

The SoundBookTM



Acoustical Assembly Guide

National
Gypsum®



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.

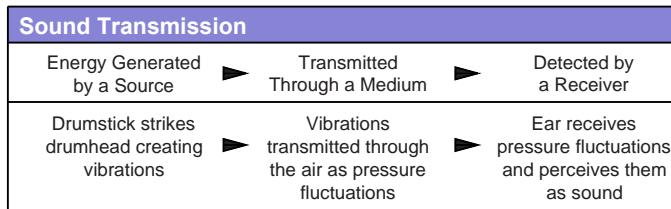
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Acoustical Terms and Concepts

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.



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 **Damping** partition is to decrease the amount of sound transmission dissipate the vibrational through the partition. The energy produced by sound following five variables can waves, reduces the amount of have an impact on the ability energy to pass through the of the partition to retard the partition. sound transmission.

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. For this reason metal studs outperform wood studs, and framing that is 24" o.c. outperforms framing that is 16" o.c.

Acoustical Terms and Concepts

Guidelines for Optimum Performance and Sound Reduction

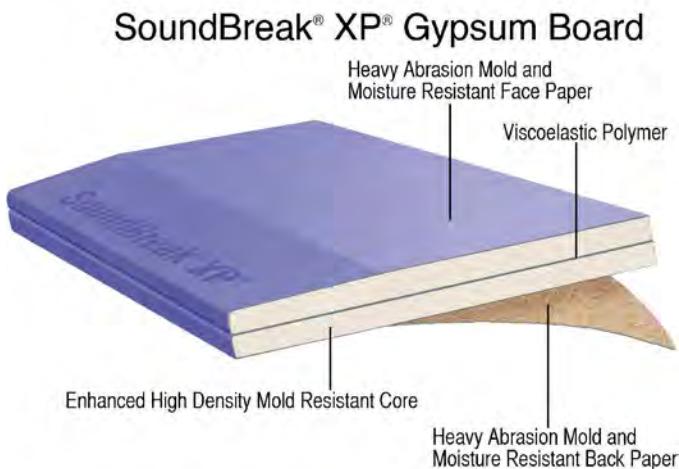
- Stagger gypsum board joints from one side of the partition to the other.
- Allow a 1/4" gap along all wall perimeter edges and completely seal 1/4" gap with acoustical sealant.
- Refrain from wall penetrations when possible.
- Limit necessary wall penetrations to one per stud cavity.
- Seal all penetrations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



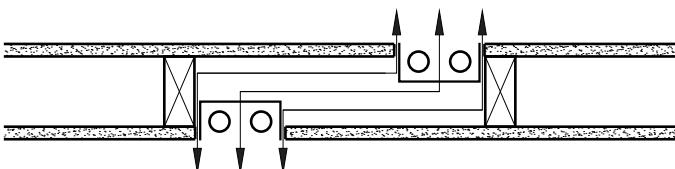
A new approach in noise reduction is represented by a new kind of acoustically enhanced gypsum board introduced by National Gypsum. Gold Bond BRAND SoundBreak XP Gypsum Board incorporates a sound-damping viscoelastic polymer sandwiched between two layers of high-density gypsum board. The polymer absorbs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

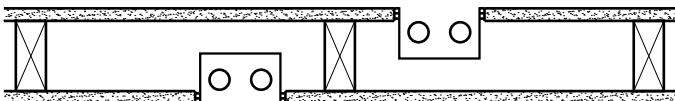
5/8" SoundBreak XP gypsum board features a fire-resistant Type X core and is UL classified. SoundBreak XP resists the growth of mold when tested in accordance with ASTM D3273 with a score of 10, the best possible score. Heavy abrasion resistant paper and a denser core provide greater resistance to surface 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.



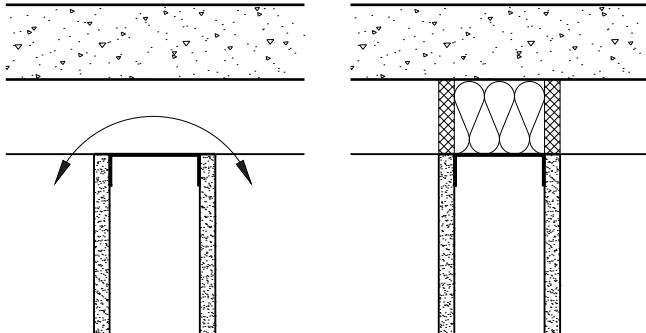
Electrical boxes offset one stud cavity and annular spaces sealed.



Arrows denote flanking paths for sound.



Perimeter of partition sealed.



Arrows denote flanking paths for sound.

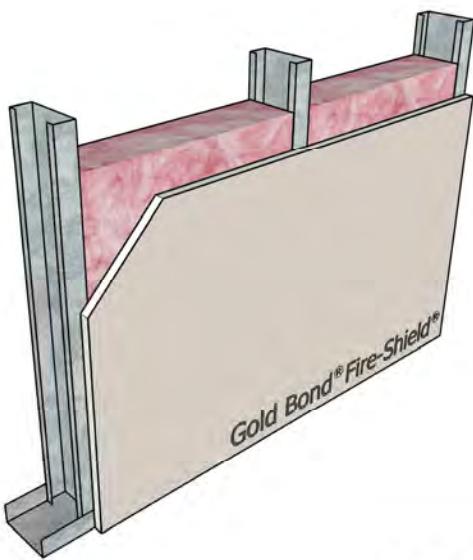
Flutes of metal deck insulated and sealed.

Steel Stud Partitions
with Framing 16"o.c.

The SoundBook™

Steel Stud Partitions with Framing 16" o.c.

Figure 1



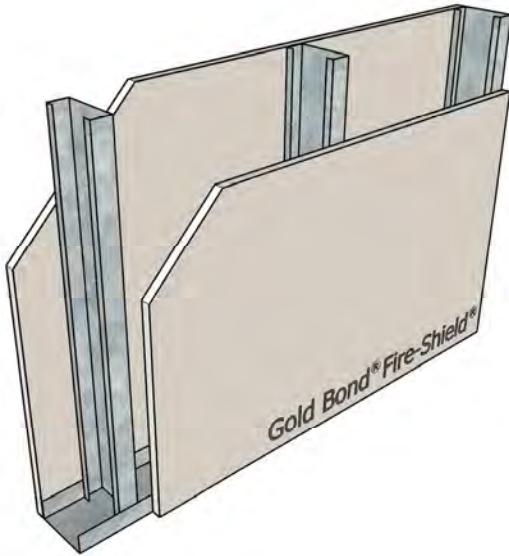
STC-34

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 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 2



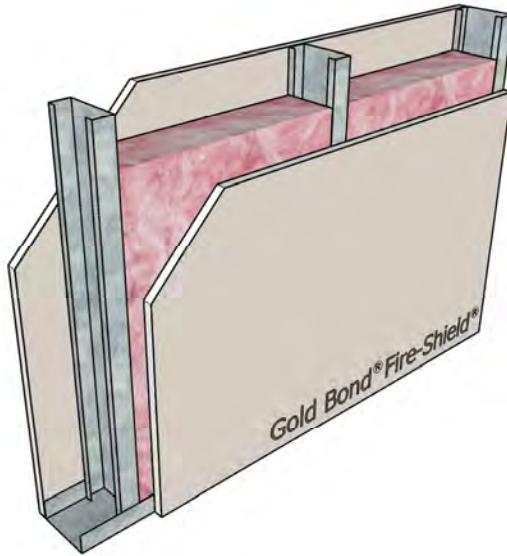
STC-38

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 4



STC-44

NGC 2514

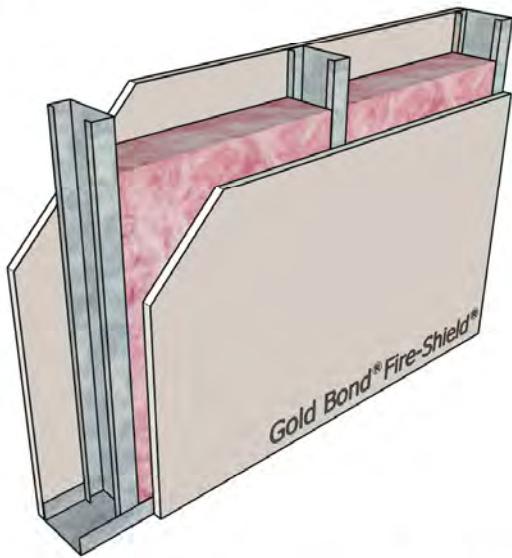
Framing: 3-5/8" steel studs, 25 gauge, 16" o.c.
 Insulation: 2-1/2" glass fiber
 Side 1: 5/8" Fire-Shield Gypsum Board
 Side 2: 5/8" Fire-Shield Gypsum Board

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



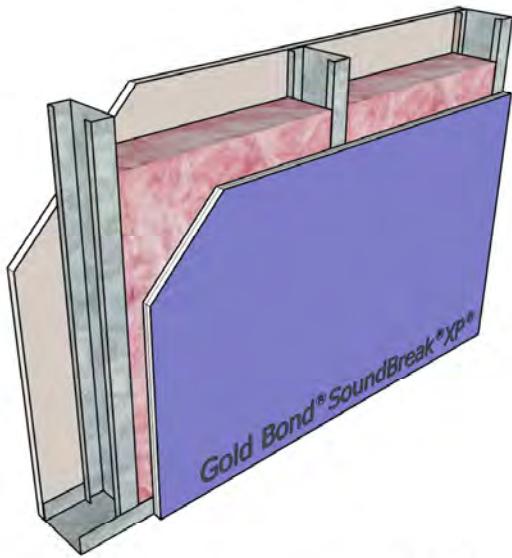
STC-40

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 7



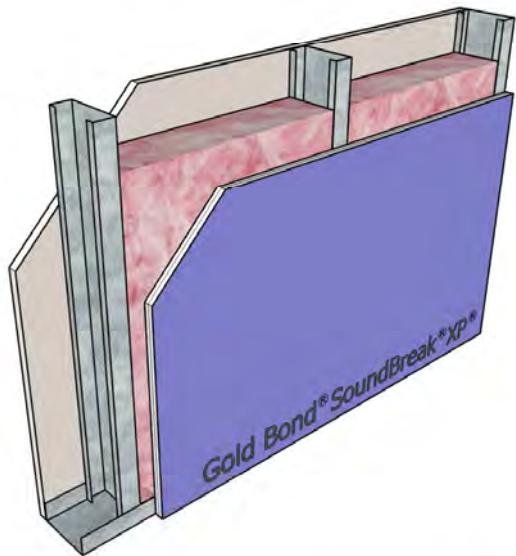
STC-45

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 6



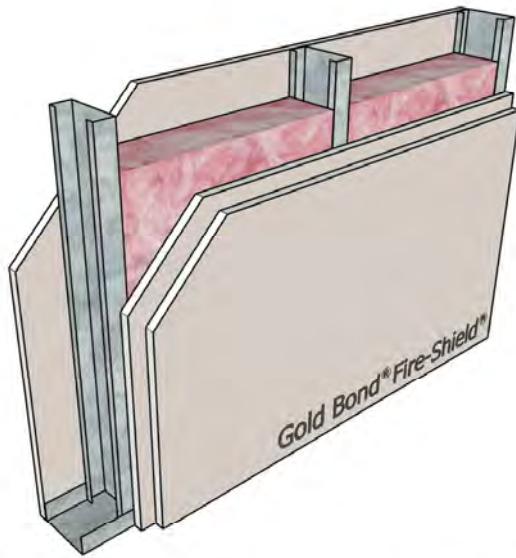
STC-49

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 8



STC-49

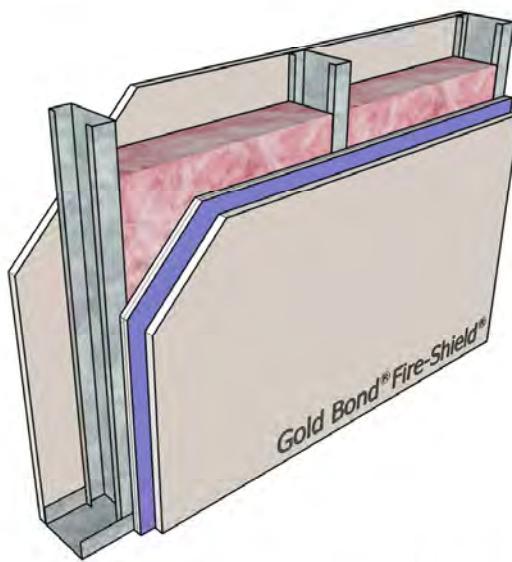
NGC 2515

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

Framing: 3-5/8" steel studs, 25 gauge, 16" o.c.

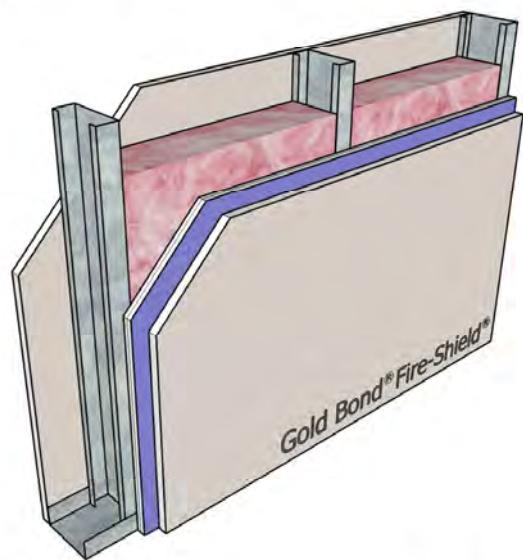
Insulation: 3-1/2" glass fiber

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

Framing: 3-5/8" steel studs, **20 gauge**, 16" o.c.

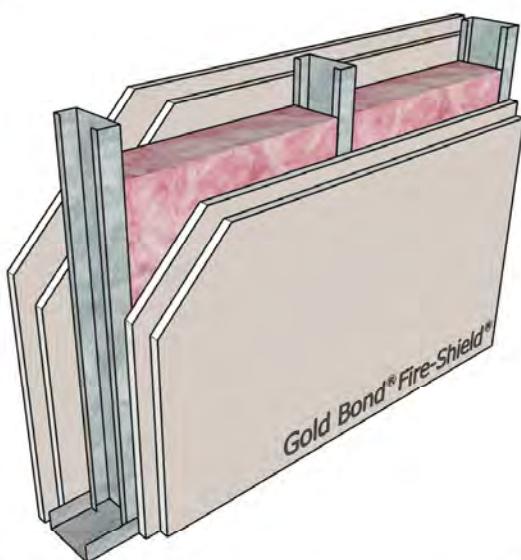
Insulation: 3-1/2" glass fiber

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

Framing: 3-5/8" steel studs, 25 gauge, 16" o.c.

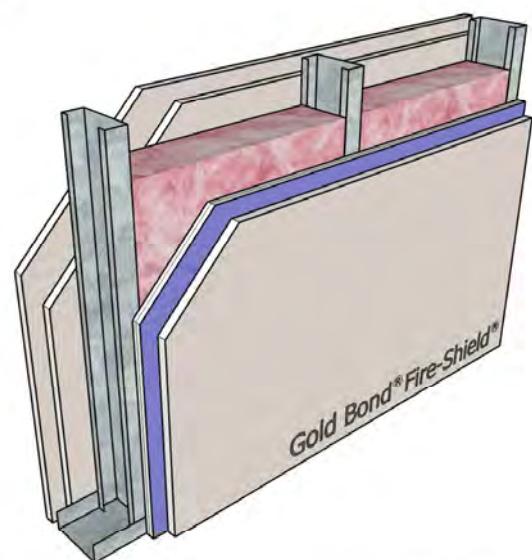
Insulation: 2-1/2" glass fiber

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

Framing: 3-5/8" steel studs, **20 gauge**, 16" o.c.

Insulation: 3-1/2" glass fiber

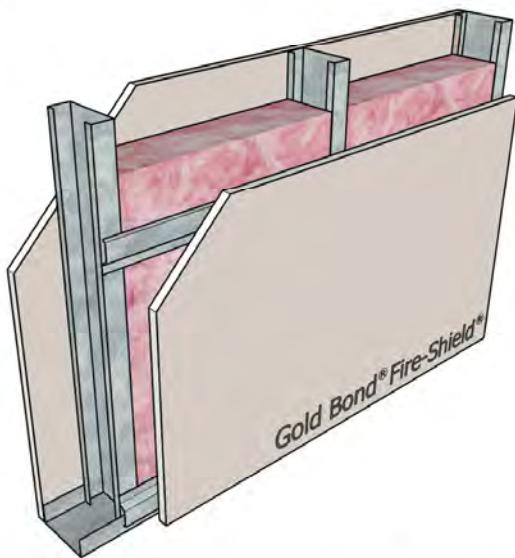
Side 1: 2 layers 5/8" Fire-Shield Gypsum Board

