



BALTIMORE

# spec NEWS

# Felt Tips

06300  
Sep 1975  
Issue 32

## FIRE RETARDANT WOOD TREATMENT

Fire-resistant wood products are pressure impregnated with mineral salts that react at temperatures below those of the ignition points of untreated woods. As fire temperatures, fed from an outside source, increase, these salts in the treated wood emit noncombustible gases and water vapor instead of flammable gases. As a result, a protective and insulating carbon char is developed on the surface of the wood so that flame spread and smoke density are reduced.

Codes segregate interior woodwork into two categories: Interior trim and interior finish.

Interior trim refers to wood trim used for baseboards, railings, chair rails, picture and cornice mouldings, and door and window trim, except that occurring around either fire door or fire window assemblies. In all of the "Model" codes, interior trim may have a flame spread rating of 0-200. The only variations to this are that the BOCA Code restricts interior trim to a 0-75 rating in areas where interior finish is required to have a 0-25 flame spread rating, and the BOCA Code has an additional qualification that the trim may not exceed 12" in width or it then becomes interior finish. The significant point in the above is that the 0-200 rating is obtainable in many untreated wood species.

Interior finish is defined by all of the model codes as wall covering, paneling, wainscoting, ceiling materials, decorative wood items, (other than interior trim) and acoustical wall or ceiling members. Interior finish does not include doors, windows, cabinets, flooring, floor covering, paints or wallpaper. Certain of these items, such as doors, and non-wood components may be subject to other code requirements. Cabinets and casework are not considered as "Interior Finish" and thus, within the context of these model codes, their use is not subject to any restrictions.

A substantial portion of interior finish is in the form of wall paneling which is usually plywood or a veneered product.

- (1) Final flame spread rating is dependent on the density of the face veneer species being used. The lower the density the lower the rating. (Density ratings of all foreign and domestic species is available from the major plywood manufacturers.)
- (2) To attain a flame spread rating of not more than 200, untreated veneer core plywood or type 1B2 untreated particle board core plywood having a face veneer of 47 pounds per cubic foot density or less may be used. This density rating includes all domestic species and most foreign species.
- (3) Lower flame spread classifications can be achieved by use of the following:
  - 25 flame spread rating: Treated veneer core using 31.2 pounds or less veneer density.
  - Treated particle board core using 42.7 pounds or less veneer density.
  - 25-50 flame spread rating: Treated veneer core using 43.7 pounds or less veneer density.
  - Treated particle board core using 58.6 pounds or less veneer density.
  - 50-75 flame spread rating: Treated (veneer, particle board, or lumber) cores with no species density limitation.

None of the codes attempt to control or regulate the type of paint coating applied to wood or other surfaces. While this is an apparent inconsistency, it should be noted that some finishes, notably, nitrocellulose lacquers, do increase flame spread ratings. On materials requiring a Class I or Class II rating, it is recommended that a conversion varnish or a similar catalyzed finish be used. These are neutral in flame spread contribution, are also superior in performance characteristics. Since their use requires controlled conditions, they must almost always be applied in the plant.

