Flame Spread and Smoke Developed Ratings for Wood Structural Panels

ASTM E84[i] is used to determine a product's tendency to permit the travel of a flame along its surface (flame spread) as well as provide a measure of how much smoke is developed when it burns (smoke developed). A gas flame is applied to the underside of products at one end of a 25-foot-long tunnel. The rate of flame spread and the amount of smoke developed are measured. Each is given a separate rating, with the following standardized scale being used for both. The higher the flame spread rating, the higher the tendency for the material being tested to spread flames during a fire. Similarly, a higher smoke developed rating means that a material tends to generate more smoke when subjected to fire. Cement asbestos is assigned flame spread and smoke-developed ratings of zero, while red oak is rated at 100 for both.

Most untreated wood, including wood-based structural-use panels, falls into the Class III (or C) rating for both flame spread and smoke developed. Panel manufacturers that have tested their product are often listed in the Underwriters Laboratories Building Materials Directory. Contact a panel manufacturer directly to get more information on the flame spread or smoke developed rating of their particular product.

Rating Classes	
0 to 25	Class I (or A)
26 to 75	Class II (or B)
76 to 200	Class III (or C)
201 to 500	Class IV (or D)

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[i] ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, American Society for Testing and Materials