

# Acoustical Assembly Guide



# The SoundBook®

These gypsum board system details are intended solely as technical support incident to the sale and use of products provided by National Gypsum Company and manufactured by Gold Bond Building Products, LLC, PermaBASE Building Products, LLC and ProForm Finishing Products, LLC. Architects, engineers, design professionals, contractors, builders, building code officials, or construction industry professionals should consider this information for the selection, specification and use of products provided by National Gypsum Company in these systems.

Architects, engineers, designers and/or contractors involved should review these details with the authority having jurisdiction (AHJ), governing and/or inspection official at the time of the project submittal to determine if there are any discrepancies with local code or regulatory requirements. A design professional must provide a complete evaluation and verify the suitability of the system for a given application before beginning a project.

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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.

For a guide to information relating to certain systems described in The SoundBook® or copies of specific tests, please call National Gypsum Construction Services at 1-800-NATIONAL®.



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National Gypsum Company  
**Acoustical Assembly Guide**  
Second Edition



*Excellence Across The Board®*



## PREFACE

**The SoundBook® 2.0** is the most comprehensive construction guide for sound-rated assemblies. Designed to be a valuable resource for architects, contractors, and building inspectors, this guide contains detailed assemblies for use in all commercial and residential projects.

The SoundBook contains over 300 tested assemblies for Sound Transmission Class (STC). Organized by framing material, size, gauge, and number and type of gypsum board layers, the SoundBook is easy to use, and contains the most diverse array of acoustical assemblies for all your sound attenuation needs.

Key features of The SoundBook include:

- STC ratings for steel stud and shaftwall assemblies
- STC ratings for wood stud and area separation wall assemblies
- STC ratings for steel- and wood-framed floor-ceiling assemblies
- CAC ratings for gypsum board and ceiling panel assemblies

The SoundBook is one of a series of three technical guides from National Gypsum Company that have proven to be trusted resources for architects, inspectors, contractors, and builders.

- **The PURPLE Book®** is the industry's leading resource for fire-rated assemblies in commercial construction.
- **The Wood Book™** is first comprehensive construction guide for fire-rated assemblies in wood-frame construction.

Whatever stage your project is in, our 1-800-NATIONAL® Construction Services experts are always here to support you. Whether you have questions regarding fire-rated assemblies, products, specifications or building codes, we are just a phone call away.

To download copies of The PURPLE Book, The SoundBook and The Wood Book, visit the Design & Resource Center on **[nationalgypsum.com](http://nationalgypsum.com)**.



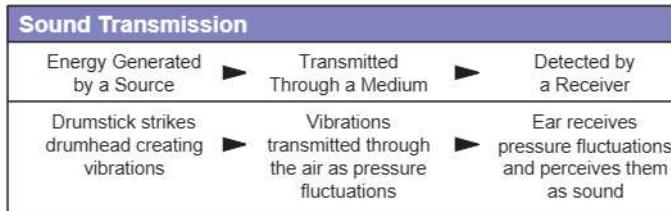
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## Acoustical Terms and Concepts

### 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 125 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 attenuate 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 attenuate the sound transmission.

#### 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.

#### 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.

#### 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.

#### 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.

## Acoustical Terms and Concepts

### Constrained Layer Damping

A new approach in noise reduction is the concept of constrained layer damping, where a viscoelastic material is sandwiched between two stiffer materials. As a result, vibrations on either side of the constraining materials is dissipated by the polymer.

### SoundBreak XP Family

The Gold Bond BRAND SoundBreak XP family of products incorporates this technology by inserting a viscoelastic polymer between two sheets of high-density gypsum board. The polymer absorbs and dissipates noise-producing vibrational energy by converting it into negligible heat.

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

SoundBreak XP products resist 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.



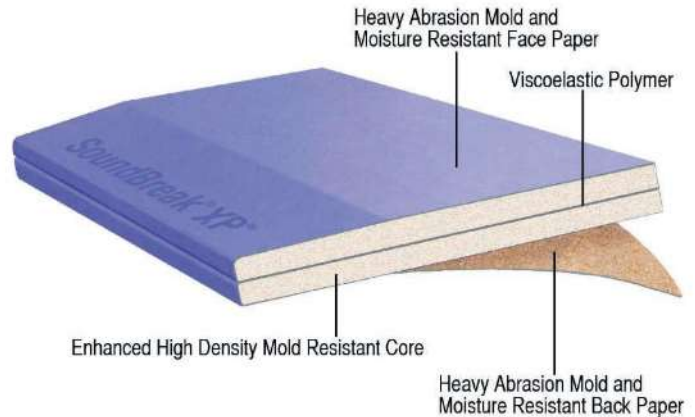
SoundBreak XP Wall Board is available in thicknesses of 1/2" or 5/8". 5/8" SoundBreak XP Wall Board features a fire-resistant Type X core and is UL classified. SoundBreak XP Wall board can be installed as the base layer or the face layer in multi-layer systems without affecting the STC. Use SoundBreak XP Wall board on wood or steel studs spaced 16 in. or 24 in. on center or on ceiling assemblies that do not require a fire rating or as an additional layer in a fire-rated, floor-ceiling assembly.



SoundBreak XP Ceiling Board is a 3/4" fire-resistant gypsum panel that is UL classified for use in specific floor-ceiling assemblies to provide a 1-hour fire rating.



SoundBreak XP Retrofit Board is a 5/16" high-density gypsum panel with a viscoelastic polymer adhered to the back paper for use over existing gypsum board partitions.



### 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.

### Ceiling Attenuation Class

Ceiling Attenuation Class (CAC) is a single number rating of the effectiveness of a ceiling system to reduce airborne sound transmission over a partition through a common plenum. Similar to Sound Transmission Class (STC), CAC is measured in decibels and provides an indication of how loud transmitted sound is perceived to be by the listener. A CAC value equal to the STC value of a partition helps mitigate the sound transmission over the partition when the partition terminates at a ceiling.

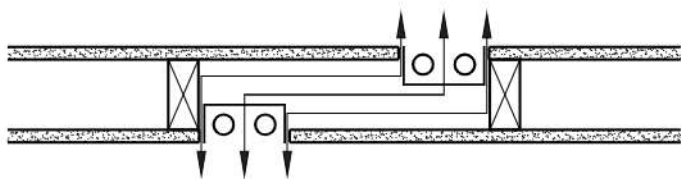
CAC sound tests are conducted in accordance with ASTM E1414, *Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum*. The test data collected is analyzed using ASTM E413, *Classification for Rating Sound Insulation*, and results in a single-number acoustical rating.

### Impact Insulation Class

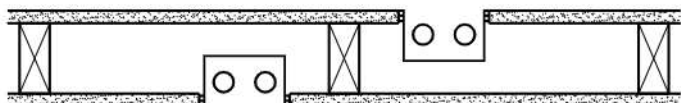
Impact Insulation Class (IIC) is a single-number rating system of the effectiveness of a floor system at reducing impact sounds such as foot traffic. Floor systems are tested with a tapping machine in accordance with ASTM E492, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*. Data derived from the test is analyzed using ASTM E989, *Standard Classification for Determination of Single-Number Metrics for Impact Noise*, and results in a single number rating for the purpose of comparing the sound attenuation of various flooring systems.

## Acoustical Terms and Concepts

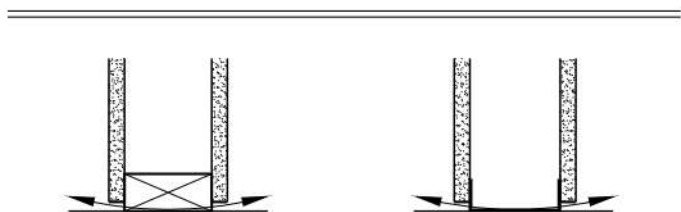
### Sound Isolation Construction



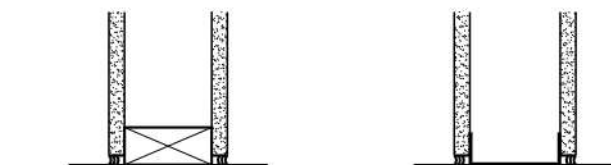
Arrows denote flanking paths for sound.



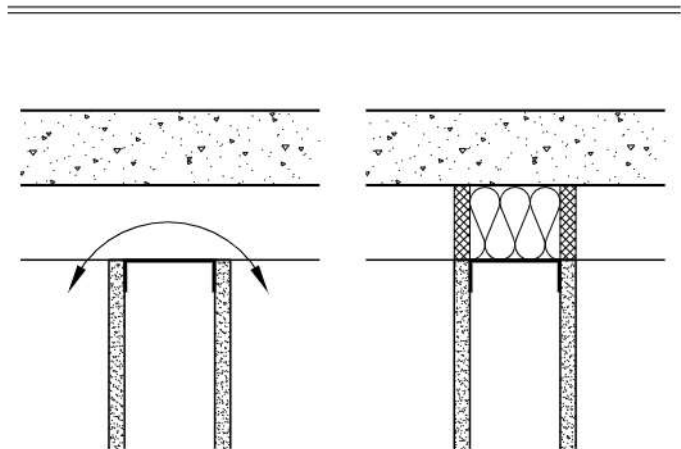
Electrical boxes offset one stud cavity and annular spaces sealed.



Arrows denote flanking paths for sound.



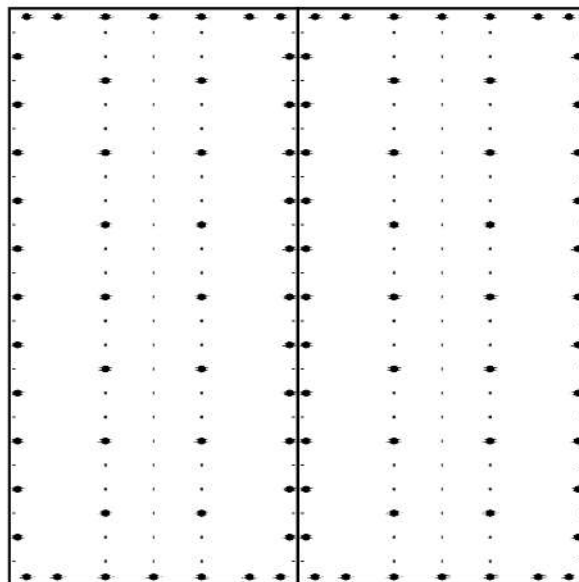
Perimeter of partition sealed.



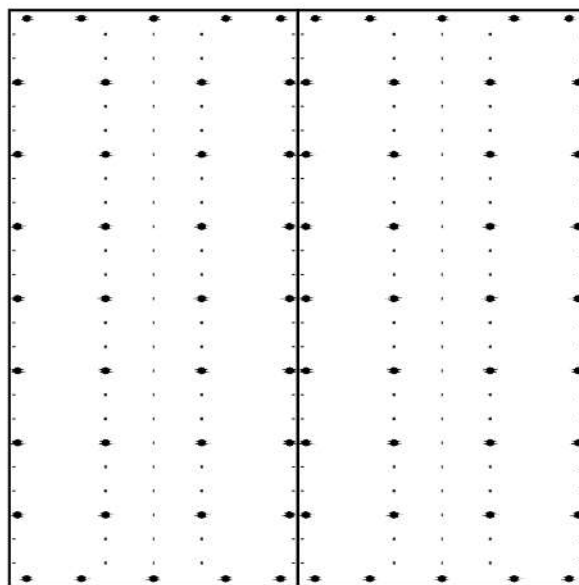
Arrows denote flanking paths for sound.

Flutes of metal deck insulated and sealed.

Increase the STC value of partitions by installing fewer fasteners using National Gypsum's MaX12 fastener pattern for 1-hour, single-layer, steel stud partitions. UL design V438 allows fasteners to be spaced 12" o.c. in the perimeter and field as opposed to 8" o.c. at the perimeter and 12" o.c. in the field for traditional 1-hour, steel stud partitions.



A traditional 8 ft. by 8 ft. 1-hour, steel stud partition requires 100 screws.



An 8 ft. by 8 ft. 1-hour, steel stud partition constructed with the MaX12 fastener pattern featured in UL design V438 only requires 76 screws.



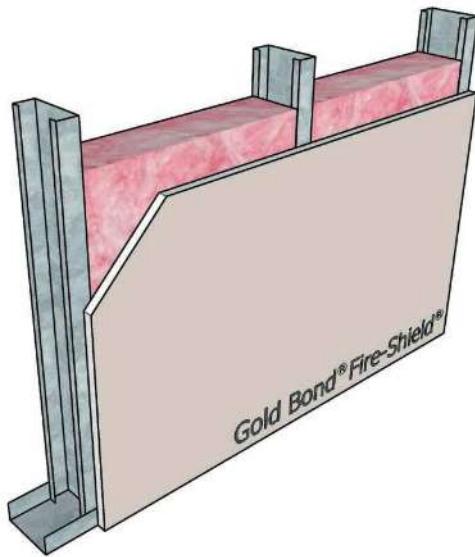
Steel Stud Partitions  
with Framing 16" o.c.





## Steel Stud Partitions with Framing 16" o.c.

Figure 1



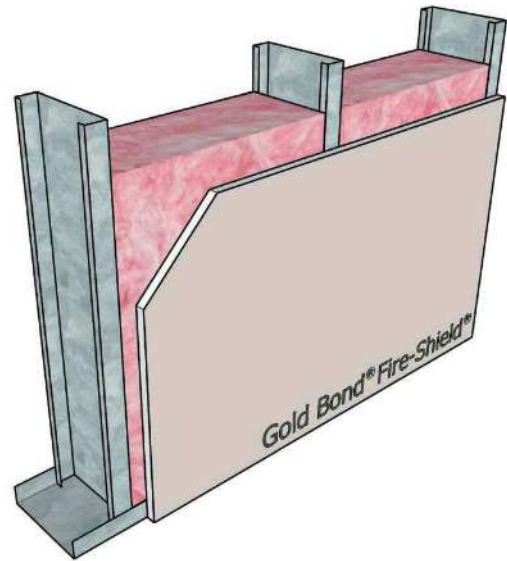
### STC-34

NGC 2013012

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

UL Design: Not Rated

Figure 2



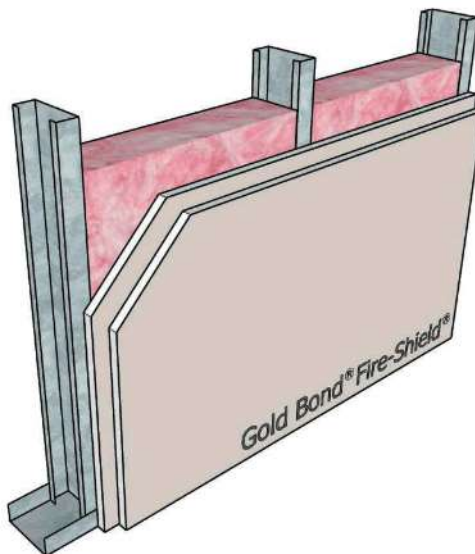
### STC-37

NGC 2013021

Framing: 6" steel studs, 20 gauge (20 mil), 16" o.c.  
 Insulation: 6" glass fiber  
 Side 1: None  
 Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: Not Rated

Figure 3



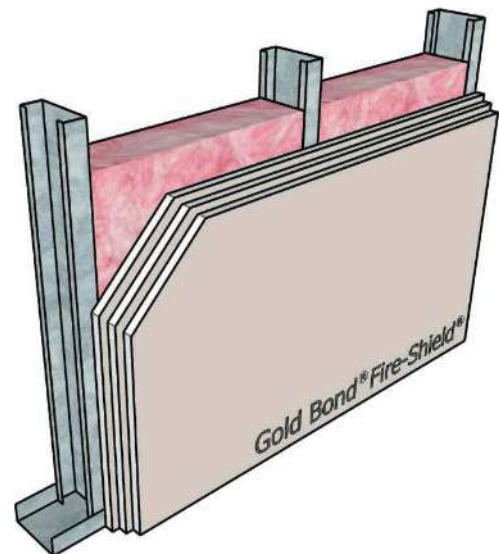
### STC-38

NGC 2013013

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

UL Design: V497 - 1 hour

Figure 4



### STC-42

NGC 2018061

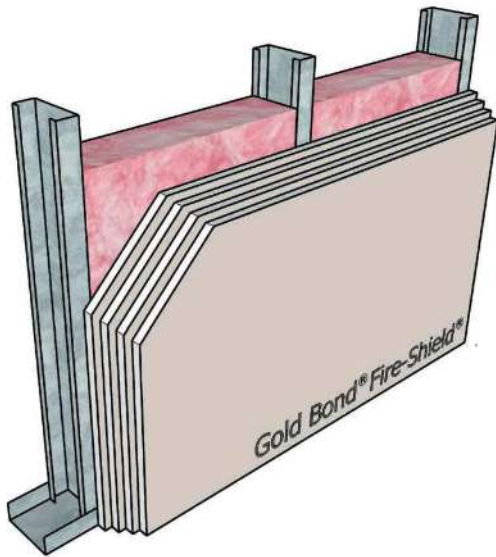
Framing: 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: None  
 Side 2: 3 layers 5/8" Fire-Shield Gypsum Board

UL Design: V497 - 1 hour

Note: 25 gauge (15 mil) and 20 gauge (18 mil, 19 mil, and 20 mil) studs are equivalent gauge (EQ) studs.

## Steel Stud Partitions with Framing 16" o.c.

Figure 5



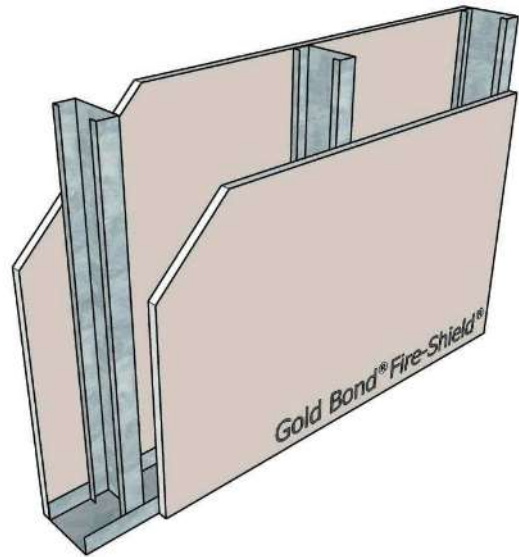
### STC-44

NGC 2018059

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: None  
 Side 2: 4 layers 5/8" Fire-Shield Gypsum Board

UL Design: V497 - 2 hour

Figure 6



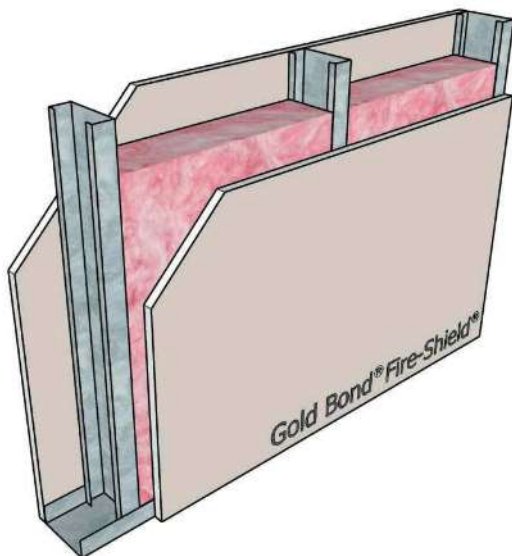
### STC-40

NGC 2518

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

UL Design: V438, U465 - 1 hour

Figure 7



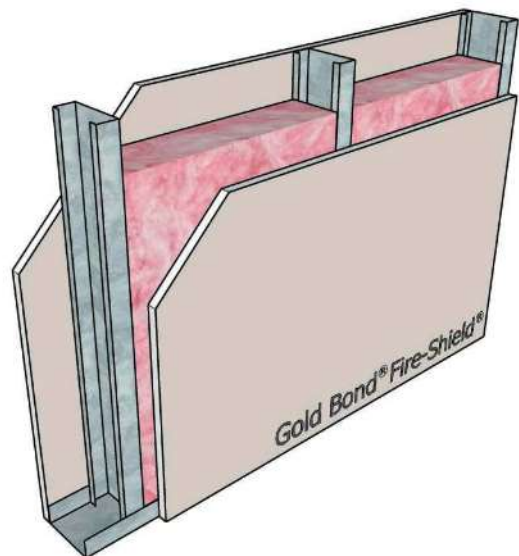
### STC-48

NGC 2018107

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

UL Design: V438, U465 - 1 hour

Figure 8



### STC-46

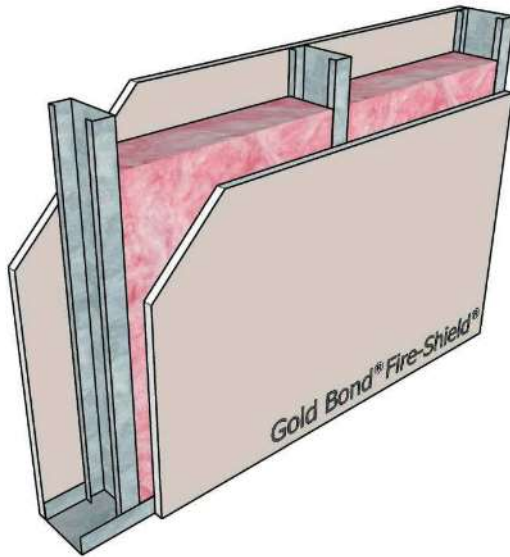
NGC 2018106

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

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 9



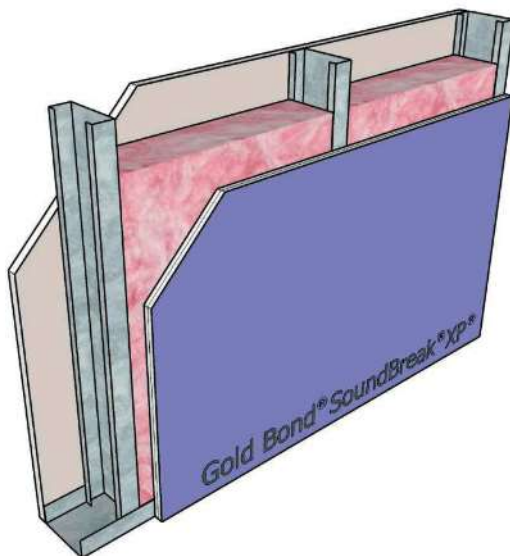
**STC-40**

**NGC 2016074**

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

UL Design: V438, U465 - 1 hour

Figure 11



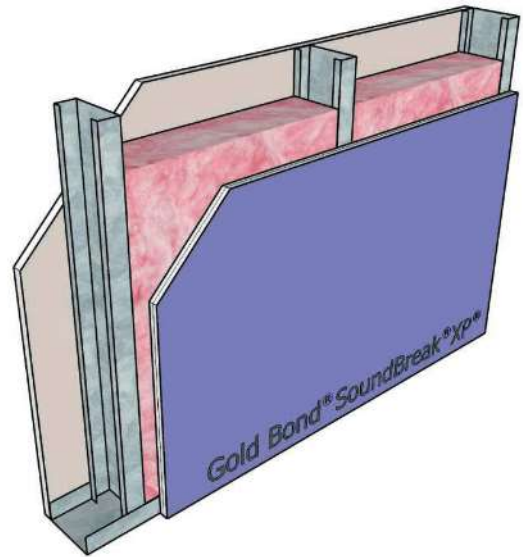
**STC-48**

**NGC 2019057**

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

UL Design: V438, U465 - 1 hour

Figure 10



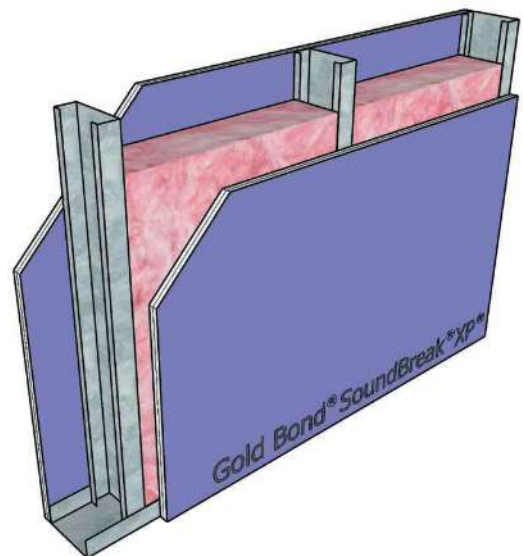
**STC-49**

**NGC 2009058**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465 - 1 hour

Figure 12



**STC-50**

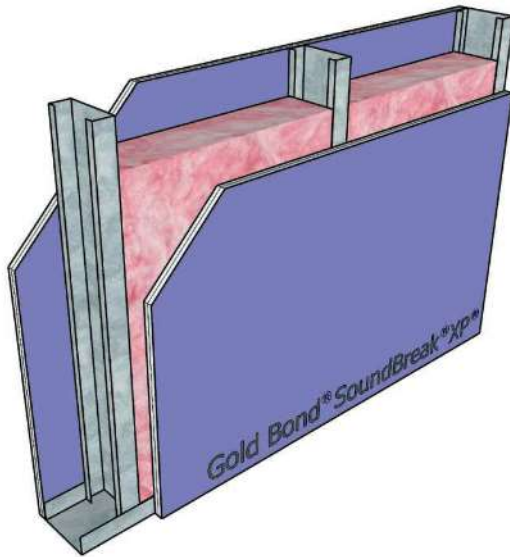
**NGC 2018004**

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

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 13



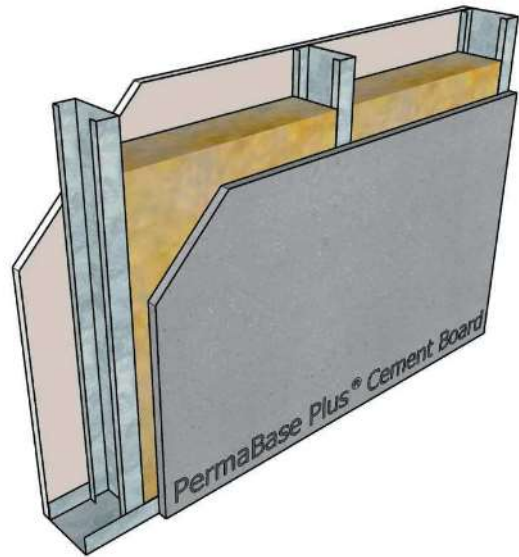
**STC-45**

**NGC 2016055**

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

UL Design: V438, U465 - 1 hour

Figure 14



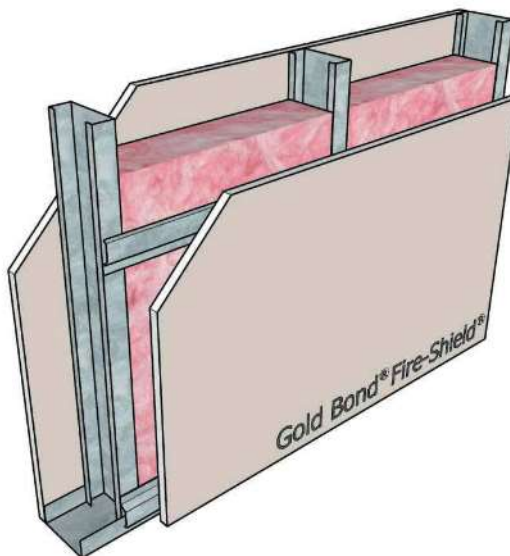
**STC-40**

**NGC 2018037**

Framing: 3-5/8" steel studs, 20 gauge (30 mil), 16" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 7/16" PermaBase Plus Cement Board

UL Design: W472 - 1 hour

Figure 15



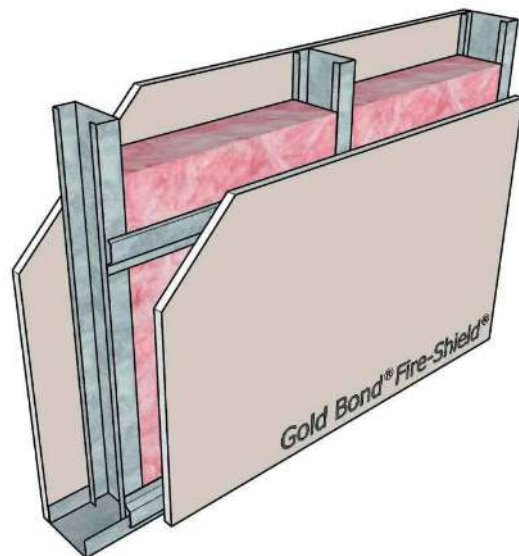
**STC-48**

**NGC 2009059**

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

UL Design: V438, U465 - 1 hour

Figure 16



**STC-51**

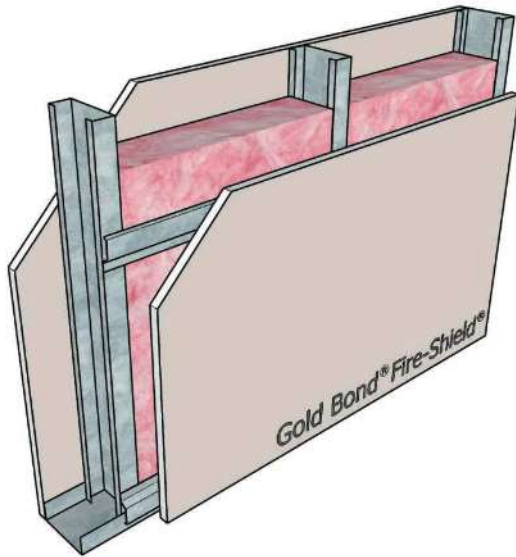
**NGC 2017217**

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

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 17



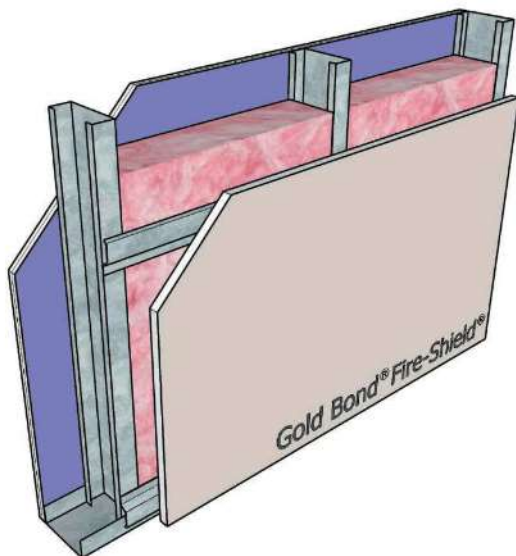
### STC-47

NGC 2014086

Framing: 3-5/8" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

UL Design: V438, U465, W469 - 1 hour

Figure 19



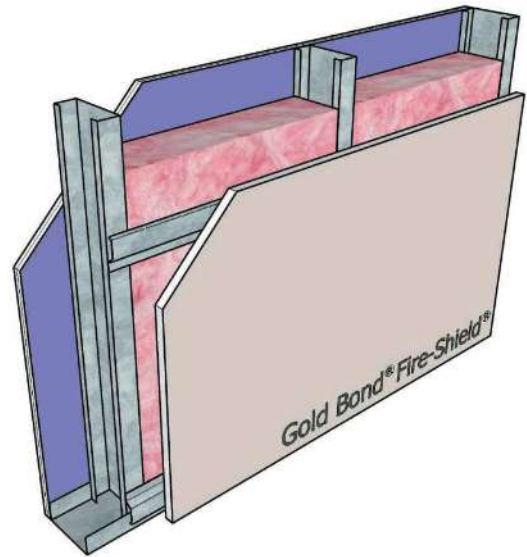
### STC-51

NGC 2014085

Framing: 3-5/8" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

UL Design: V438, U465, W469 - 1 hour

Figure 18



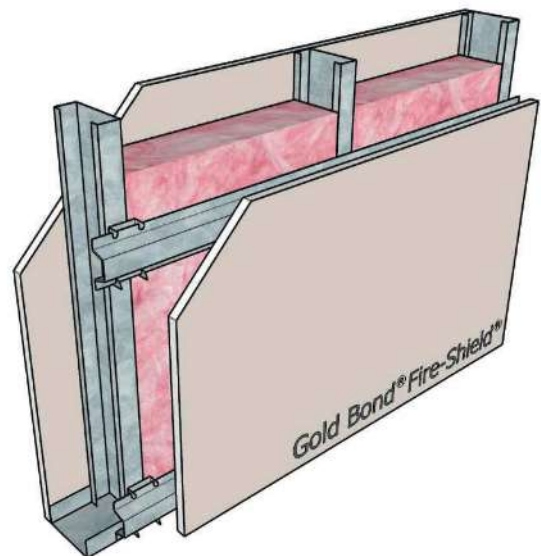
### STC-54

NGC 2017218

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

UL Design: V438, U465 - 1 hour

Figure 20



### STC-57

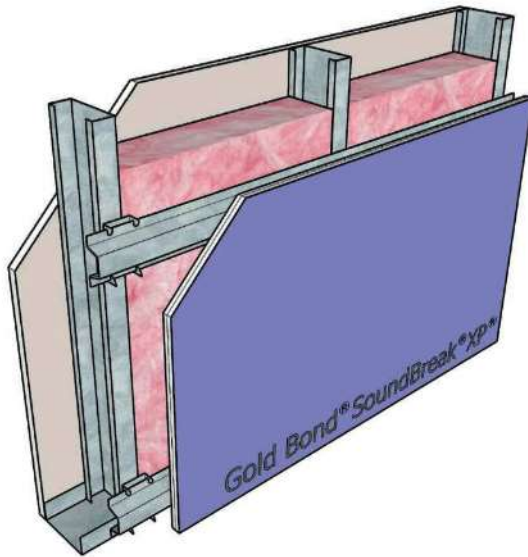
NGC 2018191

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

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 21

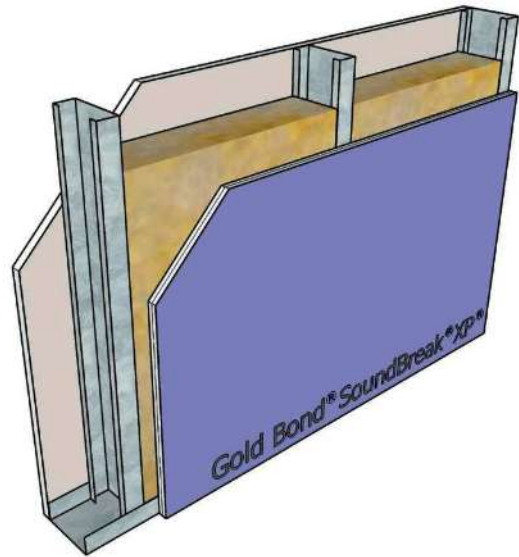


**STC-59**

**NGC 2018197**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 5-1/2" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board on 7/8" furring channel and resilient isolation clips  
 UL Design: V438, U465 - 1 hour

Figure 22



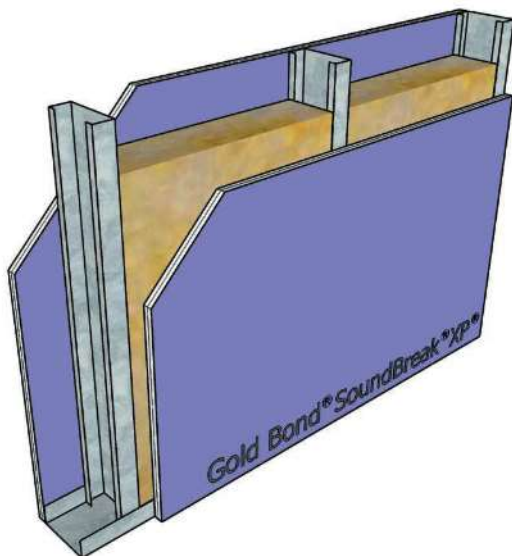
**STC-41**

**NGC 2016042**

Framing: 4" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465, W469 - 1 hour

Figure 23



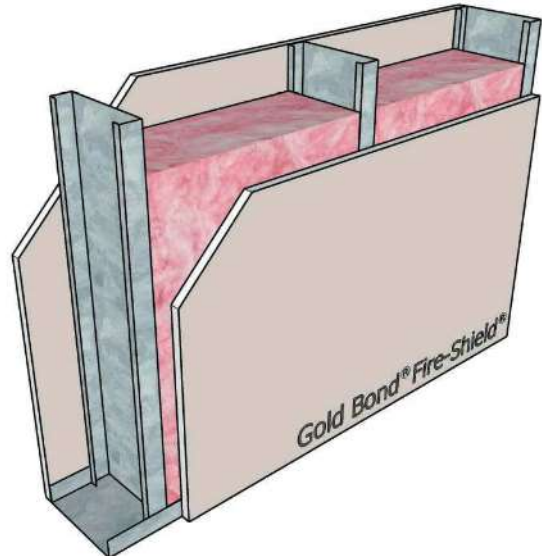
**STC-43**

**NGC 2016041**

Framing: 4" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 5/8" SoundBreak XP Wall Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465, W469 - 1 hour

Figure 24



**STC-44**

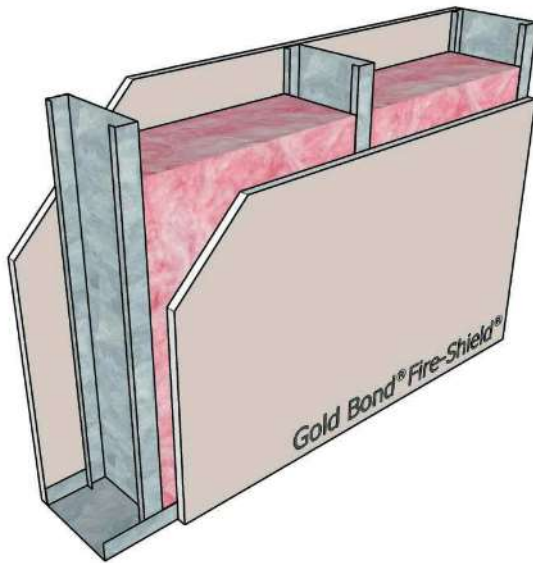
**NGC 2018130**

Framing: 6" steel studs, 20 gauge (19 mil), 16" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 25



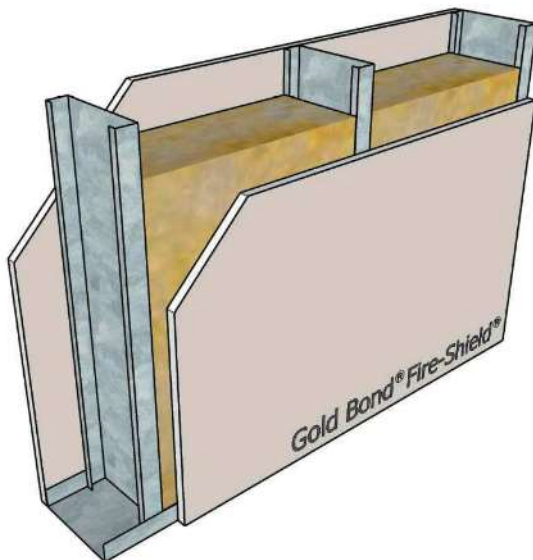
**STC-44**

**NGC 2018133**

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

UL Design: V438, U465 - 1 hour

Figure 27



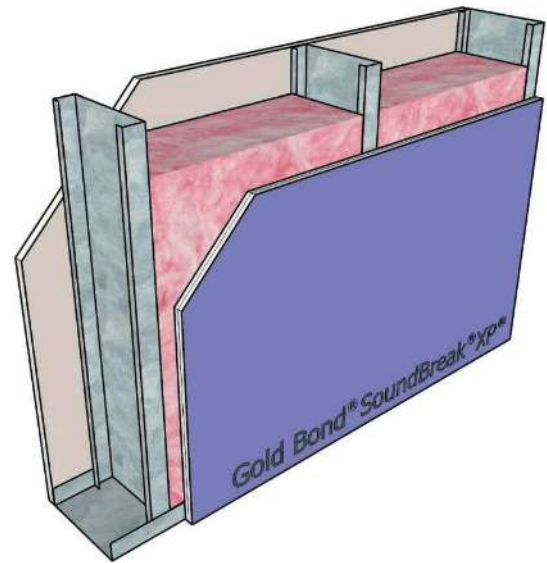
**STC-44**

**NGC 2017169**

Framing: 6" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 5-1/2" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: V438, U465, W469 - 1 hour

Figure 26



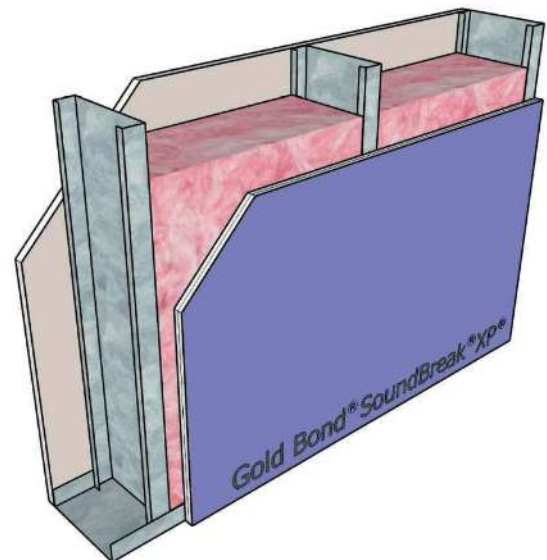
**STC-47**

**NGC 2018129**

Framing: 6" steel studs, 20 gauge (19 mil), 16" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465 - 1 hour

Figure 28



**STC-49**

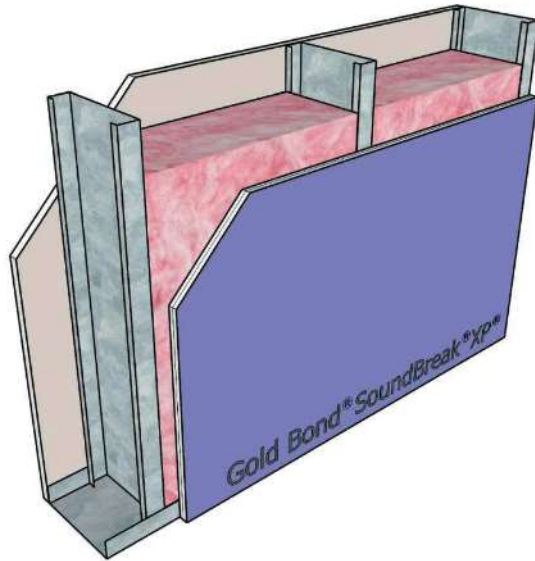
**NGC 2015007**

Framing: 6" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465, W469 - 1 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 29



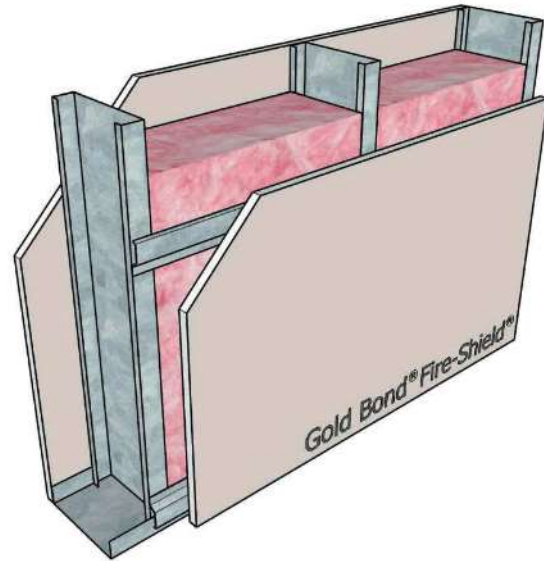
**STC-50**

**NGC 2017031**

Framing: 6" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" Hi-Impact XP Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465, W469 - 1 hour

Figure 30



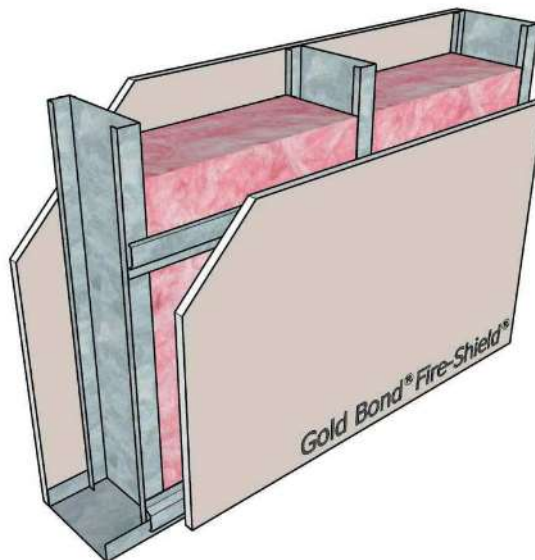
**STC-53**

**NGC 2013026**

Framing: 6" steel studs, 20 gauge (20 mil), 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 31



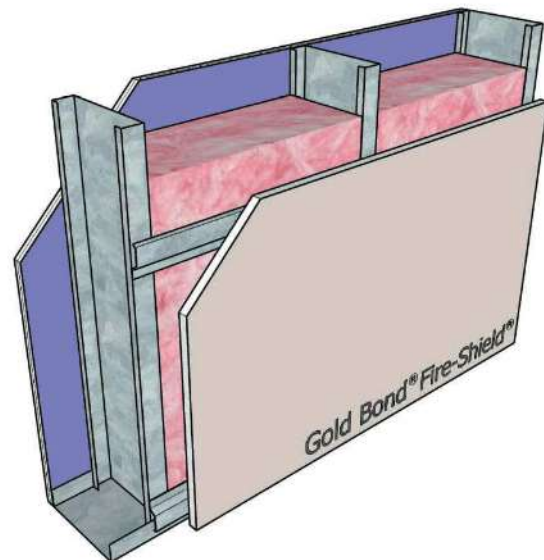
**STC-50**

**NGC 2015001**

Framing: 6" steel studs, 16 gauge (54 mil), 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, W469 - 1 hour

