Acoustical Assembly Guide

The SoundDB™ Book

National Gypsum®

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Acoustical Assembly Guide

The SoundDB™

These gypsum wallboard system details are intended solely as technical support incident to the sale and use of National Gypsum Company products. They may be used as a reference by architects, engineers, other design professionals, contractors, building code officials, or other competent construction industry trade personnel considering the selection, specification and use of National Gypsum Company products in these systems.

Architects, engineers, designers or contractors involved should review these details with the governing code or inspection official at the time of the job submittal to determine if there are any discrepancies with local code or regulatory requirements. In any event, they must NOT be used without a complete evaluation by the owner's design professional to verify the suitability of the system for a given application.

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These system performance details are the result of tests conducted in accordance with ASTM E90 under controlled laboratory conditions. Actual sound transmission loss of systems constructed in the field may vary from these performance details based upon many factors such as the actual field conditions, specific components used, and installation methods.

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Acoustical Terms and Concepts

Transmission of Airborne Sound

Airborne sound is acoustical 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

The frequency of sound refers to the number of sound pressure fluctuations or cycles that occur at a fixed point in one second. The unit of measure for frequency is the hertz (Hz), which is one cycle per second. The human auditory system is capable of detecting sound frequencies between 20 Hz and 20,000 Hz, but humans are typically most sensitive to sounds within the range of 500 Hz and 4,000 Hz. Sound frequency is perceived by humans as pitch. The lowest note on a piano has a frequency of 27.5 Hz, while the highest note on the piano is 4,186 Hz.

The intensity of sound, or loudness, is measured in decibels (dB). A quiet whisper might register at 20 dB, compared to about 60 dB for normal conversation, and 75 dB for loud singing. The decibel scale is logarithmic, not linear. A sound level change of 1 to 2 dB will be difficult to perceive while a change of 5 dB will be clearly noticeable. Sound is perceived to double in intensity for every 10 dB increase and quadruple for every 20 dB increase.

Human Sensitivity to Changes in Sound Intensity Levels	
1 dB	Generally not perceptible
3 dB	Just perceptible
5 dB	Clearly noticeable
10 dB	Twice as loud
20 dB	Four times as loud

Rating	Activity	Sound Level (dB)
Painful	Jet Engine	120+
Very Loud	Industrial Machinery	100
Loud	Stock Trading Floor	80
Moderate	Normal Speech	65
Quiet	Suburban Home	45
Very Quiet	Barely Audible	25

Sound Transmission Class

The Sound Transmission Class (STC) is a single number rating of the effectiveness of a material or construction assembly to retard the transmission of airborne sound. The STC provides an indication of how loud transmitted sound is perceived to be by the listener. Partitions with higher STC values are more effective at reducing sound transmission.

STC values are derived by conducting a test in accordance with ASTM E90, *Standard Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*. The test data collected is analyzed using ASTM E413, *Classification for Rating Sound Insulation,* and results in a single-number acoustical rating. The rating assesses the airborne sound transmission performance at a range of frequencies from 125 Hz to 4000 Hz, which is consistent with the frequency range of the human ear. An STC rating of 50 has been designated as the minimum allowable design rating for unit-to-unit multifamily construction in the International Building Code.

Design Considerations for Acoustical Partitions

The goal of a high STC rated partition is to decrease the amount of sound transmission through the partition. The following five variables can have an impact on the ability of the partition to retard the sound transmission.

Mass
Increasing the mass of a partition increases the amount of material airborne sound waves must penetrate to reach the adjoining room and can be accomplished by installing multiple layers of gypsum board.

Stiffness
Decreasing the stiffness of a partition will increase the amount of sound transmission loss. For this reason metal studs outperform wood studs, and framing that is 24" o.c. outperforms framing that is 16" o.c.

Damping
Damping, or the ability to dissipate the vibrational energy produced by sound waves, reduces the amount of energy to pass through the partition.

Cavity Depth
Increasing the depth of the cavity of the partition can increase the amount of sound transmission loss, especially when the cavity is filled with acoustical insulation.

Cavity Absorption
Increasing the thickness of sound-absorbing material such as fiberglass or mineral fiber insulation in the cavity of a partition will increase the amount of sound transmission loss. The thickness of the insulation has a greater effect on sound transmission loss than the density.

Guidelines for Optimum Performance and Sound Reduction

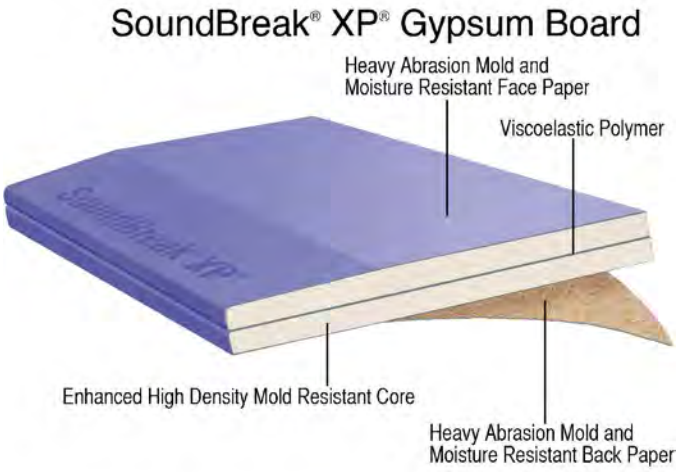
- Stagger gypsum board joints from one side of the partition to the other.
- Allow a 1/4" gap along all wall perimeter edges and completely seal 1/4" gap with acoustical sealant.
- Refrain from wall penetrations when possible.
- Limit necessary wall penetrations to one per stud cavity.
- Seal all penetrations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

Gold Bond® BRAND SoundBreak® XP® Gypsum Board

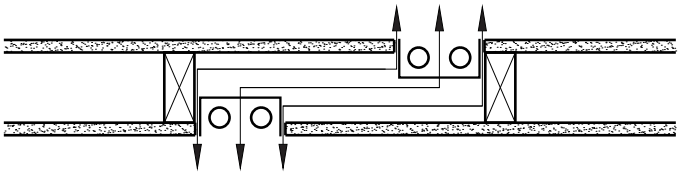
A new approach in noise reduction is represented by a new kind of acoustically enhanced gypsum board introduced by National Gypsum. Gold Bond BRAND SoundBreak XP Gypsum Board incorporates a sound-damping viscoelastic polymer sandwiched between two layers of high-density gypsum board. The polymer absorbs and dissipates noise-producing vibrational energy by converting it into negligible heat.

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

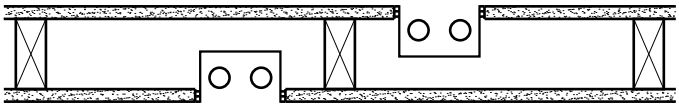
5/8" SoundBreak XP gypsum board features a fire-resistant Type X core and is UL classified. SoundBreak XP resists the growth of mold when tested in accordance with ASTM D3273 with a score of 10, the best possible score. Heavy abrasion resistant paper and a denser core provide greater resistance to surface abuse and indentation when tested in accordance with ASTM C1629. SoundBreak XP gypsum board can be installed as the base layer or the face layer in multi-layer systems without affecting the STC.



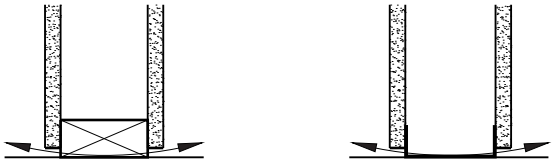
Sound Isolation Construction



Arrows denote flanking paths for sound.

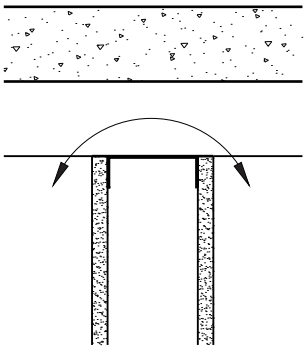


Electrical boxes offset one stud cavity and annular spaces sealed.

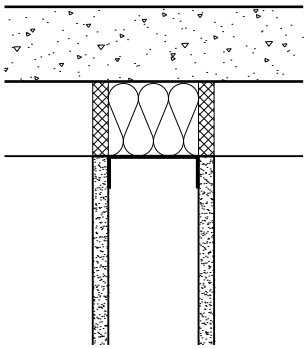


Arrows denote flanking paths for sound.

Perimeter of partition sealed.



Arrows denote flanking paths for sound.



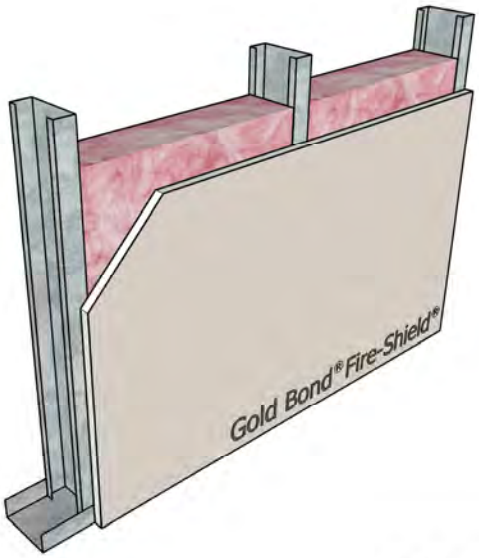
Flutes of metal deck insulated and sealed.

Steel Stud Partitions with Framing 16"o.c.

The SoundBook™

Steel Stud Partitions with Framing 16" o.c.

Figure 1

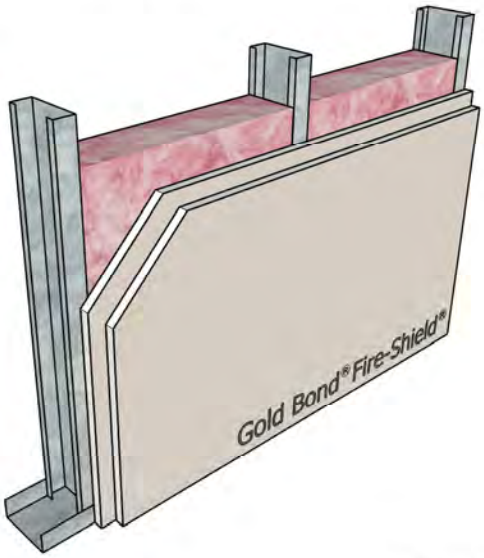


STC-34 **NGC 2013012**

Framing:	3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	None
Side 2:	5/8" Fire-Shield Gypsum Board

UL Design: Not Rated

Figure 2

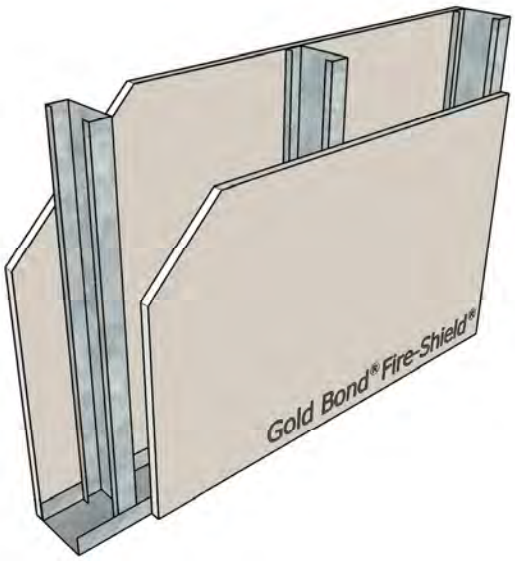


STC-38 **NGC 2013013**

Framing:	3-5/8" steel studs, **20 gauge**, 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

Figure 3

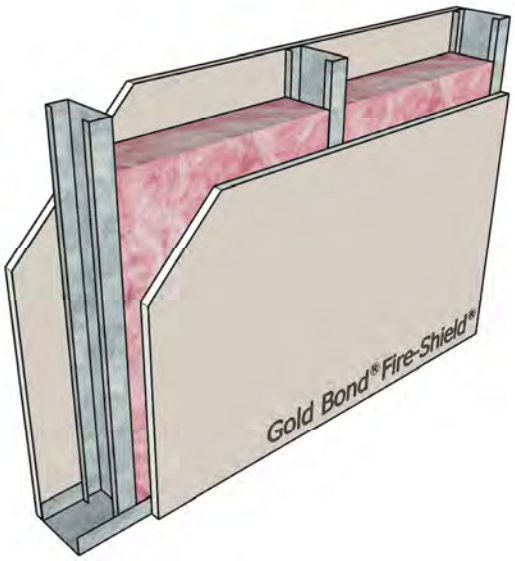


STC-40 **NGC 2518**

Framing:	3-5/8" steel studs, 25 gauge, 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

Figure 4



STC-44 **NGC 2514**

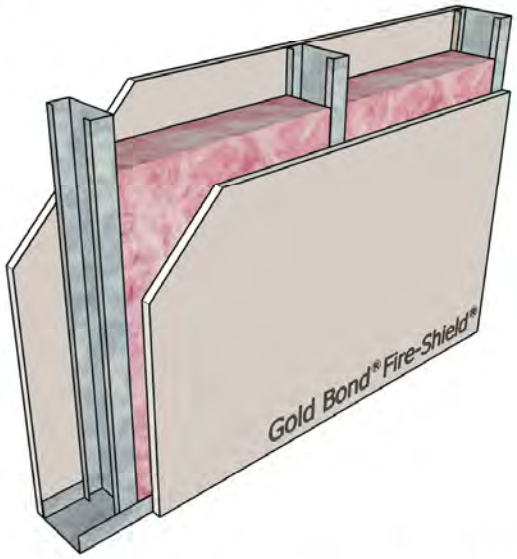
Framing:	3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation:	2-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board

UL Design: V438, U465 - 1 hour

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

Steel Stud Partitions with Framing 16" o.c.

Figure 5

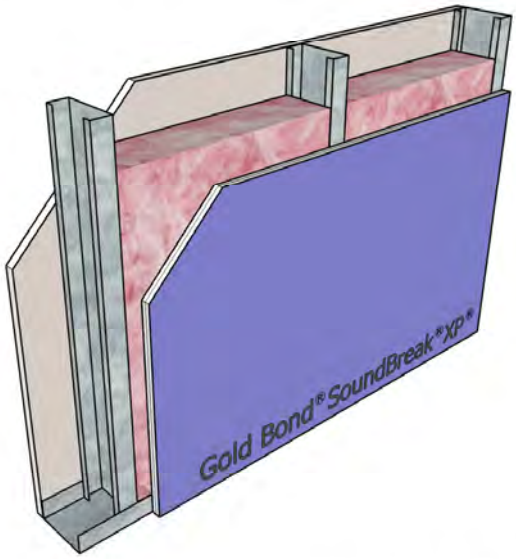


STC-40 **NGC 2013004**

Framing:	3-5/8" steel studs, **20 gauge**, 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

Figure 6

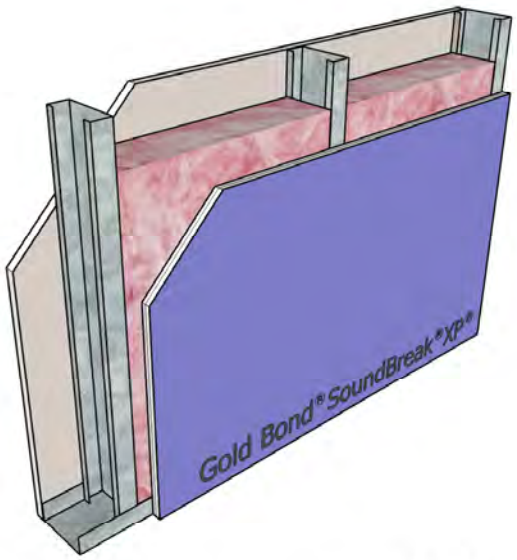


STC-49 **NGC 2009058**

Framing:	3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 7

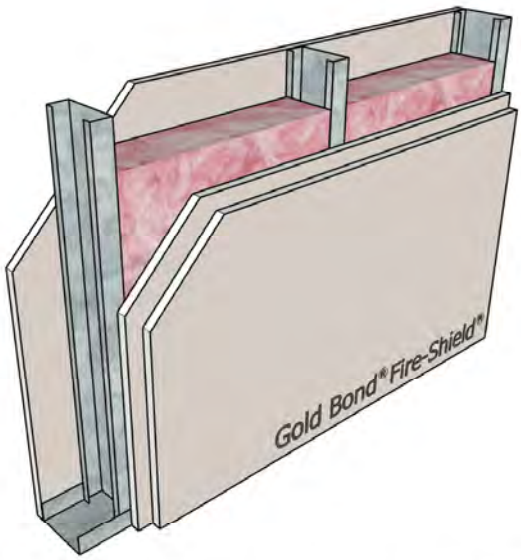


STC-45 **NGC 2013005**

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

UL Design: V438, U465 - 1 hour

Figure 8



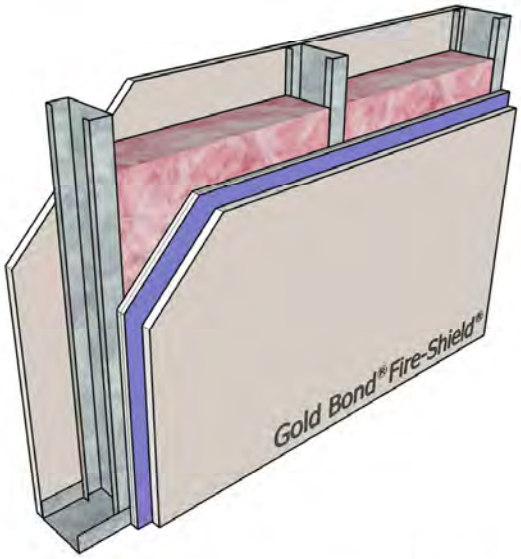
STC-49 **NGC 2515**

Framing:	3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation:	2-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board

UL Design: V438, U465 - 1 hour

Steel Stud Partitions with Framing 16" o.c.

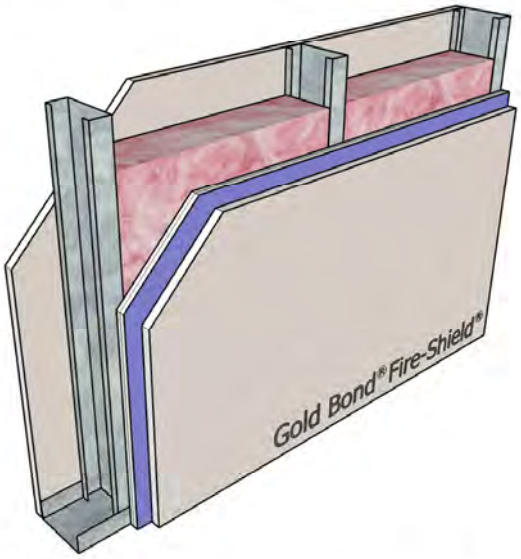
Figure 9



STC-52 **RAL-TL07-148**

Framing:	3-5/8" steel studs, 25 gauge, 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 5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U465 - 1 hour

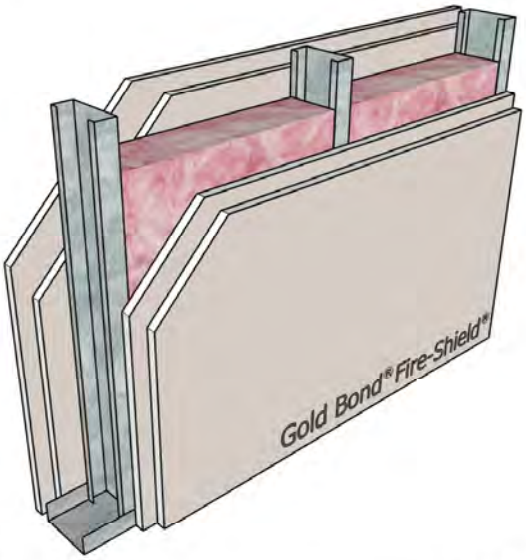
Figure 10



STC-46 **NGC 2013006**

Framing:	3-5/8" steel studs, **20 gauge**, 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 5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U465 - 1 hour

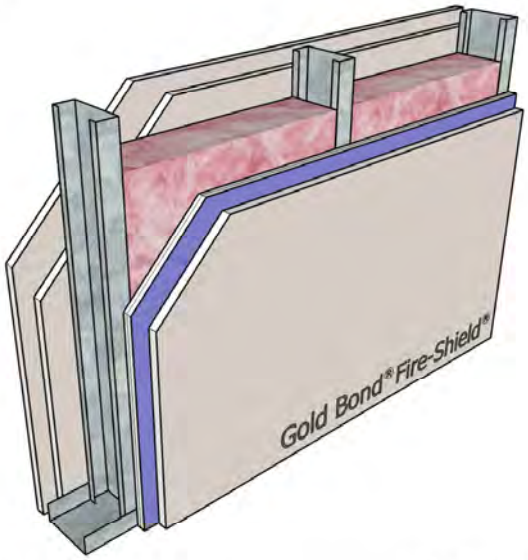
Figure 11



STC-53 **NGC 2516**

Framing:	3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation:	2-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board
UL Design:	V438, U411 - 2 hour

Figure 12

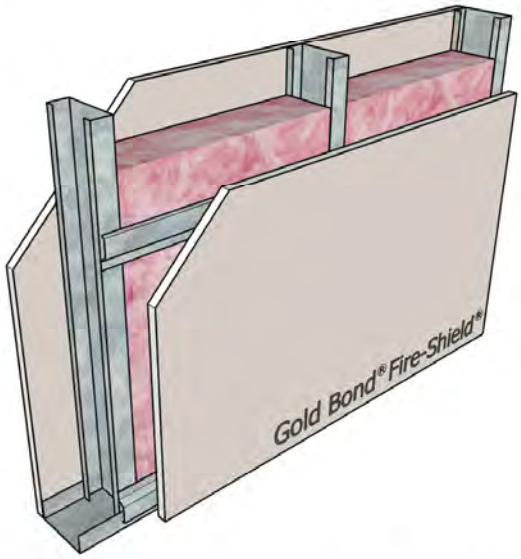


STC-50 **NGC 2013007**

Framing:	3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U411 - 2 hour

Steel Stud Partitions with Framing 16" o.c.

Figure 13

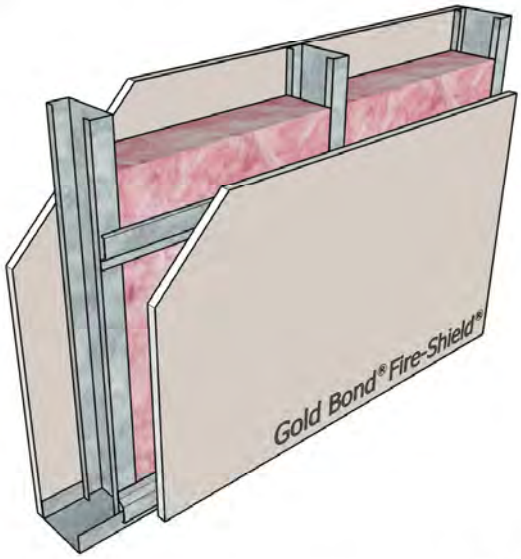


STC-48 **NGC 2009059**

Framing:	3-5/8" steel studs, 25 gauge, 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

Figure 14

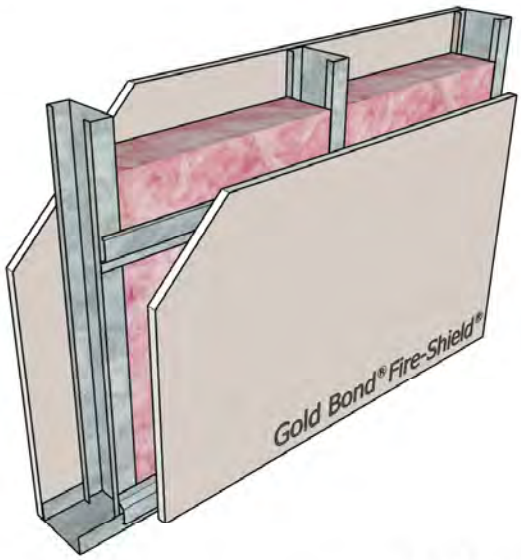


STC-49 **NGC 2013008**

Framing:	3-5/8" steel studs, **20 gauge**, 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

Figure 15

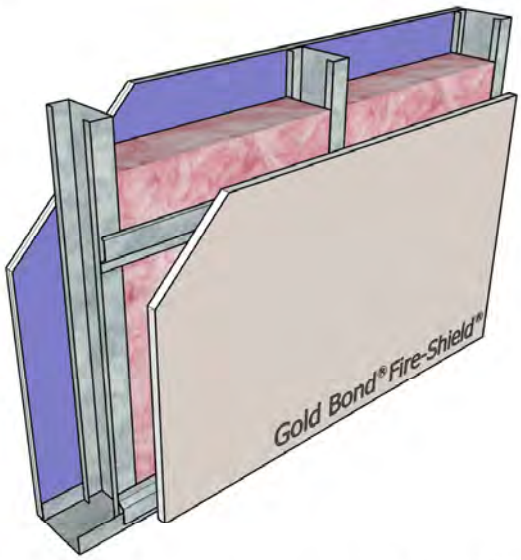


STC-47 **NGC 2014086**

Framing:	3-5/8" steel studs, **16 gauge,** 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

Figure 16



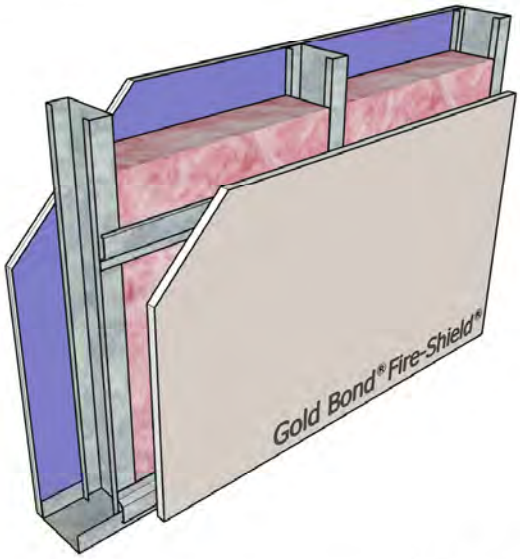
STC-52 **NGC 2013009**

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

UL Design: V438, U465 - 1 hour

Steel Stud Partitions with Framing 16" o.c.

