

FIRE-RETARDANT COATINGS

Any wood product that has been only coated on the surface (or has been impregnated using some method other than pressure-impregnation in accordance with the CAN/CSA-O80 Series of Standards) does not meet the NBC definition of “fire-retardant treated wood”. As a result, in Canada, a more appropriate term for wood products using fire-retardant surface coatings is “fire-retardant coated wood” (FRCW).

Fire-retardant coatings are used to reduce the surface flame-spread rating. These coatings are generally used for architectural woodwork applications where appearance is important.

FRCW can be used for interior finish in noncombustible buildings under the NBC except where the flame-spread rating limits apply not only to exposed surfaces but also to surfaces that may be exposed by cutting through the product in any direction. FRTW products are excluded from these requirements, while products protected by fire-retardant coatings are not. This recognizes the permanency of the pressure-impregnated fire-retardant treatments.

Fire-retardant coatings are available in clear and white finishes. Where a solid colour is required, one or two coats of alkyd paint can be applied over the clear or white fire-retardant coating with only a small increase in the flame-spread rating. Check with manufacturers of specific products for more information.

The reaction of these coatings to fire and the actual mechanism of protection varies according to the composition of the coating. Some of the basic mechanisms of protection are as follows:

- Insulation: thick coatings that insulate the treated material against high temperatures.
- Crust formation: the coating melts under the action of heat, covering the treated material with an impermeable insulating crust.
- Heat absorption: the coating absorbs the heat and maintains the temperature of the protected surface below its ignition temperature.
- Intumescent insulation: the coating swells when heated to form a thick insulating layer that delays the spread of flame and the transmission of heat to the protected surface.

Like FRTW products, FRCW can be used in areas where untreated wood products cannot be used because of their reduced flames-spread rating. However, many fire-retardant coatings are not suitable for use in high humidity or exterior applications. Fire-retardant coatings are manufactured as proprietary products. For specifications on rate of coverage and tested properties, a manufacturer should be consulted.

These products can be applied by brush, roller, or sprayer. Because fire-retardant coatings are usually high viscosity (thick) liquids, they should be maintained at room temperature, especially when spray-applied, to ease application. Where appearance is important, two light coats, to reduce sagging, are superior to one heavy coat and usually provide the required flame-spread characteristics as long as total application thickness is achieved.

The image shown below is a photo of the attic of a church. Trusses in the attic spaces were fire-stopped and coated with a fire-retardant paint. This avoided the cost of installing sprinklers in the concealed spaces.

