



SOUND-SHIELD® 40

High Density Acoustical Treatment

CAFCO® acoustical and thermal products have provided aesthetically pleasing and cost effective solutions for over fifty years.

- NRC rating up to 0.75
- Ideal for contoured surfaces
- Aesthetically pleasing finish
- Wet spray
- 40 pounds per cubic foot (pcf) nominal dry density portland cement acoustical material.
- Exceptional Physical Property Performance

DESCRIPTION

CAFCO SOUND-SHIELD 40 is a high-density acoustical treatment that blends portland cement and vermiculite for excellent physical property performance and unsurpassed noise reduction efficiency while providing an aesthetically pleasing architectural finish.

CAFCO SOUND-SHIELD 40 is a spray-applied acoustical material that provides high levels of acoustical control on walls and ceilings. CAFCO SOUND-SHIELD 40 requires no hand finishing and is ideally suited for a variety of acoustical applications, including complex contoured surfaces. This asbestos-free, noncombustible acoustical material is an excellent product for both retrofit and new projects, such as schools, churches, airports, libraries and other public buildings, where acoustical control is required.

APPLICATIONS

CAFCO SOUND-SHIELD 40 can be specified for use in transportation centers, entertainment arenas, hotels/resorts, educational facilities and areas requiring an exposed durable, abuse resistant sound absorbing treatment.

CAFCO SOUND-SHIELD 40 is easily mixed with water in a mortar mixer and applied with a rotor-stator pump.

FIRE HAZARD CLASSIFICATION

When tested in accordance with ASTM E84 (CAN/ULC - S102), CAFCO SOUND-SHIELD 40 is Class A rated and achieves the following Surface Burning Characteristics:

- Flame Spread..... 0
- Smoke Developed..... 0

CAFCO SOUND-SHIELD 40 is classified as noncombustible when tested in accordance with ASTM E136 (CAN4 - S114), a requirement of model building codes.

PHYSICAL PERFORMANCE

ASTM has developed nationally recognized standard tests, which evaluate resistance to various forces acting upon building materials during installation and service life.

Table Of Physical Properties

Property	Test Method	Performance
Bond Strength	ASTM E736	5000 lbs./ft ²
Compressive Strength	ASTM E761	300 psi
Density *	ASTM E605	40 lbs./ft ³
Toxicity	University of Pittsburgh Toxicity Test	LC(50)>400 grams
Combustibility	ASTM E136	Non-combustible

ACOUSTICAL PERFORMANCE

The laboratory tested acoustical performance** is as follows:

Thickness	Substrate	Frequency (Hz)						
		125	250	500	1000	2000	4000	NRC
3/8"	Solid Base	0.01	0.11	0.34	0.49	0.67	0.86	0.40
1/2"	Solid Base	0.24	0.32	0.44	0.51	0.71	0.96	0.50
1"	Solid Base	0.24	0.41	0.50	0.65	0.85	0.98	0.60
1 1/2"	Solid Base	0.29	0.40	0.61	0.89	1.00	1.05	0.70
1 7/8"	Solid Base	0.36	0.52	0.64	0.85	0.98	0.99	0.75

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* In-place density of SOUND-SHIELD 40 may range from the mid 30s to nominally 40 pcf by design. Refer to the SOUND-SHIELD 40 Long Form Application Manual for guidelines to control density and for application technique.

** Sound absorption performance of building materials is dependent on thickness, density, surface texture and other factors. Lower density and rougher surface texture significantly contribute to optimum performance.

SOUND-SHIELD 40 Guide Specification

PART 1 - GENERAL

1.1 WORK INCLUDED

- 1.1.1 Extent of sprayed on decorative/acoustical insulation as indicated on the drawings
- 1.1.2 Provide all labor, materials, equipment and services necessary for, and incidental to, the complete and proper installation of all sprayed acoustical treatment and related work as shown on the drawings or where specified herein, and in accordance with all applicable requirements of the Contract Documents.
- 1.1.3 The material and installation shall conform to the applicable building code requirements and the requirements of all authorities having jurisdiction.

1.2 QUALITY ASSURANCE

- 1.2.1 Provide a portland cement-vermiculite based material which has been tested and meets the following physical performance properties.