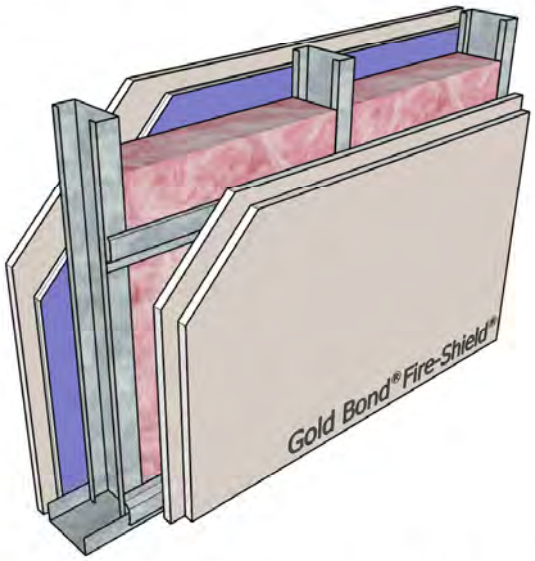
Figure 17



STC-51 **NGC 2014085**

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

Figure 18



STC-59 **NGC 2014084**

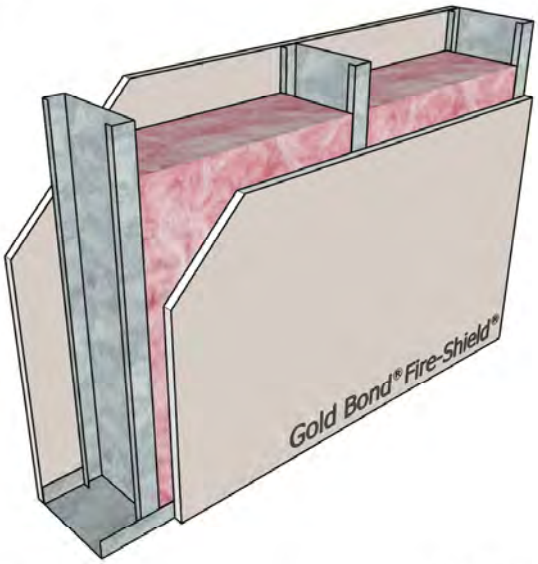
Framing:	3-5/8" steel studs, **16 gauge,** 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	V438 - 2 hour

Figure 19

STC-37 **NGC 2013021**

Framing:	6" steel studs, **20 gauge**, 16" o.c.
Insulation:	6" glass fiber
Side 1:	None
Side 2:	5/8" Fire-Shield Gypsum Board
UL Design:	Not Rated

Figure 20

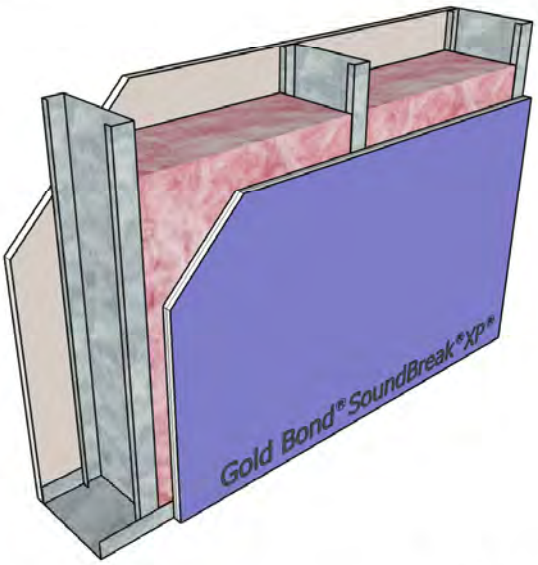


STC-40 **NGC 2013022**

Framing:	6" steel studs, **20 gauge**, 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

Steel Stud Partitions with Framing 16" o.c.

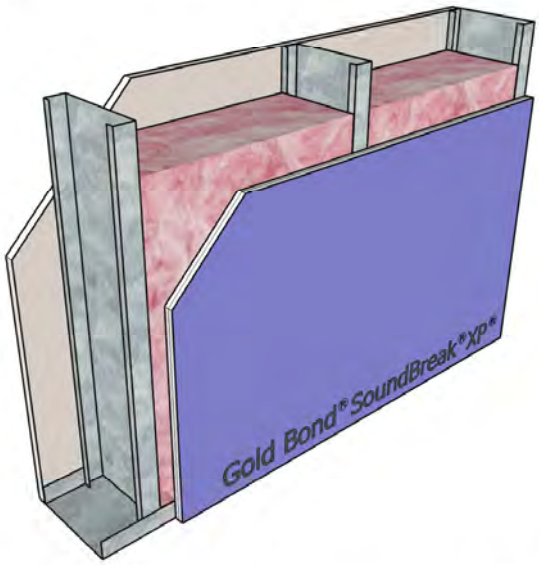
Figure 21



STC-45 **NGC 2013023**

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

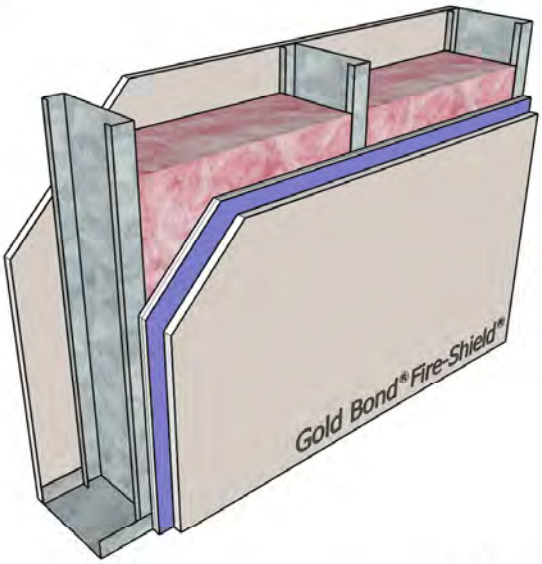
Figure 22



STC-49 **NGC 2015007**

Framing:	6" steel studs, **16 gauge,** 16" o.c.
Insulation:	6" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U465 - 1 hour

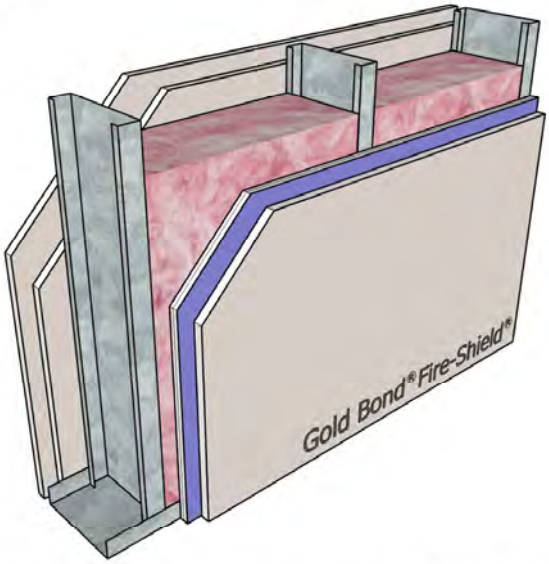
Figure 23



STC-49 **NGC 2013024**

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

Figure 24

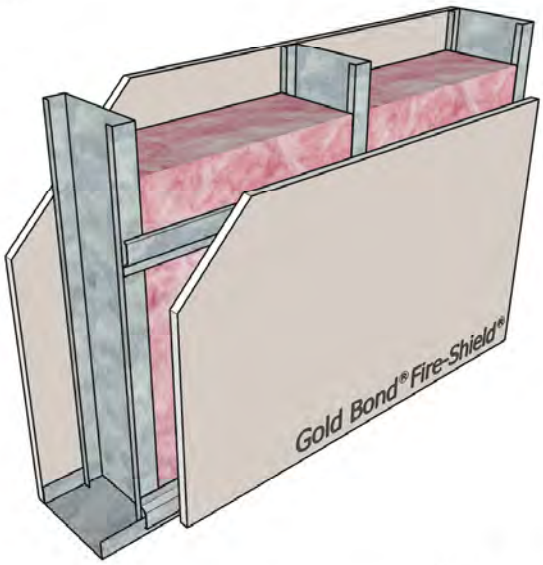


STC-51 **NGC 2013025**

Framing:	6" steel studs, **20 gauge**, 16" o.c.
Insulation:	6" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U411 - 2 hour

Steel Stud Partitions with Framing 16" o.c.

Figure 25

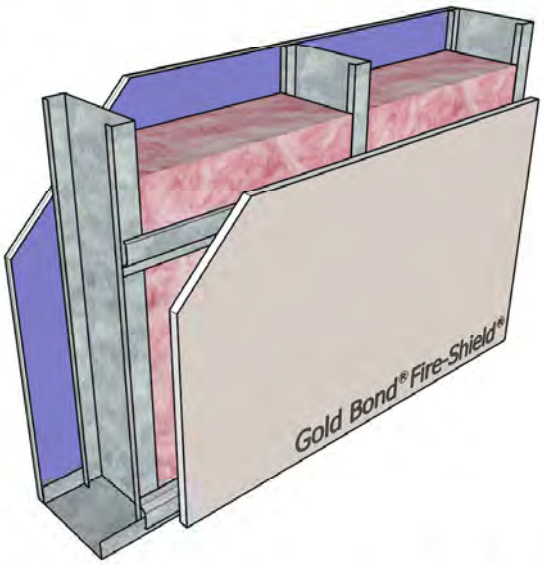


STC-53 **NGC 2013026**

Framing:	6" steel studs, **20 gauge**, 16" o.c.
Insulation:	6" 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

Figure 26

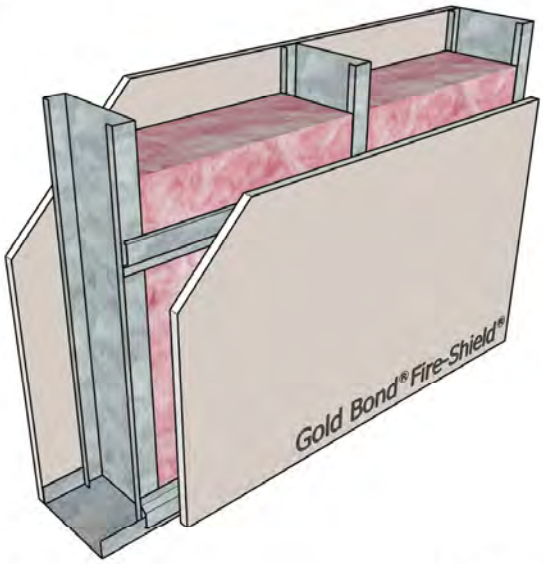


STC-57 **NGC 2013027**

Framing:	6" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

Figure 27

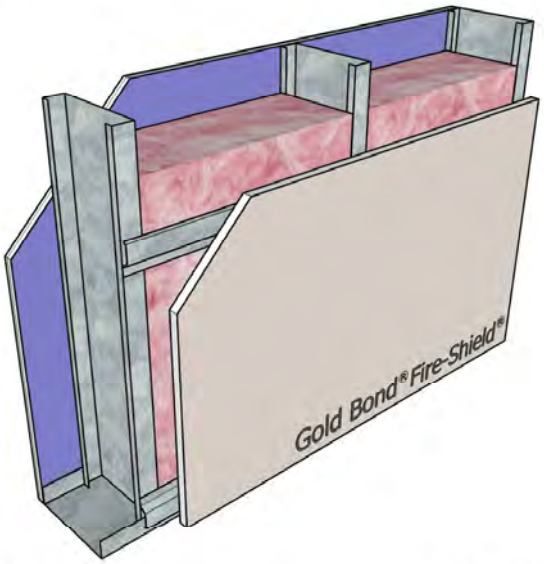


STC-50 **NGC 2015001**

Framing:	6" steel studs, **16 gauge,** 16" o.c.
Insulation:	6" 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

Figure 28



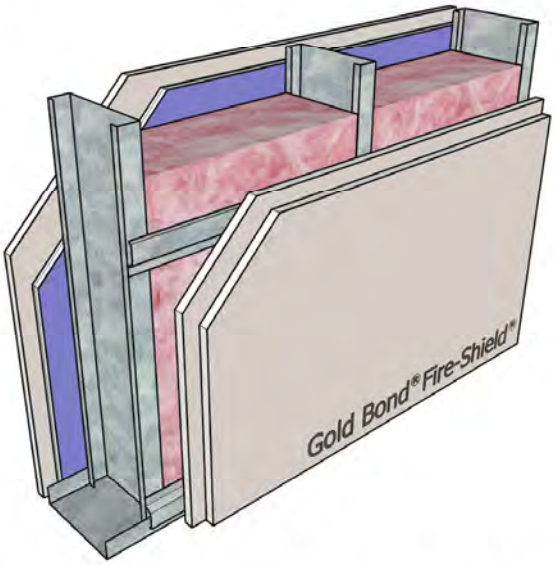
STC-55 **NGC 2015002**

Framing:	6" steel studs, **16 gauge,** 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

Steel Stud Partitions with Framing 16" o.c.

Figure 29

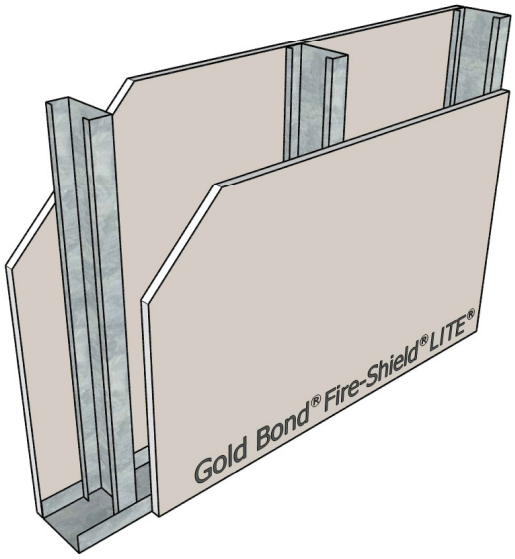


STC-61 **NGC 2015003**

Framing:	6" steel studs, **16 gauge,** 16" o.c.
Insulation:	6" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	V438 - 2 hour

Steel Stud Partitions with Framing 16" o.c.

Figure 30

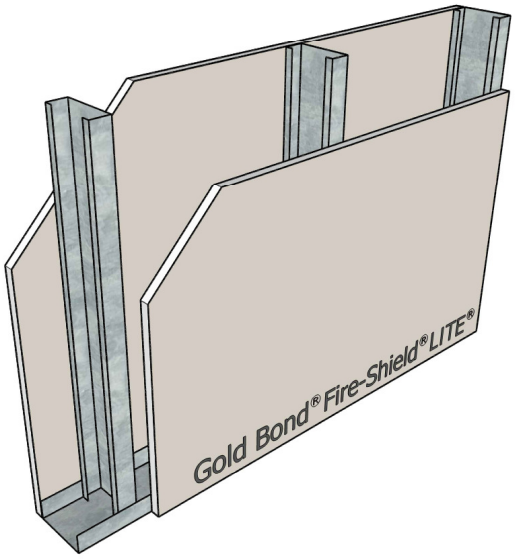


STC-38 **NGC 2014019**

Framing: 3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation: None
Side 1: 5/8" Fire-Shield LITE Gypsum Board
Side 2: 5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 31

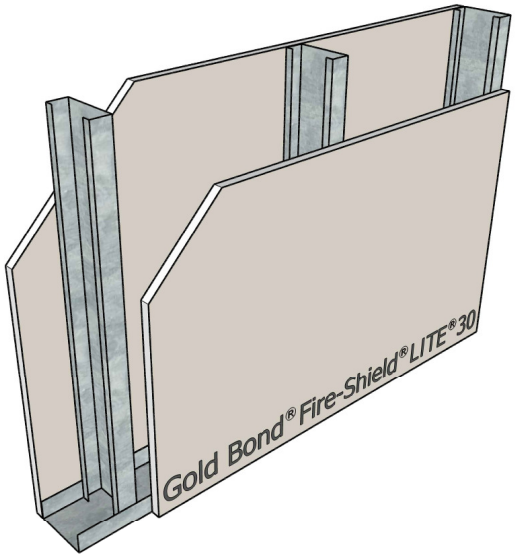


STC-37 **NGC 2014023**

Framing: 3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation: None
Side 1: 5/8" Fire-Shield LITE Gypsum Board
Side 2: 5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 32

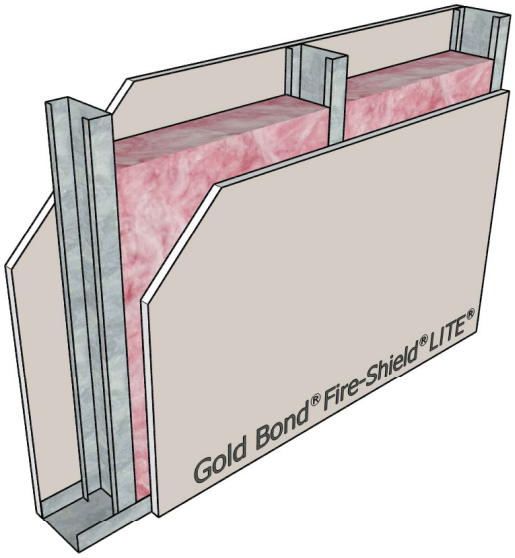


STC-35 **NGC 2014011**

Framing: 3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation: None
Side 1: 5/8" Fire-Shield LITE 30 Gypsum Board
Side 2: 5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 33



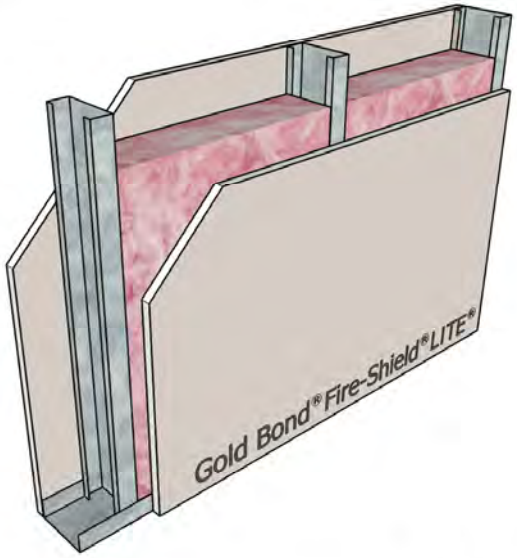
STC-41 **NGC 2014018**

Framing: 3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield LITE Gypsum Board
Side 2: 5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U465 - 1 hour

Steel Stud Partitions with Framing 16" o.c.

Figure 34

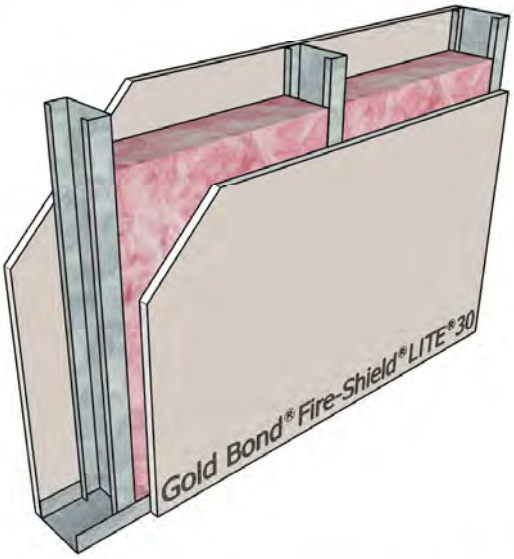


STC-41 **NGC 2014022**

Framing:	3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE Gypsum Board
Side 2:	5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 35

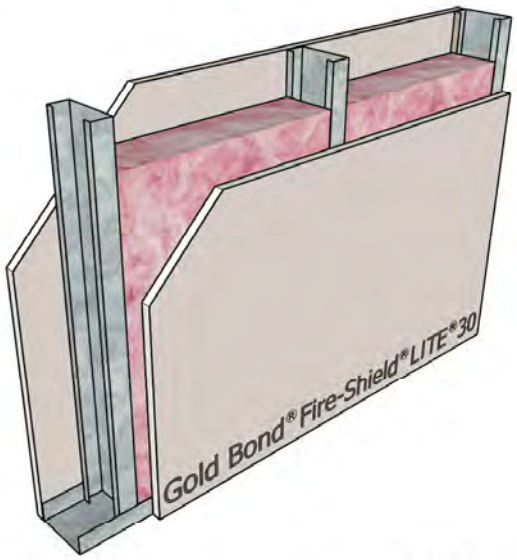


STC-38 **NGC 2014009**

Framing:	3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 36

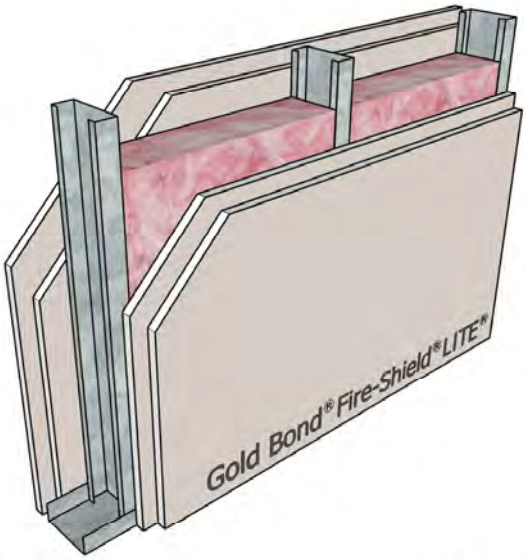


STC-39 **NGC 2014010**

Framing:	3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 37



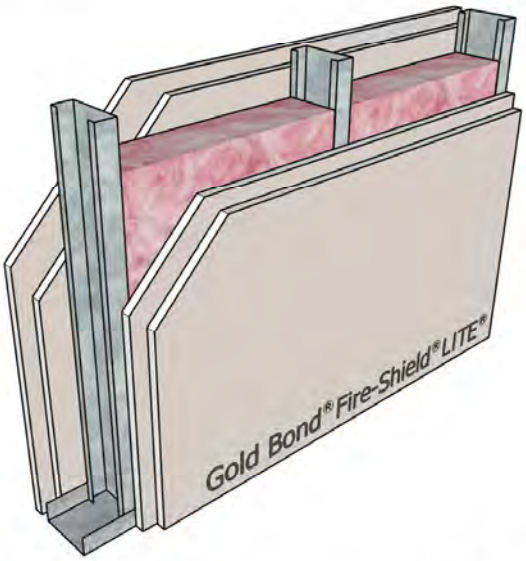
STC-50 **NGC 2014021**

Framing:	3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield LITE Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U411 - 2 hour

Steel Stud Partitions with Framing 16" o.c.