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



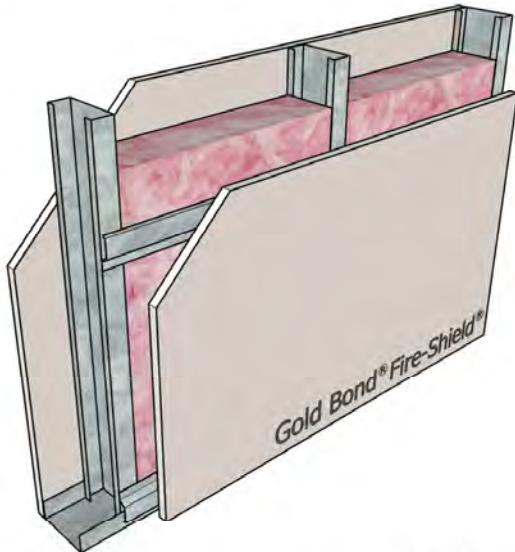
STC-48

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 15



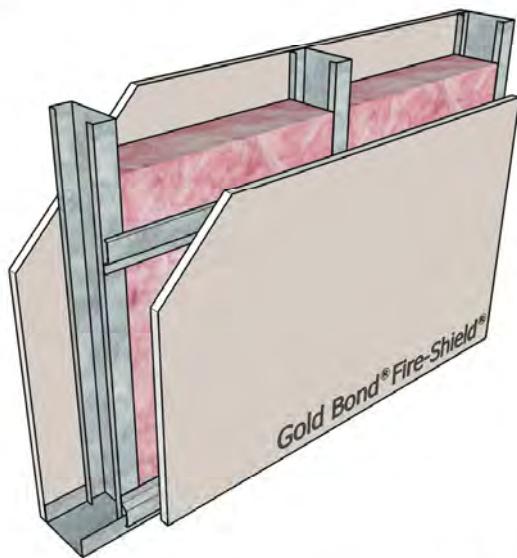
STC-47

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 14



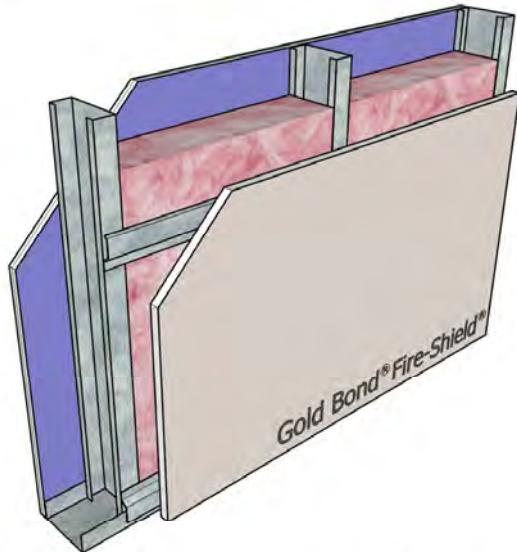
STC-49

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 16



STC-52

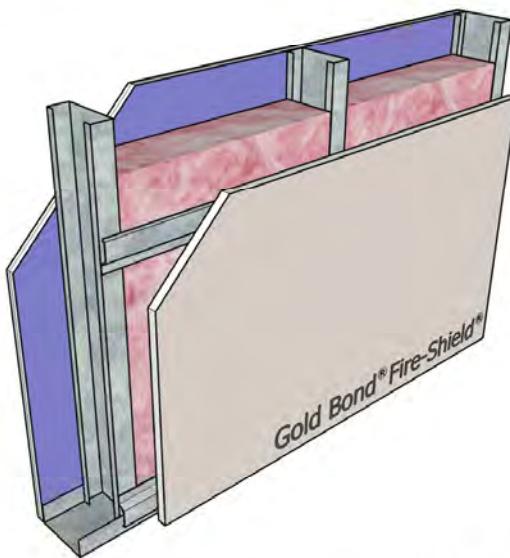
NGC 2013009

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

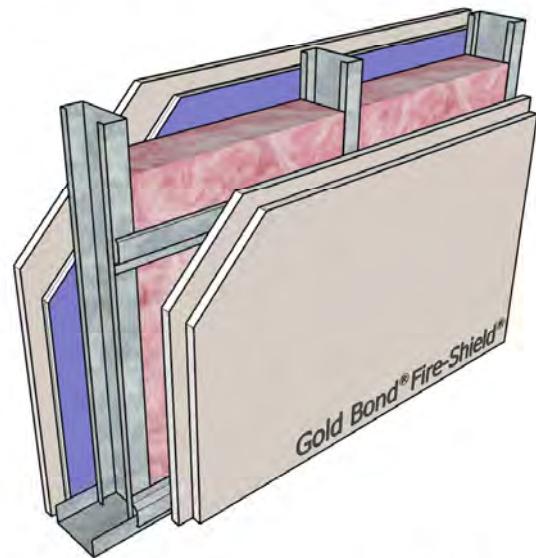


STC-51

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

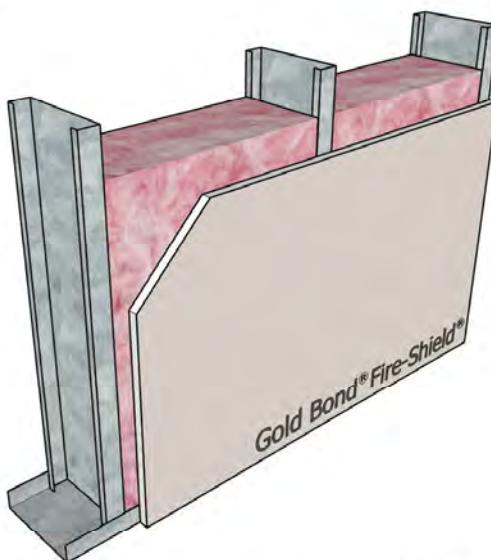
Figure 18



STC-59

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

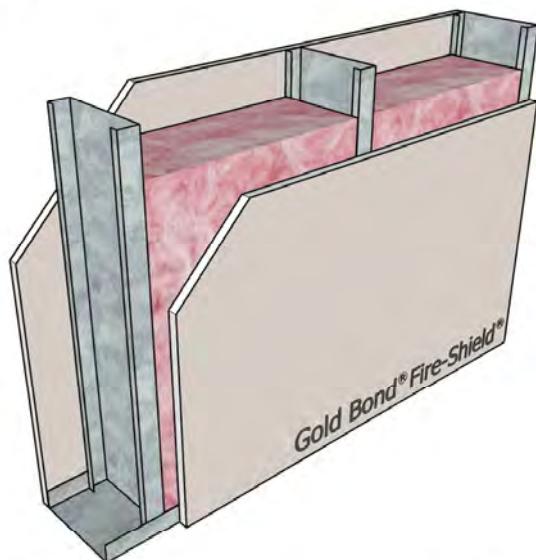


STC-37

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



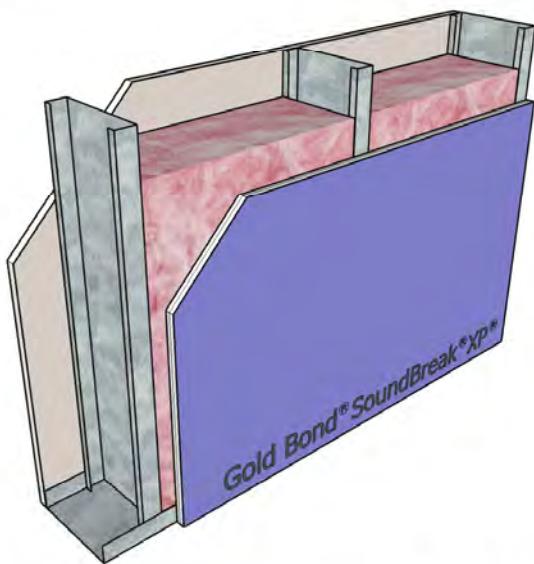
STC-40

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.

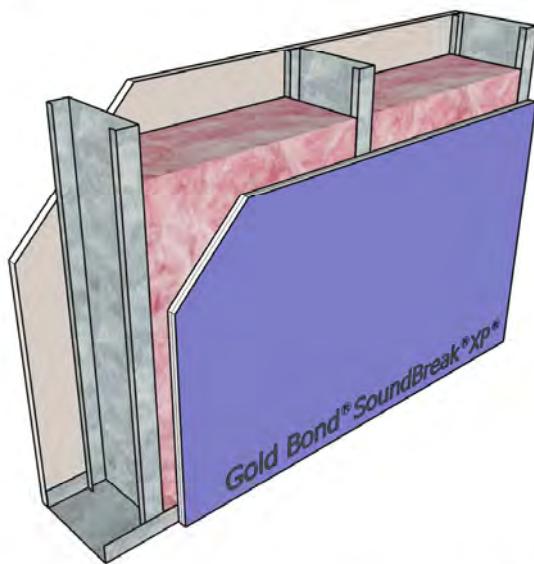
Insulation: 6" glass fiber

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.

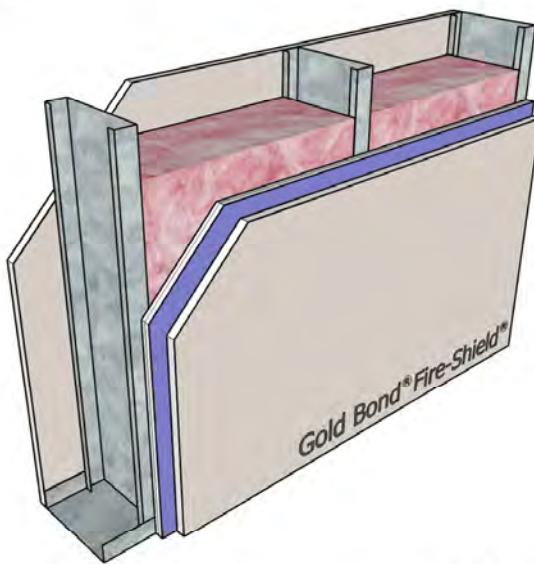
Insulation: 6" glass fiber

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

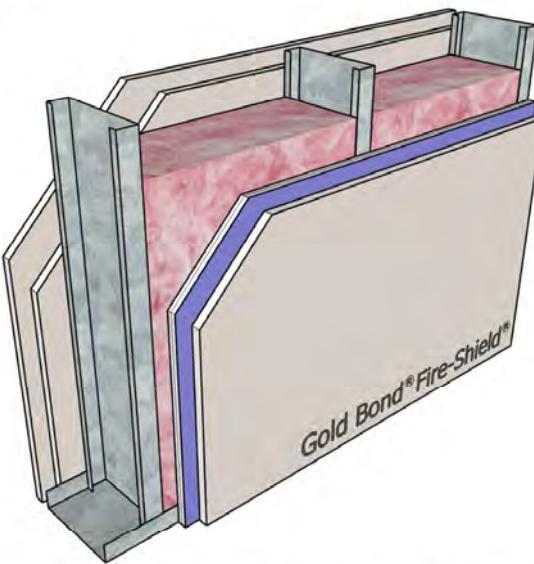
Framing: 6" steel studs, **20 gauge**, 16" o.c.

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



STC-51

NGC 2013025

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

Insulation: 6" glass fiber

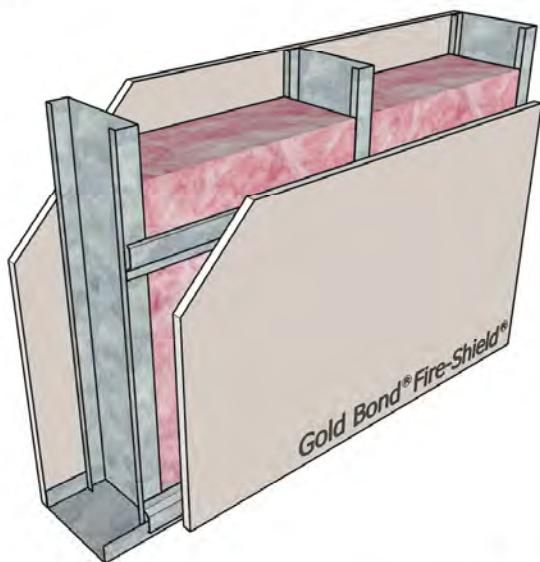
Side 1: 2 layers 5/8" Fire-Shield Gypsum Board

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



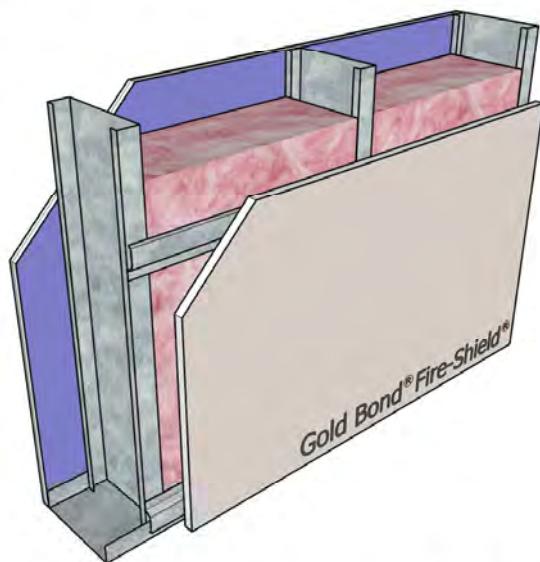
STC-53

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

NGC 2013026

Figure 26



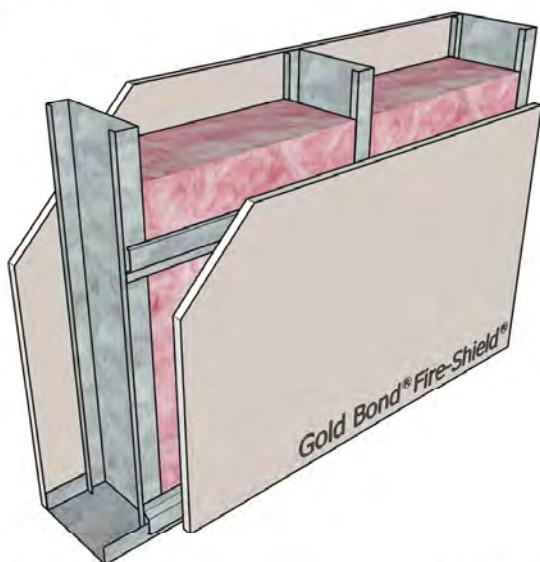
STC-57

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

NGC 2013027

Figure 27



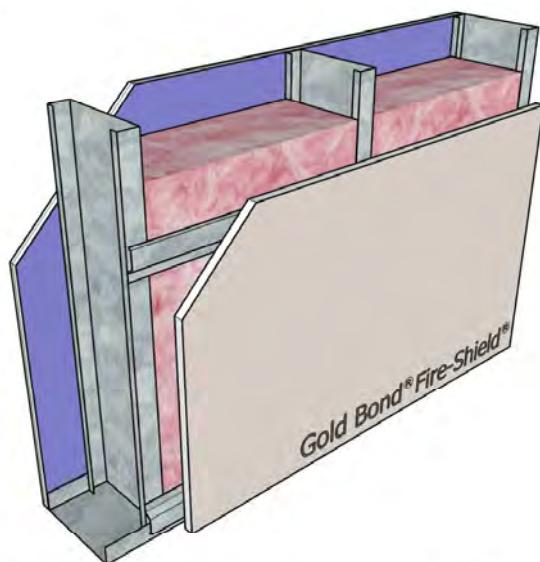
STC-50

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

NGC 2015001

Figure 28



STC-55

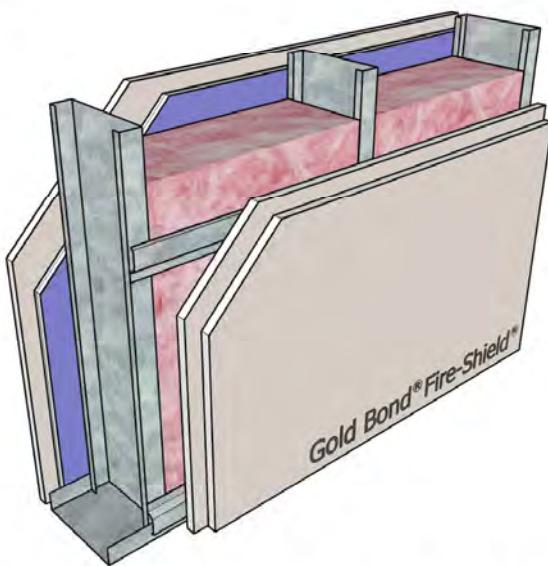
Framing: 6" steel studs, **16 gauge**, 16" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" SoundBreak XP Gypsum Board
Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

NGC 2015002

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

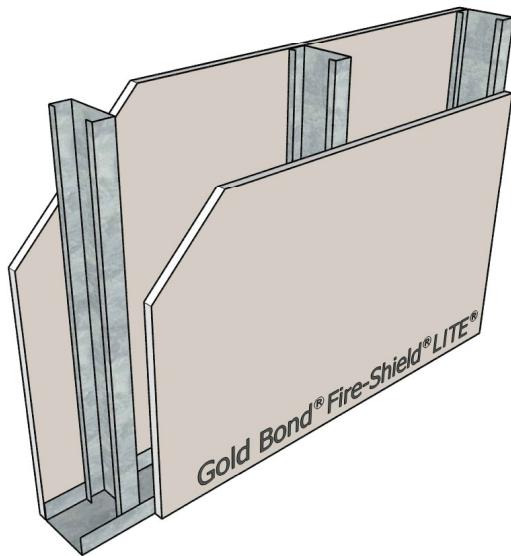
Side 1: 5/8" Fire-Shield Gypsum Board on
5/8" SoundBreak XP Gypsum Board

