

USG
Ceiling
Solutions

GREAT DESIGN
IS A LOT MORE THAN
GREAT AESTHETIC.

HEAR
AND EXPERIENCE
THE DIFFERENCE.

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USG 
IT'S YOUR WORLD. BUILD IT.



GREAT DESIGN IS A LOT MORE THAN GREAT AESTHETIC.

It takes into account other critical details, such as sound, in theaters, public spaces, museums, churches and schools where we live, work and play. It can enhance or inhibit human interactions, learning and healing. Understanding sound and how it's most typically measured is critical.

1. NOISE REDUCTION COEFFICIENT (NRC)

Products with a high NRC absorb sound and minimize reverberation and echoes within a space.

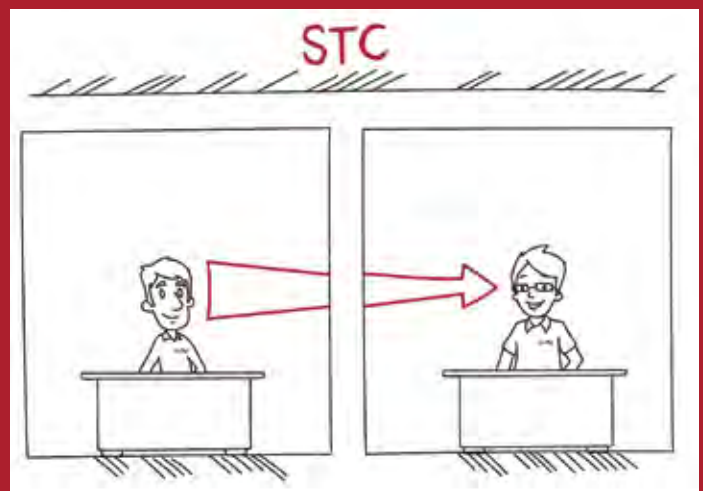
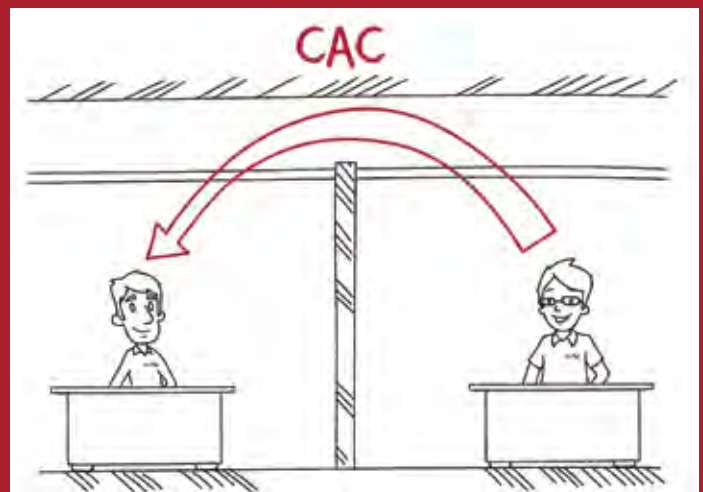
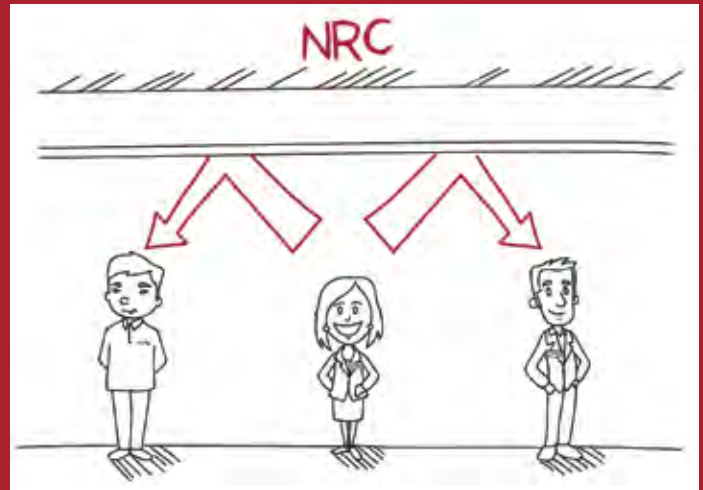
Single-number rating for comparing sound absorption of building materials, tested per ASTM C423.

2. CEILING ATTENUATION CLASS (CAC)

Products with a high CAC help contain or block sound transmission between rooms with a common ceiling plenum. They inhibit unwanted noise from disrupting activities.

Single-number ratings for comparing sound attenuation of ceiling systems, tested per ASTM E1414.

When walls don't extend all the way from the floor to the deck above, noise can travel through the ceiling plenum from one room to another. To reduce the noise intrusion between rooms, use an acoustical ceiling panel that has a high CAC or a value that closely matches the STC factor of the walls; otherwise, build the walls to the floor or deck above. The higher the value, the better it performs as a barrier to sound intrusion. The CAC of a ceiling panel is a critical detail and should not be overlooked.