Figure 38

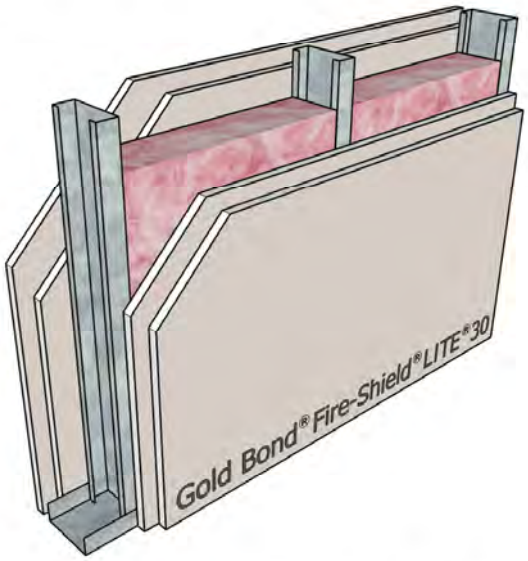


STC-52 **NGC 2014025**

Framing:	3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield LITE Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U411 - 2 hour

Figure 39

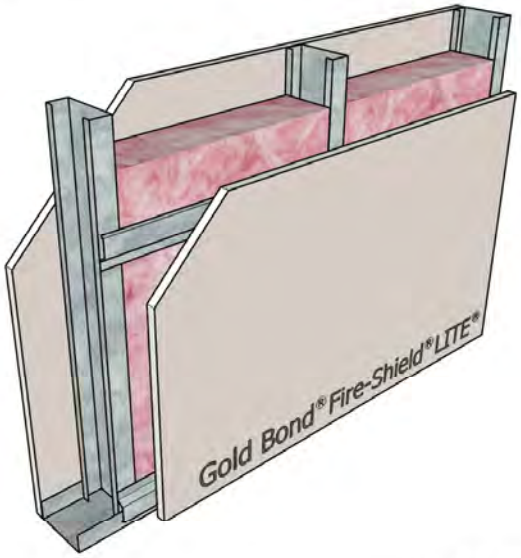


STC-44 **NGC 2014013**

Framing:	3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1 hour

Figure 40

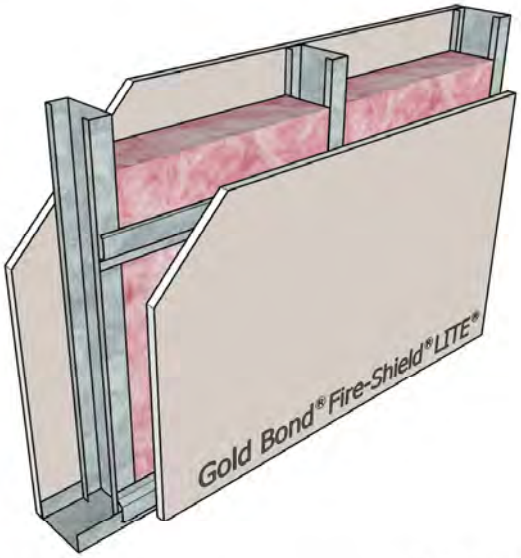


STC-49 **NGC 2014020**

Framing:	3-5/8" steel studs, 25 gauge, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE Gypsum Board
Side 2:	5/8" Fire-Shield LITE Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

Figure 41



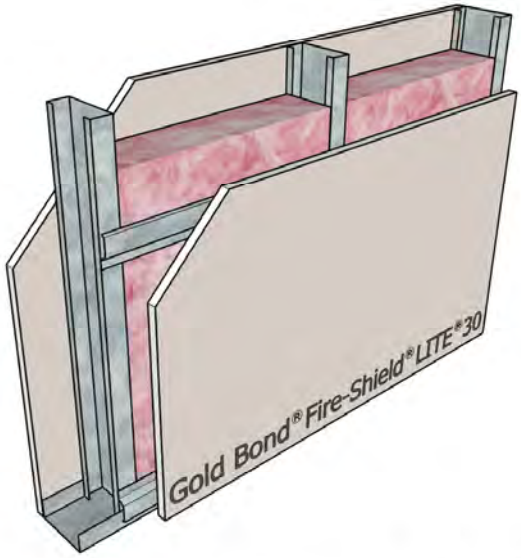
STC-49 **NGC 2014024**

Framing:	3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE Gypsum Board
Side 2:	5/8" Fire-Shield LITE Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

Steel Stud Partitions with Framing 16" o.c.

Figure 42



STC-45 **NGC 2014012**

Framing:	3-5/8" steel studs, **20 gauge**, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board on RC-1

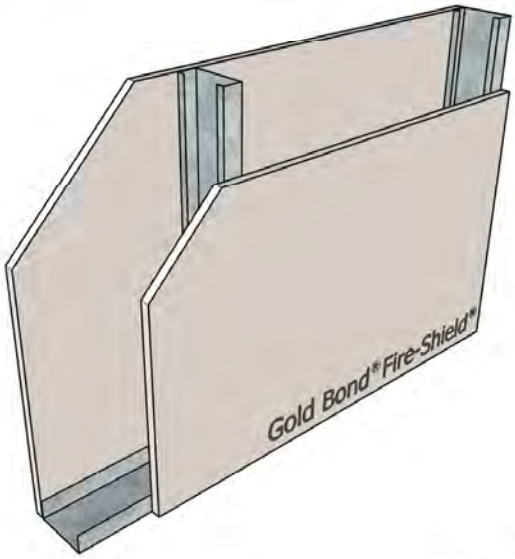
UL Design: W411 - 1/2 hour

Steel Stud Partitions with Framing 24"o.c.

TheSoundBook™

Steel Stud Partitions with Framing 24" o.c.

Figure 43

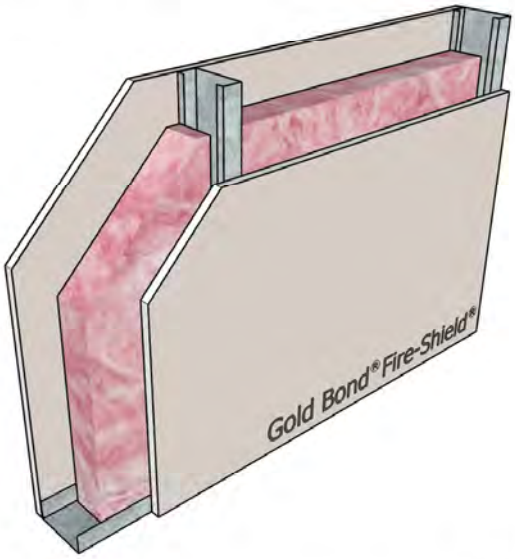


STC-42 **NGC 2385**

Framing:	3-5/8" steel studs, 25 gauge, 24" 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

Figure 44

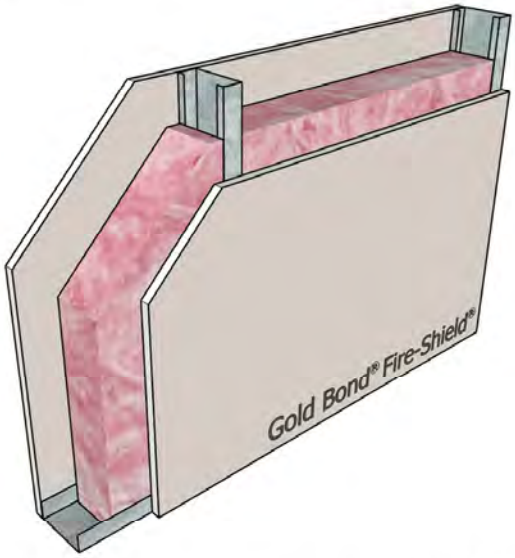


STC-47 **NGC 2386**

Framing:	3-5/8" steel studs, 25 gauge, 24" 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

Figure 45

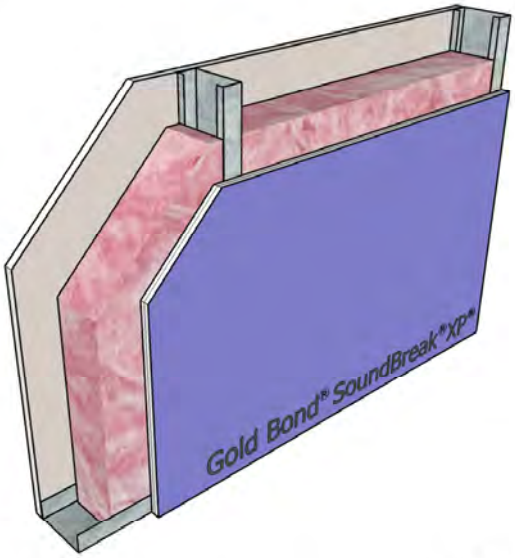


STC-44 **NGC 2013015**

Framing:	3-5/8" steel studs, **20 gauge**, 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

Figure 46



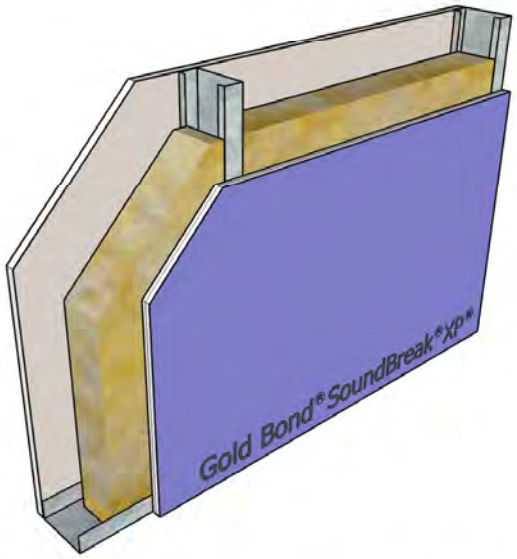
STC-55 **OL14-0404**

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

UL Design: V438, U465 - 1 hour

Steel Stud Partitions with Framing 24" o.c.

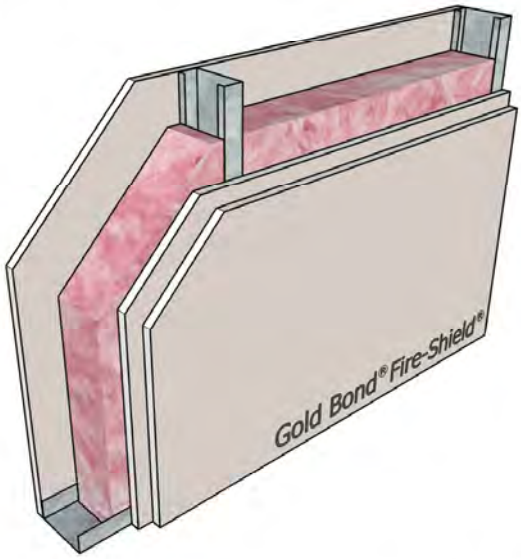
Figure 47



STC-54 **RAL-TL07-389**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3" mineral wool
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U465 - 1 hour

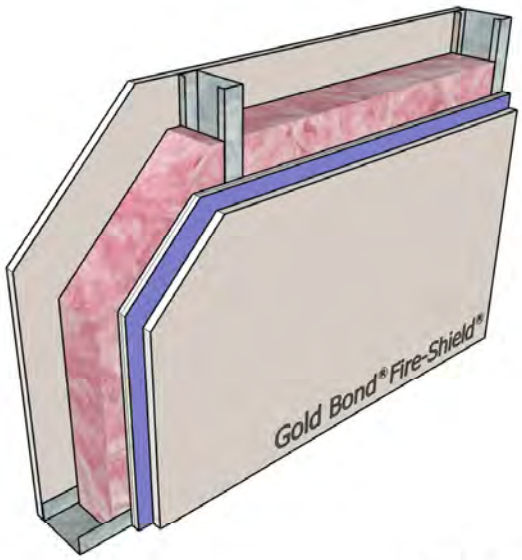
Figure 48



STC-49 **NGC 2392**

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

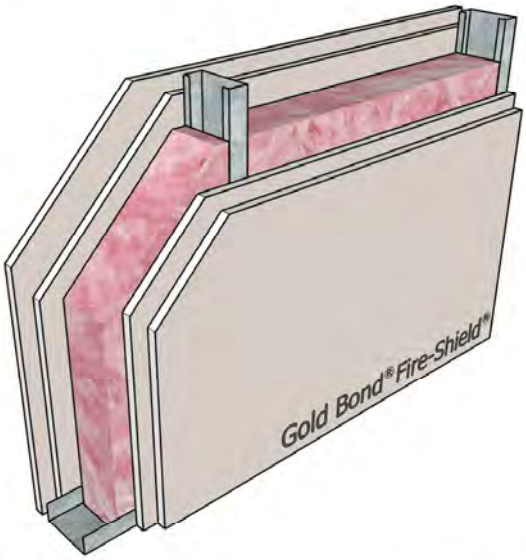
Figure 49



STC-57 **RAL-TL06-334**

Framing:	3-5/8" steel studs, 25 gauge, 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 on 1/2" SoundBreak XP Gypsum Board
UL Design:	V438, U465 - 1 hour

Figure 50

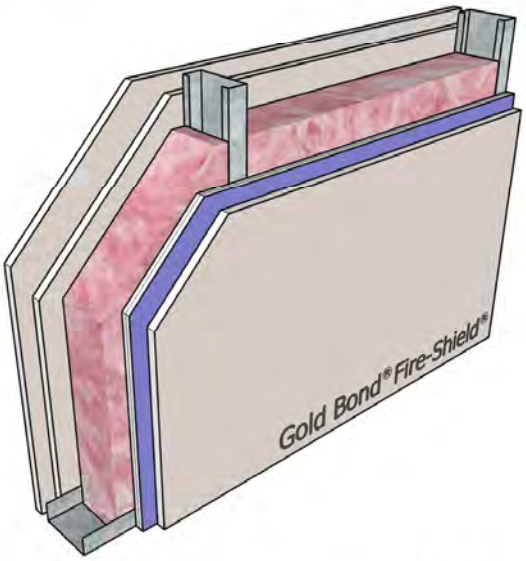


STC-56 **NGC 3022**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board
UL Design:	V438, U411 - 2 hour

Steel Stud Partitions with Framing 24" o.c.

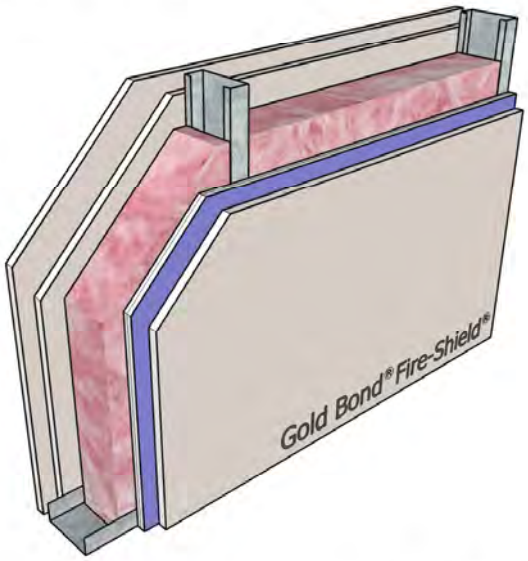
Figure 51



STC-60 **RAL-TL07-168**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U411 - 2 hour

Figure 52



STC-56 **NGC 2013018**

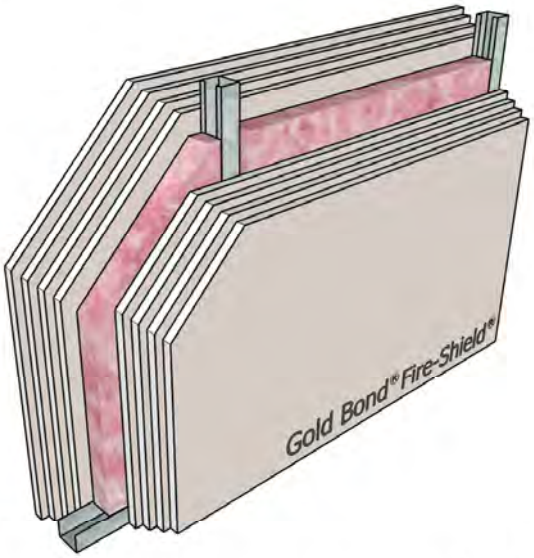
Framing:	3-5/8" steel studs, **20 gauge**, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U411 - 2 hour

Figure 53

STC-53 **NGC 2636**

Framing:	1-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	3 layers 5/8" Fire-Shield Gypsum Board
Side 2:	3 layers 5/8" Fire-Shield Gypsum Board
UL Design:	U435, V438 - 3 hour

Figure 54

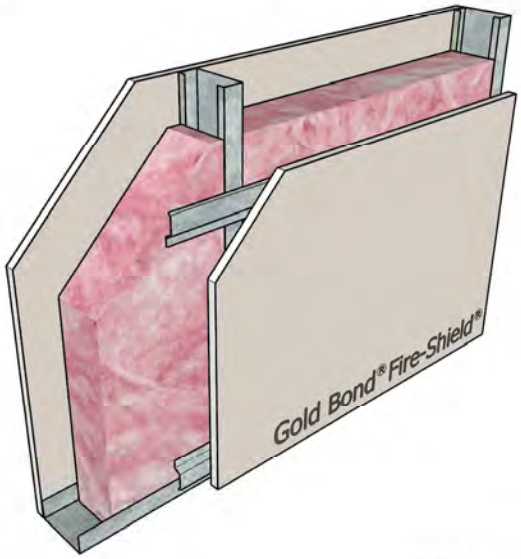


STC-55 **NGC 2634**

Framing:	1-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	4 layers 5/8" Fire-Shield Gypsum Board
Side 2:	4 layers 5/8" Fire-Shield Gypsum Board
UL Design:	U435, V438 - 4 hour

Steel Stud Partitions with Framing 24" o.c.

Figure 55

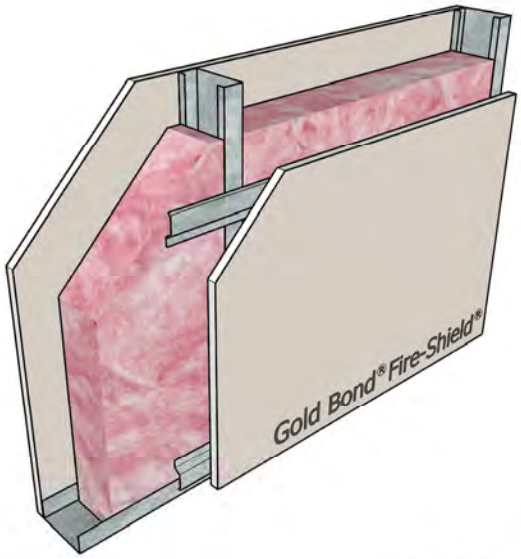


STC-49 **NGC 2007008**

Framing:	3-5/8" steel studs, 25 gauge, 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 on RC-1

UL Design: V438, U465 - 1 hour

Figure 56

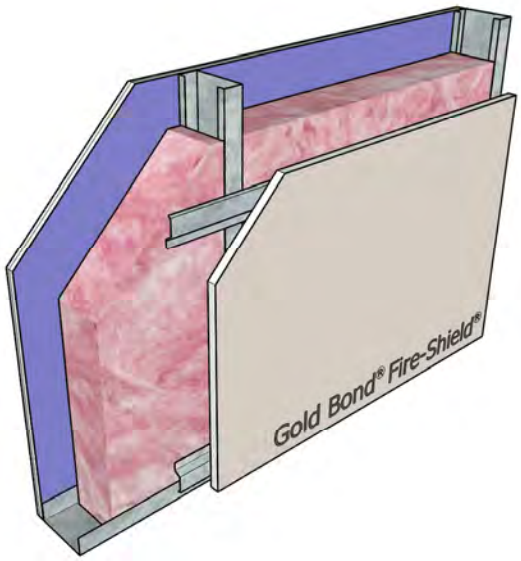


STC-50 **NGC 2013019**

Framing:	3-5/8" steel studs, **20 gauge**, 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 on RC-1

UL Design: V438, U465 - 1 hour

Figure 57

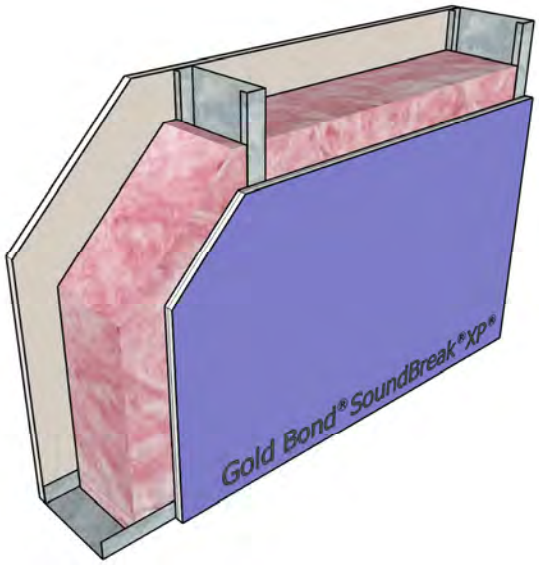


STC-54 **NGC 2013020**

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

UL Design: V438, U465 - 1 hour

Figure 58



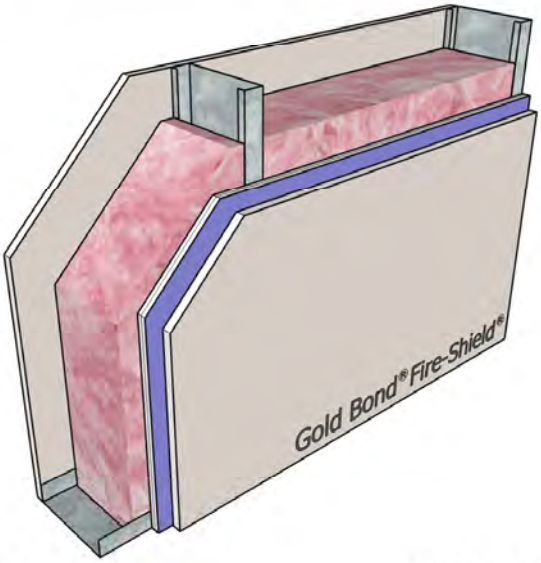
STC-56 **NGC 2013028**

Framing:	6" steel studs, **20 gauge**, 24" o.c.
Insulation:	6" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	3/4" SoundBreak XP Gypsum Board

UL Design: V438, U465 - 1 hour

Steel Stud Partitions with Framing 24" o.c.

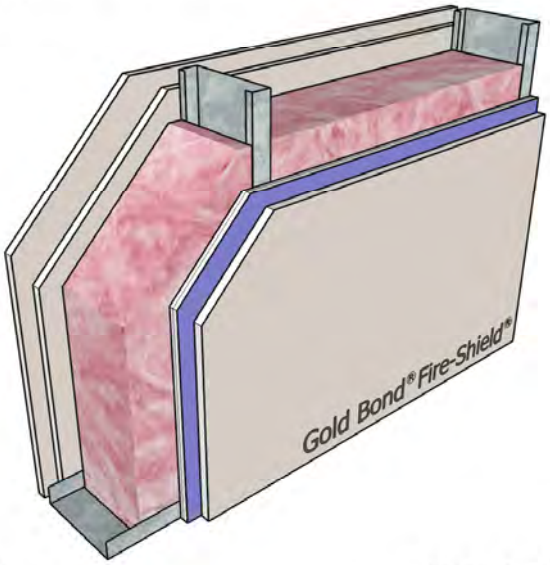
Figure 59



STC-57 **NRCC B-3456.1**

Framing:	6" steel studs, 25 gauge, 24" o.c.
Insulation:	6" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U465 - 1 hour

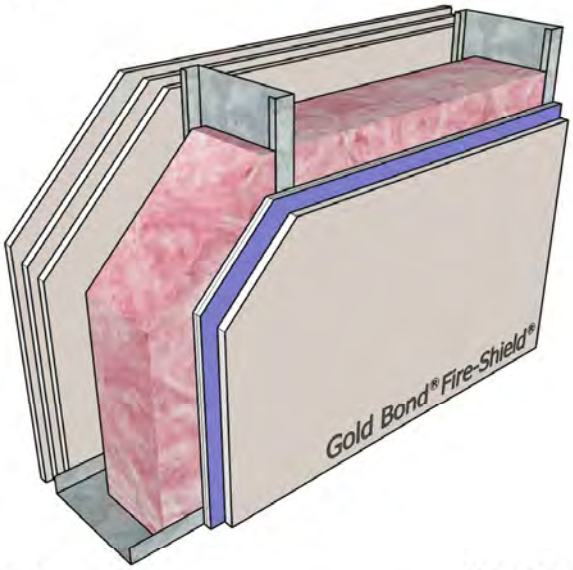
Figure 60



STC-61 **NRCC B-3456.2**

Framing:	6" steel studs, 25 gauge, 24" o.c.
Insulation:	6" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	V438, U411 - 2 hour

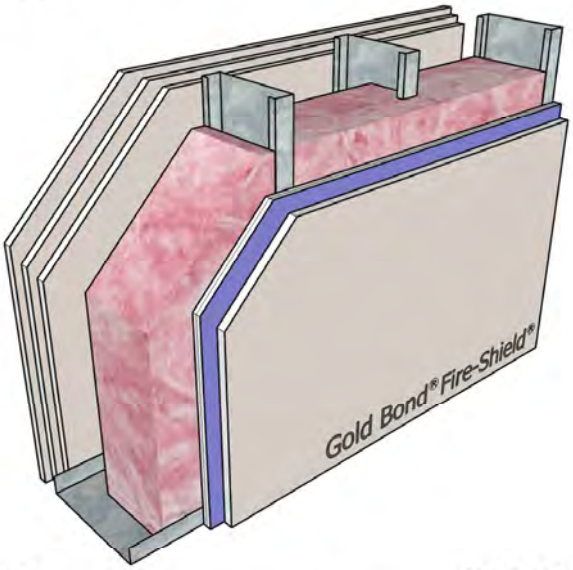
Figure 61



STC-57 **NGC 2009035**

Framing:	8" steel studs, **18 gauge**, 24" o.c.
Insulation:	6-1/4" glass fiber
Side 1:	3 layers Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	U411 - 2 hour

Figure 62



STC-66 **NGC 2009036**

Framing:	6" steel studs, **18 gauge**, 24" o.c., staggered in 8" track
Insulation:	6-1/4" glass fiber
Side 1:	3 layers Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	U411 - 2 hour

Steel Stud Partitions with Framing 24" o.c.

