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In Supplement No. 2 to the National Building Code of Canada[1] all low-density wood fibreboard finish materials, raw or coated, are assigned a flame-spread classification (by the ASTM Tunnel Furnace Method) of "over 150." Supplement No. 5 to the Code[2] as revised in December 1968, requires that "interior finishes, except for doors, shall have a flame spread rating of not more than 150."

The flame-spread characteristics of a few factory-coated fibreboard wall panels and ceiling tiles from two sources, as determined by the Tunnel Furnace (ASTM E84-68), the Radiant Panel (ASTM E162-67) and the Pittsburgh Corning Methods have been published by the Division of Building Research.[3] The factory-coated products, including acoustic ceiling tiles with so-called "random" perforations, had ASTM E84 flame-spread ratings of 90 or less, while the two unfinished $\frac{1}{2}$-in. panel materials had ratings of 214 and 151, respectively.

To broaden the available information on fibreboard materials, additional tests have been conducted and the correlation of the results among the three flame-spread test methods has been examined more thoroughly. This recent work is the subject of this brief note.

The test samples included typical factory-coated products of other manufacturers as well as fibreboards finished with conventional (non-fire-retardant) latex- and solvent-based paints. The results are given in Table I.

The reader is referred to Fire Study No. 22[3] for details of the test methods and calculations in question. The sampling plan that was used in the earlier work was followed in these tests now reported, but the number of specimens for the Radiant Panel Test was reduced from eight to four, where 4 x 8 panels were concerned, i.e., to two specimens from each panel. In the case of the Pittsburgh Corning test, six specimens were tested in the case of the large panels and three in the case of ceiling tiles.

DISCUSSION

In the earlier work on factory-coated fibreboard panels and tiles the agreement among the flame-spread ratings by the three methods was reasonably satisfactory. The present study presents a less encouraging picture, and suggests that the results of the two small-scale tests on fibreboard finish materials must be accepted with caution.

Based on the ASTM E84 results, all coated fibreboards and tiles tested to date, whether factory-finished or painted with conventional latex- or solvent-based systems, will meet the requirements of Supplement No. 5 without difficulty.

MATERIALS AND TREATMENT

Sample No.	
	Fibreboard T (1/2-in. thickness, 16.5 lb/cu ft)
96	Raw board (later production than Sample No. 59, Fire Study No. 22)
97	Two roller coats of light green satin latex (CGSB 1-GP-100d)
98	One roller coat of white primer-sealer (CGSB 1-GP-119b) and one coat of light green semi-gloss interior alkyd (CGSB 1-GP-57d)
99	One coat of white primer-sealer (CGSB 1-GP-119b) and one coat of light green gloss exterior alkyd (CGSB 1-GP-60d)
100	One heavy roller coat of light green flat alkyd (CGSB 1-GP-118a)
	Factory-coated 4 x 8 ft Panels, White (CGSB 11-GP-2, Class 1)
101	Producer T (1/2 in.) (later production than Sample No. 58, Fire Study No. 22)
102	Producer B (7/16 in.)
103	Producer D (7/16 in.)

Plain Factory-coated White Ceiling Tile, 1/2-in. T & G (CGSB 11-GP-2, Type D, Class 1)

104 Producer T (later production than Sample No. 92, Fire Study No. 22)

105 Producer B

106 Producer D

107 Producer J

Factory-coated Acoustic Tile, 1/2-in. T & G "Random" Pattern

108 Producer T

109 Producer J

REFERENCES

[1] Fire Performance Ratings 1965. National Research Council of Canada, Associate Committee on the National Building Code of Canada. Supplement No. 2 to the National Building Code of Canada, 1965, Ottawa. NRC No. 8330.

[2] Residential Standards, Canada (revised Dec. 1968). National Research Council of Canada, Associate Committee on the National Building Code of Canada. Supplement No. 5 to the National Building Code of Canada, Ottawa. NRC No. 8251. (Section 4, "Fire Protection," p. 24).

[3] Rose, A. Comparison of flame-spread ratings by radiant panel, tunnel furnace, and Pittsburgh Corning apparatus. National Research Council of Canada, Division of Building Research, Fire Study No. 22, Ottawa, June 1969. NRC No. 10788.

TABLE I

FLAME-SPREAD TESTS ON FIBREBOARD FINISH MATERIALS

Sample No.	E162 Q	Radiant I_{s1}	Panel I_{s2}	Test I_{s3}	Pittsburgh Corning 30/30 Apparatus FSR	E84 FSC	Tunnel FC	Furnace SD	Furnace IT
96	16.81	364	364	357	> 140	142	129	51	17
97	6.46	84.8	84.7	81.8	86	76	54	44	25
98	8.85	80.4	80.4	80.3	54	90	49	65	15
99	9.79	133	133	130	65	70	43	49	13
100	5.00	no flame front			35	75	43	65	52
101	11.22	134	133	129	64	76	52	17	30
102	10.14	120	120	117	78	77	56	23	30
103	8.54	76.5	76.5	74.7	65	49	37	14	30
104	10.78	94.6	94.6	91.9	79	94	88	36	40
105	5.56	48.5	43.6	41.8	39	76	58	6	40
106	7.99	56.4	56.4	54.2	55	71	48	28	60
107*	8.75	56.6	56.6	54.7	77	74	52	21	56
108*	15.24	152	149	144	80	90	100	26	50
109*	13.40	104	104	100	91	85	78	25	43

* E84 values from Fire Study No. 22

Abbreviations Used

ASTM E162-67	Q	heat evolution factor
	I_s	flame spread index
Pittsburgh Corning 30/30 Apparatus	FSR	flame spread rating
ASTM E84-68	FSC	flame spread classification
	FC	fuel contributed
	SD	smoke density
	IT	ignition time, sec.