TEST METHOD	PROPERTY	TESTED PERFORMANCE
ASTM E605	Density	40 lbs/ft ³
ASTM E761	Compressive Strength	300psi
ASTM E736	Bond Strength	5000 psf
ASTM E84	Surface Burning Characteristics	Flame: 0 Smoke: 0
ASTM C423	Sound Absorption	NRC: 0.40 @ 3/8" NRC: 0.50 @ 1/2" NRC: 0.60 @ 1" NRC: 0.70 @ 1 1/2" NRC: 0.75 @ 1 7/8"
ASTM E136	Combustibility	Non-combustible
University of Pittsburgh Toxicity Test	Toxicity	LC ₅₀ >400 Grams

- 1.2.2 Work shall be performed by a firm with expertise in the installation of sprayed acoustical materials or similar products. The firm shall be licensed or otherwise approved by the acoustical material manufacturer.
- 1.2.3 Provide current test results (not more than 5-years old) from an NVLAP accredited testing laboratory. Thickness of test sample and density must be determined and reported by the acoustical laboratory.
- 1.2.3.1 NRC not less than 0.60 at one (1) inch thickness and coefficient not less than 0.35 (+ or - 0.01) at 250Hz. Conduct testing on solid backing with no air gap unless otherwise specified.
- 1.2.4 Control Sample: Prior to installation of the final finish coat, apply an area of 50ft² in the presence of the architect, for approval of finish texture, as selected from samples.

1.3 RELATED SECTIONS

- 1.3.1. Section 03400 -- Concrete.
- 1.3.2. Section 09200 -- Lath and Plaster.
- 1.3.3. Section 09250 -- Gypsum Wallboard.
- 1.3.4. Section 09900 -- Painting.

1.4 REFERENCES

- A. **ASTM E84 (UL 723, CAN/ULC - S102)** -- Surface Burning Characteristics of Building Materials. Class A Rating. Flame: 0 Smoke: 0
- B. **ASTM E136 (CAN4 - S114)** - (Non-combustibility) Behavior of Materials in a Vertical Tube Furnace at 1382°F (750°C).
- C. **ASTM C423** -- Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- D. **ASTM E605** - Density.
- E. **ASTM E736** - Bond Strength.
- F. **ASTM E761** - Compressive Strength.
- G. **Toxicity Test (University of Pittsburgh)**

1.5 SUBMITTALS

- 1.5.1 Manufacturer's Data: Submit manufacturer's specifications, including certification as may be required to show material compliance with Contract Documents and quality assurance performance minimums.
- 1.5.2. Test Data: Provide current test results (not more than 5-years old). Independent laboratory test results shall be submitted for all specified performance criteria.
- 1.5.3 Submit samples of sprayed on insulation showing texture variations for approval.
- 1.5.4 Submit certification from all suppliers showing material to be 100% free of asbestos, polystyrene and cellulose.
- 1.5.5 Submit certification of applicator licensing.

1.6 DELIVERY, STORAGE AND HANDLING

- 1.6.1 Deliver materials to the project in manufacturer's unopened packages, fully identified as to trade name, type and other identifying data.
- 1.6.2. Store materials above ground, in a dry location, protected from the weather. Damaged packages found unsuitable for use should be rejected and removed from the project.

1.7 PROJECT CONDITIONS

- 1.7.1 When the prevailing outdoor temperature at the building is less than 40°F (4°C), a minimum substrate and ambient temperature of 40°F (4°C) shall be maintained prior to, during, and 24 hours after application of sprayed acoustical material. If necessary for job progress, General Contractor shall provide enclosures with heat to maintain temperatures.
- 1.7.2. General Contractor shall provide ventilation to allow proper drying of the sprayed acoustical material during and subsequent to its application.
- 1.7.2.1 In enclosed areas, ventilation shall not be less than 4 complete air exchanges per hour.

1.8 SEQUENCING/SCHEDULING

- 1.8.1 All sprayed acoustical treatment work on a floor shall be completed before proceeding to the next floor.
- 1.8.2. The Contractor shall cooperate in the coordination and scheduling of acoustical work to avoid delays in job progress.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- 2.1.1 The sprayed acoustical material shall be manufactured under the CAFCO brand name by authorized producers. Where decorative/acoustical insulation is required, material shall be CAFCO SOUND-SHIELD 40. Where bonding adhesive is required, material shall be CAFCO BOND-SEAL.

2.2 MATERIALS

- 2.2.1 Material shall be asbestos free CAFCO SOUND-SHIELD 40 applied to conform to the drawings, specifications and quality assurance physical performance minimums.
- 2.2.2 Color shall be white, grey or finish as selected by the architect, engineer or building owner.
- 2.2.3 Texture shall be a standard spray-applied or a semi-smooth troweled finish as selected by the architect, engineer or building owner.
- 2.2.4 Thickness shall be _____.
- 2.2.5 Potable water shall be used for the application of sprayed acoustical material.

