

Coat of Silence White Paper

Addressing Building Noise Issues with Spray-On Sound Reducing Paint

Overview:

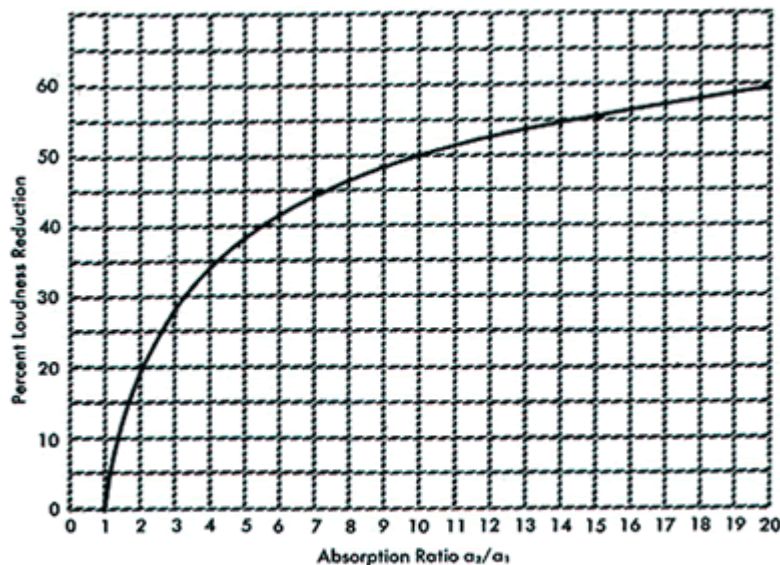
Soundproofing methods for multi-family residential and multi-tenant commercial buildings have frequently relied on additional construction materials such as layers of ceiling, floor, and walls separated by sound absorbing clips and other devices. This approach can be cost-prohibitive and commonly leads builders to soundproof only to the bare minimum as required by code. Sound deadening paint, on the other hand, is both less expensive and easier to install than traditional soundproofing materials and has been found in lab tests to be an effective alternative.

This white paper covers four topics:

1. Fundamentals of wall sound reduction
2. Lab and testing information with regard to sound deadening paint
3. Comparison of paint to traditional soundproofing materials and methods
4. General paint information and application

1. Fundamentals of wall sound reduction

Sounds that are not absorbed by walls or other surfaces are the source of noise levels in a building; the less sound is absorbed, the more noise, and vice versa. When a space is treated with soundproofing materials the sound buildup can be reduced or eliminated entirely. The sound level differences between the untreated space and the acoustically treated space is described as the Noise Reduction (NR).



Relation of Percent Loudness Reduction of Reflected Sound to Absorption Ratio.

Treating a noisy, reverberant space with soundproofing materials can reduce sound buildup that occurs due to hard and/or porous surfaces. In a “before treatment” and “after treatment” comparison the decibel level can be calculated. The diagram above can be used to compare how the sound reduction will be perceived.

2. Lab test results for sound deadening paint

Sound deadening paint works by increasing both the mass and thickness of a surface while also filling in the pores of the substrate on which it is applied, resulting in greater reflectance and absorption of noise. A paint such as Coat of Silence™ from Acoustical Surfaces, Inc. consists of a base coat and a finishing coat. The base coat is considered the “resilient layer” while the top coat is considered the “mass layer.” They work together to form a continuous rubber membrane that restricts sound transmission.

Both coats are produced with a self-curing formula based on environmentally friendly polymers that contain low or no organic solvents, low or no odor, and no out-gassing, among other traits (see section 4 below). Standard additives are used in the paints and coatings to adjust bulk viscosity, disperse solids, prevent foaming, and regulate flow characteristics.

Independent tests by Orfield and Riverbank Acoustical Laboratory have validated the effectiveness of sound deadening paint. In the case of Coat of Silence™, test results showed compliance with both ASTM E90-09, E413-04, and UL requirements. Improvement of attenuated sound from these tests was measured as follows:

Coat of Silence – Improvement of One Side Coated Wall to Attenuate Sound					
Frequency (Hz)	Uncoated Wall	One Side Coated Wall	Improvement of	Two Side Coated Wall	Improvement of
125	20.6	23.3	2.7	23.4	2.8
3150	38.1	40.7	2.6	43.4	5.3
4000	41.9	44.4	2.5	46.9	5.0
5000	48.8	51.5	2.7	54.1	5.3
6300	53.3	55.5	2.2	58.2	4.9
5000	59.4	61.7	2.3	64.3	4.9

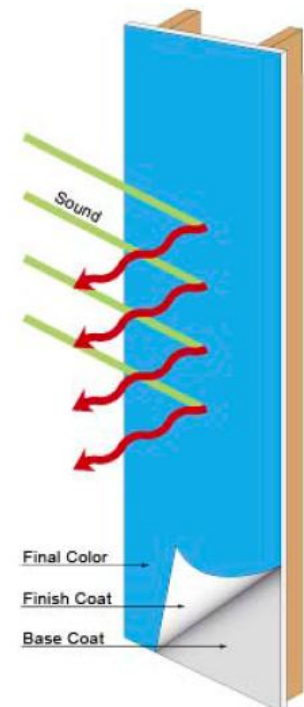
3. Comparison of paint to traditional sound proofing materials and methods

Traditional soundproofing materials often require replacement of existing drywall or drywall rehab in order to add a sound reduction membrane. In both these cases, two skilled tradesmen are required and the cost per square foot can be anywhere from 5 to 15 dollars. Thereafter, the walls need to be primed and painted.

With sound deadening paint, there is much less work, less so than any sound reduction solution in the marketplace. No construction materials are required and it can be applied with a commercial airless paint sprayer by one person with standard trade skills. Moreover, the paint can be applied to both existing and new walls, and a final paint color can be applied without further priming. The average cost is \$2.50 to \$3.50 per square foot.

4. General paint information and application

Sound deadening paint can have benefits beyond sound reduction, including greater heat insulation to help control energy costs and sealant properties to help protect against water seepage and mold damage. Many sound deadening paints also convert substrates into Class A Fire Rated materials if they hadn't been previously classified as such. Additionally, it can also provide scratch resistance and overall protection to substrates.



A sound deadening paint like Coat of Silence™ has the following statistics:

STC Rating:

Can increase room/partition by 3 to 7 points depending on room construction and application methods.

DENSITY:

Base Coat – 9.45 ± 0.2 lbs/gal

Finish Coat – 9.85 ± 0.2 lbs/gal

DRY CONTENT:

Base Coat TNV – 64.28% (62 ± 2)

Finish Coat TNV – 61.61% (62 ± 2)

CLEANING & DILUTION: Water

APPLICATION: Sprayed

APPLY TEMPERATURE: Between 50°F and 90°F

SPRAY NOZZLE SPECIFICATIONS: A 317 tip is recommended

COVERAGE:

Base Coat – One gallon covers approximately 100 sq ft

Finish Coat – One gallon covers approximately 100 sq ft

Example: A job requiring 500 sq ft of coverage would require 10 gallons of product, 5 base coat and 5 finish coat.

LENGTH OF STORAGE: Original, unopened containers may be stored up to 12 months. Open, unused material should be disposed of after a 6-month period.

STORING TEMPERATURE: Room temperature (between 50 and 90 degrees F.

FLAMMABILITY: Flame Spread: 15; Smoke Developed: 10.