FLAME SPREAD RATINGS

INTERIOR FINISH REQUIREMENTS OF THE 5 MODEL CODES

AREA WITHIN BUILDING	BUILDING TYPE	BOCA [ ]	NIPA*	ICBO**	NATIONAL*	SBCC	LOCAL CODE
VERTICAL EXITS	Assembly Buildings, Schools, Institutional	0-25	0-25	C-25	0-75	0-75	
VERTICAL EXITS	All Other Buildings	0-25	0-75	0-25	0-75	0-75	
CORRIDORS	Assembly, Educational, Institutional	0-25 Inst. 0-75	0-25	0-75	0-75	0-200	0-75 Restrained Institutional
CORRIDORS	Legitimate Theatres, Night Clubs	0-25	0-25	0-75	0-75	0-200	
CORRIDORS	1-Story — Assembly, Educational, Terminals, Restaurants, Churches	0-200	0-25	0-75	0-75	0-200	
CORRIDORS	Apartments	0-75	0-75	0-75	0-75	0-200	
CORRIDORS	If Corridor Ceiling 20' or higher — Assembly, Educational, Churches	0-200	0-25	0-75	0-75	0-200	
CORRIDORS	Offices, Hotels	0-75	0-75	0-75	0-75	0-200	
EDUCATIONAL	Classrooms	0-200	0-75	0-225	0-200	0-200	
EDUCATIONAL	Rooms Over 4 Beds	0-25	0-25	0-75	0-75	0-200	
EDUCATIONAL	Rooms Under 4 Beds	0-25	0-75	0-75	0-75	0-200	
EDUCATIONAL	Rooms with Persons Restrained	0-25	0-25	0-25	0-75	0-75	
EDUCATIONAL	Rooms — Administrative	0-200	0-75	0-75	0-75	0-200	
EDUCATIONAL	Dormitories, Hotels	0-200	0-75	0-225	0-200, Note 3	0-200	
EDUCATIONAL	Mercantile, Office, Schools, Churches	0-200	0-75	0-225	0-75	0-200	
EDUCATIONAL	Institutional	0-75	0-200, Note 3	0-75	0-75	0-200	
EDUCATIONAL	Theatres, Night Clubs	0-75	0-75	0-225	0-200, Note 3	0-200	
MERCANTILE	Over 3,000 sq. ft. gross area and up to 3 floor levels	0-200	Ceiling 0-75 Walls 0-200 Note 5	0-225	0-75	0-200	
MERCANTILE	Under 3,000 sq. ft. gross area and on street level	0-200	0-200 Incl. Exits	0-225	0-75	0-200	
1 & 2 FAMILY DWELLINGS		Over 200	0-200 Incl. Exits	Over 225	200-500	200-500	

INTERIOR TRIM — All trim, picture moulds, chair rails, base, hand rails, doors, window trim (except fire doors and windows) may be wood — requirement is 0-25 and ICBO 0-225. CASEWORK is not classified as interior finish in any of these codes. All areas may be 1 class lower if sprinkler system is used. In general, interior finish used in area or building types not falling in above categories may have flame spreads above 200. Up to 1,000 sq. ft. of paneling (1 0-200 flame spread material may be used in fire level lobbies if applied to non-combustible walls. \*\* Except for Institutional Building and Vertical Exits, fire high Wainscoting having 0-25 rating may be used and lockboards may comprise 5% of the area.

\* 10% of any area which consists of the combined total area of wall and ceiling may be 0-200. This 10% includes the area of unobscured doors, interior trim and interior finish and ceiling area covered with 1/4" or thicker finish. For example, if a room has a floor plan of 20' x 40' and ceiling is 10' high, the unobscured doors, interior trim, and trim over ceiling is 2,000 sq. ft. of unobscured area. Note 1: HOCA wall allow up to 2,000 sq. ft. of unobscured area. Note 2: NIPA Open Plan Schools require 0-75 interior finish. All other schools allow 0-200. Movable partitions not over 7'-0" high may be 0-200. Note 3: 0-200 Rating if room has 300 person capacity or less; 0-75 if room capacity is over 300 persons.

Note 4: 0-25 Rating is required in areas of building 75'-0" or more above grade if "low" fire-retardant materials are used. If less than 1,500 sq. ft. of 0-200 allowed. If below 75'-0", 0-200 also allowed in area over 1,500 sq. ft. Note 5: In this category ceilings are restricted to 0-75. Walls may be 0-200. Note 6: Building Materials List — Anyone concerned with the use of Fire Retardant Materials, should have on hand a current copy of the "Underwriters Laboratories' Building Materials List" which costs \$1.00 per copy and may be obtained from 237 East Ohio Street, Milwaukee, Ill. 60611, 3232 West Wisconsin Road, Milwaukee, U. S. A. N. Y. 11746, or 1625 Scott Blvd., Santa Clara, Cal. 95053

ARCHITECTURAL WOODWORK INSTITUTE: Chesterfield House, Suite A; 5055 S. Chesterfield Road  
Arlington, Virginia 22206