overall design. As the only surface in a room that is completely visible, the ceiling needs high light reflectance to make the most of both natural and artificial light sources. Rockfon ceiling tiles offer up to 86% reflectance to create the optimal level of light.



High-Performing Healthcare Spaces

Contributing to culture, sustainability and patient care goals, Rockfon ceiling solutions are featured in healthcare spaces across the country.



Premier Gastroenterology Associates Premier Medical Plaza

Premier Gastroenterology Associates (PGA), a physician-owned healthcare practice, repurposed a long-vacant big box retail space into a new medical plaza, a patient-centered facility serving Little Rock, Arkansas. To create an inspiring space and to aid in acoustics and infection control, the patient care areas utilized Rockfon® Medical™ Plus acoustic ceiling tiles. Additionally, woodgrain finish metal panels added warmth to the waiting rooms.

Products:

Rockfon Artic®

Rockfon® Medical™ Plus

Rockfon® Planar® Macroplus® Linear Ceilings

Chicago Metallic® 1200 15/16"



Kaiser Permanente Mission Bay Medical Offices

Kaiser Permanente's nine-story, 220,000-square-foot medical office building was constructed to meet the highest environmental and sustainability standards, including LEED Gold certification through the U.S. Green Building Council's new construction rating system. A variety of Rockfon ceiling solutions were used to support the sustainable design, as well as promote the wellness of patients, staff and visitors.

Products:

Rockfon Artic®

Rockfon Alaska®

Rockfon® Hygienic Plus™

Rockfon® Infinity™ Standard Perimeter Trim

Rockfon® Spanair® Torsion Spring Concealed Metal Panel

Chicago Metallic® 1200 15/16"

Chicago Metallic® 4500 Ultraline™ 9/16"



St. Elizabeth's Hospital

St. Elizabeth's Hospital, located in O'Fallon, Illinois, constructed their new 350,000-square-foot hospital with a patient-focused design, emphasizing greater space, more efficiencies and a modern appearance. Rockfon metal ceiling panels help create the building's four exterior canopies, providing the proper aesthetics and performance.

Products:

Rockfon® Planar® Macroplus® Linear Ceilings

Explore Rockfon's full suite of products at rockfon.com/products/

Explore all suspended grid systems at rockfon.com/products/grid-suspension-systems/

Explore all metal ceiling products at rockfon.com/products/metal-ceilings/

Rockfon Medical Ceiling Tiles



Rockfon® Medical™ Standard

- ISO Class 5
- Provides no substance to microorganisms
- Cleanable with vacuum and damp cloth
- Compatible Suspension Systems
 - 15/16": Chicago Metallic® 200, 1200 and Fire Rated Systems
 - 9/16": Chicago Metallic® 4000, 4500, 4600 and Fire Rated Systems



Rockfon® Medical™ Plus

- ISO Class 4
- Provides no sustenance to microorganisms
- Cleanable with diluted disinfectants, vacuum and damp cloth
- Compatible Suspension Systems
 - 5/16": Chicago Metallic® 200, 1200 and Fire Rated Systems
 - 9/16": Chicago Metallic® 4000, 4200, 4500, 4600 and Fire Rated Systems



Rockfon® Medical™ Air

- ISO Class 3
- Suitable for where differential pressure is required
- Provides no sustenance to microorganisms
- Cleanable with diluted disinfectants, vacuum and damp cloth
- Covered with an airtight membrane
- Compatible Suspension Systems
 - 15/16": Chicago Metallic® 200, 1200 and Fire Rated Systems



Rockfon® Hygienic Plus™

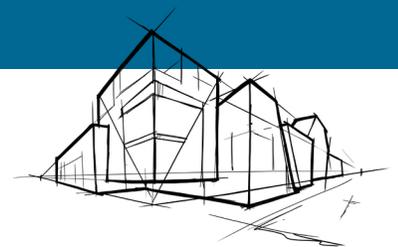
- ISO Class 5
- Provides no sustenance to microorganisms
- Cleanable with diluted chemicals, vacuum and damp cloth
- Compatible Suspension Systems
 - 15/16": Chicago Metallic® 200, 1200 and Fire Rated Systems



Rockfon Sonar®

- ISO Class 5
- Provides no substance to microorganisms
- Cleanable with diluted chemicals, vacuum and damp cloth
- Compatible Suspension Systems
 - 15/16": Chicago Metallic® 200, 1200 and Fire Rated Systems
 - 9/16": Chicago Metallic® 4000, 4200, 4500, 4600 and Fire Rated Systems

Explore all stone wool ceiling tiles and panels at rockfon.com/products/tiles-and-panels/



Sustainable Spaces with Maintenance in Mind

Rockfon's stone wool ceilings stand the test of time. Cleanability, combined with moisture resistance, makes them a durable and low-maintenance upgrade from traditional ceilings. Their contribution to acoustic comfort, indoor air quality and recycled content helps buildings meet sustainability initiatives, such as the U.S. Green Building Council's LEED® v4.1 requirements.

