Gold Bond®
Building Products

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SoundBreak® XP® Sound Solutions

National Gypsum®

Exclusive service provider of the SoundBreak® family of products manufactured by Gold Bond Building Products, LLC

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Understanding acoustical concepts in building design

It's imperative to consider a building's acoustics early in the design process. When sound is not properly controlled, privacy, sleep and your client's satisfaction can all be compromised. However, choosing the right acoustic design to balance code, material and client requirements isn't always straightforward.

Airborne sound is acoustic energy generated by a source and transmitted by vibration through the air. The vibrations create sound pressure fluctuations that are detected by a receiver. Sound is characterized by its frequency, which determines the pitch of the sound, and by the intensity of the pressure fluctuations, which determines how loud the sound is perceived to be.

Sound Transmission				
Energy generated by a source	►	Transmitted through a medium	►	Detected by a receiver
Drumstick strikes drumhead creating vibrations	►	Vibrations transmitted through the air as pressure fluctuations	►	Ear receives pressure fluctuations and perceives them as sound

Acoustical terms

HERTZ

Sound frequency is measured in hertz, or Hz, or cycles per second — the number of sound pressure fluctuations that occur at a fixed point within a second. The human ear can hear frequencies between 20 Hz and 20,000 Hz, though the ability to hear higher frequencies degrades with age. People are most sensitive to sound in the 100- to 5,000-Hz range. (The lowest and highest notes on a piano are 27.5 and 4,186 Hz.)

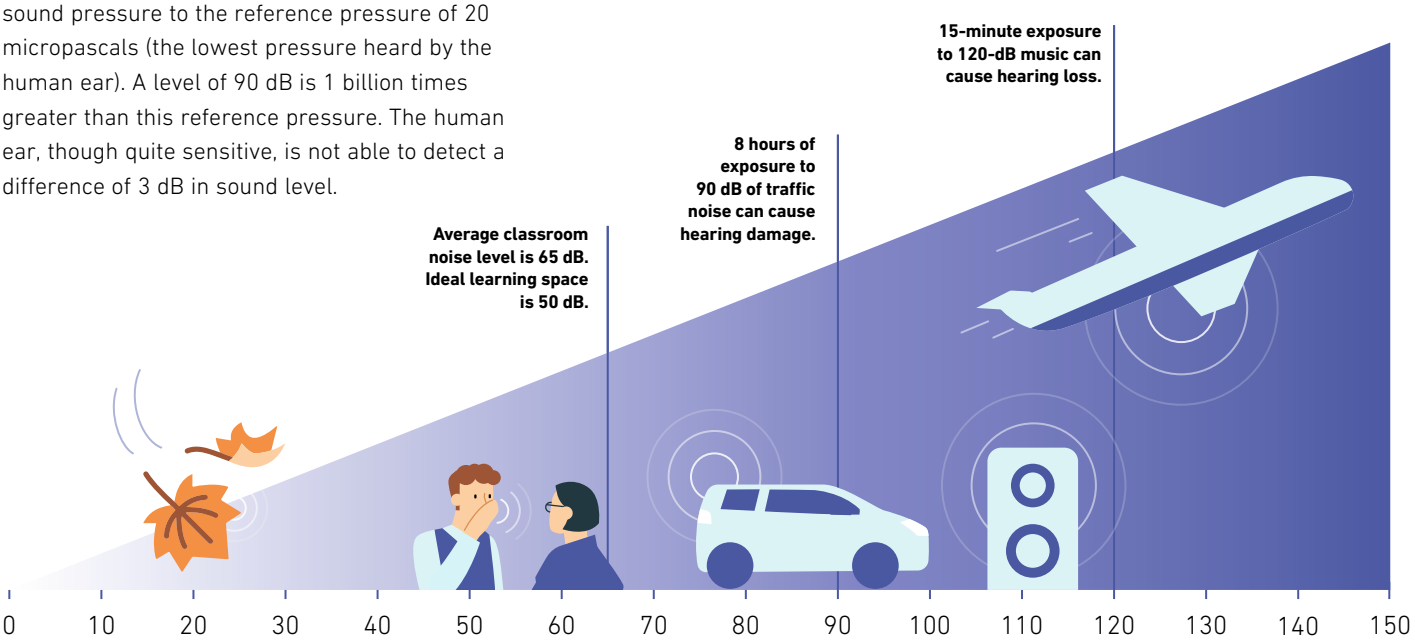
DECIBELS

Sound intensity, or loudness, is measured in decibels, or dB. A whisper might register at 20 dB, normal conversation at 60 dB and loud singing at 75 dB. The scale is logarithmic, which means that sound intensity doubles with every 10-dB increase.

DECIBELS OF COMMON SOUNDS

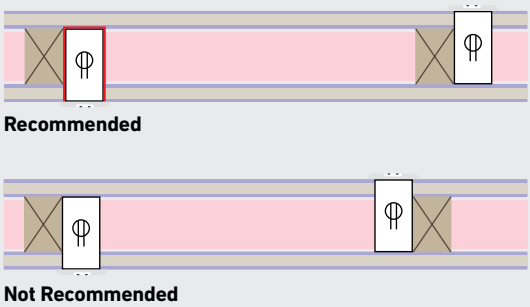
Did you know?

"Decibel" describes how loud a sound is, and it is defined as a logarithmic ratio of two power quantities. In acoustics, a decibel is the ratio of sound pressure to the reference pressure of 20 micropascals (the lowest pressure heard by the human ear). A level of 90 dB is 1 billion times greater than this reference pressure. The human ear, though quite sensitive, is not able to detect a difference of 3 dB in sound level.



FLANKING SOUND

Flanking sound is the transmission of sound around building assemblies or through holes in the assembly. Flanking paths include the space above partition walls in office buildings, as well as holes in the floor and around electrical boxes. Failure to address these can derail an otherwise solid attenuation strategy.