Figure 32



**STC-57**

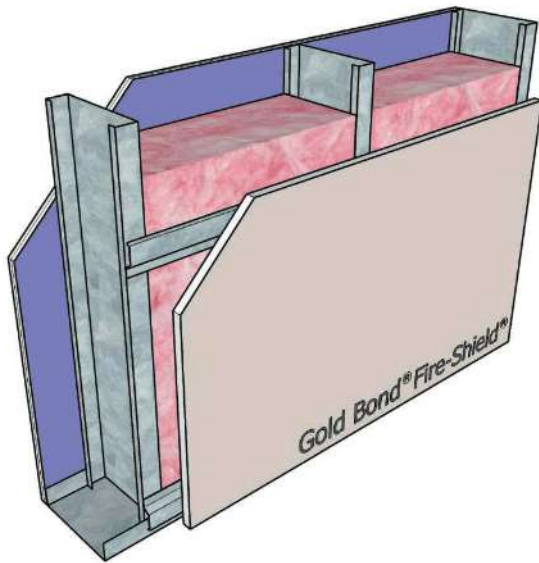
**NGC 2013027**

Framing: 6" steel studs, 20 gauge (20 mil), 16" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall 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 33



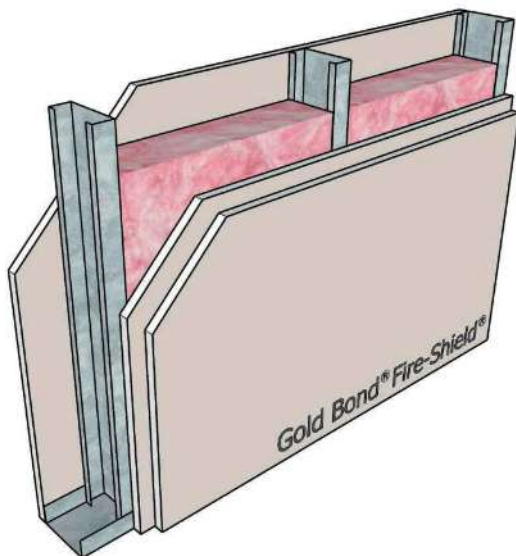
### STC-55

NGC 2015002

Framing: 6" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

UL Design: V438, U465, W469 - 1 hour

Figure 35



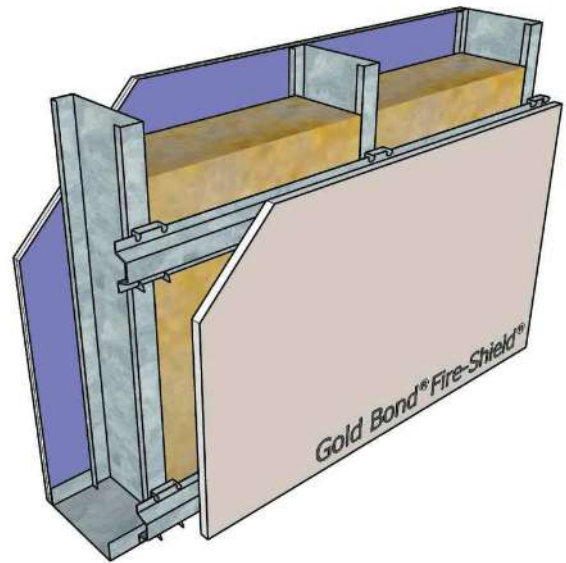
### STC-52

NGC 2018108

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

UL Design: V438, U465 - 1 hour

Figure 34



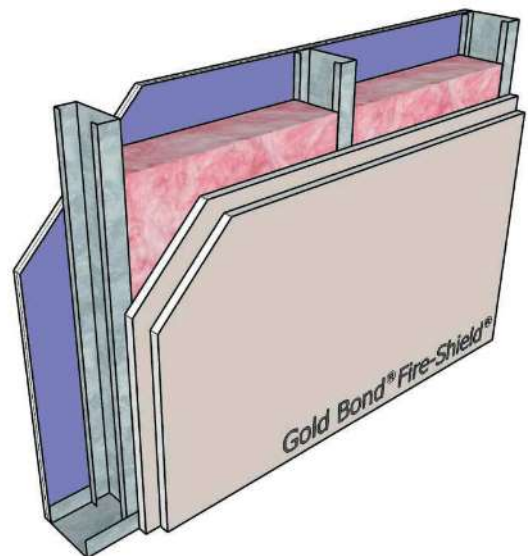
### STC-62

NGC 2019029

Framing: 6" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 6" mineral wool  
 Side 1: 5/8" SoundBreak XP Wall Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on 7/8" furring channel and resilient isolation clips

UL Design: V438, U465 - 1 hour

Figure 36



### STC-52

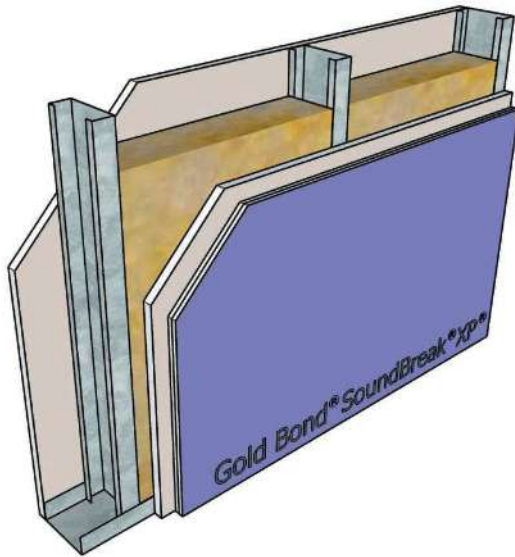
NGC 2019059

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall 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 37

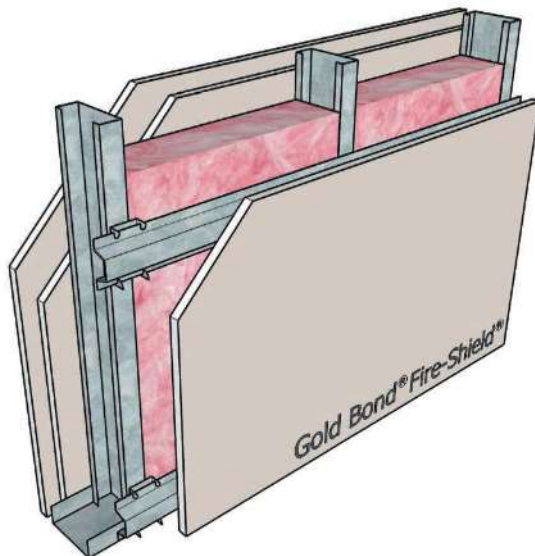


**STC-45**

**NGC 2016047**

Framing: 4" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board on  
 5/8" Fire-Shield Gypsum Board  
 UL Design: V438, U465, W469 - 1 hour

Figure 39

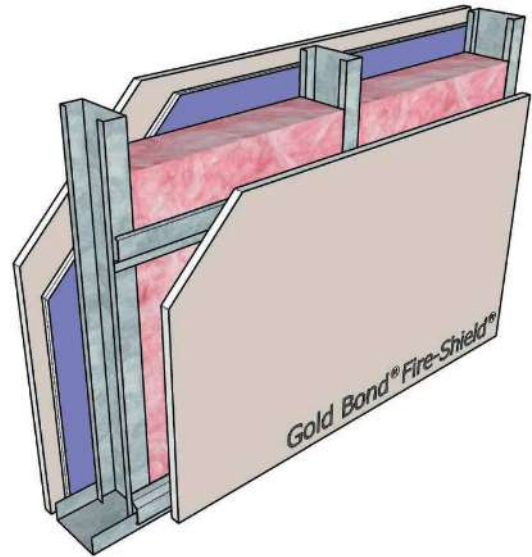


**STC-61**

**NGC 2018192**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" 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 7/8" furring  
 channel and resilient isolation clips  
 UL Design: V438, U465 - 1 hour

Figure 38

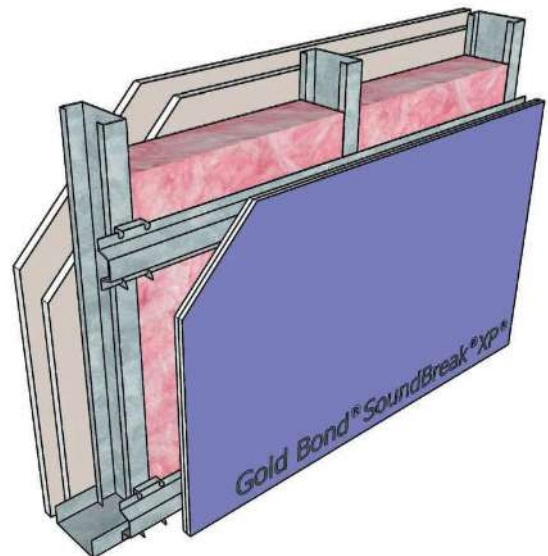


**STC-58**

**NGC 2017216**

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

Figure 40



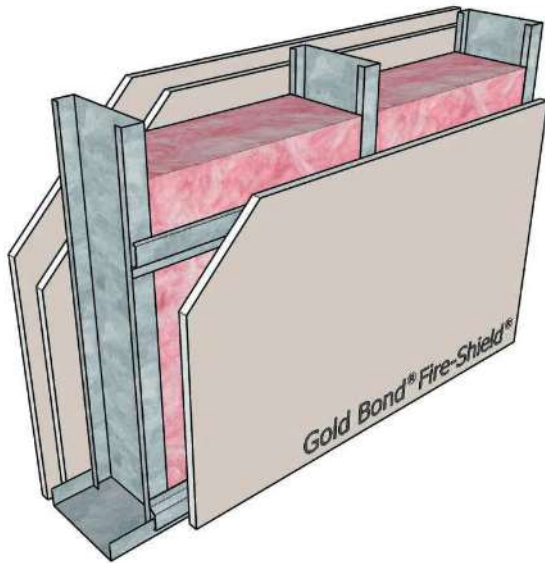
**STC-63**

**NGC 2018194**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 5-1/2" glass fiber  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board on 7/8" furring  
 channel and resilient isolation clips  
 UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 41



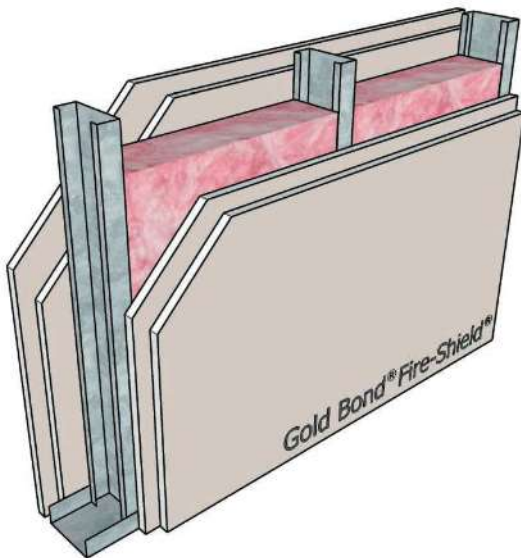
### STC-54

NGC 2017173

Framing: 6" steel studs, 16 gauge (54 mil), 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 RC-1

UL Design: V438, U465, W469 - 1 hour

Figure 43



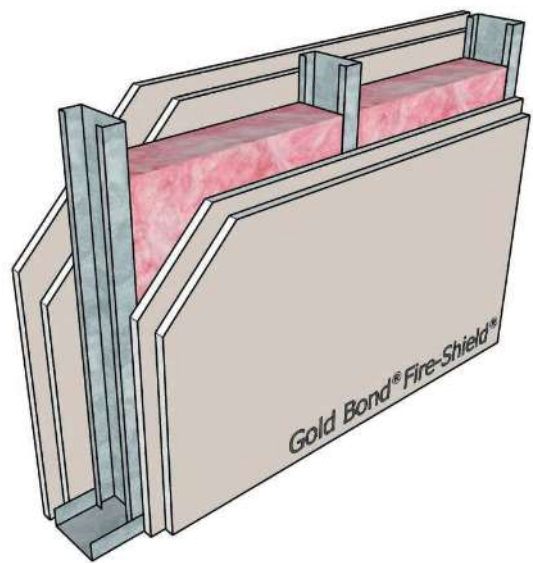
### STC-52

NGC 2018113

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 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 42



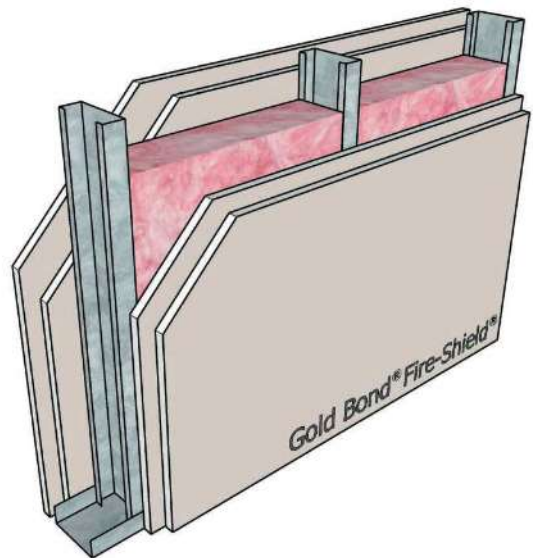
### STC-56

NGC 2018109

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 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 44



### STC-49

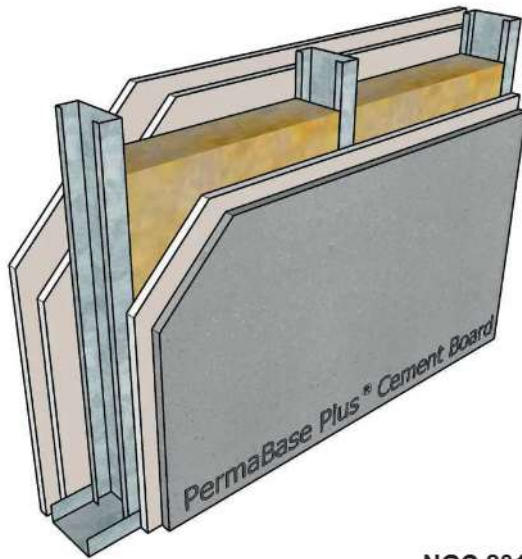
NGC 2016082

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

UL Design: V438, U411 - 2 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 45



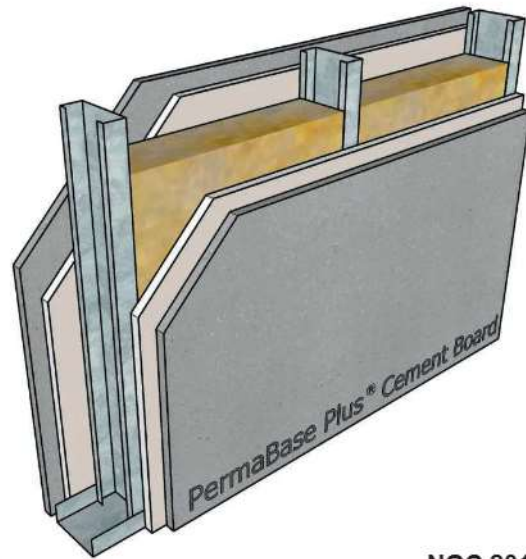
**STC-43**

**NGC 2018036**

Framing: 3-5/8" steel studs, 20 gauge (30 mil), 16" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 7/16" PermaBase Plus Cement Board on  
 5/8" Fire-Shield Gypsum Board

UL Design: W472 - 2 hour

Figure 46



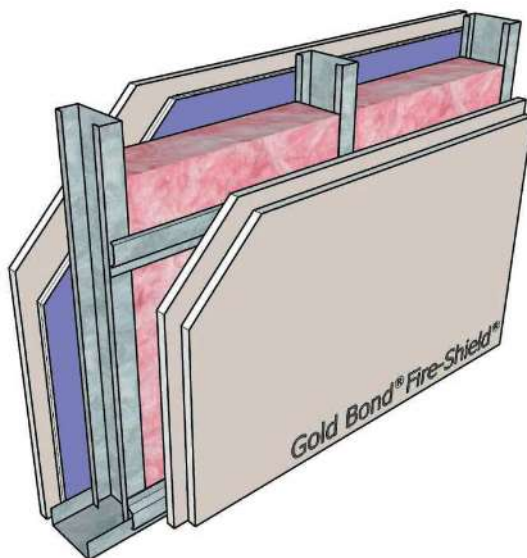
**STC-42**

**NGC 2018035**

Framing: 3-5/8" steel studs, 20 gauge (30 mil), 16" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 7/16" PermaBase Plus Cement Board on  
 5/8" Fire-Shield Gypsum Board  
 Side 2: 7/16" PermaBase Plus Cement Board on  
 5/8" Fire-Shield Gypsum Board

UL Design: W472 - 2 hour

Figure 47

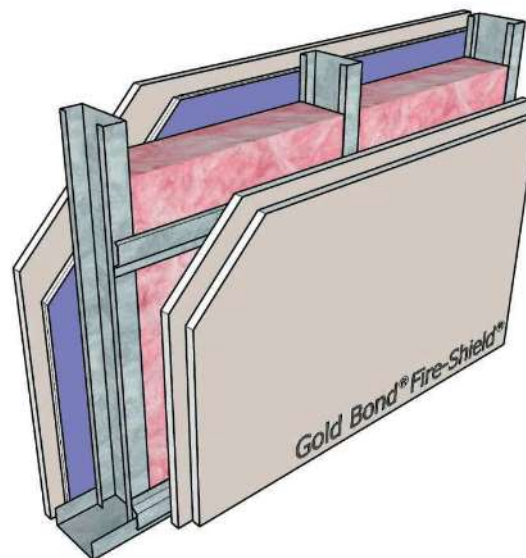


**STC-61**

**NGC 2017215**

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board on  
 5/8" SoundBreak XP Wall Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board on RC-1  
 UL Design: V438, U411 - 2 hour

Figure 48



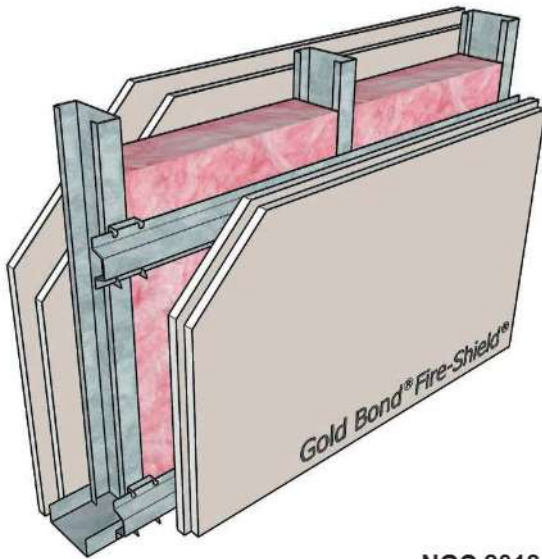
**STC-59**

**NGC 2014084**

Framing: 3-5/8" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board on  
 5/8" SoundBreak XP Wall Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board on RC-1  
 UL Design: V438, U411, W469 - 2 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 49



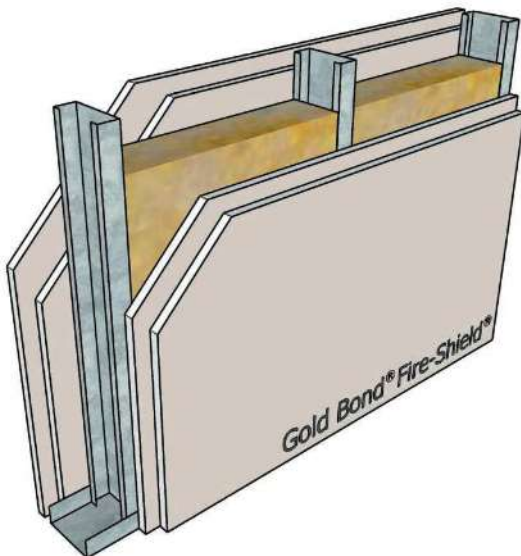
**STC-63**

**NGC 2018193**

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

UL Design: V438, U411 - 2 hour

Figure 51



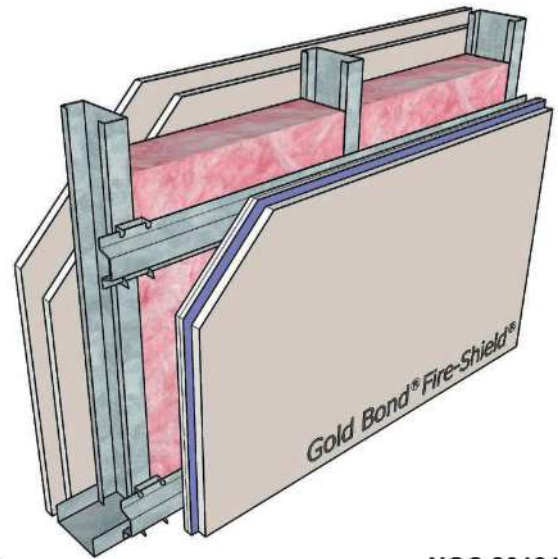
**STC-45**

**NGC 2016049**

Framing: 4" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board

UL Design: V438, U411, W469 - 2 hour

Figure 50



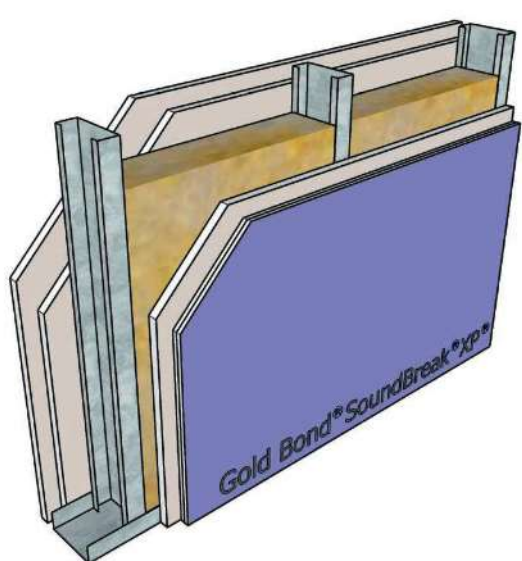
**STC-65**

**NGC 2018195**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" 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 Wall Board on 7/8" furring channel and resilient isolation clips

UL Design: V438, U411 - 2 hour

Figure 52



**STC-50**

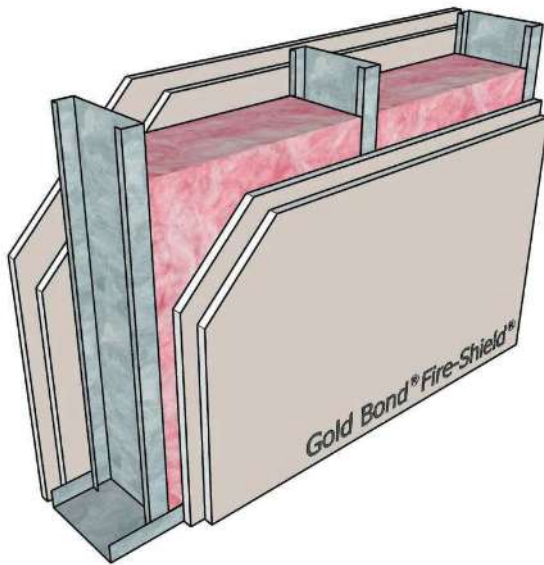
**NGC 2016048**

Framing: 4" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board on 5/8" Fire-Shield Gypsum Board

UL Design: V438, U411, W469 - 2 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 53



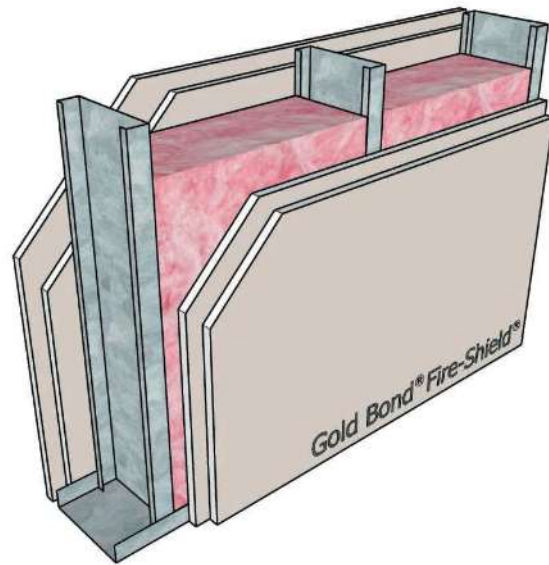
**STC-54**

**NGC 2018132**

Framing: 6" steel studs, 20 gauge (30 mil), 16" o.c.  
 Insulation: 6" 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 54



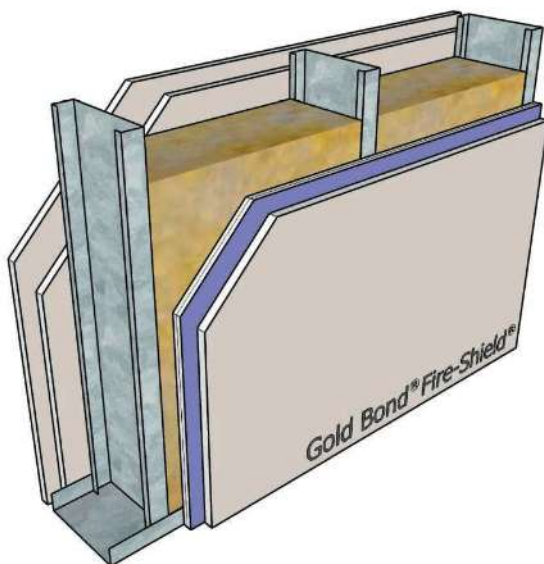
**STC-52**

**NGC 2017174**

Framing: 6" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 6" 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, W469 - 2 hour

Figure 55



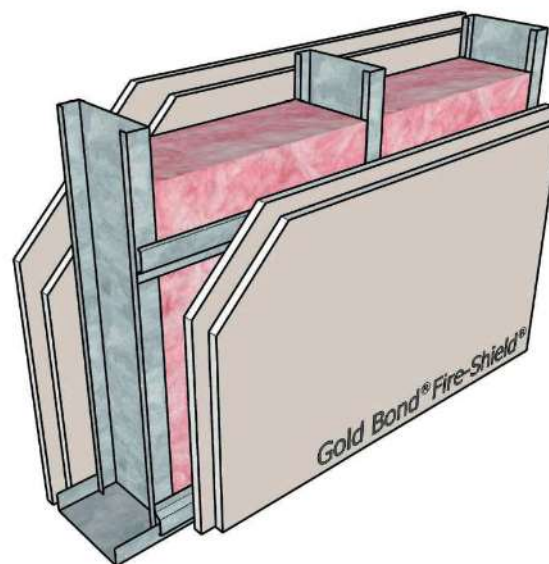
**STC-62**

**NGC 2019062**

Framing: 6" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 6" mineral wool  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on  
 5/8" SoundBreak XP Wall Board

UL Design: V438, U411 - 2 hour

Figure 56



**STC-60**

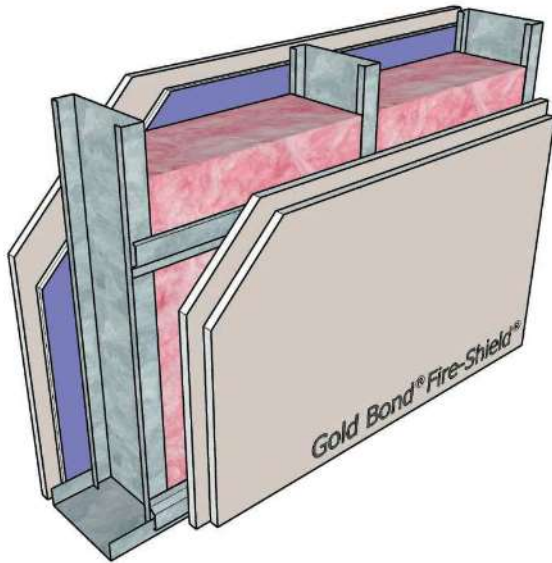
**NGC 2017172**

Framing: 6" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 6" 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: V438, U411, W469 - 2 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 57

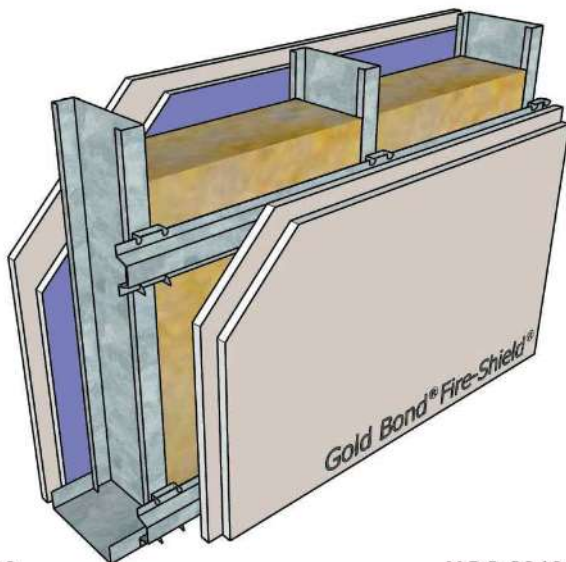


### STC-61

NGC 2015003

Framing: 6" steel studs, 16 gauge (54 mil), 16" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board on  
 5/8" SoundBreak XP Wall Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board on RC-1  
 UL Design: V438, U411, W469 - 2 hour

Figure 59

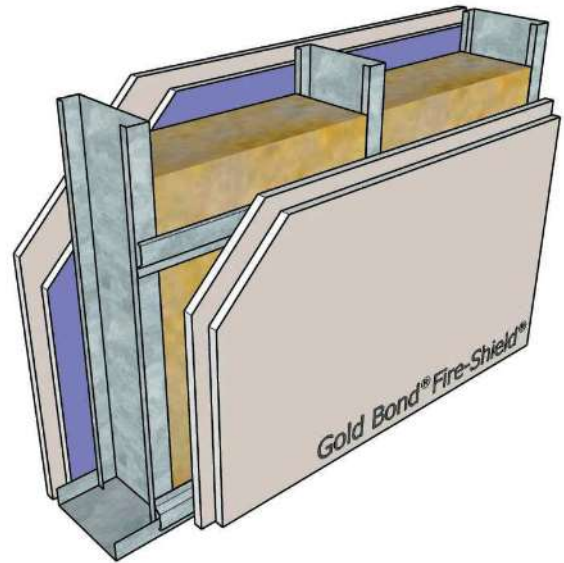


### STC-69

NGC 2019032

Framing: 6" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 6" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board on  
 5/8" SoundBreak XP Wall Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board on 7/8"  
 furring channel and resilient isolation clips  
 UL Design: V438, U411, W469 - 2 hour

Figure 58

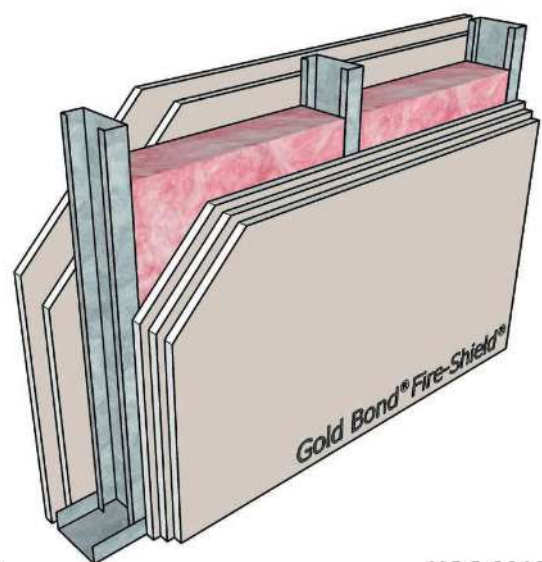


### STC-64

NGC 2019061

Framing: 6" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 6" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board on  
 5/8" SoundBreak XP Wall Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board on RC-1  
 UL Design: V438, U411, W469 - 2 hour

Figure 60



### STC-49

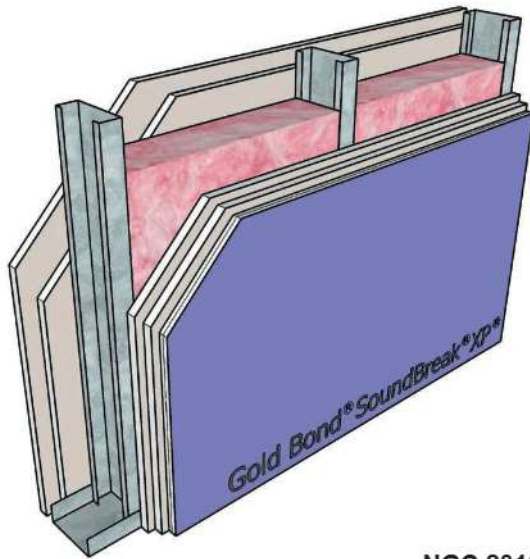
NGC 2016085

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

UL Design: V438, U411 - 2 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 61



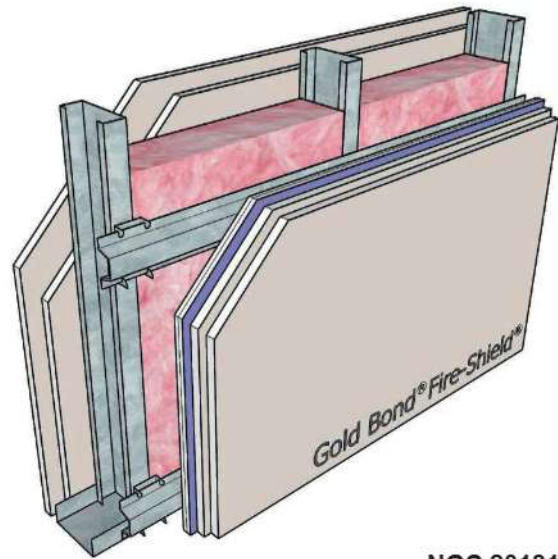
**STC-51**

**NGC 2016086**

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

UL Design: V438, U411 - 2 hour

Figure 62



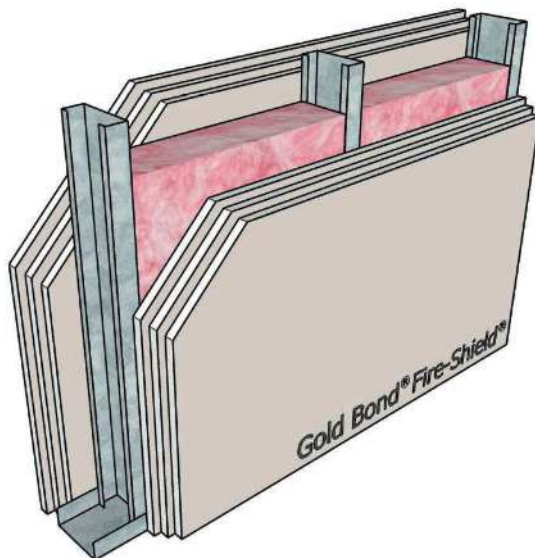
**STC-67**

**NGC 2018196**

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

UL Design: V438, U411 - 2 hour

Figure 63



**STC-51**

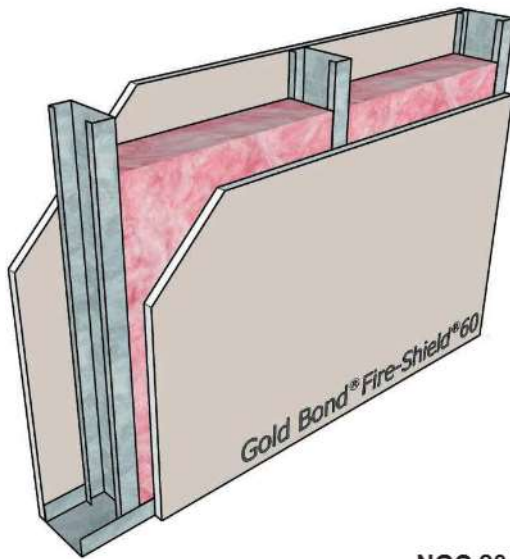
**NGC 2016088**

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

UL Design: V438 - 3 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 64



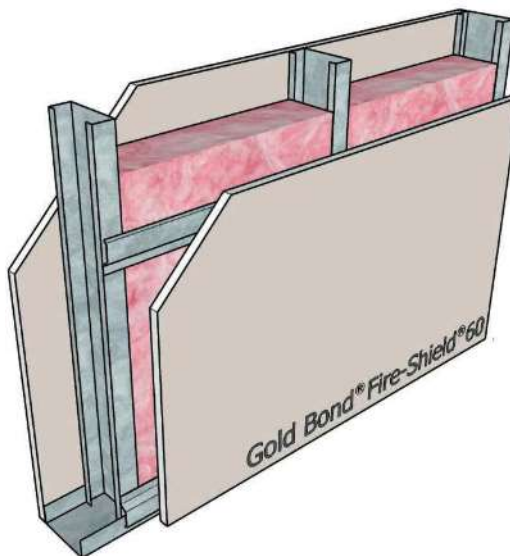
**STC-44**

**NGC 2018159**

Framing: 3-5/8" steel studs, 25 gauge (15 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 66



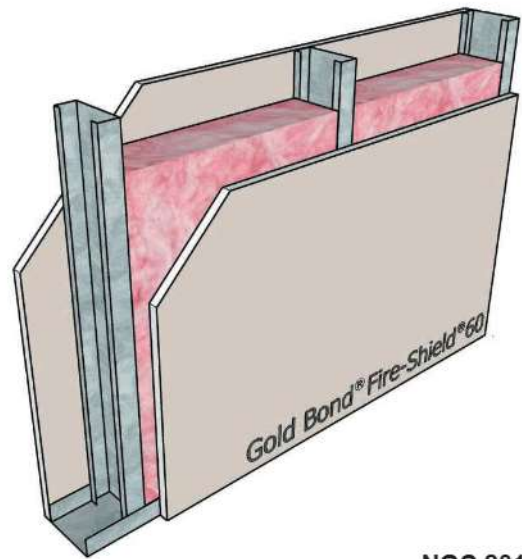
**STC-50**

**NGC 2018158**

Framing: 3-5/8" steel studs, 25 gauge (15 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 60 Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

Figure 65



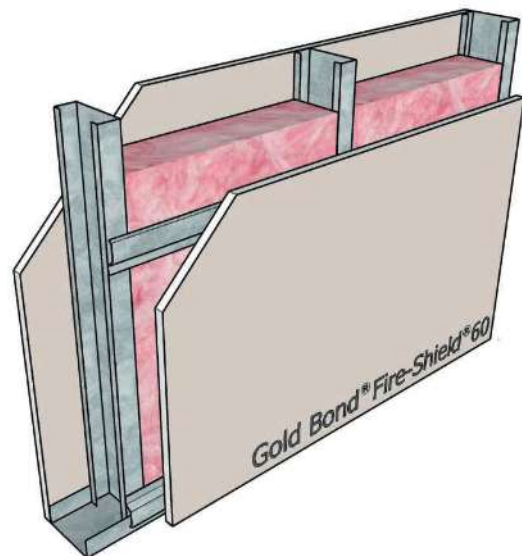
**STC-41**

**NGC 2018168**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 67



**STC-48**

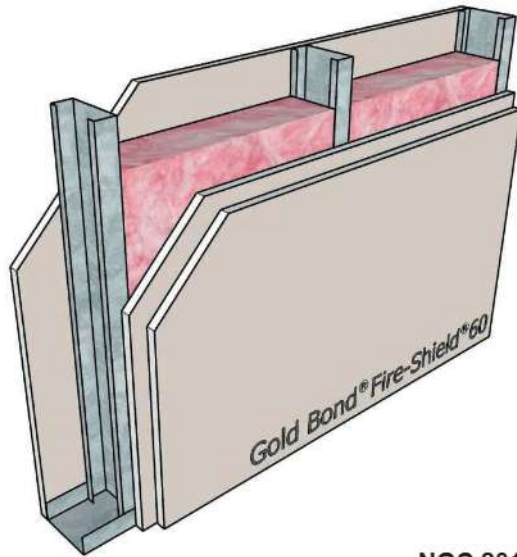
**NGC 2018167**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 60 Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 68



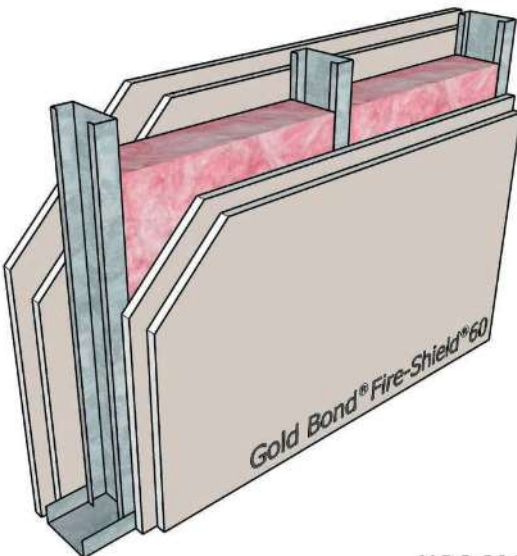
**STC-43**

**NGC 2018169**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 2 layers 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 70



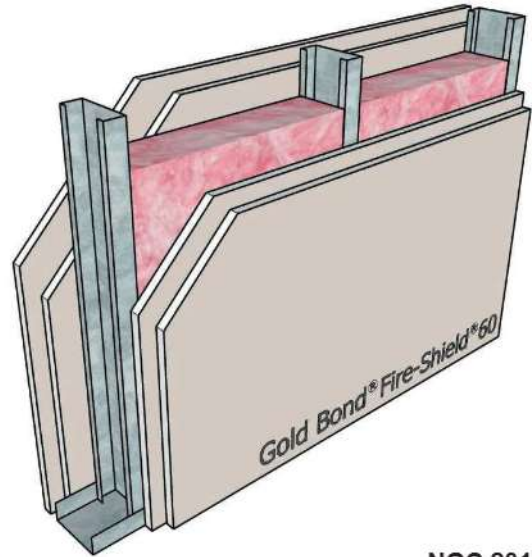
**STC-48**

**NGC 2018170**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 2 layers High Strength 5/8" Fire-Shield 60 Gypsum Board  
 Side 2: 2 layers High Strength 5/8" Fire-Shield 60 Gypsum Board

UL Design: V438, U411 - 2 hour

Figure 69



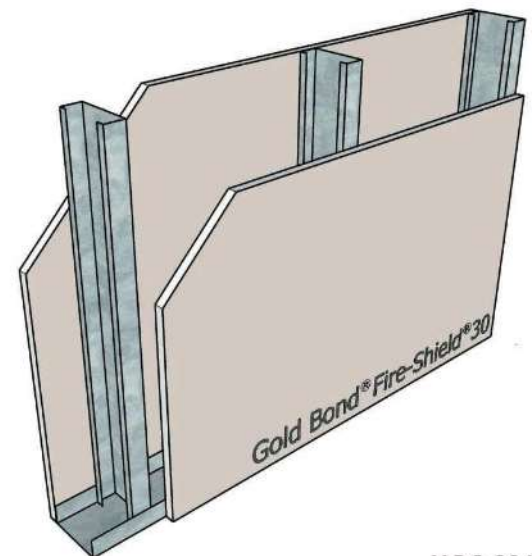
**STC-50**

**NGC 2018160**

Framing: 3-5/8" steel studs, 25 gauge (15 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 2 layers 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 2 layers 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: V438, U411 - 2 hour

Figure 71



**STC-35**

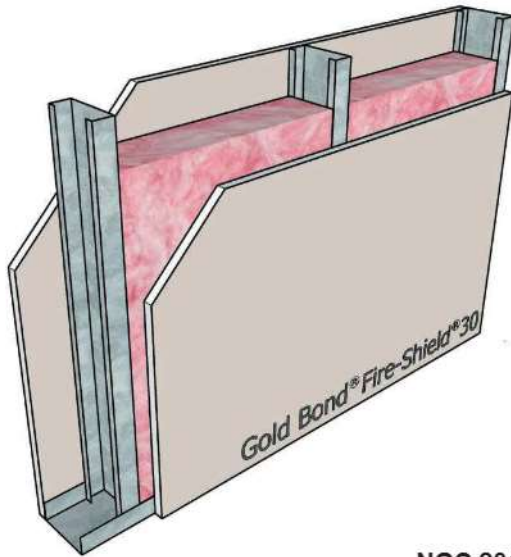
**NGC 2014011**

Framing: 3-5/8" steel studs, 20 gauge (20 mil), 16" o.c.  
 Insulation: None  
 Side 1: 5/8" High Strength Fire-Shield 30 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 30 Gypsum Board

UL Design: W411 - 1/2 hour

## Steel Stud Partitions with Framing 16" o.c.

Figure 72



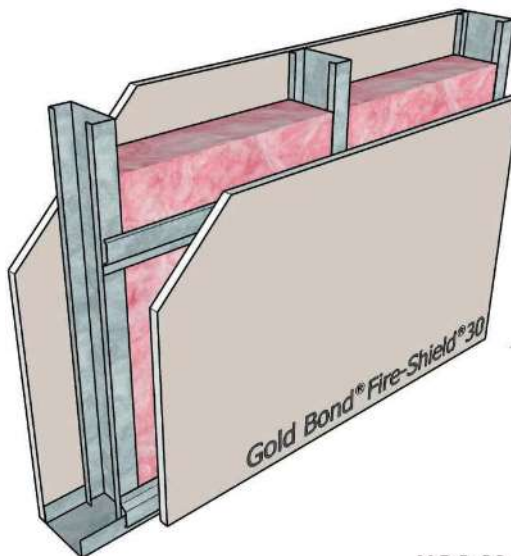
**STC-38**

**NGC 2014009**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 30 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 74



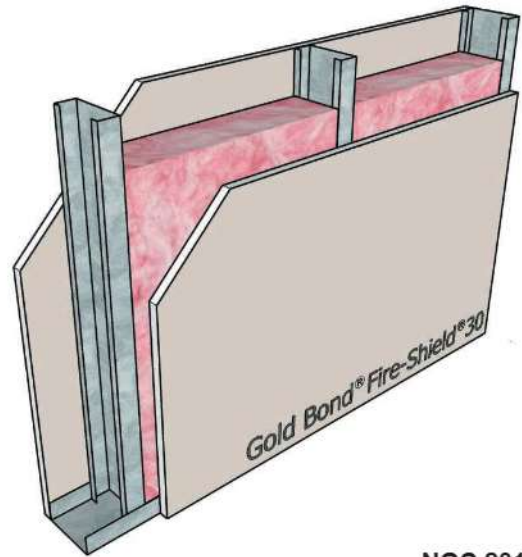
**STC-45**

**NGC 2014012**

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

UL Design: W411 - 1/2 hour

Figure 73



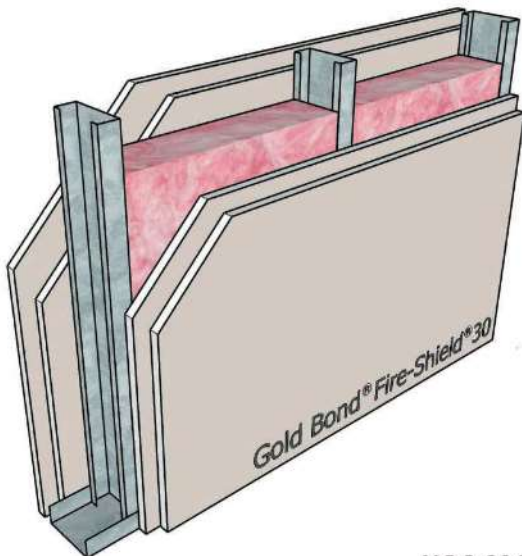
**STC-39**

**NGC 2014010**

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

UL Design: W411 - 1/2 hour

Figure 75



**STC-44**

**NGC 2014013**

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

UL Design: W411 - 1 hour



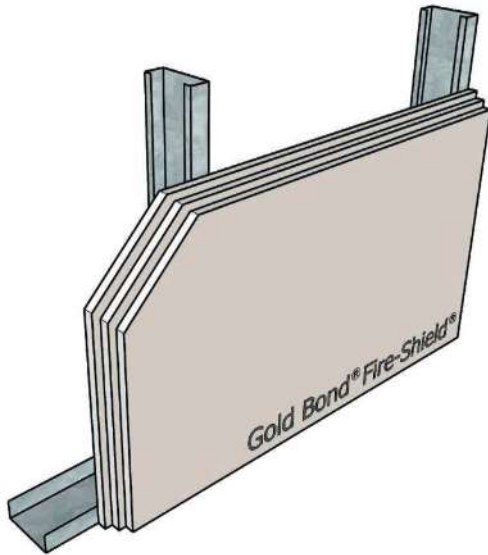
Steel Stud Partitions  
with Framing 24" o.c.





