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SOUTHWEST RESEARCH INSTITUTE
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INVESTIGATION OF SURFACE BURNING CHARACTERISTICS OF:

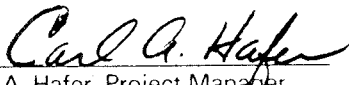
A 12-OZ TYPE I VINYL WALLCOVERING,
P/C SCRIM (20-644) BACKING,
C-133A/C-211, PON C-8811

PROJECT NO. 03-5448-315i
FINAL REPORT

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Prepared for:
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I. INTRODUCTION

This report presents the results of a flame spread tunnel test on an embossed vinyl fabric wallcovering, FE 8717B, Tai Weave Pattern, sand color, PON C8811, submitted for evaluation by The General Tire & Rubber Company, of Columbus, Mississippi. The report contains a description of the material tested, the preparation and conditioning of the specimen, the test procedure, and finally, the test results. Note that the results only apply to the specimen tested, in the manner tested, and not to the entire production of this or similar material, nor to this material's performance when used in combination with other materials. All test data are on file and are available for review by authorized persons.

The test was conducted in accordance with the provisions of ASTM Designation E84-77a, "Standard Method of Test for Surface Burning Characteristics of Building Materials." This test method is technically equivalent to that specified in ANS No. 2.5, NFPA No. 255, UL No. 723, UBC No. 42-1, and ASTM E84-75. The flame spread rates found by using the formulae of these test methods are listed under the "E84-75" column of the Classification Table.

The purpose of the test was to evaluate performance of the test specimen in relation to that of asbestos-cement board and red oak flooring under similar fire exposure. The results are expressed in terms of flame spread, fuel contribution, and smoke development during a 10-minute exposure and are recorded as a ratio with asbestos-cement board 0 and red oak flooring 100.

II. DESCRIPTION OF MATERIALS

On June 13, 1979, one 27-in. x 47-ft 7-in. (0.686 x 14.488-m) roll of embossed fabric-backed vinyl wallcovering was received from the Sponsor. The wallcovering was identified as: 12-oz Type I vinyl wallcovering, P/C scrim (20-644) backing, C-133A/C-211, PON C-8811. Patterns: Alpine, Dane, Embassy, Giachi, Nordica Stripe, Norfolk,

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Pioneer, Random Dye, Saturn, and Taiweave. It had a thickness of 0.021 in. (0.533 mm) and a unit weight of 7.667 oz/yd² (0.260 kg/m²). The wallcovering was manufactured on May 24, 1979.

III. PREPARATION AND CONDITIONING OF TEST SPECIMEN

The 21-in. x 25-ft (0.533 x 7.625-m) specimen was prepared using four 21 x 75-in. (0.533 x 1.91-m) or equivalent sections of wallcovering bonded to 1/4-in. (6.35-mm) asbestos-cement board with Fashion GT-12 adhesive. The adhesive was applied to the asbestos-cement board in accordance with the manufacturers' recommended procedure, and the wallcovering was applied to the smooth adhesive-coated surface of the asbestos-cement board. All wrinkles were carefully worked to the edge to assure a firm bond.

The specimen was conditioned for 13 days in an atmosphere maintained between 68 and 78°F (20 and 26°C) temperature and 45- to 55-percent relative humidity.

IV. TEST PROCEDURE

The test was conducted on July 9, 1979. Reference data were obtained and furnace operation checked by conducting a 10-minute test with asbestos-cement board on the day of the test and by periodic tests with red oak flooring. These tests provided the 0 and 100 references for flame spread, fuel contribution, and smoke density. 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 was tested in accordance with the standard procedure.

V. TEST RESULTS

The test results were calculated on the basis of observed flame travel and the measurement of areas under the recorder curves of furnace temperature and smoke density (see Classification Table). To allow for

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possible variations in results due to limitations of the test method, the numerical results were adjusted to the nearest figure divisible by 5.

Recorded data for flame spread, fuel contribution, and smoke density of the specimen are shown in the figures at the end of this report as a solid line on each graph.