BEST PRACTICES TO REDUCE FLANKING SOUND

- Stagger electrical boxes (in separate stud cavities)
- Stagger board joints
- Use putty pads for electrical boxes
- Seal all other penetrations with acoustical sealant
- Seal perimeter of wall with acoustical sealant

Acoustical terms continued

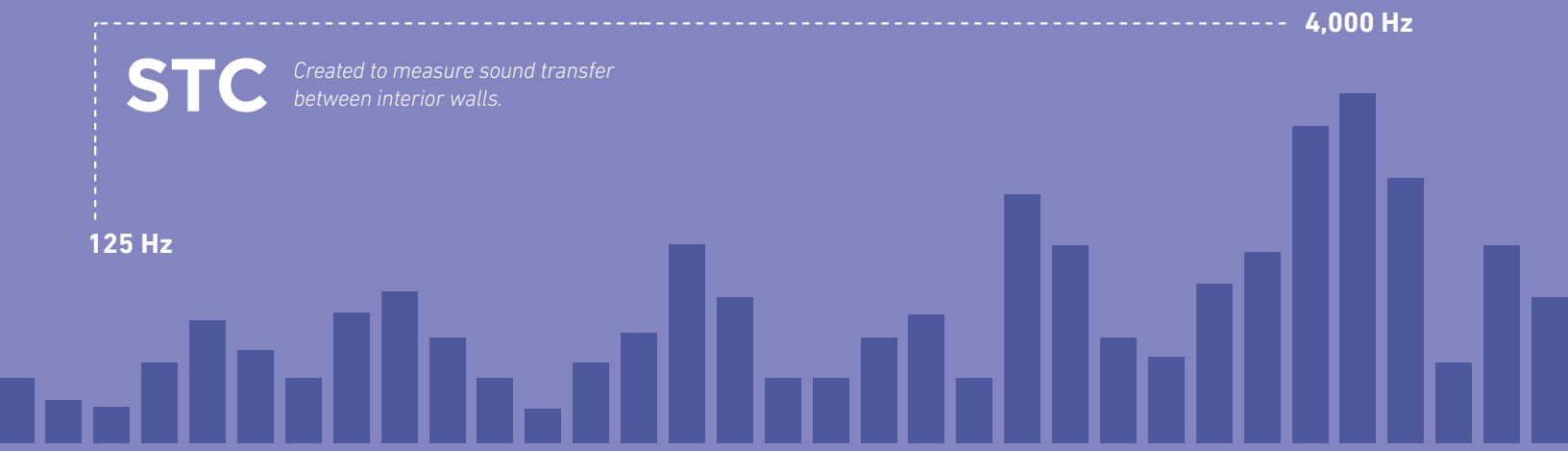
STC

Sound Transmission Class, or STC, measures how well a building material or assembly blocks airborne sound. The STC is a single-number rating of the effectiveness of a material or construction assembly to attenuate the transmission of airborne sound. The sound transmission loss between the source and receiving rooms is plotted on a graph by frequency and sound level in decibels. The STC curve is a sliding contour that is fitted to the performance data plotted in a manner that will allow no more than 32-dB deficiencies below the appropriate contour. The maximum deficiency at any given frequency should not exceed 8 dB.

Once the laboratory selects the appropriate contour, the STC is determined by the dB value of the vertical scale at 500 Hz. The STC is expressed as a single STC number (for example, STC 38). The lab measures sound transmission loss values using *ASTM E90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*, to calculate the STC ratings in accordance with *ASTM E413, Classification for Rating Sound Insulation*. There is usually an optimum STC for a given wall assembly and budget.

A wood stud wall with fiberglass batt insulation and 1/2" (12.7 mm) gypsum board on each face will get an STC of about 38, which is fine for most interior partition walls. Party walls between apartments usually require a minimum STC of 50. Area separation walls with STCs of 60 rarely get complaints from residents. For some applications, it may be worth spending more on the assembly to achieve a higher STC rating.

Note that STC is tested at one-third octave frequencies, from 125 to 4,000 Hz. This range includes normal conversation as well as everyday sounds, such as people using pots and pans. Sound-damping gypsum board panels, such as 5/8" Gold Bond® SoundBreak® XP® Fire-Shield® Gypsum Board, are extremely effective at blocking this range of sound. Sound-damping gypsum board will somewhat attenuate extremely low-frequency sound, such as that generated by stereo subwoofers or MRI machines. These sounds can be as low as 40 Hz. Higher frequencies in the human voice and speech range are where dampened gypsum board performs best. Resilient channels may work better for those lower frequencies.



IIC

The Impact Insulation Class, or IIC, refers to the impact sound transmission performance of floor-ceiling assemblies. It measures how well the structure attenuates sounds, such as footsteps and impacts. The higher the rating, the better the IIC.

NRC

Noise Reduction Coefficient, or NRC, measures sound absorption within a room by materials such as carpet, furnishings and acoustical ceiling panels. It is expressed as a value between 0 and 1. An NRC of 0.8 is considered very quiet.

CAC

Ceiling Attenuation Class, or CAC, is a single-number measure of how well ceiling tiles block sound from traveling between rooms through the ceiling plenum above a partition. A CAC of more than 35 is considered good and usually requires the placement of insulation above the ceiling tiles to about 4' (1,219 mm) from the wall.

Acoustic test standards

TECHNICAL DATA

Test	Description
ANSI S12.51/ISO 3741	*To determine sound power levels of broad-band noise sources in reverberation rooms*
ASTM E90	*Measurement of airborne sound transmission loss of building partitions and elements*
ASTM E492	*Test for Impact Sound Transmission through Floor-Ceiling Assemblies using the Tapping Machine*
ASTM E989	*For determination of Impact Insulation Class (IIC)*
ASTM E1111	*Measurement of the interzone attenuation of open-office components*
ASTM E1332	*Standard Classification for Determination of Outdoor-Indoor Sound Attenuation (OITC)*
ASTM E2179	*Test for the effectiveness of floor coverings in reducing impact sound transmission through concrete floors*
ASTM E3222	*Standard classification for determination of high-frequency impact sound ratings*
AISO 10140-2	*Laboratory measurement of airborne sound insulation of building elements*
ASTM C423	*Sound absorption and sound absorption coefficients by the reverberation room method*
ASTM E413	*Classification of rating sound insulation (STC)*
ASTM E795	*Standard practices for mounting test specimens during sound absorption tests*
ASTM E1110	*For determination of Articulation Class (AC)*
ASTM E1222	*Test for the insertion loss of pipe-lagging systems*
ASTM E1414	*Standard test for airborne sound attenuation between rooms sharing a Common Ceiling Plenum (CAC)*
ASTM E3133	*Laboratory measurement of floor impact sound radiation*
ISO 354	*Acoustics/measurement of sound absorption in a reverberation room*