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



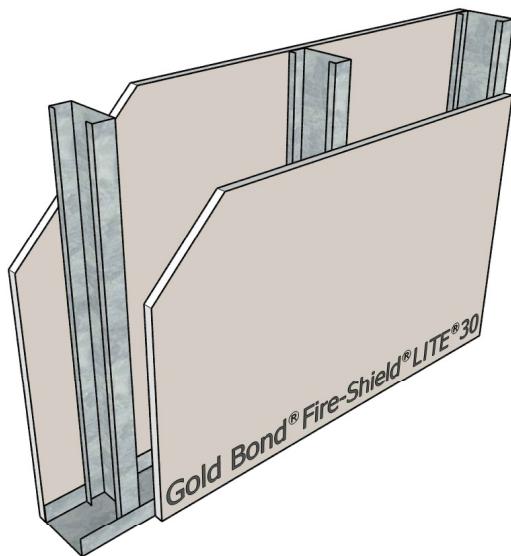
STC-38

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 32



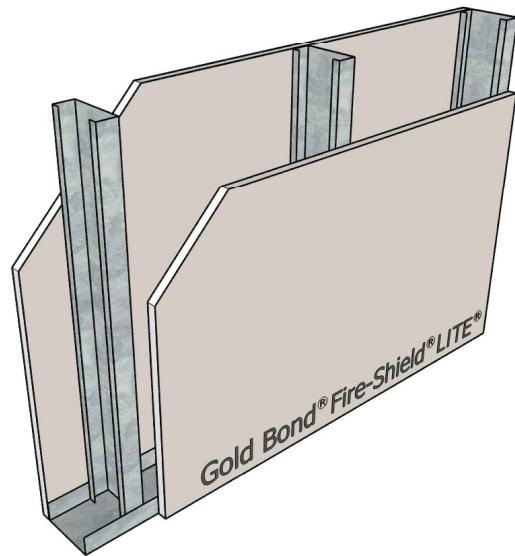
STC-35

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 31



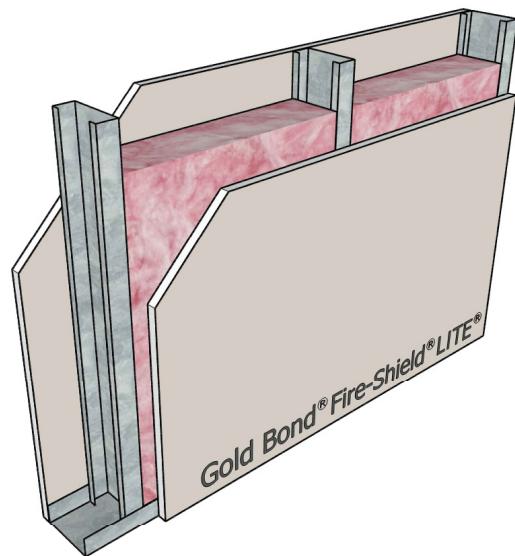
STC-37

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 33



STC-41

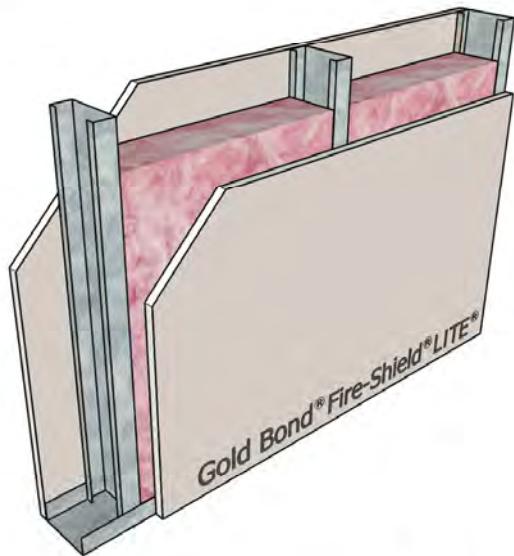
NGC 2014018

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



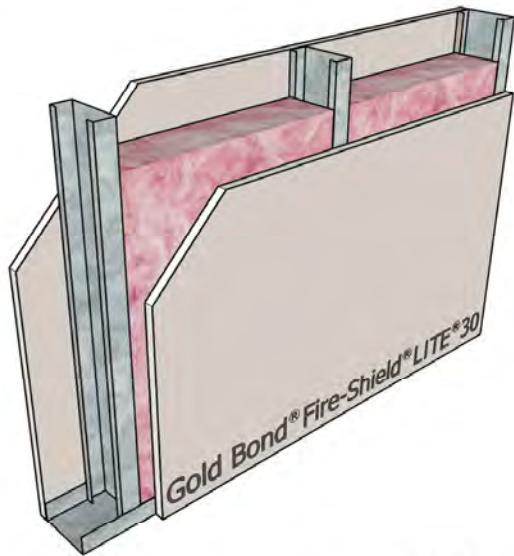
STC-41

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 36



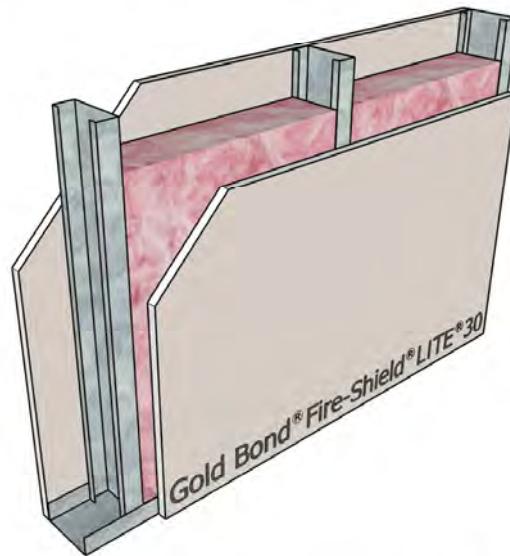
STC-39

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 35



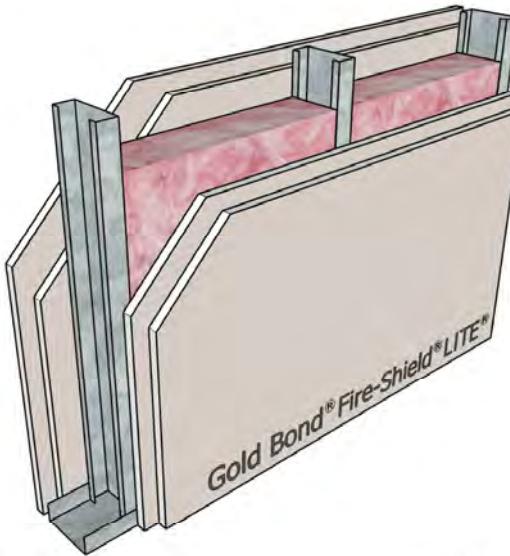
STC-38

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 37



STC-50

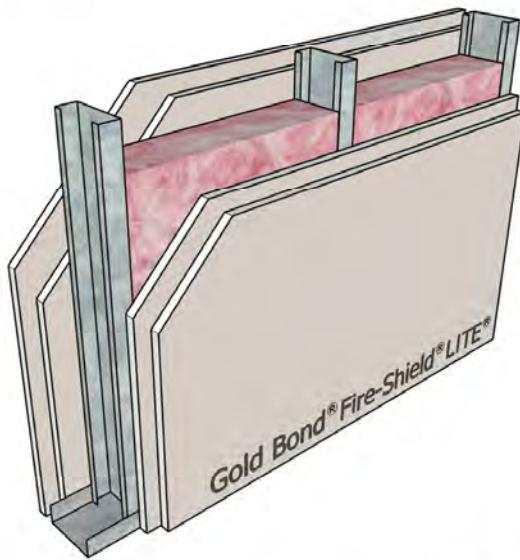
NGC 2014021

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

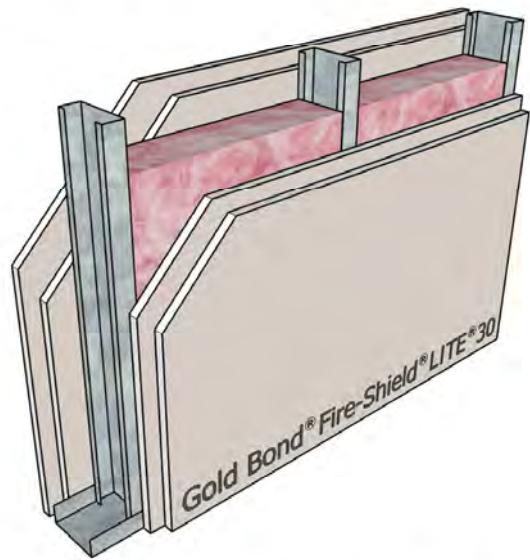
NGC 2014025

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 40

Figure 39



STC-44

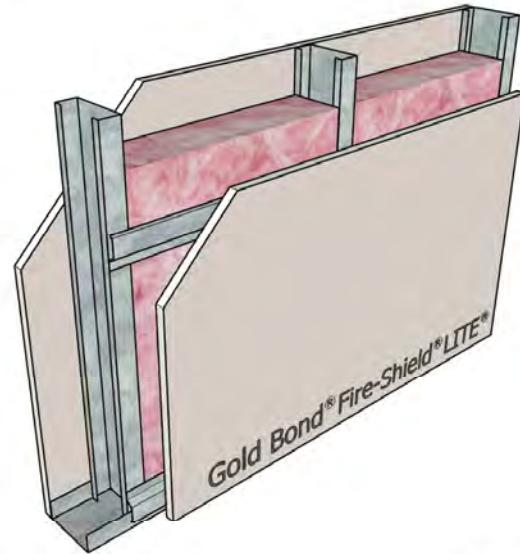
NGC 2014013

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 41

Figure 40

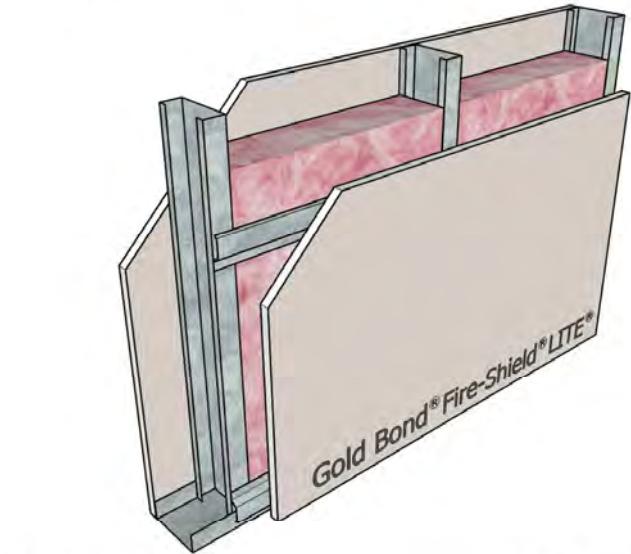


STC-49

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



STC-49

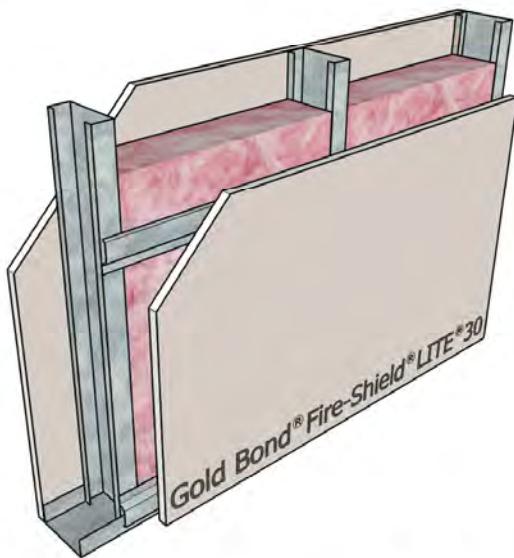
NGC 2014024

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

The SoundbookTM

Steel Stud Partitions
with Framing 24"o.c.

Steel Stud Partitions with Framing 24" o.c.

Figure 43



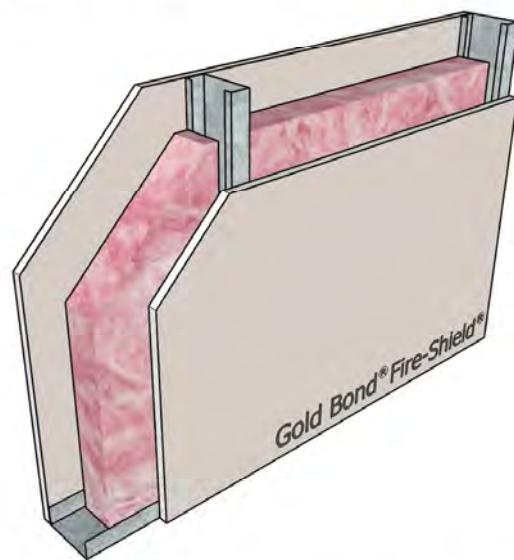
STC-42

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 45

Figure 44



NGC 2385

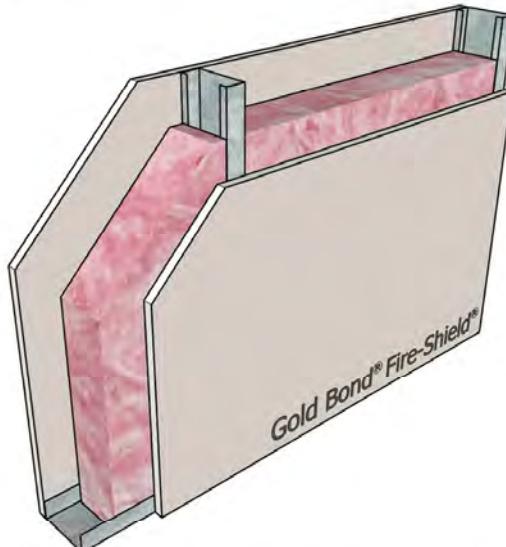
STC-47

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

NGC 2386

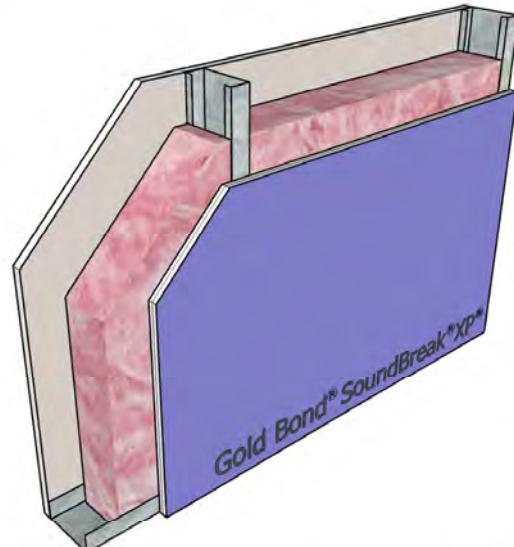
Figure 46



STC-44

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



STC-55

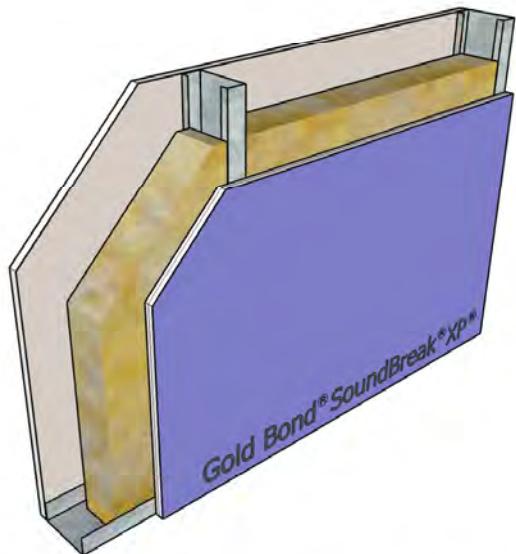
Framing: 3-5/8" steel studs, **20 gauge**, 24" o.c.
Insulation: 3-1/2" glass fiber
Side 1: 5/8" Fire-Shield Gypsum Board
Side 2: 5/8" SoundBreak XP Gypsum Board

UL Design: V438, U465 - 1 hour

OL14-0404

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.

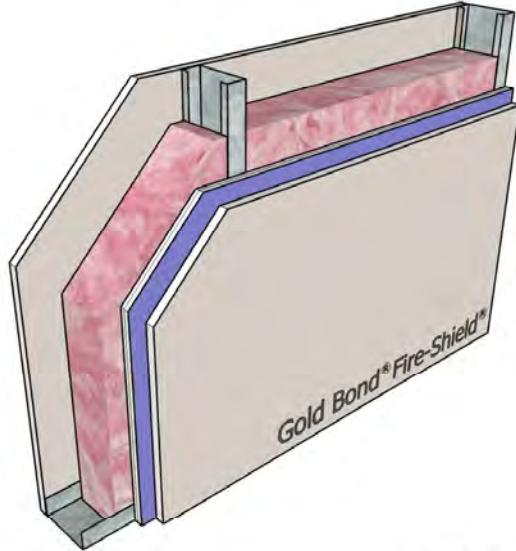
Insulation: 3" mineral wool

Side 1: 5/8" Fire-Shield Gypsum Board

Side 2: 5/8" SoundBreak XP Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 49



STC-57

RAL-TL06-334

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

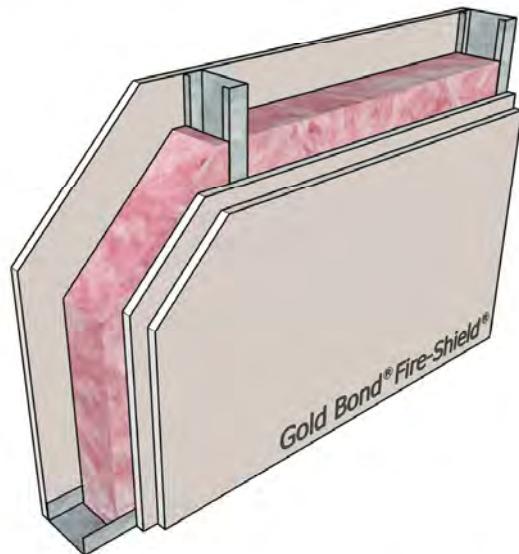
Insulation: 3-1/2" glass fiber

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 48



STC-49

NGC 2392

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

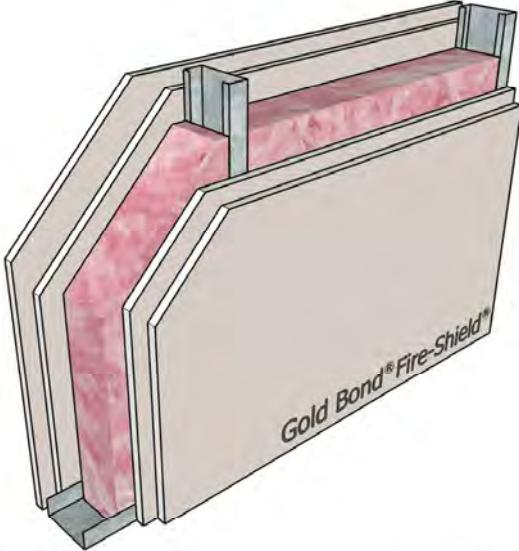
Insulation: 2-1/2" glass fiber

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 50



STC-56

NGC 3022

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

Insulation: 3" glass fiber

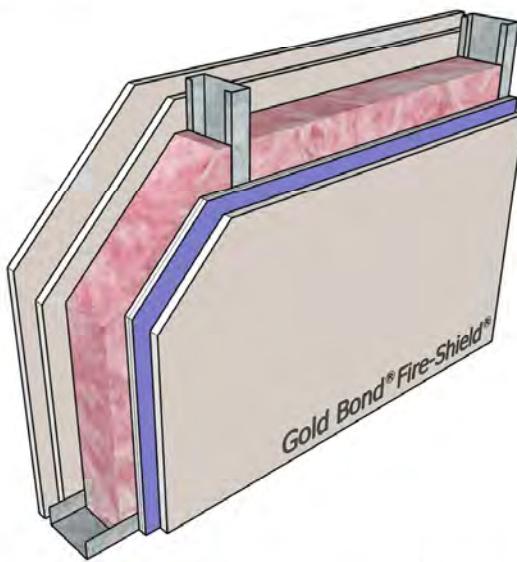
Side 1: 2 layers 5/8" Fire-Shield Gypsum Board