## Steel Stud Partitions with Framing 24" o.c.

Figure 76



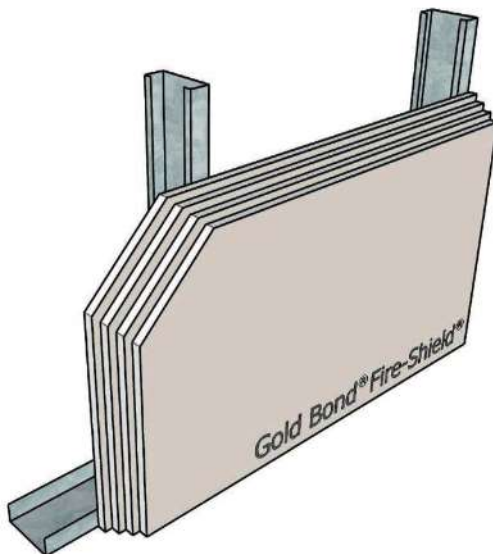
### STC-34

NGC 2018049

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 24" o.c.  
 Insulation: None  
 Side 1: None  
 Side 2: 3 layers 5/8" Fire-Shield Gypsum Board

UL Design: V497 - 1 hour

Figure 78



### STC-36

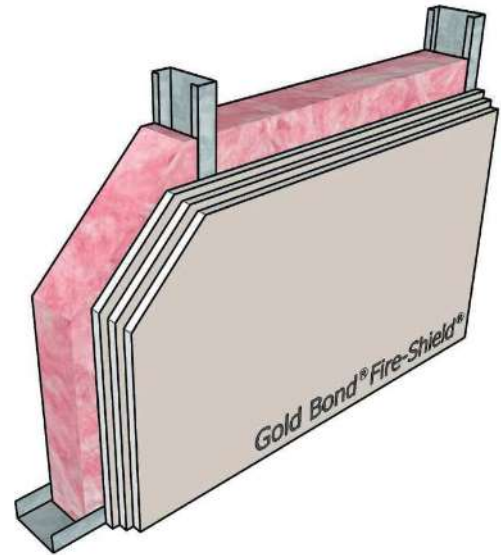
NGC 2018054

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 24" o.c.  
 Insulation: None  
 Side 1: None  
 Side 2: 4 layers 5/8" Fire-Shield Gypsum Board

UL Design: V497 - 2 hour

Note: 25 gauge (15 mil) and 20 gauge (18 mil, 19 mil, and 20 mil) studs are equivalent gauge (EQ) studs.

Figure 77



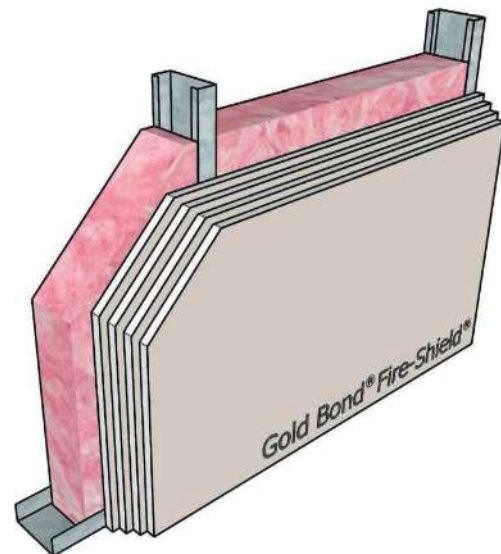
### STC-42

NGC 2018048

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: None  
 Side 2: 3 layers 5/8" Fire-Shield Gypsum Board

UL Design: V497 - 1 hour

Figure 79



### STC-44

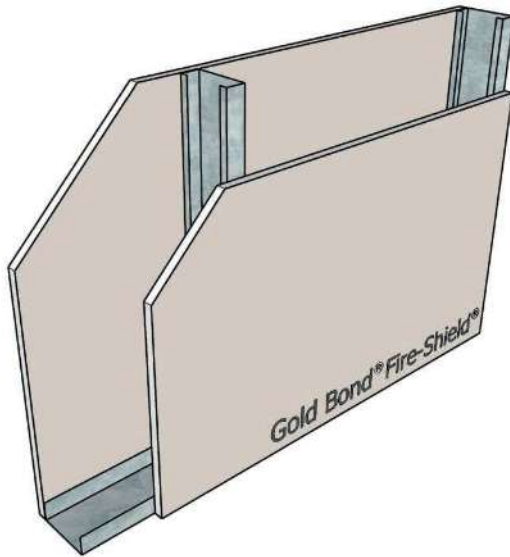
NGC 2018047

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: None  
 Side 2: 4 layers 5/8" Fire-Shield Gypsum Board

UL Design: V497 - 2 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 80



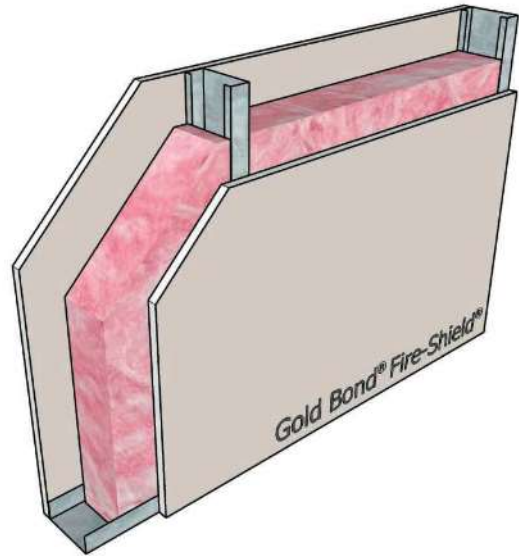
### STC-42

NGC 2385

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 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 81



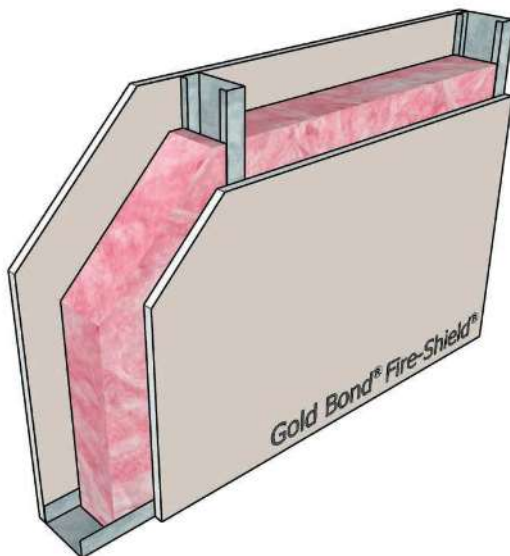
### STC-44

NGC 2013015

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

UL Design: V438, U465 - 1 hour

Figure 82



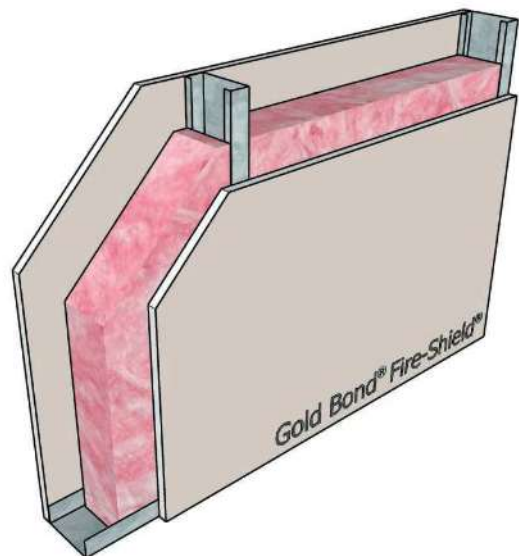
### STC-47

NGC 2016104

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

UL Design: V438, U465 - 1 hour

Figure 83



### STC-39

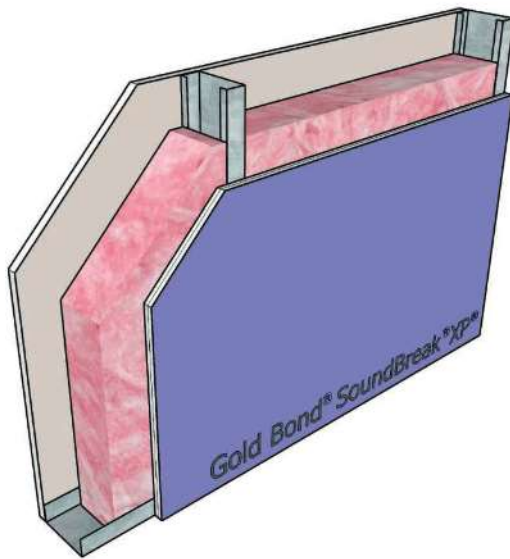
NGC 2017040

Framing: 3-1/2" steel studs, 20 gauge (33 mil), 24" o.c.  
 Insulation: 3" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: V438, U465, W469 - 1 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 84



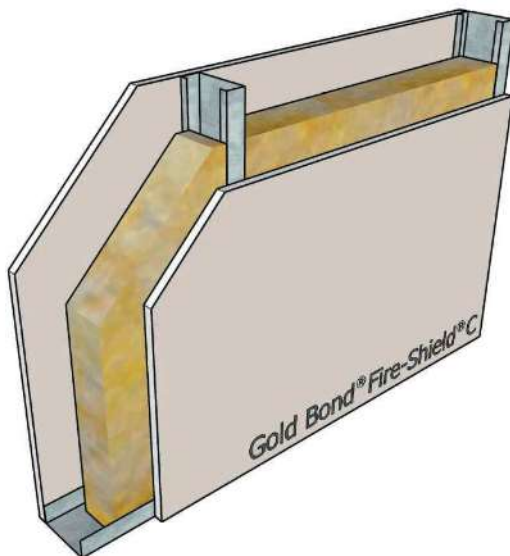
**STC-55**

**OL14-0404**

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

UL Design: V438, U465 - 1 hour

Figure 86



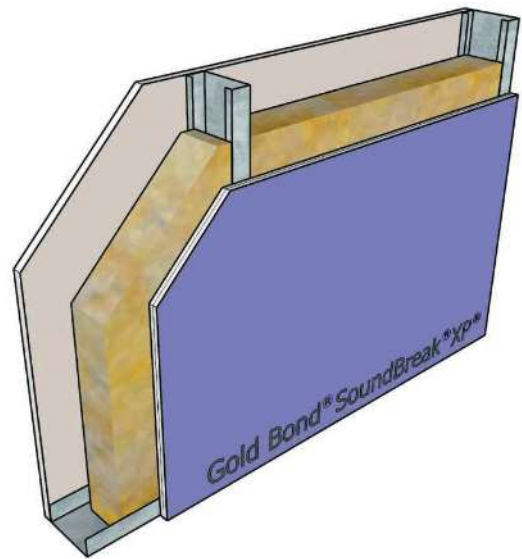
**STC-47**

**NGC 2017009**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 1/2" Fire-Shield C Gypsum Board  
 Side 2: 1/2" Fire-Shield C Gypsum Board

UL Design: V438, V401 - 1 hour

Figure 85



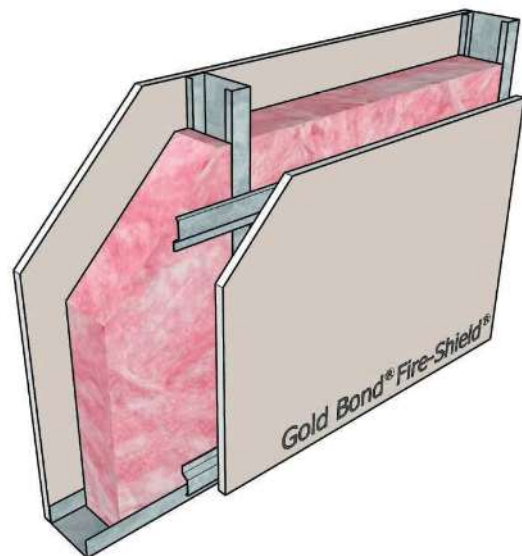
**STC-54**

**RAL-TL07-389**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465 - 1 hour

Figure 87



**STC-53**

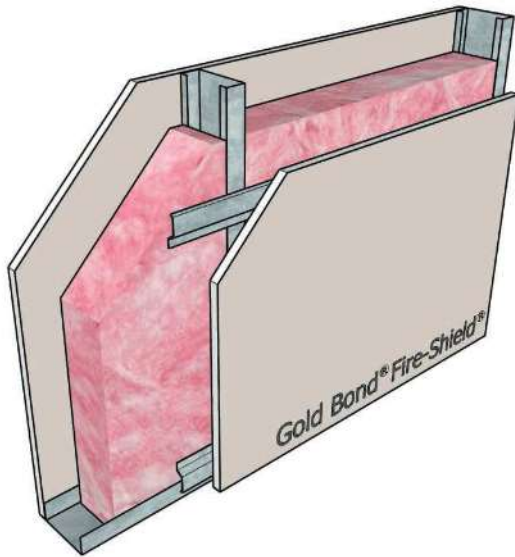
**NGC 2017102**

Framing: 3-5/8" steel studs, 25 gauge (15 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 88



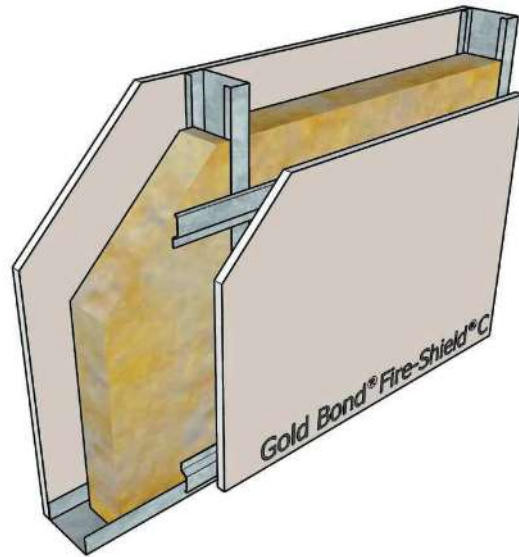
**STC-51**

**NGC 2016017**

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

UL Design: V438, U465 - 1 hour

Figure 89



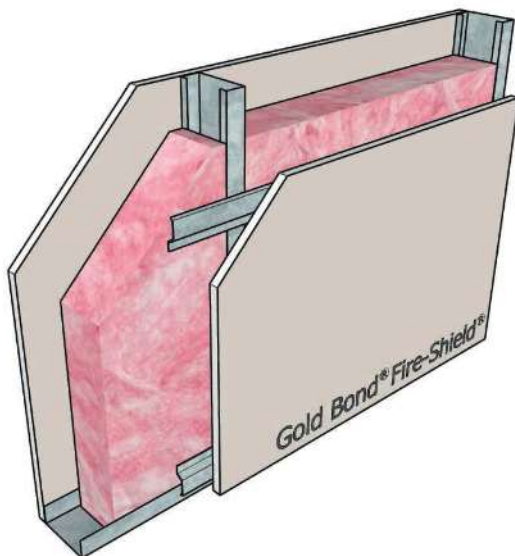
**STC-54**

**NGC 2016016**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3" mineral wool  
 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

Figure 90



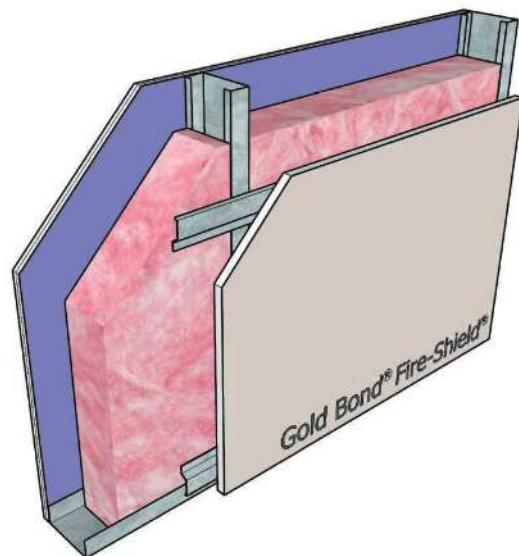
**STC-50**

**NGC 2013019**

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

UL Design: V438, U465 - 1 hour

Figure 91



**STC-56**

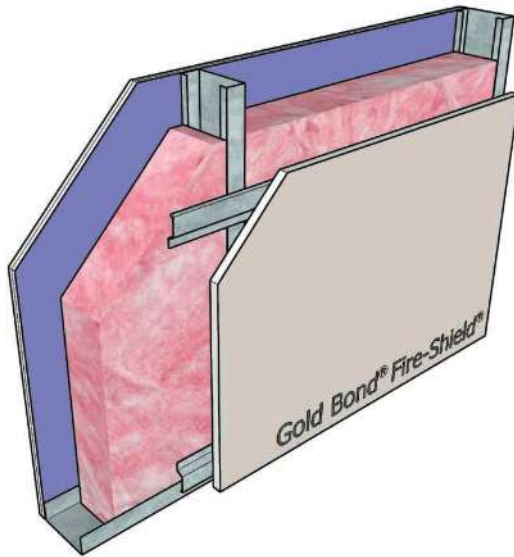
**NGC 2016018**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 92



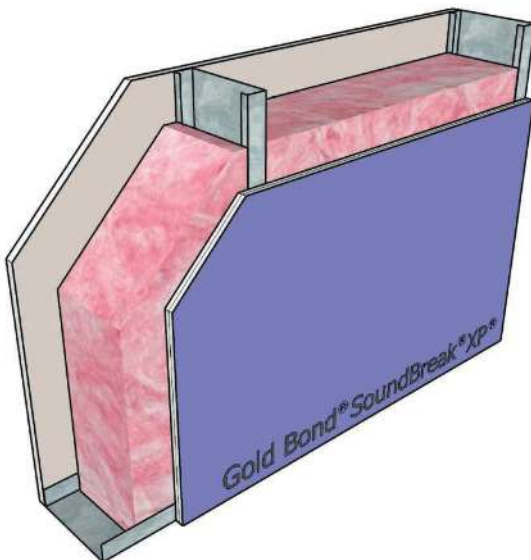
**STC-54**

**NGC 2013020**

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

UL Design: V438, U465 - 1 hour

Figure 94



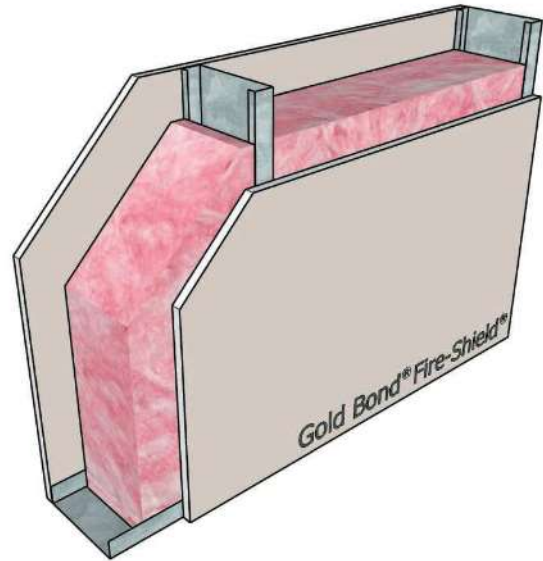
**STC-57**

**NGC 2017115**

Framing: 6" steel studs, 25 gauge (15 mil), 24" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465 - 1 hour

Figure 93



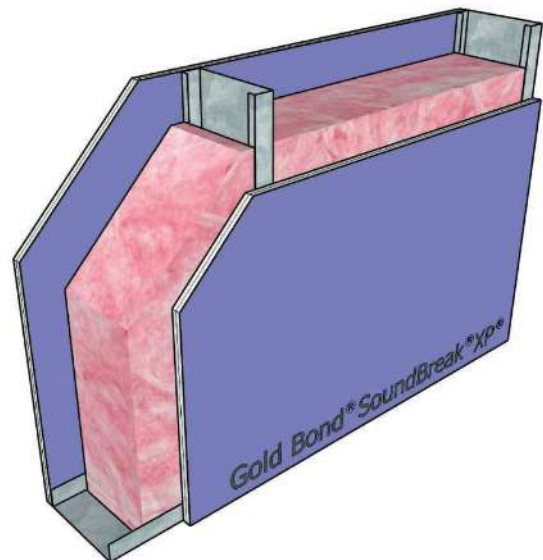
**STC-49**

**NGC 2017116**

Framing: 6" steel studs, 25 gauge (15 mil), 24" 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

Figure 95



**STC-58**

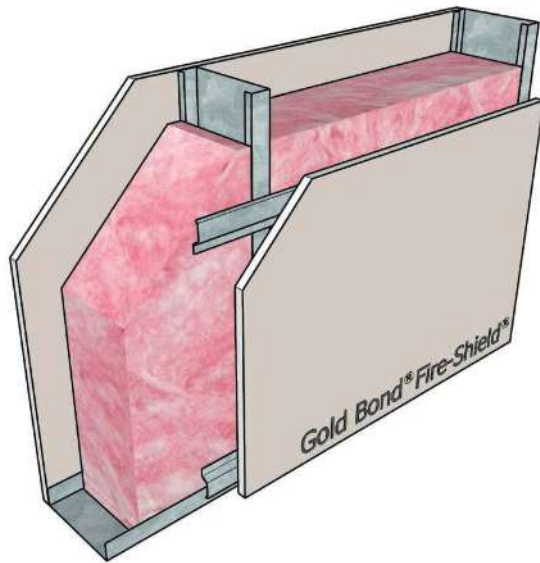
**NGC 2017114**

Framing: 6" steel studs, 25 gauge (15 mil), 24" o.c.  
 Insulation: 6" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall Board  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 96



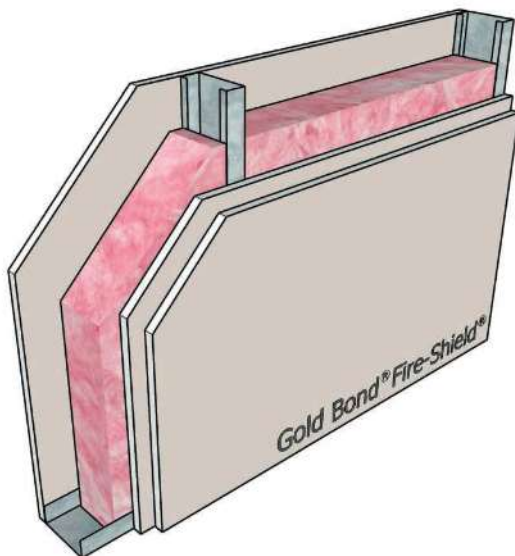
**STC-52**

**NGC 2002039**

Framing: 6" steel studs, 25 gauge (18 mil), 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

Figure 98



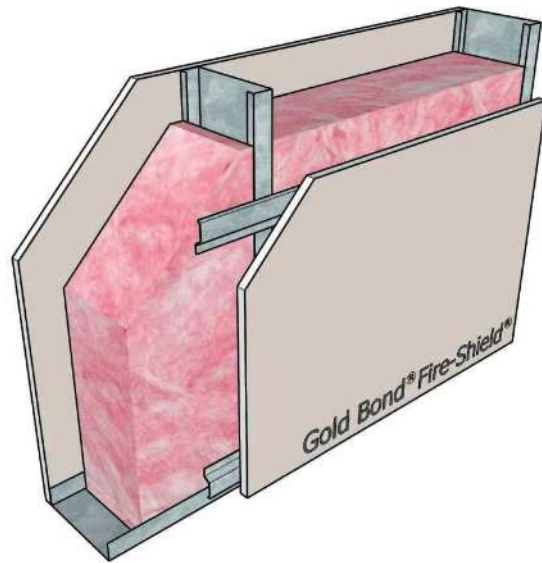
**STC-52**

**NGC 2018111**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 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 97



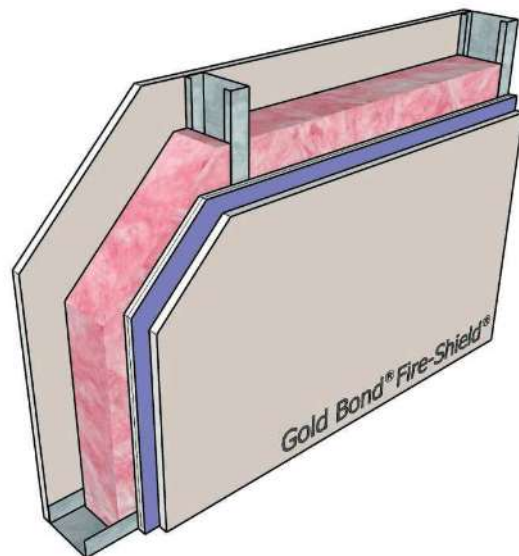
**STC-53**

**NGC 2017117**

Framing: 6" steel studs, 25 gauge (15 mil), 24" 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 99



**STC-57**

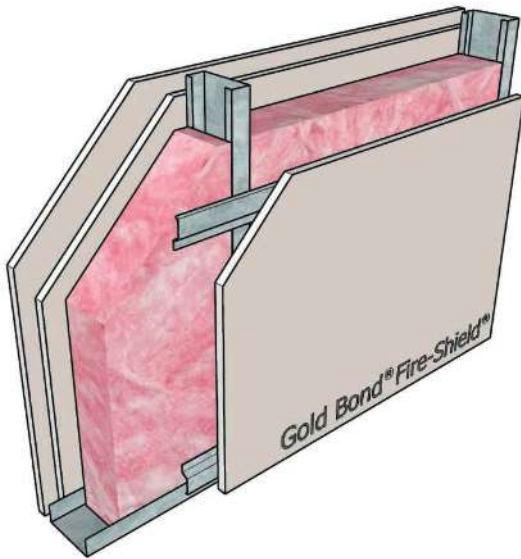
**RAL-TL06-334**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on 1/2" SoundBreak XP Wall Board

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 100



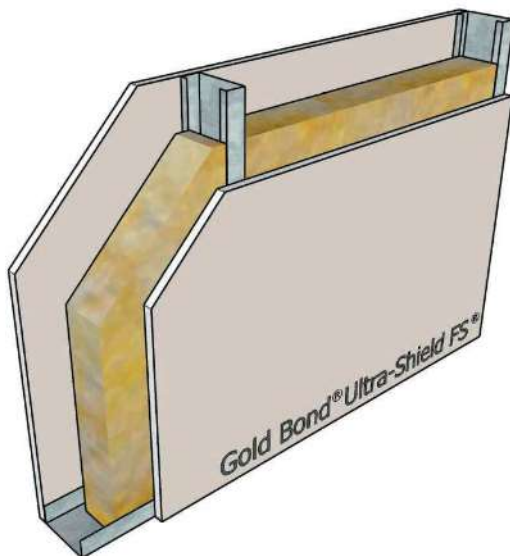
### STC-57

NGC 2018057

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 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 RC-1

UL Design: V438, U465 - 1 hour

Figure 102



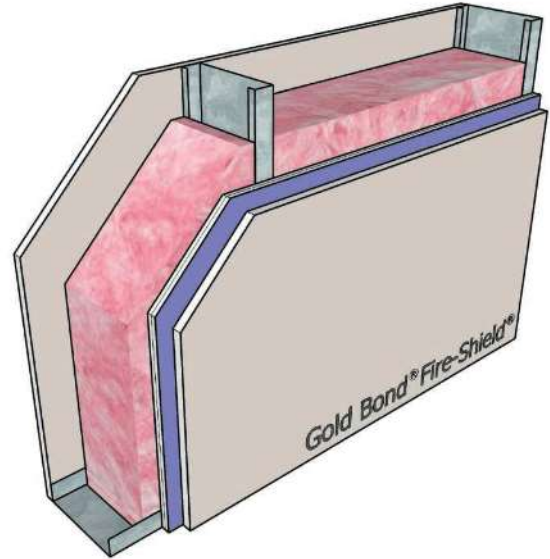
### STC-50

NGC 2015062

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 3/4" Ultra-Shield FS Gypsum Board  
 Side 2: 3/4" Ultra-Shield FS Gypsum Board

UL Design: W432 - 2 hour

Figure 101



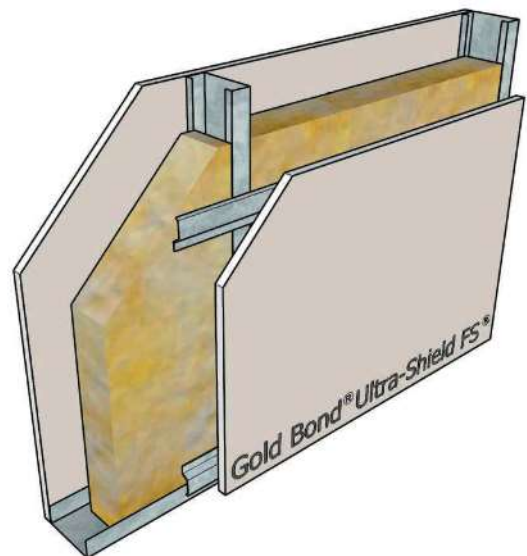
### STC-57

NRCC B-3456.1

Framing: 6" steel studs, 25 gauge (18 mil), 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 Wall Board

UL Design: V438, U465 - 1 hour

Figure 103



### STC-56

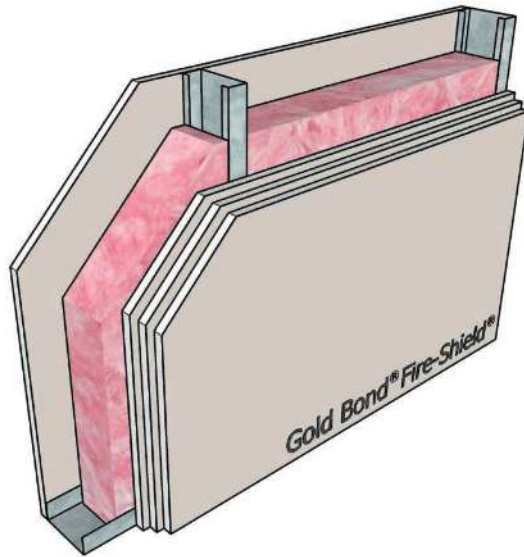
NGC 2015063

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 3/4" Ultra-Shield FS Gypsum Board  
 Side 2: 3/4" Ultra-Shield FS Gypsum Board on RC-1

UL Design: W432 - 2 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 104



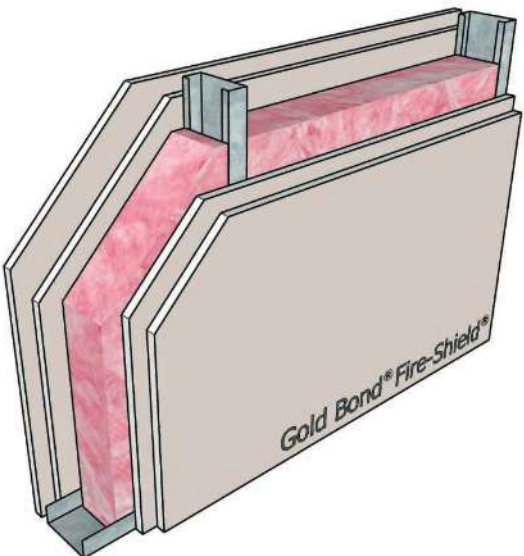
**STC-52**

**NGC 2016024**

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

UL Design: V449 - 2 hour

Figure 106



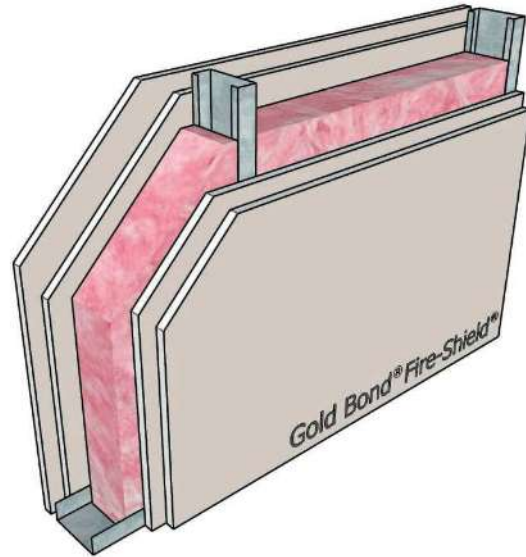
**STC-56**

**NGC 2018058**

Framing: 3-5/8" steel studs, 20 gauge (19 mil), 24" 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: V438, U411 - 2 hour

Figure 105



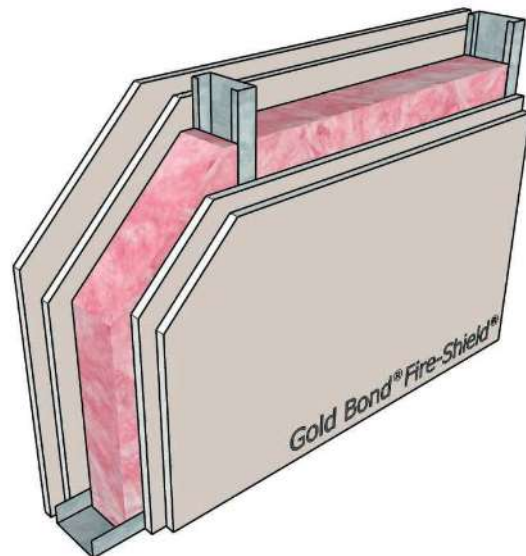
**STC-56**

**NGC 2018112**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" 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: V438, U411 - 2 hour

Figure 107



**STC-50**

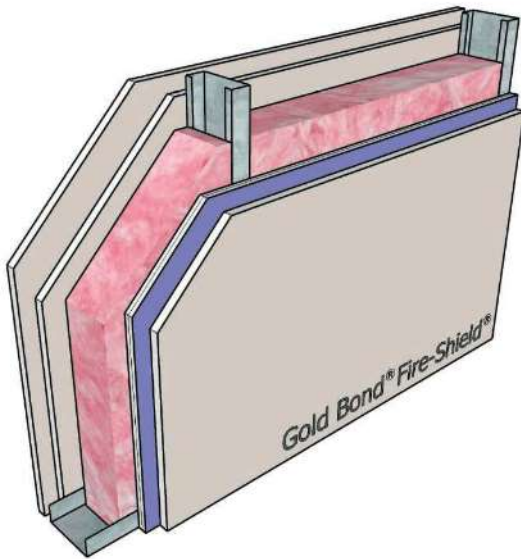
**NGC 2017041**

Framing: 3-1/2" steel studs, 20 gauge (33 mil), 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, W469 - 2 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 108

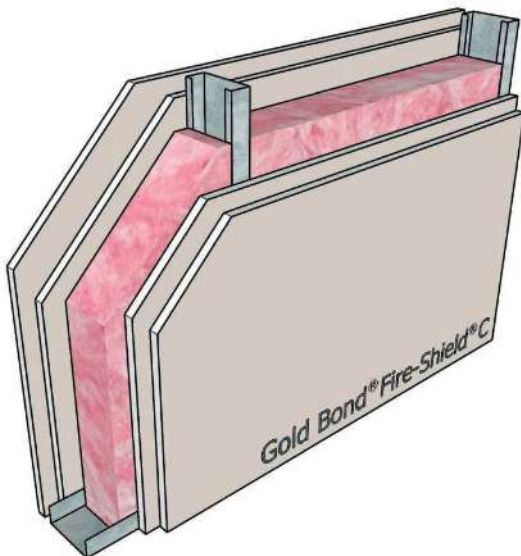


**STC-60**

**RAL-TL07-168**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 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 Wall Board  
 UL Design: V438, U411 - 2 hour

Figure 110



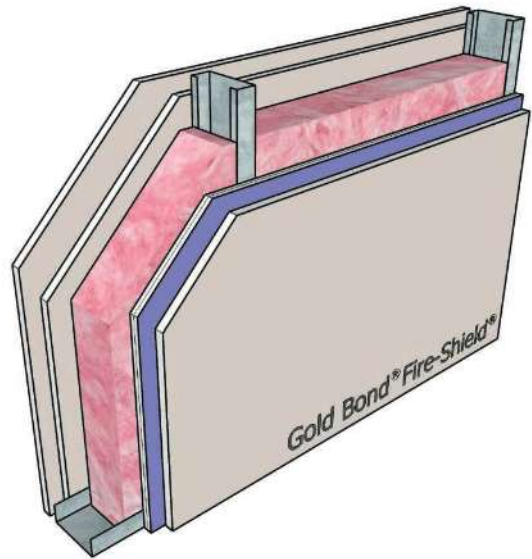
**STC-51**

**NGC 2017011**

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

UL Design: V438, U412 - 2 hour

Figure 109

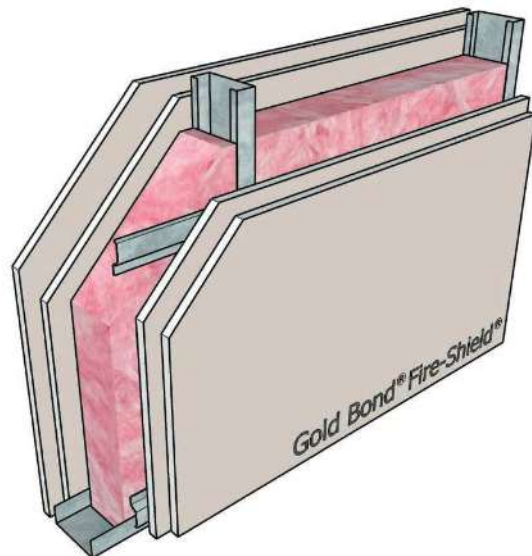


**STC-56**

**NGC 2013018**

Framing: 3-5/8" steel studs, 20 gauge (20 mil), 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 Wall Board  
 UL Design: V438, U411 - 2 hour

Figure 111



**STC-61**

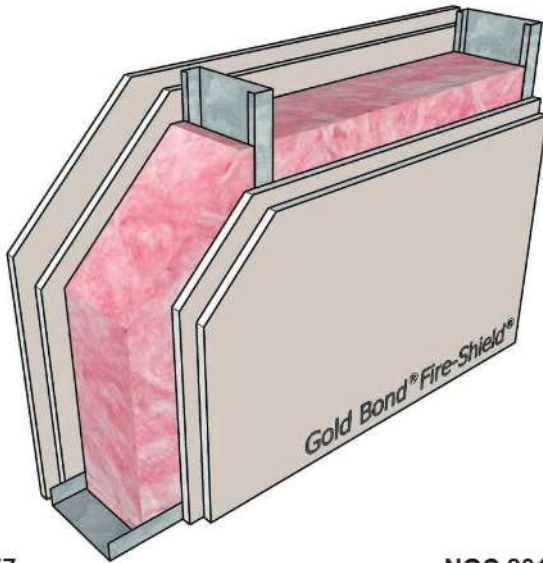
**NGC 2017103**

Framing: 3-5/8" steel studs, 25 gauge (15 mil), 24" 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: V438, U411 - 2 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 112



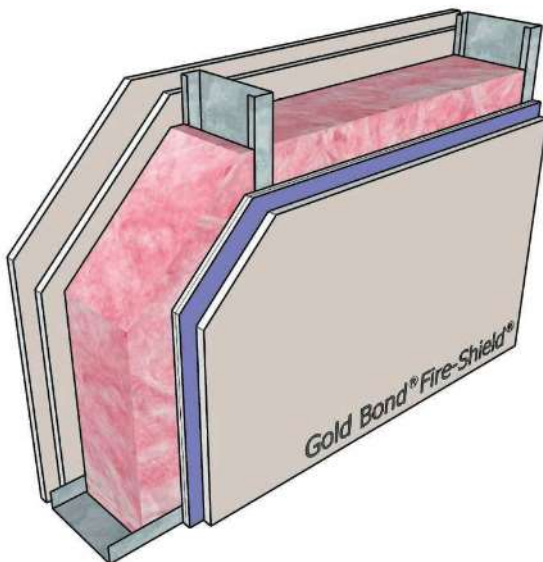
**STC-57**

**NGC 2017119**

Framing: 6" steel studs, 25 gauge (15 mil), 24" o.c.  
 Insulation: 6" 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 114



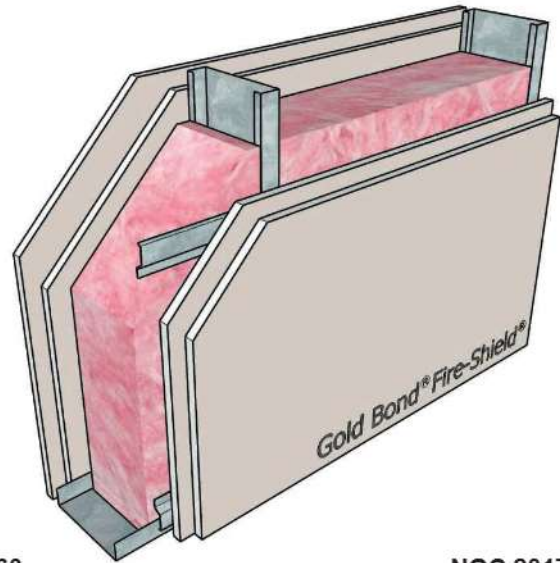
**STC-61**

**NRCC B-3456.2**

Framing: 6" steel studs, 25 gauge (18 mil), 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 Wall Board

UL Design: V438, U411 - 2 hour

Figure 113



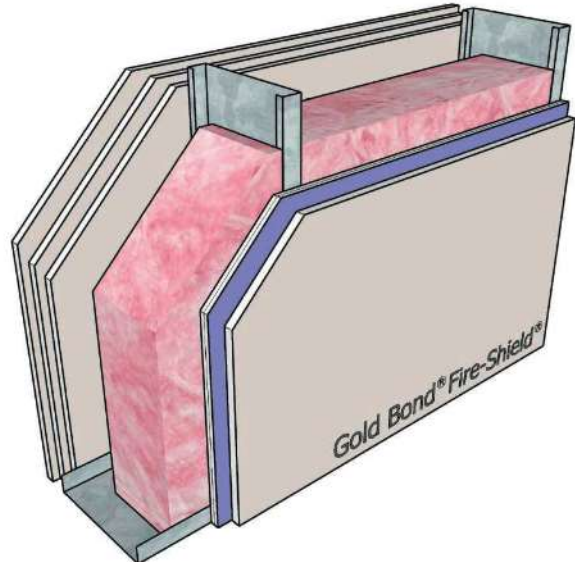
**STC-63**

**NGC 2017118**

Framing: 6" steel studs, 25 gauge (15 mil), 24" o.c.  
 Insulation: 6" 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: V438, U411 - 2 hour

Figure 115



**STC-57**

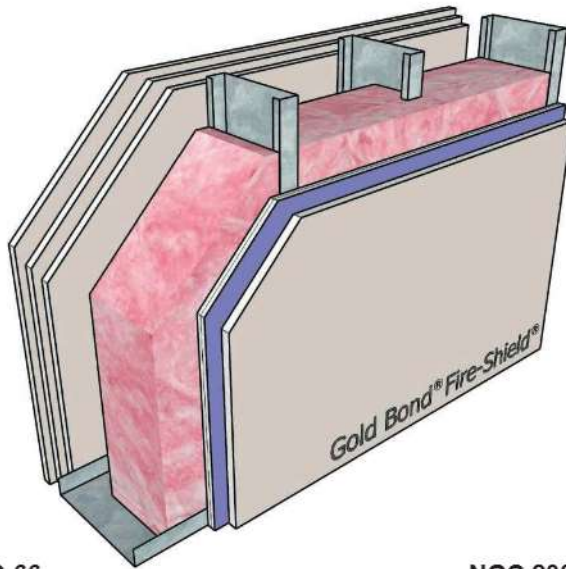
**NGC 2009035**

Framing: 8" steel studs, 18 gauge (54 mil), 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 Wall Board

UL Design: V438, U411, W469 - 2 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 116



**STC-66**

**NGC 2009036**

Framing: 6" steel studs, 18 gauge (43 mil), 24" o.c., staggered in 8" track

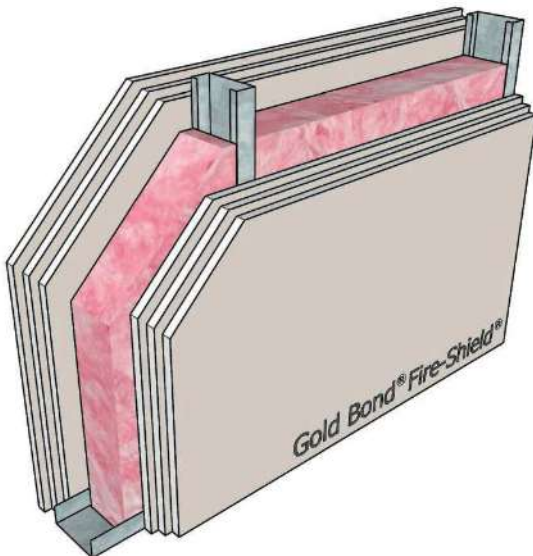
Insulation: 6-1/4" glass fiber

Side 1: 3 layers Fire-Shield Gypsum Board

Side 2: 5/8" Fire-Shield Gypsum Board on 5/8" SoundBreak XP Wall Board

UL Design: V438, U411, W469 - 2 hour

Figure 118



**STC-59**

**NGC 2016101**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.

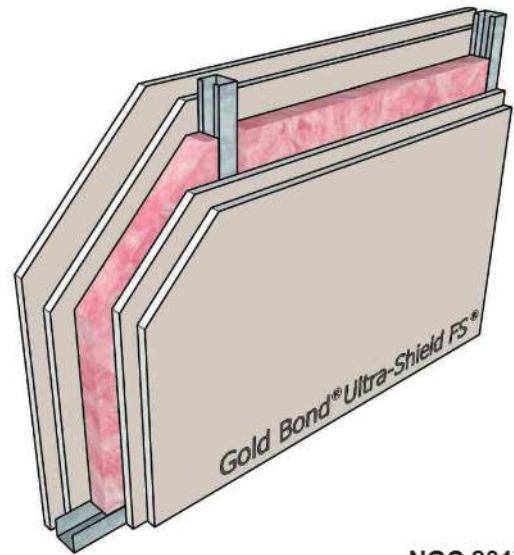
Insulation: 3-1/2" glass fiber

Side 1: 3 layers 5/8" Fire-Shield Gypsum Board

Side 2: 3 layers 5/8" Fire-Shield Gypsum Board

UL Design: V438 - 3 hour

Figure 117



**STC-55**

**NGC 2017037**

Framing: 1-5/8" steel studs, 25 gauge (18 mil), 24" o.c.