INTERIOR PARTITIONS

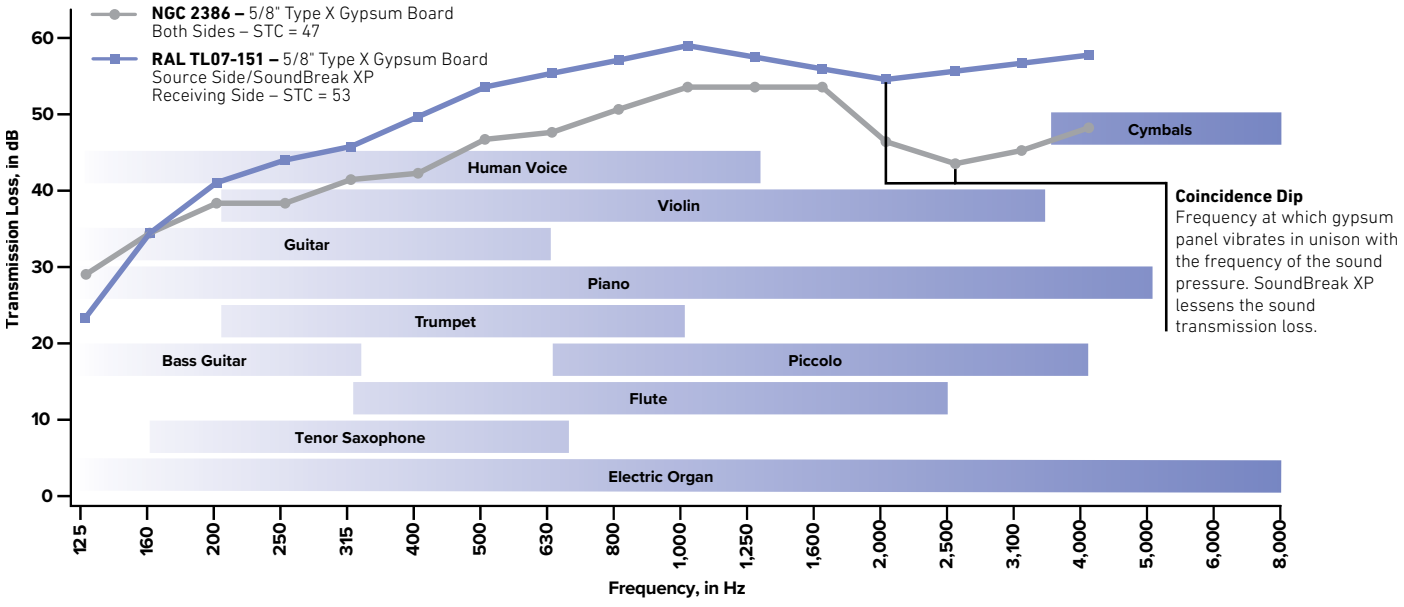
Interior partitions in commercial buildings commonly terminate at the underside or just above suspended ceiling systems. While this creates an uninterrupted mechanical plenum, it also serves as a flanking path for sound between rooms.

When walls with high STC do not extend to the deck above, a ceiling with a high CAC is required to prevent sound transmission over the wall. The CAC for the ceiling should match the STC of the wall as closely as possible.

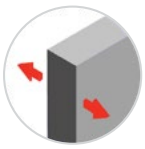
Ceilings constructed with 5/8" Type X gypsum board on a suspended drywall grid achieve a CAC of 53. This allows walls with STC 50 to terminate at the ceiling without any loss in performance, since the sound reduction through the ceiling is better than that of the wall.

Gold Bond® Gridstone® Gypsum Ceiling Panels have a CAC rating of 44. By installing 3-1/2" of glass fiber insulation over the ceiling 48" on each side of the partition this can be increased to 51.

3-5/8" STEEL STUDS 24" O.C. INSULATED



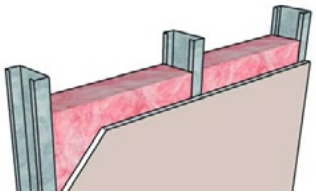
Six variables that can affect STC ratings



1. MASS

A common way to add mass is to use thicker gypsum board and/or add more layers — 5/8" [15.9 mm] gypsum board will transmit less sound than 1/2" [12.7 mm]. However, there are diminishing returns when it comes to adding mass.

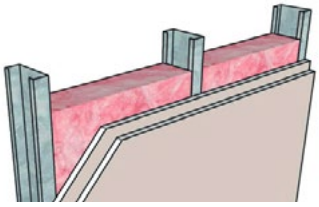
Remember that a heavy, solid door will transmit less sound than a light, hollow-core door. Thermal, energy-efficient windows can also improve the STC of an exterior wall partition.



STC-34

NGC 2013012

Framing: 3-5/8" steel studs, 20 gauge (20 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: None
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: Not rated



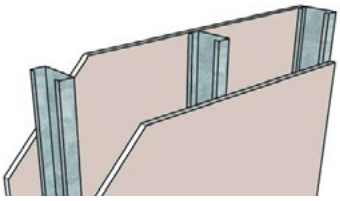
STC-38

NGC 2013013

Framing: 3-5/8" steel studs, 20 gauge (20 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: None
Side 2: 2 layers 5/8" Fire-Shield Gypsum Board
UL Design: V497 - 1 hour

2. CAVITY ABSORPTION

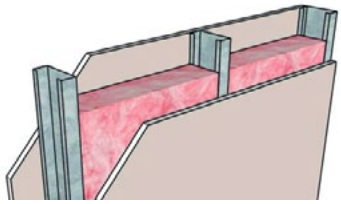
Adding insulation can have a profound effect on a wall assembly's STC rating because it adds sound-absorbing material to the assembly. Fiberglass and mineral wool insulation contribute the biggest gains. Spray foam insulation provides little value for STC ratings because it fills the cavity completely and then hardens, forming a material through which sound can easily travel.



STC-40

NGC 2518

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 16" o.c.
Insulation: None
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: V438, U465 - 1 hour



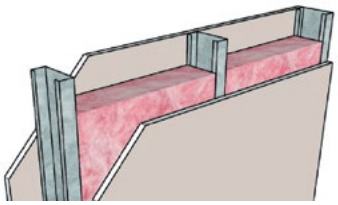
STC-48

NGC 2018107

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 16" o.c.
Insulation: 2-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: V438, U465 - 1 hour

3. CAVITY DEPTH

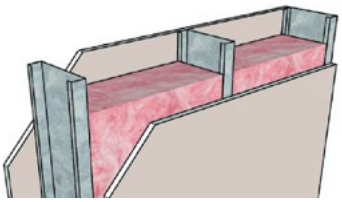
Using deeper studs creates space for more insulation to be added, which can boost the assembly's STC rating. The two steel-frame wall assemblies below illustrate this point. On the right, 6" steel studs provide space for additional insulation in the wall, adding four points to the assembly's STC rating.



