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INVESTIGATION OF THE SURFACE BURNING CHARACTERISTICS OF A FABRIC-COVERED FIBERGLASS ACOUSTICAL WALL PANEL ASSEMBLY ON GYPSUM WALLBOARD: WHISPERWALLS 1000

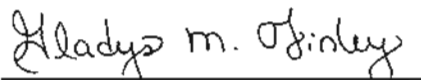
SwRI PROJECT NO. 01-3104-401-b
FINAL REPORT
OCTOBER 15, 1990

Prepared for:

WHISPER WALLS
1909 BLAKE STREET
DENVER, COLORADO 80202

By:

Approved by:



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INTRODUCTION

This report presents the results of ASTM E84 flame spread tunnel 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 finally, the test results.

Materials are tested under ASTM E84-89a, "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. Building codes, such as the Uniform Building Code, have requirements dependent on the building type, occupancy, etc. The building code having jurisdiction in the location a material is to be used will determine compliance of the test results. The actual test specification followed, including the appropriated revision, is indicated on the individual summary pages.

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, smoke developed and temperature 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

Each material submitted for evaluation is reported separately. The description of the tested sample, cure time and test date are listed in the Description section of the appropriate summary page.

Each 21-in. x 25-ft (0.53 x 7.63-m) specimen 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

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. Ignition over the burners was noted 41 seconds after the start of the test in the most recent calibration with red oak flooring. Each specimen to be evaluated is tested in accordance with the standard procedure.



TEST RESULTS

The test results are calculated on the basis of observed flame travel and the measurement of areas under the recorder curves of furnace temperature and smoke developed. To allow for possible variations in results due to limitations of the test method, 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: Whisper Walls
Date Received: 10/05/90
Trade Name: Whisper Walls
Identification: 1000
Description: Acoustical wall panel assembly consisting of Manville Series 1000 SpinGlas^R fiberboard insulation (1-in. thickness, 3.0 pcf) stapled to 0.5-in. Type X gypsum wallboard, and covered with a multipurpose, plain weave, 2-ply polyester yarn, 16 oz/linear yard fabric, identified as Victor Pattern 6516. The fabric was held in place with extruded PVC tracks (Midwall Flex channels) stapled to the gypsum wallboard at 4-ft intervals over the entire length of the specimen.

Amount Received: Eighteen 24 x 48 x 1.44-in. pieces of yellow fiberglass core,
Twenty-nine 1.25 x 23.5 x 0.06-in. Midwall Flex channels,
Eleven 1.0 x 23.5 x 0.06-in. End Wall channels,
1 roll of 66.5-in. wide x 0.034-in. nominal thickness, 16 oz/linear yard pink polyester fabric.

PREPARATION AND CONDITIONING

Substrate Used: 0.5-in. Type X gypsum wallboard
Date In Lab: 10/09/90
Conditioning: None
Preparation: The 24-in. x 24-ft test specimen was prepared at SwRI on October 9, 1990 by the Client's representative. The fiberglass core was stapled to three 24-in. x 8-ft. (0.61 x 2.44-m) sections of 0.5-in. thick Type X gypsum wallboard. Midwall Flex channels were stapled to the wallboard at 4-ft intervals the entire length of the specimen; one End Wall channel was placed at each end. The fabric was stretched over the entire length of the specimen and held in place by the wall channels.



PREPARATION AND CONDITIONG (Continued)

Mounting: The panels were placed end-to-end in the furnace with the fabric exposed to the flames. No other support or preparation was required. A 14 x 21-in. (0.36 x 0.53-m) section of 16-ga (1.6-mm) sheet metal was placed over the burner and under the leading edge of the first section to deter flame impingement on the unexposed surface in accordance with the test procedure.

TEST RESULTS

Test Date:	10/09/90
Test Time:	15:07:41
Flame Spread Index:	5
Smoke Developed Index:	10

OBSERVATIONS DURING TEST

Color Change, min:s	0:03		
Steady Ignition, min:s	0:06		
Peeling, min:s	0:11		
Dripping, min:s	0:10		
Melting, min:s	0:08		
Pieces Falling, min:s	0:12		
Burning on Floor, min:s	9:38		
Maximum Sluff Off, min:s	1:08		
Position	9.50	ft	(2.89 m)
Maximum Flame Front, min:s	1:00		
Position	6.50	ft	(1.98 m)
Afterflame Floor, min:s	0:33		

