

Acoustics Systems Business Technical Bulletin

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Soundsoak® Acoustic Walls Fire Performance

Soundsoak® Acoustic Walls offer excellent sound absorption and reduced noise transmission between spaces to help create more productive work environments. The *Soundsoak* guide specification¹ says “panels shall have a composite flame spread rating of 25 or less and a typical composite smoke developed rating of 200 or less according to the ASTM E 84 test, as substantiated by independent laboratory tests. Fabric-covered material shall meet the acceptance criteria of the full-room burn procedure of UBC 8-2 and NFPA 265.”

This bulletin is intended to provide an explanation of these fire tests and why they are important when selecting acoustic wall panels.

Building Code Requirements

Building codes set requirements on materials used in construction. The most important performance regulated in buildings is how materials and assemblies respond under fire conditions.

Soundsoak Acoustic Walls fall under the building code definition of an interior wall and ceiling finish. The International Building Code defines interior finishes as *exposed interior surfaces of buildings including, but not limited to: fixed or movable walls and partitions; columns; ceilings; and interior wainscoting, paneling, or other finish applied structurally or for decoration, acoustical correction, surface insulation, structural fire resistance or similar purposes, but not including trim.*²

Building codes commonly set requirements for surface burning of materials by requiring testing in accordance with ASTM E 84. A lower number provides better surface burning characteristics. The codes define classes for flame spread index (FSI) and smoke developed index as:

Class	FSI	Smoke Developed
A	0 - 25	0 - 450
B	26 - 75	0 - 450
C	76 - 200	0 - 450

Generally, codes specify flame spread Class for an interior finish based on building occupancy, location within the building, and availability of automatic sprinkler protection. The more restrictive areas are generally stairways and corridors that provide access to exits. In general, a Class C rating is permitted for the interior finish of other areas of the building that are not considered exit ways or where automatic sprinklers are provided.

The International Building Code also has separate requirements for fabric covered interior finishes. When used as an interior wall finish, textiles, including materials having woven or non-woven, napped, tufted, looped or similar surface, must either be Class A and be protected by automatic sprinklers, or pass the Room/Corner Wall Test (NFPA 265) using the product mounting system, including adhesive. Passing the full-scale room/corner tests means that a fabric covered product can be used in buildings that do not have automatic sprinklers.

The ASTM E 84 Tunnel Test

Building codes set flame spread requirements on building materials, often by ASTM E 84, the Standard Test Method for Surface Burning Characteristics of Building Materials. In this test method, a Specimen that is 2 foot wide and 24 feet long is mounted in the top of the tunnel furnace. Flames from a gas burner at one end of the tunnel impinge on the Specimen. The progress of the flame down the surface of the Specimen is monitored during a 10 minute period. The results, given as Flame Spread Index (FSI) and smoke developed index (SDI), are calculated based on both distance traveled, and time duration of the travel. These results are comparative to two calibrations of the furnace: cement board defined as 0 FSI / 0 SDI, and red oak flooring defined as 100 FSI / 100 SDI.



1. The *Soundsoak* Guide Specification can be found at www.owenscorning.com, Commercial Acoustics System.
2. 2000 International Building Code, section 802 Definition of Interior Wall and Ceiling Finish.

The Room/Corner Wall Test NFPA 265 or UBC 8-2

With sufficient heat generation, the initial growth of a fire in a room can lead to the condition known as flashover. Flashover is considered to be full involvement of the room in the fire, with flames coming out of a door or window. The standard full-scale test for fire growth is the room/corner wall test, such as NFPA 265 or UBC 8-2. In this test, a fire source (i.e., gas burner) is placed in the corner of a 8 foot by 12 foot room, which has a single door for ventilation. Three of the walls are lined with the test material. Other room/corner tests use a wood crib or similar item as the ignition source. Observations are made of the growth of the fire over the duration of the test to see whether flashover occurs. Instruments record the heat release, temperature development within the room, and the heat radiated to the floor. Results of full-scale room/corner tests are used to validate compliance with building code requirements for textile wall coverings in buildings that do not have automatic sprinklers. Passing a corner test means that no flames have exited through the door (no flashover), and that flames have not spread along the surface to the edge of the wall.

Looking through the door of a room/corner wall test failure

(flashover in under 3 minutes)



Looking through the door of a room/corner wall test that passed

(no flashover after 15 minutes)



Soundsoak Fire Test Results

Soundsoak products are tested by an independent testing laboratory, Factory Mutual (FM) Approvals. When FM conducts testing in accordance with ASTM E 84 or NFPA 265, the product is tested as it would arrive at the jobsite. *Soundsoak* is exposed as a complete, assembled product. The panels are tested as manufactured, including all components (base board, adhesive, fabric or vinyl covering). This is considered composite-testing, since the results reflect the entire product, rather than the individual components that are used.

FM also provides independent follow-up inspections to assure that over time, the products continue to provide the same fire performance through periodic audits and re-examining products to reconfirm test results.

What It All Means

Soundsoak meets the building code requirements. *Soundsoak* can be used in both buildings with sprinklers and buildings without sprinklers. *Soundsoak* can be used in any room or hall, including exit corridors. You can rest assured that *Soundsoak* Acoustic panels can be used in almost any project application and meet the building code fire requirements.

FM Test Results

ASTM E 84 Flame Spread/Smoke Developed	
Flame Spread	25 or under
Smoke Developed	200 or less

NFPA 265 Room/Corner Wall	
Pass	