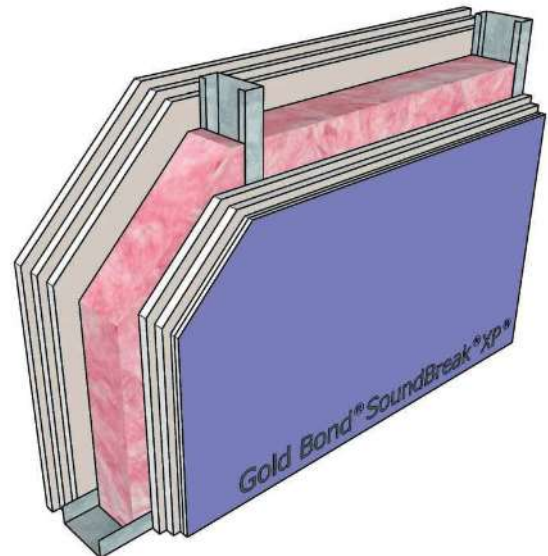
Insulation: 1-1/2" glass fiber

Side 1: 2 layers 3/4" Ultra-Shield FS Gypsum Board

Side 2: 2 layers 3/4" Ultra-Shield FS Gypsum Board

UL Design: W455 - 3 hour

Figure 119



**STC-62**

**NGC 2016102**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.

Insulation: 3-1/2" glass fiber

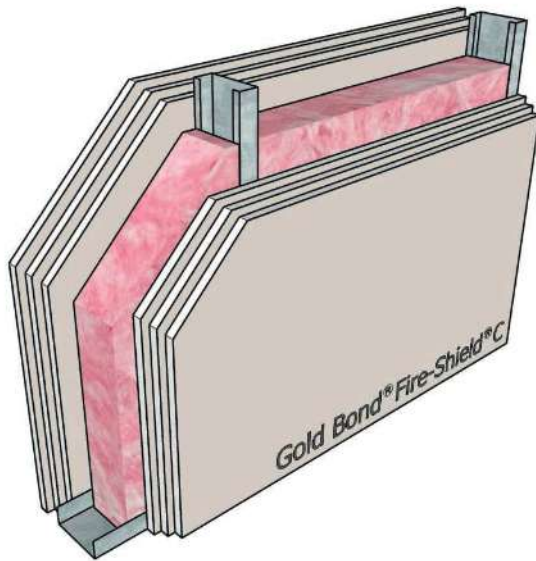
Side 1: 3 layers 5/8" Fire-Shield Gypsum Board

Side 2: 5/8" SoundBreak XP Wall Board on 2 layers 5/8" Fire-Shield Gypsum Board

UL Design: V438 - 3 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 120



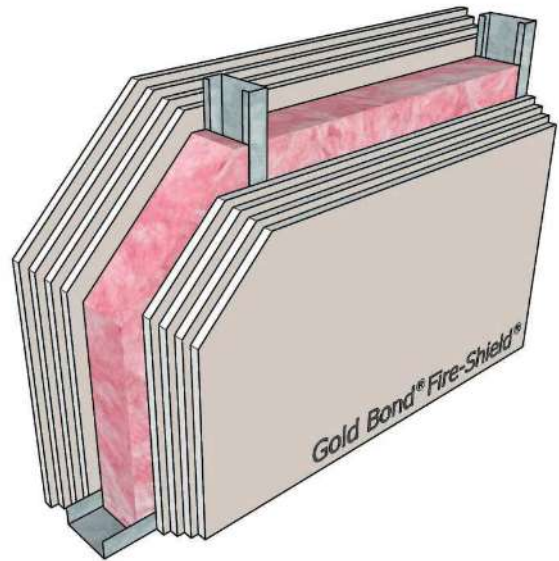
### STC-59

### NGC 2017012

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

UL Design: U435, V438 - 3 hour

Figure 121



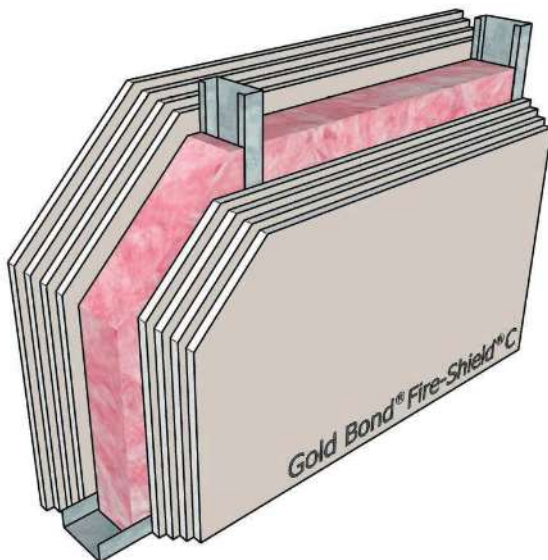
### STC-61

### NGC 2016100

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 4 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 4 layers 5/8" Fire-Shield Gypsum Board

UL Design: V438 - 4 hour

Figure 122



### STC-62

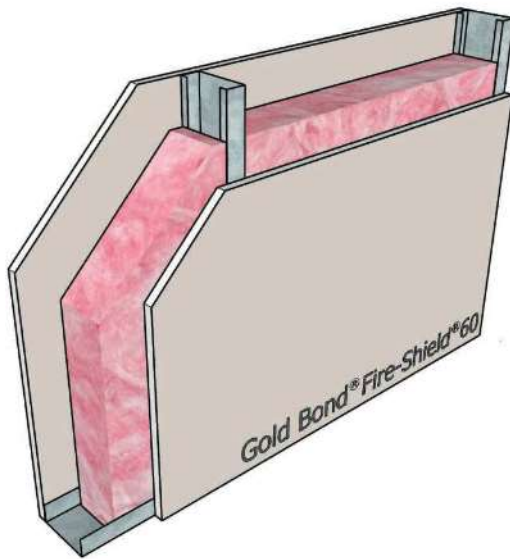
### NGC 2017013

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 4 layers 1/2" Fire-Shield C Gypsum Board  
 Side 2: 4 layers 1/2" Fire-Shield C Gypsum Board

UL Design: U435, V438 - 4 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 123



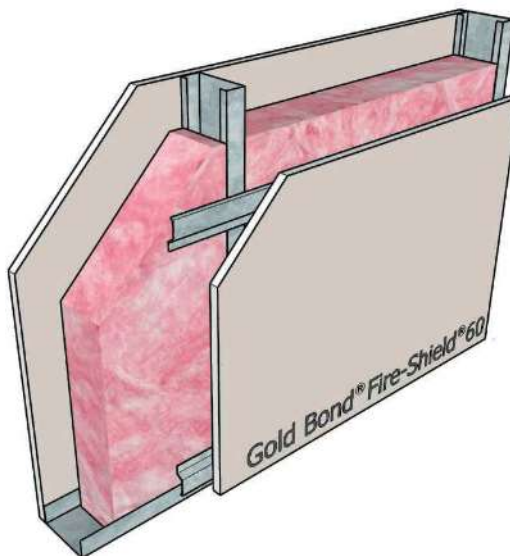
### STC-45

NGC 2018155

Framing: 3-5/8" steel studs, 25 gauge (15 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 125



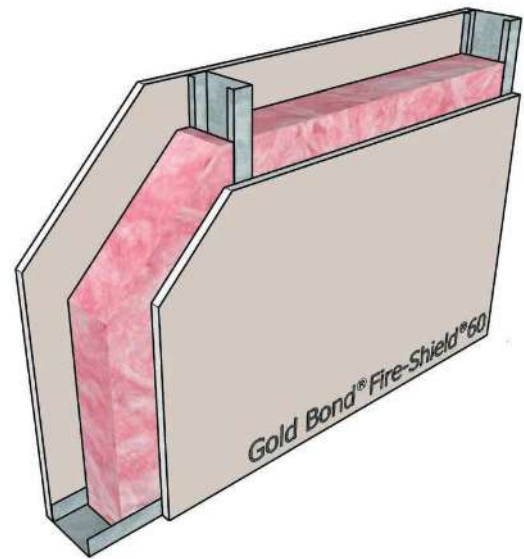
### STC-50

NGC 2018157

Framing: 3-5/8" steel studs, 25 gauge (15 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 60 Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

Figure 124



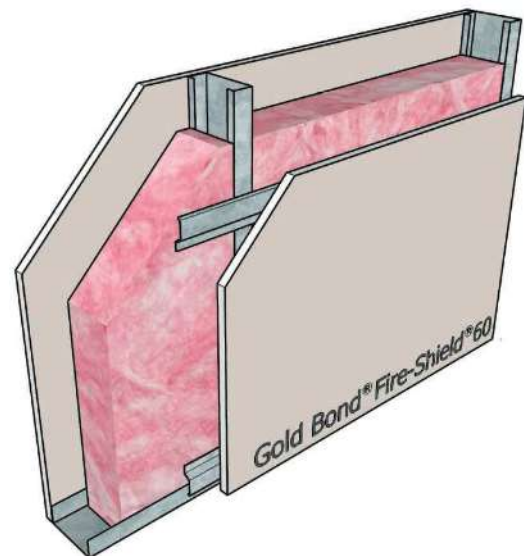
### STC-45

NGC 2018165

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 126



### STC-49

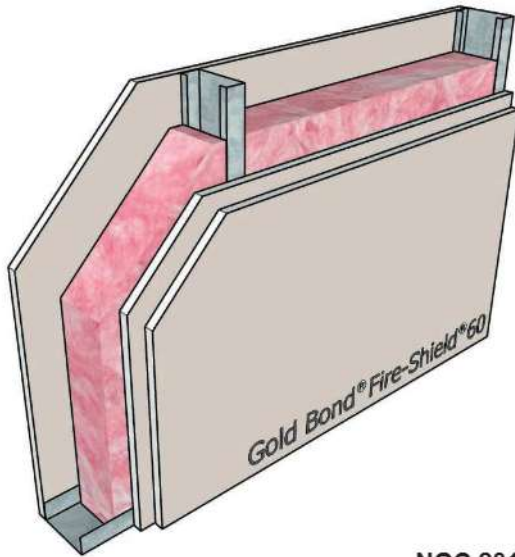
NGC 2018166

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 60 Gypsum Board on RC-1

UL Design: V438, U465 - 1 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 127



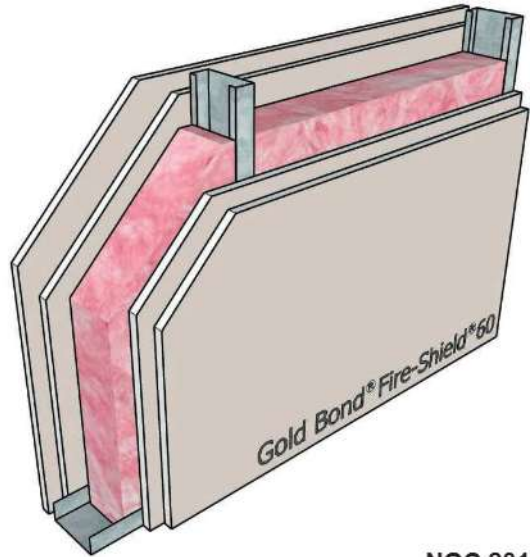
**STC-49**

**NGC 2018164**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 60 Gypsum Board  
 Side 2: 2 layers 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: V438, U465 - 1 hour

Figure 128



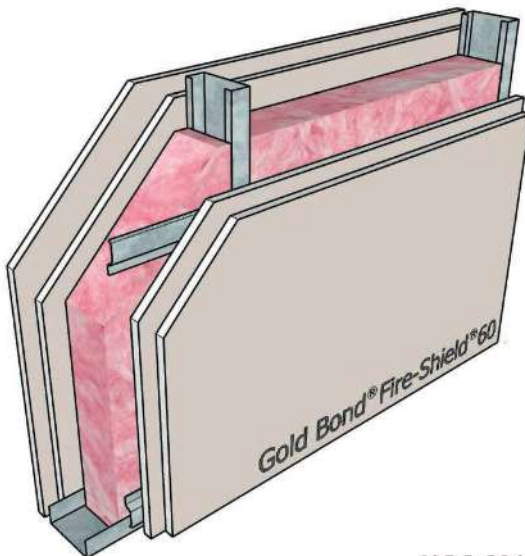
**STC-51**

**NGC 2018163**

Framing: 3-5/8" steel studs, 20 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 2 layers High Strength 5/8" Fire-Shield 60 Gypsum Board  
 Side 2: 2 layers High Strength 5/8" Fire-Shield 60 Gypsum Board

UL Design: V438, U411 - 2 hour

Figure 129



**STC-52**

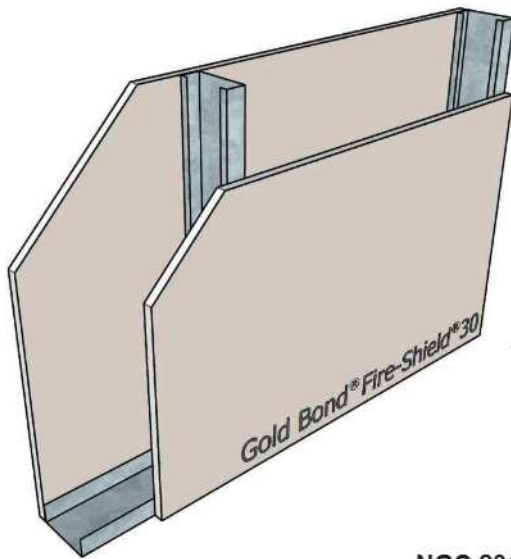
**NGC 2018156**

Framing: 3-5/8" steel studs, 25 gauge (15 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 2 layers High Strength 5/8" Fire-Shield 60 Gypsum Board  
 Side 2: 2 layers High Strength 5/8" Fire-Shield 60 Gypsum Board on RC-1

UL Design: V438, U411 - 2 hour

## Steel Stud Partitions with Framing 24" o.c.

Figure 130



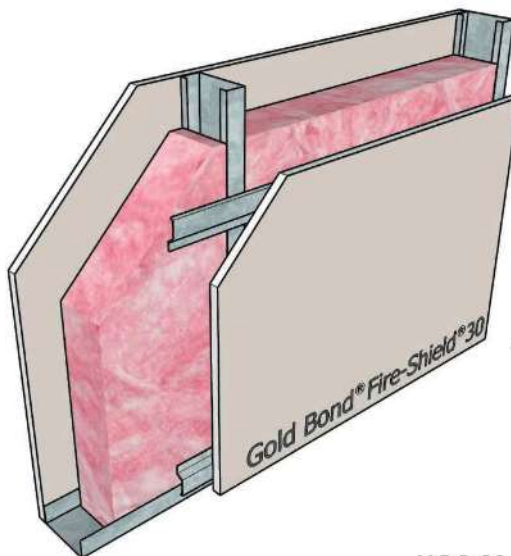
**STC-36**

**NGC 2014006**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: None  
 Side 1: 5/8" High Strength Fire-Shield 30 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 132



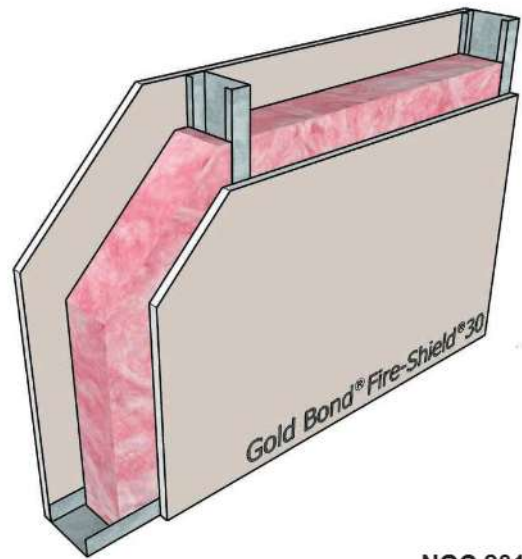
**STC-49**

**NGC 2014007**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 30 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 30 Gypsum Board on RC-1

UL Design: W411 - 1/2 hour

Figure 131



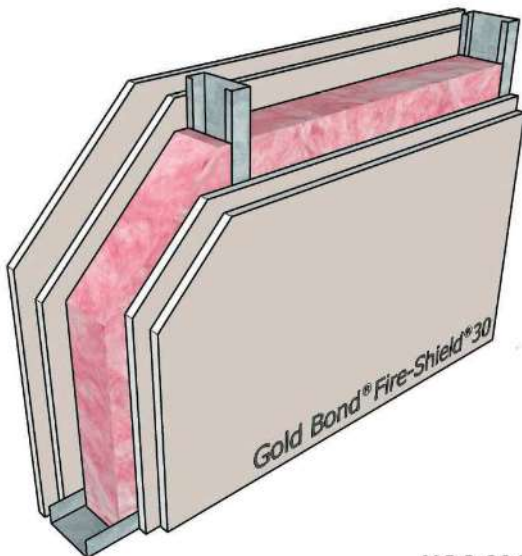
**STC-46**

**NGC 2014005**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" High Strength Fire-Shield 30 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 30 Gypsum Board

UL Design: W411 - 1/2 hour

Figure 133



**STC-54**

**NGC 2014008**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 2 layers 5/8" High Strength Fire-Shield 30 Gypsum Board  
 Side 2: 2 layers 5/8" High Strength Fire-Shield 30 Gypsum Board

UL Design: W411 - 1 hour



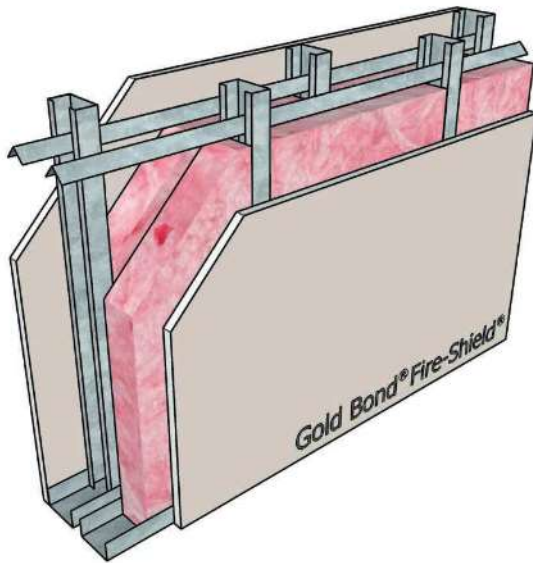
## Steel Stud Chase Walls





## Steel Stud Chase Walls

Figure 134

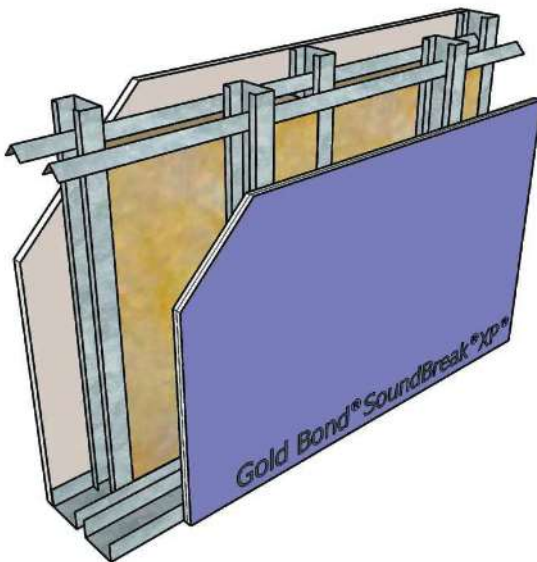


**STC-57**

**NGC 2015101**

Framing: Double row 2-1/2" steel studs, 25 gauge (15 mil), 16" o.c., braced with spacer bar  
 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: V488 - 1 hour

Figure 136

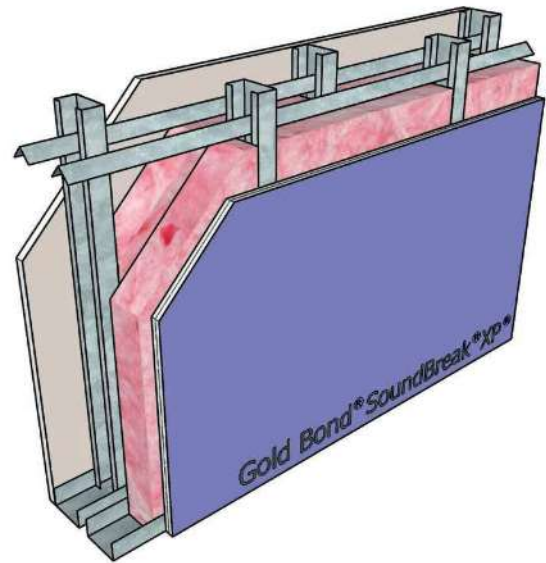


**STC-57**

**NGC 2008035**

Framing: Double row 2-1/2" steel studs, 25 gauge (18 mil), 16" o.c. staggered  
 Insulation: 3" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board  
 UL Design: V488 - 1 hour

Figure 135

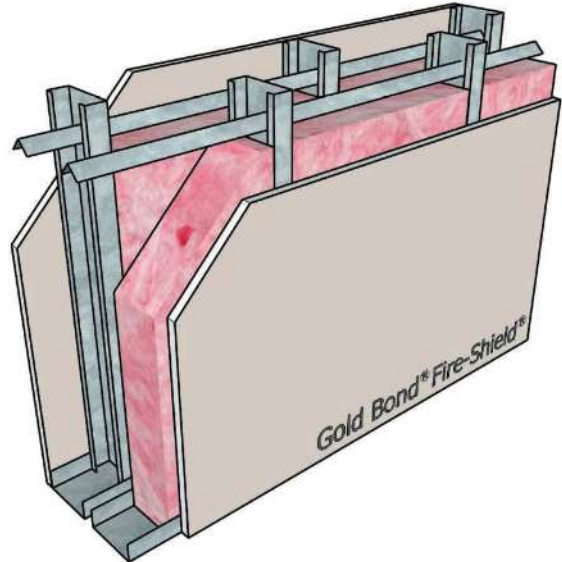


**STC-60**

**NGC 2015103**

Framing: Double row 2-1/2" steel studs, 25 gauge (15 mil), 16" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board  
 UL Design: V488 - 1 hour

Figure 137



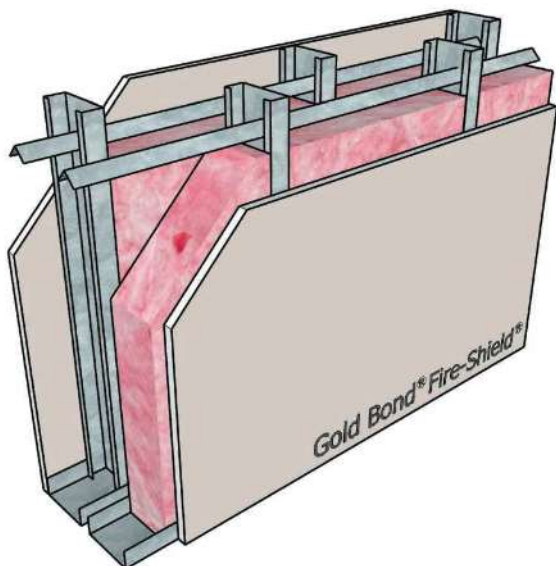
**STC-60**

**NGC 2018083**

Framing: Double row 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c., braced with spacer bar  
 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: V488 - 1 hour

## Steel Stud Chase Walls

Figure 138

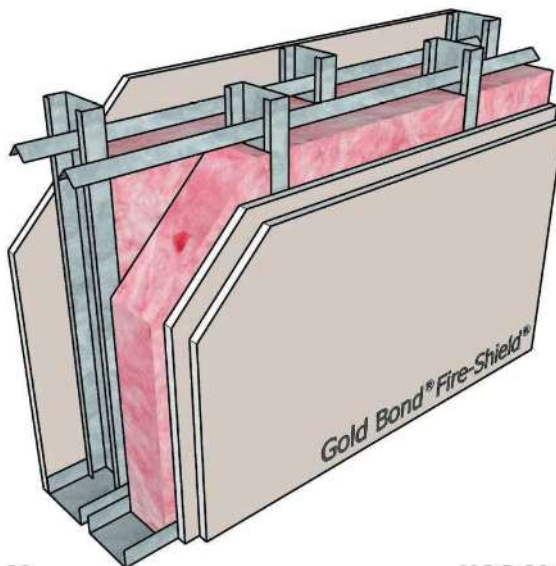


**STC-55**

**NGC 2019036**

Framing: Double row 3-5/8" steel studs, 16 gauge (54 mil), 16" o.c., braced with spacer bar  
 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: V488 - 1 hour

Figure 140



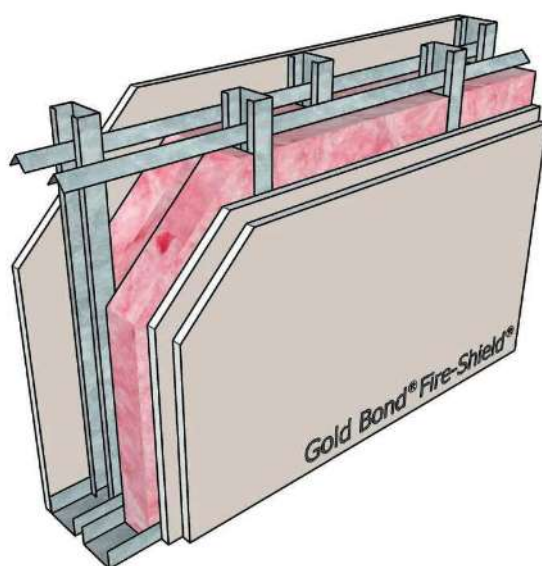
**STC-63**

**NGC 2018084**

Framing: Double row 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board

UL Design: V488 - 1 hour

Figure 139

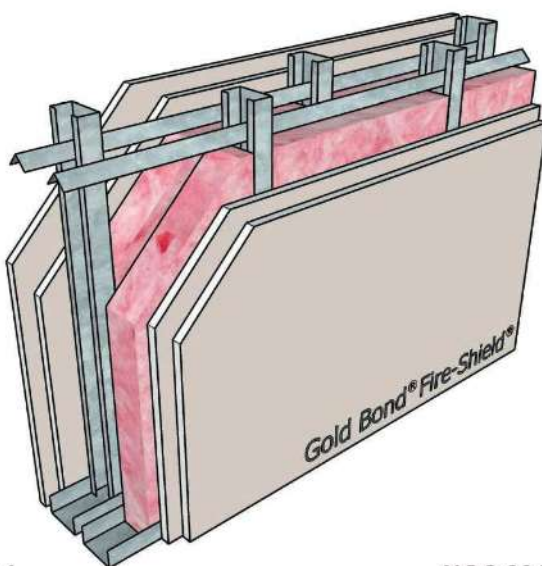


**STC-61**

**NGC 2015102**

Framing: Double row 2-1/2" steel studs, 25 gauge (15 mil), 16" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board  
 UL Design: V488 - 1 hour

Figure 141



**STC-64**

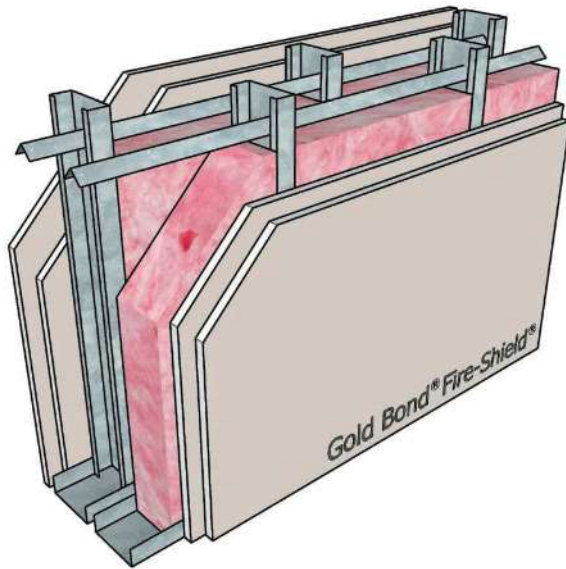
**NGC 2015104**

Framing: Double row 2-1/2" steel studs, 25 gauge (15 mil), 16" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board

UL Design: V488 - 2 hour

## Steel Stud Chase Walls

Figure 142

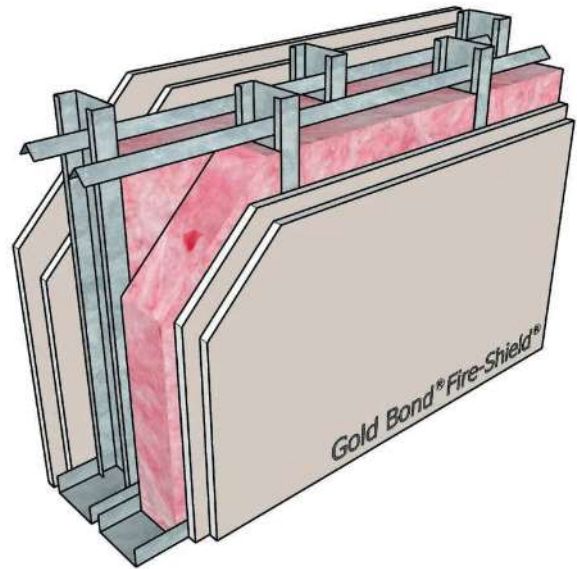


### STC-67

NGC 2018085

Framing: Double row 3-5/8" steel studs, 20 gauge (19 mil), 16" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board  
 UL Design: V488 - 2 hour

Figure 143

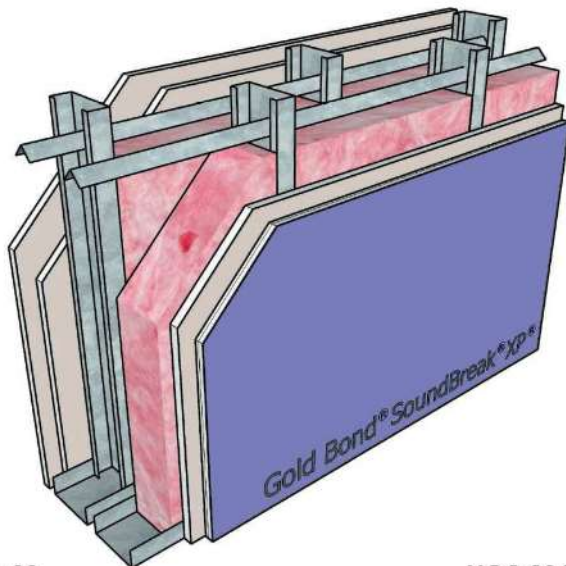


### STC-63

NGC 2019038

Framing: Double row 3-5/8" steel studs, 16 gauge (54 mil), 16" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board  
 UL Design: V488 - 2 hour

Figure 144



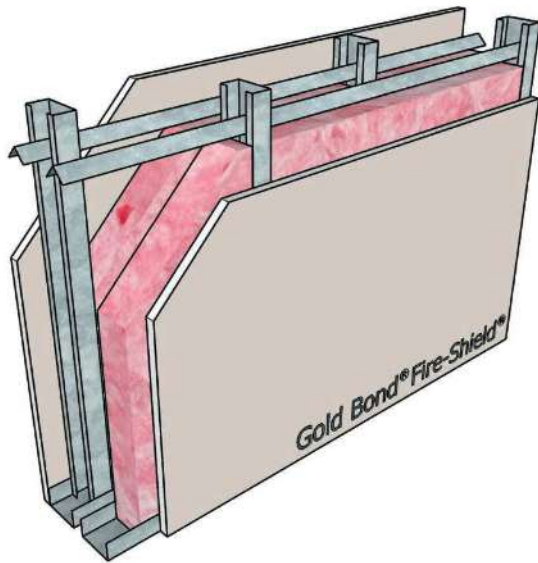
### STC-66

NGC 2019037

Framing: Double row 3-5/8" steel studs, 16 gauge (54 mil), 16" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board on 5/8" Fire-Shield Gypsum Board  
 UL Design: V488 - 2 hour

## Steel Stud Chase Walls

Figure 145

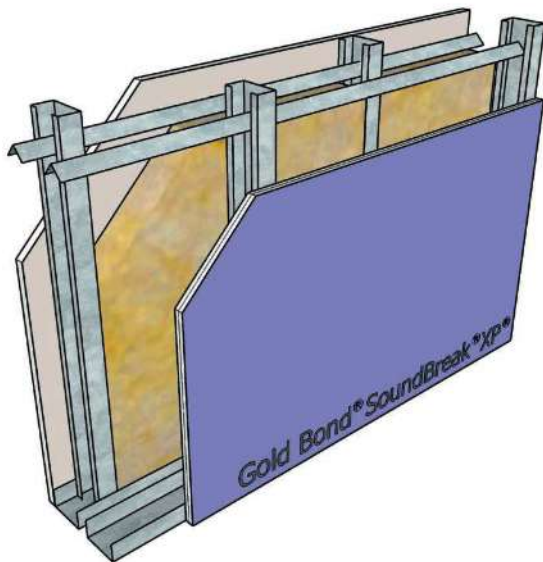


**STC-56**

**NGC 2015108**

Framing: Double row 2-1/2" steel studs, 25 gauge (15 mil), 24" o.c., braced with spacer bar  
 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: V488 - 1 hour

Figure 147

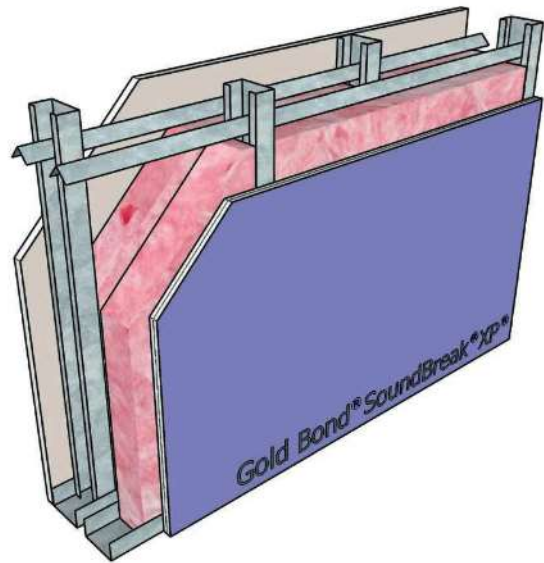


**STC-59**

**NGC 2008036**

Framing: Double row 2-1/2" steel studs, 25 gauge (18 mil), 24" o.c. staggered  
 Insulation: 3" mineral wool  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board  
 UL Design: V488 - 1 hour

Figure 146

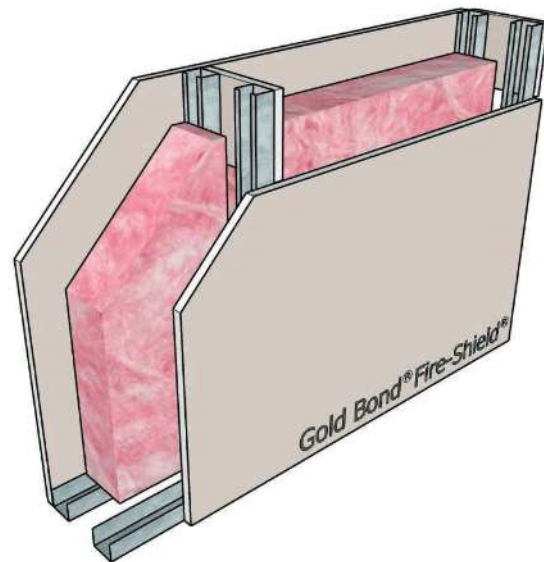


**STC-60**

**NGC 2015107**

Framing: Double row 2-1/2" steel studs, 25 gauge (15 mil), 24" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/8" SoundBreak XP Wall Board  
 UL Design: V488 - 1 hour

Figure 148



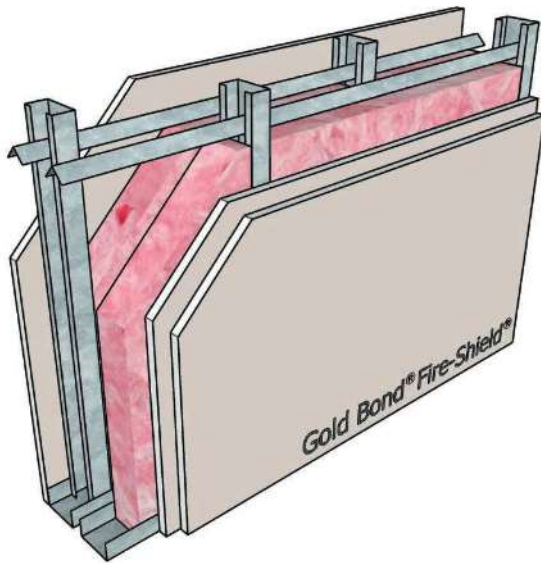
**STC-52**

**RAL-TL76-155**

Framing: Double row 1-5/8" steel studs, 25 gauge (18 mil) 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

## Steel Stud Chase Walls

Figure 149

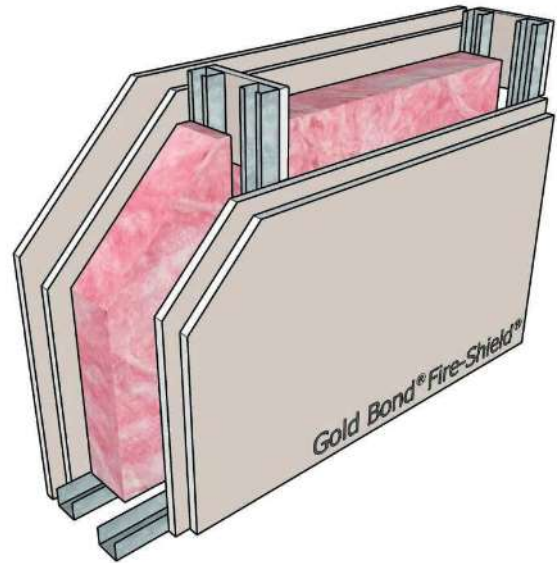


### STC-60

NGC 2015109

Framing: Double row 2-1/2" steel studs, 25 gauge (15 mil), 24" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board  
 UL Design: V488 - 1 hour

Figure 150

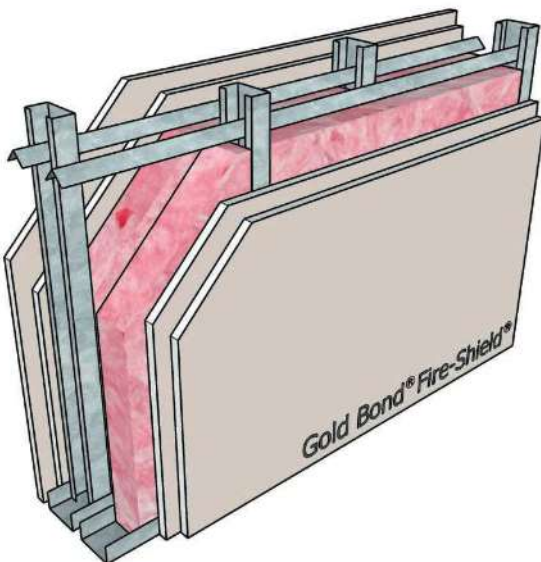


### STC-57

RAL-TL76-156

Framing: Double row 1-5/8" steel studs, 25 gauge (18 mil) 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 151



### STC-64

NGC 2015112

Framing: Double row 2-1/2" steel studs, 25 gauge (15 mil), 24" o.c., braced with spacer bar  
 Insulation: 3-1/2" glass fiber both sides  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board  
 UL Design: V488 - 2 hour



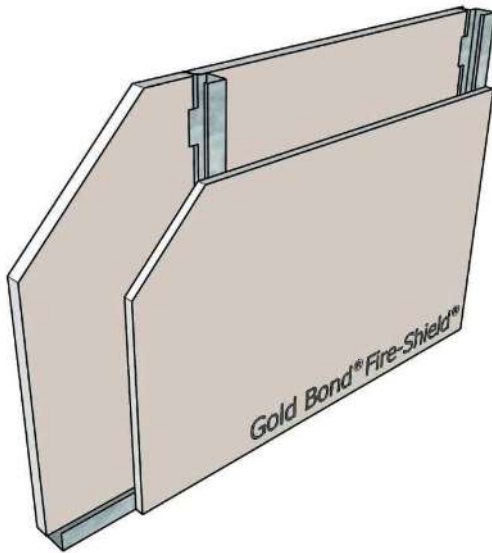
# Shaftwall Partitions





## Shaftwall Partitions

Figure 152



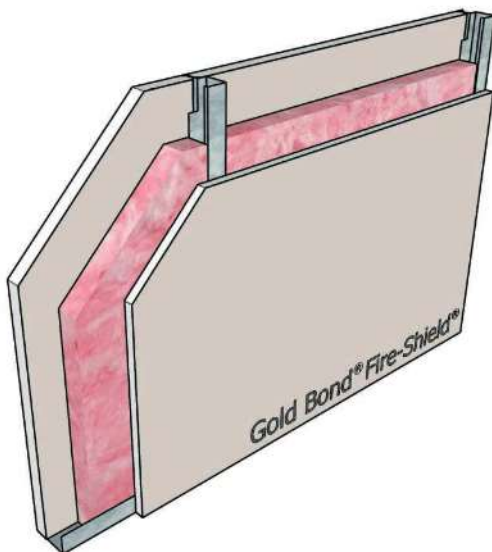
### STC-34

NGC 2001001

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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 154