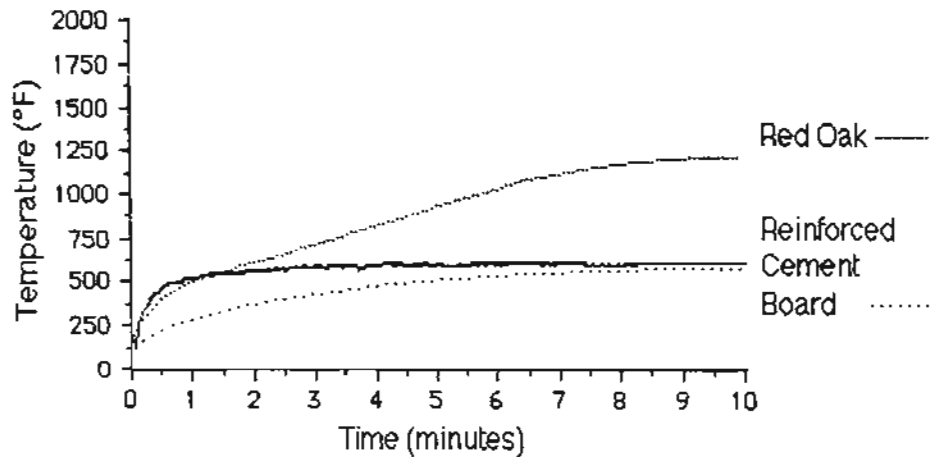
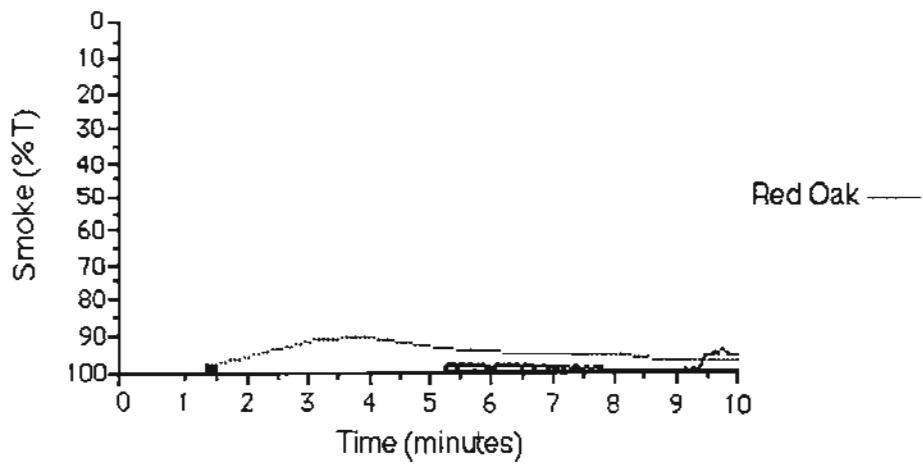
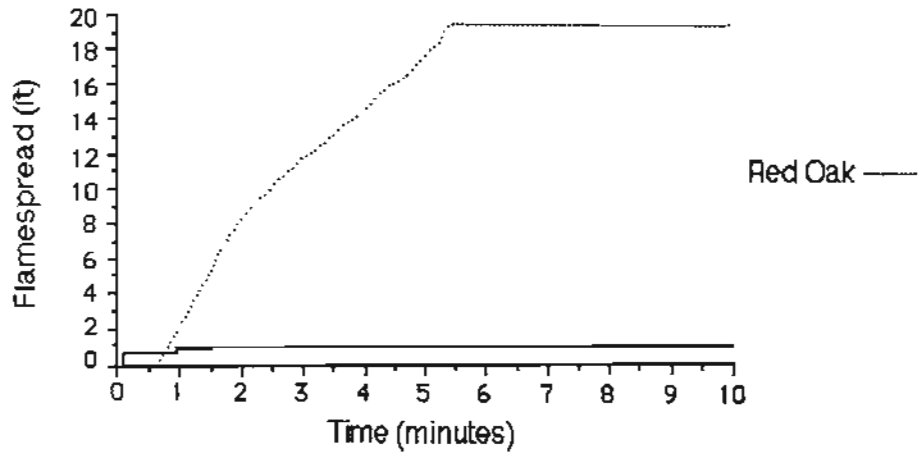
OBSERVATIONS AFTER TEST

Fabric Consumed To	21.0	ft	(6.405 m)
Fiberglass Resins			
Consumed To	4.00	ft	(1.220 m)
Fiberglass Charred To	13.0	ft	(3.965 m)
Discoloration To	24.0	ft	(7.320 m)



CLIENT: WHISPER WALLS
PROJECT NO: 01-3104-401

Time & Date: 15:07:41 10-09-1990



CLIENT: WHISPER WALLS
PROJECT NO: 01-3104-401

Time & Date: 14:14:47 10-09-1990