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

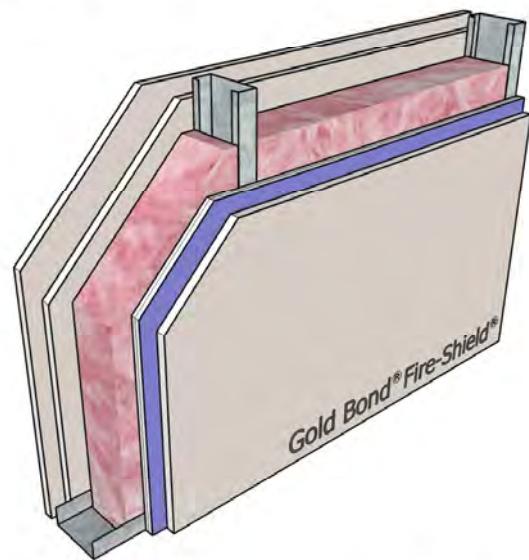


STC-60

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

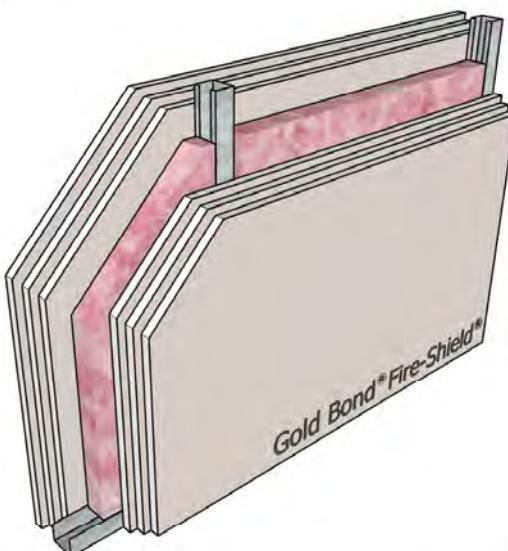


STC-56

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



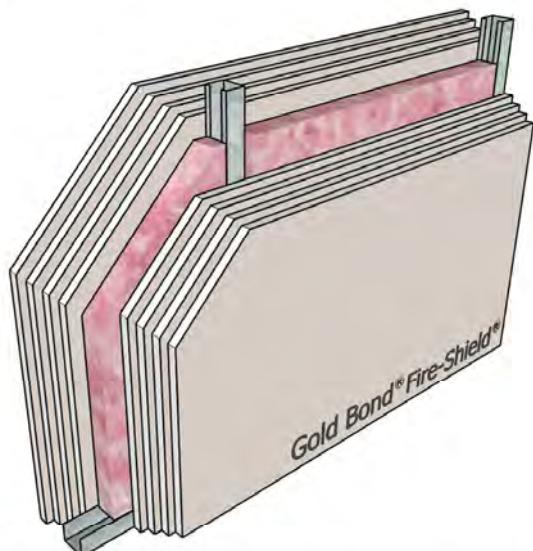
STC-53

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

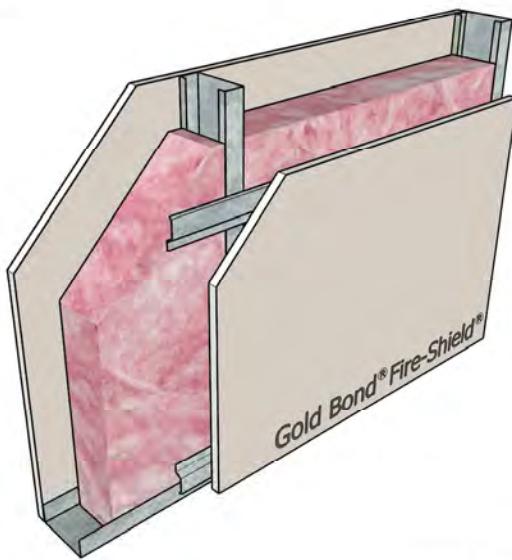
NGC 2634

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



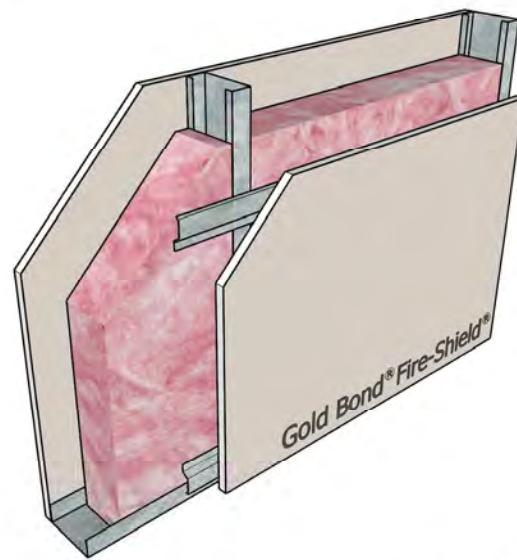
STC-49

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



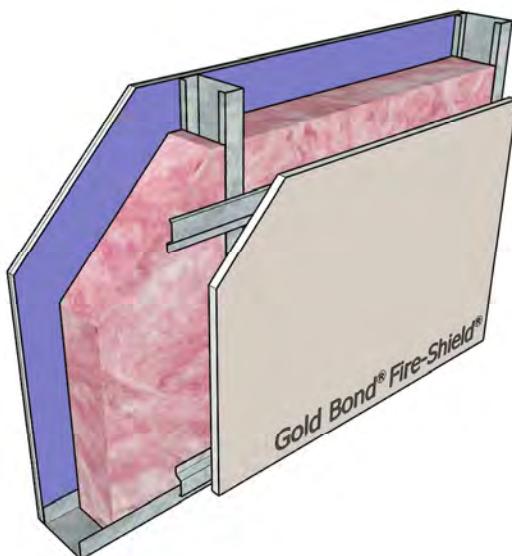
STC-50

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



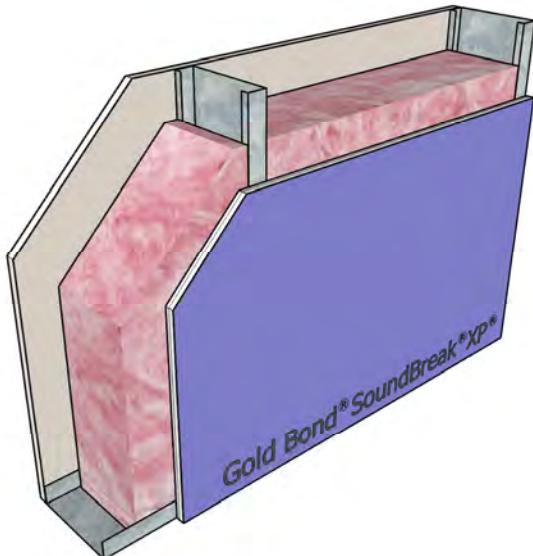
STC-54

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

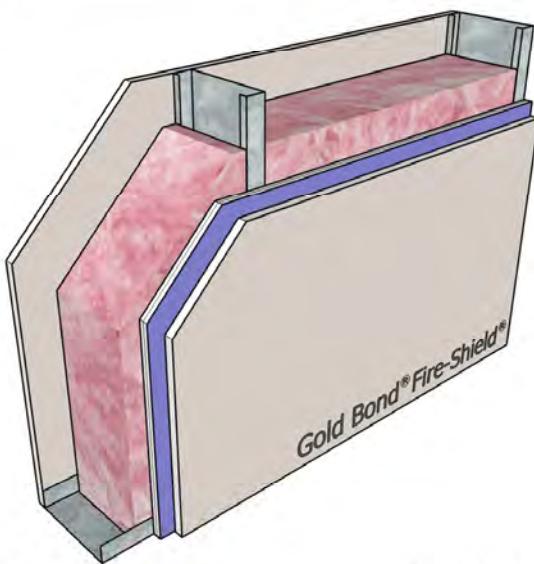
NGC 2013028

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

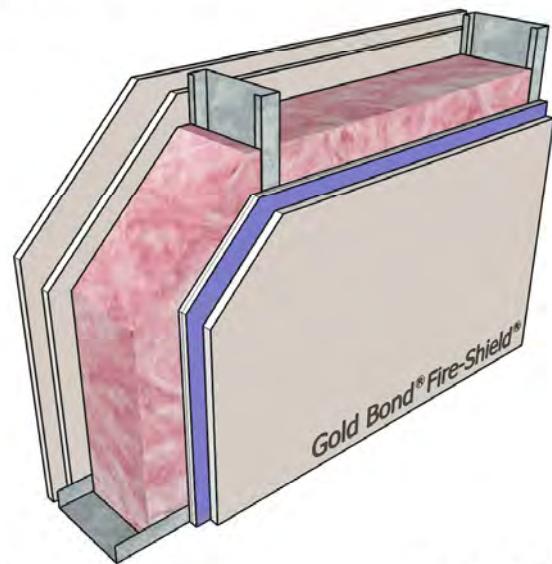


STC-57

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

NRCC B-3456.1

Figure 60

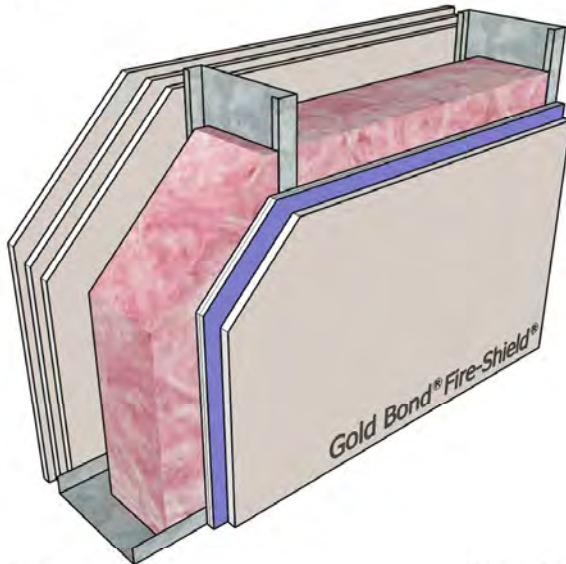


STC-61

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

NRCC B-3456.2

Figure 61

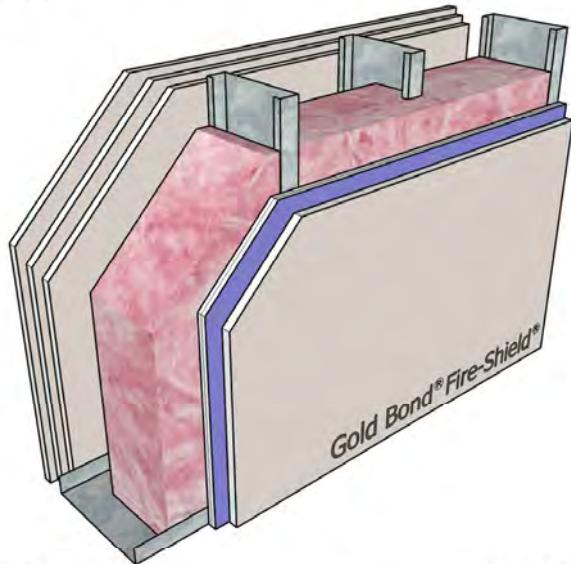


STC-57

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

NGC 2009035

Figure 62



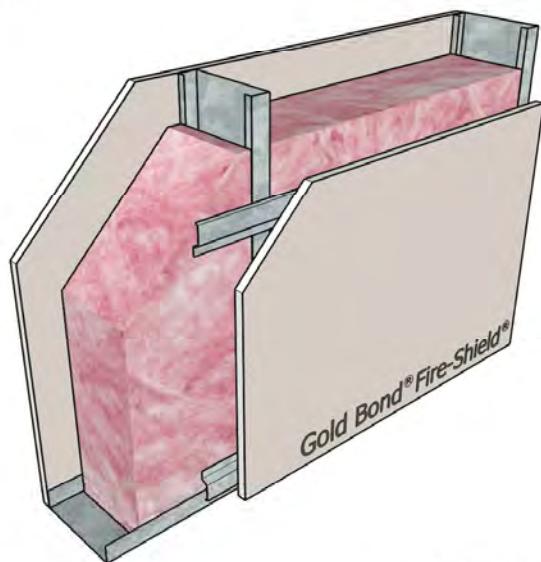
STC-66

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

NGC 2009036

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

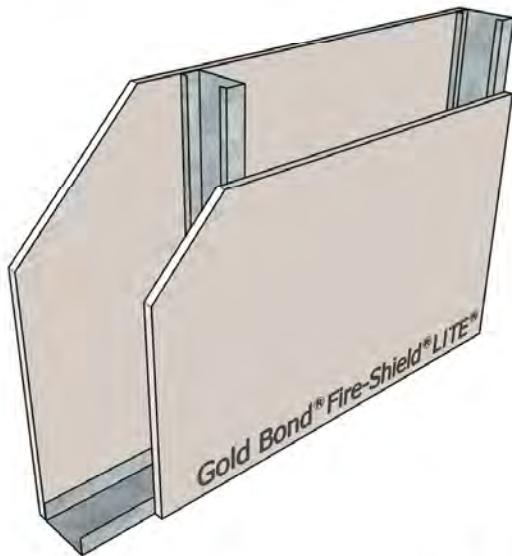
Side 1: 5/8" Fire-Shield C Gypsum Board

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

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

Insulation: None

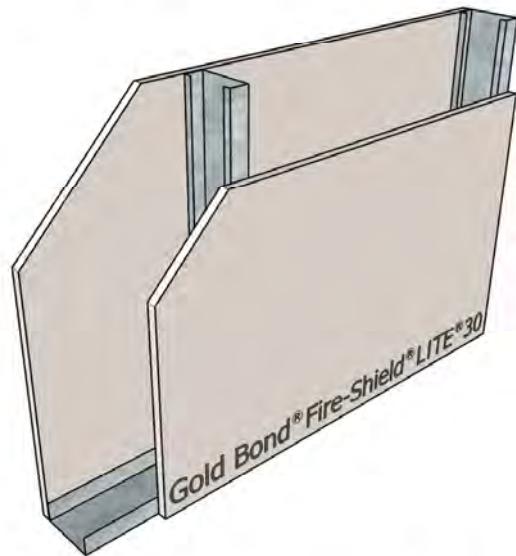
Side 1: 5/8" Fire-Shield LITE Gypsum Board

Side 2: 5/8" Fire-Shield LITE Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 66

Figure 65



STC-36

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 67

STC-44

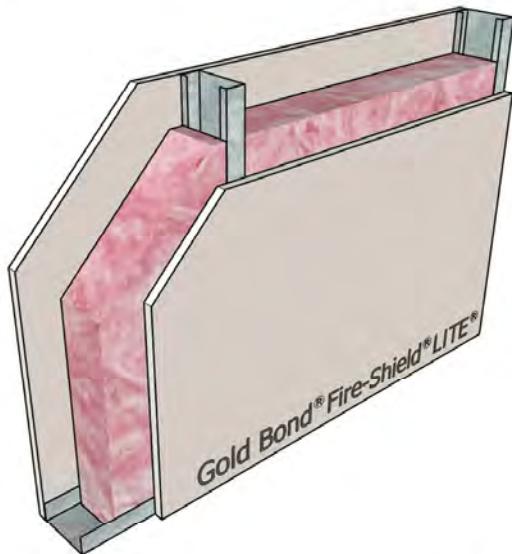
Framing: 3-5/8" steel studs, 25 gauge, 24" o.c.

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



NGC 2014014

STC-46

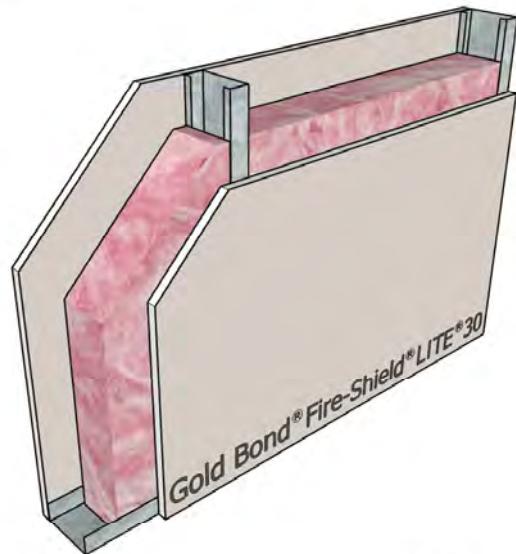
Framing: 3-5/8" steel studs, 25 gauge, 24" o.c.

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

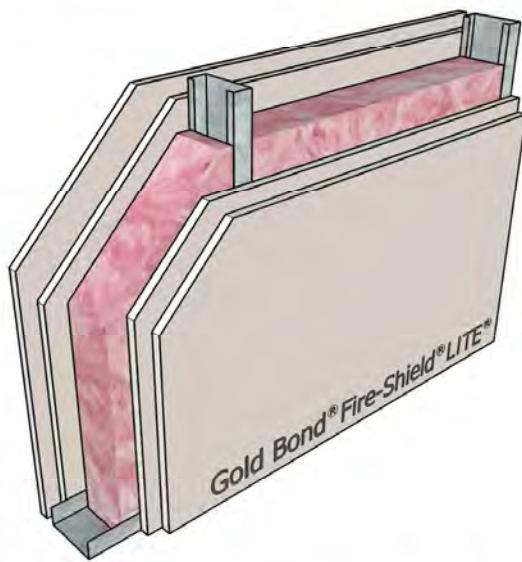


NGC 2014006

NGC 2014005

Steel Stud Partitions with Framing 24" o.c.

Figure 68



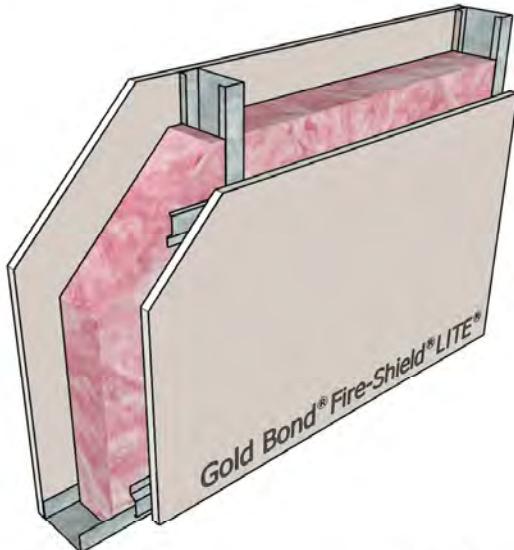
STC-54

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 70



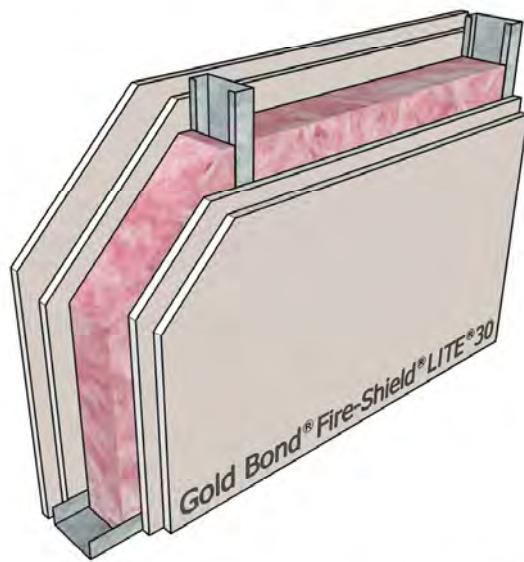
STC-50

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 69



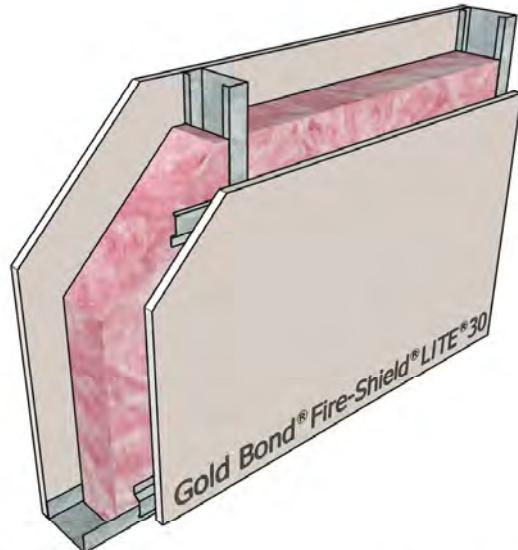
STC-54

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 71



STC-49

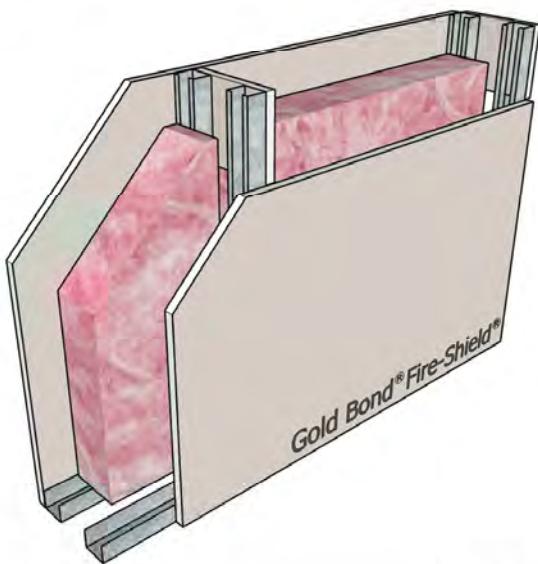
NGC 2014007

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

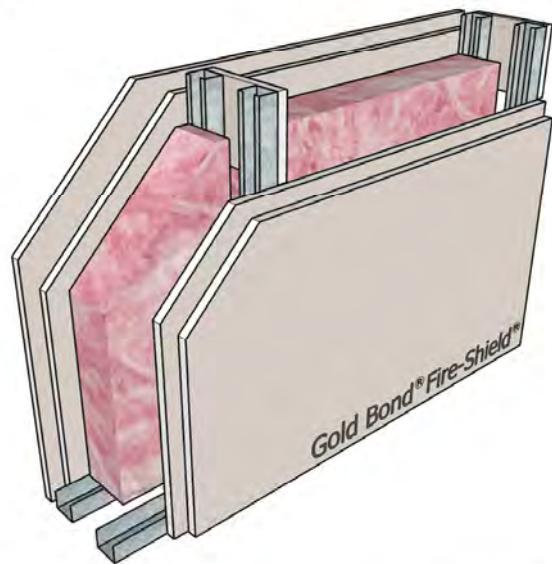
Figure 72



STC-52

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

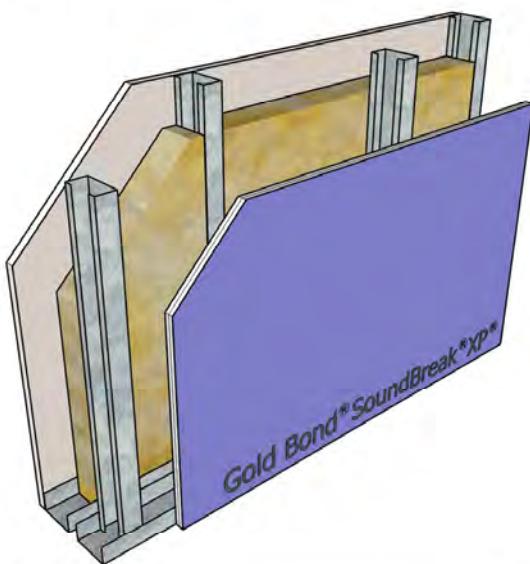
Figure 73



STC-57

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

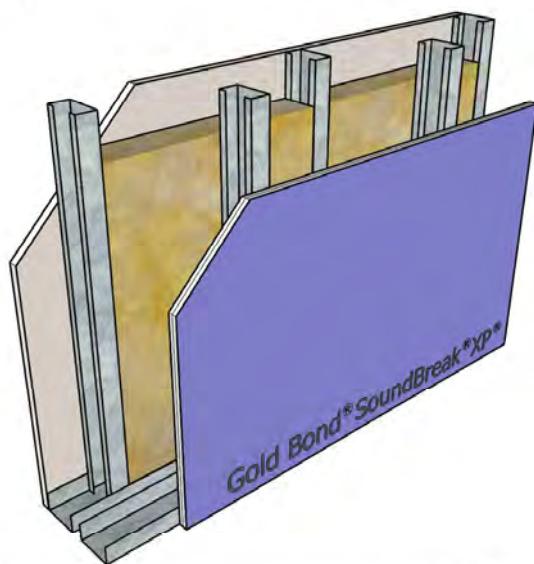
Figure 74



STC-59

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

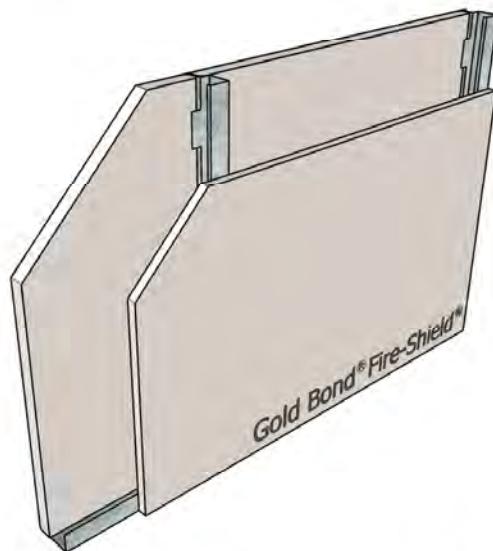
Framing: Double row 2-1/2" steel studs, 25 gauge, 16" o.c. staggered
 Insulation: 3" mineral wool
 Side 1: 5/8" Fire-Shield Gypsum Board
 Side 2: 5/8" SoundBreak XP Gypsum Board
 UL Design: V488 - 1 hour

RAL-TL76-155

NGC 2008036

Shaftwall Partitions

Figure 76



STC-34

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 78

Figure 77



STC-37

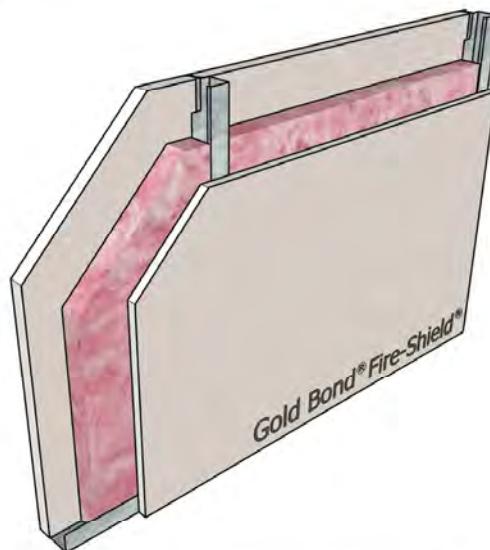
Framing: 2-1/2" steel CH studs, 25 gauge, 24" o.c.
Insulation: None
Side 1: 1" Fire-Shield Shaftliner
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 79