STC-40

NGC 2016074

Framing: 3-5/8" steel studs, 20 gauge (30 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: V438, U465 - 1 hour



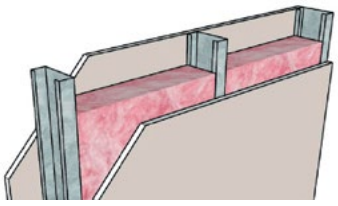
STC-44

NGC 2018133

Framing: 6" steel studs, 20 gauge (30 mil), 16" o.c.
Insulation: 6" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: V438, U465 - 1 hour

4. STIFFNESS

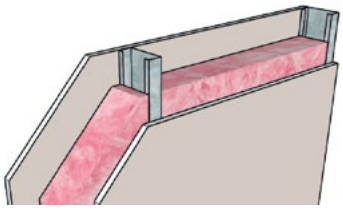
The assembly's stiffness will affect the STC rating in a big way. Controlling stiffness is often the most challenging aspect of selecting an acoustical design. Reducing the stiffness will increase the STC. Metal studs work better in a sound assembly than wood studs because they are less stiff. The 25-gauge metal studs perform better than 20-gauge studs, and 24" (610 mm) o.c. framing performs better than 16" (406 mm) o.c. framing. Typically there is an increase in STC performance when moving to lighter gauge studs and when increasing the space between the studs.



STC-40

NGC 2016074

Framing: 3-5/8" steel studs, 20 gauge (30 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: V438, U465 - 1 hour



STC-47

NGC 2016104

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: V438, U465 - 1 hour

Watch the Science of Sound for a quick summary on how to mitigate unwanted sound.

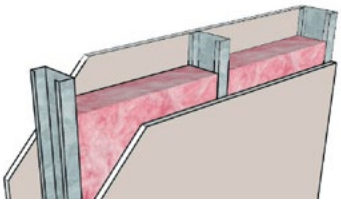
Six variables continued

5. DECOUPLING

Sound moves more easily through solids than air. By decoupling or separating different parts of the assembly, air gaps help to slow down sound waves. One way is to frame the wall with a double row of studs. Another is to stagger the studs on different sides of the plate or track.

Use resilient channels or resilient isolation clips to separate the gypsum board from the studs. Resilient isolation clips have a rubber disc on the back that does the decoupling. They are used with a rigid furring channel to attach the gypsum board to the studs. The addition of resilient channels is more effective than studs alone at boosting STC ratings as seen in the example below.

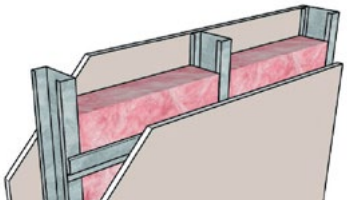
Fewer fasteners can also increase STC by providing fewer transmission paths for sound.



STC-46

NGC 2018106

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: V438, U465 - 1 hour



STC-51

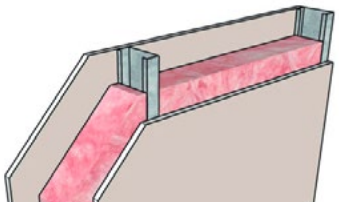
NGC 2017217

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board on RC-1
UL Design: V438, U465 - 1 hour

6. DAMPING

Damping is the ability to dissipate vibrational energy produced by sound waves. Sound-damping gypsum board uses constrained layer damping, with a viscoelastic polymer layer at the center of the panel that absorbs and dissipates sound waves. And because the viscoelastic layer is added during the manufacturing process — and not on the worksite — it's evenly applied for consistent sound damping throughout the board.

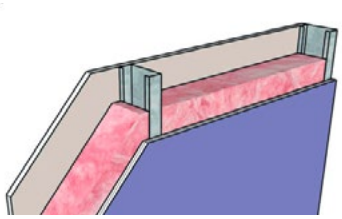
Sound-damping gypsum board handles, installs and finishes just like conventional gypsum board. Replacing just one layer of SoundBreak XP could boost the STC rating by 11 points, as seen in the example below.



STC-44

NGC 2013015

Framing: 3-5/8" steel studs, 20 gauge (20 mil), 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board
UL Design: V438, U465 - 1 hour



STC-55

OL14-0404

Framing: 3-5/8" steel studs, 20 gauge (20 mil), 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board
UL Design: V438, U465 - 1 hour

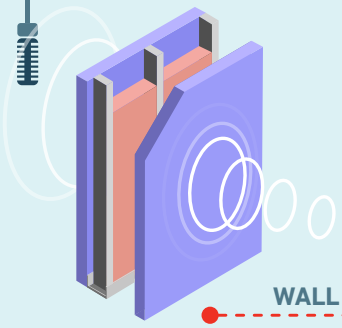
ACOUSTICS DESIGN MASTER CLASS

Noisy neighbors. Airport flight paths. Busy hospital corridors. Noise pollution is the second-largest environmental contributor to health problems ranging from high blood pressure and other cardiovascular disorders to sleep disruptions, increased stress and even depression, according to the World Health Organization.

Preventing sound transmission between walls, through roofs from outside to inside, and through floors and ceilings is essential to occupant health and productivity.

HOW ARE ACOUSTICAL ASSEMBLIES TESTED?

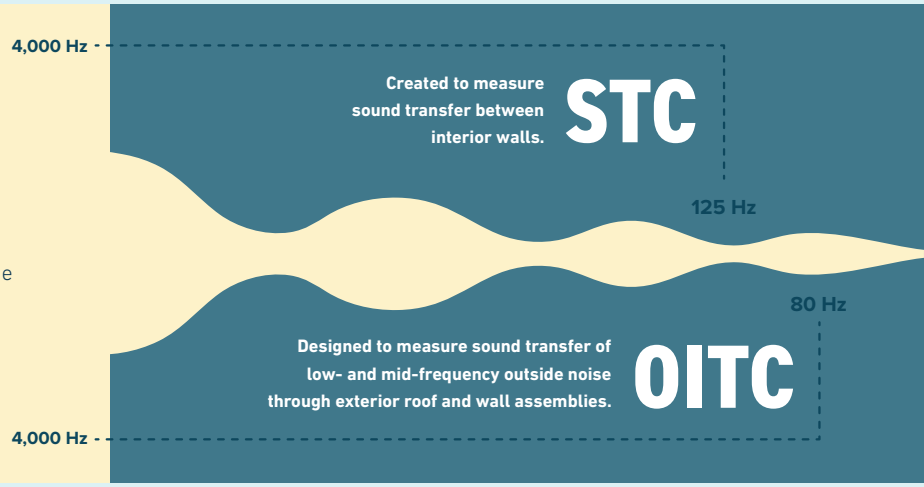
All acoustical assemblies — walls, floor-ceilings, roof-ceilings — have a Sound Transmission Class rating tested in accordance with *ASTM E90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements, and calculated in accordance with ASTM E413, Classification for Rating Sound Insulation.*



During the ASTM E90 test procedure, loud, persistent noise is produced in the source room and captured by microphones in the receiving chamber. Testers use the difference in sound levels to calculate the STC rating.