CLASSIFICATION TABLE

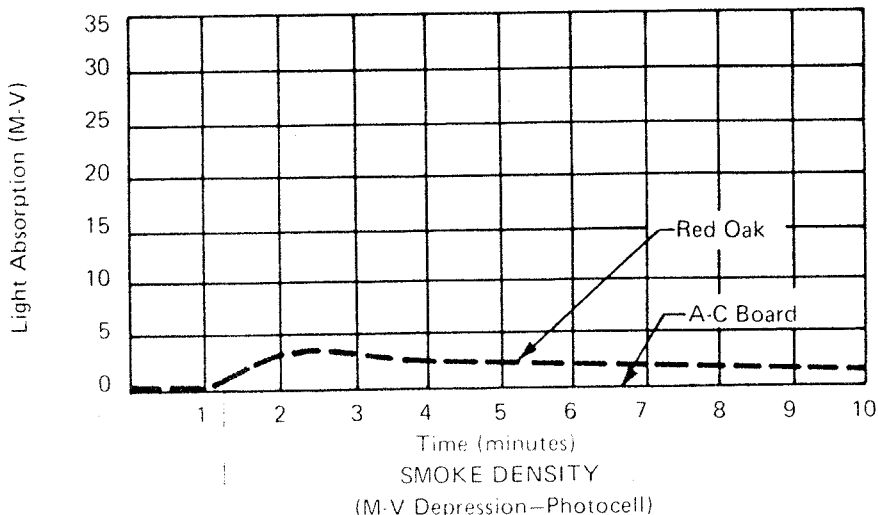
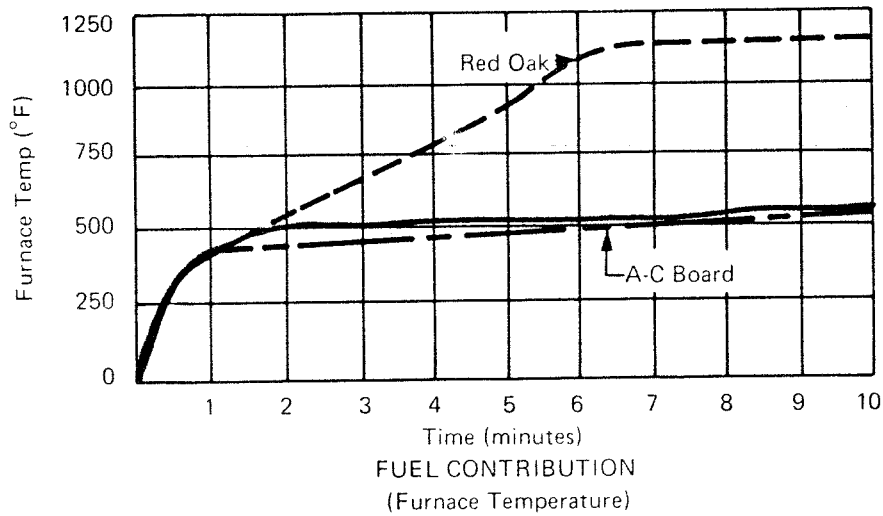
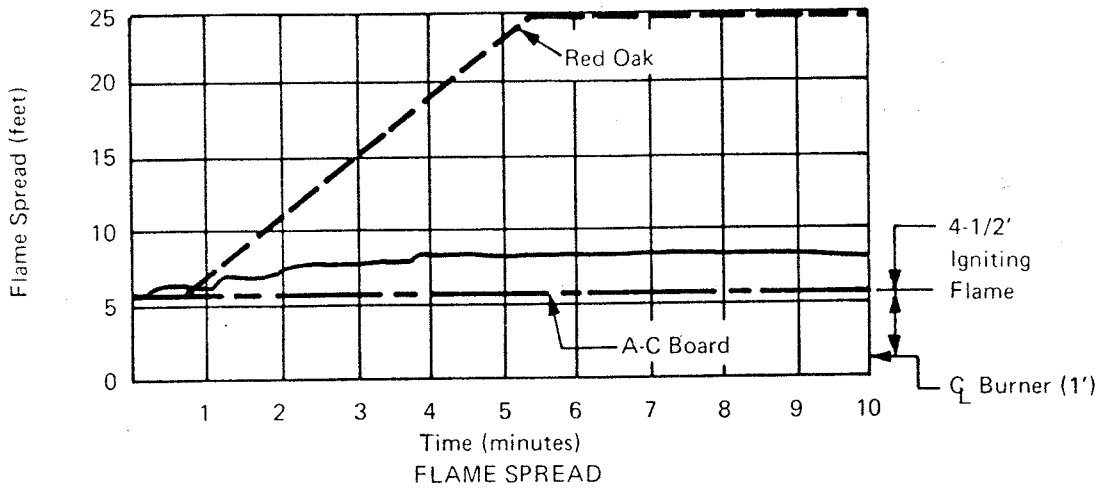
Test Specimen	Flame Spread		
	Rate E84-77a/E84-75	Fuel Contribution	Smoke Density
Asbestos-Cement Board	0	0	0
Red Oak Flooring	100	100	100
Embossed Vinyl Fabric WallCovering, FE 8717B, Tai Weave Pattern, Sand Color, PON C8811	10/10	0	0

VI. OBSERVATIONS DURING AND AFTER TEST

The observations made during and after the test are summarized as follows: Discoloration began at 14 seconds, with large blisters forming at 16 seconds that ignited at 18 seconds. Surface distortion and cracks appeared in the vinyl at 1:28 minutes, with extensive peeling at 1:30 minutes. Steady ignition occurred at 1:32 minutes; no afterflame was seen.

The wallcovering specimen was consumed to 4 ft (1.220 m), with char through to 7-1/2 ft (2.288 m) and surface char extending to 10 ft (3.050 m). Discoloration extended to the end of the specimen, 25 ft (7.625 m).

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SURFACE BURNING CHARACTERISTICS OF AN EMBOSSED VINYL FABRIC WALLCOVERING, FE 8717B, TAI WEAVE PATTERN, SAND COLOR, PON C8811

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