NGC 2001001

NGC 2001003



STC-39

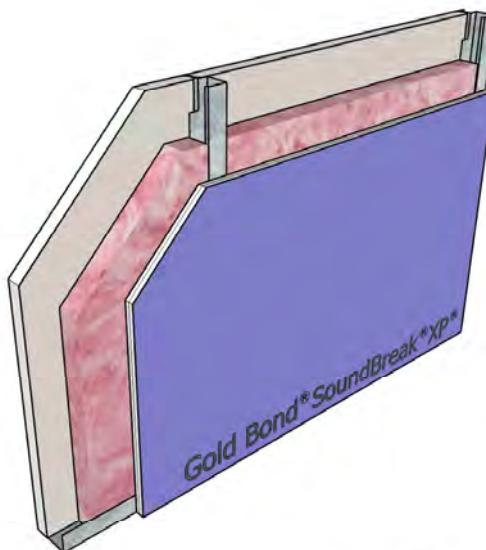
Framing: 2-1/2" steel CT studs, 25 gauge, 24" o.c.
Insulation: 1-1/2" glass fiber
Side 1: 1" Fire-Shield Shaftliner
Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

STC-44

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

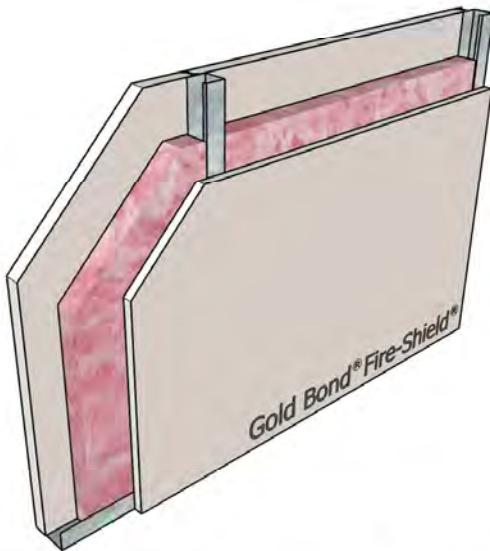
UL Design: U499, W419 - 1 hour



NGC 2015033

Shaftwall Partitions

Figure 80



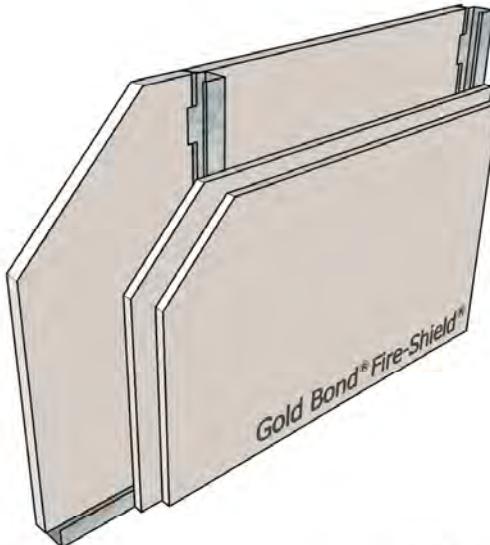
STC-40

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 82



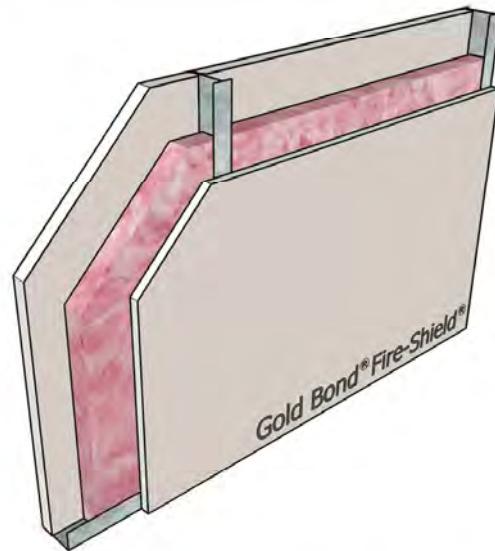
STC-40

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 81



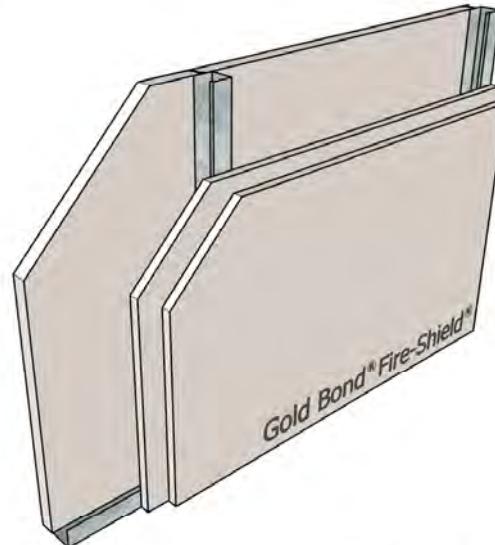
STC-42

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 83



STC-39

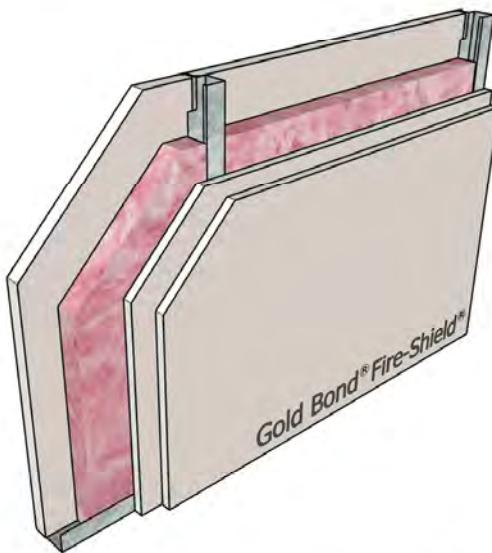
NGC 2001002

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

Shaftwall Partitions

Figure 84

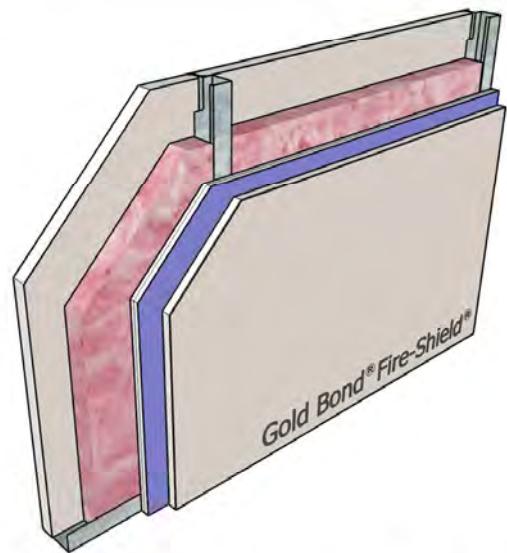


STC-45

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

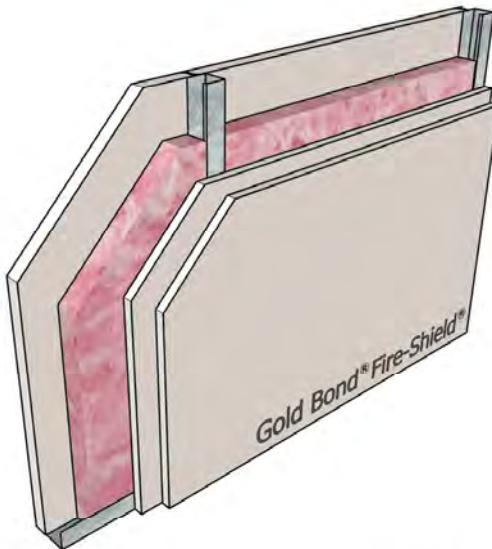


STC-51

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

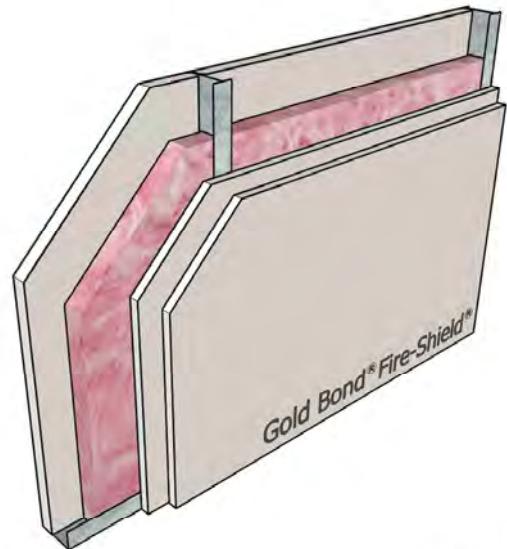


STC-46

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

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

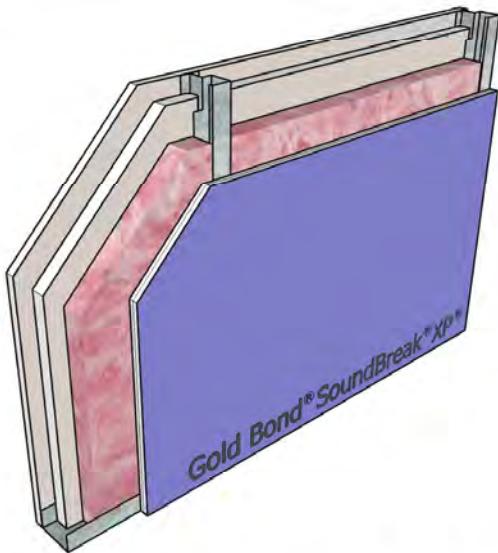
UL Design: U497, W419 - 2 hour

NGC 2001006

NGC 2507

Shaftwall Partitions

Figure 88

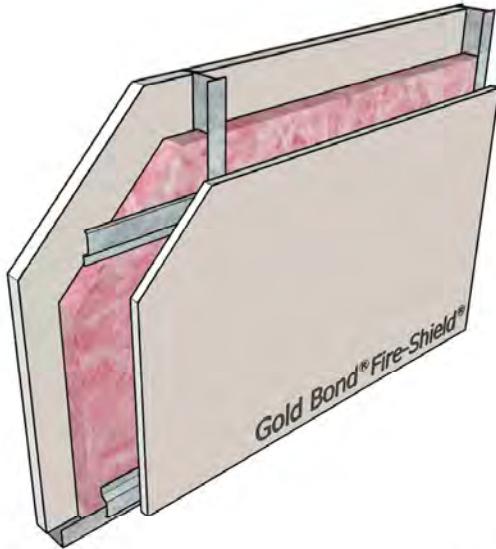


STC-53

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 90

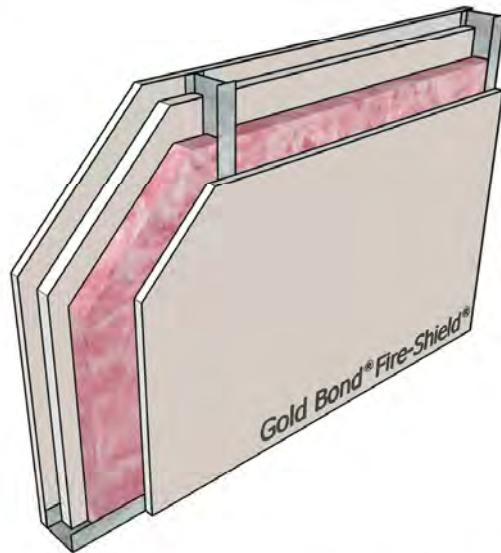


STC-48

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 89

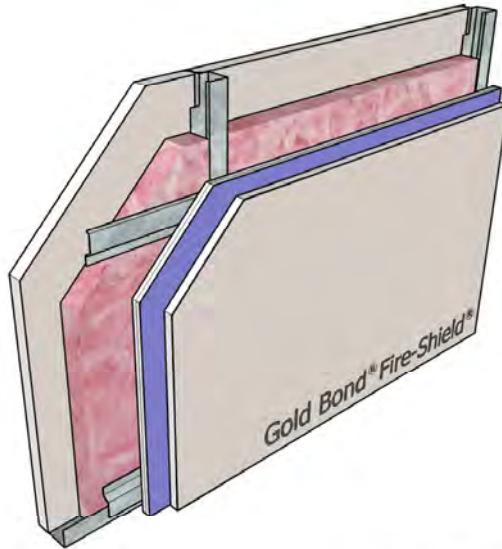


STC-48

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 91



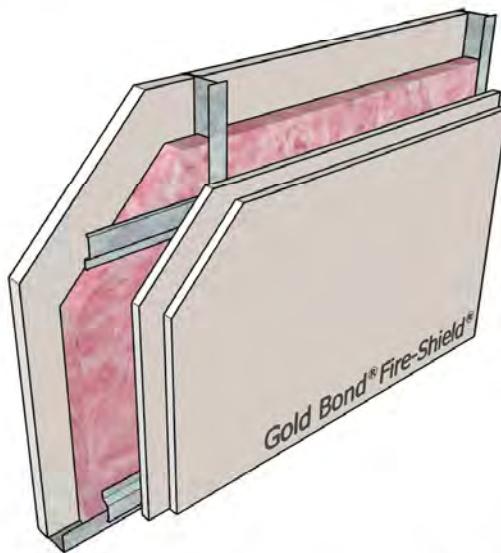
STC-53

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

Shaftwall Partitions

Figure 92

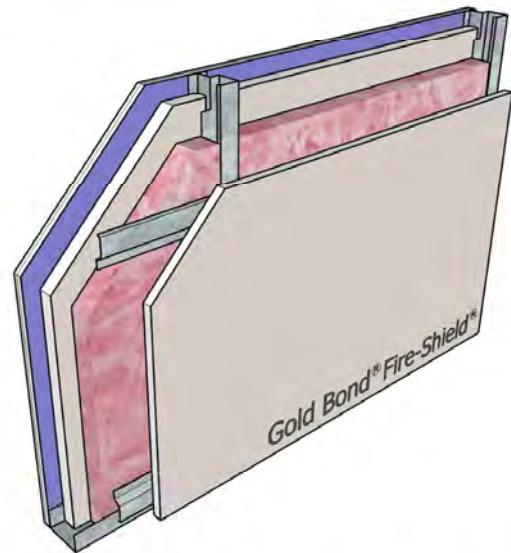


STC-51

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 94

Figure 93

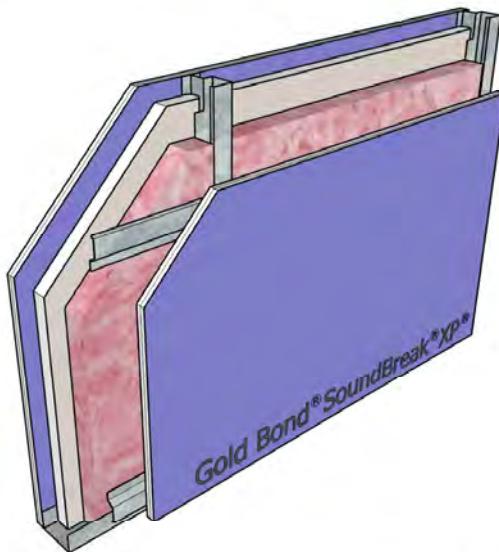


STC-55

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 95

NGC 2015041



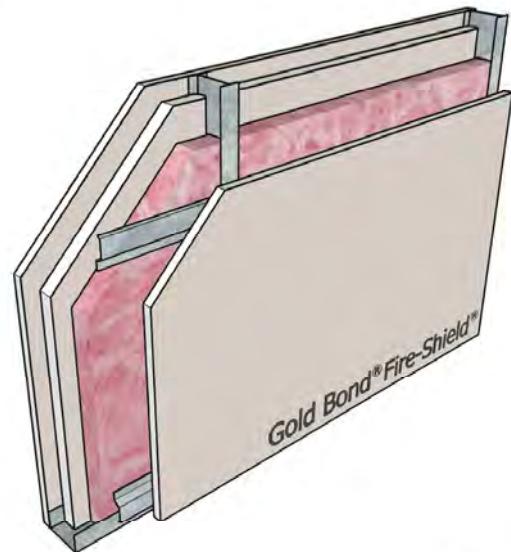
STC-56

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

STC-52

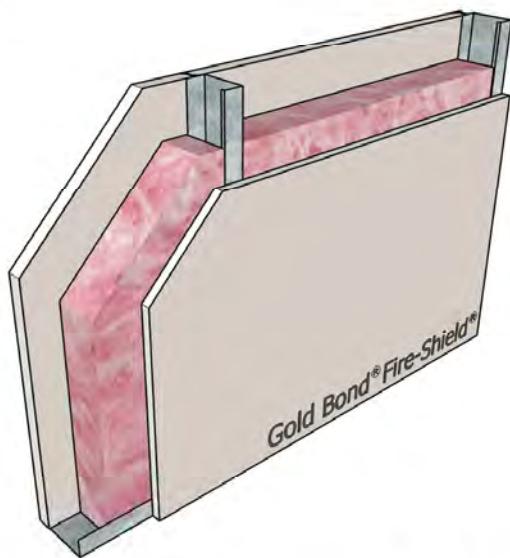
Framing: 2-1/2" steel I-studs, 25 gauge, 24" o.c.
 Insulation: 1-1/2" glass fiber
 Side 1: 5/8" Fire-Shield Gypsum Board on 1" Fire-Shield Shaftliner
 Side 2: 5/8" Fire-Shield Gypsum Board on RC-1
 UL Design: U498, W419 - 2 hour

NGC 2015040



Shaftwall Partitions

Figure 96



STC-47

NGC 2015044

Framing: 4" steel CH studs, 25 gauge, 24" o.c.

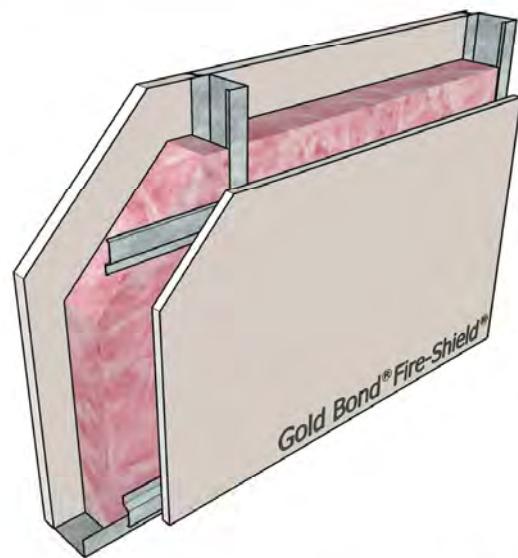
Insulation: 3" glass fiber

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

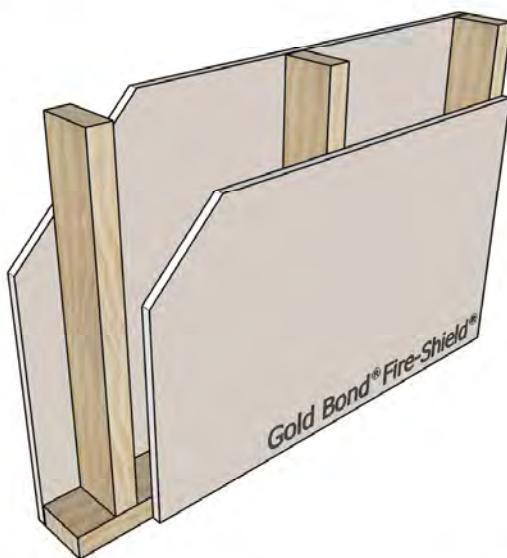
UL Design: U499, W419 - 1 hour

The SoundBookTM

Wood Stud Partitions
with Framing 16" o.c.

Wood Stud Partitions with Framing 16" o.c.