Healthcare facilities are now, more than ever, reaching their sustainability goals with the help of building materials that improve maintenance and operations. We're proud our ceiling tiles can play a role in this evolution.

We are 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 43%

43% of our stone wool tile is made of recycled content



100%

Our metal ceiling systems are 100% recyclable

A Partner for Today and Tomorrow

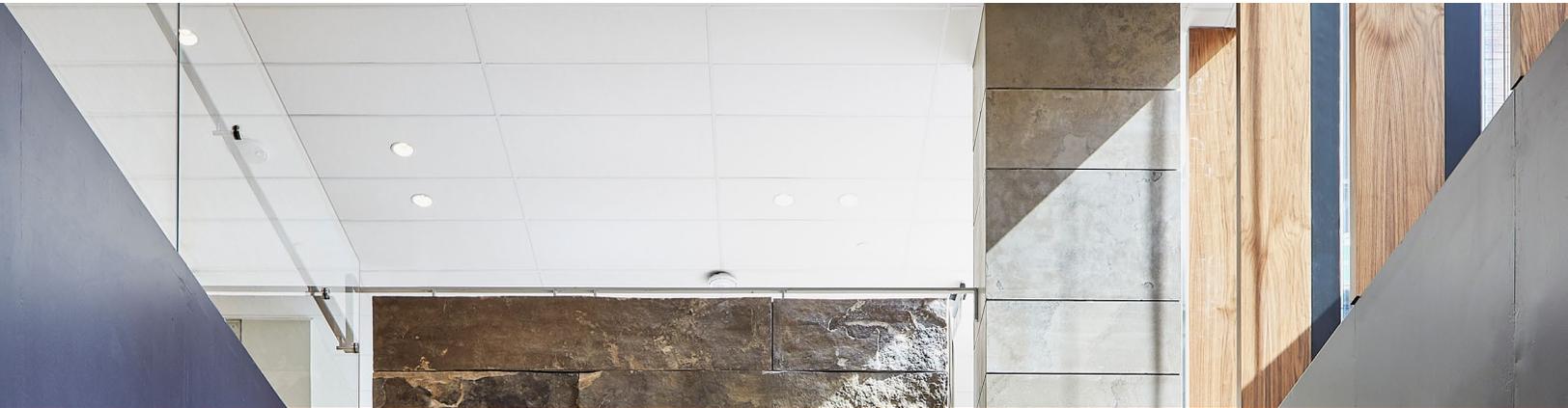
At Rockfon, our products help create beautiful, comfortable spaces. We provide our customers with complete ceiling systems, combining stone wool ceiling panels with suspension grid systems, metal ceiling solutions, and even wood ceilings. Easy to install and durable, our ceiling systems protect people 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 are GREENGUARD Gold certified, mindful MATERIALS, have Class A Fire Performance, and come with a 30-year warranty.



Technical Notes

1. Source: Pennic, Fred, *Quiet Hospital Initiative Helps Increase HCAHPS Scores by 26%*, Healthcare IT News/Healthcare Technology—Healthcare Consultant (2015). HCAHPS stands for Hospital Consumer Assessment of Healthcare Providers and Systems.
2. Source: Blair L. Sadler, Jennifer R. DuBose, Eileen B. Malone, Craig M. Zimring, *The Business Case For Building Better Hospitals Through Evidence-Based Design*, The Center for Health Design (2008)
3. Source: *Specialist Services, Health Technical Memorandum 08-01: Acoustics*, Department of Health (2013)
4. Source: V Blomkvist, C A Eriksen, T Theorell, R Ulrich, G Rasmanis, *Acoustics and psychosocial environment in intensive coronary care*, BMJ Journals/Occupational & Environmental Medicine (2005)
5. SPP is Speech Privacy Potential, the metric used to measure the degree of speech privacy in closed and open spaces.
6. The studies leading to this design recommendation used European class A (0.90 Alpha-W) ceiling panels. European Class A panels are equivalent to ceiling panels with a Noise Reduction Coefficient of NRC 0.90. Source: *Sound Control for Improved Outcomes in Healthcare Settings*, The Center for Health Design (2007)
7. 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.
8. 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.
9. NIC is Noise Isolation Class, a metric used to describe the sound blocking capacity of all architectural components that make up constructed rooms combined. As such, NIC oftentimes better represents what building occupants will perceive. It is measured inside the building per ATSM E336 and ATSM E413.
10. The Green Globes Assessment Protocol for Commercial Buildings (ANSI-GBI 01-2019) can be downloaded at thegeb.org/ansi.
11. NC is Noise Criterion, one of several methods of specifying maximum permissible noise levels for building mechanical, electrical, plumbing and conveying systems.
12. LEED v4.1 references the acoustic criteria in the 2018 version of the FGI Guidelines.
13. Source: Perkins+Will, and the Healthy Building Network, *Top 10 Things to Know About Antimicrobials*
14. Source: *Flame Retardants*, National Institute of Environmental Health Sciences

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