Figure 63

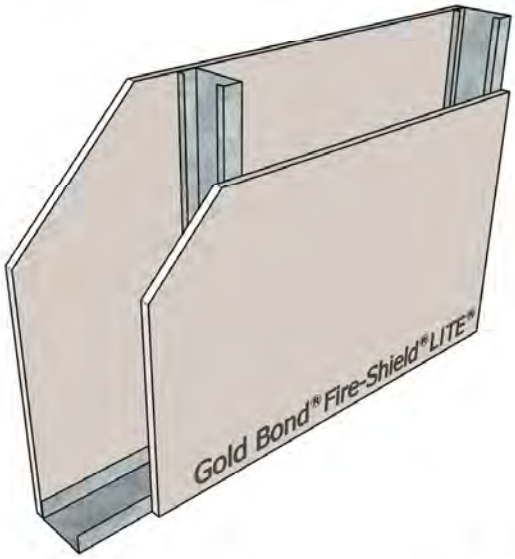
STC-52 **NGC 2002039**

Framing:	6" steel studs, 25 gauge, 24" o.c.
Insulation:	6" glass fiber
Side 1:	5/8" Fire-Shield C Gypsum Board
Side 2:	5/8" Fire-Shield C Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

Steel Stud Partitions with Framing 24" o.c.

Figure 64

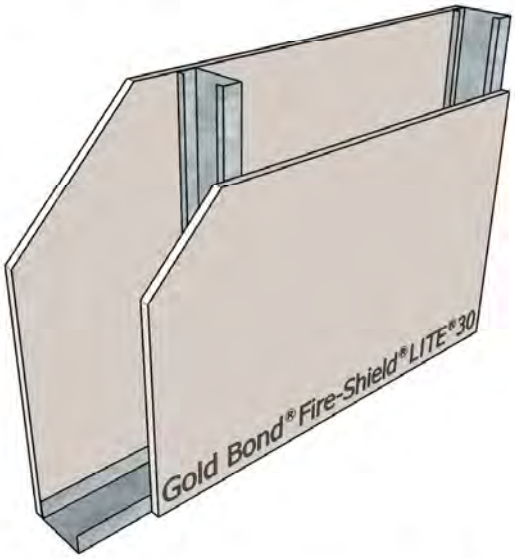


STC-38 **NGC 2014015**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	None
Side 1:	5/8" Fire-Shield LITE Gypsum Board
Side 2:	5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 65

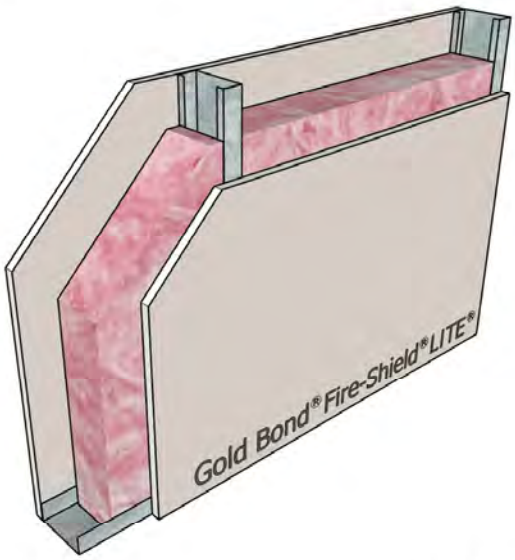


STC-36 **NGC 2014006**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	None
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 66

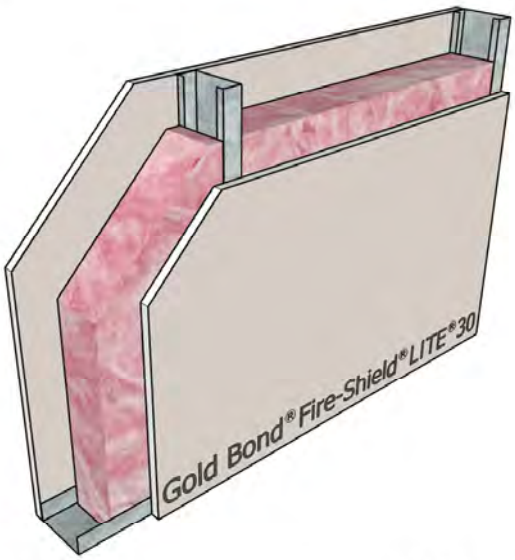


STC-44 **NGC 2014014**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE Gypsum Board
Side 2:	5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 67



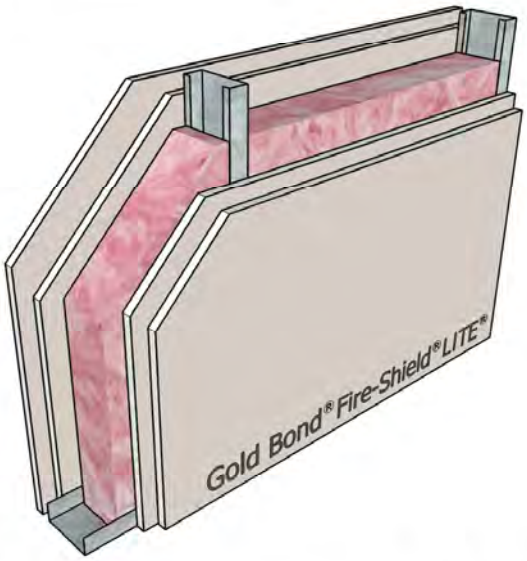
STC-46 **NGC 2014005**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1/2 hour

Steel Stud Partitions with Framing 24" o.c.

Figure 68

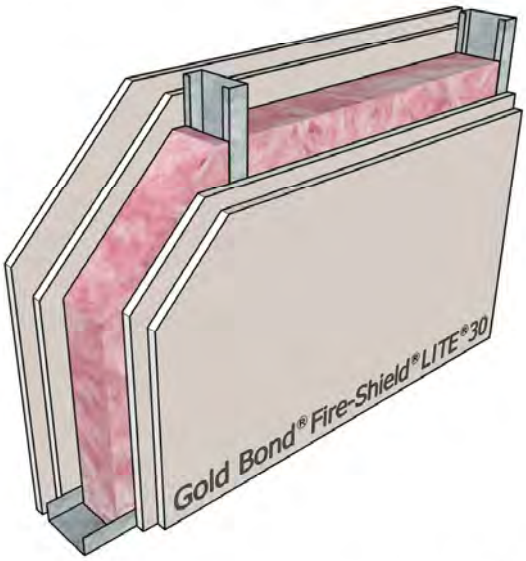


STC-54 **NGC 2014017**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield LITE Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U411 - 2 hour

Figure 69

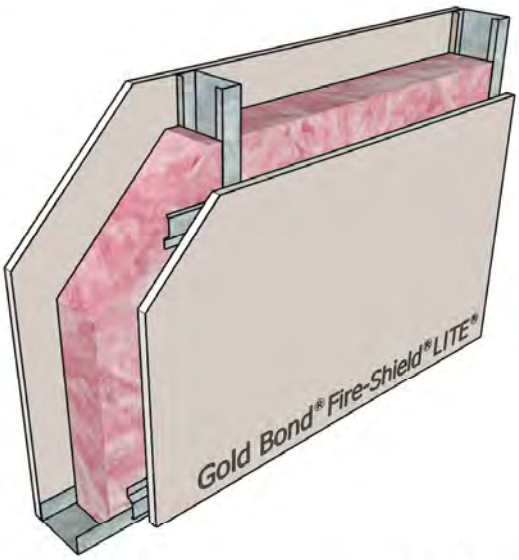


STC-54 **NGC 2014008**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1 hour

Figure 70

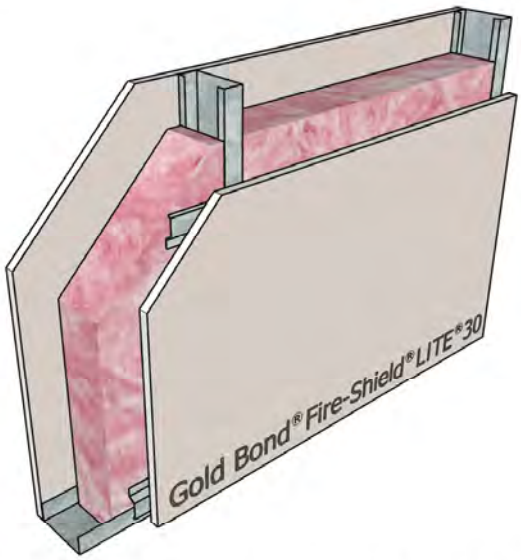


STC-50 **NGC 2014016**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE Gypsum Board
Side 2:	5/8" Fire-Shield LITE Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

Figure 71



STC-49 **NGC 2014007**

Framing:	3-5/8" steel studs, 25 gauge, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board on RC-1

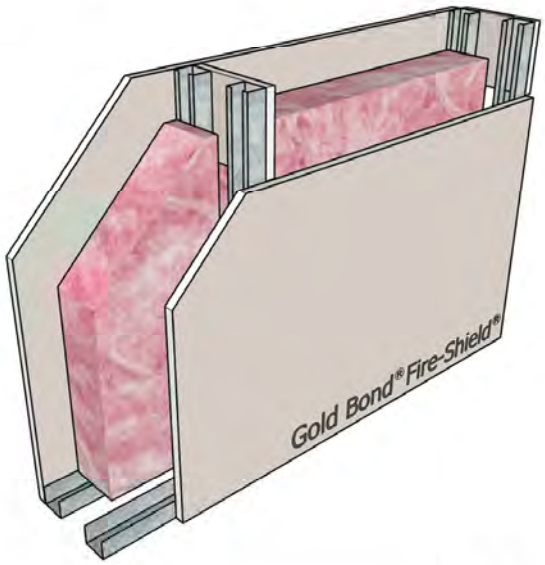
UL Design: W411 - 1/2 hour

Steel Stud Chase Walls

The soundBook™

Steel Stud Chase Walls

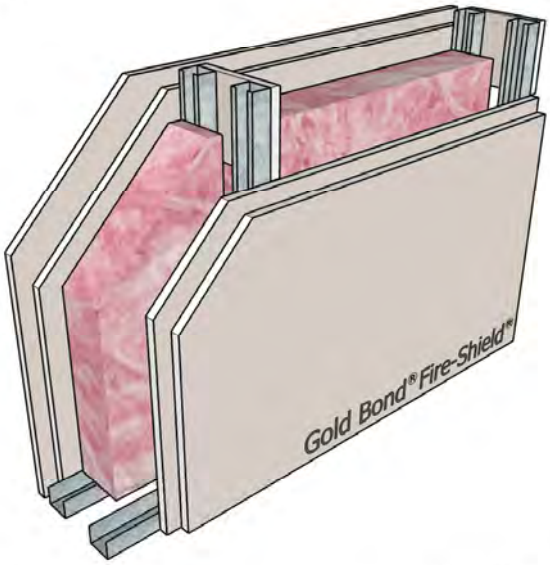
Figure 72



STC-52 **RAL-TL76-155**

Framing:	Double row 1-5/8" steel studs, 25 gauge, 24" o.c., braced with gypsum board gussets
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board
UL Design:	U420 - 1 hour

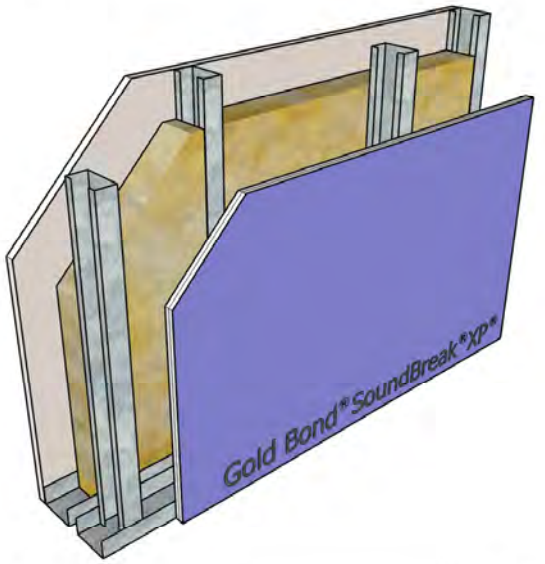
Figure 73



STC-57 **RAL-TL76-156**

Framing:	Double row 1-5/8" steel studs, 25 gauge, 24" o.c., braced with gypsum board gussets
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board
UL Design:	U420 - 2 hour

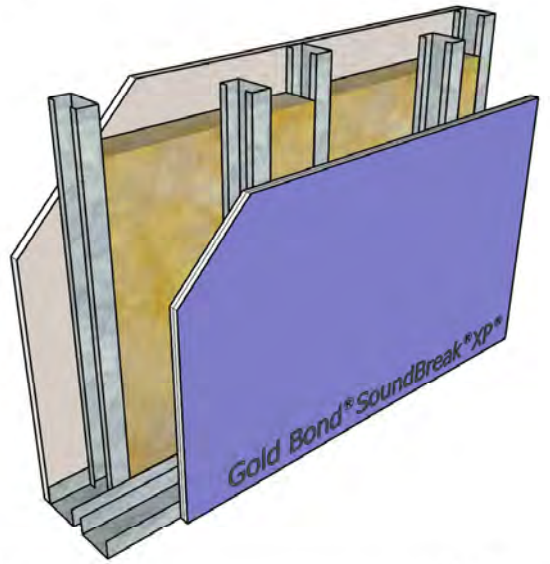
Figure 74



STC-59 **NGC 2008036**

Framing:	Double row 2-1/2" steel studs, 25 gauge, 24" o.c. staggered
Insulation:	3" mineral wool
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board
UL Design:	V488 - 1 hour

Figure 75



STC-57 **NGC 2008035**

Framing:	Double row 2-1/2" steel studs, 25 gauge, 16" o.c. staggered
Insulation:	3" mineral wool
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board
UL Design:	V488 - 1 hour

Shaftwall Partitions

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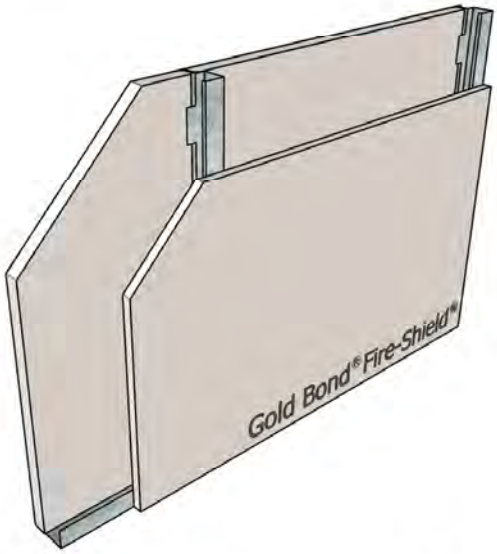
Figure 76

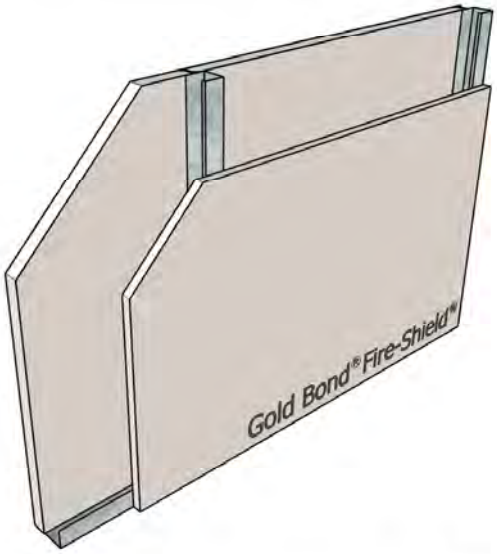


STC-34 **NGC 2001001**

Framing: 2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation: None
Side 1: 1" Fire-Shield Shaftliner
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 77

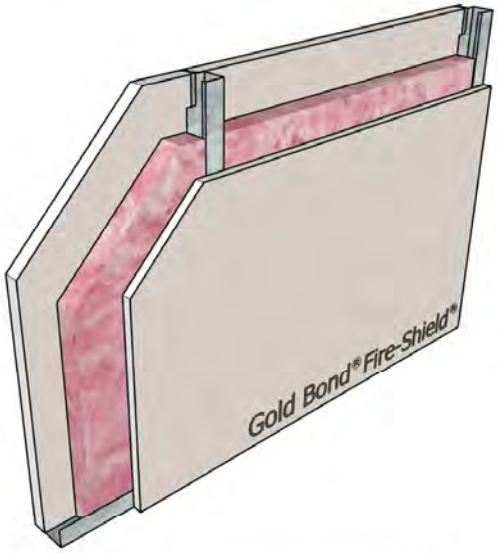


STC-37 **NGC 2001003**

Framing: 2-1/2" steel CH studs, 25 gauge, 24" o.c.
Insulation: None
Side 1: 1" Fire-Shield Shaftliner
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 78

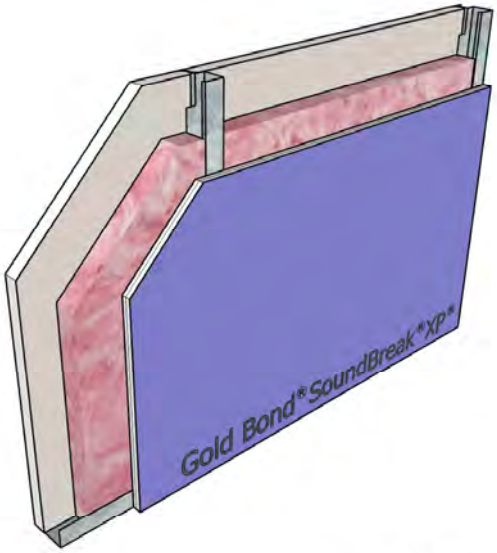


STC-39 **NGC 2001007**

Framing: 2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation: 1-1/2" glass fiber
Side 1: 1" Fire-Shield Shaftliner
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 79

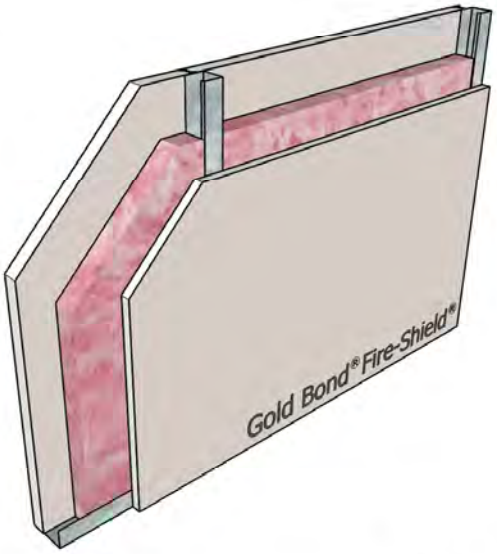


STC-44 **NGC 2015033**

Framing: 2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation: 1-1/2" glass fiber
Side 1: 1" Fire-Shield Shaftliner
Side 2: 5/8" SoundBreak XP Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 80

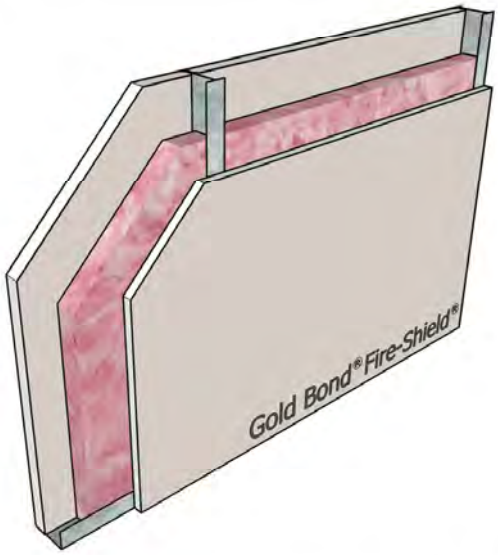


STC-40 **NGC 2001005**

Framing: 2-1/2" steel CH studs, 25 gauge, 24" o.c.
Insulation: 1-1/2" glass fiber
Side 1: 1" Fire-Shield Shaftliner
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 81

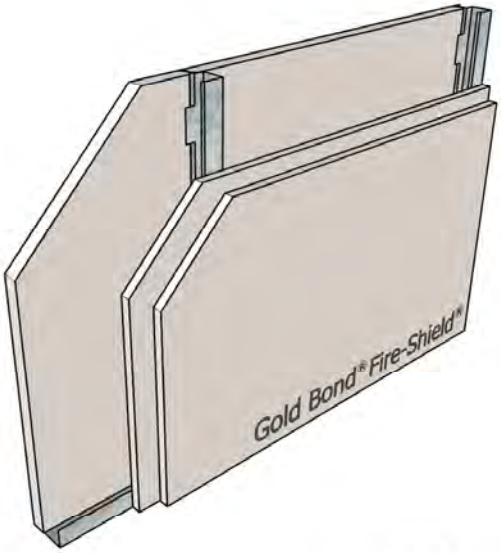


STC-42 **NGC 2542**

Framing: 2-1/2" steel I-studs, 25 gauge, 24" o.c.
Insulation: 1-1/2" glass fiber
Side 1: 1" Fire-Shield Shaftliner
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 82

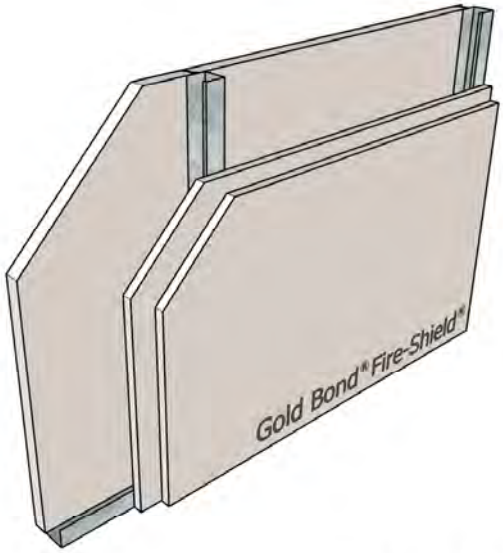


STC-40 **NGC 2001004**

Framing: 2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation: None
Side 1: 1" Fire-Shield Shaftliner
Side 2: 2 layers 5/8" Fire-Shield Gypsum Board

UL Design: U497, W419 - 2 hour

Figure 83

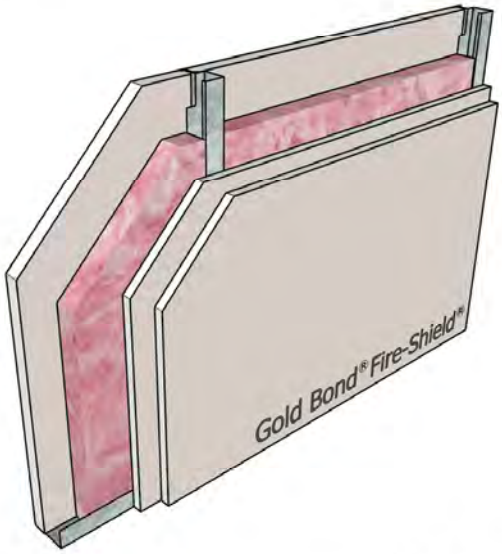


STC-39 **NGC 2001002**

Framing: 2-1/2" steel CH studs, 25 gauge, 24" o.c.
Insulation: None
Side 1: 1" Fire-Shield Shaftliner
Side 2: 2 layers 5/8" Fire-Shield Gypsum Board