Figure 98



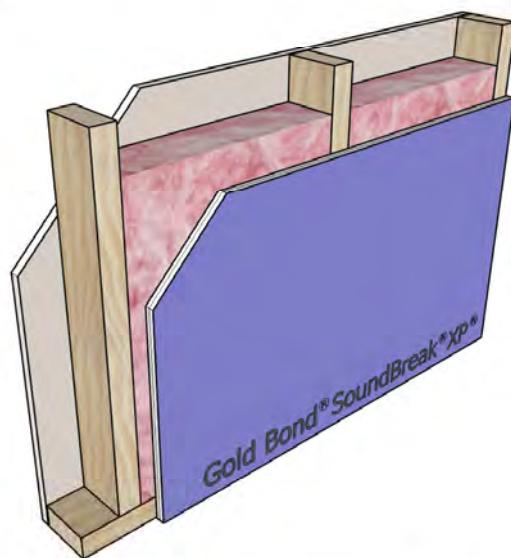
STC-34

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 100

Figure 99



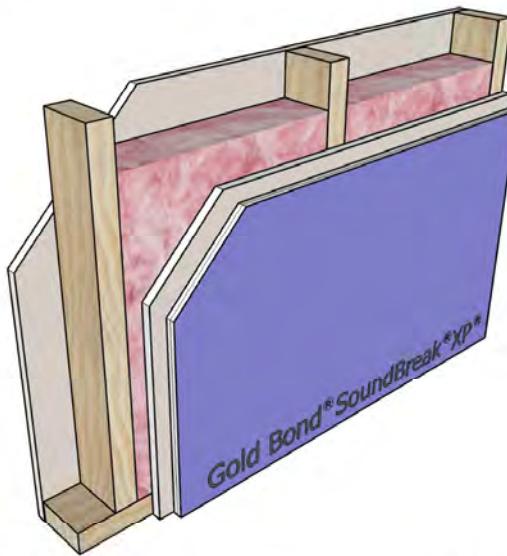
STC-39

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

NGC 2009047

Figure 101



STC-43

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

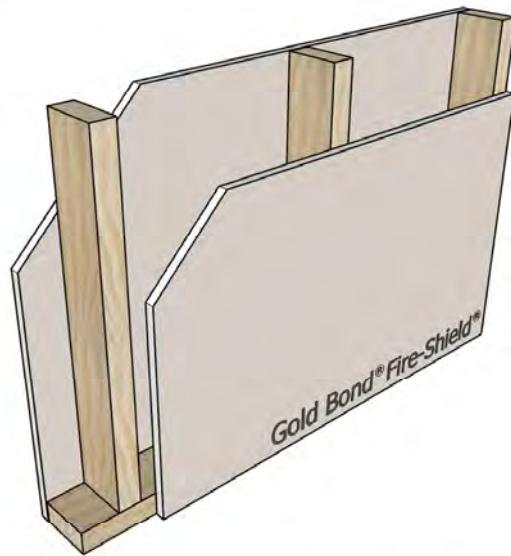
NGC 2009040

STC-35

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

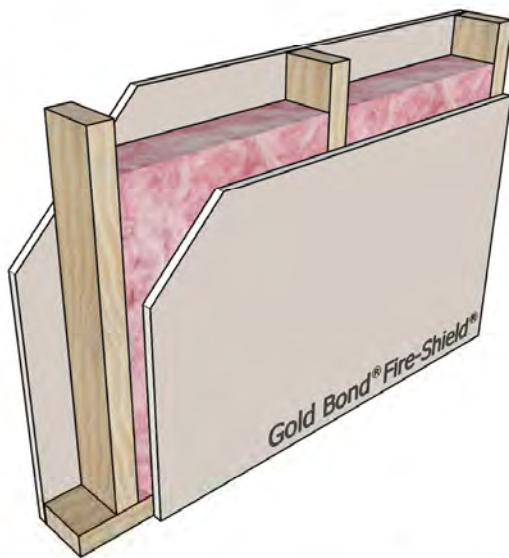
UL Design: U305 - 1 hour

NGC 2403



Wood Stud Partitions with Framing 16" o.c.

Figure 102



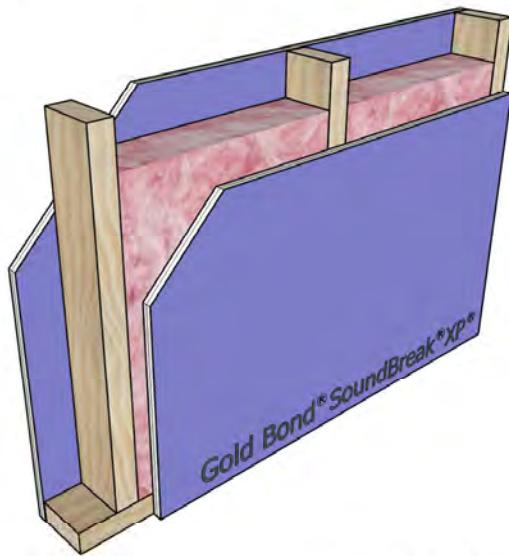
STC-36

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 104



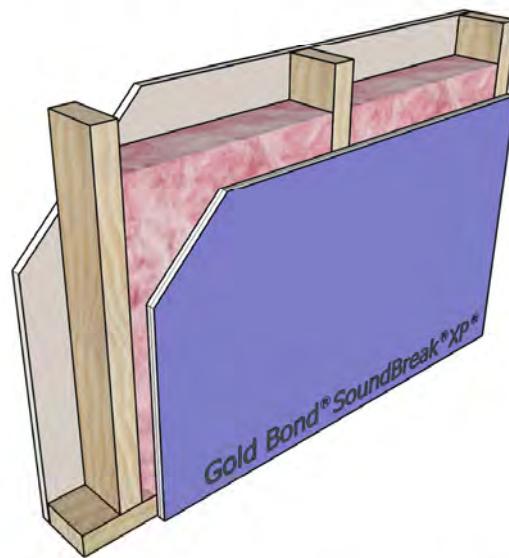
STC-45

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 103



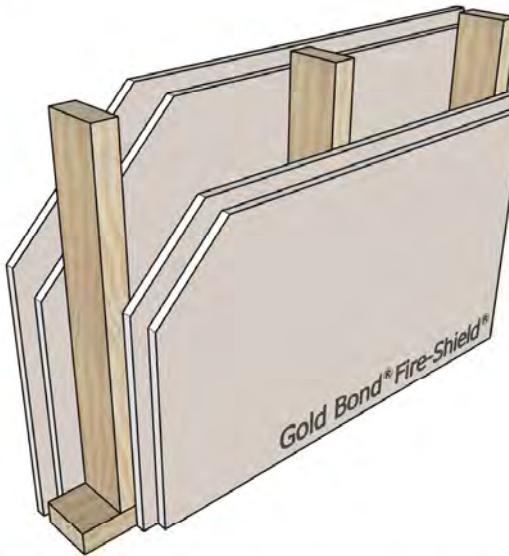
STC-42

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 105



STC-40

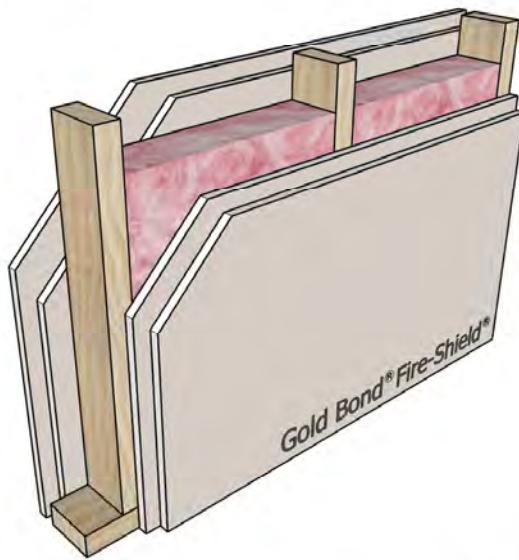
NGC 2363

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



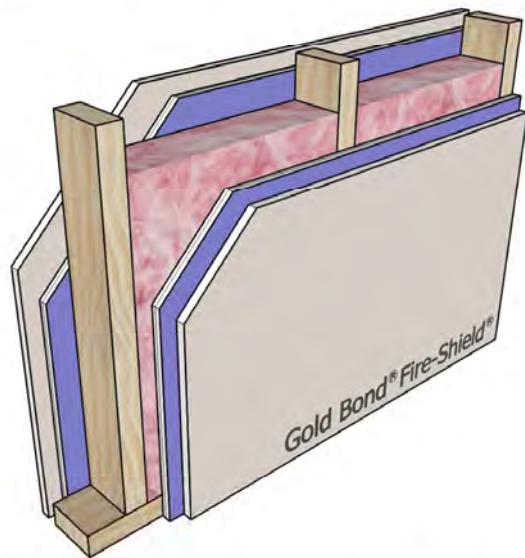
STC-41

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 108

Figure 107



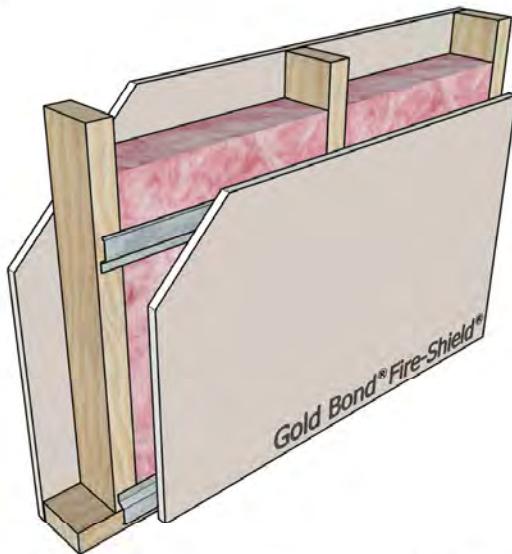
NGC 2364

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

NGC 2009017

Figure 109



STC-51

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

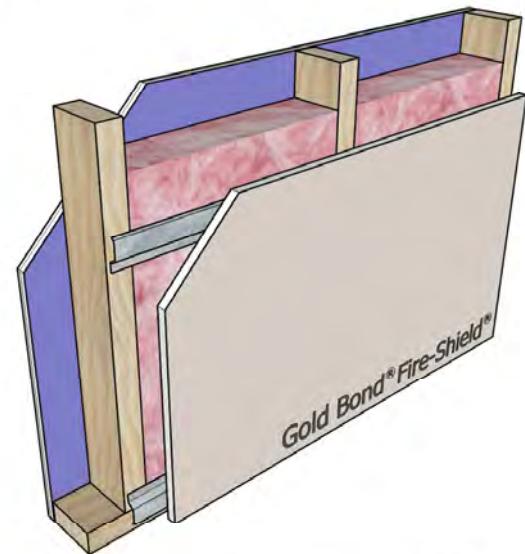
UL Design: U305 - 1 hour

STC-54

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

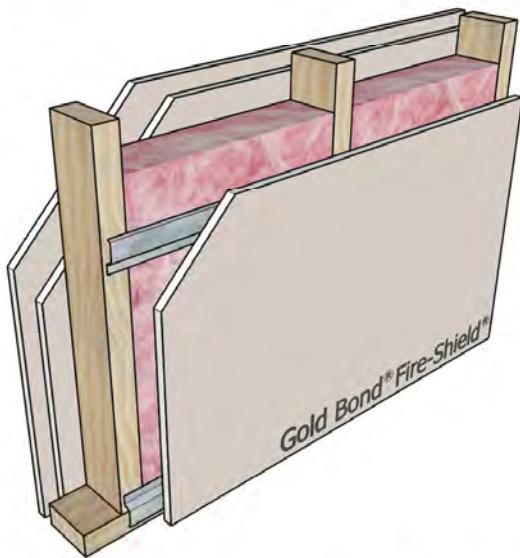
UL Design: U305 - 1 hour

NGC 2011066



Wood Stud Partitions with Framing 16" o.c.

Figure 110



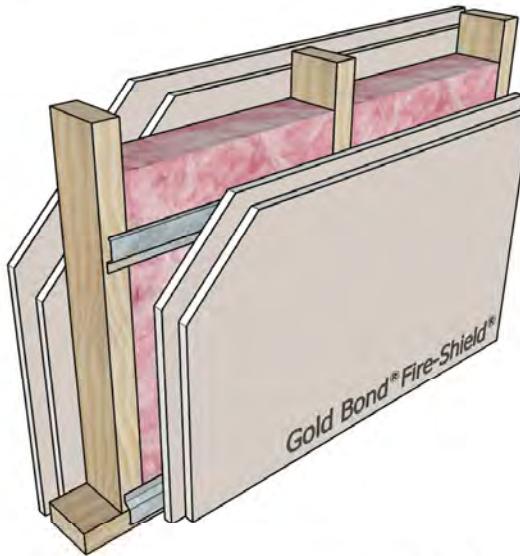
STC-55

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 112



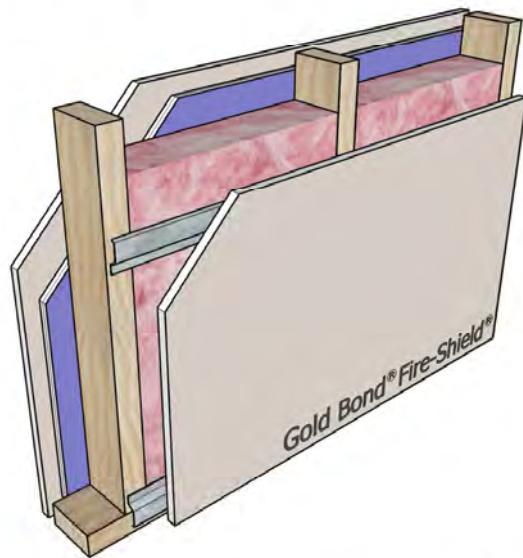
STC-58

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 111

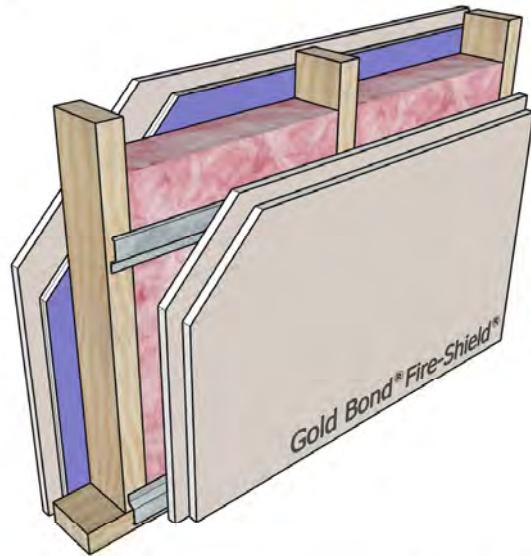


STC-58

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 113



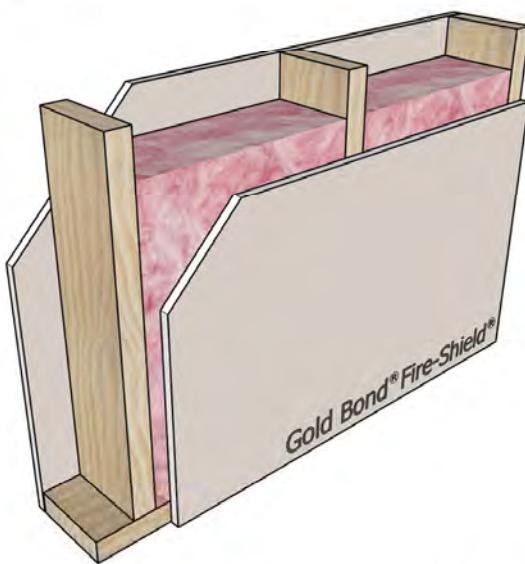
STC-61

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

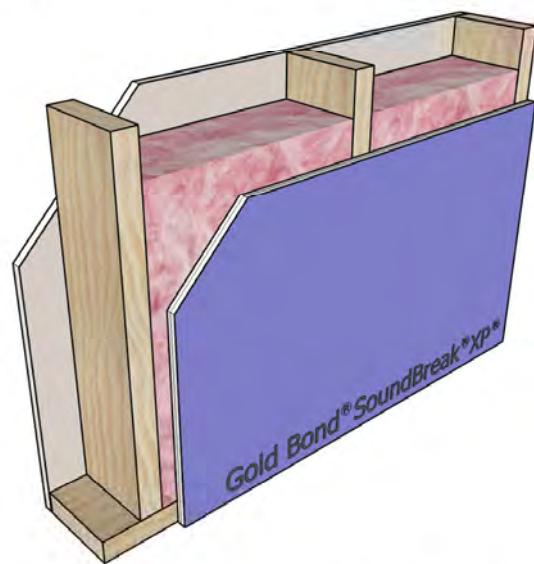
NGC 2008032

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 116

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 117

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

STC-46

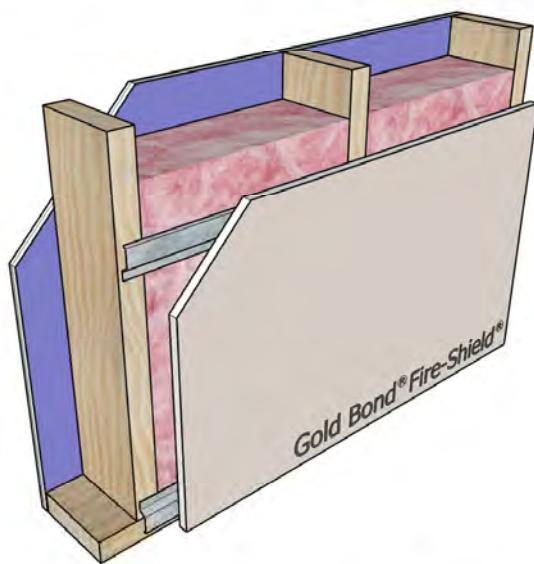
NGC 2009010

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.

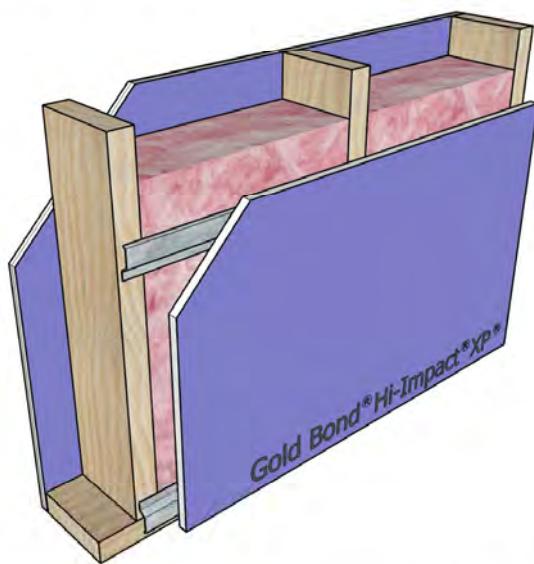
Insulation: 5-1/2" glass fiber

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

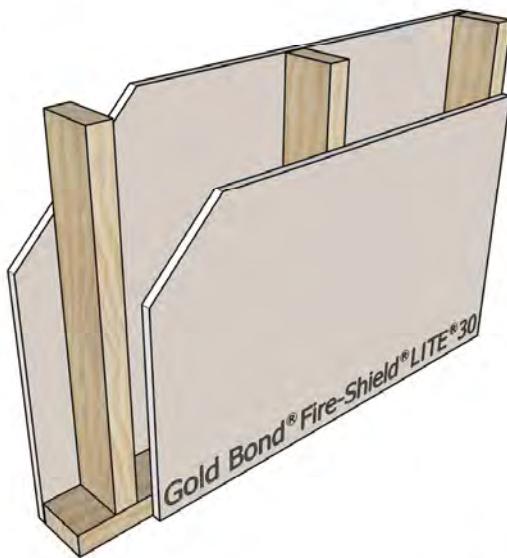
Side 1: 5/8" SoundBreak XP Gypsum Board

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

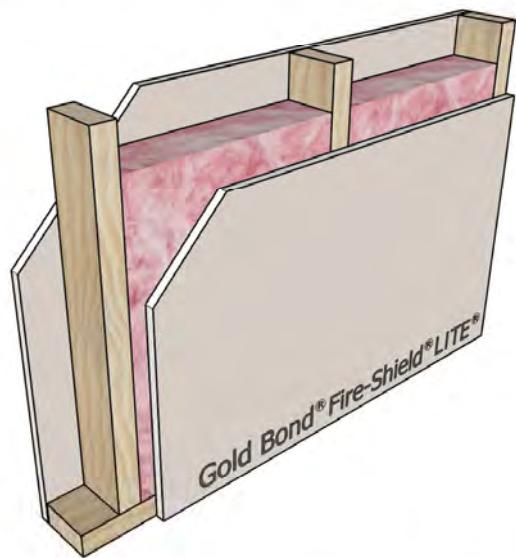
Side 1: 5/8" Fire-Shield LITE 30 Gypsum Board

Side 2: 5/8" Fire-Shield LITE 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 122

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 123

STC-34

NGC 2014045

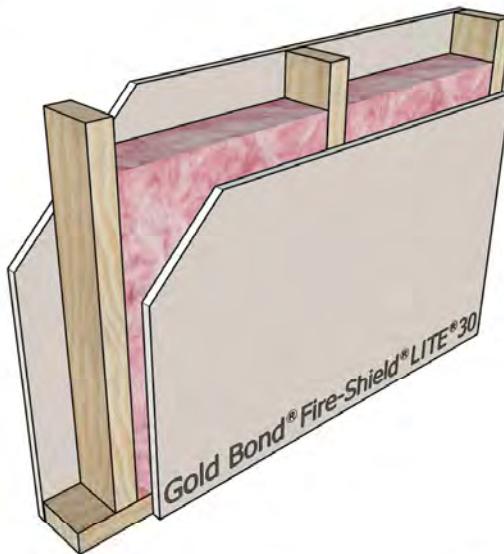
Framing: 2x4 wood studs, 16" o.c.