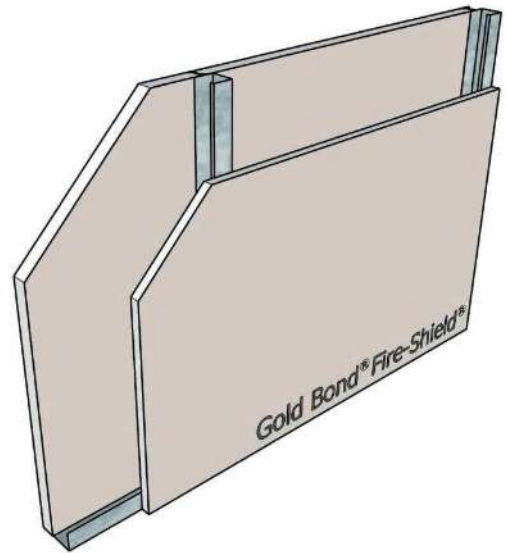
### STC-42

NGC 2016033

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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 153



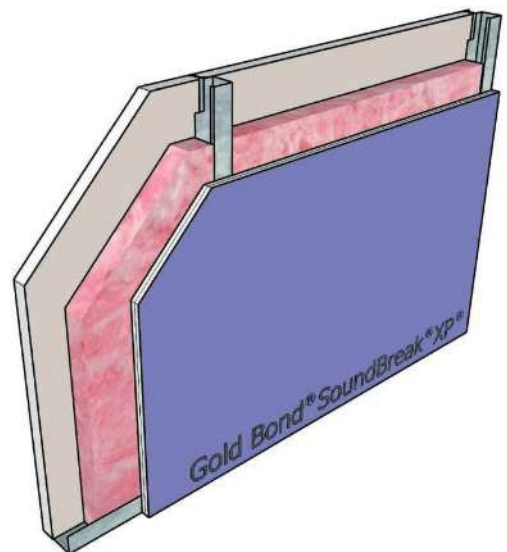
### STC-37

NGC 2001003

Framing: 2-1/2" steel CH studs, 25 gauge (22 mil), 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 155



### STC-44

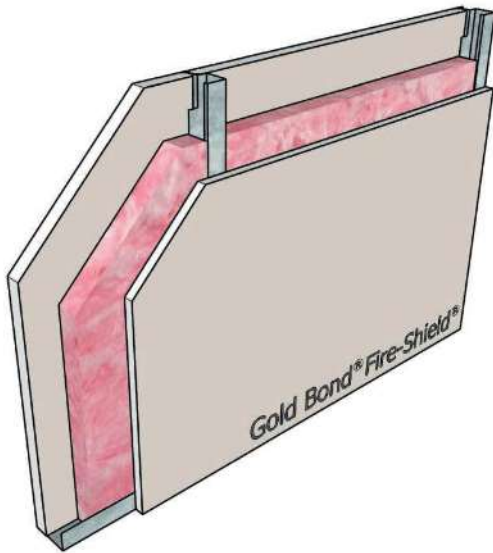
NGC 2015035

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 5/8" SoundBreak XP Wall Board

UL Design: U499, W419 - 1 hour

## Shaftwall Partitions

Figure 156



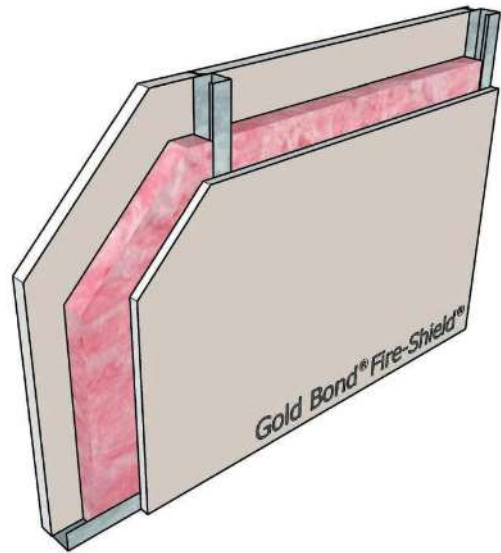
**STC-43**

**NGC 2019008**

Framing: 2-1/2" steel CT studs, 18 gauge (43 mil), 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 157



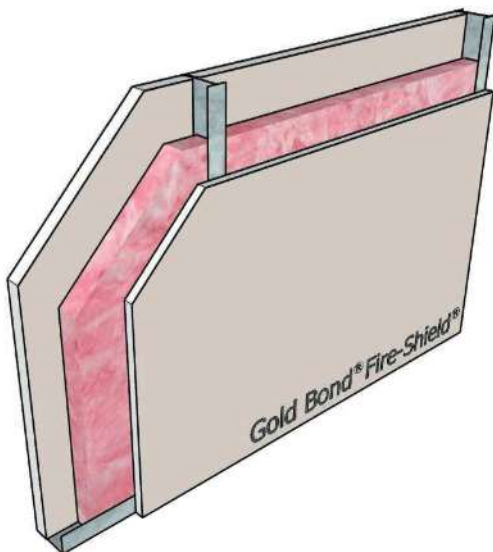
**STC-40**

**NGC 2001005**

Framing: 2-1/2" steel CH studs, 25 gauge (22 mil), 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 158



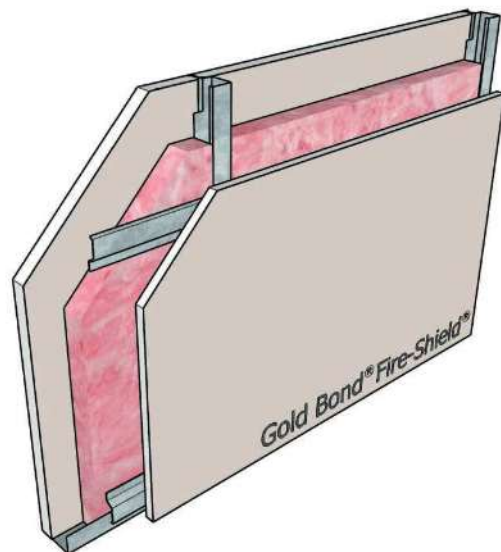
**STC-42**

**NGC 2542**

Framing: 2-1/2" steel I-studs, 25 gauge (22 mil), 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 159



**STC-44**

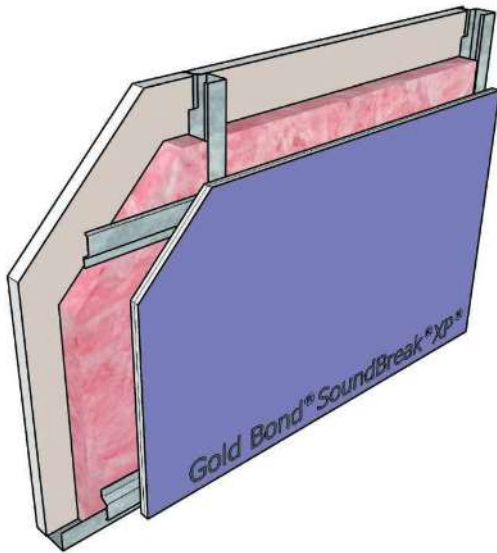
**NGC 2016036**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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

## Shaftwall Partitions

Figure 160



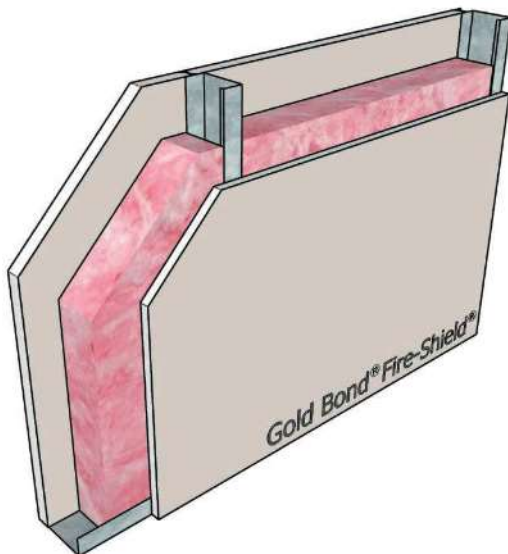
**STC-47**

**NGC 2015038**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 5/8" SoundBreak XP Wall Board on RC-1

UL Design: U499, W419 - 1 hour

Figure 162



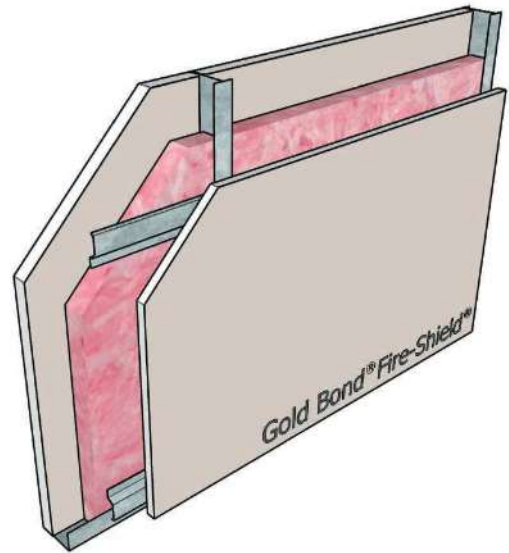
**STC-47**

**NGC 2015044**

Framing: 4" steel CH studs, 25 gauge (22 mil), 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 161



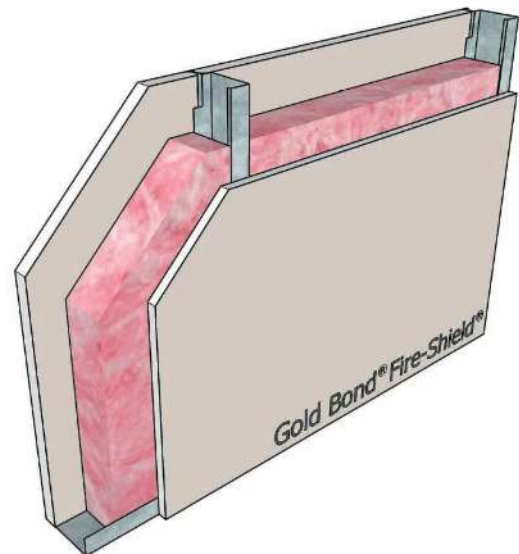
**STC-48**

**NGC 2541**

Framing: 2-1/2" steel I-studs, 25 gauge (22 mil), 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 163



**STC-47**

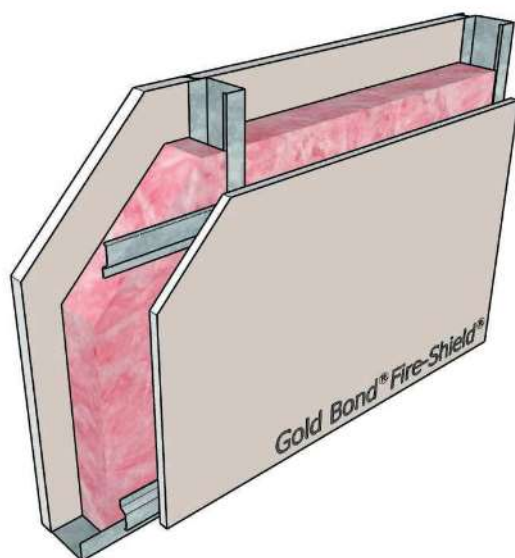
**NGC 2019011**

Framing: 4" steel CT studs, 18 gauge (43 mil), 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

## Shaftwall Partitions

Figure 164



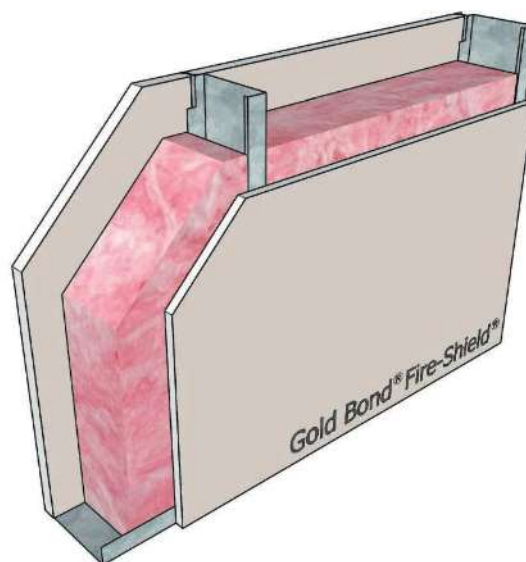
**STC-51**

**NGC 2015047**

Framing: 4" steel CH studs, 25 gauge (22 mil), 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

Figure 165



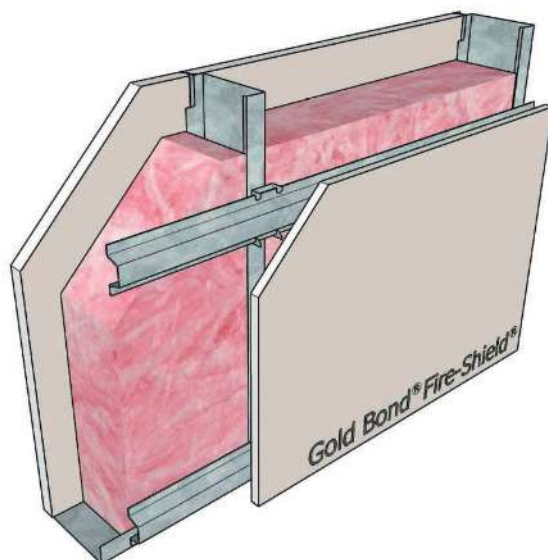
**STC-53**

**NGC 2019014**

Framing: 6" steel CT studs, 20 gauge (33 mil), 24" o.c.  
 Insulation: 5" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 166



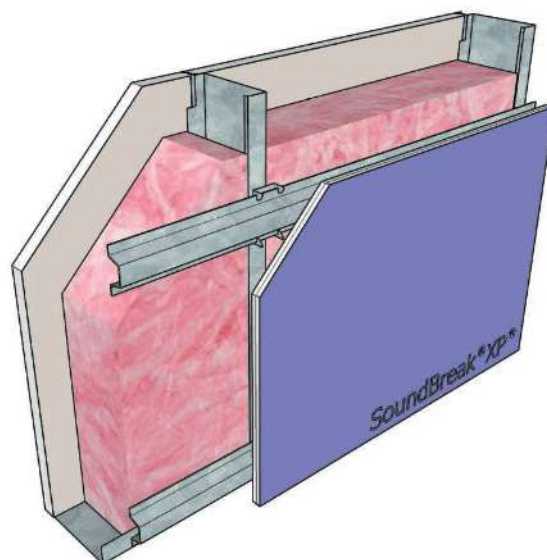
**STC-59**

**NGC 2019017**

Framing: 6" steel CT studs, 20 gauge (33 mil), 24" o.c.  
 Insulation: 5" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 5/8" Fire-Shield Gypsum Board on 7/8" furring channel and resilient isolation clips

UL Design: U499, W419 - 1 hour

Figure 167



**STC-61**

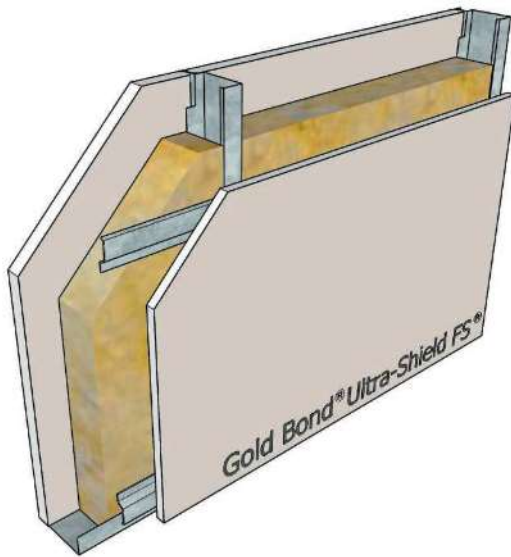
**NGC 2019019**

Framing: 6" steel CT studs, 20 gauge (33 mil), 24" o.c.  
 Insulation: 5" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 5/8" SoundBreak XP Wall Board on 7/8" furring channel and resilient isolation clips

UL Design: U499, W419 - 1 hour

## Shaftwall Partitions

Figure 168



**STC-54**

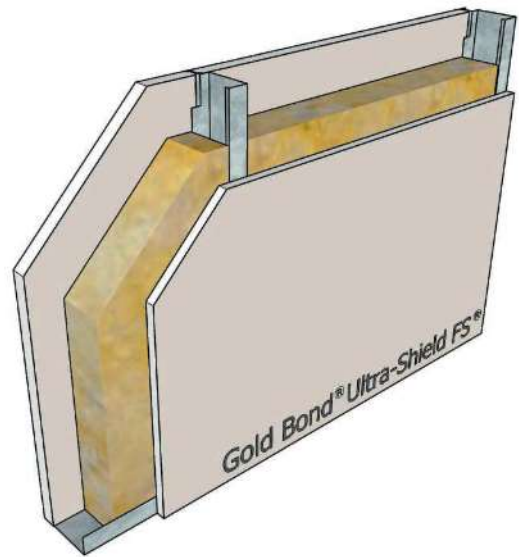
**NGC 2015042**

Framing: 4" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 3/4" Ultra-Shield Gypsum Board on RC-1

UL Design: W441, W419 - 2 hour

Figure 170

Figure 169



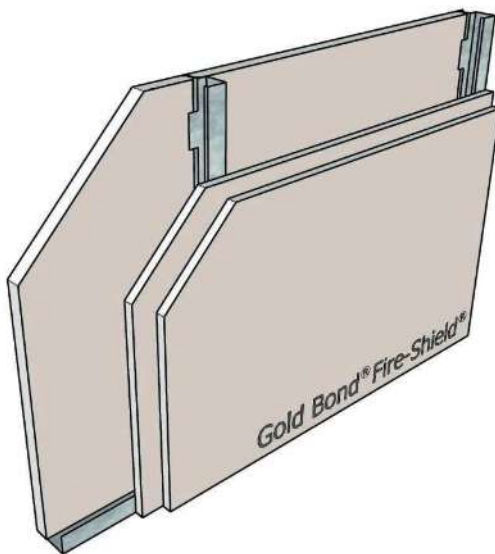
**STC-51**

**NGC 2015043**

Framing: 4" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 3" mineral wool  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 3/4" Ultra-Shield Gypsum Board

UL Design: W441, W419 - 2 hour

Figure 171

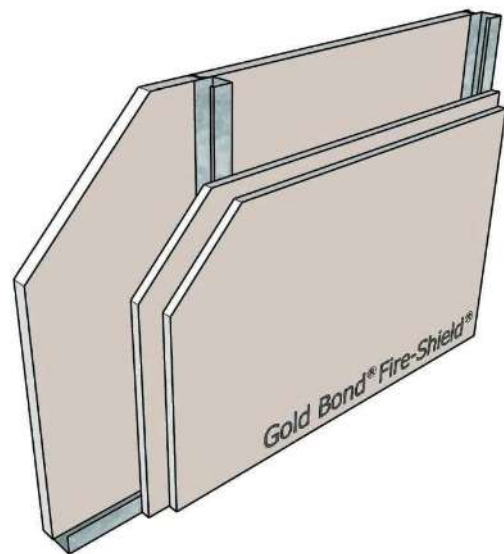


**STC-40**

**NGC 2001004**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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



**STC-39**

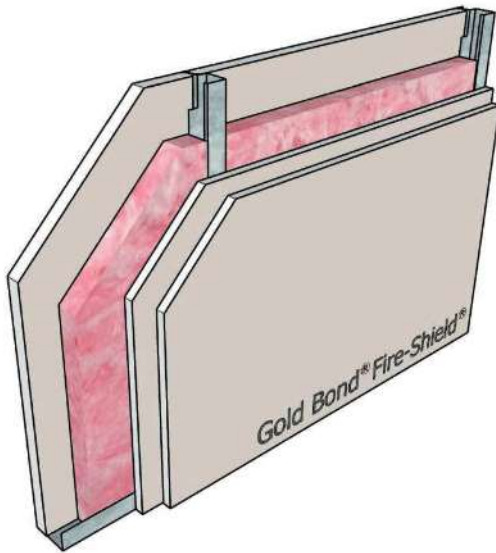
**NGC 2001002**

Framing: 2-1/2" steel CH studs, 25 gauge (22 mil), 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 172



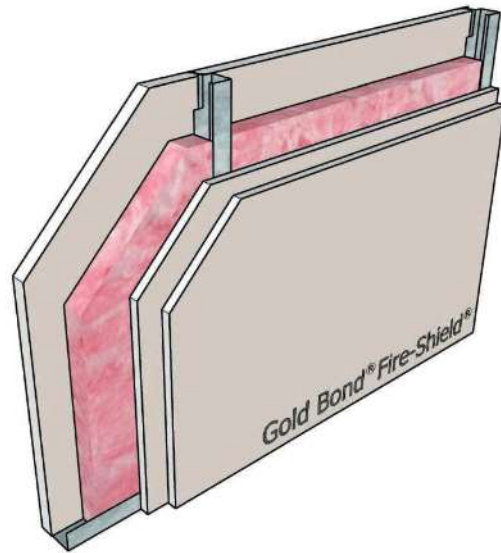
**STC-47**

**NGC 2016035**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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 173



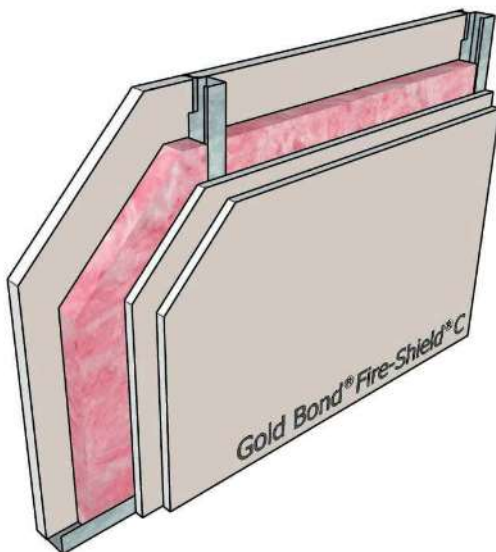
**STC-46**

**NGC 2019007**

Framing: 2-1/2" steel CT studs, 18 gauge (43 mil), 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 174



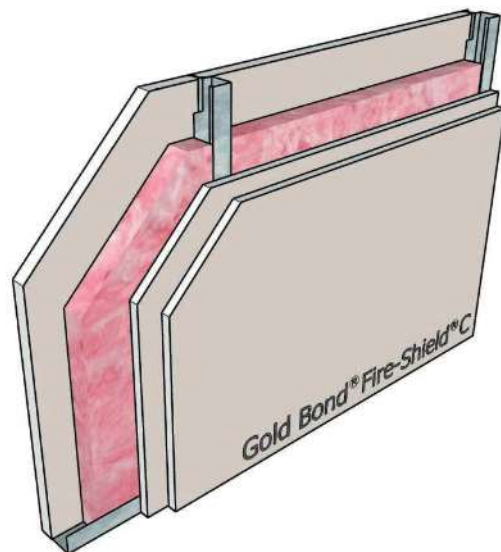
**STC-47**

**NGC 2019009**

Framing: 2-1/2" steel CT studs, 18 gauge (43 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 2 layers 1/2" Fire-Shield C Gypsum Board

UL Design: U497, W419 - 2 hour

Figure 175



**STC-49**

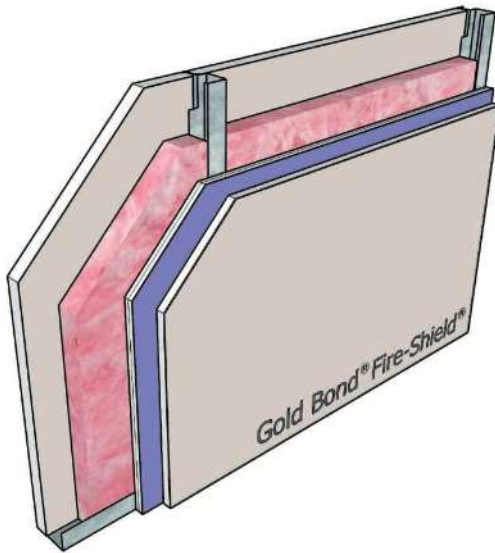
**NGC 2017006**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 2 layers 1/2" Fire-Shield C Gypsum Board

UL Design: U497, W419 - 2 hour

## Shaftwall Partitions

Figure 176

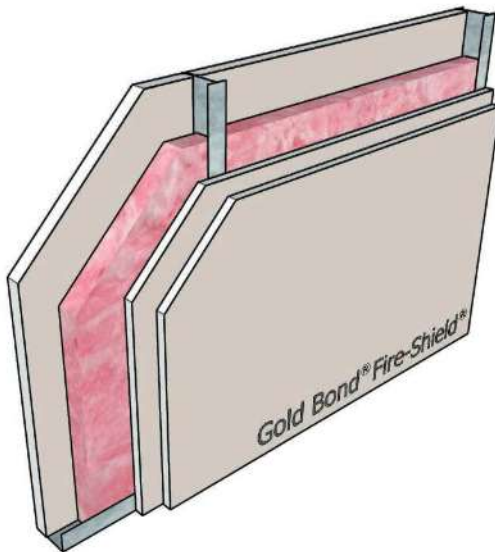


### STC-51

### NGC 2015037

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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 Wall Board  
 UL Design: U497, W419 - 2 hour

Figure 178



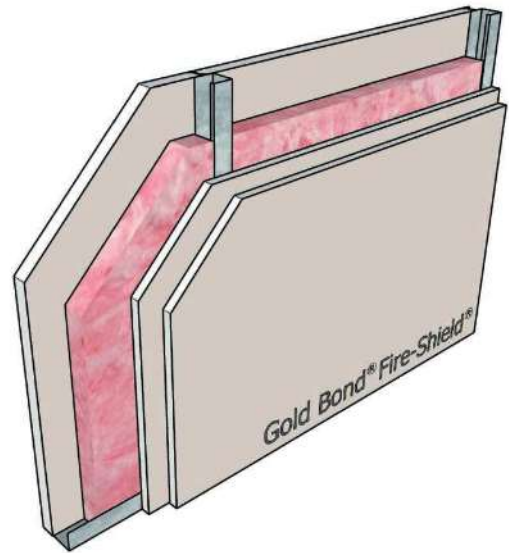
### STC-48

### NGC 2507

Framing: 2-1/2" steel I-studs, 25 gauge (22 mil), 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 177



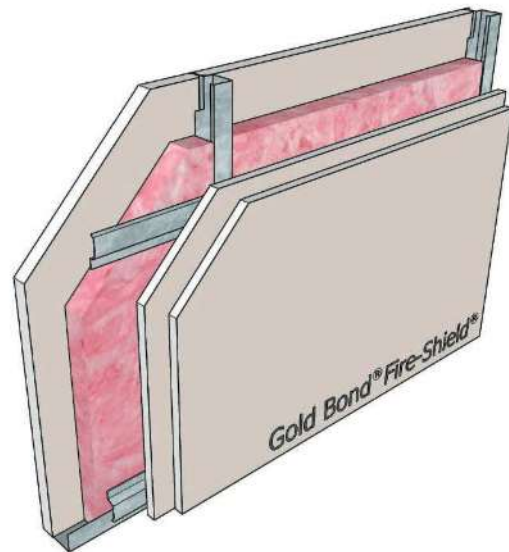
### STC-46

### NGC 2001006

Framing: 2-1/2" steel CH studs, 25 gauge (22 mil), 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 179



### STC-51

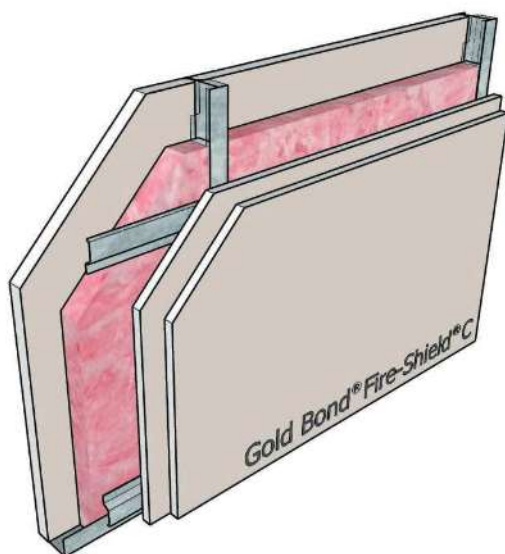
### NGC 2016038

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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

## Shaftwall Partitions

Figure 180



**STC-52**

**NGC 2017007**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.

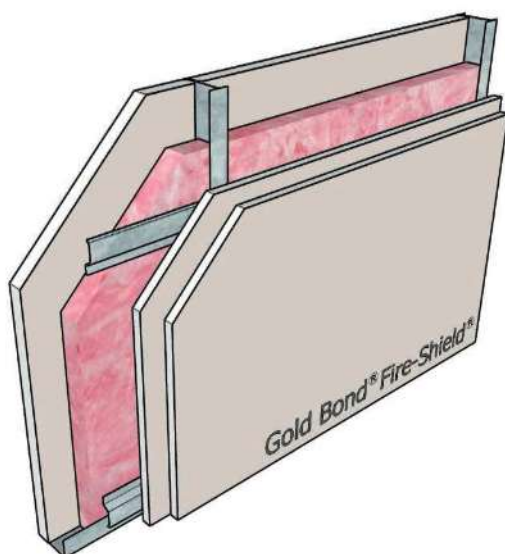
Insulation: 1-1/2" glass fiber

Side 1: 1" Fire-Shield Shaftliner

Side 2: 2 layers 1/2" Fire-Shield C Gypsum Board on RC-1

UL Design: U497, W419 - 2 hour

Figure 182



**STC-51**

**NGC 2540**

Framing: 2-1/2" steel I-studs, 25 gauge (22 mil), 24" o.c.

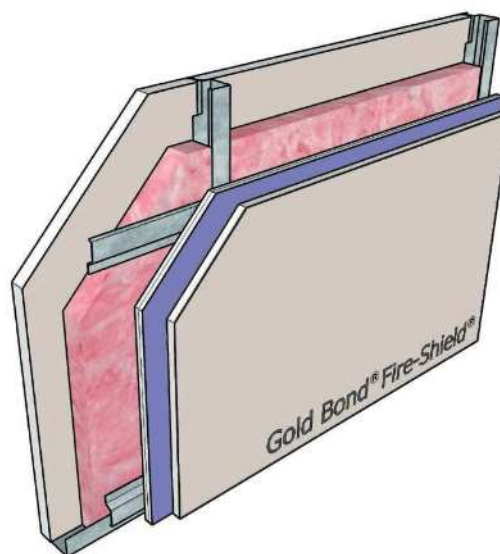
Insulation: 1-1/2" glass fiber

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 181



**STC-53**

**NGC 2015039**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.

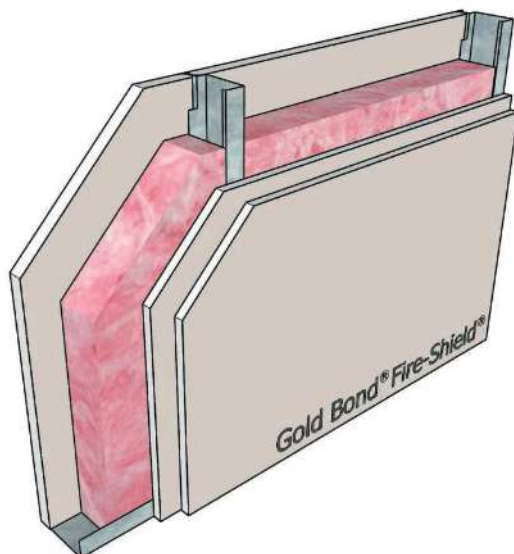
Insulation: 1-1/2" glass fiber

Side 1: 1" Fire-Shield Shaftliner

Side 2: 5/8" Fire-Shield Gypsum Board on  
5/8" SoundBreak XP Wall Board on RC-1

UL Design: U497, W419 - 2 hour

Figure 183



**STC-51**

**NGC 2019012**

Framing: 4" steel CT studs, 18 gauge (43 mil), 24" o.c.

Insulation: 3" glass fiber

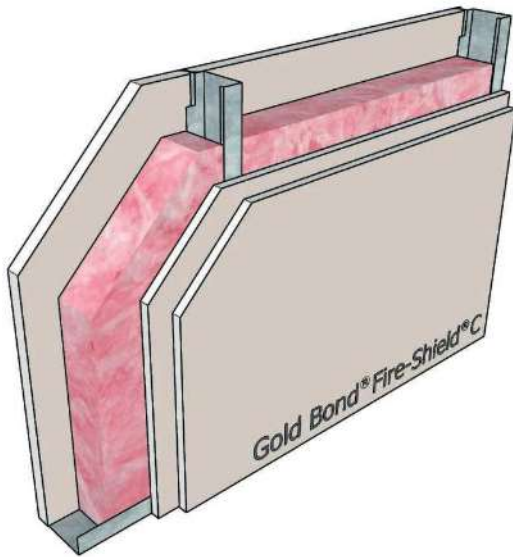
Side 1: 1" Fire-Shield Shaftliner

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

UL Design: U497, W419 - 2 hour

## Shaftwall Partitions

Figure 184



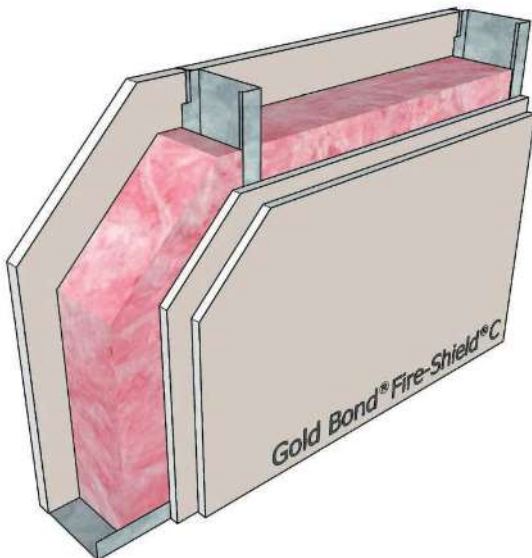
**STC-50**

**NGC 2019010**

Framing: 4" steel CT studs, 18 gauge (43 mil), 24" o.c.  
 Insulation: 3" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 2 layers 1/2" Fire-Shield C Gypsum Board

UL Design: U497, W419 - 2 hour

Figure 186



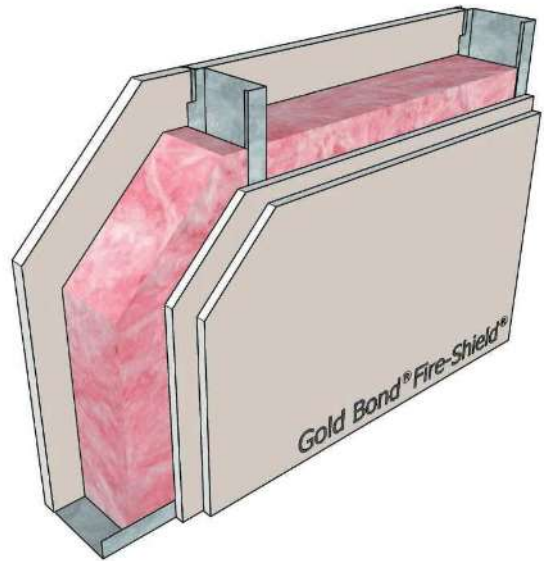
**STC-53**

**NGC 2019015**

Framing: 6" steel CT studs, 20 gauge (33 mil), 24" o.c.  
 Insulation: 5" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 2 layers 1/2" Fire-Shield C Gypsum Board

UL Design: U497, W419 - 2 hour

Figure 185



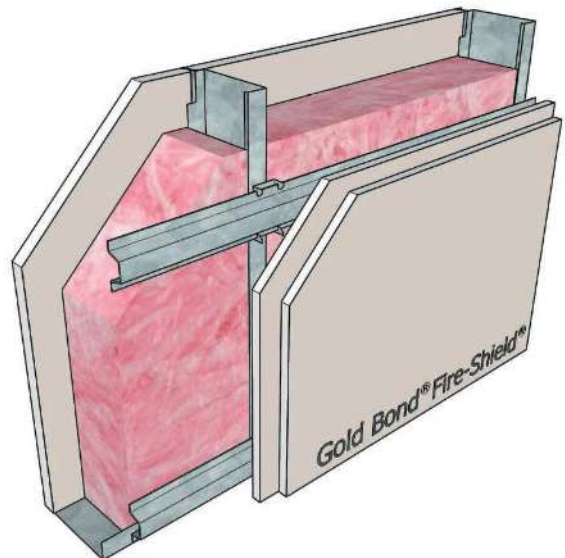
**STC-51**

**NGC 2019013**

Framing: 6" steel CT studs, 20 gauge (33 mil), 24" o.c.  
 Insulation: 5" 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 187



**STC-61**

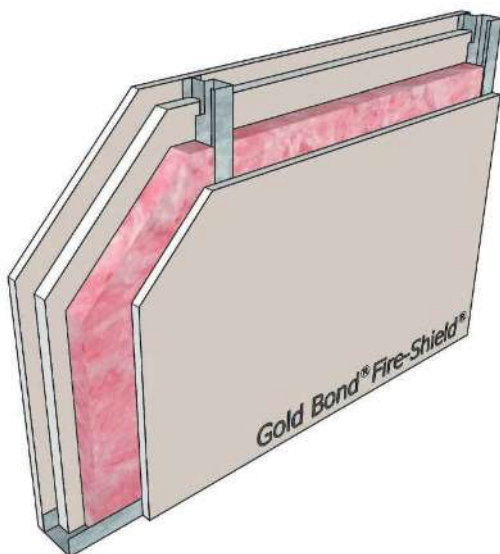
**NGC 2019016**

Framing: 6" steel CT studs, 20 gauge (33 mil), 24" o.c.  
 Insulation: 5" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board on 7/8" furring channel and resilient isolation clips

UL Design: U497, W419 - 2 hour

## Shaftwall Partitions

Figure 188

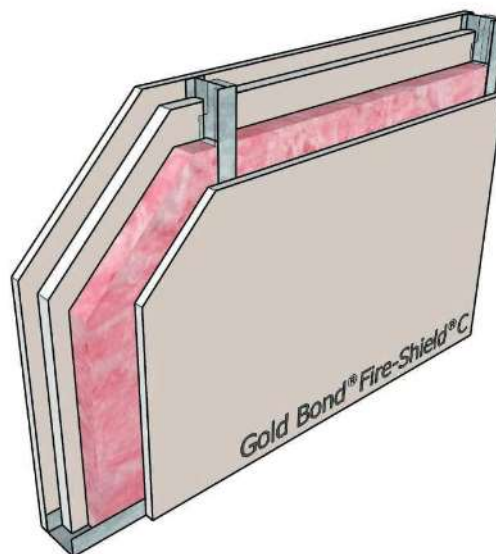


**STC-48**

**NGC 2016034**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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 189

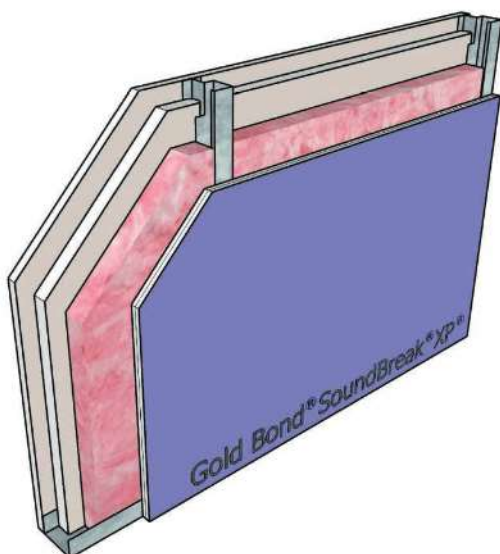


**STC-48**

**NGC 2017005**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 1/2" Fire-Shield C Gypsum Board on  
 1" Fire-Shield Shaftliner  
 Side 2: 1/2" Fire-Shield C Gypsum Board  
 UL Design: U498, W419 - 2 hour

Figure 190

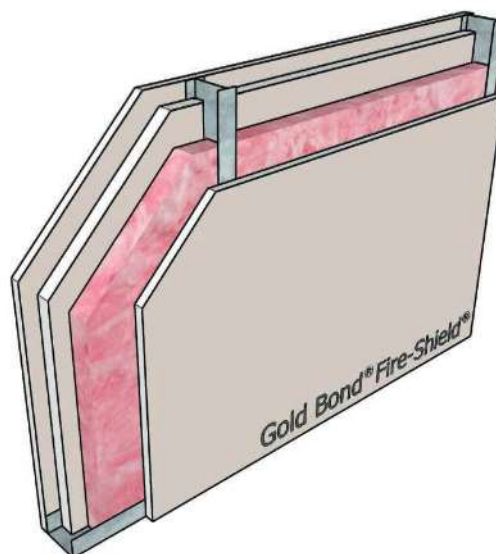


**STC-53**

**NGC 2015036**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 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 Wall Board  
 UL Design: U498, W419 - 2 hour

Figure 191



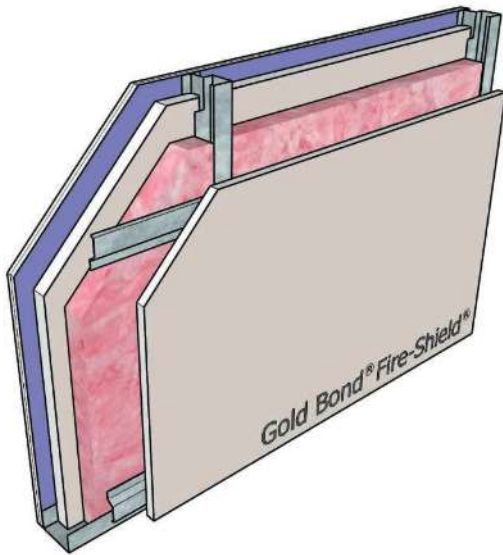
**STC-48**

**NGC 2534**

Framing: 2-1/2" steel I-studs, 25 gauge (22 mil), 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

## Shaftwall Partitions

Figure 192

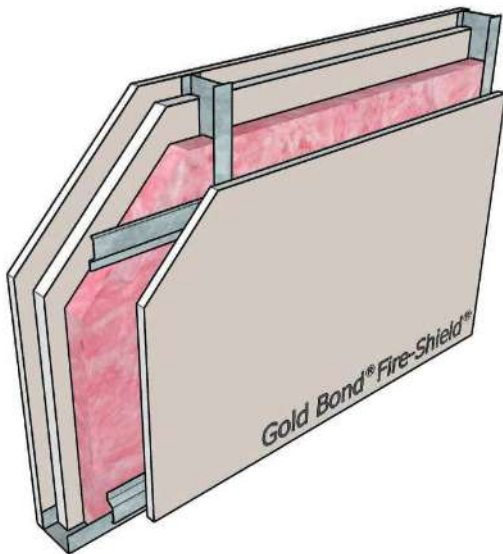


**STC-55**

**NGC 2015041**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall Board on  
 1" Fire-Shield Shaftliner  
 Side 2: 5/8" Fire-Shield Gypsum Board on RC-1  
 UL Design: U498, W419 - 2 hour

Figure 194

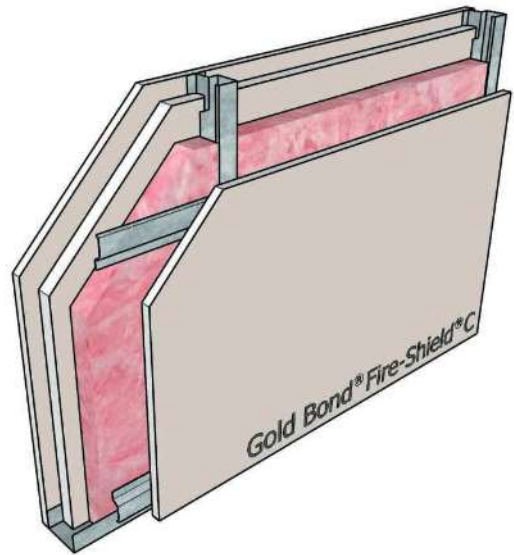


**STC-52**

**NGC 2538**

Framing: 2-1/2" steel I-studs, 25 gauge (22 mil), 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 193

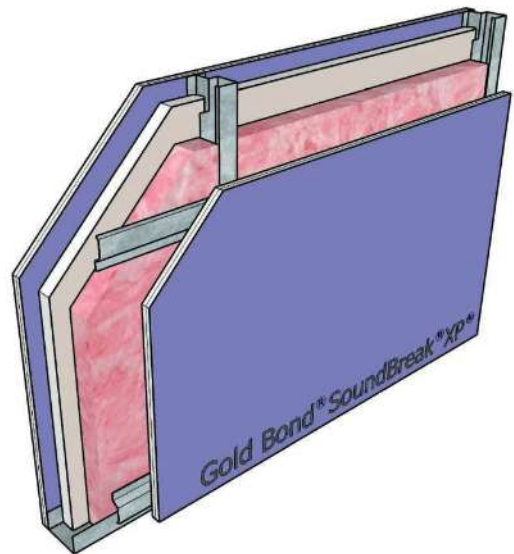


**STC-53**

**NGC 2017008**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 1/2" Fire-Shield C Gypsum Board on  
 1" Fire-Shield Shaftliner  
 Side 2: 1/2" Fire-Shield C Gypsum Board on RC-1  
 UL Design: U498, W419 - 2 hour

Figure 195



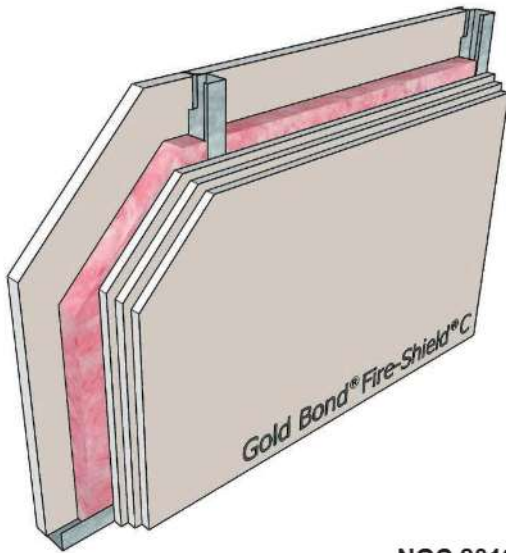
**STC-56**

**NGC 2015040**

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall Board on  
 1" Fire-Shield Shaftliner  
 Side 2: 5/8" SoundBreak XP Wall Board on RC-1  
 UL Design: U498, W419 - 2 hour

## Shaftwall Partitions

Figure 196



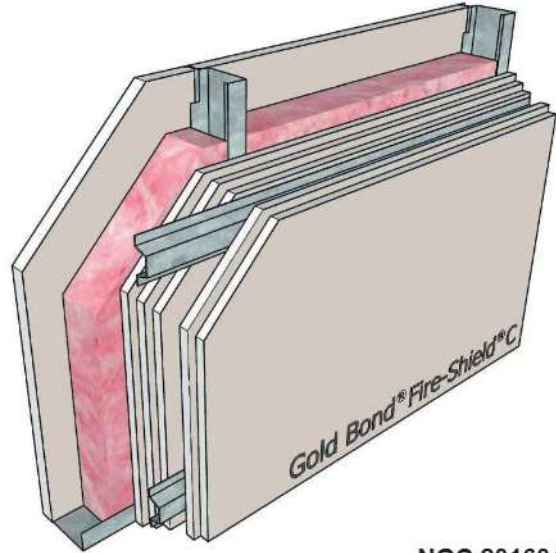
### STC-50

### NGC 2016039

Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 1-1/2" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 3 layers 5/8" Fire-Shield C Gypsum Board

UL Design: W414, W419 - 3 hour

Figure 197



### STC-58

### NGC 2016040

Framing: 4" steel CT studs, 25 gauge (22 mil), 24" o.c.  
 Insulation: 3" glass fiber  
 Side 1: 1" Fire-Shield Shaftliner  
 Side 2: 2 layers 5/8" Fire-Shield C Gypsum Board on  
 7/8" rigid furring channels 16" o.c. on  
 3 layers 5/8" Fire-Shield C Gypsum Board

UL Design: V451, W419 - 4 hour

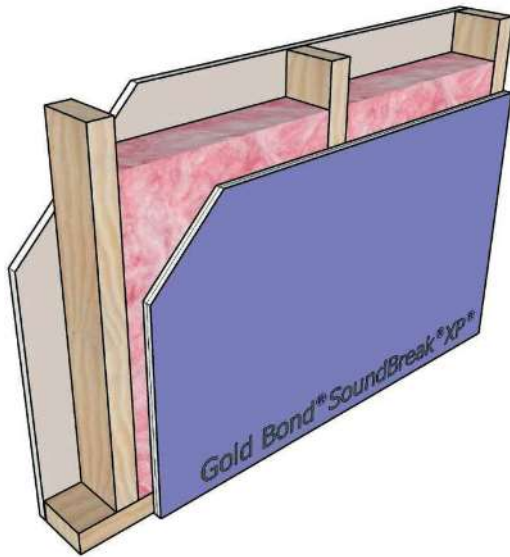
Wood Stud Partitions  
with Framing 16" o.c.





