



### Sound-SHIELD®

#### Fiber Glass Sound Control Insulation Batts

#### Description

Johns Manville's Sound-SHIELD® sound control batts are lightweight, sound-absorbent insulations made of long, resilient glass fibers bonded with a thermosetting resin. The unfaced fiber glass batts are made to fit standard spacing and thickness of steel stud construction in commercial and institutional buildings. Sound-SHIELD® provides maximum sound control effectiveness by completely filling the cavity wall.

#### Applications

These sound control batts are compatible with wood or steel studs in walls and are also used in floor/ceiling assemblies. Sound-SHIELD® can effectively increase STC ratings by 8 to 10 points in certain assemblies. Use of resilient channels can make wall assemblies even more efficient.

#### Installation and Performance Advantages

**Effective Sound Absorption.** Sound-SHIELD® helps provide a more comfortable interior environment by reducing transmission of conversations and equipment noises through interior walls. Used in floor or floor/ceiling assemblies, sound control batts also may help reduce transmission of impact-generated sounds between adjacent areas.

**Fire Safety.** The unfaced batts have a Fire Hazard Classification of 25/50 or less when tested in accordance with ASTM E 84. Unfaced sound control batts are rated as noncombustible per ASTM E 136.

**Ease of Installation.** The batts are designed for friction-fit installation without stapling or fastening. They form readily around uneven surfaces and can easily be cut to fit around obstructions with an ordinary knife.

**Packaging.** Sound-SHIELD® sound control batts are compression packaged, offering savings in storage and freight costs as well as greater efficiency in distribution of the product to the job site.

#### Construction Practices

Construction practices which assist in controlling the transmitted sound through steel stud walls include:

- Caulk and seal all sound-leakage points.
- Avoid connecting ducts, junction boxes, piping or other sound carriers from one wall face to the other.
- Break the vibration path between one wall surface to the other (i.e. staggered studs, resilient channels).

#### Limitations of Use

Check applicable building codes.

#### Sound Transmission Tested

The following procedures are used in acoustical testing of assemblies with sound control batts: ASTM E 90, "Standard Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions," and ASTM E 413, "Standard Classification for Rating Sound Insulation."

#### The Influence of Insulation Density on Sound Transmission Loss

Several tests (ASTM E 90/E 413) performed by independent laboratories have shown that variation in the density of insulation has little to no effect on overall STC rating of a total construction.

**Insulation thickness** (or volume), **not density**, is the primary factor.



Comparative testing has also shown that low-density fiber glass is equal to many higher-density insulation products in reducing sound transmission through walls.

Fiber glass is particularly effective in sound absorption because of the many small air pockets between the glass fibers that trap and dissipate sound energy. This discontinuity of sound paths, combined with thickness rather than density, is the most important contributor to the performance of cavity-fill insulation in the reduction of sound transmission.

The chart below shows the effectiveness of fiber glass and the lack of correlation between insulation density and sound transmission loss. Tests were performed using specimens similar to Johns Manville fiber glass insulation.

#### STC Value of Equal Thickness of Mineral Fibers

(3/8" [92 mm] Steel Studs; Single Layer 1/2" [13 mm] Gypsum Board Each Side)

Material	Thickness		Density		STC*
	(in)	(mm)	(pcf)	(kg/m³)	
Fiber Glass	2	51	0.75	12	46
Fiber Glass	2	51	1.5	24	46
Fiber Glass	2	51	3.0	48	46
Rockwool	2	51	2.0	32	45
Rockwool	2	51	2.4	38	46

\* Source of data: Loney, W.; "Effect of Cavity Absorption and Multiple Layers of Wallboard on the Sound Transmission Loss of Steel-Stud Gypsum Wallboard Partitions," *The Journal of the Acoustical Society of America*: Vol. 53, No. 6, 1973.

#### Specification Compliance and Fire Hazard Classification

	ICBO	SBCCI	BOCA	Flame	Smoke
				Spread*	Developed*
Sound Control Batts	All Types	All Types	All Types	<25	<50

\*Per ASTM E 84.

#### Specification Compliance

Sound-SHIELD® sound control batts meet the performance requirements of ASTM C 665, "Standard Specification for Mineral Fiber Blanket, Thermal Insulation," Type I.

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### Specification Compliance and Available Forms

Specification Compliance	Thickness*		Width		Length	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
ASTM C 665	6 1/2	165	16, 24	406, 610	96	2438
Type I	3 5/8	92	16, 24	406, 610	96	2438
	2 3/4	70	16, 24	406, 610	96	2438

\* 6 1/2" (165 mm) batts are designed for 6" (152 mm) stud cavities, 4" (102 mm) batts are designed for 3 5/8" (92 mm) stud cavities, and 2 3/4" (70 mm) batts are designed for 2 1/2" (64 mm) stud cavities.

### Short Form Specification

All sound control insulation shown on drawings or specified herein shall be \_\_\_\_\_ (6 1/2" [165 mm], 3 5/8" [92 mm] or 2 3/4" [70 mm] thick) "Sound-SHIELD" Fiber Glass Sound Control Batts" as manufactured by Johns Manville.

### Sound Transmission Class (STC) Ratings for Wall Assemblies

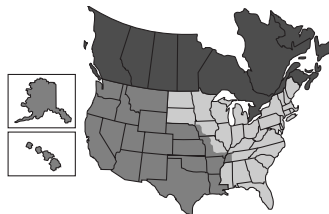
2 1/2", 3 5/8" or 6" (64 mm, 92 mm or 152 mm) Steel Studs, 24" (610 mm) o.c.; Type X Gypsum Board.  
2 3/4" (70 mm), 3 5/8" (92 mm) or 6 1/2" (165 mm) Fiber Glass Sound Control Batts.

Gypsum Board Configuration	2 1/2" (64 mm) Studs 2 3/4" (70 mm) Batts Type X Gypsum		3 5/8" (92 mm) Studs 3 5/8" (92 mm) Batts Type X Gypsum		6" (152 mm) Studs 6 1/2" (165 mm) Batts Type X Gypsum	
	Overall STC Rating	Hourly Fire Rating*	Overall STC Rating	Hourly Fire Rating*	Overall STC Rating	Hourly Fire Rating*
One 1/2" (13 mm) Layer, Each Side	45	N/A	49	3/4 Hr. UL-U425	50	3/4 Hr. UL-U425
One 5/8" (16 mm) Layer, Each Side	47	1 Hr. WP-1076	50	1 Hr. UL-U465	51	1 Hr. UL-U465
Two 1/2" (13 mm) Layers, One Side One 1/2" (13 mm) Layer, Other Side	52	1 Hr. WP-1021	53	1 Hr. WP-1021	55	1 Hr. WP-1021
Two 5/8" (16 mm) Layers, One Side One 5/8" (16 mm) Layer, Other Side	52	N/A	55	1 Hr. WP-1052	54	1 Hr. WP-1052
Two 1/2" (13 mm) Layers, Each Side	56	2 Hr. UL-U412	56	2 Hr. UL-U412	58	2 Hr. UL-U412
Two 5/8" (16 mm) Layers, Each Side	57	2 Hr. UL-U411	59	2 Hr. UL-U411	58	2 Hr. UL-U411

\* Source: Gypsum Association, Fire Resistance Design Manual, 1997. Underwriters Laboratories Inc, Fire Resistance Directory.



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



### North American Sales Offices, Building Insulation Division

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HIG-840 01/01

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