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



STC-38

NGC 2014042

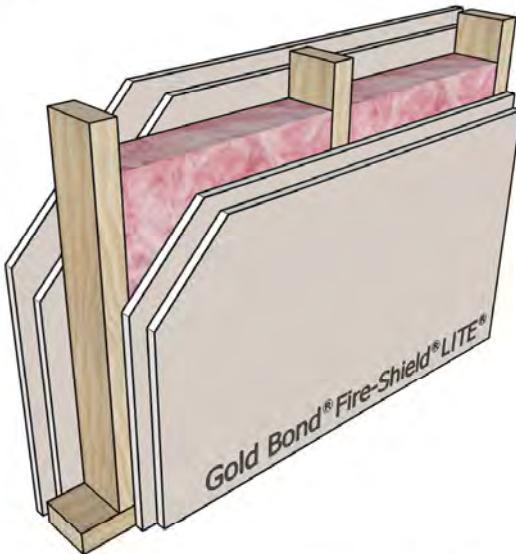
Framing: 2x4 wood studs, 16" o.c.

Insulation: 3-1/2" glass fiber

Side 1: 2 layers 5/8" Fire-Shield LITE Gypsum Board

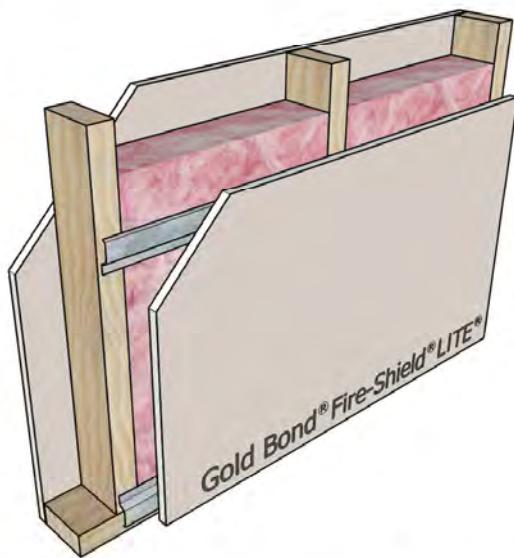
Side 2: 2 layers 5/8" Fire-Shield LITE Gypsum Board

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.

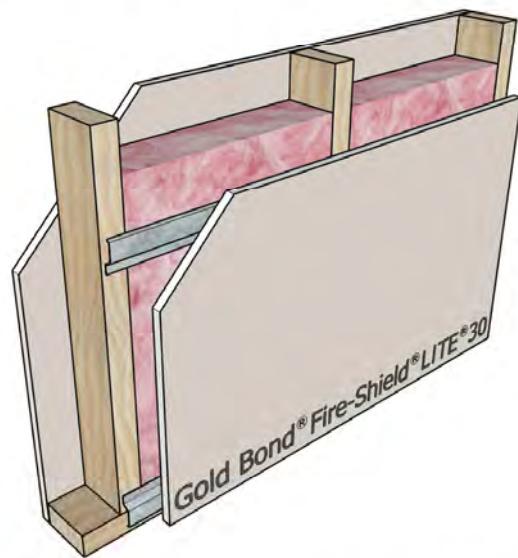
Insulation: 3 1/2" glass fiber

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

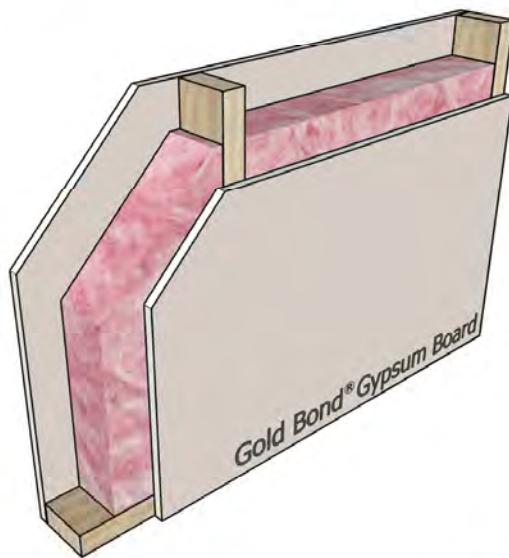
UL Design: W411 - 1/2 hour

The SoundBookTM

Wood Stud Partitions
with Framing 24" o.c.

Wood Stud Partitions with Framing 24" o.c.

Figure 126



STC-42

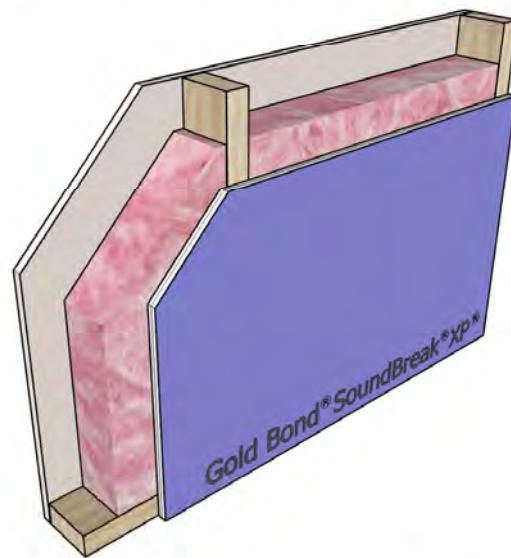
NGC 2012065

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 128

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 129

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

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



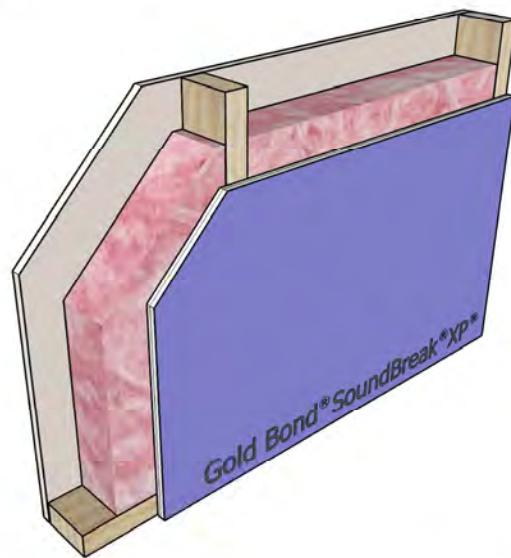
STC-38

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 132

Figure 131

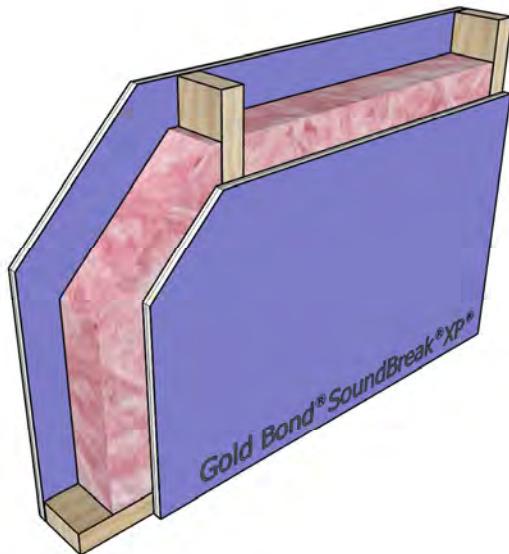


STC-50

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

NGC 2009015

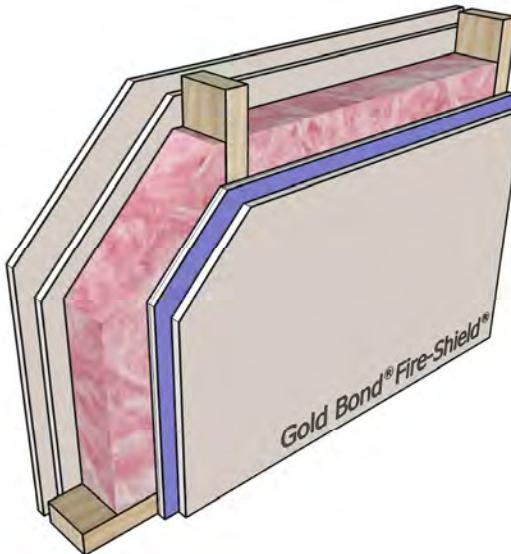


STC-53

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

RAL-TL07-145



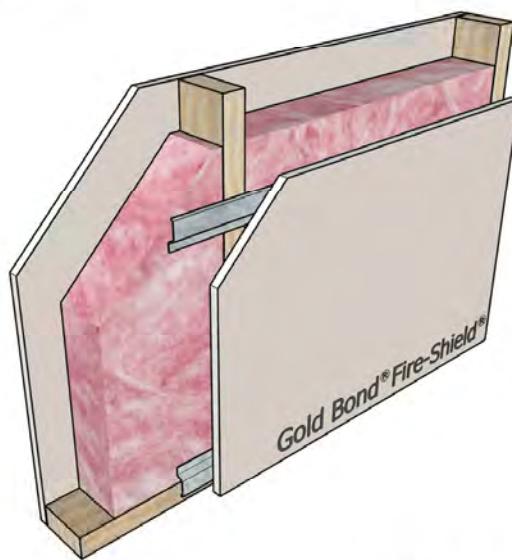
STC-54

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

NGC 2009016

Wood Stud Partitions with Framing 24" o.c.