## Wood Stud Partitions with Framing 16" o.c.

Figure 198



**STC-39**

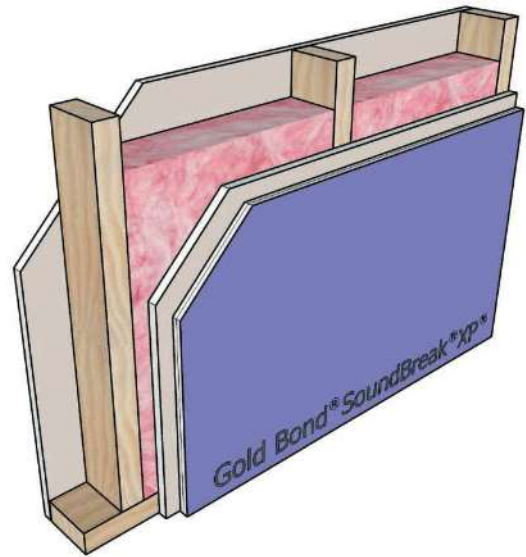
**NGC 2009047**

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 Wall Board

UL Design: Not Rated

Figure 200

Figure 199



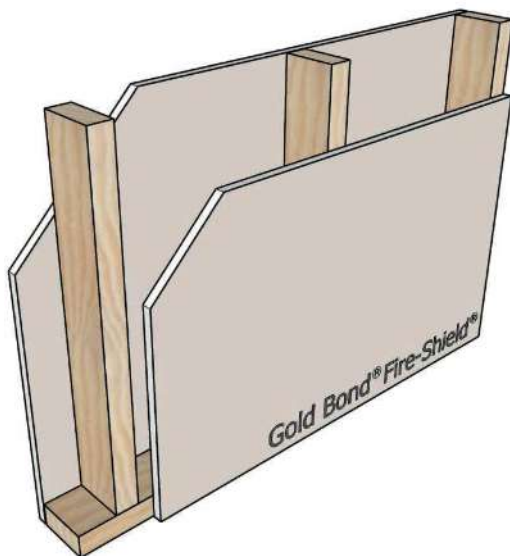
**STC-43**

**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 Wall Board on  
 1/2" Gold Bond Gypsum Board

UL Design: Not Rated

Figure 201

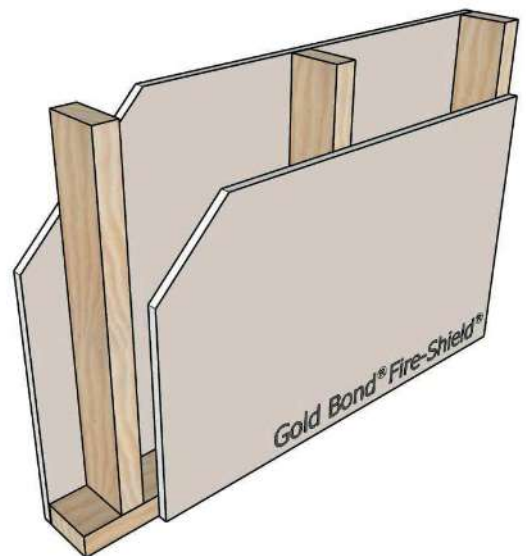


**STC-34**

**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



**STC-35**

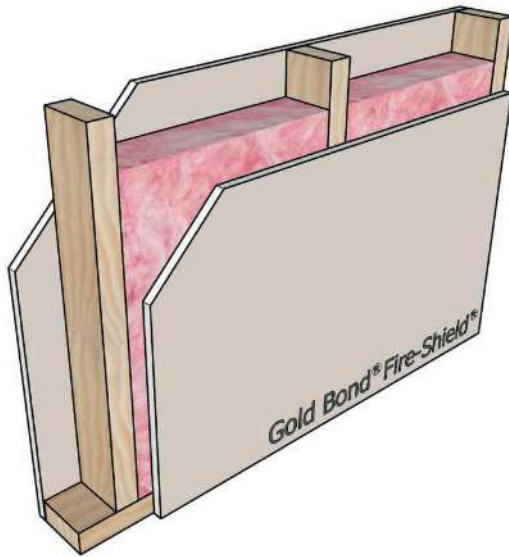
**NGC 2403**

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 202



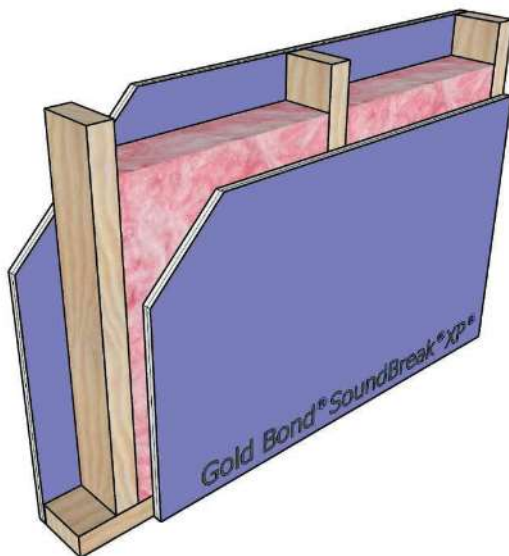
**STC-36**

**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 204



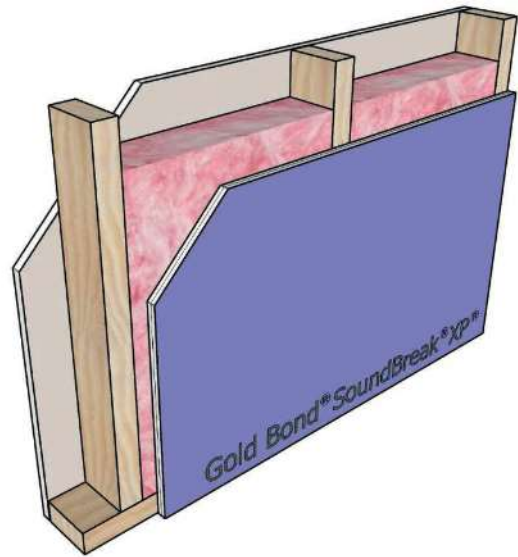
**STC-45**

**NGC 2009019**

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

UL Design: U305 - 1 hour

Figure 203



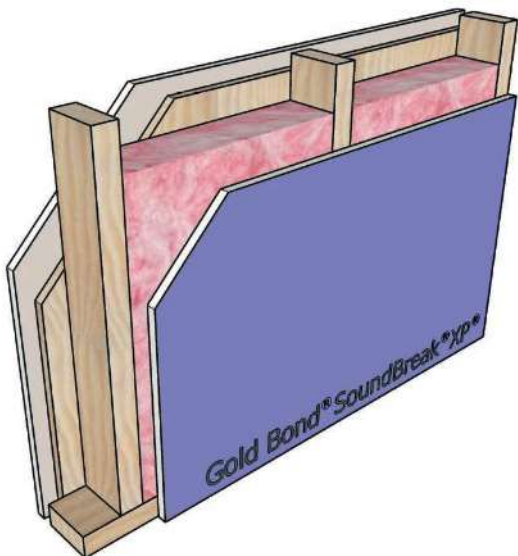
**STC-42**

**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 Wall Board

UL Design: U305 - 1 hour

Figure 205



**STC-42**

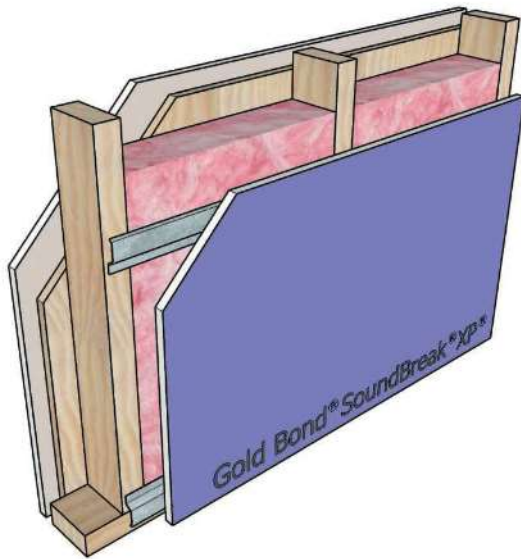
**NGC 2015085**

Framing: 2x4 wood studs, 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall Board  
 Side 2: 5/8" Fire-Shield Gypsum Board on  
 15/32" plywood

UL Design: U344, U305 - 1 hour

## Wood Stud Partitions with Framing 16" o.c.

Figure 206

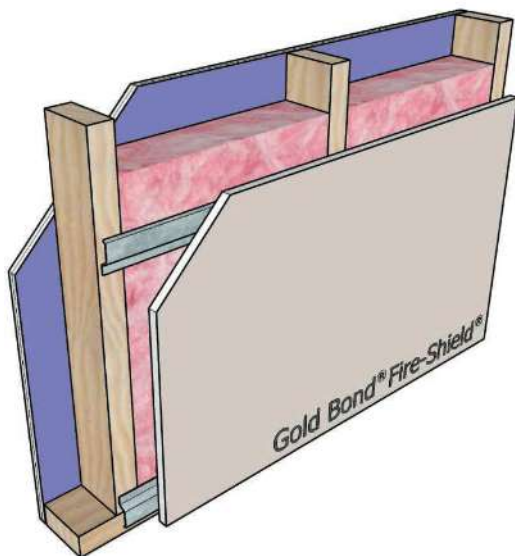


### STC-46

NGC 2015084

Framing: 2x4 wood studs, 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall Board on RC-1  
 Side 2: 5/8" Fire-Shield Gypsum Board on  
 15/32" plywood  
 UL Design: U344, U305 - 1 hour

Figure 208



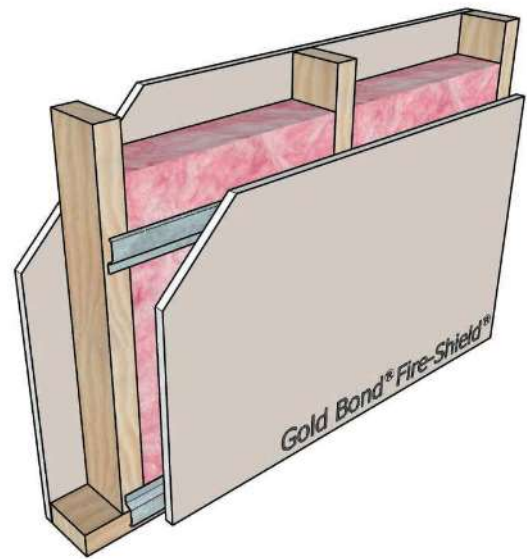
### STC-54

NGC 2011066

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

UL Design: U305 - 1 hour

Figure 207



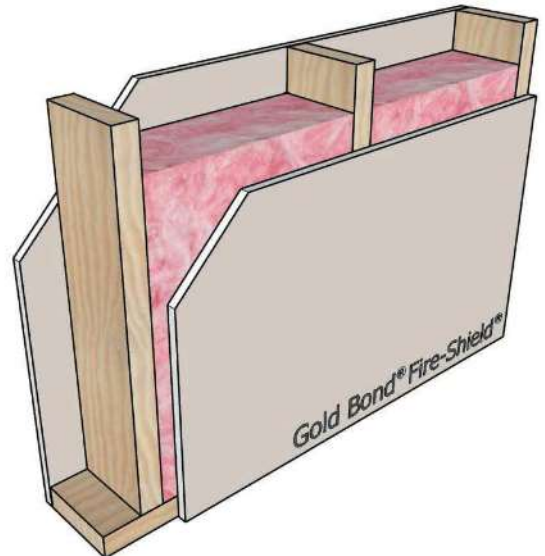
### STC-51

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 209



### STC-38

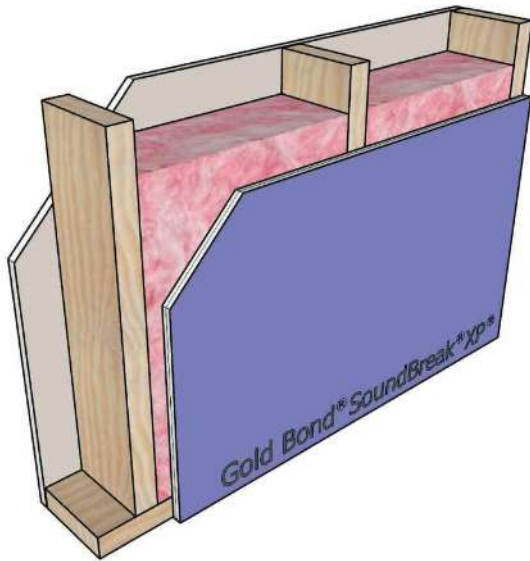
NGC 2008032

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

## Wood Stud Partitions with Framing 16" o.c.

Figure 210



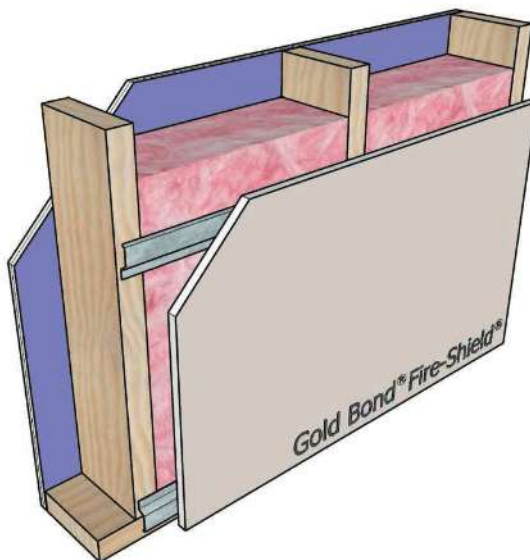
**STC-42**

**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 Wall Board

UL Design: U305 - 1 hour

Figure 212



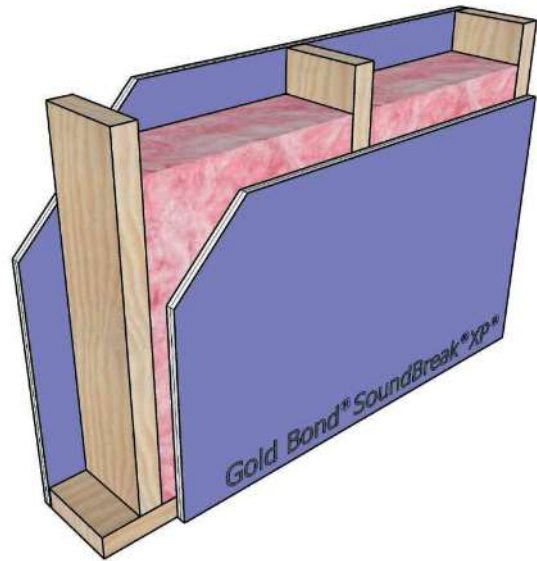
**STC-57**

**NGC 2010081**

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

UL Design: U305 - 1 hour

Figure 211



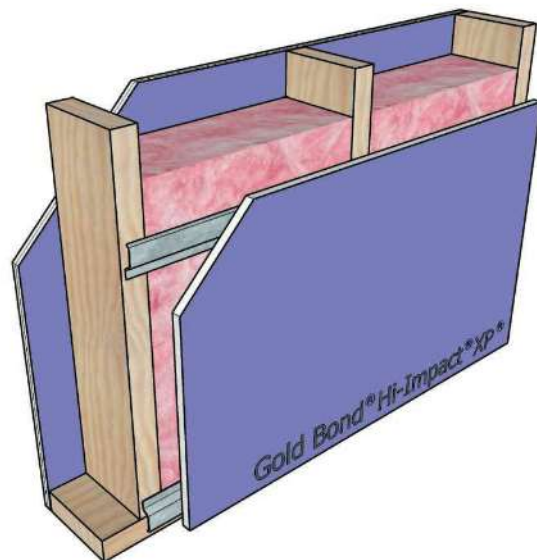
**STC-44**

**NGC 2009012**

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

UL Design: U305 - 1 hour

Figure 213



**STC-58**

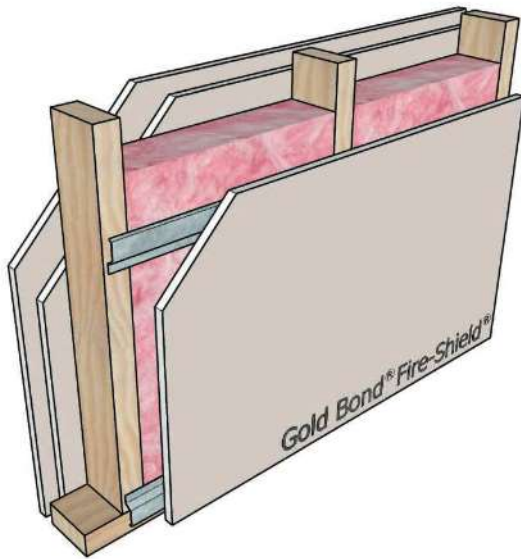
**NGC 2010080**

Framing: 2x6 wood studs, 16" o.c.  
 Insulation: 5-1/2" glass fiber  
 Side 1: 5/8" SoundBreak XP Wall 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 214



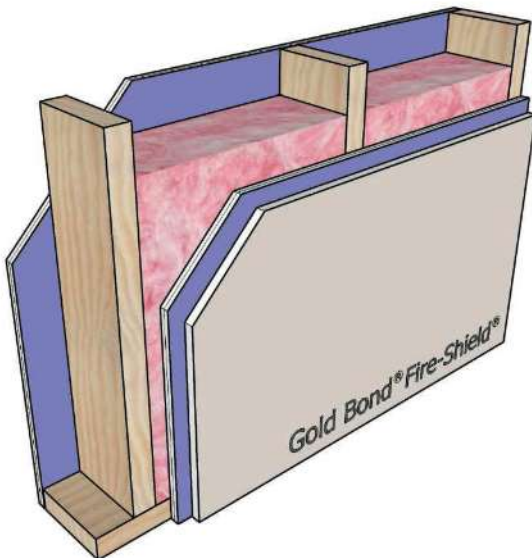
**STC-55**

**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 216



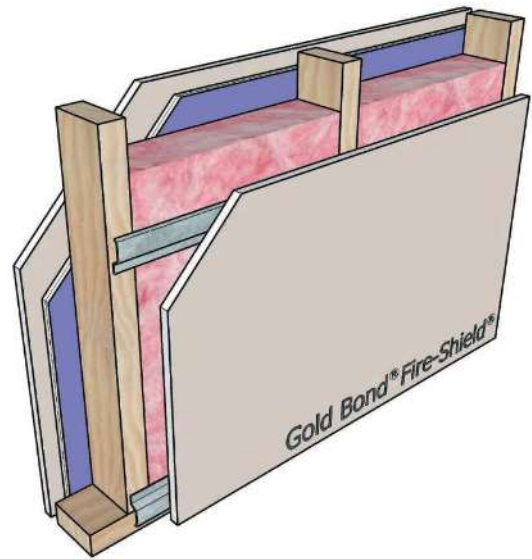
**STC-46**

**NGC 2009010**

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

UL Design: U305 - 1 hour

Figure 215

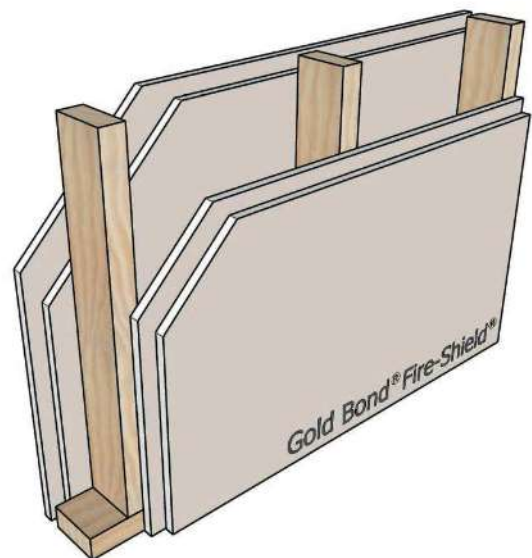


**STC-58**

**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 Wall Board  
Side 2: 5/8" Fire-Shield Gypsum Board on RC-1  
UL Design: U305 - 1 hour

Figure 217



**STC-40**

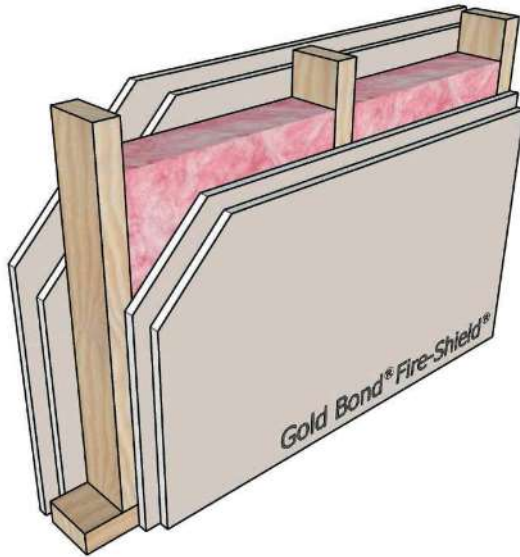
**NGC 2363**

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 218



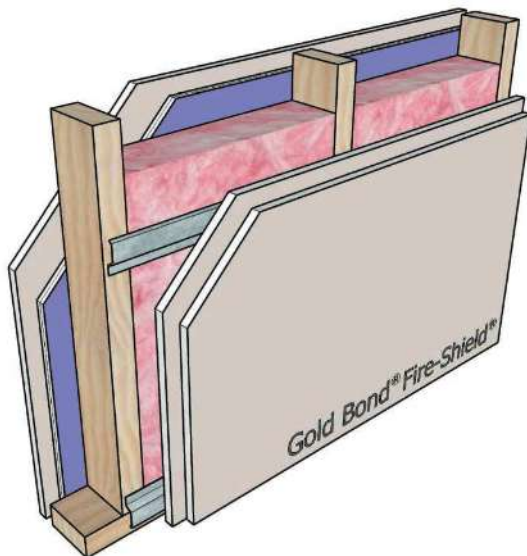
**STC-41**

**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 220

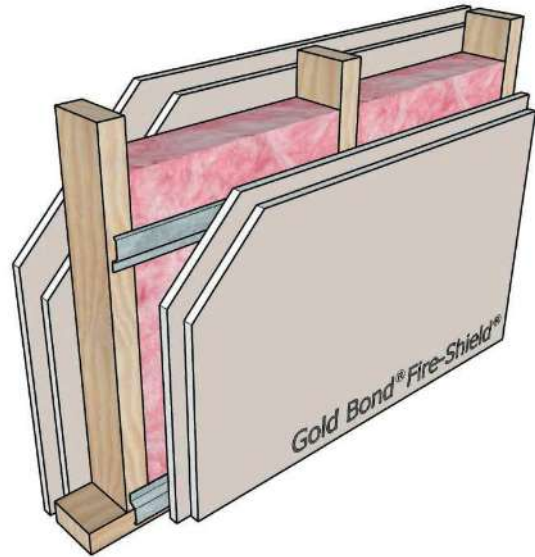


**STC-61**

**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 Wall Board  
 Side 2: 2 layers 5/8" Fire-Shield Gypsum Board on RC-1  
 UL Design: U301 - 2 hours

Figure 219



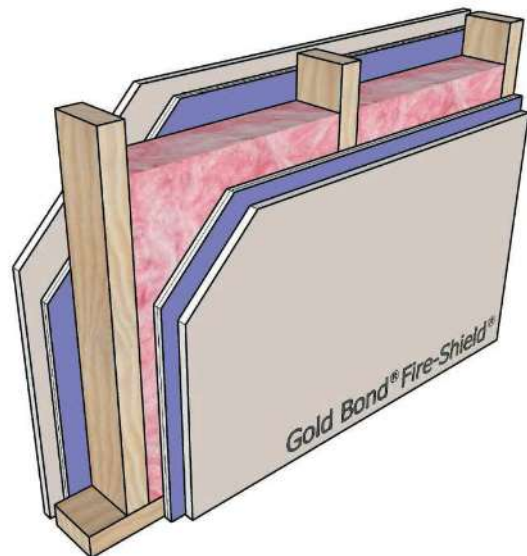
**STC-58**

**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 221



**STC-45**

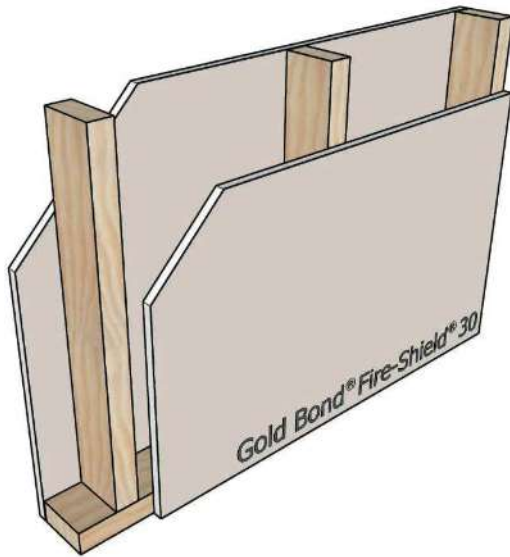
**NGC 2009017**

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

## Wood Stud Partitions with Framing 16" o.c.

Figure 222



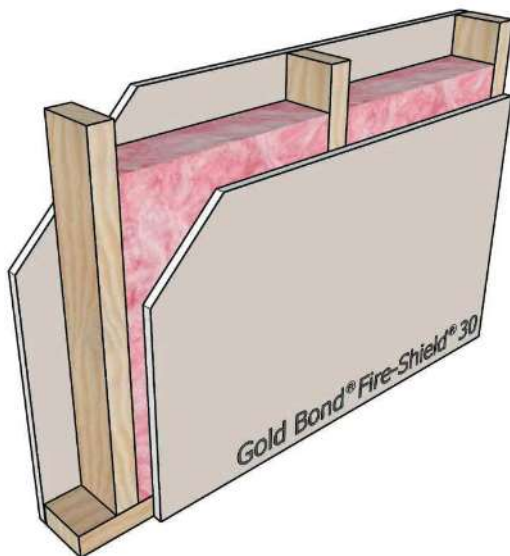
### STC-33

NGC 2014046

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

UL Design: W411 - 1/2 hour

Figure 224



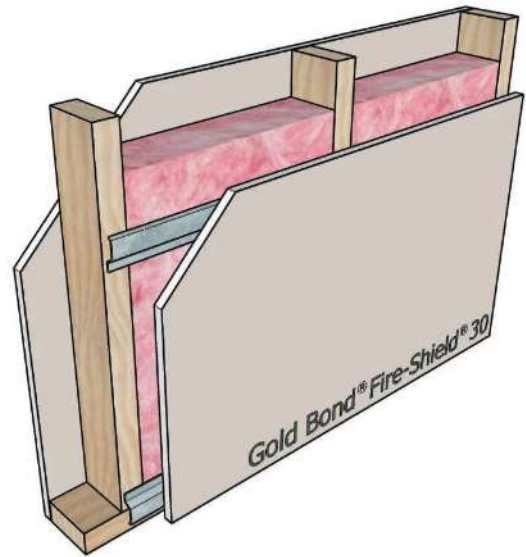
### STC-34

NGC 2014045

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

UL Design: W411 - 1/2 hour

Figure 223



### STC-45

NGC 2014044

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

UL Design: W411 - 1/2 hour



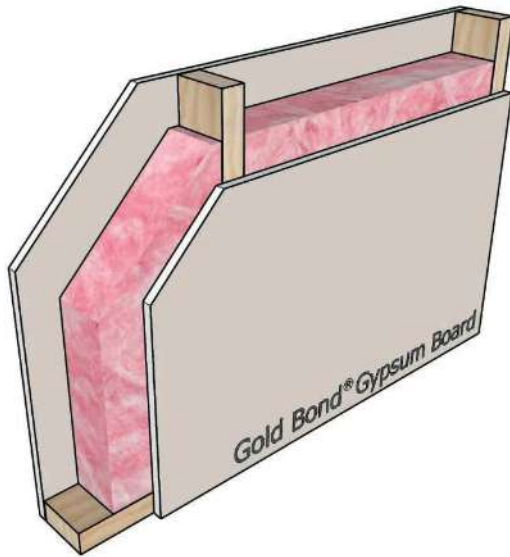
Wood Stud Partitions  
with Framing 24" o.c.





## Wood Stud Partitions with Framing 24" o.c.

Figure 225



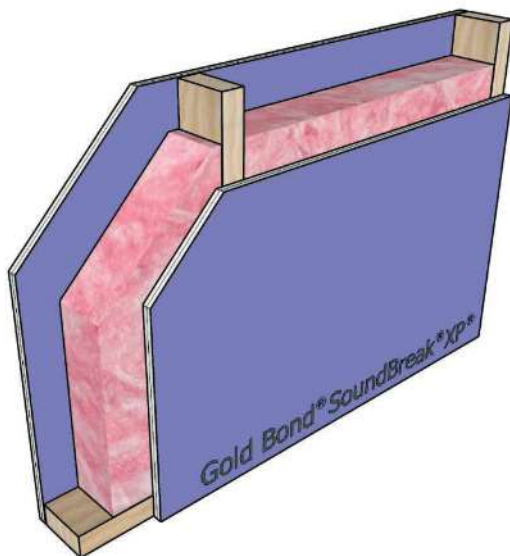
**STC-42**

**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 227



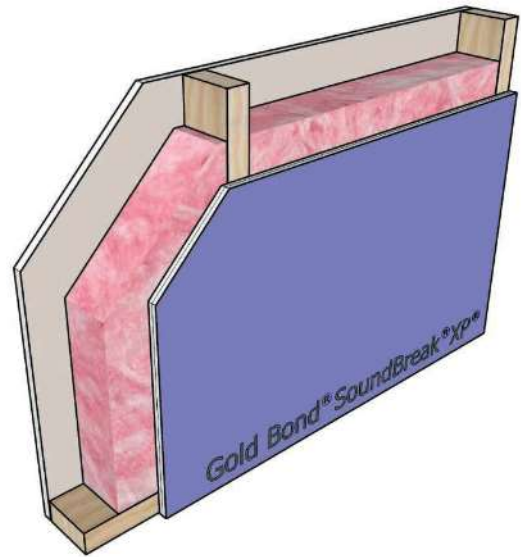
**STC-51**

**NGC 2009029**

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

UL Design: Not Rated

Figure 226



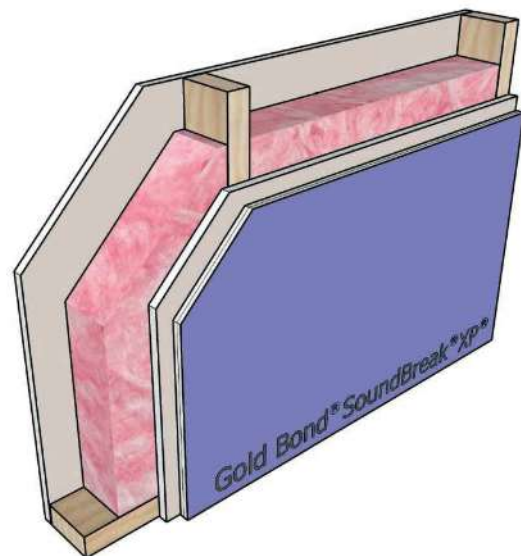
**STC-49**

**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 Wall Board

UL Design: Not Rated

Figure 228



**STC-51**

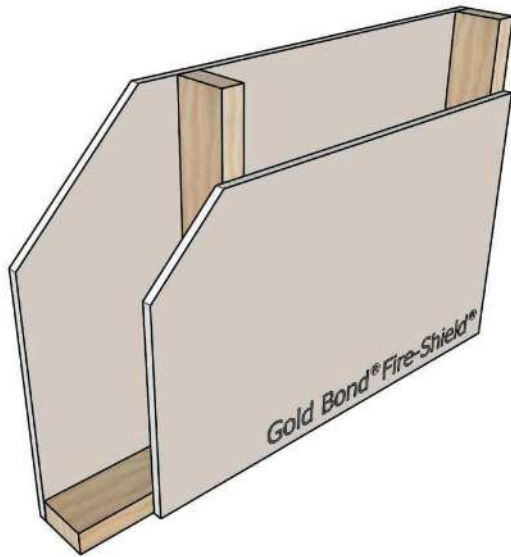
**NGC 2009028**

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 Wall Board on  
 1/2" Gold Bond Gypsum Board

UL Design: Not Rated

## Wood Stud Partitions with Framing 24" o.c.

Figure 229



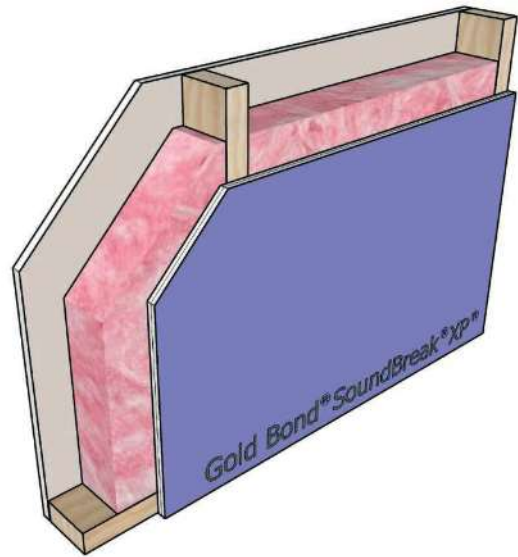
**STC-38**

**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 230



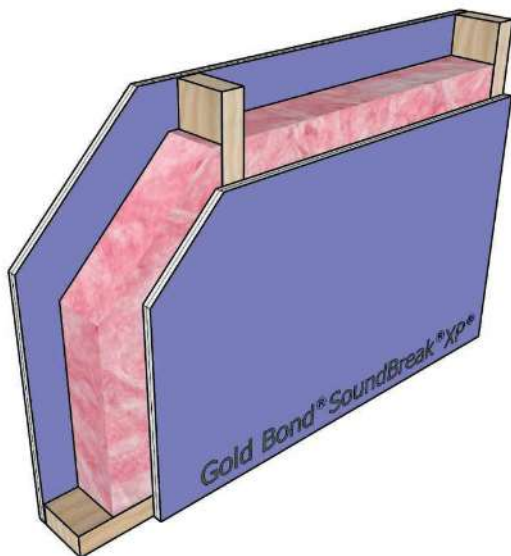
**STC-50**

**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 Wall Board

UL Design: U309 - 1 hour

Figure 231



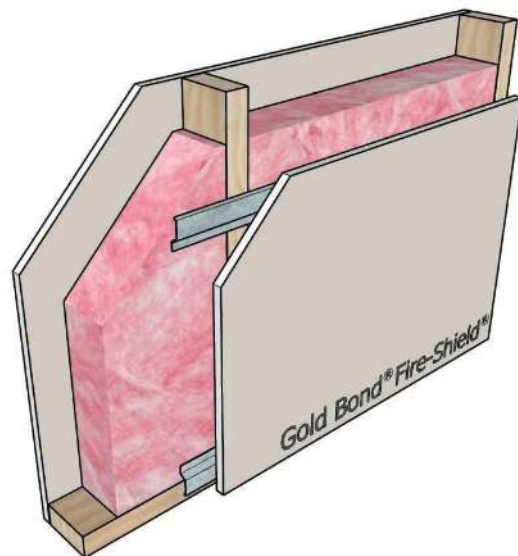
**STC-53**

**RAL-TL07-145**

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

UL Design: U309 - 1 hour

Figure 232



**STC-50**

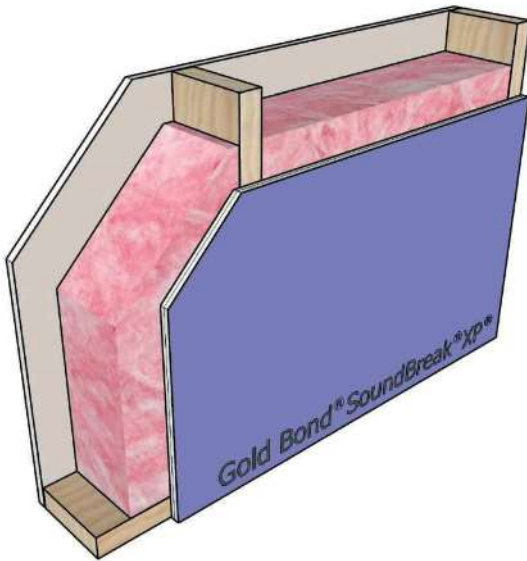
**NRCC TL-93-196**

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

## Wood Stud Partitions with Framing 24" o.c.

Figure 233



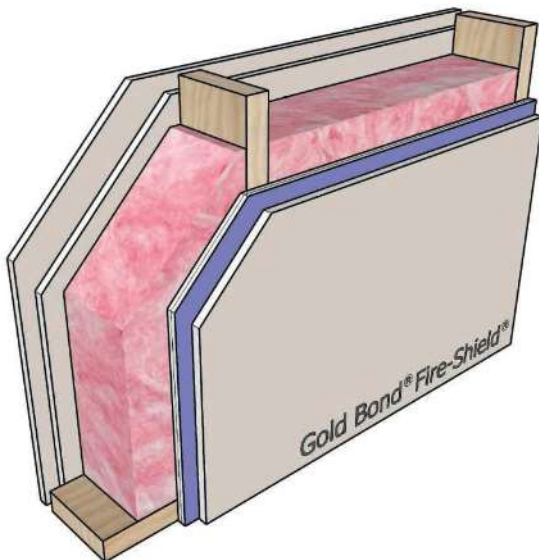
### STC-50

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 Wall Board

UL Design: U309 - 1 hour

Figure 235

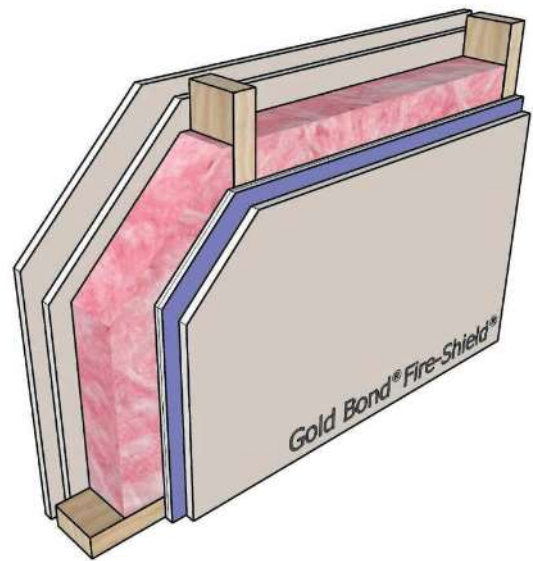


### STC-53

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 Wall Board  
 GA File: WP 4135 - 2 hour