UL Design: U497, W419 - 2 hour

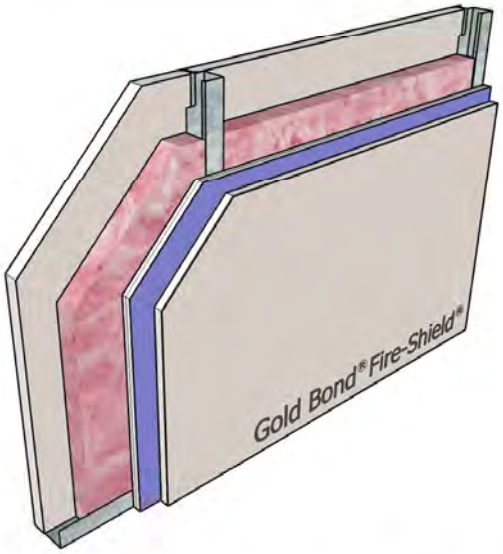
Figure 84



STC-45 **NGC 2001008**

Framing:	2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board
UL Design:	U497, W419 - 2 hour

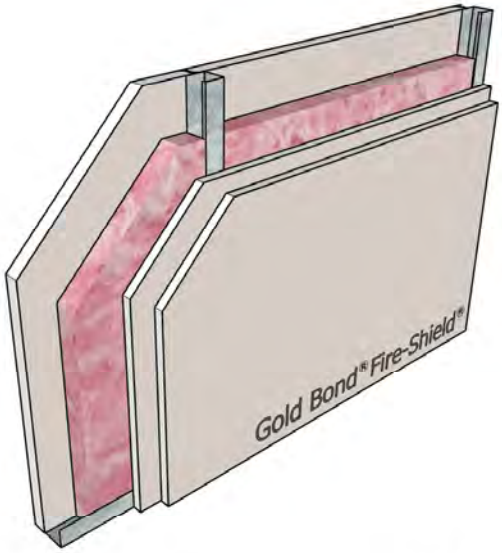
Figure 85



STC-51 **NGC 2015037**

Framing:	2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
UL Design:	U497, W419 - 2 hour

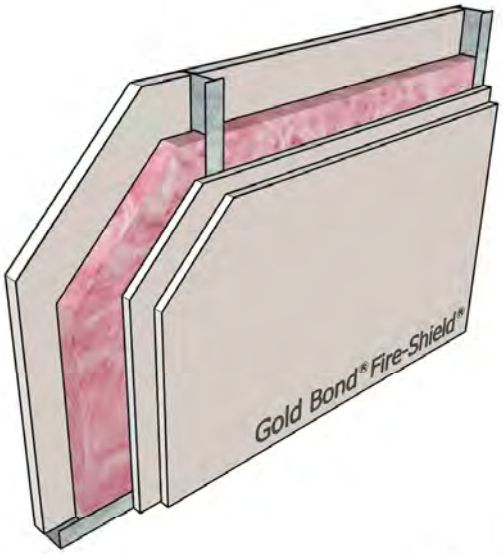
Figure 86



STC-46 **NGC 2001006**

Framing:	2-1/2" steel CH studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board
UL Design:	U497, W419 - 2 hour

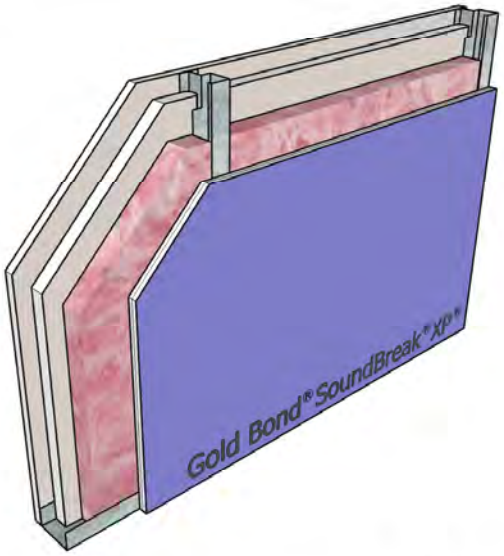
Figure 87



STC-48 **NGC 2507**

Framing:	2-1/2" steel I-studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board
UL Design:	U497, W419 - 2 hour

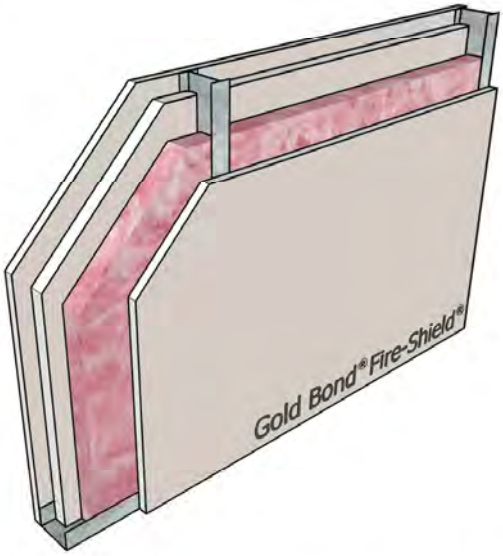
Figure 88



STC-53 **NGC 2015036**

Framing:	2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board on 1" Fire-Shield Shaftliner
Side 2:	5/8" SoundBreak XP Gypsum Board
UL Design:	U498, W419 - 2 hour

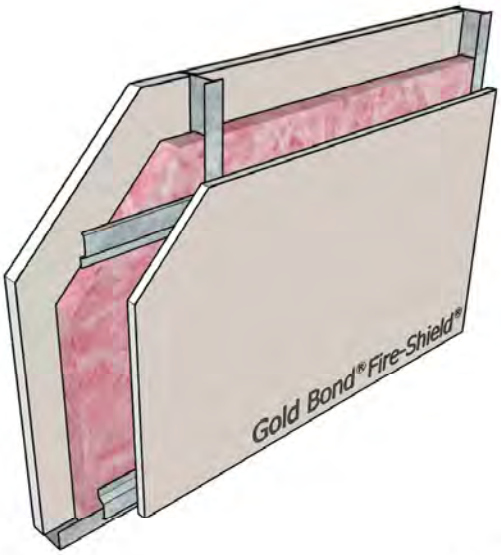
Figure 89



STC-48 **NGC 2534**

Framing:	2-1/2" steel I-studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board on 1" Fire-Shield Shaftliner
Side 2:	5/8" Fire-Shield Gypsum Board
UL Design:	U498, W419 - 2 hour

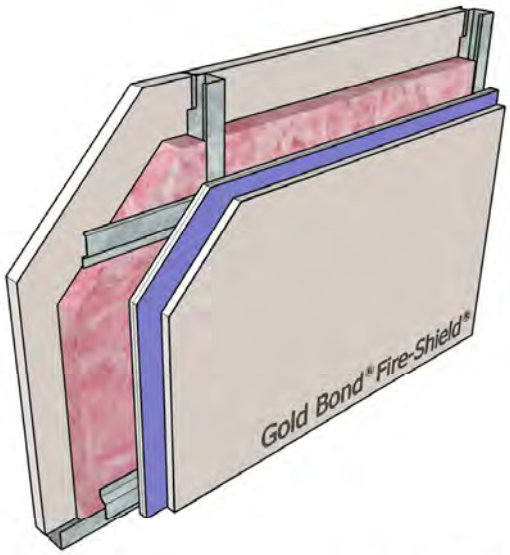
Figure 90



STC-48 **NGC 2541**

Framing:	2-1/2" steel I-studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	U499, W419 - 1 hour

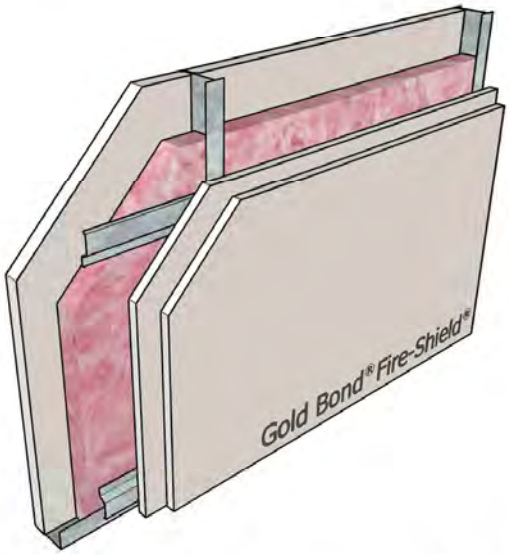
Figure 91



STC-53 **NGC 2015039**

Framing:	2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board on RC-1
UL Design:	U497, W419 - 2 hour

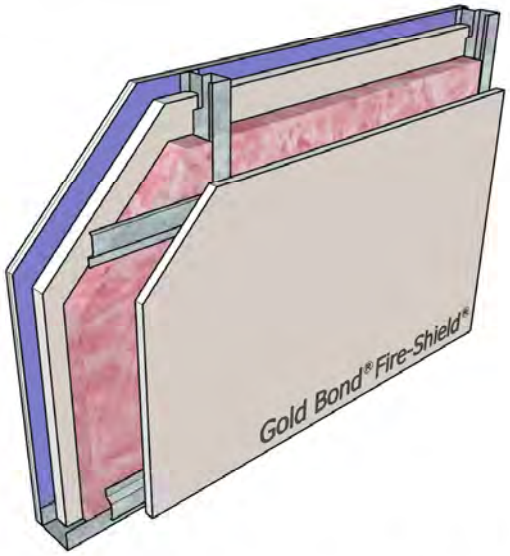
Figure 92



STC-51 **NGC 2540**

Framing:	2-1/2" steel I-studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	U497, W419 - 2 hour

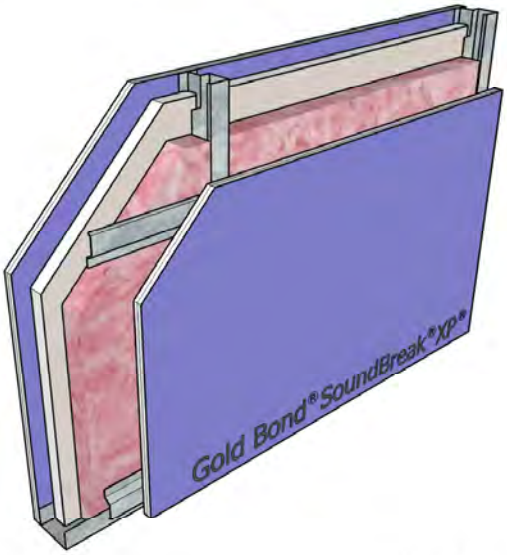
Figure 93



STC-55 **NGC 2015041**

Framing:	2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board on 1" Fire-Shield Shaftliner
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	U498, W419 - 2 hour

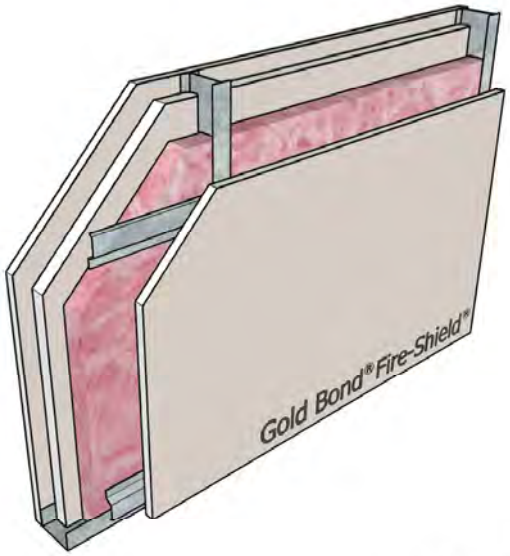
Figure 94



STC-56 **NGC 2015040**

Framing:	2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board on 1" Fire-Shield Shaftliner
Side 2:	5/8" SoundBreak XP Gypsum Board on RC-1
UL Design:	U498, W419 - 2 hour

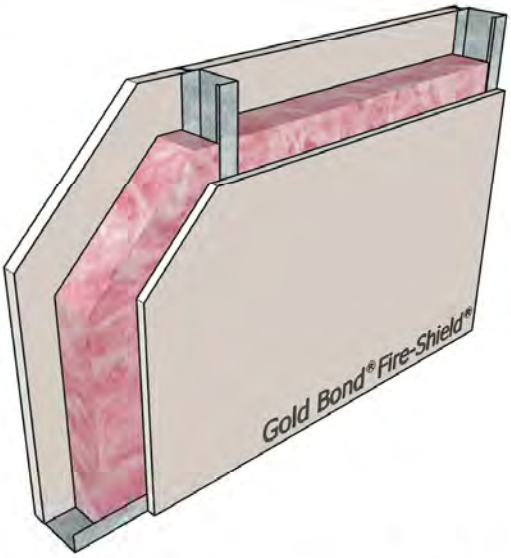
Figure 95



STC-52 **NGC 2538**

Framing:	2-1/2" steel I-studs, 25 gauge, 24" o.c.
Insulation:	1-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board on 1" Fire-Shield Shaftliner
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	U498, W419 - 2 hour

Figure 96

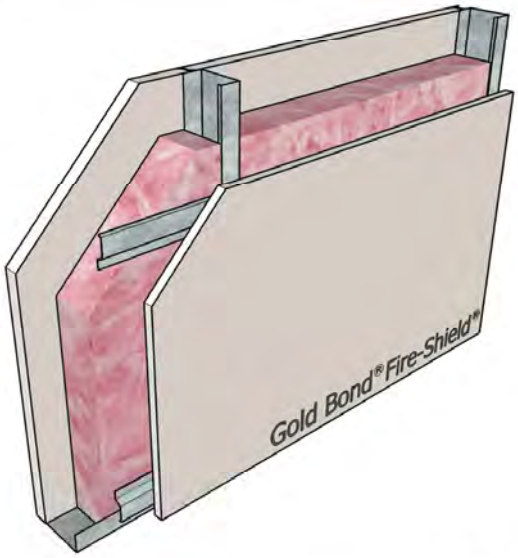


STC-47 **NGC 2015044**

Framing:	4" steel CH studs, 25 gauge, 24" o.c.
Insulation:	3" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 97



STC-51 **NGC 2015047**

Framing:	4" steel CH studs, 25 gauge, 24" o.c.
Insulation:	3" glass fiber
Side 1:	1" Fire-Shield Shaftliner
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1

UL Design: U499, W419 - 1 hour

Wood Stud Partitions with Framing 16" o.c.

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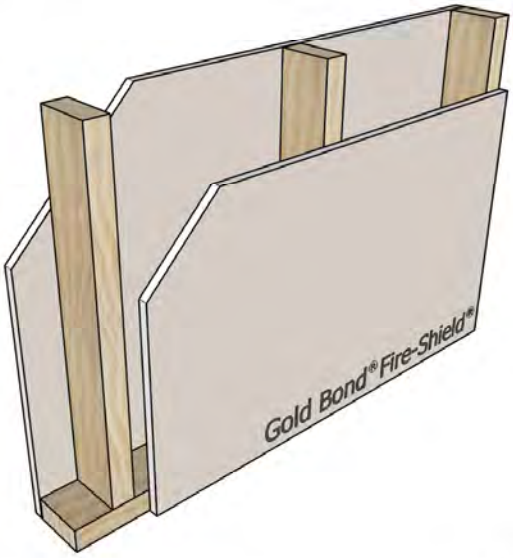
Wood Stud Partitions with Framing 16" o.c.

Figure 98

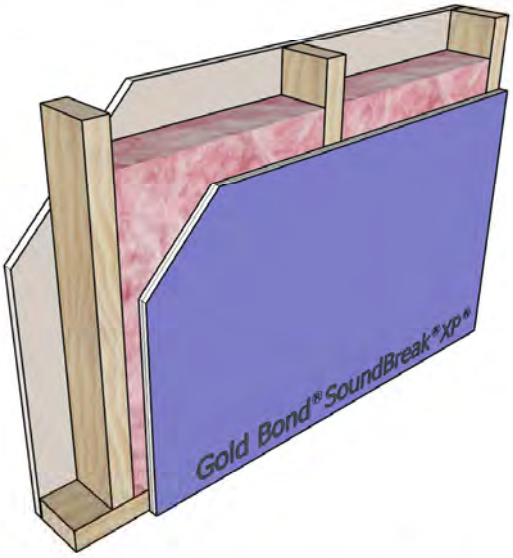


STC-34 **NGC 2161**

Framing: 2x4 wood studs, 16" o.c.
Insulation: None
Side 1: 1/2" Fire-Shield C Gypsum Board
Side 2: 1/2" Fire-Shield C Gypsum Board

UL Design: U317 - 45 minutes

Figure 99

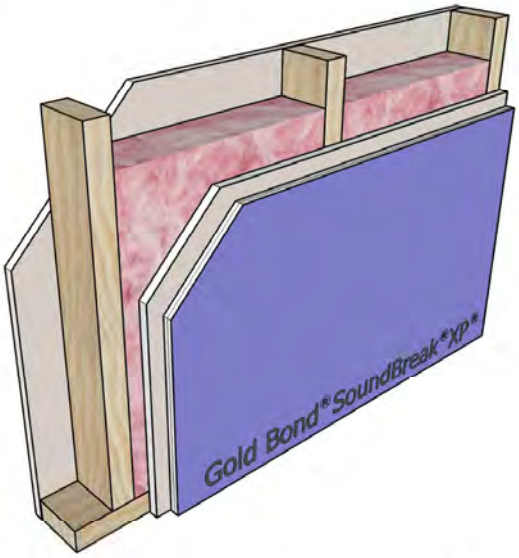


STC-39 **NGC 2009047**

Framing: 2x4 wood studs, 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 1/2" Gold Bond Gypsum Board
Side 2: 1/2" SoundBreak XP Gypsum Board

UL Design: Not Rated

Figure 100

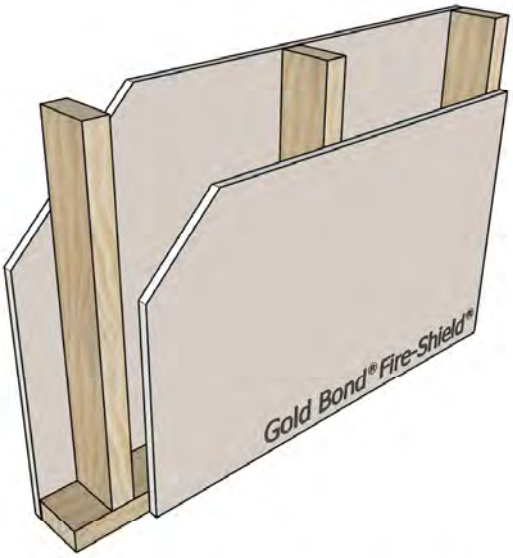


STC-43 **NGC 2009040**

Framing: 2x4 wood studs, 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 1/2" Gold Bond Gypsum Board
Side 2: 1/2" SoundBreak XP Gypsum Board on 1/2" Gold Bond Gypsum Board

UL Design: Not Rated

Figure 101



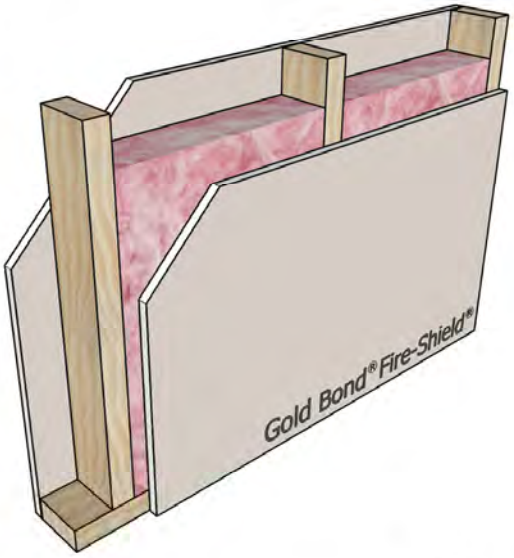
STC-35 **NGC 2403**

Framing: 2x4 wood studs, 16" o.c.
Insulation: None
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U305 - 1 hour

Wood Stud Partitions with Framing 16" o.c.

Figure 102

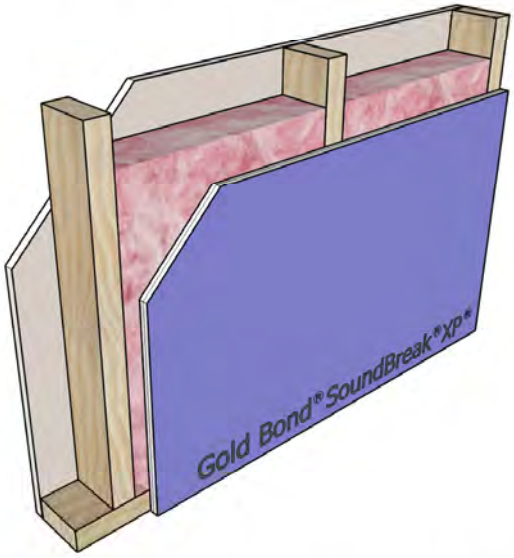


STC-36 **NGC 2008029**

Framing:	2x4 wood studs, 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: U305 - 1 hour

Figure 103

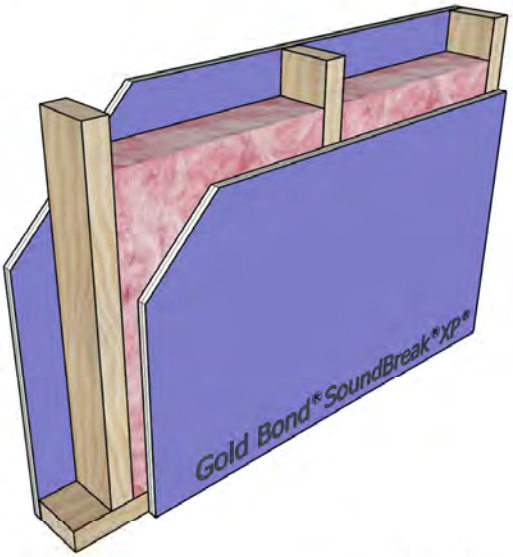


STC-42 **NGC 2009020**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board

UL Design: U305 - 1 hour

Figure 104

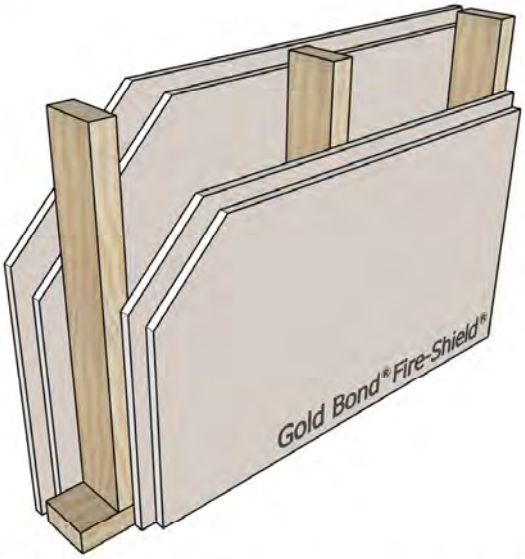


STC-45 **NGC 2009019**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board

UL Design: U305 - 1 hour

Figure 105



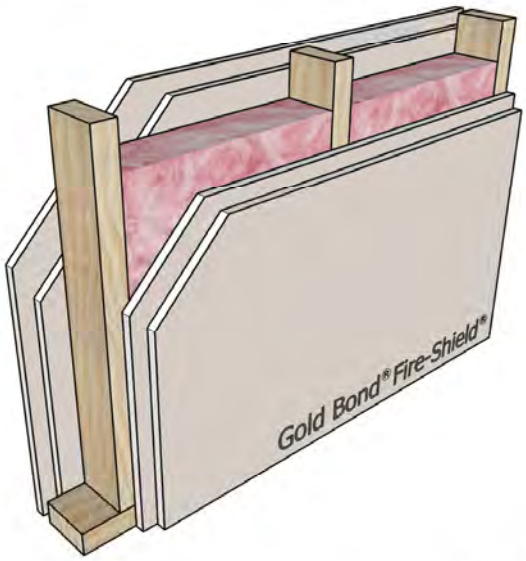
STC-40 **NGC 2363**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	None
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board

UL Design: U301 - 2 hour

Wood Stud Partitions with Framing 16" o.c.