Figure 134



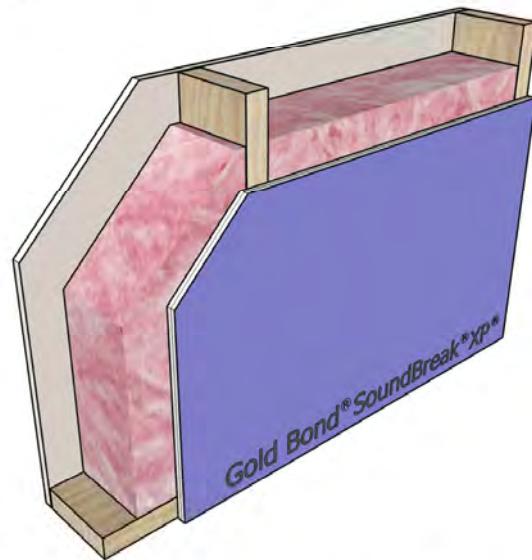
STC-50

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



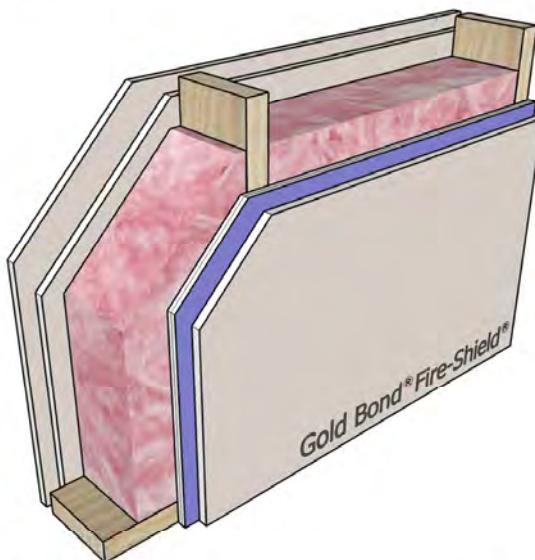
STC-50

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



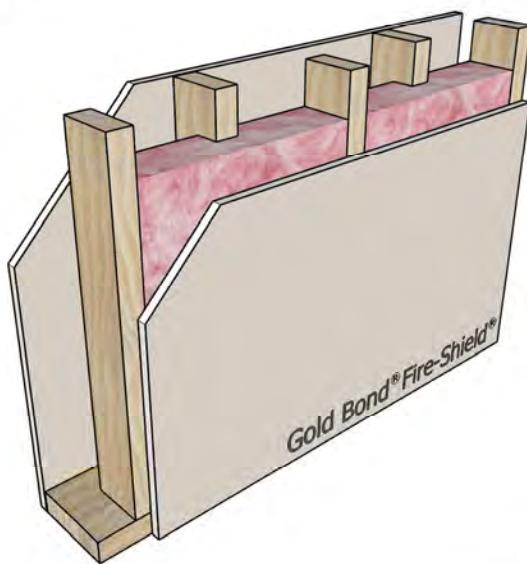
STC-53

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

Figure 137

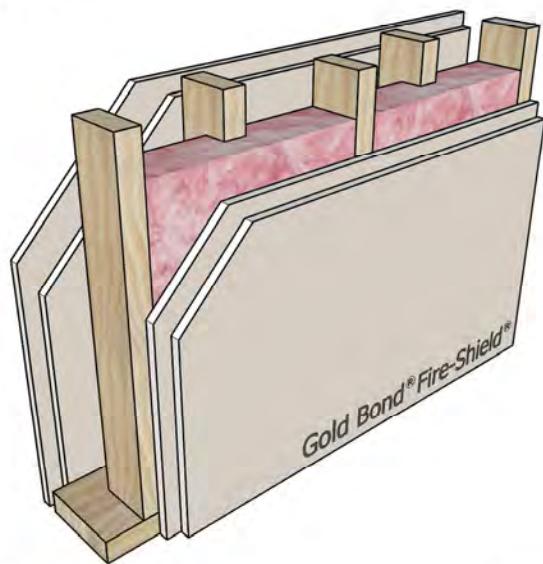


STC-45

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

NGC 2375

Figure 138

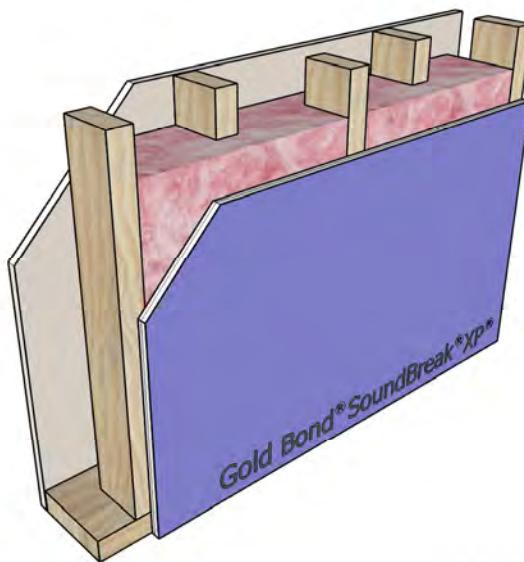


STC-53

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

NGC 2376

Figure 139

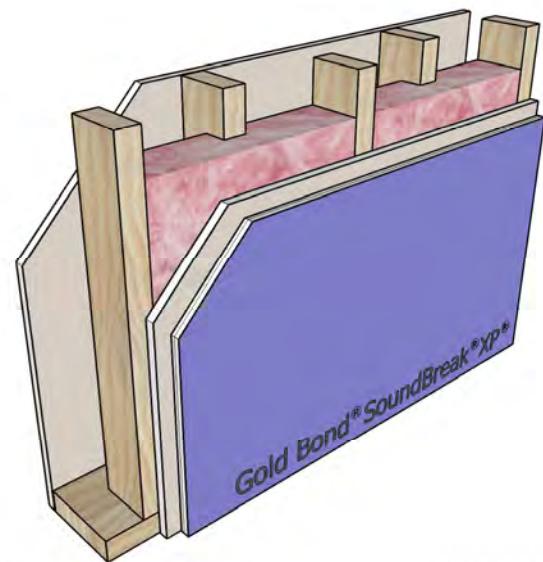


STC-53

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

NGC 2011003

Figure 140



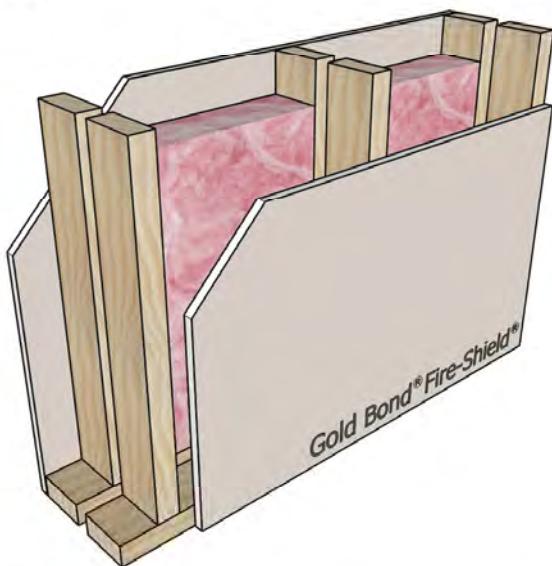
STC-53

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

NGC 2009045

Wood Stud Chase Walls

Figure 141

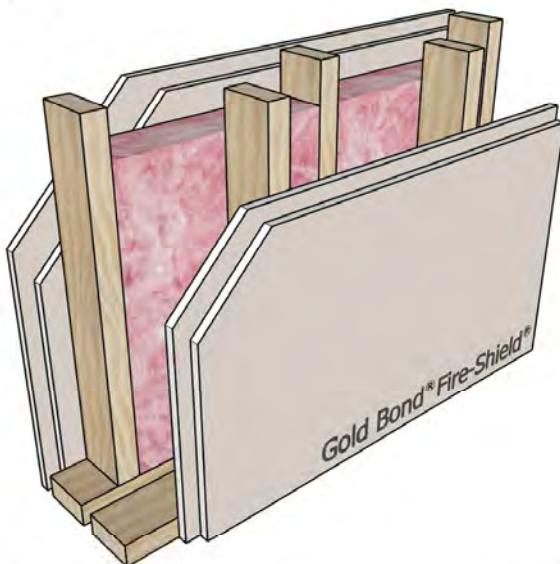


STC-51

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 143

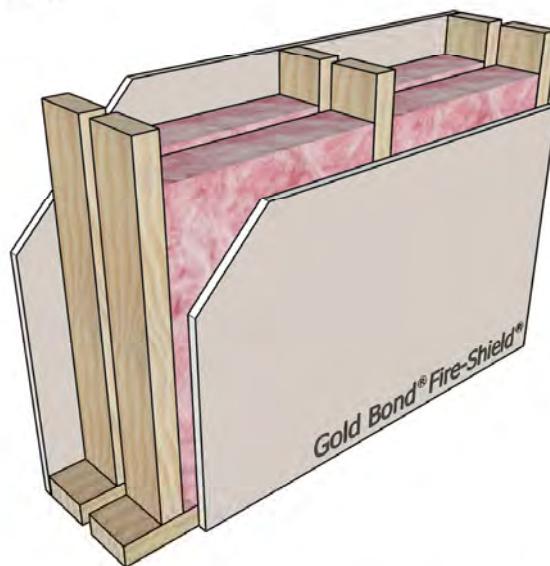


STC-58

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 142

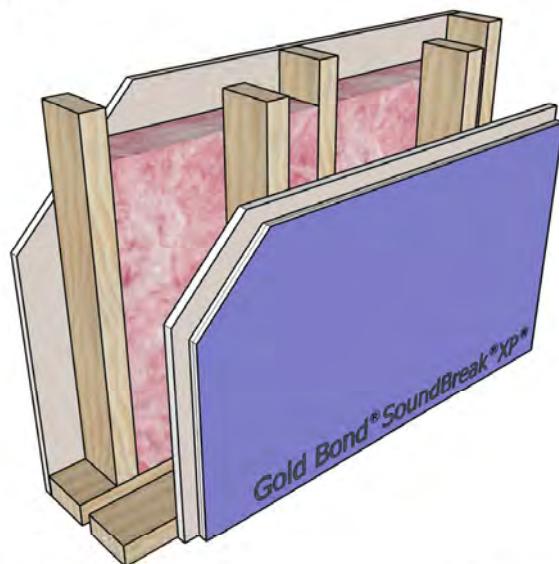


STC-54

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 144



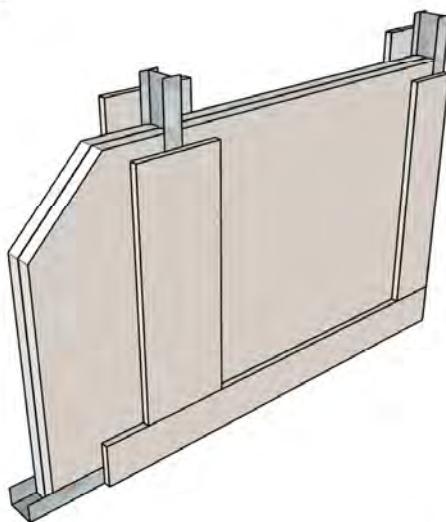
STC-64

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

Figure 145

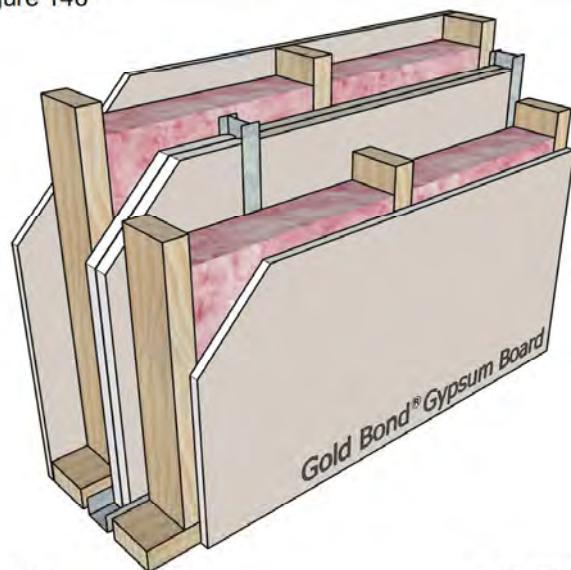


STC-35

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

NGC 2827

Figure 146

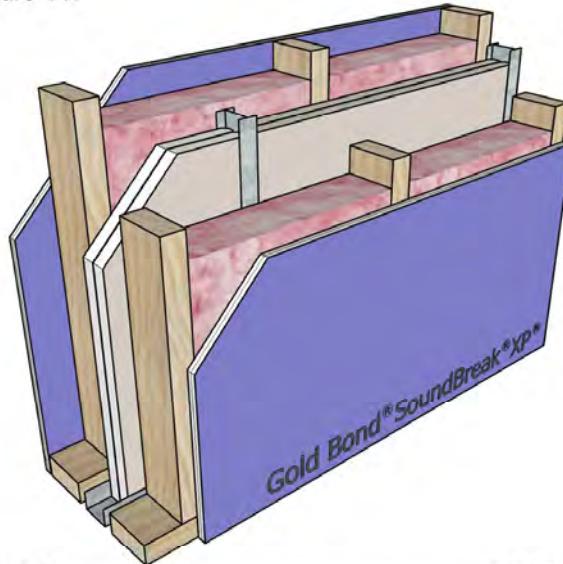


STC-61

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

RAL-TL05-199

Figure 147

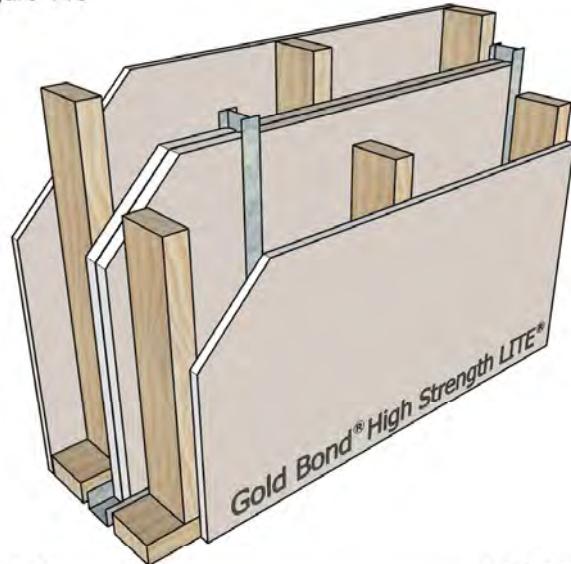


STC-65

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

NGC 2012081

Figure 148



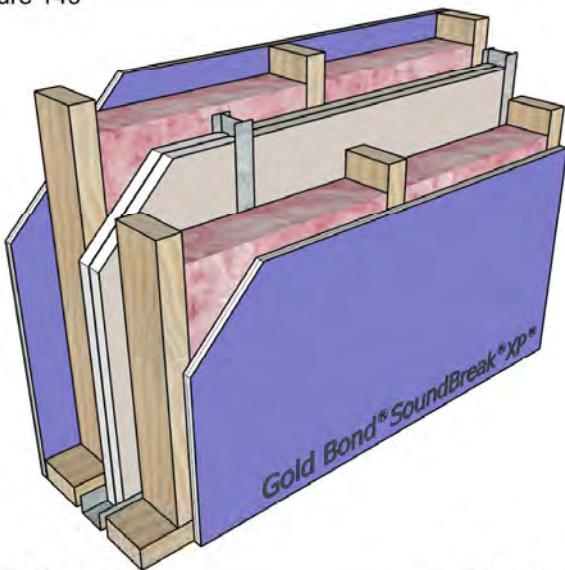
STC-41

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

NGC 2012086

Area Separation Fire Walls

Figure 149

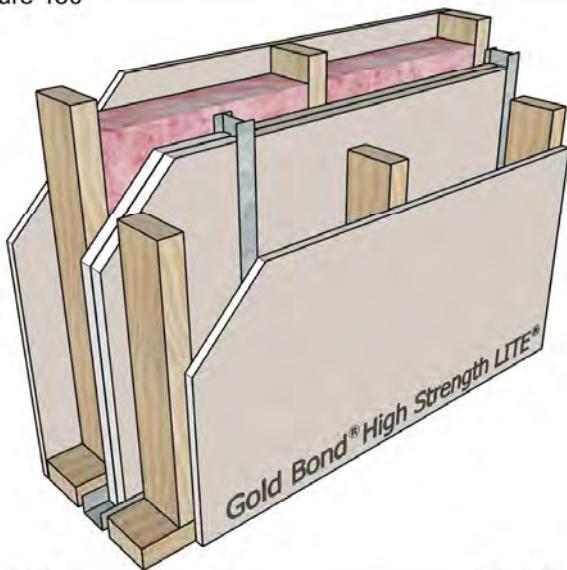


STC-67

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

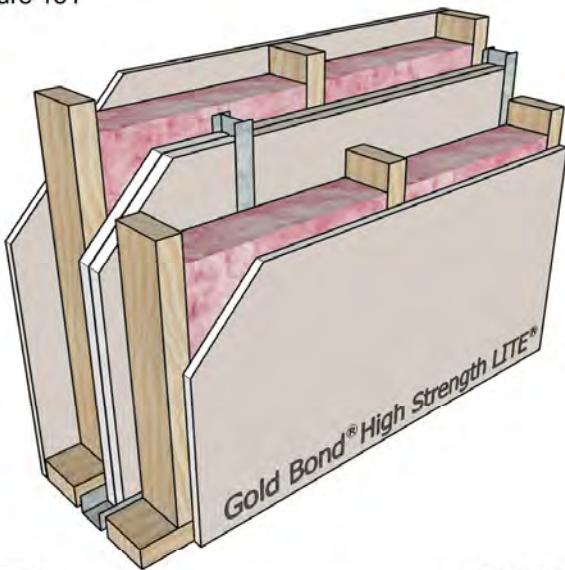


STC-54

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

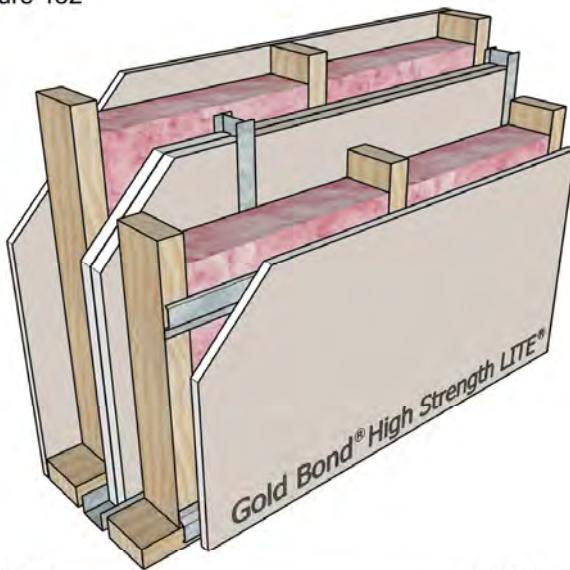


STC-59

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



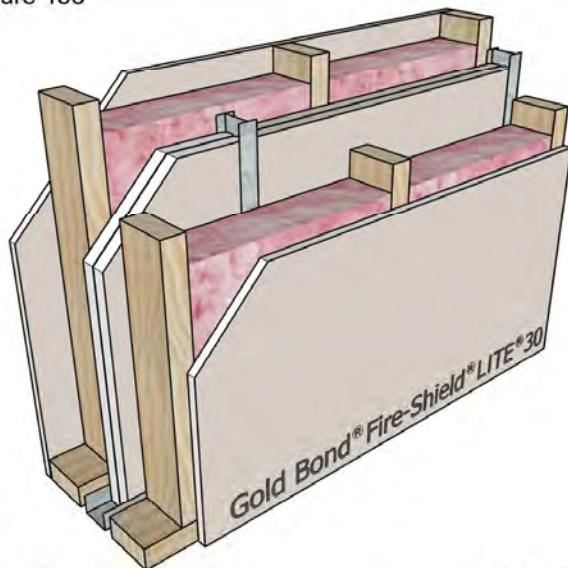
STC-62

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

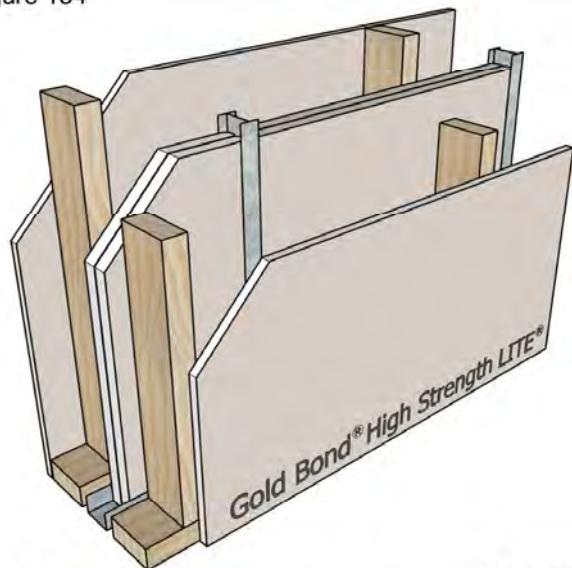


STC-57

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 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

Figure 150

Floor-Ceiling Assemblies

Figure 155



Figure 156



STC-37

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

NGC 4024

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

Figure 157

STC-45

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

NGC 4107

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

Figure 158

STC-52

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

NGC 5007061

IIC-51 With sheet vinyl flooring NGC 7007119

STC-60

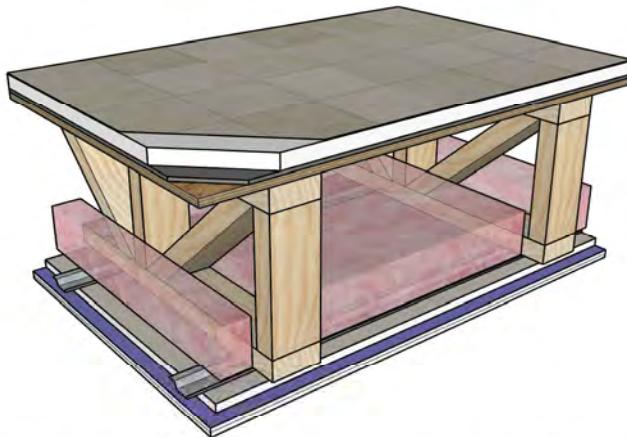
Framing: 18" wood trusses, 24" o.c.
Insulation: 3-1/2" glass fiber
Floor: 1" gypsum underlayment on 3/4" OSB
Ceiling: 5/8" Fire-Shield C Gypsum Board on
suspended ceiling grid system
UL Design: L558 - 1 hour

NGC 5007060

IIC-60 With sheet vinyl flooring NGC 5007118

Floor-Ceiling Assemblies

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

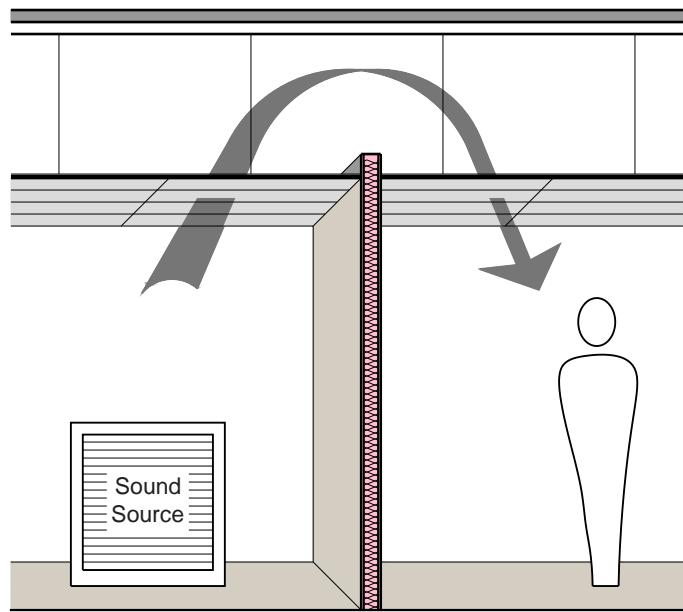
IIC - 21 Unfinished NGC 5121
IIC - 67 With Carpet and Pad NGC 5122

The Sound BookTM

Ceiling Attenuation Class of Gridstone Ceiling Assemblies

Ceiling Attenuation Class for Gridstone Ceiling Assemblies

Figure 72



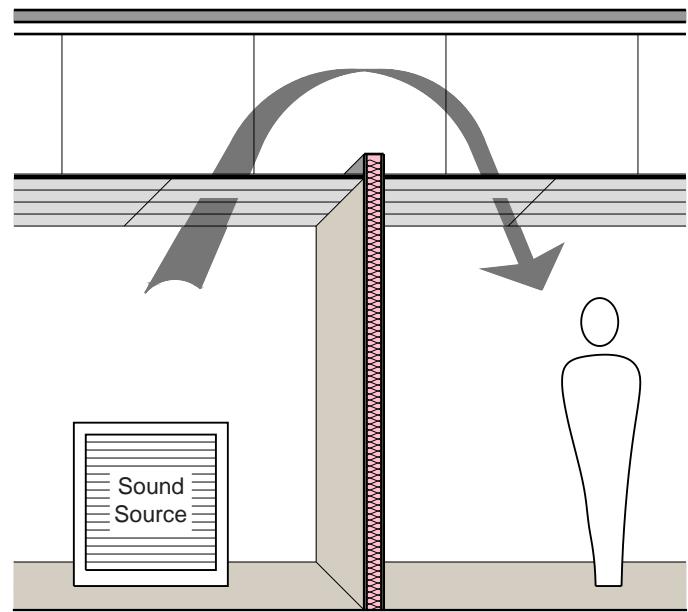
CAC-41

NGC 6000001

Ceiling: Suspended Grid with 2' x 4' x 5/16" Gridstone Hi-Strength Ceiling Panels

Insulation: None

Figure 72



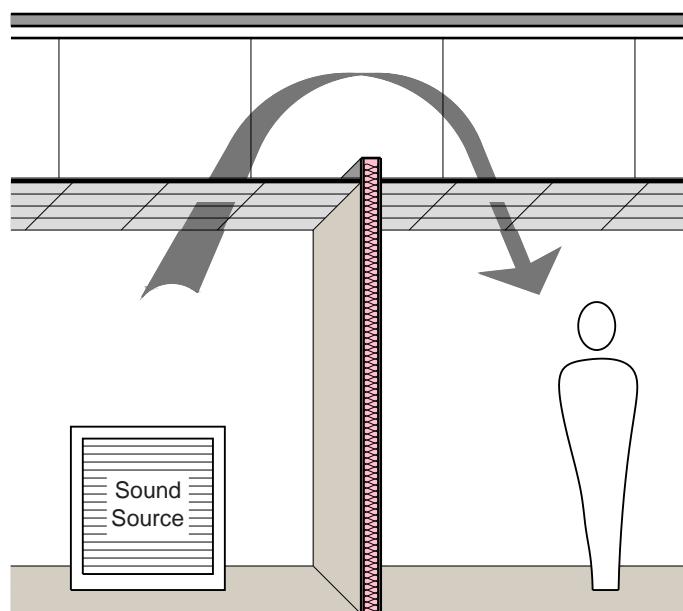
CAC-46

NGC 6098001

Ceiling: Suspended Grid with 2' x 4' x 1/2" Gridstone Ceiling Panels

Insulation: None

Figure 72



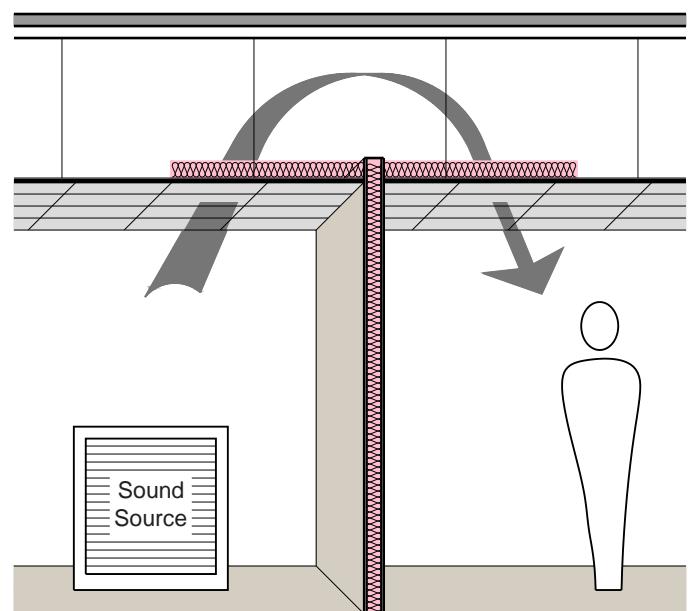
CAC-44

NGC 6013012

Ceiling: Suspended Grid with 2' x 2' x 1/2" Gridstone Ceiling Panels

Insulation: None

Figure 72



CAC-51

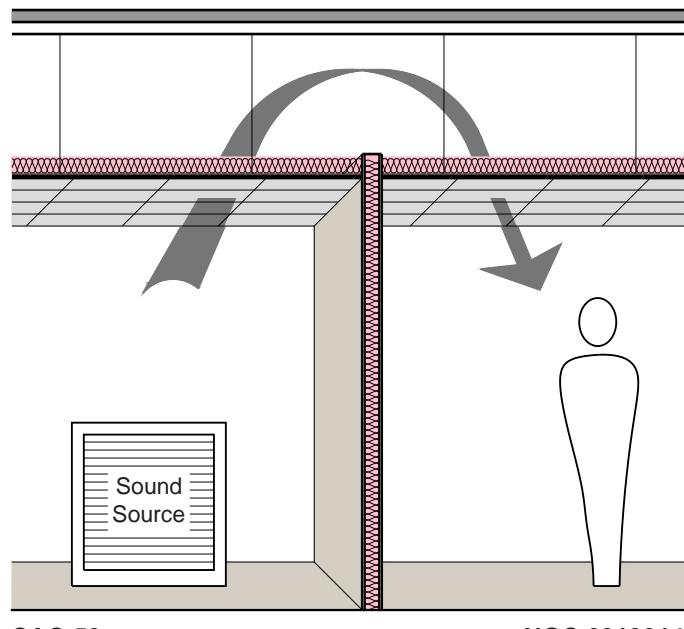
NGC 6013013

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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You've got the questions ... we've got the answers.

From left, the technical service team: Mark Chapman, Sam Halverson and Jim Farrell.



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