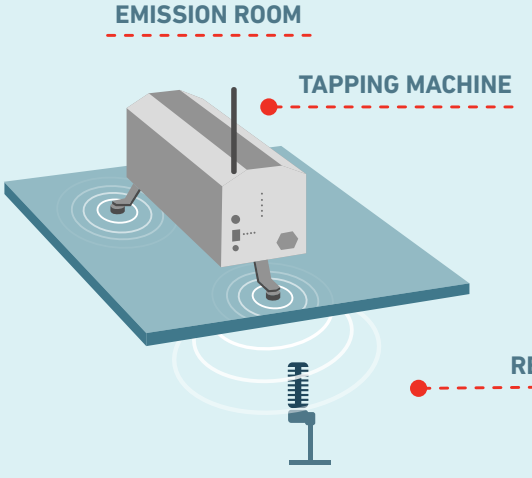
ROOF ASSEMBLIES HAVE AN OUTDOOR-INDOOR TRANSMISSION CLASS RATING

Roof assemblies have an Outdoor-Indoor Transmission Class rating that measures sound transfer outside to inside from noise sources such as transportation and construction. OITC is a better measure of low sound frequencies produced by transportation sources because it includes lower frequencies than the STC rating.



FLOOR-CEILING ASSEMBLIES HAVE AN IMPACT INSULATION CLASS RATING

Floor-ceiling assemblies have an Impact Insulation Class rating. An IIC rating reflects the effectiveness of a floor system at reducing impact sounds such as foot traffic.



Floor systems are tested in accordance with ASTM E492, Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine.

SoundBreak® XP® family of sound solution products

From noisy hotel guests to confidential conversations, we've all heard things we wish we hadn't. Today, architects and contractors are coming under increasing pressure to reduce sound transmission in both their commercial and their residential projects. The quest for quiet led Gold Bond Building Products to develop SoundBreak® XP® — the industry's most well-rounded family of noise-reducing products.

GOLD BOND® SOUNDBREAK® XP® GYPSUM BOARD

GOLD BOND® SOUNDBREAK® XP® FIRE-SHIELD® GYPSUM BOARD

GOLD BOND® SOUNDBREAK® XP® FIRE-SHIELD C™ GYPSUM BOARD

GOLD BOND® SOUNDBREAK XP RETROFIT® GYPSUM BOARD

Wall applications

Sound control and damping

GOLD BOND® SOUNDBREAK® XP® GYPSUM BOARD

GOLD BOND® SOUNDBREAK® XP® FIRE-SHIELD® GYPSUM BOARD

GOLD BOND® SOUNDBREAK® XP® FIRE-SHIELD C™ GYPSUM BOARD

Turn down the volume when you incorporate SoundBreak® XP® into your wall assemblies. Noise transmission will be dramatically reduced between rooms or dwelling units with this superior sound-damping gypsum board. This board features an acoustically enhanced, high-density gypsum core encased in 100% recycled heavy, abrasion, and mold-, mildew- and moisture-resistant PURPLE® paper on both sides. Available in 1/2", 5/8" and 3/4" thicknesses.

ADVANTAGES

REDUCES SOUND TRANSMISSION

- Has a layer of viscoelastic damping polymer sandwiched between two pieces of high-density, mold-resistant gypsum board.
- Provides high STC ratings per an independent third-party acoustical laboratory using ASTM E90 test procedures.

WORKS FOR INTERIOR PROJECTS

- Can be used in a single layer or as a component of multilayer wall assemblies.
- Thinner than traditionally built high-STC wall partitions, increasing usable floor space.
- 5/8" features a fire-resistant Type X core, is UL Classified and an approved component in UL fire-rated designs.
- 3/4" features a fire-resistant Type C core and is an approved component in UL fire-rated designs.
- Provides greater resistance to surface abrasion and indentation than standard gypsum board (per ASTM C1629).

INSTALLS QUICKLY AND EASILY

- Installs like traditional gypsum board, without requiring additional clips and/or channels.
- Finishes and decorates as easily as standard gypsum board.
- Features GridMarX® guide marks on the board to allow for faster and more accurate installation.

INHIBITS MOLD GROWTH

- Helps inhibit mold growth with the highest possible score on mold tests (ASTM D3273 and ASTM G21).
- Features SPORGARD® technology with extra mold-inhibiting properties.

RESISTS MOISTURE BETTER

- Fights the effects of moisture before damage can occur.
- Dimensionally stable product with negligible expansion and contraction under normal atmospheric conditions.

Ceiling applications

Helps reduce noise transference between floors

GOLD BOND® SOUNDBREAK® XP® GYPSUM BOARD

GOLD BOND® SOUNDBREAK® XP® FIRE-SHIELD® GYPSUM BOARD

GOLD BOND® SOUNDBREAK® XP® FIRE-SHIELD C™ GYPSUM BOARD

SoundBreak® XP® consists of two pieces of high-density, mold-, mildew- and moisture-resistant gypsum board, with a specially designed PURPLE® paper, laminated together with a sound-damping, viscoelastic polymer. This acoustically enhanced, fire-resistant gypsum core is encased in heavy paper that is 100% recycled on both sides and offers superior abrasion and mold, mildew and moisture resistance. Available in 1/2", 5/8" and 3/4" thicknesses.

ADVANTAGES

REDUCES SOUND TRANSMISSION

- In specific floor-ceiling assemblies, it can provide both STC and IIC ratings above 60.
- Provides high STC ratings per an independent third-party acoustical laboratory using ASTM E90 test procedures.
- 3/4" SoundBreak® XP® Fire-Shield C™ Gypsum Board provides high-rated IIC values per an independent third-party acoustical laboratory using ASTM E492 test procedures.

WORKS FOR INTERIOR PROJECTS

- Heavy abrasion-resistant paper and a dense core that provides greater resistance to surface abuse and indentation when tested in accordance with ASTM C1629.
- 5/8" features a fire-resistant Type X core, is UL Classified and an approved component in UL fire-rated designs.
- 3/4" features a fire-resistant Type C core and is an approved component in UL fire-rated designs.

INSTALLS QUICKLY AND EASILY

- Installs like traditional gypsum board, without requiring additional clips and/or channels.
- Finishes and decorates as easily as standard gypsum board.
- Features GridMarX® guide marks on the board to allow for faster and more accurate installation.
- Should be used according to specifications to achieve the highest possible sound ratings.

INHIBITS MOLD GROWTH

- Helps inhibit mold growth with the highest possible score on mold tests (ASTM D3273 and ASTM G21).
- Features SPORGARD® technology with extra mold-inhibiting properties.

RESISTS MOISTURE BETTER

- Fights the effects of moisture before damage can occur.
- Dimensionally stable product with negligible expansion and contraction under normal atmospheric conditions.

