

Wood Framing STC and IIC Values

Sound Control

JM Formaldehyde-free fiber glass insulations help reduce noise that can impact a home or building's comfort and continuing value.

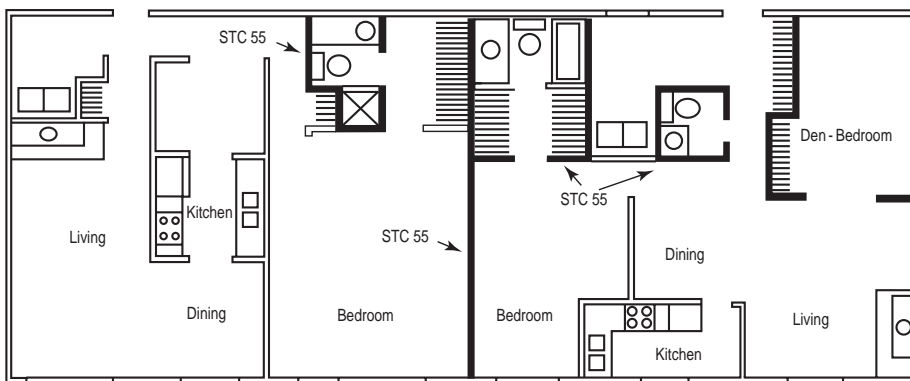
PERFORMANCE ADVANTAGES

- Formaldehyde-free – will not off-gas formaldehyde in the indoor environment.
- Thermal Efficiency – provides effective resistance to heat transfer with R-values up to R-38 (RSI-6.7).
- Noncorrosive – does not accelerate corrosion of metal studs.
- Resilient – bonded glass fibers will not pull apart during normal applications and resist settling, breakdown and sagging from vibration.
- Durable – unaffected by moisture, oil, grease and most acids. It will not rot, mildew or otherwise deteriorate.
- Flexible – forms readily around corners and curved surfaces.
- Installs easily – pre-cut batts designed for friction-fit in standard wood stud cavities.

WOOD STUD CONSTRUCTION FOR SOUND CONTROL

In addition to single and multi-family residences, wood studs are also used in some commercial and institutional buildings.

Shown in the condominium floor plan below is a typical application requiring sound control between adjoining residential units. Other applications are around bathrooms, mechanical rooms, recreation rooms, and between offices or to isolate conference rooms.



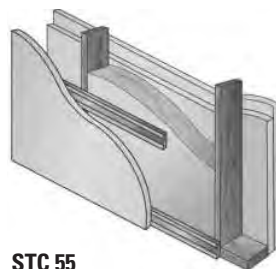
The following illustrations demonstrate how improved STC values may be obtained by using Johns Manville sound control batts in various wood stud wall constructions.

Single Wood Studs



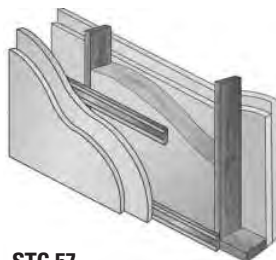
STC 52

Single 2" x 4" (51 mm x 102 mm) wood studs 24" OC (610 mm), resilient channels: single layer 5/8" (16 mm) Type X gypsum board each side; one thickness 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



STC 55

Single 2" x 4" (51 mm x 102 mm) wood studs 24" OC (610 mm), resilient channels: double layer 1/2" (13 mm) Type X gypsum board one side, single layer other side; one thickness 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



STC 57

Single 2" x 4" (51 mm x 102 mm) wood studs 24" OC (610 mm), resilient channels: double layer 1/2" (13 mm) Type X gypsum board each side; one thickness 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.