Figure 234



### 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 Wall Board  
 GA File: WP 4135 - 2 hour



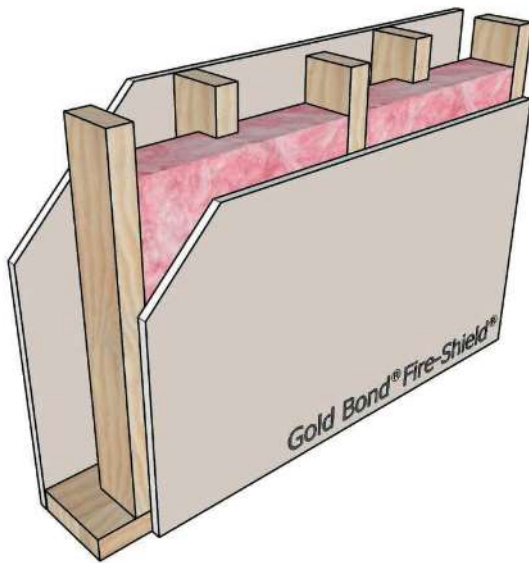
## Wood Stud Chase Walls





## Wood Stud Chase Walls

Figure 236

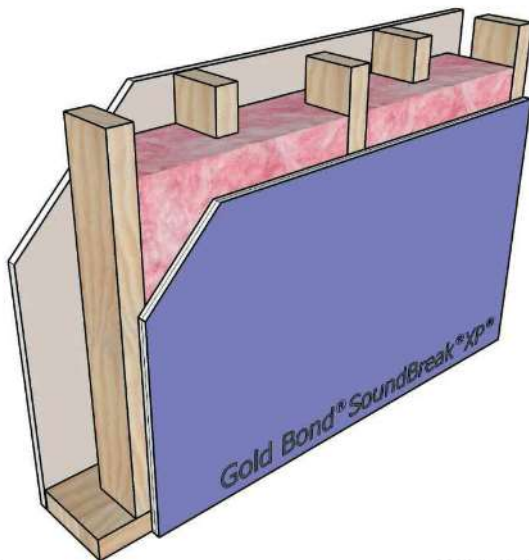


**STC-45**

**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  
 UL Design: U340 - 1 hour

Figure 238



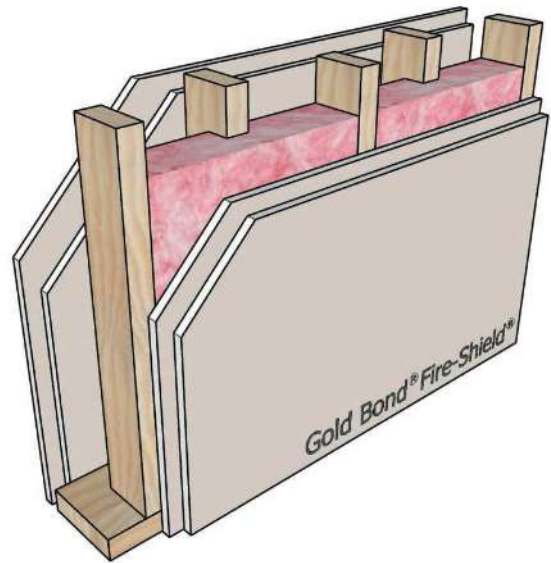
**STC-53**

**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 Wall Board

UL Design: U340 - 1 hour

Figure 237

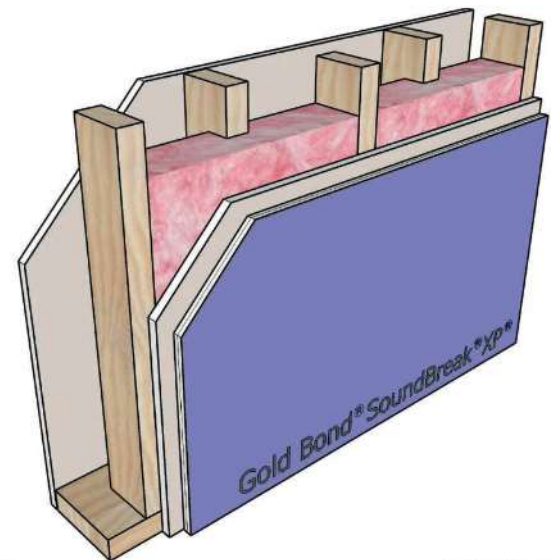


**STC-53**

**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 239



**STC-53**

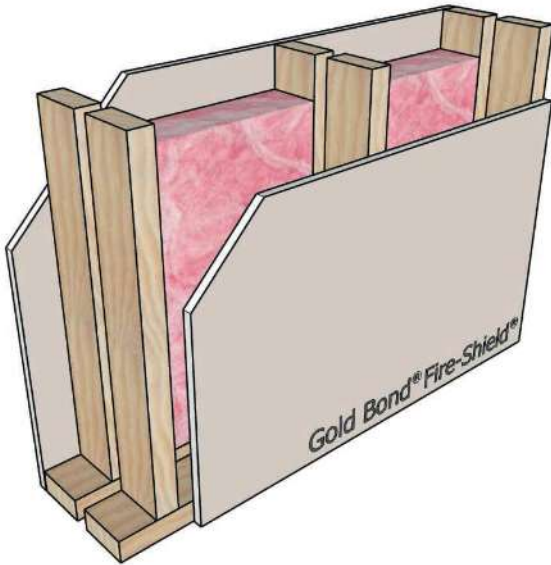
**NGC 2009045**

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 Wall Board on 1/2" Gold Bond Gypsum Board

UL Design: Not Rated

## Wood Stud Chase Walls

Figure 240



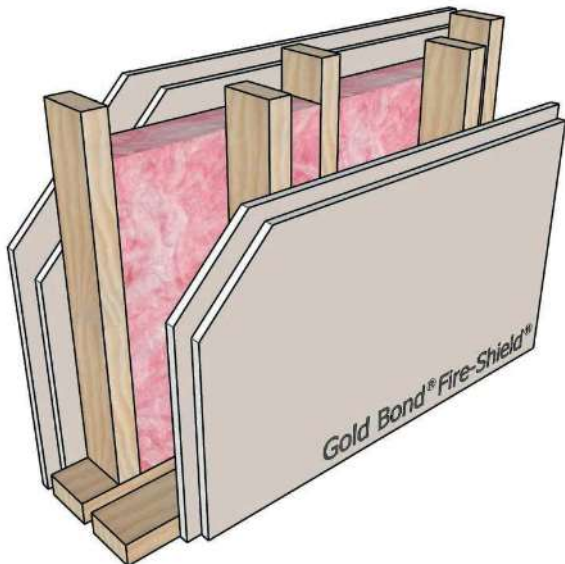
**STC-51**

**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 242



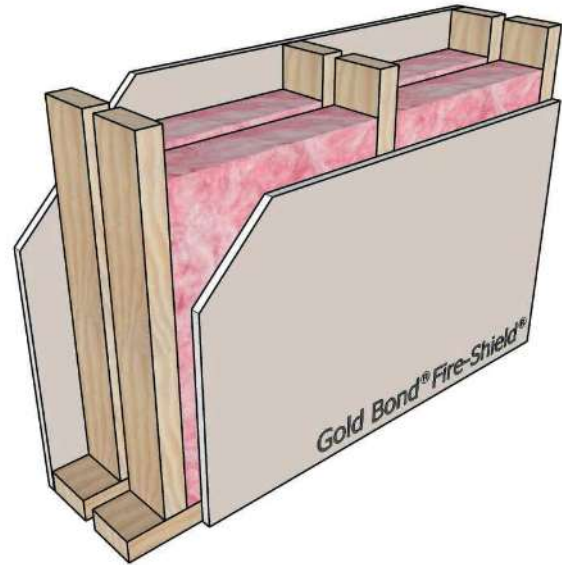
**STC-58**

**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

GA File: WP 3725 - 2 hour

Figure 241



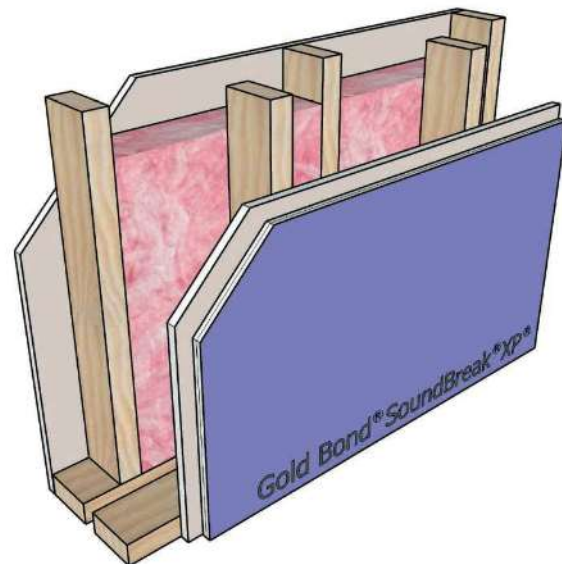
**STC-54**

**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 243



**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 Wall Board on 5/8" Fire-Shield Gypsum Board

UL Design: U341 - 1 hour

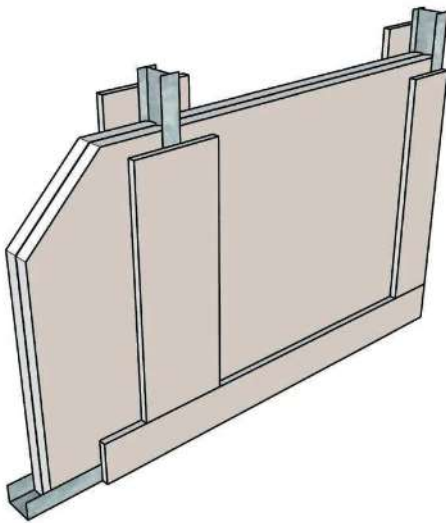
## Area Separation Fire Walls





## Area Separation Fire Walls

Figure 244

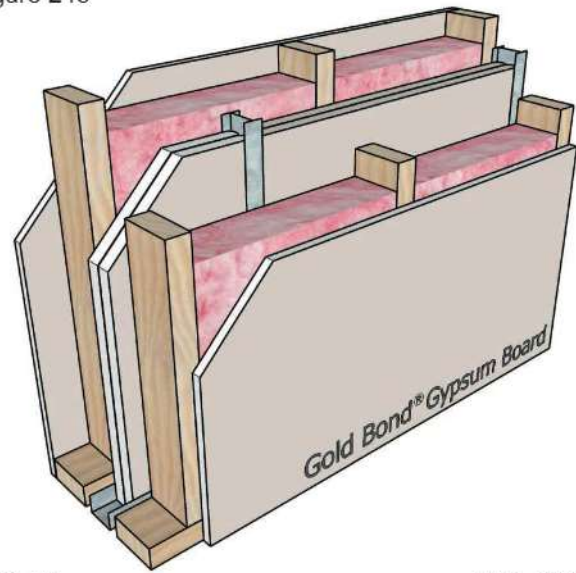


**STC-35**

**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 245

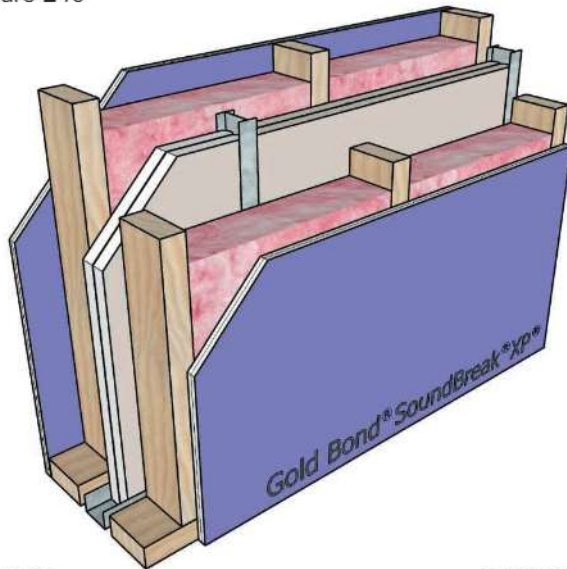


**STC-61**

**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 246

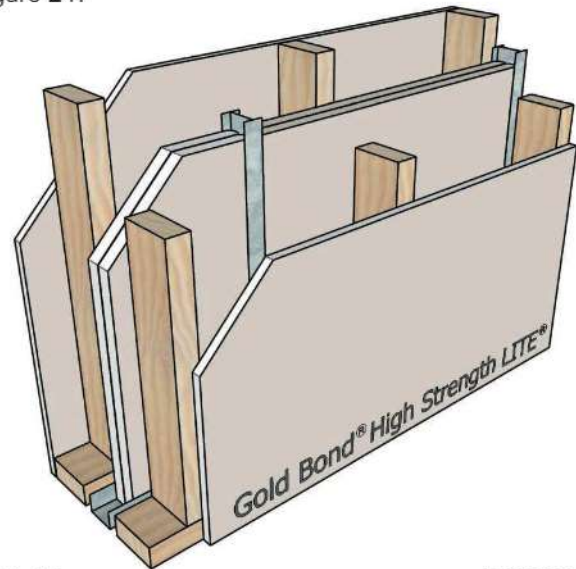


**STC-65**

**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 Wall Board  
 Side 2: 1/2" SoundBreak XP Wall Board  
 UL Design: U347 - 2 hour

Figure 247



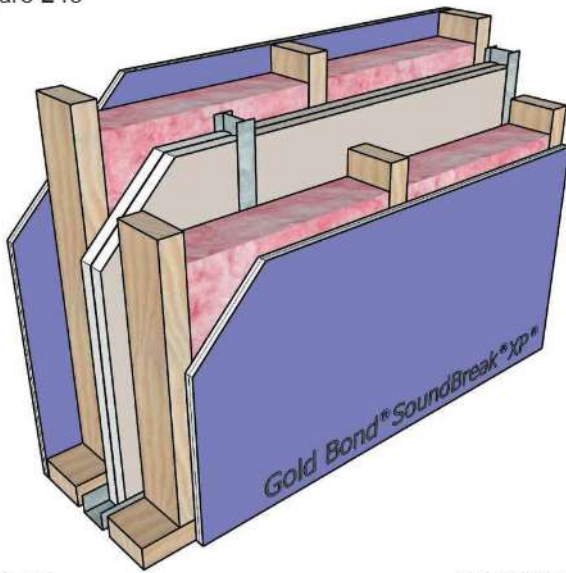
**STC-41**

**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

## Area Separation Fire Walls

Figure 248

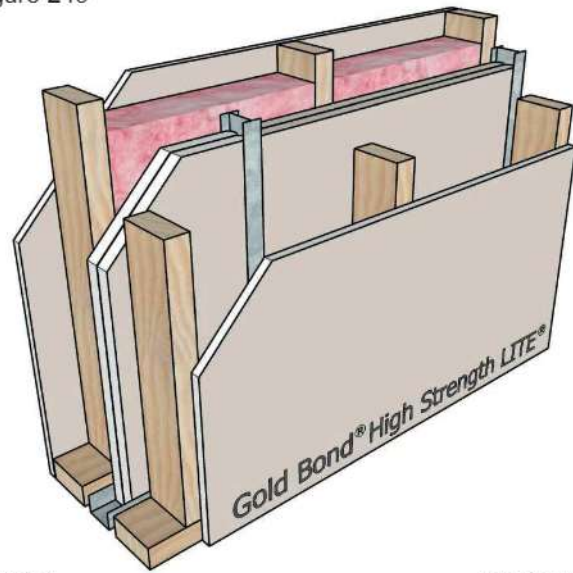


**STC-67**

**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 Wall Board  
Side 2: 5/8" SoundBreak XP Wall Board  
UL Design: U347 - 2 hour

Figure 249

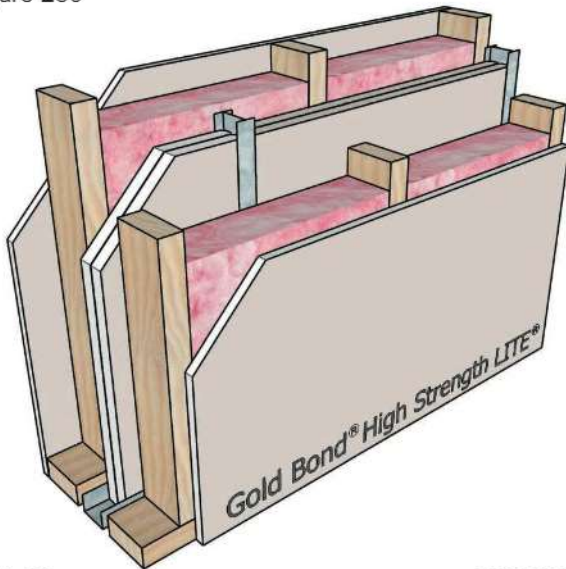


**STC-54**

**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 250

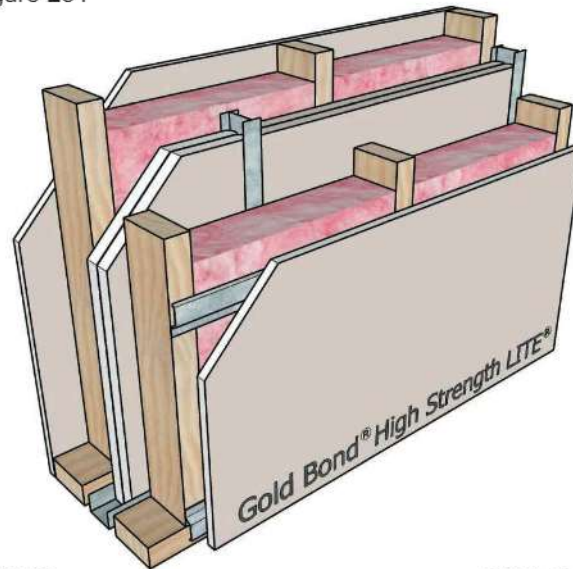


**STC-59**

**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 251



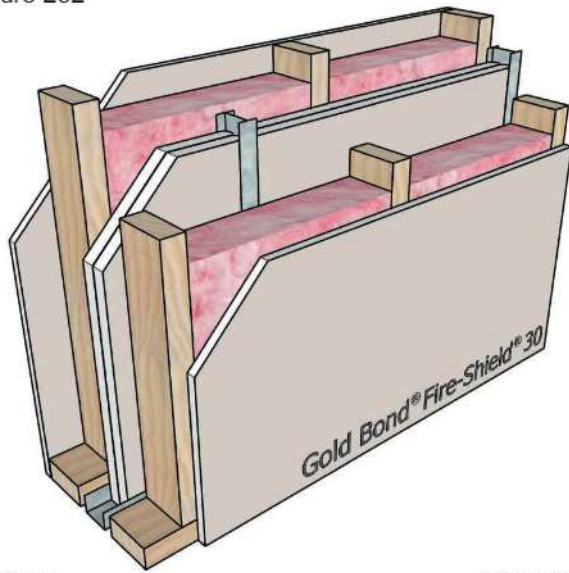
**STC-62**

**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: 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 on RC-1  
UL Design: U347 - 2 hour

## Area Separation Fire Walls

Figure 252

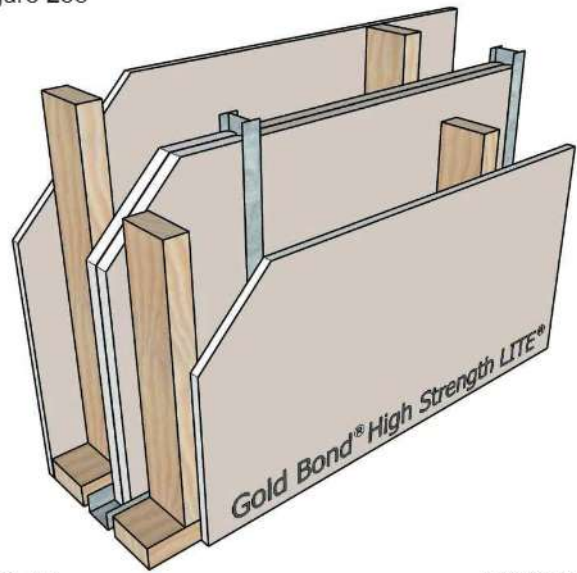


### STC-57

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" High Strength Fire-Shield 30 Gypsum Board  
 Side 2: 5/8" High Strength Fire-Shield 30 Gypsum Board  
 UL Design: U347 - 2 hour

Figure 253



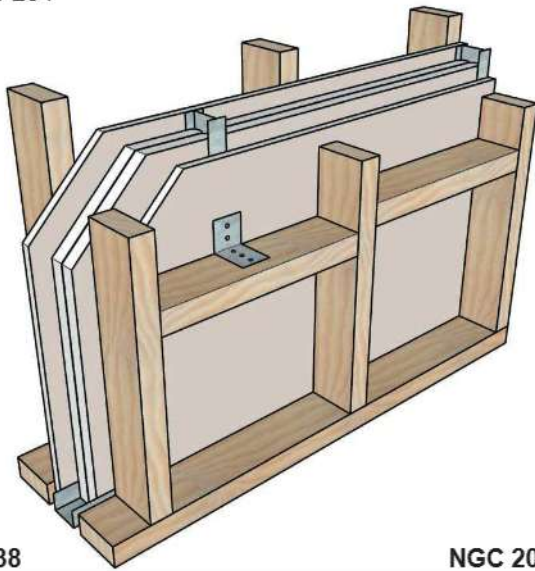
### STC-44

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

## Area Separation Fire Walls

Figure 254

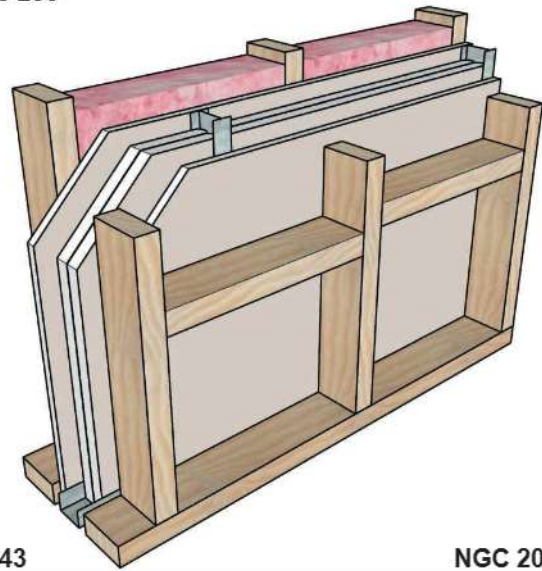


**STC-38**

**NGC 2017015**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
Framing: 2x4 wood studs, 16" o.c. each side  
Insulation: None  
Side 1: None  
Side 2: None  
UL Design: W454 - 3 hour

Figure 255

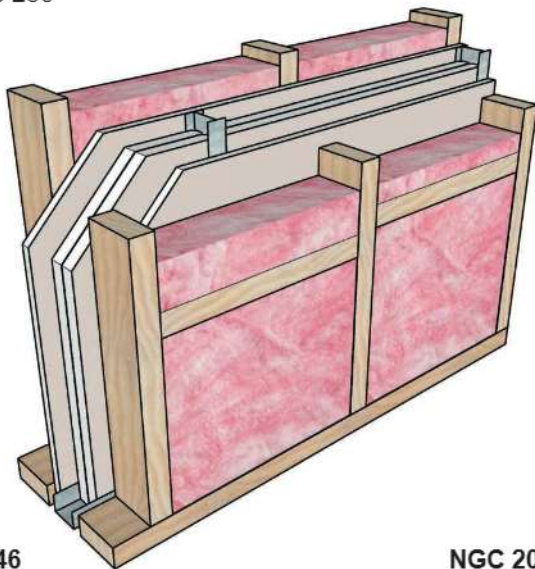


**STC-43**

**NGC 2017016**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
Framing: 2x4 wood studs, 16" o.c. each side  
Insulation: 3-1/2" glass fiber one side  
Side 1: None  
Side 2: None  
UL Design: W454 - 3 hour

Figure 256

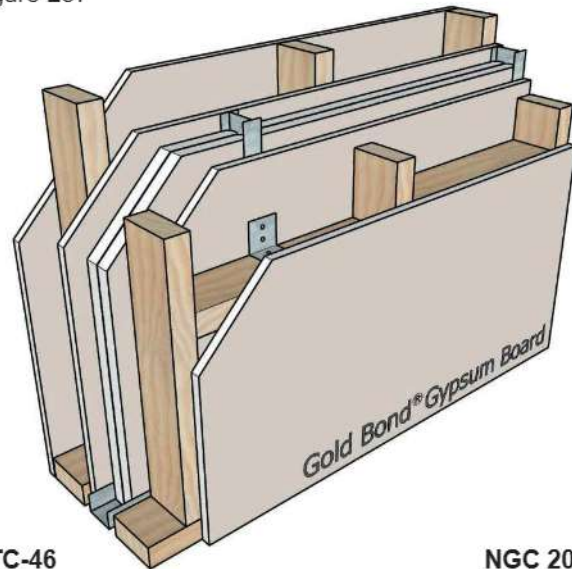


**STC-46**

**NGC 2017017**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
Framing: 2x4 wood studs, 16" o.c. each side  
Insulation: 3-1/2" glass fiber each side  
Side 1: None  
Side 2: None  
UL Design: W454 - 3 hour

Figure 257



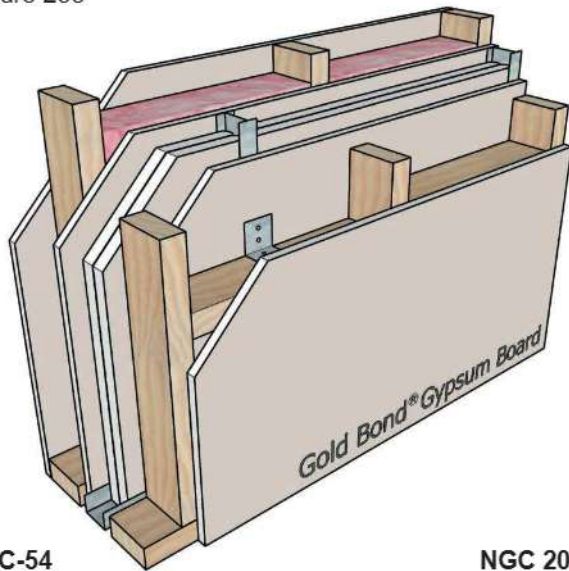
**STC-46**

**NGC 2017027**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
Framing: 2x4 wood studs, 16" o.c. each side  
Insulation: None  
Side 1: 1/2" Gold Bond Gypsum Board  
Side 2: 1/2" Gold Bond Gypsum Board  
UL Design: W454 - 3 hour

## Area Separation Fire Walls

Figure 258

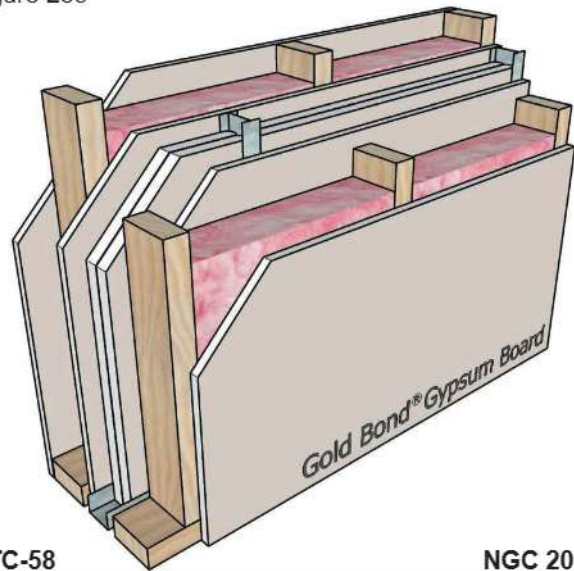


**STC-54**

**NGC 2017026**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
 Framing: 2x4 wood studs, 16" o.c. each side  
 Insulation: 3-1/2" glass fiber one side  
 Side 1: 1/2" Gold Bond Gypsum Board  
 Side 2: 1/2" Gold Bond Gypsum Board  
 UL Design: W454 - 3 hour

Figure 259

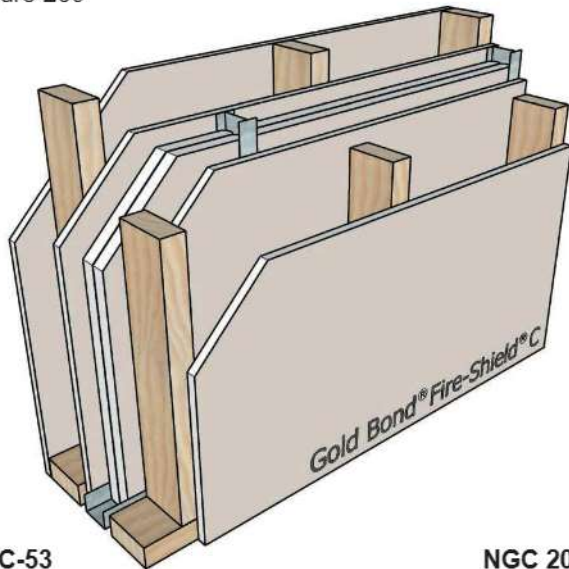


**STC-58**

**NGC 2017025**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
 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: W454 - 3 hour

Figure 260

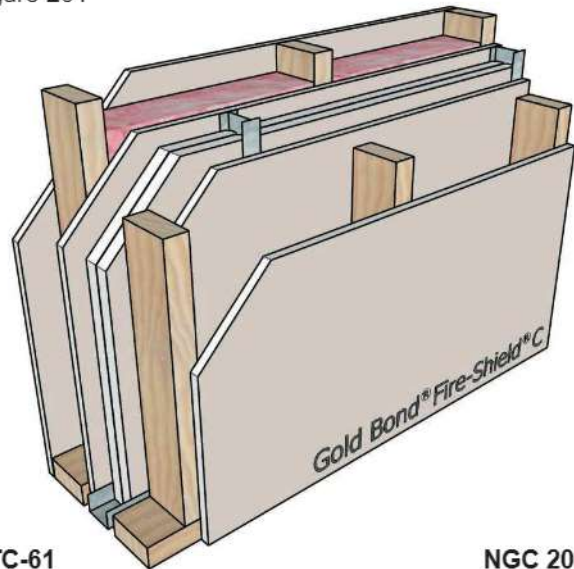


**STC-53**

**NGC 2017021**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
 Framing: 2x4 wood studs, 16" o.c. each side  
 Insulation: None  
 Side 1: 1/2" Fire-Shield C Gypsum Board  
 Side 2: 1/2" Fire-Shield C Gypsum Board  
 UL Design: W454 - 3 hour

Figure 261



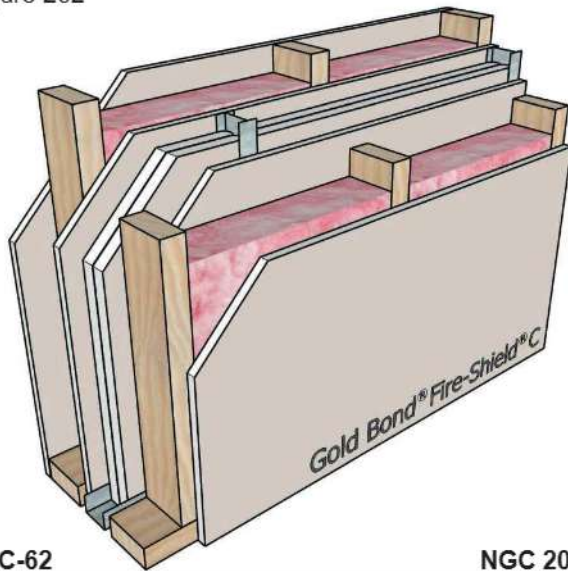
**STC-61**

**NGC 2017020**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
 Framing: 2x4 wood studs, 16" o.c. each side  
 Insulation: 3-1/2" glass fiber one side  
 Side 1: 1/2" Fire-Shield C Gypsum Board  
 Side 2: 1/2" Fire-Shield C Gypsum Board  
 UL Design: W454 - 3 hour

## Area Separation Fire Walls

Figure 262

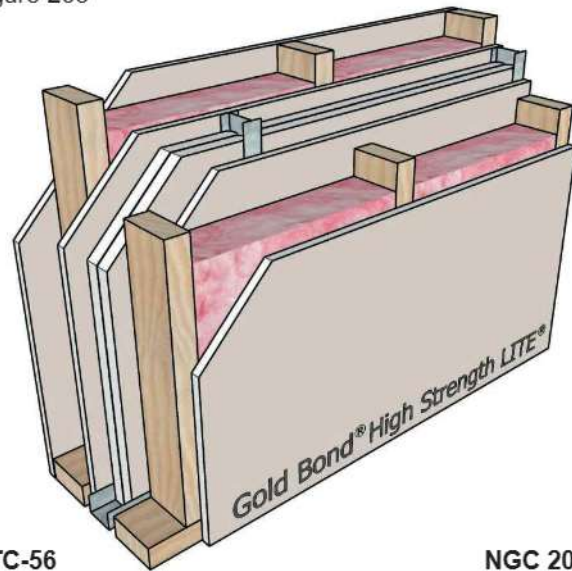


**STC-62**

**NGC 2017019**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
 Framing: 2x4 wood studs, 16" o.c. each side  
 Insulation: 3-1/2" glass fiber each side  
 Side 1: 1/2" Fire-Shield C Gypsum Board  
 Side 2: 1/2" Fire-Shield C Gypsum Board  
 UL Design: W454 - 3 hour

Figure 263

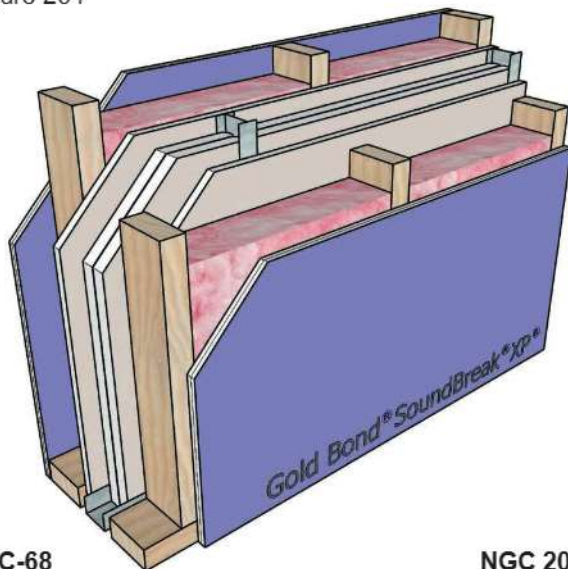


**STC-56**

**NGC 2017022**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
 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: W454 - 3 hour

Figure 264

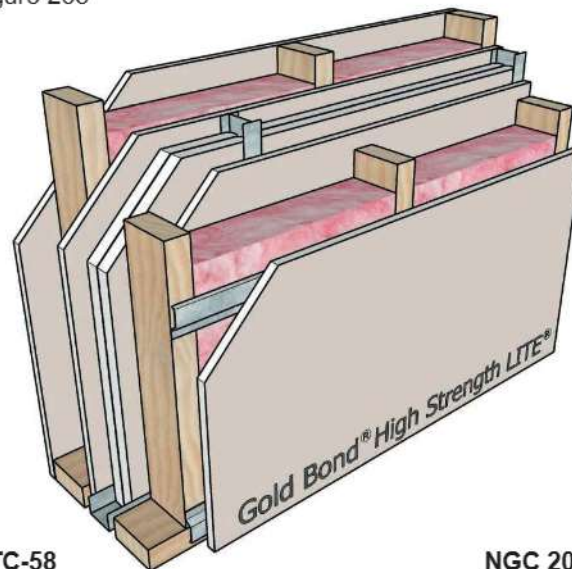


**STC-68**

**NGC 2017018**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
 Framing: 2x4 wood studs, 16" o.c. each side  
 Insulation: 3-1/2" glass fiber each side  
 Side 1: 5/8" SoundBreak XP Wall Board  
 Side 2: 5/8" SoundBreak XP Wall Board  
 UL Design: W454 - 3 hour

Figure 265



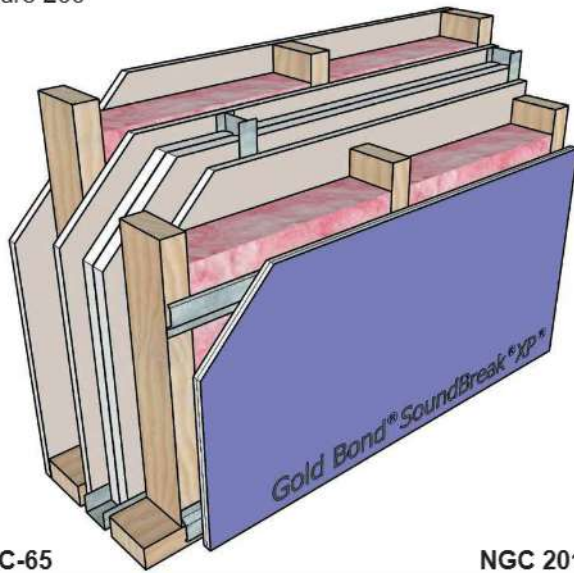
**STC-58**

**NGC 2017023**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield Shaftliner between studs; 1 layer 5/8" Fire-Shield C Gypsum Board each side  
 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 on RC-1  
 UL Design: W454 - 3 hour

## Area Separation Fire Walls

Figure 266



**STC-65**

**NGC 2017024**

Fire Wall: 2" H-studs, 24" o.c. with 2 layers 1" Fire-Shield  
Shaftliner between studs; 1 layer 5/8"  
Fire-Shield C Gypsum Board each side  
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: 5/8" SoundBreak XP Wall Board on RC-1  
UL Design: W454 - 3 hour



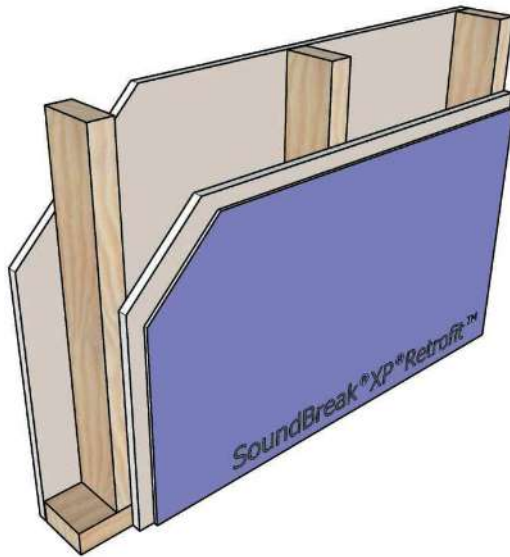
# SoundBreak XP RetroFit Partitions





## SoundBreak XP Retrofit Partitions

Figure 267

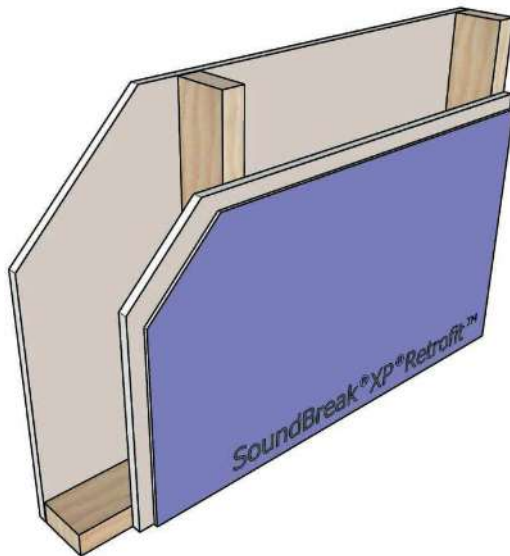


### STC-36

NGC 2012049

Framing: 2x4 wood studs, 16" o.c.  
 Insulation: None  
 Side 1: 1/2" Gold Bond Gypsum Board  
 Side 2: 5/16" Gold Bond SoundBreak XP Retrofit on  
 1/2" Gold Bond Gypsum Board  
 UL Design: Not Rated

Figure 269

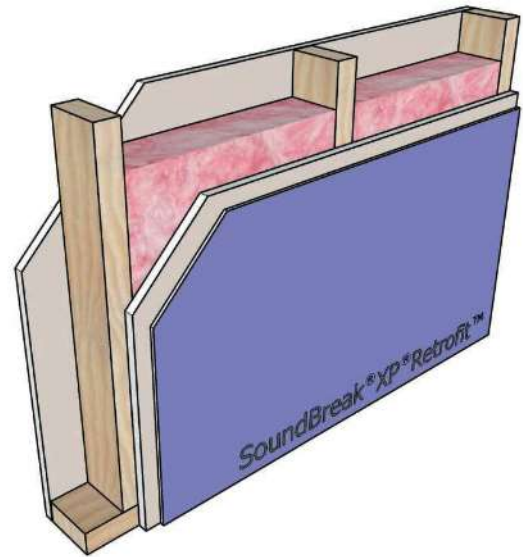


### STC-39

NGC 2012067

Framing: 2x4 wood studs, 24" o.c.  
 Insulation: None  
 Side 1: 1/2" Gold Bond Gypsum Board  
 Side 2: 5/16" Gold Bond SoundBreak XP Retrofit on  
 1/2" Gold Bond Gypsum Board  
 UL Design: Not Rated

Figure 268

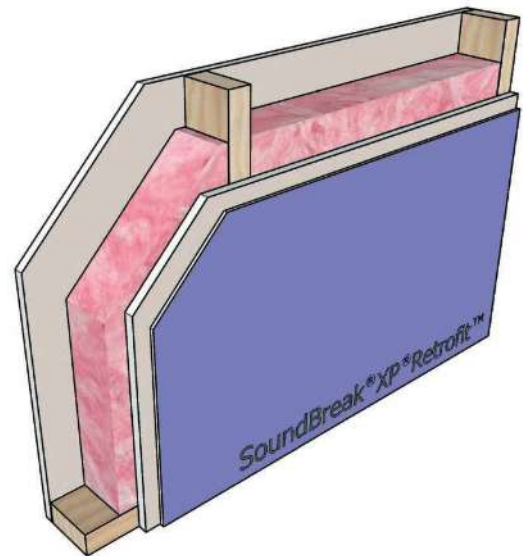


### STC-40

NGC 2012050

Framing: 2x4 wood studs, 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 1/2" Gold Bond Gypsum Board  
 Side 2: 5/16" Gold Bond SoundBreak XP Retrofit on  
 1/2" Gold Bond Gypsum Board  
 UL Design: Not Rated

Figure 270



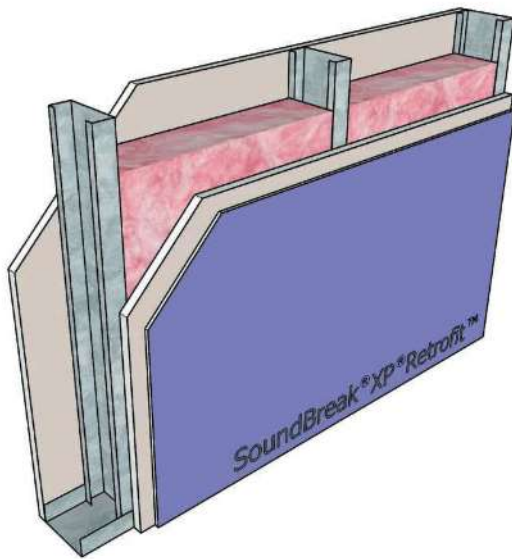
### STC-45

NGC 2012066

Framing: 2x4 wood studs, 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 1/2" Gold Bond Gypsum Board  
 Side 2: 5/16" Gold Bond SoundBreak XP Retrofit on  
 1/2" Gold Bond Gypsum Board  
 UL Design: Not Rated

## SoundBreak XP Retrofit Partitions

Figure 271

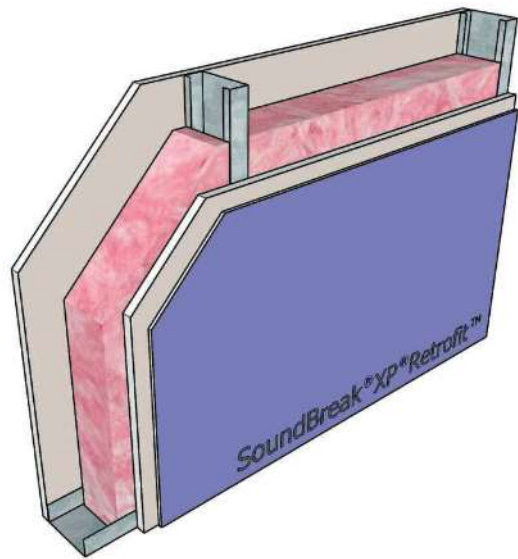


**STC-52**

**NGC 2013031**

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

Figure 272

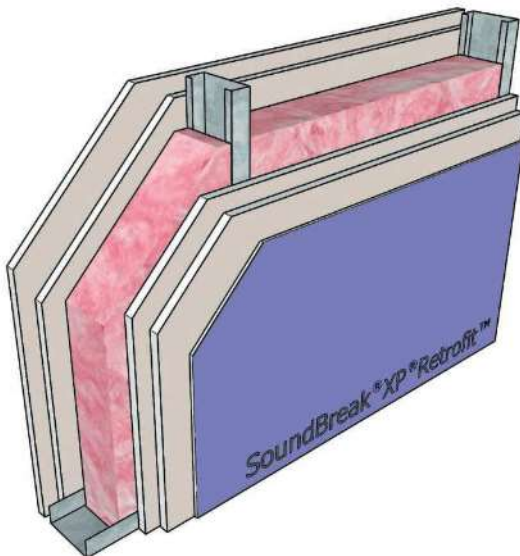


**STC-53**

**NGC 2013041**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/16" Gold Bond SoundBreak XP Retrofit on  
 5/8" Fire-Shield Gypsum Board  
 UL Design: V438, U465

Figure 273



**STC-58**

**NGC 2016026**

Framing: 3-5/8" steel studs, 25 gauge (18 mil), 24" o.c.  
 Insulation: 3-1/2" glass fiber  
 Side 1: 2 layers 5/8" Fire-Shield Gypsum Board  
 Side 2: 5/16" Gold Bond SoundBreak XP Retrofit on  
 2 layers 5/8" Fire-Shield Gypsum Board  
 UL Design: V438, U411 - 2 hour

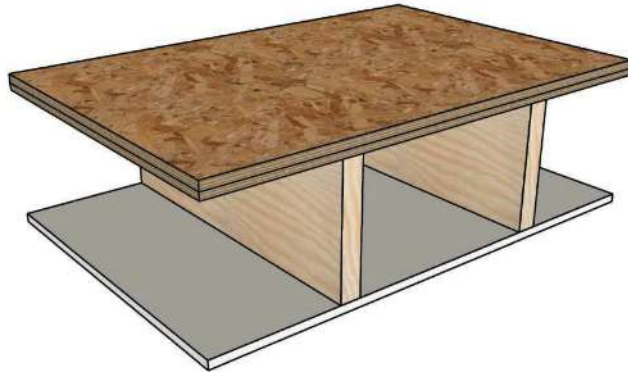
## Floor-Ceiling Assemblies





## Floor-Ceiling Assemblies

Figure 274



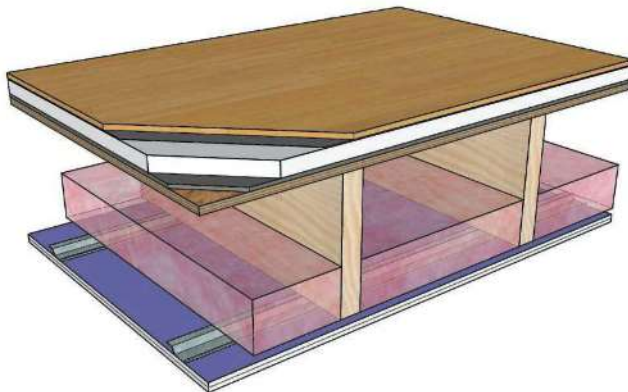
**STC-37** **NGC 4024**  
**IIC-66 (carpet and pad)** **NGC 5033**