Retrofit applications

For renovations and remodels

1. Heavy Mold- and Moisture-Resistant Face Paper
2. Slightly Tapered Edge
3. Enhanced High-Density Mold-Resistant Core
4. Viscoelastic Polymer

SoundBreak XP Retrofit® Gypsum Board installs easily over existing construction, eliminating the need for demolition. This acoustically enhanced, fire-resistant gypsum board is encased in heavy paper that is 100% recycled on both sides and offers superior abrasion and mold, mildew and moisture resistance. Available in 5/16" thickness.

ADVANTAGES

REDUCES SOUND TRANSMISSION

- When installing over an existing interior wall assembly, it enhances Sound Transmission Class (STC) values per an independent third-party acoustical laboratory using ASTM E90 test procedures.
- Achieves increased STC values in a thinner wall assembly, increasing usable floor space.
- Superior sound-damping, cost-efficient material that finishes easily and decorates in the same manner as standard gypsum board.

WORKS FOR INTERIOR PROJECTS

- Heavy abrasion-resistant paper and a dense core that provides greater resistance to surface abuse when tested in accordance with ASTM C1629.
- Fire-resistant material with a gypsum core that will not support combustion or transmit temperatures greatly in excess of 212 F° (100 C°) until completely calcined, a slow process.
- The 5/16" thickness provides a superior sound solution without taking up usable floor space.

INSTALLS QUICKLY AND EASILY

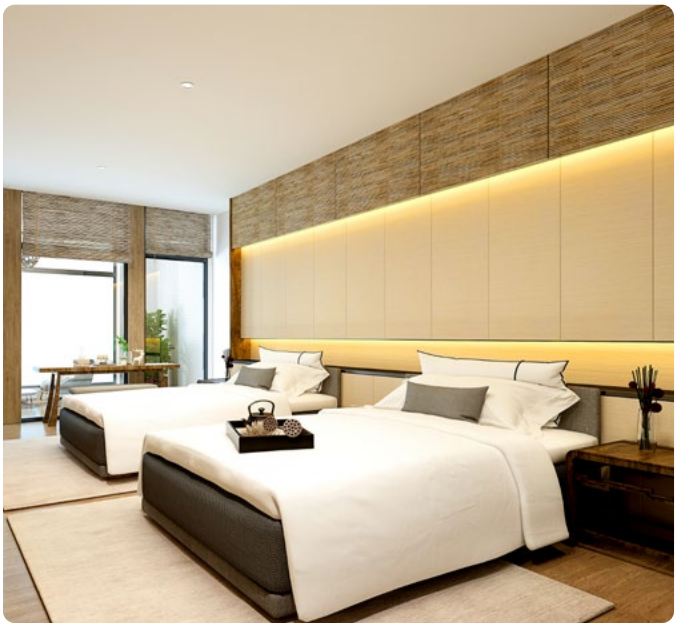
- Offers quick installation and lower installation costs, with vertical board joints that do not require acoustical sealant.
- Installs over existing construction, eliminating the need for demolition.
- Easily scored and snapped to exact size without sawing.

INHIBITS MOLD GROWTH

- Helps inhibit mold growth with the highest possible score on mold tests (ASTM D3273 and ASTM G21).
- Features SPORGARD® technology with extra mold-inhibiting properties.

RESISTS MOISTURE BETTER

- Fights the effects of moisture before damage can occur.
- Dimensionally stable product with negligible expansion and contraction under normal atmospheric conditions.



SOUNDBREAK® XP® FAMILY OF PRODUCTS TECHNICAL DATA

Physical Properties	SoundBreak XP	SoundBreak XP Fire-Shield	SoundBreak XP Fire-Shield C	SoundBreak XP Retrofit
Thickness[1], Nominal	1/2" (12.7 mm)	5/8" (15.9 mm)	3/4" (19.1 mm)	5/16" (7.9 mm)
Width[1], Nominal	4' (1,219 mm)	4' (1,219 mm)	4' (1,219 mm)	4' (1,219 mm)
Length[1,4], Standard	8' – 12' (2,438 – 3,658 mm)	8' – 12' (2,438 – 3,658 mm)	8' – 10' (2,438 – 3,048 mm)	10' (3,048 mm)
Weight, Nominal	2.3 lbs/sq ft (11.23 k/m^2)	2.7 lbs/sq ft (13.18 k/m^2)	2.9 lbs/sq ft (14.16 k/m^2)	1.3 – 1.4 lbs/sq ft (6.35 – 6.84 k/m^2)
Edges[1]	Slightly Tapered	Slightly Tapered	Slightly Tapered	Slightly Tapered
Flexural Strength[1], Perpendicular	≥ 107 lbf. (476 N)	≥ 147 lbf. (654 N)	≥ 167 lbf. (743 N)	≥ 62 lbf. (276 N)
Flexural Strength[1], Parallel	≥ 36 lbf. (160 N)	≥ 46 lbf. (205 N)	≥ 56 lbf. (249 N)	≥ 21 lbf. (93 N)
Humidified Deflection[1]	≤ 10/8" (31.8 mm)	≤ 5/8" (15.9 mm)	N/A	N/A
Nail Pull Resistance[1]	≥ 77 lbf. (343 N)	≥ 87 lbf. (387 N)	≥ 87 lbf. (387 N)	≥ 46 lbf. (205 N)
Hardness[1] – Core, Edges and Ends	≥ 11 lbf. (49 N)	≥ 11 lbf. (49 N)	≥ 11 lbf. (49 N)	≥ 11 lbf. (49 N)
Bending Radius	10' (3,048 mm)	15' (4,572 mm)	N/A	N/A
Thermal Resistance[5]	R = .45	R = .56	R = .64	N/A
Permeance[6]	45 perms	37 perms	N/A	N/A
Mold Resistance[7], ASTM D3273	Score of 10	Score of 10	Score of 10	Score of 10
Mold Resistance[8], ASTM G21	Score of 0	Score of 0	Score of 0	Score of 0
Surface Abrasion[9]	Level 3	Level 3	Level 3	Level 3
Indentation[9]	Level 1	Level 1	Level 1	N/A
Soft-Body Impact[9]	Level 1	Level 2	N/A	N/A
Hard-Body Impact[9]	N/A	Level 1	N/A	N/A
Product Standard Compliance	ASTM C1396, C1766	ASTM C1396, C1766	ASTM C1396, C1766	ASTM C1396
Fire-Resistance Characteristics				
Core Type	Regular	Type X	Type C	N/A
UL Type Designation	N/A	SBWB	SBCB	N/A
Combustibility[2]	Non-combustible Core	Non-combustible Core	Non-combustible Core	Non-combustible Core
Surface Burning Characteristics[3]	Class A	Class A	Class A	Class A
Flame Spread[3]	15	15	15	15
Smoke Development[3]	0	0	0	0