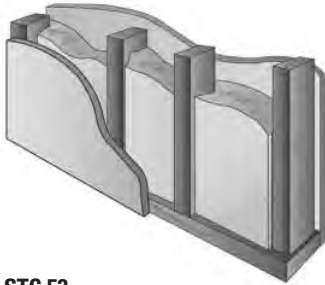
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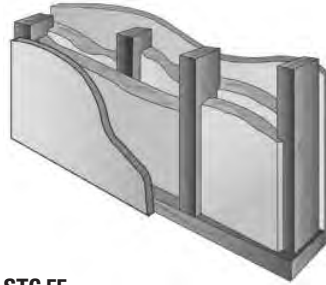
Sound Control

Staggered Wood Studs



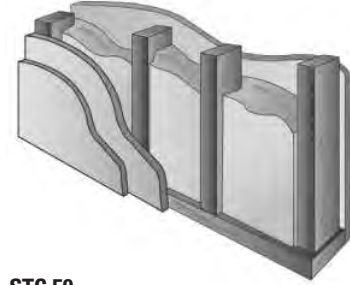
STC 52

Staggered 2" x 4" (51 mm x 102 mm) wood studs 16" OC (406 mm); single layer 1/2" (13 mm) Type X gypsum board each side; one thickness 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



STC 55

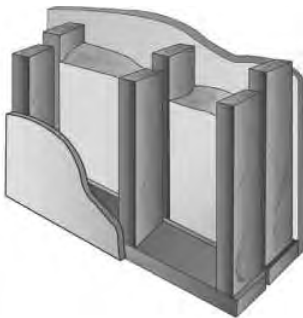
Staggered 2" x 4" (51 mm x 102 mm) wood studs 16" OC (406 mm); single layer 1/2" (13 mm) Type X gypsum board each side; two thicknesses 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



STC 59

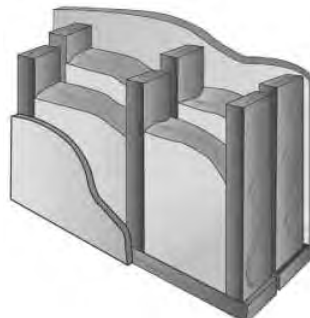
Staggered 2" x 4" (51 mm x 102 mm) wood studs 24" OC (610 mm); double layer 1/2" (13 mm) Type X gypsum board one side, single layer other side; one thicknesses 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.

Double Wood Studs



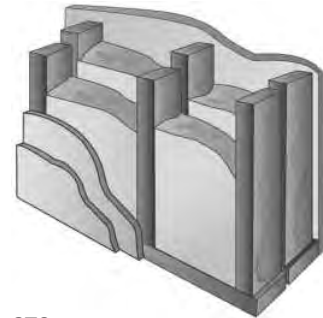
STC 56

Double 2" x 4" (51 mm x 102 mm) wood studs 16" OC (406 mm); single layer 1/2" (13 mm) Type X gypsum board each side; one thickness 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



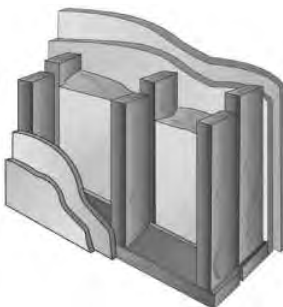
STC 60

Double 2" x 4" (51 mm x 102 mm) wood studs 24" OC (610 mm); single layer 1/2" (13 mm) Type X gypsum board each side; two thicknesses 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



STC 64

Double 2" x 4" (51 mm x 102 mm) wood studs 16" OC (406 mm); double layer 1/2" (13 mm) Type X gypsum board one side, single layer other side; two thicknesses 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



STC 65

Double 2" x 4" (51 mm x 102 mm) wood studs 16" OC (406 mm); double layer 1/2" (13 mm) Type X gypsum board each side; one thickness 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.

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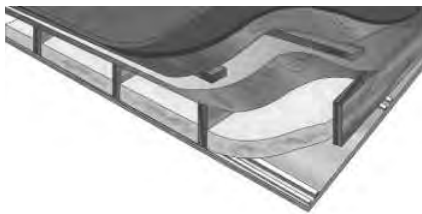
IMPROVING FLOOR/CEILING STC AND IIC VALUES

The same method used to improve the STC value of walls applies to floors. The use of resilient channels for attaching a gypsum board ceiling to wooden joists or concrete floors disrupts direct paths of sound transmission. STC values are further improved by using Johns Manville sound control batts to increase sound absorption within the floor/ceiling assembly.