Figure 106

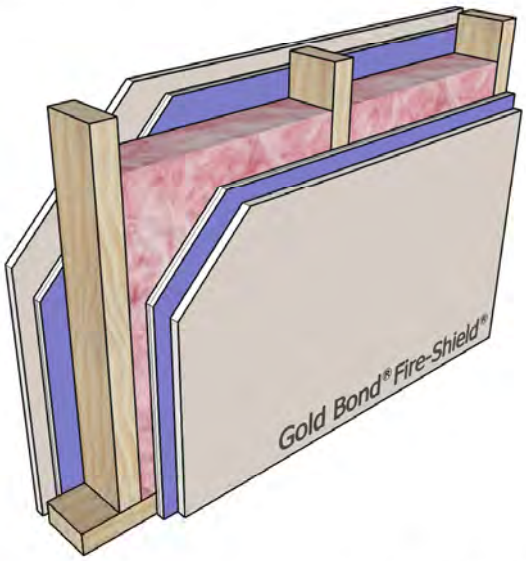


STC-41 **NGC 2364**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board

UL Design: U301 - 2 hour

Figure 107

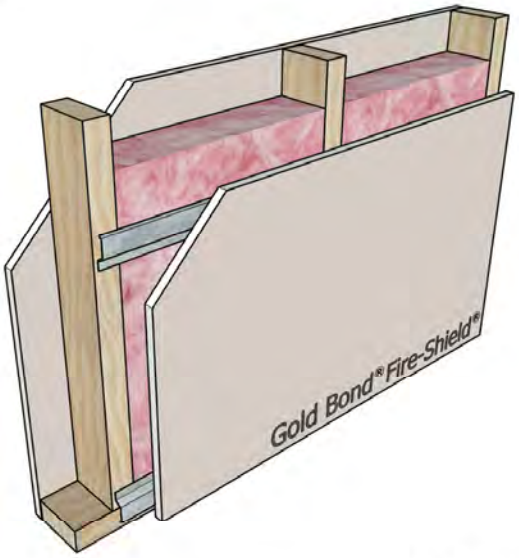


STC-45 **NGC 2009017**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield on 5/8" SoundBreak XP
Side 2:	5/8" Fire-Shield on 5/8" SoundBreak XP

UL Design: U301 - 2 hour

Figure 108

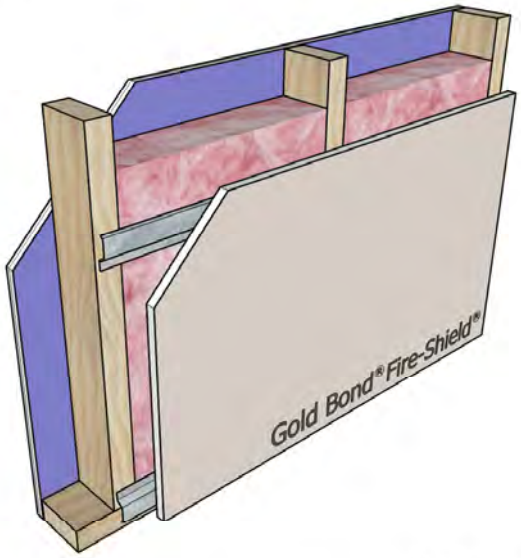


STC-51 **NGC 2011071**

Framing:	2x4 wood studs, 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: U305 - 1 hour

Figure 109



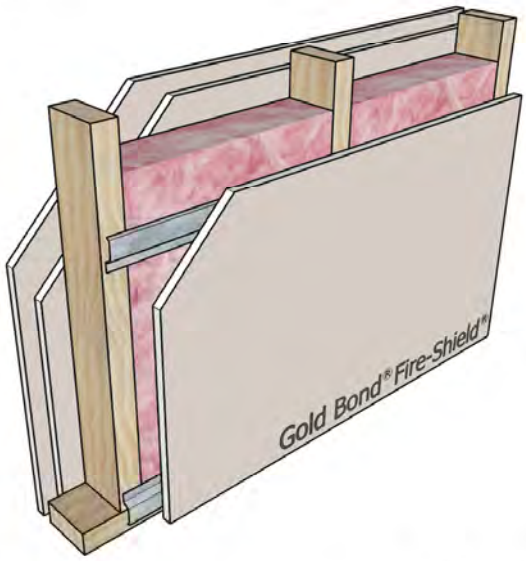
STC-54 **NGC 2011066**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1

UL Design: U305 - 1 hour

Wood Stud Partitions with Framing 16" o.c.

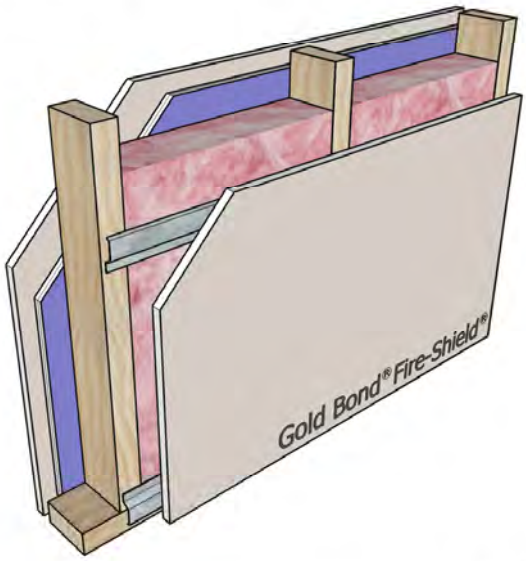
Figure 110



STC-55 **NGC 2011070**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" fiber glass
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	U305 - 1 hour

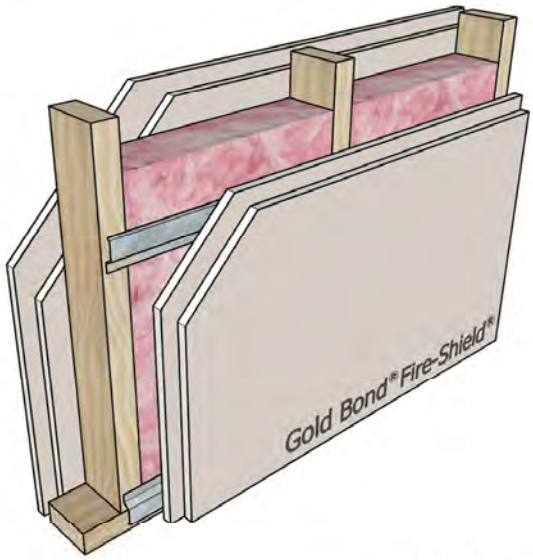
Figure 111



STC-58 **NGC 2011067**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	U305 - 1 hour

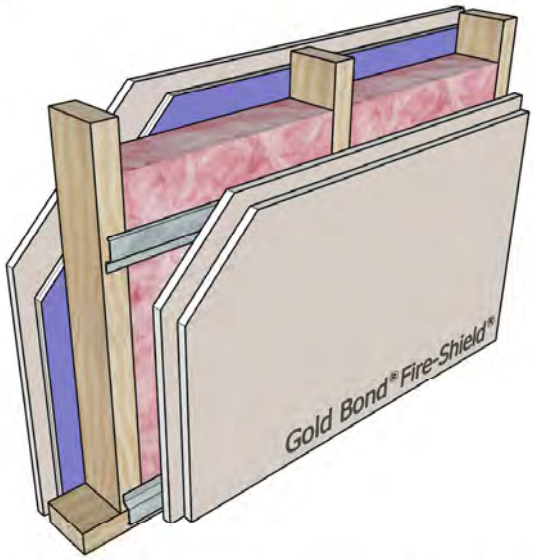
Figure 112



STC-58 **NGC 2011069**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	U301 - 2 hours

Figure 113

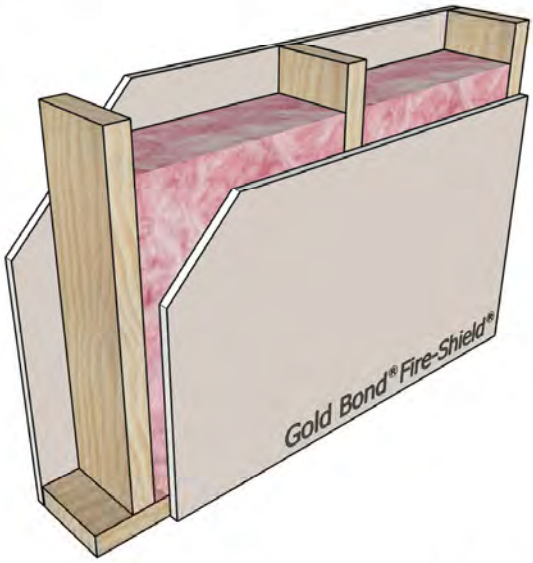


STC-61 **NGC 2011068**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board on RC-1
UL Design:	U301 - 2 hours

Wood Stud Partitions with Framing 16" o.c.

Figure 114

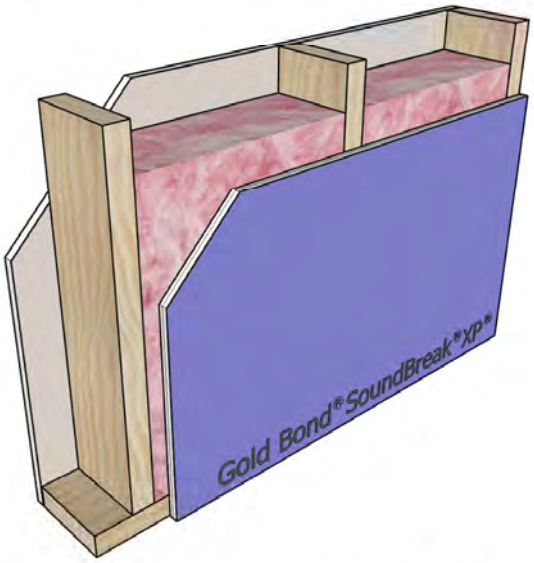


STC-38 **NGC 2008032**

Framing:	2x6 wood studs, 16" o.c.
Insulation:	5-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board

UL Design: U305 - 1 hour

Figure 115

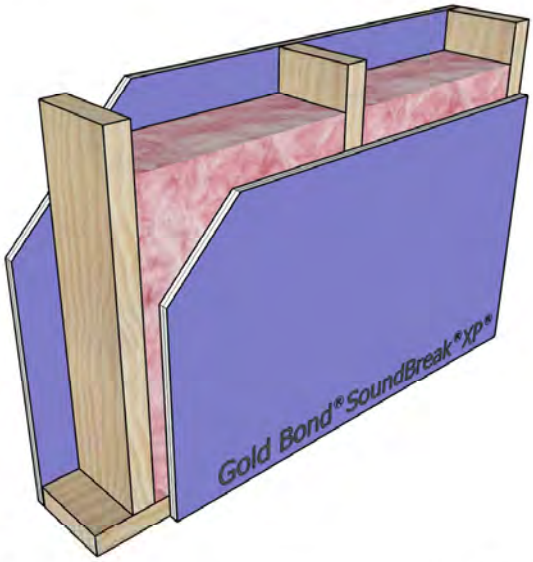


STC-42 **NGC 2009008**

Framing:	2x6 wood studs, 16" o.c.
Insulation:	5-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board

UL Design: U305 - 1 hour

Figure 116

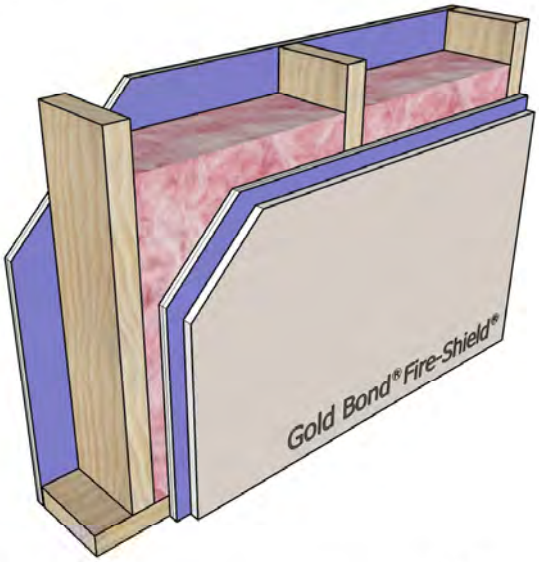


STC-44 **NGC 2009012**

Framing:	2x6 wood studs, 16" o.c.
Insulation:	5-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board

UL Design: U305 - 1 hour

Figure 117



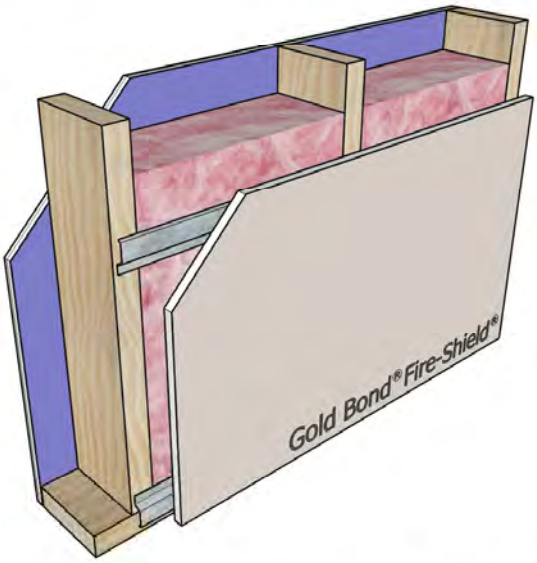
STC-46 **NGC 2009010**

Framing:	2x6 wood studs, 16" o.c.
Insulation:	5-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board

UL Design: U305 - 1 hour

Wood Stud Partitions with Framing 16" o.c.

Figure 118

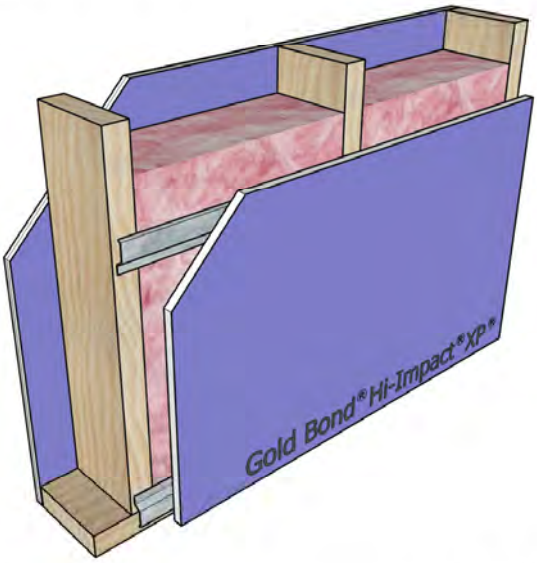


STC-57 **NGC 2010081**

Framing:	2x6 wood studs, 16" o.c.
Insulation:	5-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on RC-1

UL Design: U305 - 1 hour

Figure 119



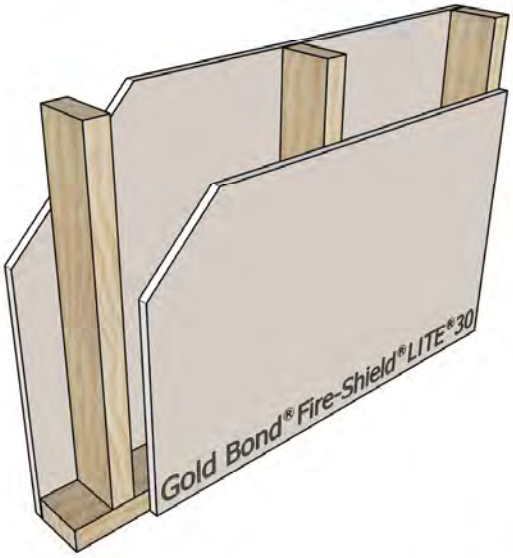
STC-58 **NGC 2010080**

Framing:	2x6 wood studs, 16" o.c.
Insulation:	5-1/2" glass fiber
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" Hi-Impact XP Gypsum Board on RC-1

UL Design: U305 - 1 hour

Wood Stud Partitions with Framing 16" o.c.

Figure 120

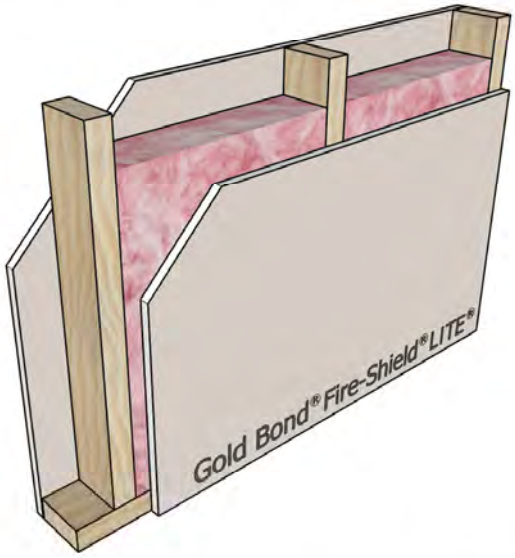


STC-33 **NGC 2014046**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	None
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 121

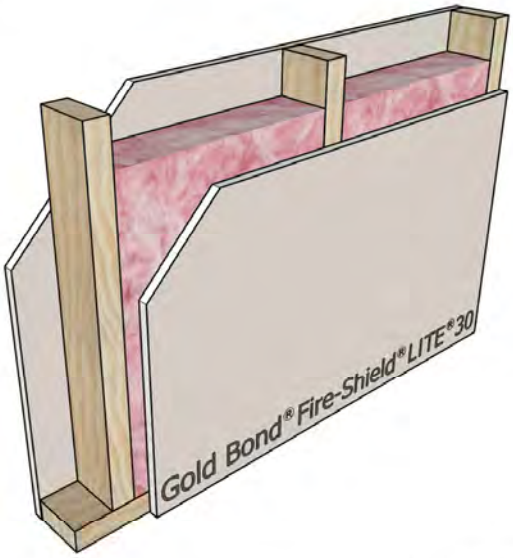


STC-35 **NGC 2014041**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3 1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE Gypsum Board
Side 2:	5/8" Fire-Shield LITE Gypsum Board

UL Design: U305 - 1 hour

Figure 122

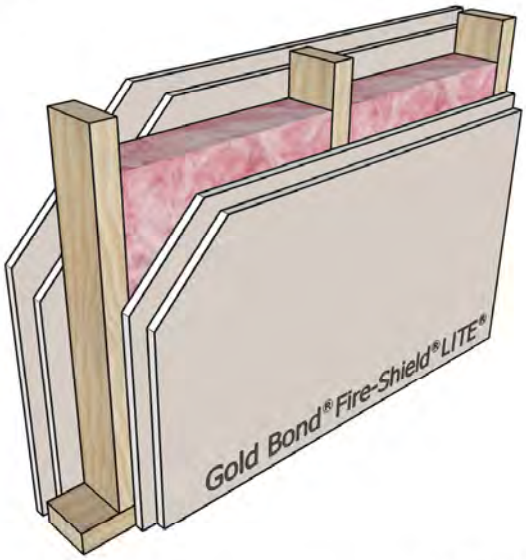


STC-34 **NGC 2014045**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 123



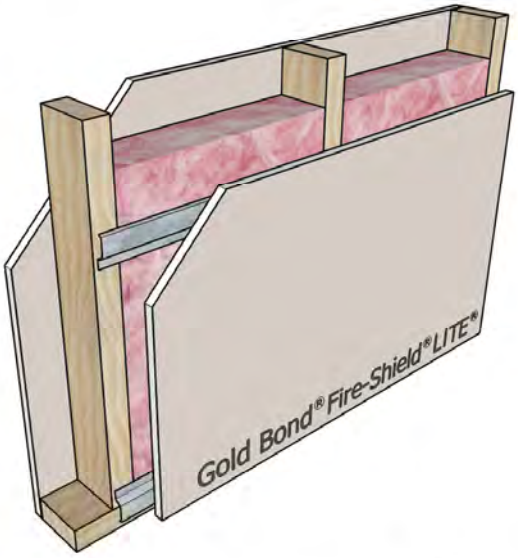
STC-38 **NGC 2014042**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield LITE Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield LITE Gypsum Board

UL Design: U301 - 2 hour

Wood Stud Partitions with Framing 16" o.c.

Figure 124

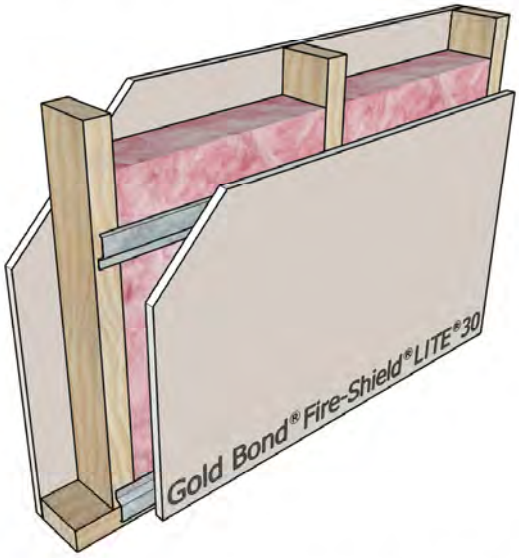


STC-48 **NGC 2014043**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3 1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE Gypsum Board
Side 2:	5/8" Fire-Shield LITE Gypsum Board on RC-1

UL Design: U305 - 1 hour

Figure 125



STC-45 **NGC 2014044**

Framing:	2x4 wood studs, 16" o.c.
Insulation:	3 1/2" glass fiber
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board on RC-1

UL Design: W411 - 1/2 hour

Wood Stud Partitions with Framing 24" o.c.

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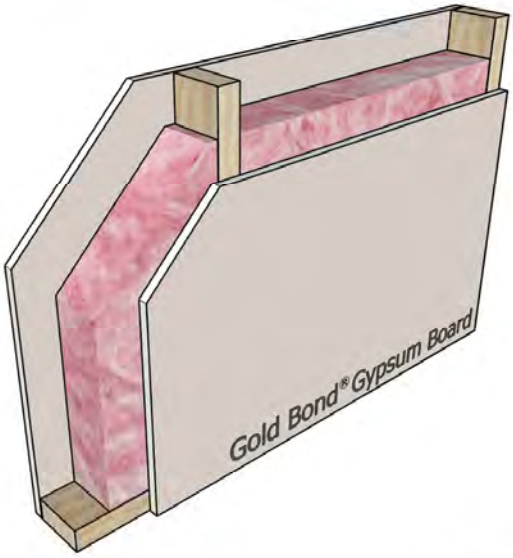
Wood Stud Partitions with Framing 24" o.c.