Applicable Standards and References
ASTM C473 *Standard Test Methods for Physical Testing of Gypsum Panel Products*
ASTM C518 *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*
ASTM C840 *Standard Specification for Application and Finishing of Gypsum Board*
ASTM C1396 *Standard Specification for Gypsum Board*
ASTM C1629 *Standard Classification for Abuse Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels*
ASTM C1766 *Standard Specification for Factory-Laminated Gypsum Panel Products*
ASTM D3273 *Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber*
ASTM E84 *Standard Test Method for Surface Burning Characteristics of Building Materials*
ASTM E90 *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*
ASTM E96 *Standard Test Methods for Water Vapor Transmission of Materials*
ASTM E119 *Standard Test Methods for Fire Tests of Building Construction and Materials*
ASTM E136 *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750˚C*
ASTM G21 *Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi*
Gypsum Association, GA-214, *Levels of Finish for Gypsum Panel Products*
Gypsum Association, GA-216, *Application and Finishing of Gypsum Panel Products*
Gypsum Association, GA-238, *Guidelines for Prevention of Mold Growth on Gypsum Board*
Gold Bond Building Products, LLC Manufacturer Standards, *NGC Construction Guide*

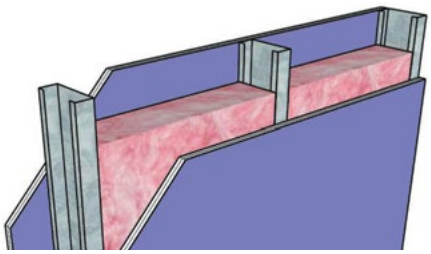
1. Specified values per ASTM C1396, tested in accordance with ASTM C473.
2. Tested in accordance with ASTM E136.
3. Tested in accordance with ASTM E84.
4. Please consult your local sales representative for all non-standard lengths and widths. Minimum order requirements may apply.
5. Tested in accordance with ASTM C518.
6. Tested in accordance with ASTM E96.
7. Tested in accordance with ASTM D3273 and rated in accordance with ASTM D3274.
8. Tested in accordance with ASTM G21.
9. Tested in accordance with ASTM methods in ASTM C1629 – D4977 (Surface Abrasion), D5420 (Indentation), E695 (Soft-Body Impact), Annex A1 (Hard-Body Impact).

Most-used assemblies

View the most common assemblies where sound transmission between rooms or dwelling units is a concern.

STC-50

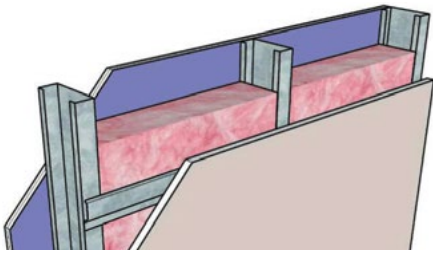
NGC 2018004
1-hour Fire Rating
V438, U465 UL Design



Framing: 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board
Side 2: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board

STC-54

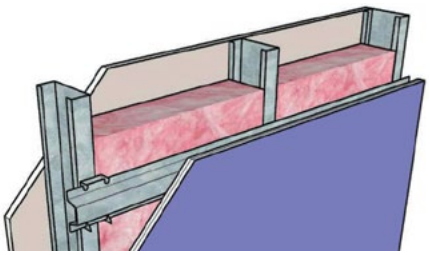
NGC 2017218
1-hour Fire Rating
V438, U465 UL Design



Framing: 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

STC-59

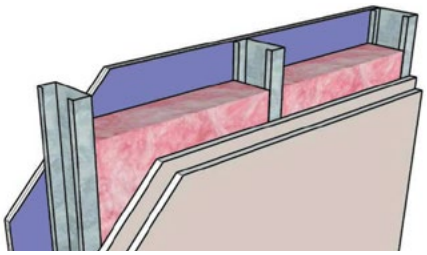
NGC 2018197
1-hour Fire Rating
V438, U465 UL Design



Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c.
Insulation: 5-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board on 7/8" furring channel and resilient isolation clips

STC-52

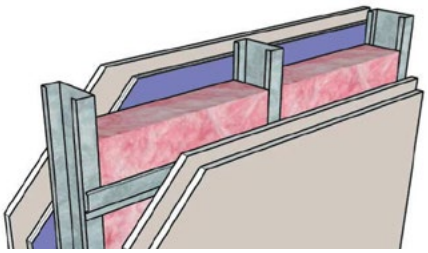
NGC 2019059
1-hour Fire Rating
V438, U465 UL Design



Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c
Insulation: 3-1/2" glass fiber
Side 1: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board
Side 2: 2 layers 5/8" Fire-Shield Gypsum Board

STC-61

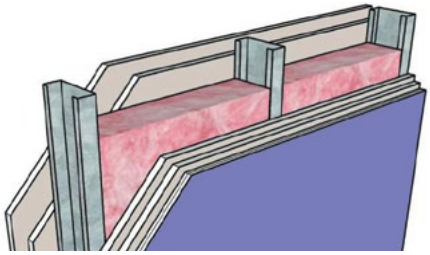
NGC 2017215
2-hour Fire Rating
V438, U411 UL Design



Framing: 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board
Side 2: 2 layers 5/8" Fire-Shield Gypsum Board on RC-1

STC-51

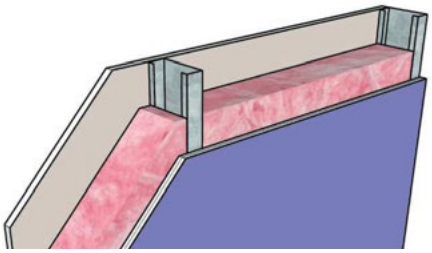
NGC 2016086
2-hour Fire Rating
V438, U411 UL Design



Framing: 3-5/8" steel studs, 20 gauge (30 mil), 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 2 layers 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board on 2 layers 5/8" Fire-Shield Gypsum Board

STC-55

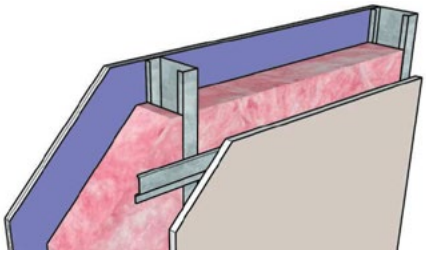
OL14-0404
1-hour Fire Rating
V438, U465 UL Design



Framing: 3-5/8" steel studs, 20 gauge (20 mil), 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board

STC-54

NGC 2013020
1-hour Fire Rating
V438, U465 UL Design



Framing: 3-5/8" steel studs, 20 gauge (20 mil), 24" o.c.
Insulation 3-1/2" glass fiber
Side 1: 5/8" SoundBreak® XP® Fire-Shield® Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

Installation

SoundBreak® XP® products can be used alone or in conjunction with other sound-reduction strategies for higher STC ratings. Because they can be installed and finished just like traditional gypsum boards, requiring no additional labor or materials, it can be a cost-effective solution for reducing sound transmission.

