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Fire Research Section

INVESTIGATION OF SURFACE BURNING CHARACTERISTICS OF A FLEXIBLE WOOD VENEER WALL COVERING BONDED TO ASBESTOS-CEMENT BOARD

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Project No. 3-3184-235
Final Report

Prepared for

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March 30, 1972

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

VI. OBSERVATIONS DURING AND AFTER TEST

The observations made during and after the test are summarized as follows:

Discoloration and blistering were observed at 15 seconds. Ignition occurred at 22 seconds and blisters split open at 45 seconds above the burners. The flame front advanced two feet to 7-1/2' at 2-1/2 minutes and receded slightly at three minutes. There was no afterflaming.

The wall covering was consumed to 5', charred through to 6', and charred on the surface to 9-1/2'. Some of the wood veneer had loosened from the fabric backing to 9'.

IV. TEST PROCEDURE

The test was conducted on March 29, 1972. 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. This provided the zero and 100 references for flame spread, fuel contributed, and smoke density. Ignition over the burners was noted 56 seconds after the start of the test in the most recent calibration with red oak flooring. The specimen to be evaluated was tested in accordance with the standard procedure.

V. TEST RESULTS

The test results, calculated on the basis of observed flame travel and the areas under the recorder curves of furnace temperature and smoke density, are presented in the following table. In recognition of possible variations in results due to limitations of the test method, the numerical results are adjusted to the nearest figure divisible by 5.

CLASSIFICATION TABLE

Test Specimen	Flame Spread Rate	Fuel Contributed Factor	Smoke Density Factor
Asbestos-Cement Board	0	0	0
Red Oak Flooring	100	100	100
Es-Ar Wood/Curvwood Wallcovering	10	0	0

and smoke developed during a 10-minute exposure and are expressed as a ratio with asbestos-cement board zero and red oak flooring 100.

II. DESCRIPTION OF MATERIALS

On March 3, 1972 three 21" x 9'1-5/8" pieces of a thin wood veneer faced fabric and one can of adhesive was received from the Sponsor. The material was described as "Es-Ar Wood/Curvwood, American Walnut Flexible Wood Veneer Wall Covering." The average thickness was 17.2 mils and the unit weight was 1.215 oz/sq ft. The can of gel adhesive weighed 9 lb 10 oz gross and was unmarked but reported to be Adhesive No. 130. Instructions for mounting the flexible wood veneer wall covering were provided by the Sponsor.

III. PREPARATION AND CONDITIONING OF TEST SPECIMEN

The 21" x 25' specimen was prepared using four 21" x 75" panels of 1/4" asbestos-cement board. The smooth side was sized with a gel-water mix according to instructions and also coated with a light coating of shellac to eliminate hot spots. The adhesive was applied to the fabric backing and on the shellaced asbestos-cement board panels with a stiff bristled brush. The materials were joined and all air pockets worked to the panel edge.

The specimen was placed in the conditioning room where the atmosphere is maintained at between 70° and 75°F temperature and 35 to 40 percent relative humidity.