PART 3 - EXECUTION

3.1 PREPARATION

- 3.1.1 Examine all substrates and conditions where the acoustical treatment is to be applied.
- 3.1.2 All surfaces to receive acoustical treatment shall be free of oil, grease, loose mill scale, dirt, paints/primers or other foreign materials which would impair satisfactory bonding to the surface. Any cleaning of surfaces to receive sprayed acoustical material shall be the responsibility of the General Contractor.
- 3.1.3 Clips, hangers, supports, sleeves and other attachments to

the substrate are to be placed by others prior to the application of sprayed acoustical material.

- 3.1.4 The installation of ducts, piping, conduit or other suspended equipment shall not take place until the application of sprayed acoustical material is complete in an area.
- 3.1.5 The sprayed acoustical material shall only be applied to substrates which have been approved and/or tested by the sprayed acoustical material manufacturer.
- 3.1.6 Do not proceed until the referenced substrate(s) and conditions are acceptable.
- 3.1.7 Prepare the substrate by filling voids, cracks and/or offsets. Remove projections that result in telegraphing through the finish.
- 3.1.8 Prime substrate with CAFCO BOND-SEAL or manufacturer approved bonding agent.
- 3.1.9 Do not apply acoustical insulation material when material temperature is below 44°F (7°C), or substrate temperature is below 40°F (5°C).
- 3.1.10 Mask all adjoining surfaces in order to minimize damage from overspray.
- 3.1.11 Provided ventilation shall not be less than four (4) complete air exchanges per hour.
- 3.1.12 Provide tarps and/or temporary enclosures as necessary to confirm proper application.
- 3.1.13 Perform all patching and/or repairs of acoustical treatment as needed.

3.2 APPLICATION

- 3.2.1 Equipment, mixing and application shall be in accordance with the manufacturer's written application instructions.
- 3.2.2 The application of the sprayed acoustical material shall not commence until certification has been received by the General Contractor that surfaces to receive the sprayed acoustical treatment have been inspected by the applicator and are acceptable to receive the material.
- 3.2.3 All unsuitable substrates must be identified and made known to the General Contractor and corrected prior to the application of the sprayed acoustical material.
- 3.2.4 Install to thickness specified or thickness required to achieve desired NRC.
- 3.2.5 Sprayed acoustical material shall be applied to an overall nominal thickness not to exceed 1 7/8" (47.6mm). Individual build-up coats shall not exceed 1/4" (6.5mm) and shall be allowed to dry 12 to 24 hours prior to applying additional thickness of material.
- 3.2.6 Proper temperature and ventilation shall be maintained as specified in 1.7.1, 1.7.2 and 1.7.2.1.
- 3.2.7 Provide masking, drop cloths or other suitable coverings to prevent overspray from coming in contact with surfaces not intended to receive sprayed acoustical material.
- 3.2.8 Protect finished walls, windows, doors and trim with plastic film secured with moisture resistant tape. Protect all floors with plastic film, or other suitable drop cloths.
- 3.2.9 The sprayed acoustical material shall not be directly applied to cellular or fluted steel decking or to any painted surfaces.
- 3.2.10 The application of the sprayed acoustical material to any smooth, dense surface requires the application of an adhesive prior to the application of the material. The adhesive shall be mixed in accordance with the manufacturer's written instructions.
- 3.2.11 Ensure that the texture and finish are as per the approved control sample.

3.3 REPAIRING AND CLEANING

- 3.3.1 All patching of and repair to sprayed acoustical material, due to damage by other trades, shall be performed under this section and paid for by the trade responsible for the damage.
- 3.3.2 After the completion of the work in this section, equipment shall be removed and all surfaces not to be sprayed shall be cleaned to the extent previously agreed to by applicator and General Contractor.

PRODUCT AVAILABILITY

SOUND-SHIELD 40 is available to licensed contractors through an international network of Isolotek International Sales Representatives.

For Further Information

ISOLATEK INTERNATIONAL is registered with the AIA Continuing Education System (AIA/CES)

CAFCO Technical and Sales Representatives are always available to lend assistance. Additional printed materials, including Material Safety Data Sheets, and other product literature, are available upon request. For more information about our CAFCO line of sprayed fire protection, thermal and acoustical treatments, SprayFilm™ Intumescent Coatings, and CAFCO-BOARD™ or for the name of the Sales Representative in your area, please contact:

In the United States: Isolotek International, Stanhope, New Jersey Tel: 800.631.9600 Fax: 973.347.9170

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For more detailed product information, visit our website at

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