GUIDELINES FOR OPTIMUM PERFORMANCE AND SOUND REDUCTION

- Stagger gypsum board joints from one side of the partition to the other.
- Allow a 1/4" gap along all wall perimeter edges and completely seal 1/4" gap with acoustical sealant.
- Refrain from wall penetrations when possible.
- Limit necessary wall penetrations to one per stud cavity.
- Seal all penetrations with acoustical sealant and putty pads.

INSTALL FAQS

STEP-BY-STEP INSTALLATION VIDEOS

Watch these videos for visual guidance and pro tips for an easy and complete SoundBreak XP install.

CEILING BOARDS INSTALLATION

RETROFIT BOARDS INSTALLATION

The SoundBook

Get more technical guidance in The SoundBook® — the most comprehensive construction guide for sound-rated assemblies. Designed to be a valuable resource for architects, contractors and building inspectors, the guide contains over 300 tested assemblies for STC. Organized by framing material, size, gauge, and number and type of gypsum board layers, The SoundBook is easy to use and contains the most diverse array of acoustical assemblies for all of your sound attenuation needs.

ACCESS THE SOUNDBOOK

Continuing Education

Our Continuing Education program offers the building community online and onsite courses related to product application, technical standards and industry trends. All programs qualify for AIA learning units. AIA credits will be recorded for in-person and live webinar programs.

LEARN ABOUT OUR ACOUSTICAL DESIGN COURSES

NATIONAL GYPSUM COMPANY
CONTINUING EDUCATION
BUILDING KNOWLEDGE TOGETHER®

National Gypsum Company

National Gypsum Company is the exclusive service provider of reliable, high-performance building products manufactured by its affiliate companies and marketed under the Gold Bond®, ProForm® and PermaBASE® brands. The strategic network of Gold Bond, ProForm and PermaBASE manufacturing facilities located throughout major metropolitan hubs in North America allows us to provide the best in customer service so we can keep your fast-paced projects moving forward.

SUSTAINABILITY

Our brands create products that contribute to sustainable design by providing healthy indoor air quality; moisture, mold and mildew management; durability; optimal acoustics; life safety; and increased space functionality. No matter how you define sustainability, we offer the most comprehensive set of value-added solutions in the industry.

TRUSTED PARTNER

The National Gypsum name has been synonymous with high-quality, innovative products and exceptional customer service since 1925. Our technical experts at 1-800-NATIONAL are always a phone call away to answer any type of product or specification question.

We are Building Products for A Better Future® — one project at a time.

LIMITED WARRANTY AND REMEDIES

Products manufactured by Gold Bond Building Products, LLC ("Seller") are warranted by Seller to its customers to be free from defects in materials and workmanship at the time of shipment. Additional or different express limited warranties, limitations and exclusions may apply to specific Seller products. **Current warranty information on such products for both commercial and residential applications is available at goldbondbuilding.com.** THIS EXPRESS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO SUCH PRODUCTS, AND IS IN LIEU OF AND EXCLUDES ALL OTHER EXPRESS ORAL OR WRITTEN WARRANTIES AND ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Seller will not be liable for any incidental, indirect or consequential losses, damages or expenses. The customer's exclusive remedy for any type of claim or action for defective products will be limited to the replacement of the products (in the form originally shipped) or, at Seller's option, to a payment or credit not greater than the original purchase price of the products.

Seller will not be liable for products claimed to be defective where the defect resulted from causes not within Seller's control, or which arose or occurred after shipment, including but not limited to accidents, misuse, mishandling, improper installation, contamination or adulteration by other materials or goods, or abnormal conditions of temperature, moisture, dirt or corrosive matter.

Any claim that products sold by Seller were defective or otherwise did not conform to the contract of sale is waived unless the customer submits it in writing to National Gypsum Services Company d/b/a National Gypsum Company, authorized sales agent and service provider to Seller, within thirty (30) days from the date the customer discovered or should have discovered the defect or non-conformance. No legal action or proceeding complaining of goods sold by Seller may be brought by the customer more than one year after the date the customer discovered or should have discovered the defect or problem of which it complains.

MOLD AND MILDEW RESISTANCE

XP products were designed to provide extra protection against mold and mildew. When tested by an independent laboratory, XP products received the highest possible ratings on ASTM G 21 and D 3273. The use of XP products in actual installations may not produce the same results as were achieved in controlled laboratory conditions.

No material can be considered "mold-proof," nor is it certain that any material will resist mold or mildew indefinitely. When used in conjunction with good design, handling and construction practices, XP products can provide increased mold resistance. As with any building material, avoiding water exposure during handling, storage and installation, and after installation is complete, is the best way to avoid the formation of mold or mildew.

Technical Information

Visit **goldbondbuilding.com** or call National Gypsum Company Construction Services: 1-800-NATIONAL (628-4662).

Technical Information *Información Técnica*
1-800-NATIONAL®
1-800-628-4662

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The color Purple is a registered trademark of Gold Bond Building Products, LLC.

SPORGARD® is a registered trademark of LANXESS Deutschland GmbH, Germany.

The color PINK for insulation is a registered trademark of Owens Corning. Used by permission.

Customer Service

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atlanticareacsrs@nationalgypsum.com

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gulfareacsrs@nationalgypsum.com

Midwest Area
(800) 323-1447
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(800) 253-3161
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Southwest Area
(800) 548-9396
southwestareacsrs@nationalgypsum.com

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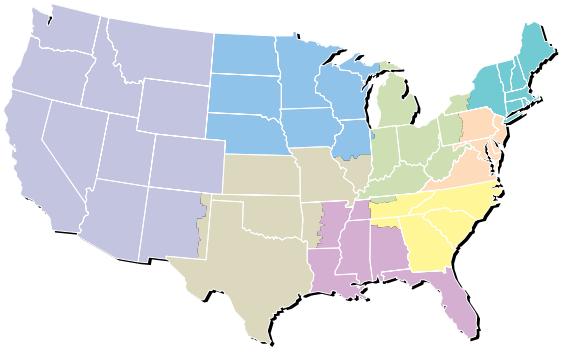

National Gypsum®

Exclusive service provider of products manufactured by Gold Bond Building Products, LLC.

Learn more on our website.

Gold Bond® Building Products

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