

SOUTHWEST RESEARCH INSTITUTE

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INVESTIGATION OF THE SURFACE BURNING CHARACTERISTICS OF 3-IN. THICK METAL- FRAMED PANELS WITH ADHESIVE-COATED GYPSUM FACES: PANELFOLD OPERABLE WALL PANEL

SwRI PROJECT NO. 01-3779-062-a

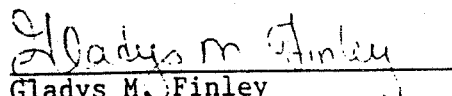
FINAL REPORT

JULY 9, 1991

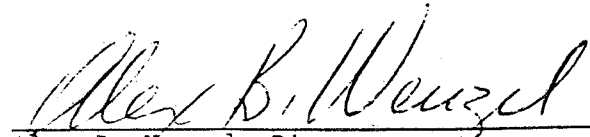
Prepared for:

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^{01/14}
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INTRODUCTION

This report presents the results of ASTM E84 tests on material submitted by the Client. It contains a description of the materials tested, the preparation and conditioning of the specimens, the test procedure, and the test results.

Materials are tested under ASTM E84-90, "Standard Method of Test for Surface Burning Characteristics of Building Materials." This test method is similar to the test method specified in NFPA No. 255, UL No. 723 and UBC No. 42-1. ASTM E84 is a test procedure method only and does not set requirements for materials. Therefore, SwRI does not assign a classification to the material tested. The building code having jurisdiction in the location a material is to be used will determine compliance of the test results.

The results apply specifically to the specimens tested, in the manner tested, and not to the entire production of these or similar materials, nor to the performance when used in combination with other materials. All test data are on file and are available for review by authorized persons.

The purpose of the test is to evaluate performance of the test specimens in relation to that of glass-reinforced cement board and red oak flooring under similar fire exposure. The results are expressed in terms of flame spread and smoke developed during a 10-minute exposure and are recorded as a ratio with glass-reinforced cement board 0 and red oak flooring 100.

The following pages represent a summary of the information obtained during the evaluation of the submitted material.

These summary pages and graphs are not to be used separately, in lieu of this complete final report.

DESCRIPTION AND PREPARATION OF MATERIALS

The description of the tested sample, preparation procedure and cure time are listed in the Description section of the appropriate summary page.

Each specimen measures at least 21-in. x 24-ft (0.53 x 7.32-m) and is prepared in accordance with standard procedures and the Client's instructions. Exceptions to the standard procedure are noted in the Description section on the summary page.

The specimens are conditioned in an atmosphere maintained between 68 and 78°F (20 and 26°C) temperature and 45- to 55-percent relative humidity.

TEST PROCEDURE

Each specimen to be evaluated is tested in accordance with the standard procedure. Reference data are obtained and furnace operation checked by conducting a 10-minute test with glass-reinforced cement board on the day of the test and by periodic tests with red oak flooring. These tests provide the 0 and 100 references for flame spread and smoke developed.

TEST RESULTS

The test results are calculated on the basis of observed flame travel and the measurement of areas under the curves of flame travel and smoke developed. To allow for possible variations in results due to limitations of the test method,

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the numerical results are adjusted to the nearest figure divisible by 5. Results for each test are presented in the appropriate summary page.

OBSERVATIONS DURING AND AFTER TESTS

The observations made during and after each test are presented on the summary page.

GRAPHICAL DATA

Recorded data for flame spread, smoke developed and temperature for each specimen are shown in the figures following the summary page as a solid line on each graph.

DESCRIPTION

Company: Panelfold, Inc.
 Date Received: 06/10/91
 Trade Name: Panelfold Operable Wall Panel
 Identification: 4206 A-1 (3-in. thick)
 Description: 3-in. (76-mm) thick Operable Wall Panel consisting of 0.38-in. (10-mm) thick gypsum board faces laminated to a metal frame with compliant mastic and mineral wool interior sound retarding materials and coated with Panelfold's standard surface material laminating adhesive
 Color: Red adhesive/cream gypsum
 Materials Received: Three 20.5 x 96-in. (0.521 x 2.44-m) panels
 Total Thickness: 3.0 in. (76 mm)

PREPARATION AND CONDITIONING

Preparation: None other than conditioning required
 Conditioning: 28 days, 70°F and 50% relative humidity
 Support Used: None. The 24-ft (7.32-m) long specimen was prepared using the panels submitted by the Client. These were placed end-to-end in the furnace with the red adhesive side exposed to the flames. No other support or preparation was required.

TEST RESULTS

Test Date: 07/08/91
 Test Time: 14:57:05
 Flame Spread Index: 20
 Smoke Developed Index: 70

OBSERVATIONS DURING TEST

Steady Ignition, min:s 0:42
 Peeling, min:s 1:22
 Pieces Falling, min:s 2:16
 Maximum Flame Front, min:s 1:56
 Advance 4.50 ft (1.37 m)
 Afterflame, min:s None

OBSERVATIONS AFTER TEST

Adhesive Consumed To 6.00 ft (1.830 m)
 Gypsum Paper Consumed To 4.50 ft (1.373 m)
 Surface Char To 10.0 ft (3.050 m)
 Severe Char To 8.00 ft (2.440 m)

CLIENT: PANELFOLD

PROJECT NO: 01-3779-062

Time & Date: 14:57:05 07-08-1991