Framing: 2x10 wood joists, 16" o.c.  
 Insulation: None  
 Floor: 3/8" plywood on 1/2" plywood subfloor

Ceiling: 1/2" Fire-Shield C Gypsum Board

UL Design: L522 - 1 hour

Figure 276

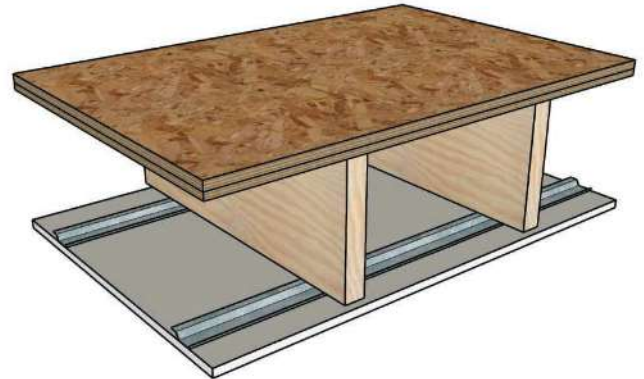


**STC-58** **NGC 5018017**  
**IIC-59** **NGC 7018007**

Framing: 2x10 wood joists, 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Floor: Engineered wood on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 5/8" plywood  
 Ceiling: 3/4" SoundBreak XP Ceiling Board on RC-1

UL Design: M514 - 1 hour

Figure 275



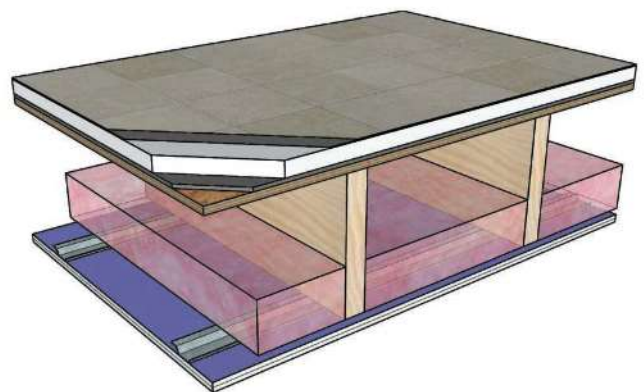
**STC-45** **NGC 4107**  
**IIC-63 (carpet and pad)** **NGC 5165**

Framing: 2x10 wood joists, 16" o.c.  
 Insulation: None  
 Floor: 3/8" plywood on 1/2" plywood subfloor

Ceiling: 1/2" Fire-Shield C Gypsum Board on RC-1

UL Design: L502 - 1 hour

Figure 277



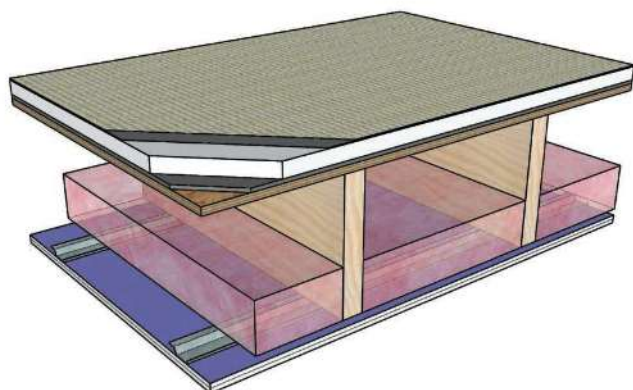
**STC-58** **NGC 5018018**  
**IIC-60** **NGC 7018008**

Framing: 2x10 wood joists, 16" o.c.  
 Insulation: 3-1/2" glass fiber  
 Floor: Vinyl tile on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 5/8" plywood  
 Ceiling: 3/4" SoundBreak XP Ceiling Board on RC-1

UL Design: M514 - 1 hour

## Floor-Ceiling Assemblies

Figure 278



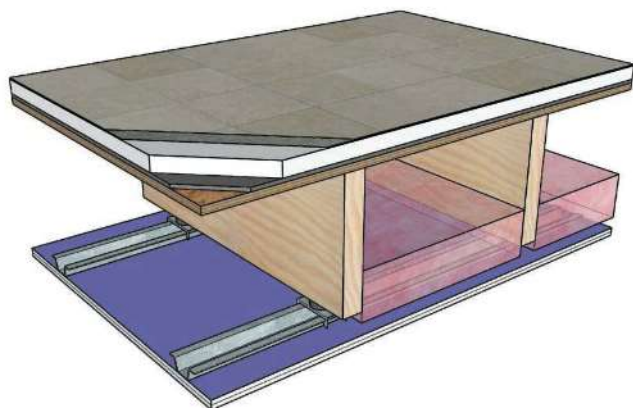
**STC-58**  
**IIC-78**

**NGC 5018019**  
**NGC 7018009**

Framing: 2x10 wood joists, 16" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Carpet on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 5/8" plywood  
Ceiling: 3/4" SoundBreak XP Ceiling Board on RC-1

UL Design: M514 - 1 hour

Figure 280

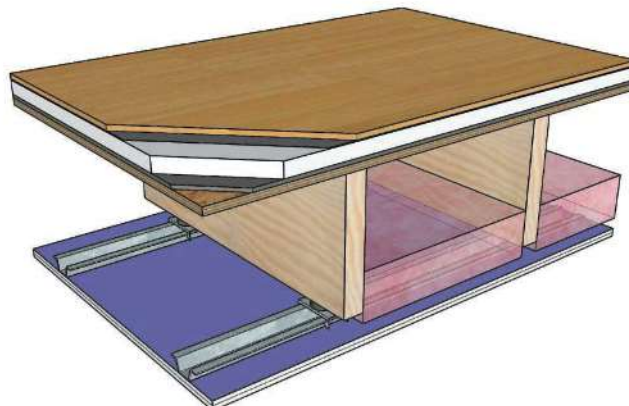


**STC-58**  
**IIC-65**

**NGC 5019007**  
**NGC 7019007**

Framing: 2x10 wood joists, 16" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Vinyl tile on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 15/32" plywood  
Ceiling: 3/4" SoundBreak XP Ceiling Board on 7/8" furring channel and resilient isolation clips  
UL Design: M514 - 1 hour

Figure 279

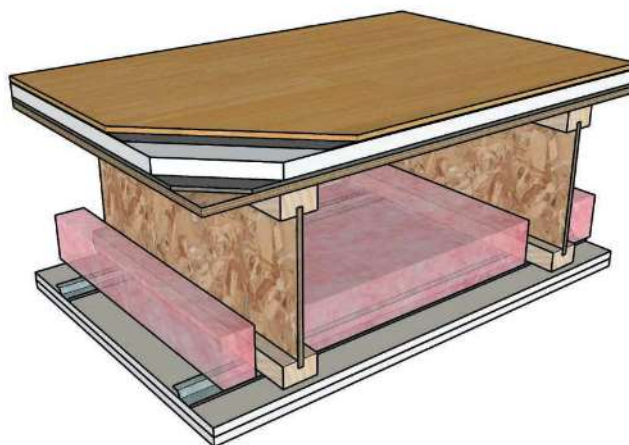


**STC-59**  
**IIC-61**

**NGC 5019008**  
**NGC 7019008**

Framing: 2x10 wood joists, 16" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Engineered wood on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 15/32" plywood  
Ceiling: 3/4" SoundBreak XP Ceiling Board on 7/8" furring channel and resilient isolation clips  
UL Design: M514 - 1 hour

Figure 281



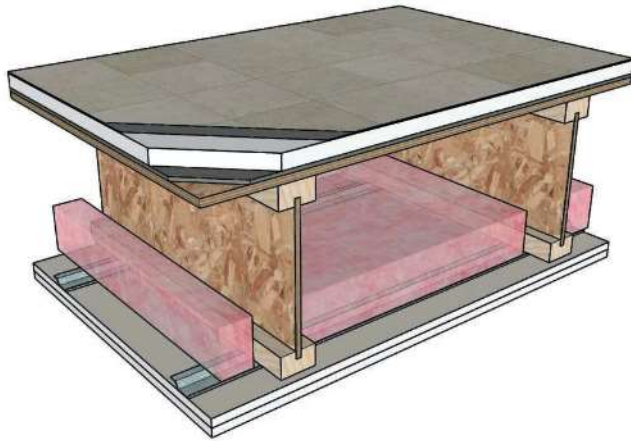
**STC-58**  
**IIC-61**

**NGC 5019076**  
**NGC 7019100**

Framing: 12" wood I-joists, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Engineered wood on foam mat on 3/4" gypsum underlayment on 1/8" random filament sound control mat on 3/4" OSB  
Ceiling: 2 layers 1/2" Fire-Shield C Gypsum Board on RC-1  
UL Design: M546 - 1 hour

## Floor-Ceiling Assemblies

Figure 282

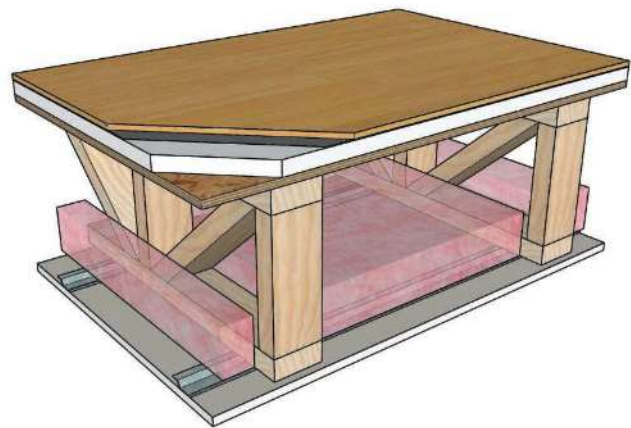


**STC-58  
IIC-62**

**NGC 5019075  
NGC 7019099**

Framing: 12" wood I-joists, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Vinyl tile on foam mat on 3/4" gypsum underlayment on 1/8" random filament sound control mat on 3/4" OSB  
Ceiling: 2 layers 1/2" Fire-Shield C Gypsum Board on RC-1  
UL Design: M546 - 1 hour

Figure 284

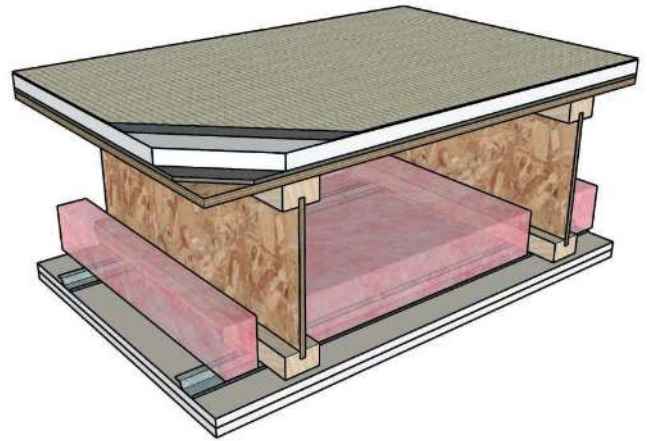


**STC-55  
IIC-49**

**NGC 5011031  
NGC 7011056**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Engineered wood on foam mat on 3/4" gypsum underlayment on 5/8" plywood  
Ceiling: 5/8" Fire-Shield C Gypsum Board on RC-1  
UL Design: L563, L558 - 1 hour

Figure 283

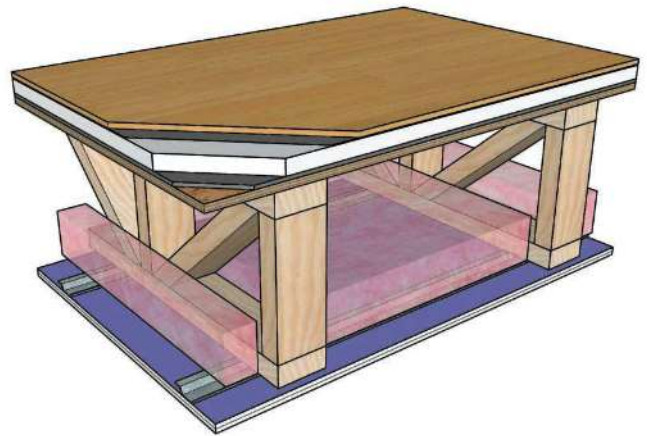


**STC-57  
IIC-78**

**NGC 5019074  
NGC 7019098**

Framing: 12" wood I-joists, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Carpet on foam mat on 3/4" gypsum underlayment on 1/8" random filament sound control mat on 3/4" OSB  
Ceiling: 2 layers 1/2" Fire-Shield C Gypsum Board on RC-1  
UL Design: M546 - 1 hour

Figure 285



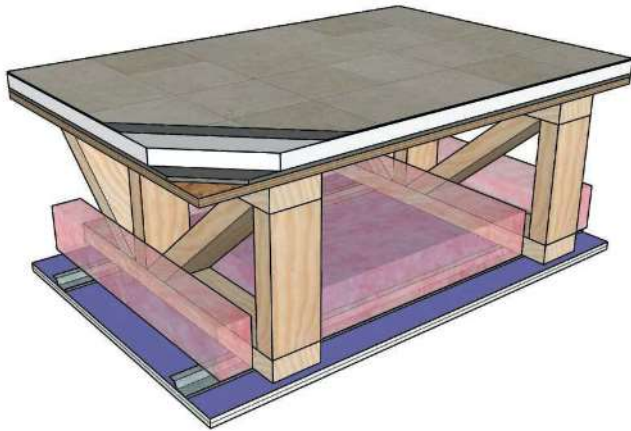
**STC-59  
IIC-57**

**NGC 5018077  
NGC 7018105**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Engineered wood on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 3/4" SoundBreak XP Ceiling Board on RC-1  
UL Design: M545 - 1 hour

## Floor-Ceiling Assemblies

Figure 286



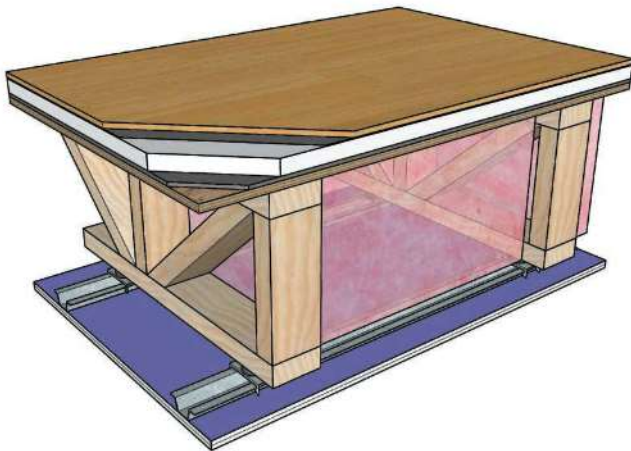
**STC-59**  
**IIC-57**

**NGC 5018078**  
**NGC 7018106**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Vinyl tile on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 3/4" SoundBreak XP Ceiling Board on RC-1

UL Design: M545 - 1 hour

Figure 288



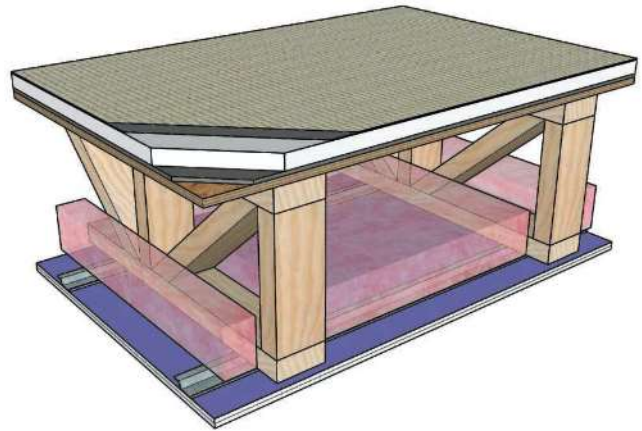
**STC-60**  
**IIC-61**

**NGC 5018118**  
**NGC 7018160**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 18" glass fiber  
Floor: Engineered wood on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 3/4" SoundBreak XP Ceiling Board on 7/8" furring channel and resilient isolation clips

UL Design: M545 - 1 hour

Figure 287



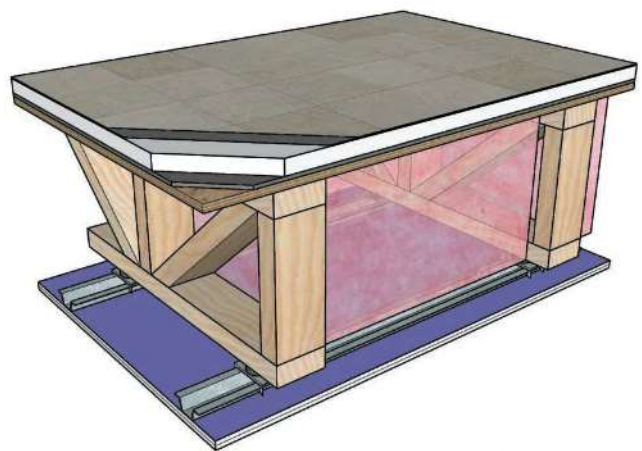
**STC-58**  
**IIC-79**

**NGC 5018080**  
**NGC 7018108**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Carpet on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 3/4" SoundBreak XP Ceiling Board on RC-1

UL Design: M545 - 1 hour

Figure 289



**STC-60**  
**IIC-61**

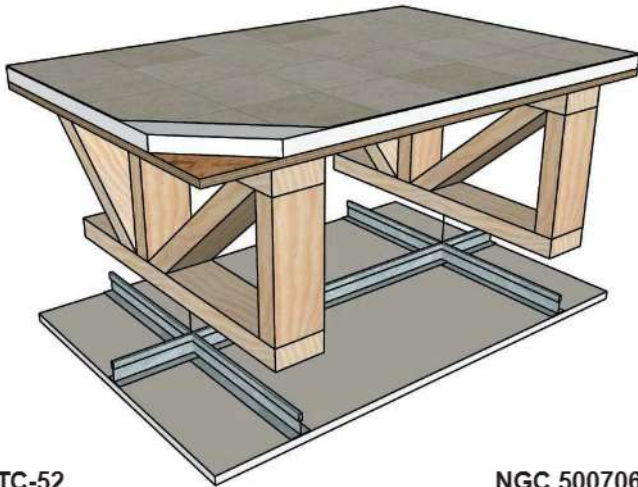
**NGC 5018119**  
**NGC 7018161**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 18" glass fiber  
Floor: Vinyl tile on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 3/4" SoundBreak XP Ceiling Board on 7/8" furring channel and resilient isolation clips

UL Design: M545 - 1 hour

## Floor-Ceiling Assemblies

Figure 290



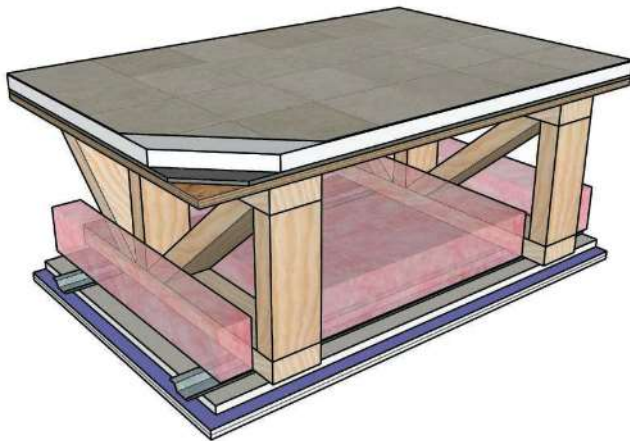
**STC-52**  
**IIC-51**

**NGC 5007061**  
**NGC 7007119**

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

UL Design: L558, L563 - 1 hour

Figure 292



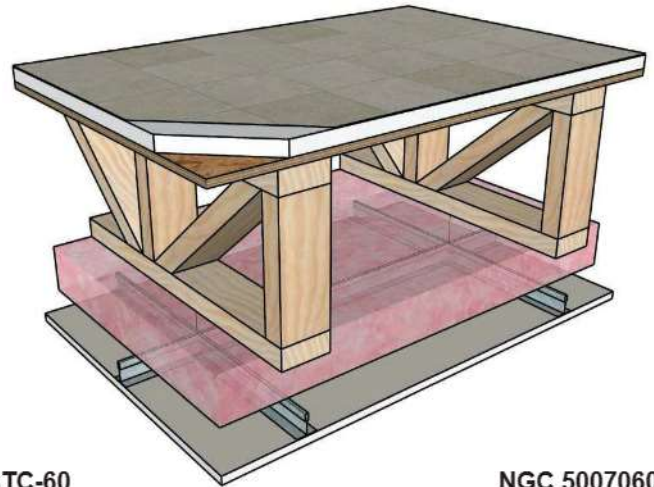
**STC-58**  
**IIC-51**

**NGC 5007054**  
**NGC 7007110**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Vinyl flooring on 3/4" gypsum underlayment on 0.18" rubber underlayment on 3/4" OSB  
Ceiling: 5/8" SoundBreak XP Wall Board on 5/8" Fire-Shield C Gypsum Board on RC-1

UL Design: L558, L563 - 1 hour

Figure 291



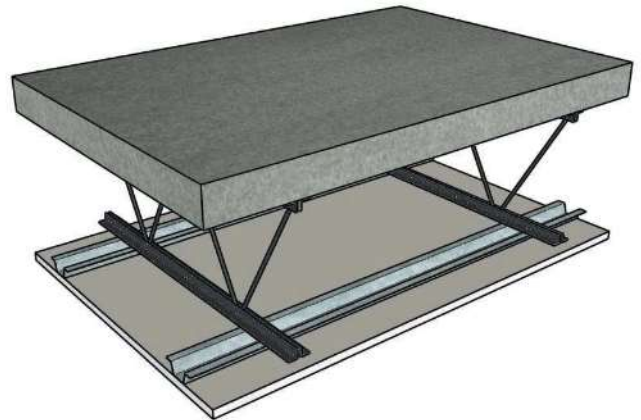
**STC-60**  
**IIC-60**

**NGC 5007060**  
**NGC 7007118**

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

UL Design: L558, L563 - 1 hour

Figure 293



**STC-53**  
**IIC-67 (carpet and pad)**

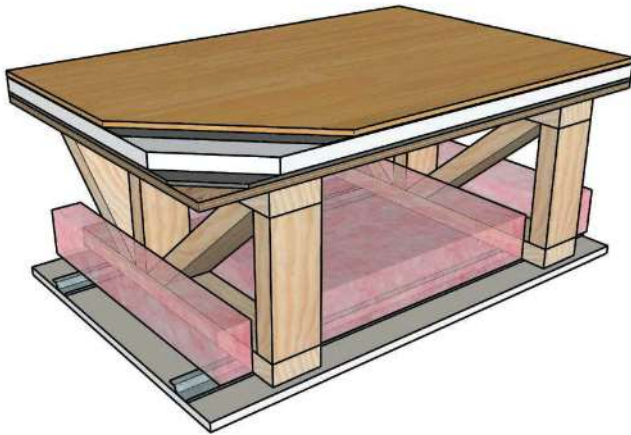
**NGC 4075**  
**NGC 5122**

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

## Floor-Ceiling Assemblies

Figure 294



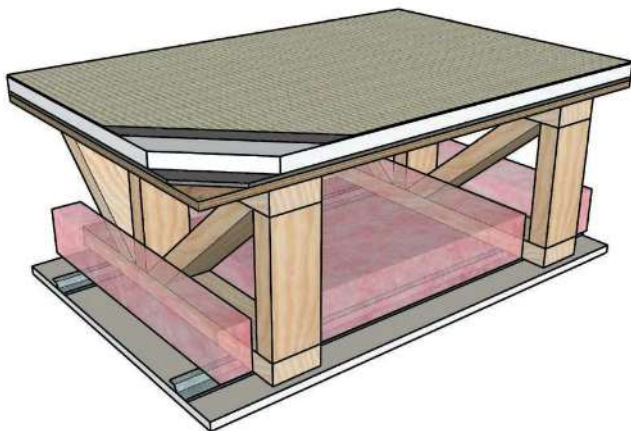
**STC-57**  
**IIC-55**

**NGC 5019061**  
**NGC 7019084**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Engineered wood on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: M550 - 1 hour

Figure 296



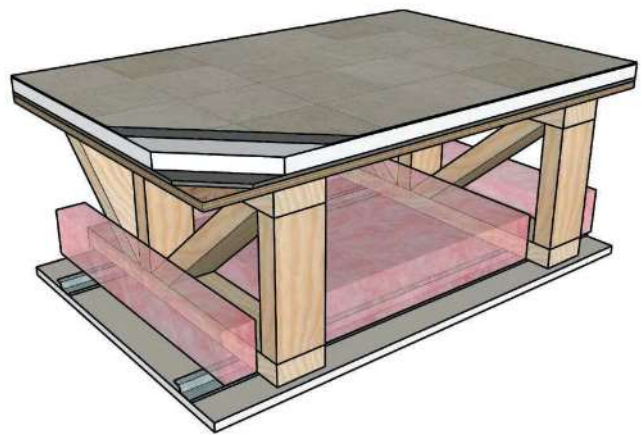
**STC-56**  
**IIC-76**

**NGC 5019063**  
**NGC 7019086**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Carpet on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: M550 - 1 hour

Figure 295



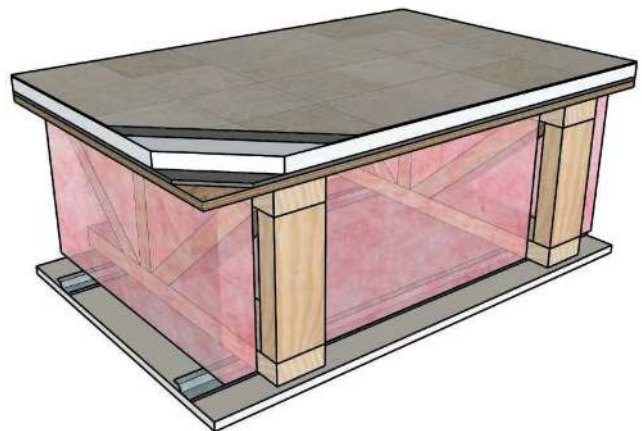
**STC-57**  
**IIC-58**

**NGC 5019062**  
**NGC 7019085**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 3-1/2" glass fiber  
Floor: Vinyl Tile on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: M550 - 1 hour

Figure 297



**STC-58**  
**IIC-60**

**NGC 5019055**  
**NGC 7019081**

Framing: 18" wood trusses, 24" o.c.  
Insulation: 18" glass fiber  
Floor: Vinyl Tile on foam mat on 1" gypsum underlayment on 1/4" random filament sound control mat on 23/32" OSB  
Ceiling: 5/8" High Strength Fire-Shield 60 Gypsum Board

UL Design: M550 - 1 hour

## Roof-Ceiling Assemblies





## Roof-Ceiling Assemblies

Figure 298

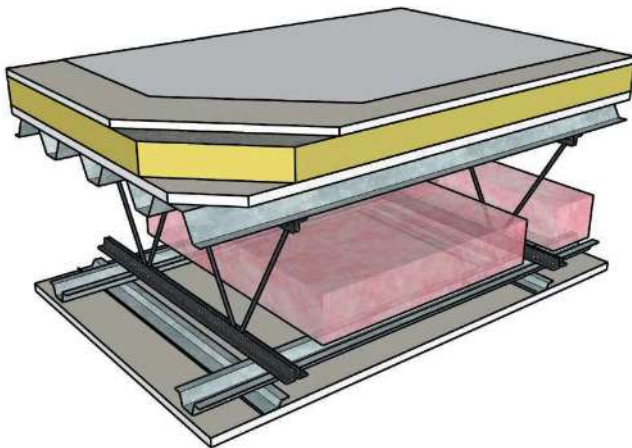


**STC-36**  
**OITC-27** **NGC 5018008**

Framing: 12K3 bar joists 48" o.c.  
Roof: Membrane roof on 1/2" DEXcell FA Glass-Mat Roof Board on 3" Insulation on 5/8" DEXcell FA Glass-Mat Roof Board on steel deck  
Ceiling: None

Insulation: None

Figure 300

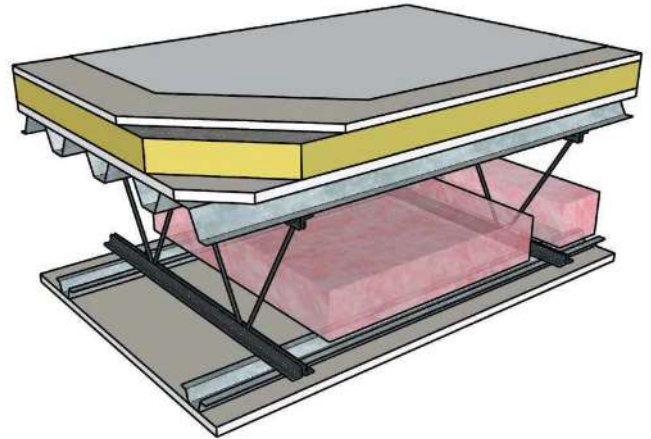


**STC-57**  
**OITC-46** **NGC 5018006**

Framing: 12K3 bar joists 48" o.c.  
Roof: Membrane roof on 1/2" DEXcell FA Glass-Mat Roof Board on 3" Insulation on 5/8" DEXcell FA Glass-Mat Roof Board on steel deck  
Ceiling: 1/2" Fire-Shield C Gypsum Board on RC-1 on 1-1/2" rigid furring

Insulation: 3-1/2" glass fiber

Figure 299

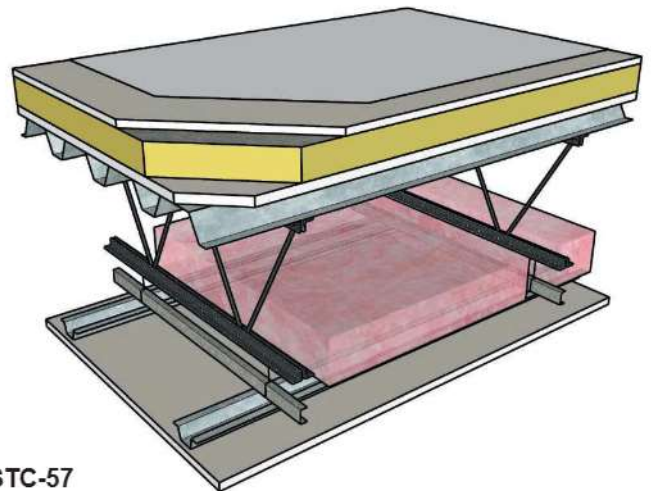


**STC-56**  
**OITC-44** **NGC 5018003**

Framing: 12K3 bar joists 48" o.c.  
Roof: Membrane roof on 1/2" DEXcell FA Glass-Mat Roof Board on 3" Insulation on 5/8" DEXcell FA Glass-Mat Roof Board on steel deck  
Ceiling: 1/2" Fire-Shield C Gypsum Board on 1-1/2" rigid furring channels

Insulation: 3-1/2" glass fiber

Figure 301



**STC-57**  
**OITC-46** **NGC 5018009**

Framing: 12K3 bar joists 48" o.c.  
Roof: Membrane roof on 1/2" DEXcell FA Glass-Mat Roof Board on 3" Insulation on 5/8" DEXcell FA Glass-Mat Roof Board on steel deck  
Ceiling: 1/2" Fire-Shield C Gypsum Board on 1-1/2" rigid furring channels on 1" steel channels suspended from joists

Insulation: 3-1/2" glass fiber

## Roof-Ceiling Assemblies

Figure 302



**STC-61**

**OITC-50**

**NGC 5018015**

|             |                                                                                                                              |
|-------------|------------------------------------------------------------------------------------------------------------------------------|
| Framing:    | 12K3 bar joists 48" o.c.                                                                                                     |
| Roof:       | Membrane roof on 1/2" DEXcell FA Glass-Mat Roof Board on 3" Insulation on 5/8" DEXcell FA Glass-Mat Roof Board on steel deck |
| Ceiling:    | 2 layers 5/8" Fire-Shield Gypsum Board on 1-1/2" rigid furring channels on 1" steel channels suspended from joists           |
| Insulation: | 5-1/2" mineral wool                                                                                                          |

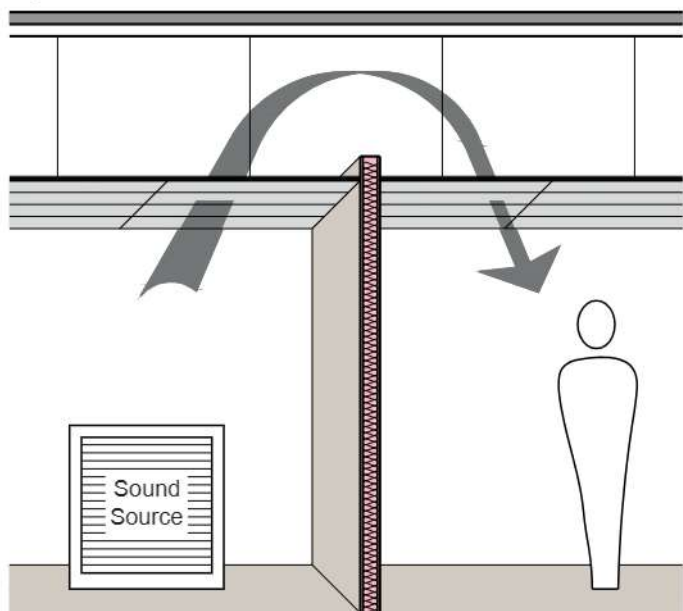
# Ceiling Attenuation Class Assemblies





## Ceiling Attenuation Class Assemblies

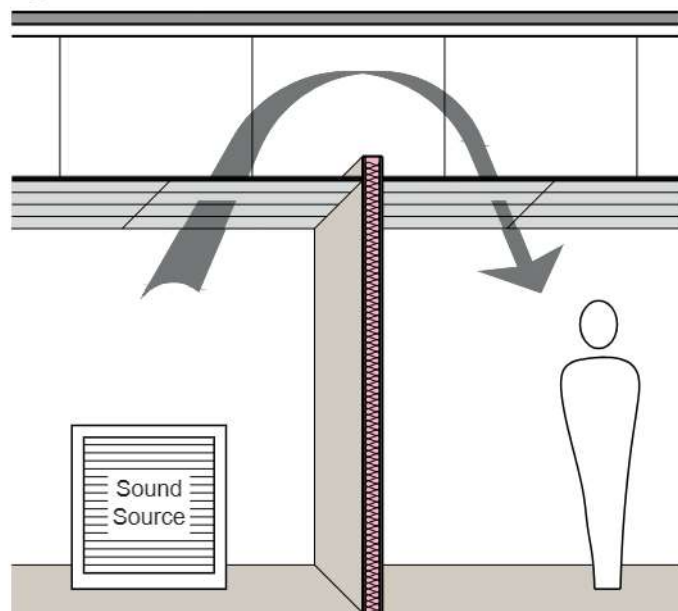
Figure 303



**CAC-41** **NGC 6000001**

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

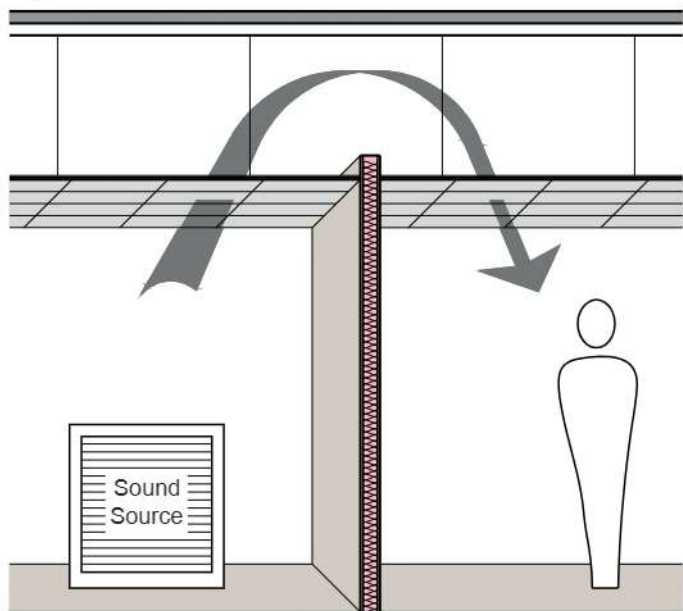
Figure 304



**CAC-46** **NGC 6098001**

Ceiling: Suspended ceiling grid with 2' x 4' x 1/2"  
Gridstone Ceiling Panels  
Insulation: None

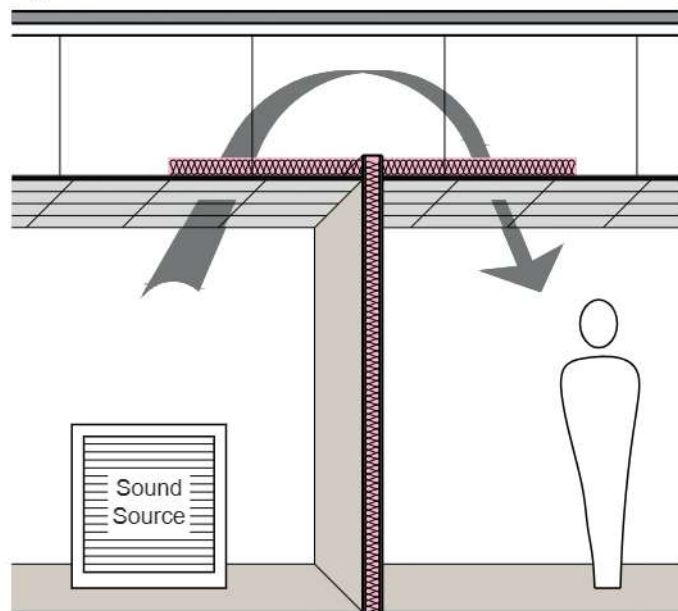
Figure 305



**CAC-44** **NGC 6013012**

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

Figure 306

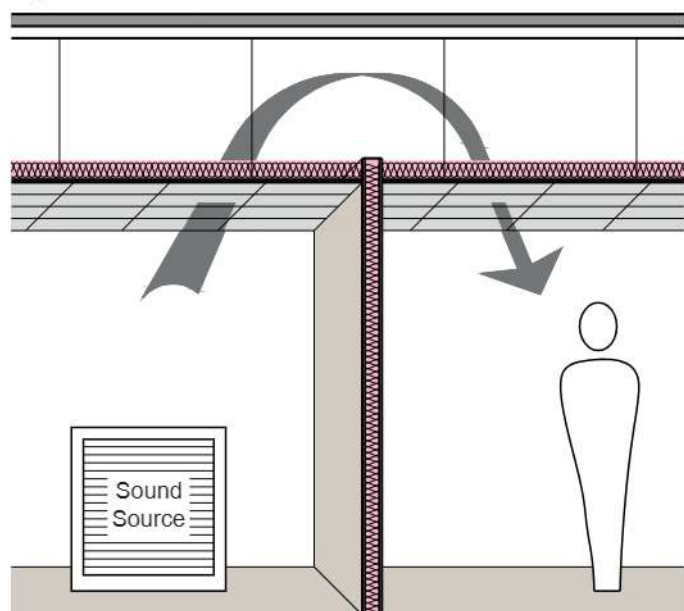


**CAC-51** **NGC 6013013**

Ceiling: Suspended ceiling 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 Assemblies

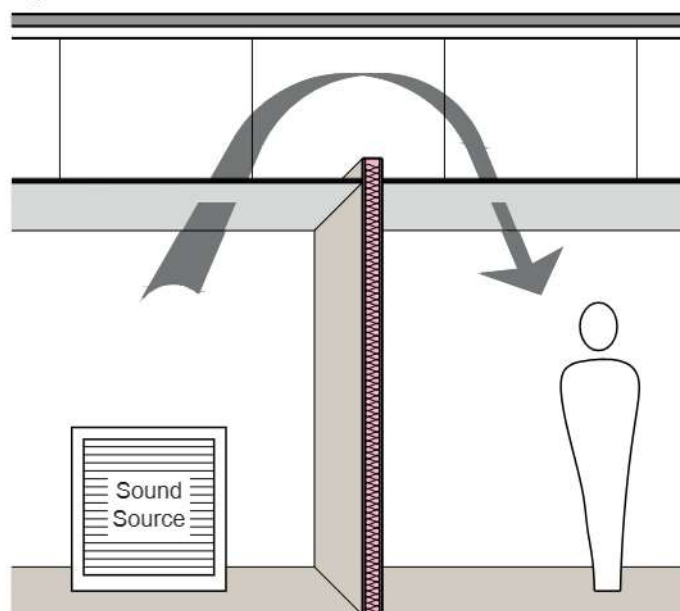
Figure 307



**CAC-53** **NGC 6013014**

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

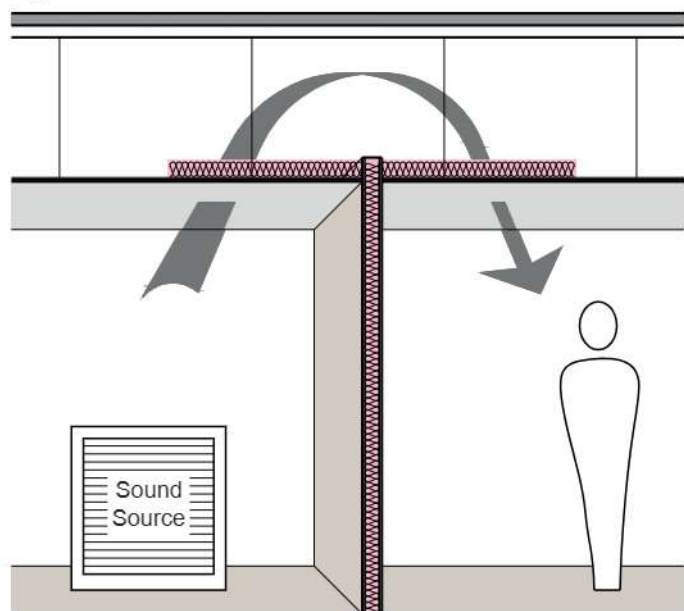
Figure 308



**CAC-53** **NGC 6017015**

Ceiling: Suspended drywall grid with 5/8" Fire-Shield  
Gypsum Board  
Insulation: None

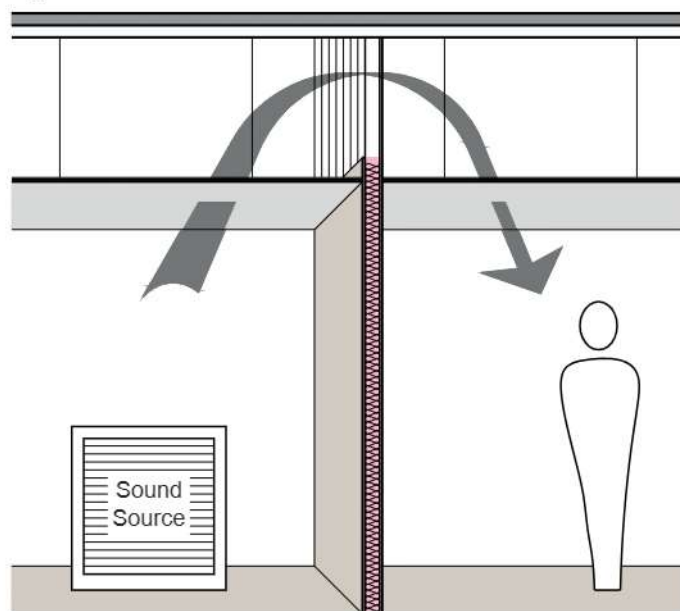
Figure 309



**CAC-56** **NGC 6017014**

Ceiling: Suspended drywall grid with 5/8" Fire-Shield  
Gypsum Board  
Insulation: 3 1/2" glass fiber 48" on each side of partition

Figure 310



**CAC-57** **NGC 6017016**

Ceiling: Suspended drywall grid with 5/8" Fire-Shield  
Gypsum Board  
Insulation: None  
Plenum: 5/8" Fire-Shield Gypsum Board on 3-5/8"  
Barrier: steel studs

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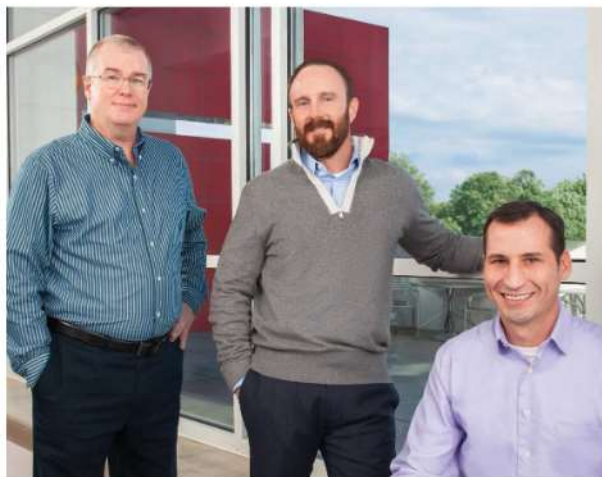
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