USG VIEWS A BALANCED APPROACH TO ACOUSTICS AS THE BEST OVERALL SOLUTION

A combination of moderate sound absorption (NRC) and high sound attenuation (CAC) has proven to be one of the best overall solutions for many applications.

USG CEILING SOLUTIONS

We provide a plethora of different ceiling solutions, ranging from economical to higher-performing ceiling systems. And, coupled with the fact that USG manufactures products for floor and wall systems, we understand the broader acoustical needs of any space.

Our proprietary Auralization Studio was designed to simulate real environments. It's a high-tech facility equipped to provide immersive demonstrations of high-performance acoustical systems.

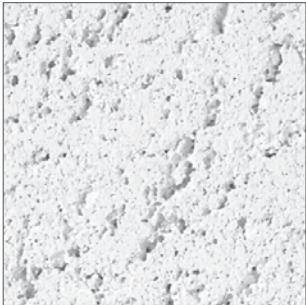
For more information, contact your local USG sales representative or visit usg.com.

PRODUCT	NRC/CAC/LR	COST
Eclipse	.70/35/.86	\$ \$
Eclipse High NRC	.75/35/.86	\$ \$ \$
F-Fissured	.70/35/.79	\$ \$ \$
Frost	.70/36/.84	\$ \$
Frost w/paperback	.70/38/.84	\$ \$ \$
Frost High NRC/CAC	.75/38/.89	\$ \$ \$
Halcyon w/foilback	.90/30/.90	\$ \$ \$ \$
Mars	.70/35/.90	\$ \$
Mars Healthcare	.70/35/.90	\$ \$
Mars Healthcare High NRC	.80/35/.90	\$ \$ \$
Mars High NRC	.80/35/.90	\$ \$
Mars High NRC	.85/33/.90	\$ \$
Mars High NRC	.90/30/.90	\$ \$ \$
Millennia	.70/35/.90	\$ \$
Millennia High NRC	.75/30/.85	\$ \$
Radar High NRC	.75/30/.85	\$ \$
Radar High NRC/CAC	.70/40/.84	\$ \$
Radar Open Plan	.75/35/.84	\$ \$
Sandrift	.70/38/.83	\$ \$ \$

USG measures NRC and CAC in the laboratory, but field conditions may vary.
Light Reflectance (LR).



Eclipse™



F-Fissured™



Frost™



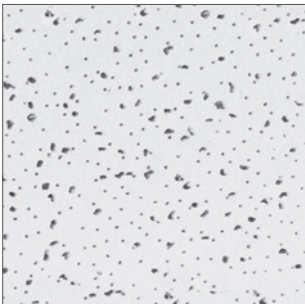
Halcyon™



Mars™



Millennia®



Radar™



Sandrift™

HUMAN HEARING IS FAR FROM SIMPLE

We hear poorly at low (bass) and high (treble) frequencies and it also varies based on our age. In addition, human hearing is non-linear in our perception of loudness.

Every sound has a particular frequency, measured in hertz (Hz) and amplitude, which is measured in decibels (dB*). These parameters of sound are processed in distinct ways. Two people may hear the same sound in very different ways.

**The dB is a logarithmic unit of measure used to compensate for this effect. Because the scale is logarithmic, an increase of a few dB represents a very large change in perceived volume. Every increase of 10dB on the scale is equivalent to doubling in loudness. As an example, the difference between 20dB and 100dB is similar to the difference between a whisper and a rock 'n' roll concert.*

COMMON SOUND LEVEL (dB) EXAMPLES

dB	EXAMPLE	LEVEL
140	Jet aircraft	Deafening, ear damaging
120	Loud concert	Deafening
100	Crowd noise	Very loud, harmful
80	Loud music	Harmful
60	Freeway traffic	Moderate
50	Office setting	Moderate
30	Home setting	Faint
20	Whisper	Barely audible
10	Subtle breathing	Very faint

CODE REQUIREMENTS AND GUIDELINES

When it comes to acoustics, it's hard to keep up with the ever-expanding code requirements and guidelines. This listing may just help.

Healthcare Facilities

- Health Insurance Portability and Accountability Act (HIPAA) for patient privacy
- 2014 FGI Guidelines for Healthcare Facilities

Classrooms

- ANSI S12.60 *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools*
- Improve learning and communication

Multifamily Residential Buildings

- International Building Code (IBC), Section 1207
- Reduce exterior noise and sound transmitted between units
- Minimum 50 STC and 50 IIC

"Green" Building Construction

- USGBC LEED® Indoor Environmental Quality (IEQ) credits for Acoustical Performance
- Ensure "green" building designs do not compromise acoustics
- HVAC noise, exterior noise, reverberation time, NRC, STC and IIC requirements

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