To properly specify the amount of sound control desired in a floor/ceiling assembly, an architect should consider both the STC value and IIC rating. The STC value is a measurement of the ability of a floor/ceiling to reduce the transmission of airborne noise such as voices. In addition to airborne noise however, impact noise might also pass through a floor. Objects are dropped onto floors. Floor/ceiling assemblies should be designed so that any impact noise is unobtrusive to the occupants of the room below.

The following examples demonstrate improved STC values in floor/ceiling assemblies. The IIC rating is also noted. The best way to deal with impact noise is to cushion the actual blow or impact. A heavy carpet and high quality pad work best to improve the IIC value of a floor/ceiling. A floating floor is another way to significantly improve an IIC rating.

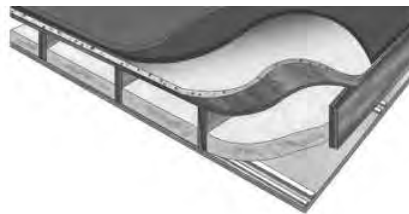
Floor/Ceiling System Constructions for Sound Control



STC 51, IIC 78

(STC 52, IIC 49, with vinyl floor in place of carpet and pad)

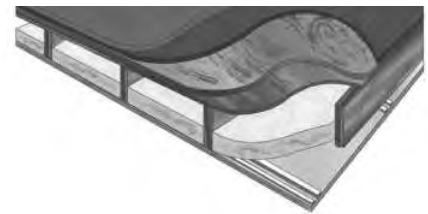
2" x 8" (51 mm x 203 mm) wood joists; 1/2" (13 mm) plywood subfloor; 1/2" (13 mm) sound deadening board; 2" x 3" (51 mm x 76 mm) furring; 5/8" (16 mm) plywood floor; carpet and pad; resilient channels; 5/8" (16 mm) Type X gypsum board ceiling; 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



STC 53, IIC 74

(STC 50, IIC 47, with vinyl floor in place of carpet and pad)

2" x 8" (51 mm x 203 mm) wood joists; 5/8" (16 mm) tongue and groove plywood subfloor; 1 5/8" (41 mm) perlite sand concrete floor; carpet and pad; resilient channels; 5/8" (16 mm) Type X gypsum board ceiling; 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.



STC 50*, IIC 72*

(STC 50, IIC 49,* with vinyl floor in place of carpet and pad)

2" x 10" (51 mm x 203 mm) wood joists; 1/2" (13 mm) plywood subfloor; 1 5/8" (41 mm) perlite sand concrete floor; carpet and pad; resilient channels; 1/2" (13 mm) Type X gypsum board ceiling; 3 5/8" (92 mm) JM Formaldehyde-free thermal/acoustical fiber glass batts.

*Indicates that the value is an estimate.

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Properly insulating a structure using Johns Manville building insulation helps preserve our environment by reducing energy consumption for heating and cooling, reducing the pollution resulting from fuel burning, reducing the emission of hazardous air pollutants during manufacturing and reducing waste through the utilization of recycled materials. Look for the cross and globe emblem on Johns Manville building insulation which indicates independent certification by Scientific Certification Systems, Inc. of 25% or more recycled glass content.

Technical specifications as shown in this literature are intended to be used as general guidelines only. The physical and chemical properties of Johns Manville thermal and acoustical fiber glass insulation listed herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Any references to numerical flame spread or smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with the sales office nearest you for current information. All Johns Manville products are sold subject to Johns Manville's Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville Limited Warranty and Limitation of Remedy or for information on other Johns Manville thermal and acoustical insulation and systems, call or write to the 800 number or address listed below.



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