Figure 126

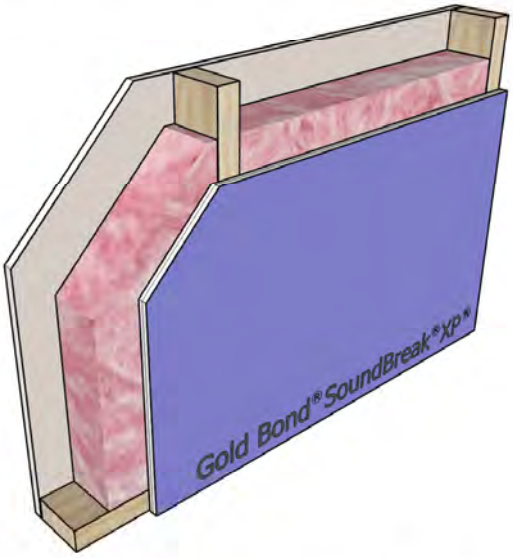


STC-42 **NGC 2012065**

Framing: 2x4 wood studs, 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 1/2" Gold Bond Gypsum Board
Side 2: 1/2" Gold Bond Gypsum Board

UL Design: Not Rated

Figure 127

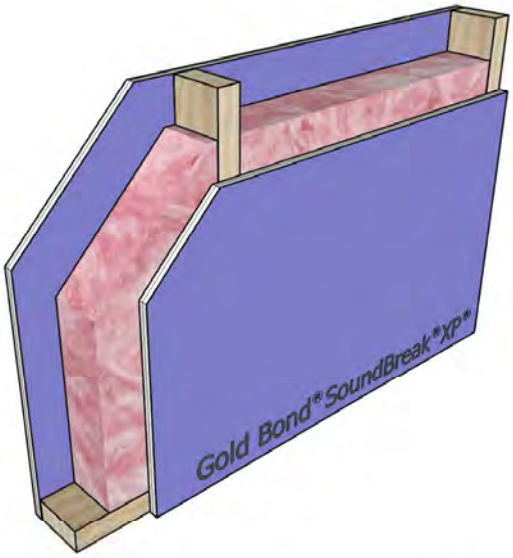


STC-49 **NGC 2009027**

Framing: 2x4 wood studs, 24" o.c.
Insulation: 3 1/2" glass fiber
Side 1: 1/2" Gold Bond Gypsum Board
Side 2: 1/2" SoundBreak XP Gypsum Board

UL Design: Not Rated

Figure 128

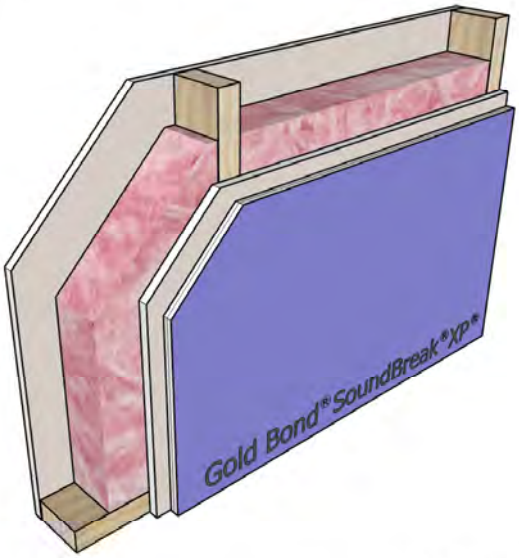


STC-51 **NGC 2009029**

Framing: 2x4 wood studs, 24" o.c.
Insulation: 3 1/2" glass fiber
Side 1: 1/2" SoundBreak XP Gypsum Board
Side 2: 1/2" SoundBreak XP Gypsum Board

UL Design: Not Rated

Figure 129



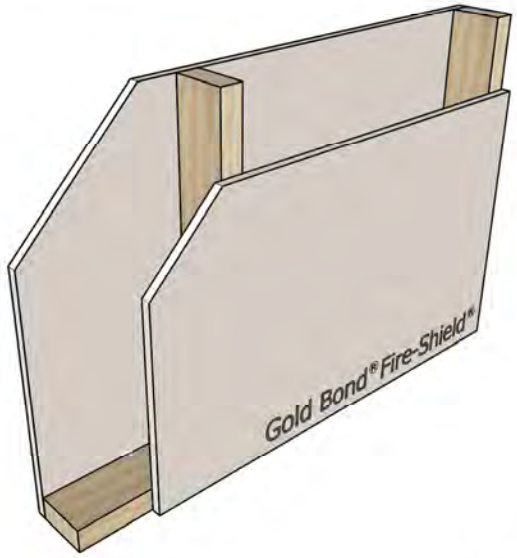
STC-51 **NGC 2009028**

Framing: 2x4 wood studs, 24" o.c.
Insulation: 3-1/2" fiber glass
Side 1: 1/2" Gold Bond Gypsum Board
Side 2: 1/2" SoundBreak XP Gypsum Board on 1/2" Gold Bond Gypsum Board

UL Design: Not Rated

Wood Stud Partitions with Framing 24" o.c.

Figure 130

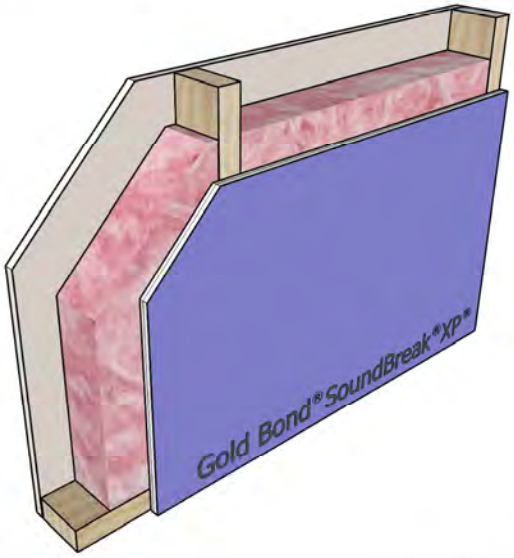


STC-38 **NGC 2404**

Framing: 2x4 wood studs, 24" o.c.
Insulation: None
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U309 - 1 hour

Figure 131

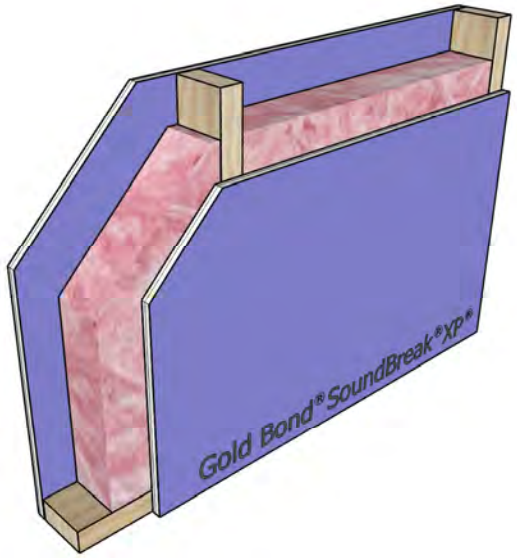


STC-50 **NGC 2009015**

Framing: 2x4 wood studs, 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" SoundBreak XP Gypsum Board

UL Design: U309 - 1 hour

Figure 132

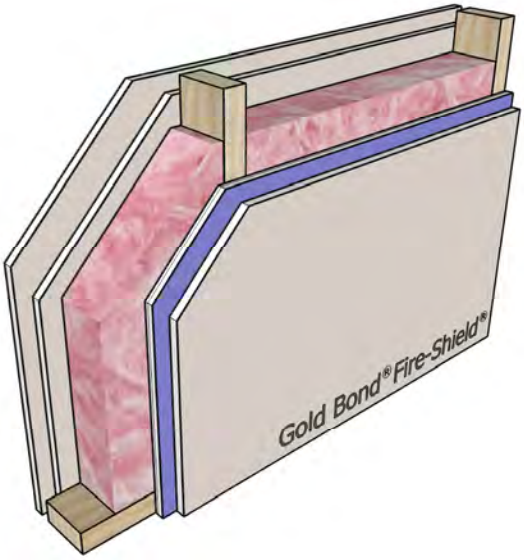


STC-53 **RAL-TL07-145**

Framing: 2x4 wood studs, 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" SoundBreak XP Gypsum Board
Side 2: 5/8" SoundBreak XP Gypsum Board

UL Design: U309 - 1 hour

Figure 133

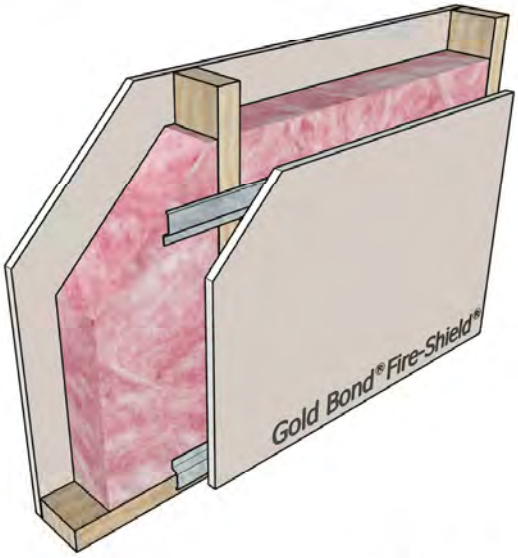


STC-54 **NGC 2009016**

Framing: 2x4 wood studs, 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 2 layers 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
GA File: WP 4135 - 2 hour

Wood Stud Partitions with Framing 24" o.c.

Figure 134

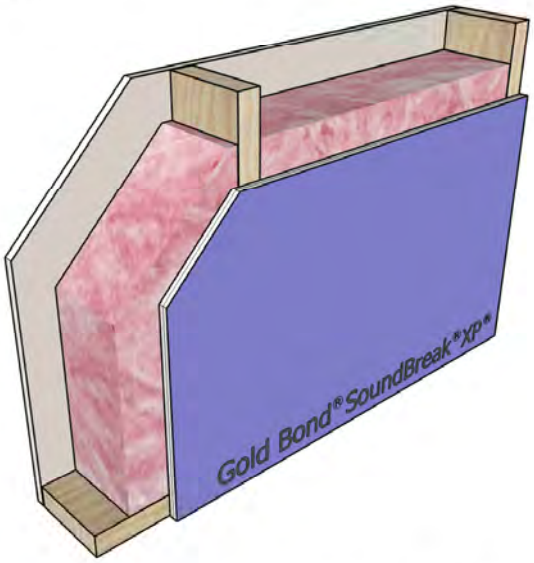


STC-50 **NRCC TL-93-196**

Framing:	2x4 wood studs, 24" o.c.
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield C Gypsum Board
Side 2:	5/8" Fire-Shield C Gypsum Board on RC-1

UL Design: U309 - 1 hour

Figure 135

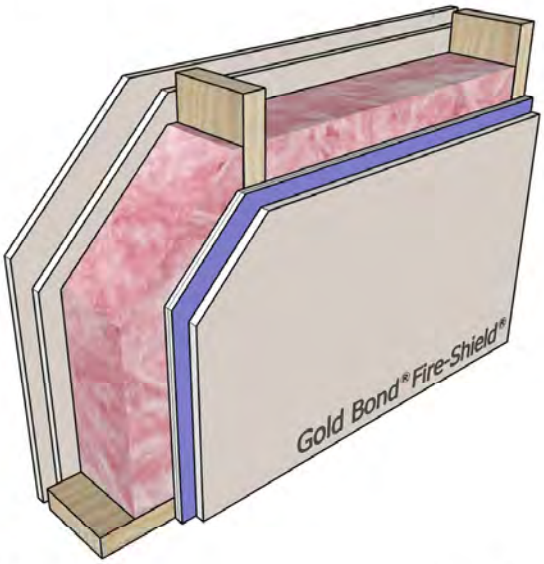


STC-50 **NGC 2009013**

Framing:	2x6 wood studs, 24" o.c.
Insulation:	5-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board

UL Design: U309 - 1 hour

Figure 136



STC-53 **NGC 2009014**

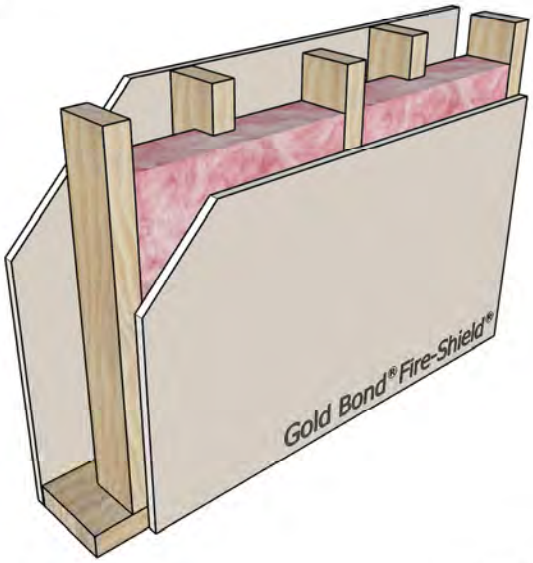
Framing:	2x6 wood studs, 24" o.c.
Insulation:	5-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Gypsum Board
GA File:	WP 4135 - 2 hour

Wood Stud Chase Walls

The soundBook™

Wood Stud Chase Walls

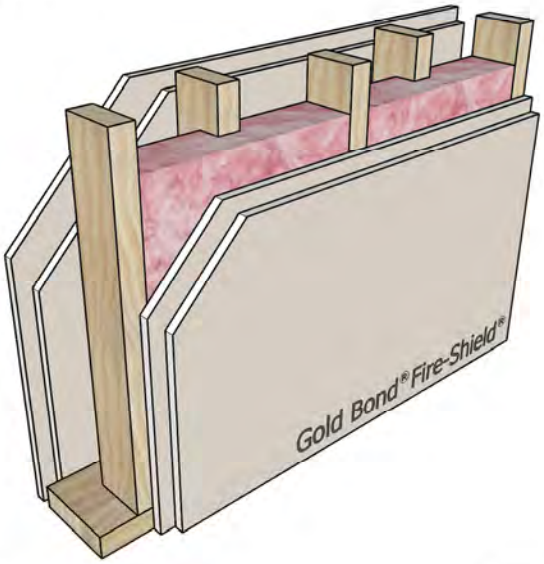
Figure 137



STC-45 **NGC 2375**

Framing:	2x4 wood studs, 16" o.c., staggered on 2x6 wood plate
Insulation:	3-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" Fire-Shield Gypsum Board
GA File:	WP 5515 - 1 hour

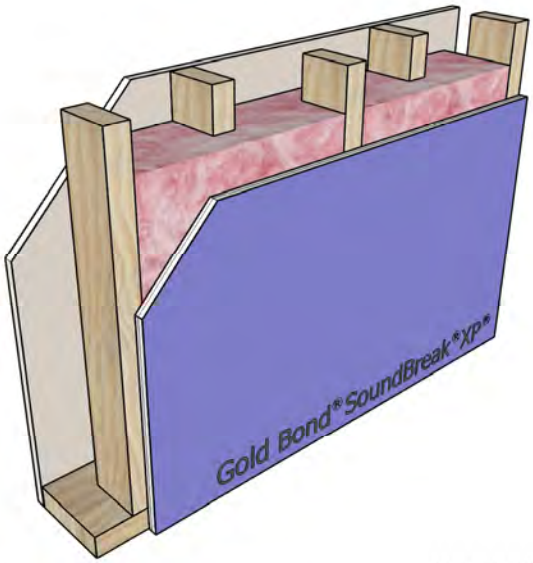
Figure 138



STC-53 **NGC 2376**

Framing:	2x4 wood studs, 16" o.c., staggered on 2x6 wood plate
Insulation:	3-1/2" glass fiber
Side 1:	2 layers 5/8" Fire-Shield Gypsum Board
Side 2:	2 layers 5/8" Fire-Shield Gypsum Board
GA File:	WP 5530 - 2 hour

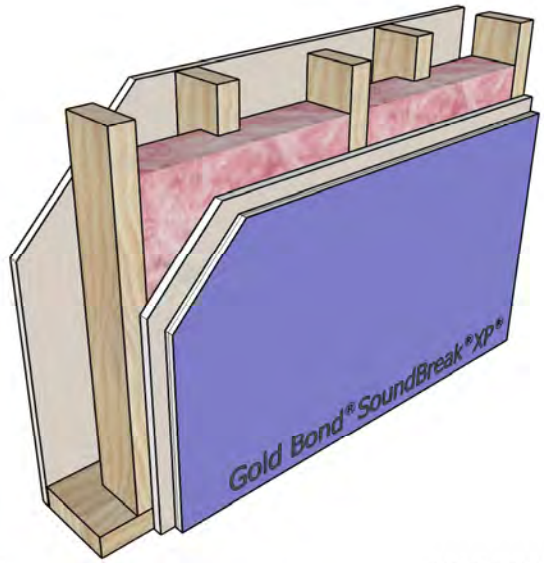
Figure 139



STC-53 **NGC 2011003**

Framing:	2x4 wood studs, 16" o.c., staggered on 2x6 wood plate
Insulation:	5-1/2" glass fiber
Side 1:	5/8" Fire-Shield Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board
GA File:	WP 5515 - 1 hour

Figure 140

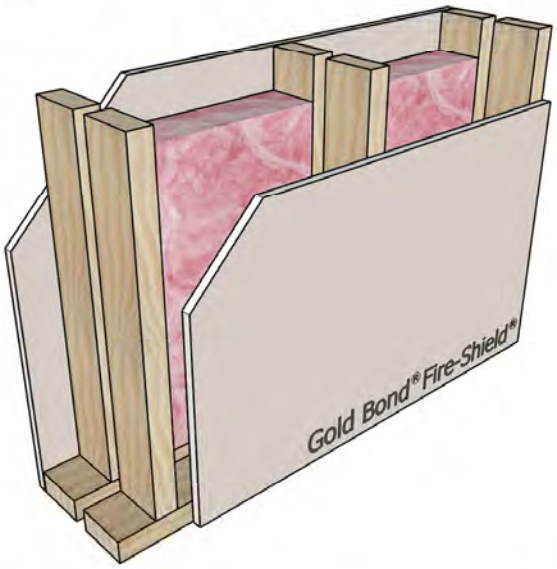


STC-53 **NGC 2009045**

Framing:	2x4 wood studs, 16" o.c., staggered on 2x6 wood plate
Insulation:	3-1/2" glass fiber
Side 1:	1/2" Gold Bond Gypsum Board
Side 2:	1/2" SoundBreak XP Gypsum Board on 1/2" Gold Bond Gypsum Board
UL Design:	Not Rated

Wood Stud Chase Walls

Figure 141

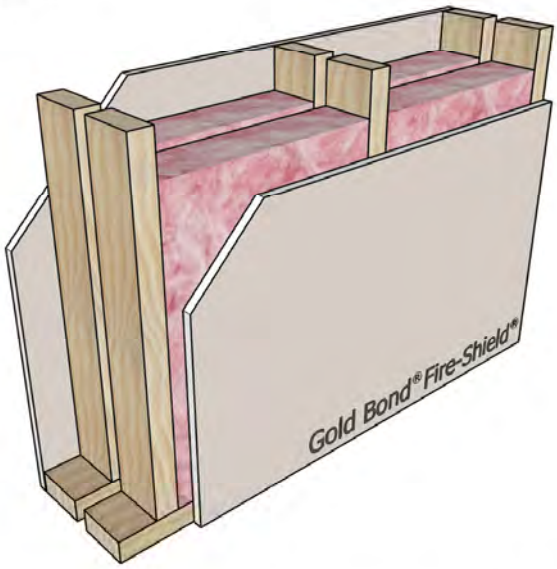


STC-51 **NGC 2191**

Framing: Double row 2x4 wood studs, 16" o.c.
Insulation: 3-1/2" glass fiber one side
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U341 - 1 hour

Figure 142

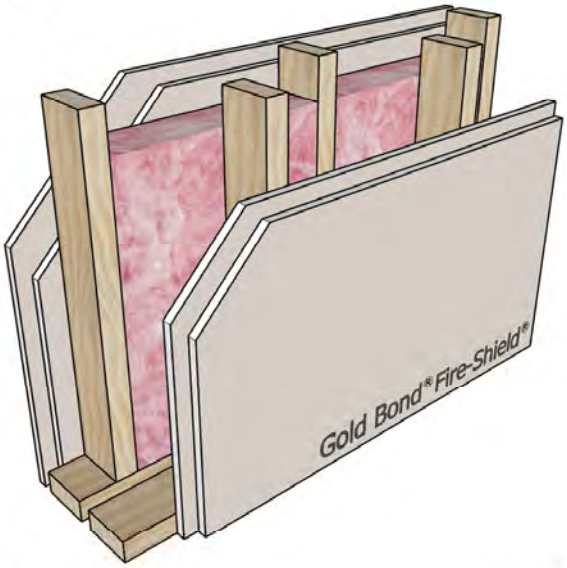


STC-54 **NGC 2198**

Framing: Double row 2x4 wood studs, 16" o.c.
Insulation: 3-1/2" glass fiber both sides
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U341 - 1 hour

Figure 143

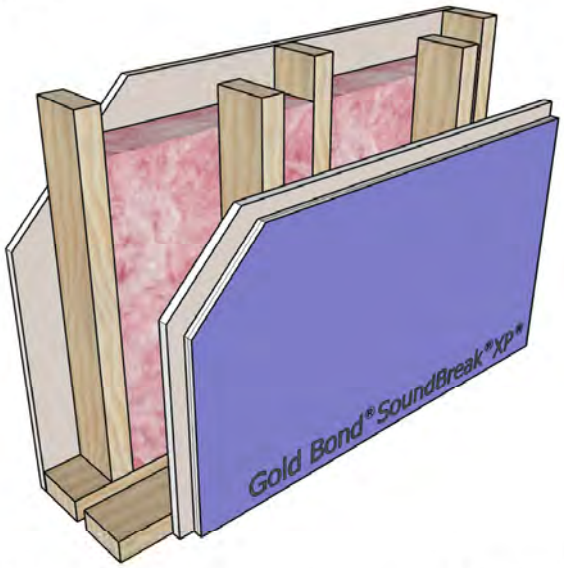


STC-58 **NGC 3056**

Framing: Double row 2x4 wood studs, 16" o.c. staggered
Insulation: 3-1/2" glass fiber
Side 1: 2 layers 5/8" Fire-Shield Gypsum Board
Side 2: 2 layers 5/8" Fire-Shield Gypsum Board

UL Design: WP 3820 - 2 hour

Figure 144



STC-64 **RAL TL07-147**

Framing: Double row 2x4 wood studs, 16" o.c. staggered
Insulation: 3-1/2" glass fiber one side
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" SoundBreak XP Gypsum Board on 5/8" Fire-Shield Gypsum Board

UL Design: U341 - 1 hour

Area Separation Fire Walls

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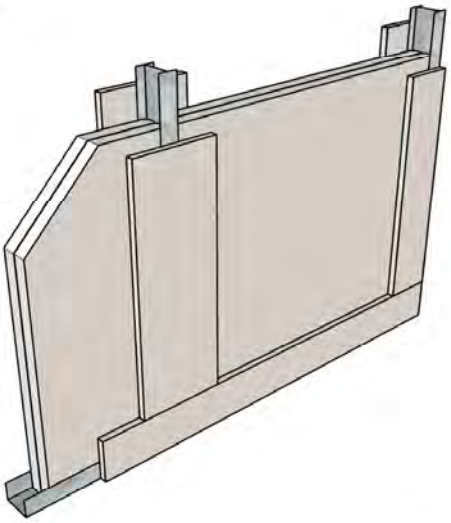
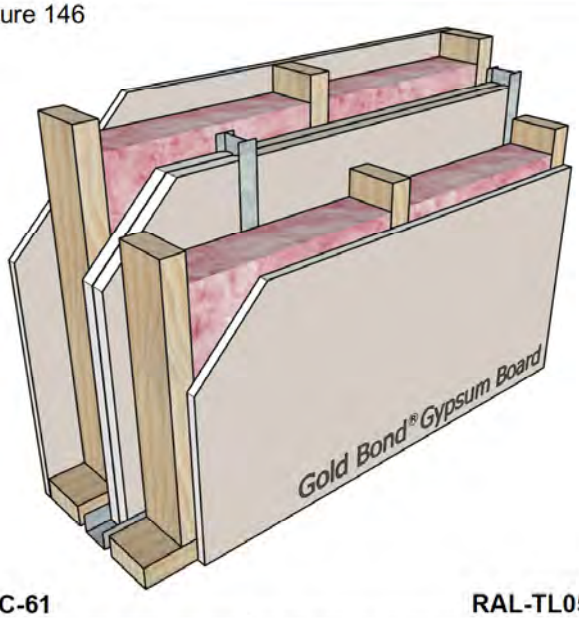
Figure 145



STC-35 **NGC 2827**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs
Framing:	None
Insulation:	None
Side 1:	6" wide 1/2" Fire-Shield C gypsum board battens
Side 2:	6" wide 1/2" Fire-Shield C gypsum board battens
UL Design:	U347 - 2 hour

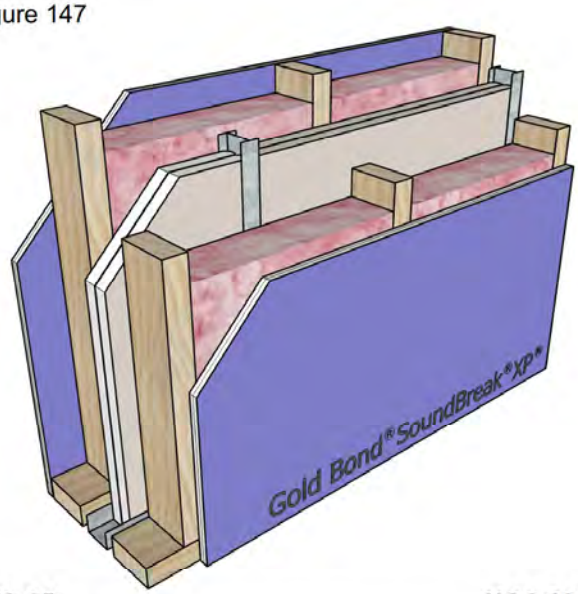
Figure 146



STC-61 **RAL-TL05-199**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 16" o.c. each side
Insulation:	3-1/2" glass fiber each side
Side 1:	1/2" Gold Bond Gypsum Board
Side 2:	1/2" Gold Bond Gypsum Board
UL Design:	U347 - 2 hour

