

ASTM E84

The ASTM E84 is a tunnel test for the “surface burning characteristics of building materials.

It is a measure of the relative burning characteristics of building materials as measured by flame spread and smoke density developed. The test chamber is approximately 2' wide x 1' high x 25' long, with a flame source at one end. The sample is mounted on the ceiling of the chamber. A flame is delivered upward against the face of the surface for 10 minutes. The maximum flame spread is measured. The smoke is directed to the end of the tunnel where it passes through an optical measuring device. A material is said to have a 25/50 rating if it has a flame spread of 25 and a smoke developed of 50.

To be considered:

- 1) **Class A** materials can be used in public facilities of 300 people or more. And is suitable for use in any residential or commercial building in America. The material must have:
 - a. flame spread: 0-25
 - b. Smoke Developed: 0-450

- 2) **Class B** The material must have:
 - a. flame spread: 26-75
 - b. Smoke Developed: 0-450

- 3) **Class C** The material must have:
 - a. flame spread: 76-200
 - b. Smoke Developed: 0-450

FACTORY MUTUAL RESEARCH CORPORATION

ASTM E-84 TEST FILE: STO55D

TEST IDENTIFICATION

DATE: 02/24/93

SAMPLE NO: BSC-25

LIBRARY CATALOG NUMBER:
4820

J.I. NUMBER: 0X2Q0.AM

RUN NUMBER: 1

PERSONNEL: OPERATOR: M.D.
PROJECT ENGINEER: T.M. CHESTNUT

OBSERVER: F.J.C.

CLIENT INFORMATION

ALL NOISE CONTROL
6801 LAKE WORTH RD # 323
LAKE WORTH FL
561-964-9360
FAX 561-964-9359

CONTACT: SALMAN SHEIKH

TEST SPECIMEN

THICKNESS: 1"

DENSITY: lb/cu/ft.

DAYS CONDITIONED: 7

JOINTS: NONE

EXPOSED SURFACE: quilted acoustical blanket

METHOD OF SUPPORT: LAID ON LEDGE WITH
RODS

QUILTED ACOUSTICAL BLANKET

COLOR: ALUMINUM

LENGTH: 1 PCS. 24' LNG.

ADDITIONAL DATA

TIME: 00:00:00.000

4.5 104.1 94.2 58.3 .644

FLAME SPREAD INDEX: 22.784

SMOKE DENSITY INDEX: 30.561

TEST NAME: STO55D

TEST RESULTS

FLAME SPREAD INDEX: 22.784
MAXIMUM FLAME SPREAD DISTANCE: 9.0
MV-MIN: 25.941
SMOKE DENSITY INDEX: 30.561
CALIBRATION FACTOR FOR GAS METER: .312

MIN-FT: 44.242
TIME: 00:19
RED OAK MV-MIN: 849

OBSERVATIONS

---DURING TEST---

TIME OF MATERIAL IGNITION: 02 SEC.
DELAMINATION: 0 MIN.
SAGGING: 0 MIN.
FALLOUT: 0 SEC.
BURNING AT FLOOR, TIME: 0
BURNING AT FLOOR, DISTANCE: 0'

---AFTER TEST---

CHAR, LENGTH: 20'
DEPTH OF CHAR: 0
CRACKING: 0'
SEVERE CHAR: 9'
SMOKE COUNT 0
BURN THROUGH AT

The material tested is not manufactured under the factory mutual follow-up inspection and re-examination program; Therefore, the manufacturer can not use the Factory Mutual name for marking or advertising the material.

The product is not approved, unless separately listed in the Factory Mutual Approval Guide for specific end-use application.

Caution: these numerical flame spread and smoke density values are not intended to reflect the hazards presented by this or any material under actual fire conditions.

The products of combustion were not analyzed nor is it required by the ASTM E-84 method.

The ASTM E-84 Test Method subjects materials to limited fire conditions when tested in a horizontal ceiling application. The test results may not indicate the material's actual burning characteristics when field installed in a vertical position.

Also, the sample mounting prescribed in this test method may not produce a fire behavior representative of actual building fires.