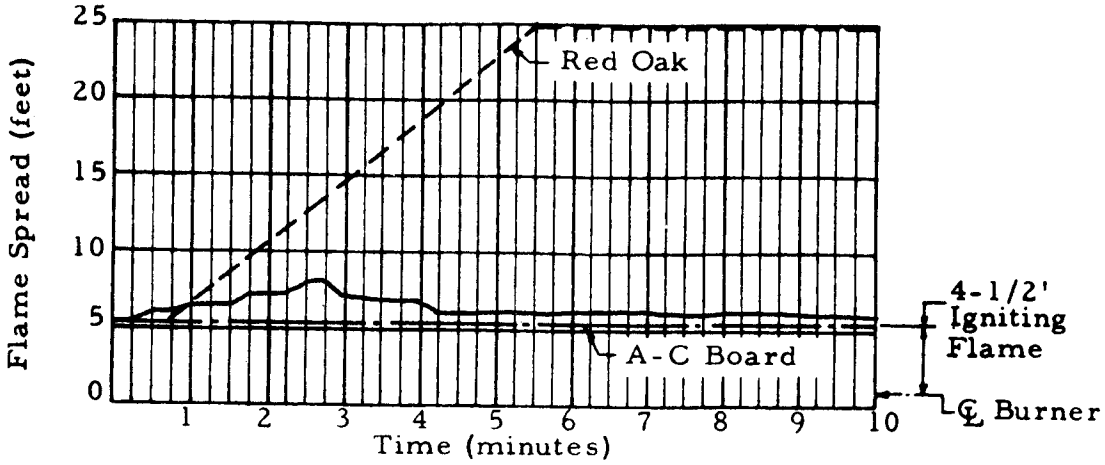
I. INTRODUCTION

This report is a presentation of the results of a flame spread tunnel test on a flexible wood veneer wall covering submitted for evaluation by S. R. Wood, Inc. of Louisville, Kentucky, under the trade name Es-Ar Wood. The Sponsor reported that the material is also marketed by Coerver Industries, Inc., 3311 Elm Street, Dallas, Texas 75226, under the trade name Curvwood.

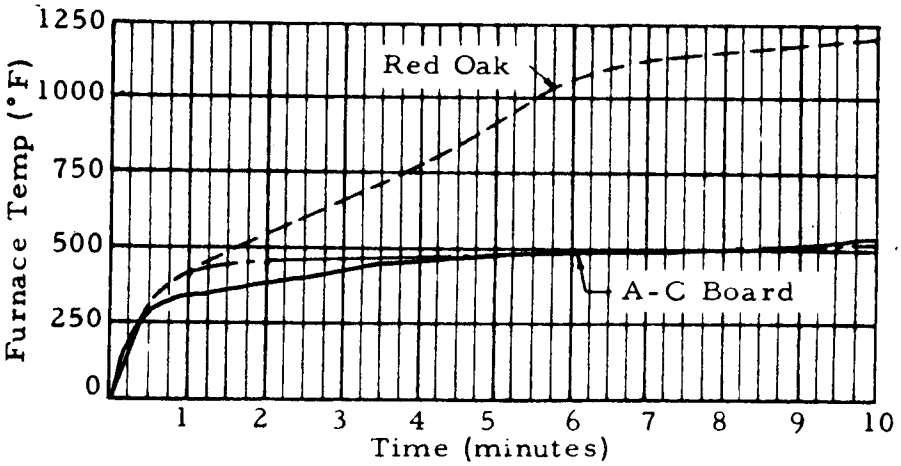
The report contains a description of the material, the preparation and conditioning of the specimen, the test procedure, and the test results. The results presented apply only to the specimen tested and not to the entire production of this or similar material. These reflect performance in the manner tested - not necessarily 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 E84-70, "Standard Method of Test for Surface Burning Characteristics of Building Materials." This test method is identical to that specified in ANS No. 2.5, NFPA No. 255, UL No. 723 and UBC No. 42-1.

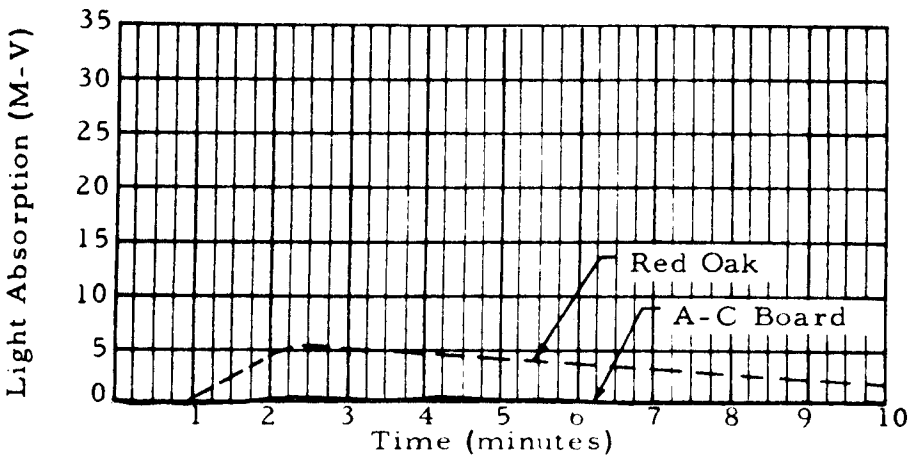
The purpose of the test is to evaluate performance of a material in relation to that of asbestos-cement board and red oak flooring under similar fire exposure. The results are in terms of flame spread, fuel contributed



FLAME SPREAD



FUEL CONTRIBUTION
(Furnace Temperature)



SMOKE DENSITY
(M-V Depression - Photocell)

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ES AR WOOD/CURVWOOD