

[BLOCK BITE]

SOUND ABATEMENT

and Concrete Masonry Construction

THE
**BEAUTY
OF BLOCK**

Quiet, comfortable, functional spaces start with CMU. Concrete masonry walls inherently reduce noise thanks to their mass — with no special detailing, finishes or channels required. Whether reducing traffic noise from outside or audibly separating rooms inside, CMU delivers reliable acoustic performance that enhances occupant comfort regardless of whether the performance objective is code-based or beyond code minimums to achieve wellness-centric sustainable metrics.

DETERMINING ACOUSTIC BEHAVIOR

STC (Sound Transmission Class) — measures interior sound control. CMU walls can achieve STC ratings one would expect of recording studios and medical facilities.

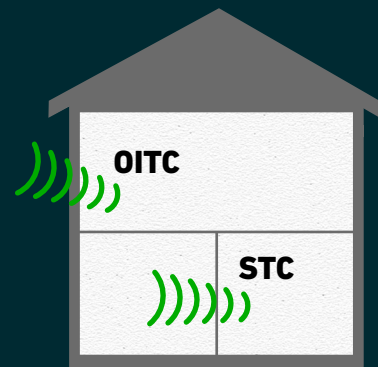
OITC (Outdoor-Indoor Transmission Class) — measures exterior noise control. Ideal for traffic, aircraft and low-frequency sounds.

Performance Formula:

$$STC = 20.5(W)^{0.234}$$

$$OITC = 14.7(W)^{0.29}$$

(where *W* = wall weight lb/ft²)



CMU PERFORMANCE

Built-In Performance: Even bare CMU delivers strong sound reduction without extra materials.

Tunable Assemblies: Designers can customize performance objectives by varying CMU density, grouting spacing, thickness and finishes.

Healthy Buildings: Better acoustics improve occupant comfort, learning and productivity.

Code Alignment: Supported by TMS 302 and CMHA TEK guidance, making compliance simple.

SOUND TRANSMISSION CLASS (STC)[®]

Nominal CMU Thickness (In.)	CMU Density (lb/ft ³)	Hollow Assembly	Solid Grouted Assembly ^a	Assembly A ^b	Assembly B ^c
4	95	39	45		
	105	39	46		
	115	40	47		
	125	41	48		
	135	41	49		
6	95	42	53	57	55
	105	43	53	57	55
	115	44	53	57	56
	125	45	54	58	56
	135	45	54	58	56
8	95	45	56	59	57
	105	46	57	59	57
	115	46	57	60	58
	125	47	58	60	58
	135	48	58	60	59
10	95	46	60	61	59
	105	47	60	61	59
	115	48	61	61	60
	125	49	61	62	60
	135	50	61	62	60
12	95	47	63	62	60
	105	48	63	63	61
	115	49	63	63	61
	125	50	64	63	62
	135	51	64	64	62

^aDue to the small cell size of 4 in. CMU, these units are rarely grouted. STC values shown are based on equivalent solid units at each unit density level.

^bAssembly A = Partially grouted CMU assembly with nominal 4 in. normal-weight CMU veneer.

^cAssembly B = Partially grouted CMU assembly with nominal 4 in. clay masonry veneer.

[®]OITC values generally range between 4 and 6 points lower than their corresponding STC value.

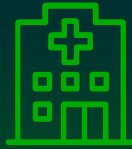
APPLICATIONS

SCHOOLS & UNIVERSITIES



Quiet classrooms, lecture halls, libraries.

HOSPITALS



Noise reduction for patient recovery and privacy.

RESIDENTIAL



Apartments, homes and hotels with enhanced comfort.

COMMERCIAL



Malls, theaters, and executive offices where sound separation is critical.

CUSTOMIZABLE OPTIONS

FINISHES: Different finishes used to tune STC ratings.

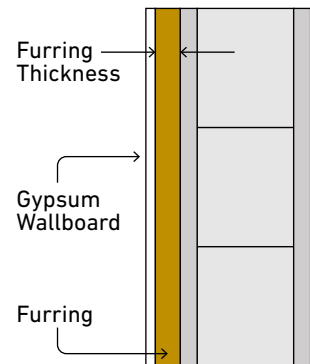
Increase in STR Ratings Due to Furring Space and Drywall

Furring space condition:	Drywall on:	ΔSTC for furring space thickness ^A (in., (mm)) of:							
		0.5 (13)	0.8 (19)	1 (25)	1.5 (38)	2 (51)	2.5 (64)	3 (76)	3.5 (89)
No sound-absorbing material in the furring space	one side	0.2	0.9	1.6	3.0	4.4	5.8	7.2	8.6
	both sides ^A	-1.0	-0.1	0.8	2.6	4.4	6.2	8.0	9.8
Furring space filled with sound-absorbing material ^B	one side	3.4	4.1	4.9	6.4	7.9	9.4	10.9	12.4
	both sides ^A	-1.8	1.0	3.8	9.4	15.0	20.6	26.2	31.8

^A When drywall is used on both sides of the masonry, use the thickness of the furring space on one side of the wall to determine ΔSTC. The furring space and insulation condition must be the same on both sides to use this provision.

^B Fibrous materials, such as cellulose fiber, glass fiber or rock wool insulation, are good materials for absorbing sound; closed-cell materials, such as expanded polystyrene, are not, as they do not significantly absorb sound.

INSULATED FURRING LAYERS: Improves both thermal and acoustic comfort.



SURFACE TEXTURES: CMU textures and specialized unit configurations absorb and diffuse sound.



Key Resources:

CMHA TEK 13-02A
CMHA TEK 13-03A
CMHA TEK 13-04A
CMHA TEK 13-01D

CONCRETE MASONRY = QUIET CONFIDENCE

Concrete masonry walls inherently provide durable, cost-effective acoustic performance — protecting building occupants from unwanted noise while improving quality of life.

For More Information
Visit BeautyofBlock.com

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