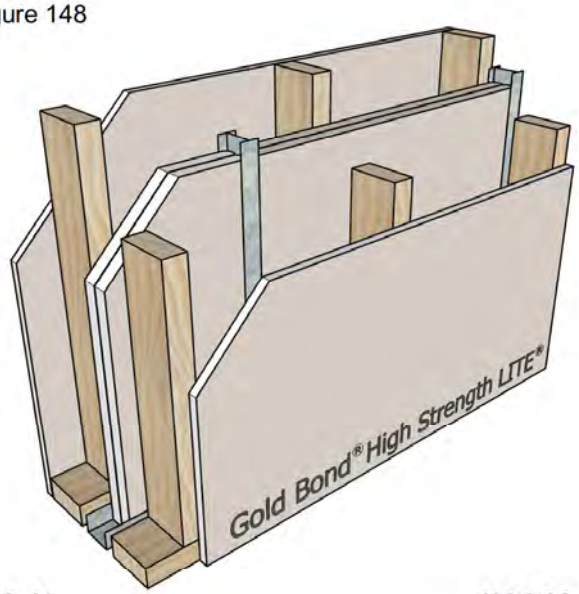
Figure 147



STC-65 **NGC 2012081**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 16" o.c. each side
Insulation:	3-1/2" glass fiber each side
Side 1:	1/2" SoundBreak XP Gypsum Board
Side 2:	1/2" SoundBreak XP Gypsum Board
UL Design:	U347 - 2 hour

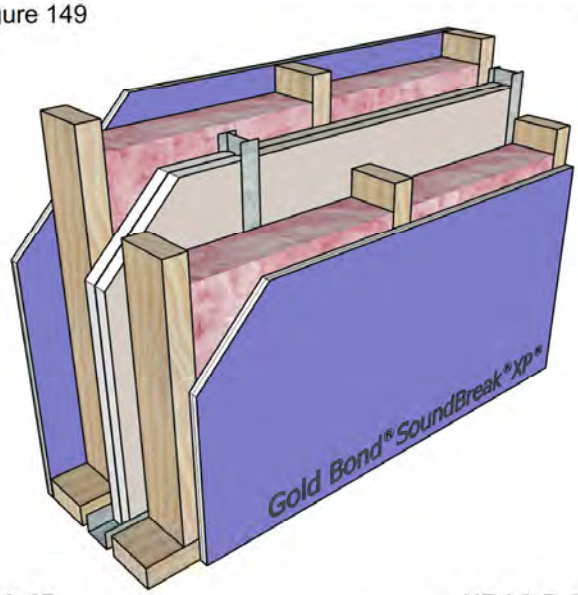
Figure 148



STC-41 **NGC 2012086**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 16" o.c. each side
Insulation:	None
Side 1:	1/2" High Strength LITE Gypsum Board
Side 2:	1/2" High Strength LITE Gypsum Board
UL Design:	U347 - 2 hour

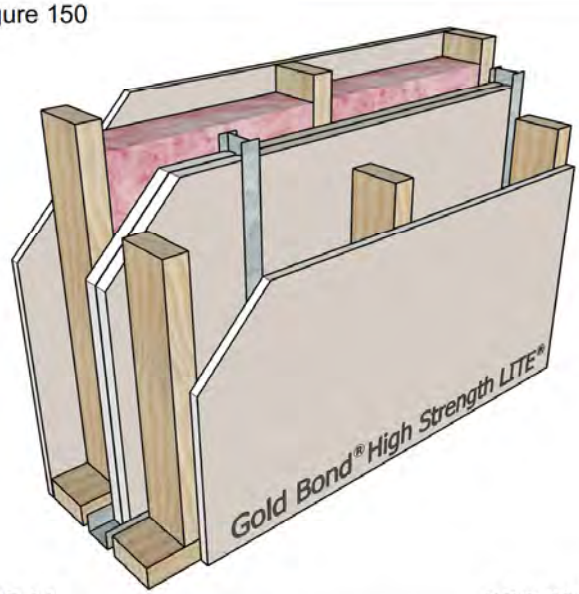
Figure 149



STC-67 **NRCC B-3451.1**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 16" o.c. each side
Insulation:	3-1/2" glass fiber each side
Side 1:	5/8" SoundBreak XP Gypsum Board
Side 2:	5/8" SoundBreak XP Gypsum Board
UL Design:	U347 - 2 hour

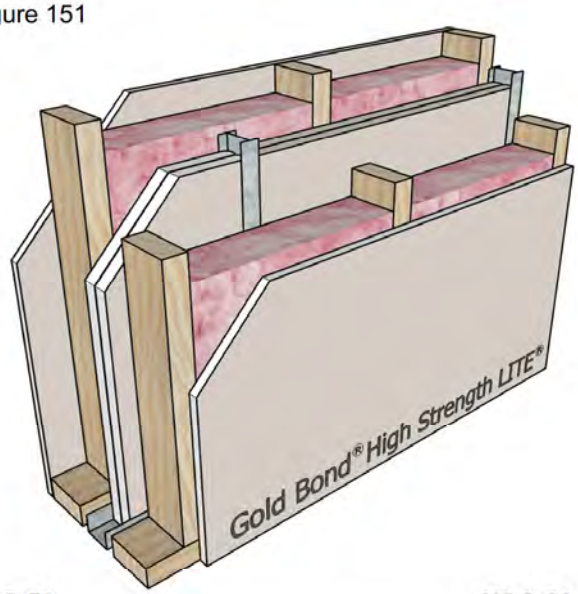
Figure 150



STC-54 **NGC 2012087**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 16" o.c. each side
Insulation:	3-1/2" glass fiber one side
Side 1:	1/2" High Strength LITE Gypsum Board
Side 2:	1/2" High Strength LITE Gypsum Board
UL Design:	U347 - 2 hour

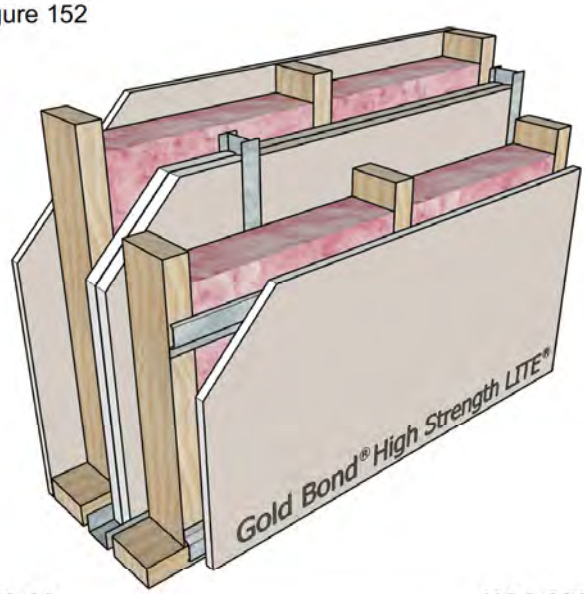
Figure 151



STC-59 **NGC 2012078**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 16" o.c. each side
Insulation:	3-1/2" glass fiber each side
Side 1:	1/2" High Strength LITE Gypsum Board
Side 2:	1/2" High Strength LITE Gypsum Board
UL Design:	U347 - 2 hour

Figure 152

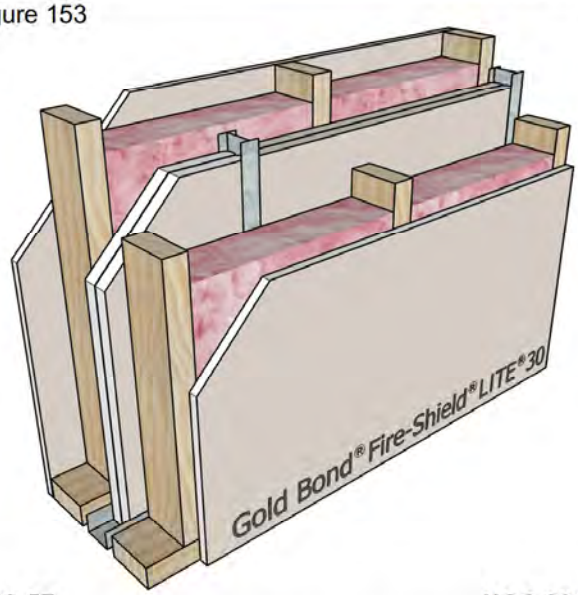


STC-62 **NGC 2012079**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 16" o.c. each side
Insulation:	None
Side 1:	1/2" High Strength LITE Gypsum Board
Side 2:	1/2" High Strength LITE Gypsum Board on RC-1
UL Design:	U347 - 2 hour

Area Separation Fire Walls

Figure 153

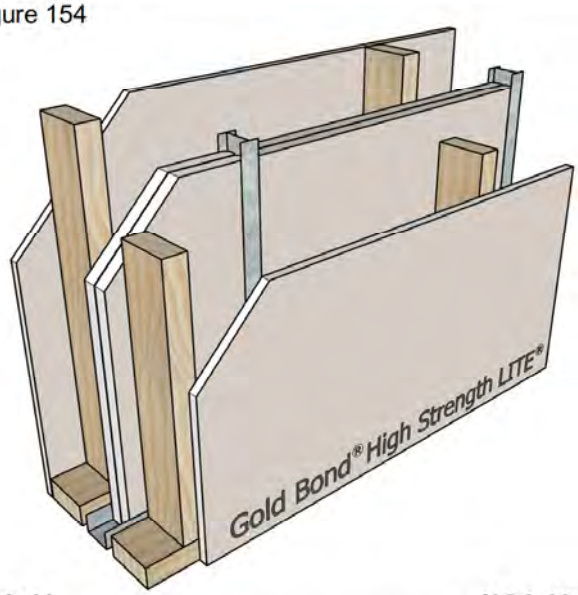


STC-57 **NGC 2012083**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 16" o.c. each side
Insulation:	3-1/2" glass fiber each side
Side 1:	5/8" Fire-Shield LITE 30 Gypsum Board
Side 2:	5/8" Fire-Shield LITE 30 Gypsum Board
UL Design:	U347 - 2 hour

Figure 150

Figure 154



STC-44 **NGC 2012088**

Fire Wall:	2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 3/4" air space
Framing:	2x4 wood studs, 24" o.c. each side
Insulation:	None
Side 1:	1/2" High Strength LITE Gypsum Board
Side 2:	1/2" High Strength LITE Gypsum Board
UL Design:	U347 - 2 hour

Floor-Ceiling Assemblies

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Figure 155

STC-37 **NGC 4024**

Framing:	2x10 wood joists, 16" o.c.
Insulation:	None
Floor:	19/32" wood structural panels on 15/32" plywood or 7/16" OSB
Ceiling:	1/2" Fire-Shield C Gypsum Board
UL Design:	L522 - 1 hour

IIC - 32	Unfinished	NGC 5032
IIC - 66	With Carpet and Pad	NGC 5033

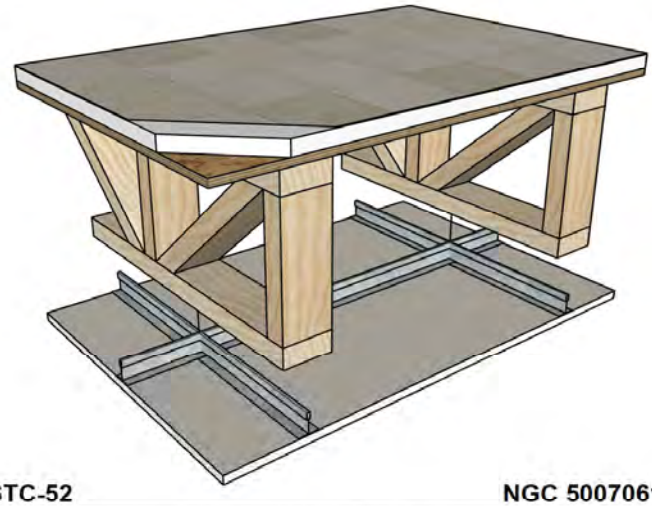
Figure 156

STC-45 **NGC 4107**

Framing:	2x10 wood joists, 16" o.c.
Insulation:	None
Floor:	19/32" wood structural panels on 15/32" plywood or 7/16" OSB
Ceiling:	1/2" Fire-Shield C Gypsum Board on RC-1
UL Design:	L502 - 1 hour

IIC - 39	Unfinished	NGC 5161
IIC - 63	With Carpet and Pad	NGC 5165

Figure 157

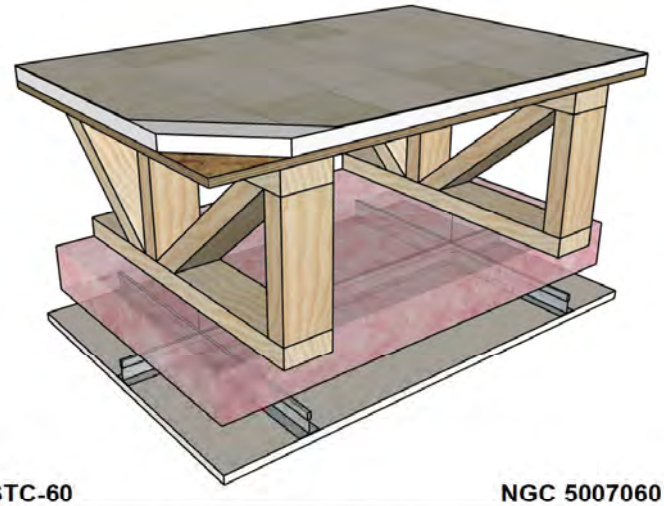


STC-52 **NGC 5007061**

Framing:	18" wood trusses, 24" o.c.
Insulation:	None
Floor:	1" gypsum underlayment on 3/4" OSB
Ceiling:	5/8" Fire-Shield C Gypsum Board on suspended ceiling grid system
UL Design:	L558 - 1 hour

IIC-51	With sheet vinyl flooring	NGC 7007119

Figure 158

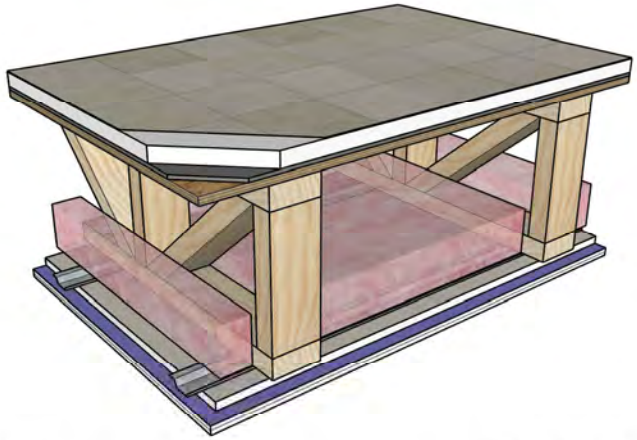


STC-60 **NGC 5007060**

Framing:	18" wood trusses, 24" o.c.
Insulation:	3-1/2" glass fiber
Floor:	1" gypsum underlayment on 3/4" OSB
Ceiling:	5/8" Fire-Shield C Gypsum Board on suspended ceiling grid system
UL Design:	L558 - 1 hour

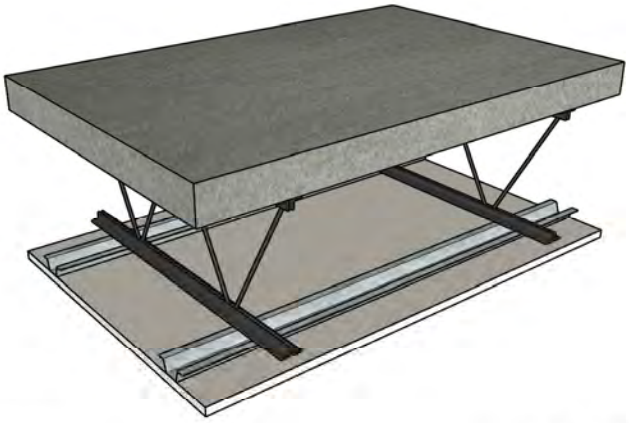
IIC-60	With sheet vinyl flooring	NGC 5007118

Figure 159



STC-58		NGC 5007054
Framing:	18" wood trusses, 24" o.c.	
Insulation:	3-1/2" glass fiber	
Floor:	3/4" gypsum underlayment on 0.18" rubber underlayment on 3/4" OSB	
Ceiling:	5/8" SoundBreak XP Gypsum Board on 5/8" Fire-Shield C Gypsum Board on RC-1	
UL Design:	L558 - 1 hour	
IIC-49	Unfinished	NGC 7007109
IIC-51	With sheet vinyl flooring	NGC 7007110

Figure 160



STC-53		NGC 4075
Framing:	10J2 bar joists, 24" o.c.	
Insulation:	None	
Floor:	2-1/2" concrete on 3/8" rib lath or steel deck	
Ceiling:	1/2" Fire-Shield C Gypsum Board on 7/8" steel furring channel	
UL Design:	G514 - 2 hour	
IIC - 21	Unfinished	NGC 5121
IIC - 67	With Carpet and Pad	NGC 5122

Ceiling Attenuation Class of Gridstone Ceiling Assemblies

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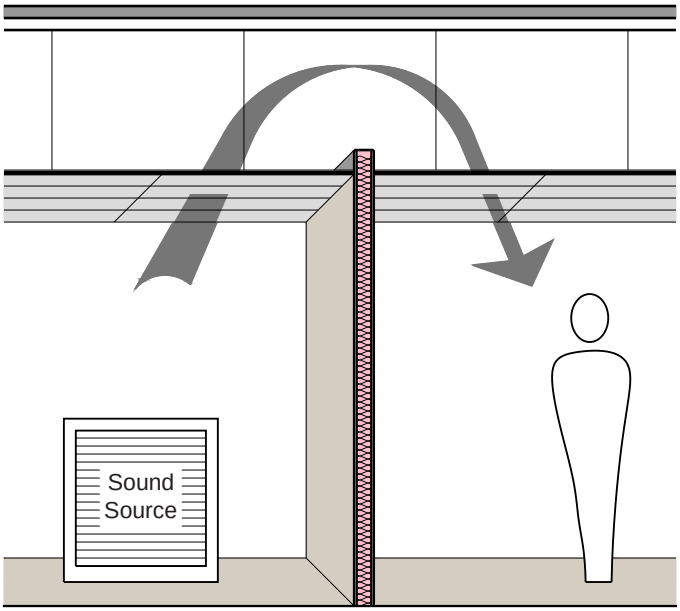
Ceiling Attenuation Class for Gridstone Ceiling Assemblies

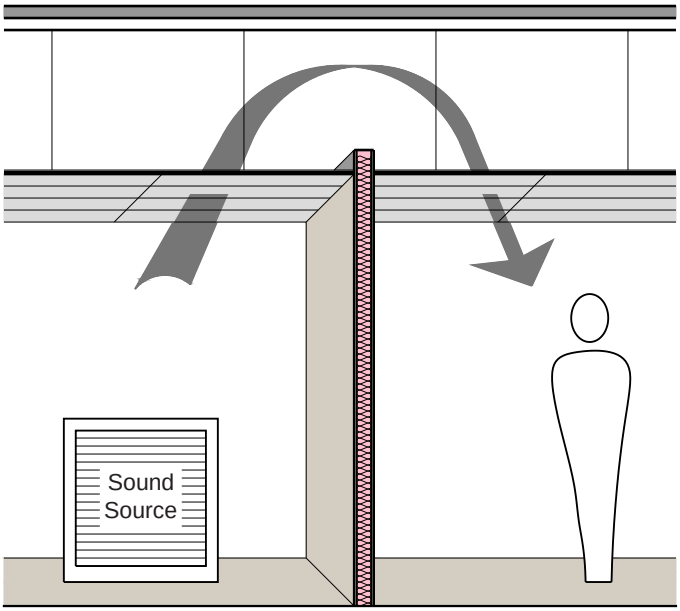
Figure 72



CAC-41 **NGC 6000001**

Ceiling: Suspended Grid with 2' x 4' x 5/16" Gridstone Hi-Strength Ceiling Panels
Insulation: None

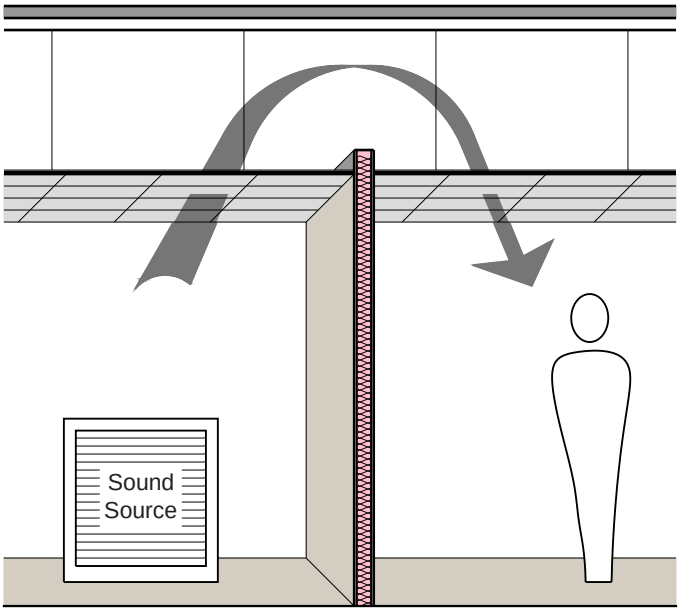
Figure 72



CAC-46 **NGC 6098001**

Ceiling: Suspended Grid with 2' x4' x 1/2" Gridstone Ceiling Panels
Insulation: None

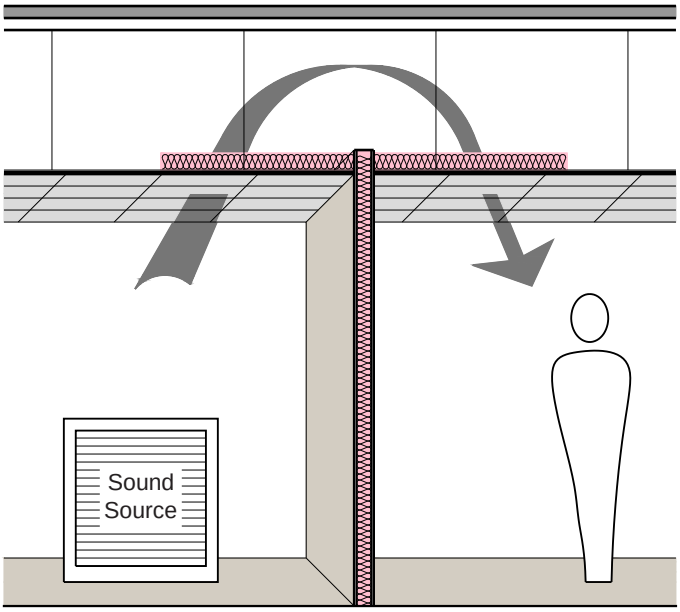
Figure 72



CAC-44 **NGC 6013012**

Ceiling: Suspended Grid with 2' x 2' x 1/2" Gridstone Ceiling Panels
Insulation: None

Figure 72

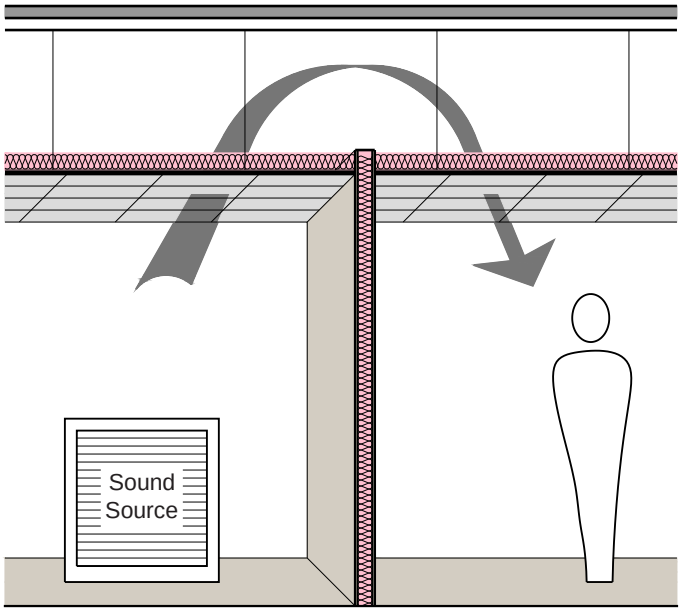


CAC-51 **NGC 6013013**

Ceiling: Suspended Grid with 2' x 2' x 1/2" Gridstone Ceiling Panels
Insulation: 3 1/2" glass fiber 48" on each side of partition

Ceiling Attenuation Class for Gridstone Ceiling Assemblies

Figure 72



CAC-53 **NGC 6013014**

Ceiling:	Suspended Grid with 2' x 2' x 1/2" Gridstone Ceiling Panels
Insulation:	3-1/2" glass fiber full coverage over ceiling

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