

FLAME-SPREAD RATING

FRTW products are used in many interior applications, such as millwork and panelling, where the code requirements for flame spread are most restrictive. The Canadian building codes also permit the use of fire-retardant treated lumber and plywood for roof and floor trusses, beams, interior roof decks, and for interior load-bearing and non-load bearing partitions.

FRTW is suitable for indoor applications where the humidity is not expected to exceed 60 percent for long periods of time. FRTW should be protected from excessive moisture and weather during transit, storage, and erection. While some wetting might be expected during installation, frequent wetting or ponding is unacceptable. In general, FRTW requires more care in installation than would normally be considered sufficient good practice for non-FRTW products.

FRTW, as defined and specified in the NBC, must have a flame-spread rating of not more than 25. It therefore qualifies as an interior finish for any application since the most restrictive flame-spread rating is 25. FRTW must be identified by a label (Figure 1, below) from an independent testing laboratory or certification organization which indicates that the necessary tests were performed and production controls maintained. This performance test can be carried out only by an accredited third-party testing agency.

For many wood species, and particularly plywood and lumber in sizes common to light-frame construction, FRTW treatment results in chemical retentions high enough to obtain a flame-spread rating of 25 or less. It should be noted that the chemicals will not usually penetrate the entire wood member, as refusal will usually occur when the chemicals have penetrated approximately 13 mm from the outer surface of the product.

The actual flame-spread rating of treated lumber or plywood depends on the fire-retardant chemicals used and the amount of chemicals retained in the wood, which depends on several factors, including wood species.

Commonly used chemicals are proprietary mixtures which are free of halogens, sulphates, ammonium phosphate and formaldehyde. These provide superior performance characteristics over previous formulations and lower corrosivity to metal fasteners. These water-soluble chemicals are effective in reducing flame spread, and through careful proportioning succeed in reducing smoke development and afterglow.

To dispel any myths that may still exist, it should be understood that the fire-retardant treatment does not make the wood noncombustible. This idea stems from certain earlier versions of building codes which equated a 25 surface flame-spread rating to noncombustibility. The NBC uses a different method to determine "noncombustibility" (CAN/ULC-S135, *Standard Method of Test for Determination of Degrees of Combustibility of Building Materials Using an Oxygen Consumption Calorimeter (Cone Calorimeter)*), and FRTW does not meet the noncombustibility criteria under that method.

The use of a fire-retardant treatment does not prevent ignition or charring. The rate of burn through fire-retardant treated wood is approximately the same as that for untreated wood, even though ignition is more difficult and the rate at which flame travels across its surface (flame-spread rating) has been reduced.

UNDERWRITERS' LABORATORIES OF CANADA LISTED
ULC TREATED LUMBER
 FORM 100 ISSUE NO. 7989 C

CLASSIFIED AS TO SURFACE BURNING CHARACTERISTICS IN ACCORDANCE WITH THE STANDARD CAN 4-S102.
 FOR COMMENTARY ON METHOD OF REPORTING FLAME SPREAD RATING SEE ULC LIST OF EQUIPMENT AND MATERIALS, VOL. II, UNDER GUIDE NO. 40 U8.

CLASSIFICATION OR RATING

MATERIAL DETAILS	FLAME SPREAD FSC ₇₅ (GWL)	SMOKE DEVELOPED	FUEL CONTRIBUTED
SOUTHERN YELLOW PINE*	20 (15)	10	5
DOUGLAS FIR*	15 (15)	0	0
REDWOOD*	10 (5)	5	0
WHITE PINE*	10 (5)	20	0
HEMLOCK/FIR*	15 (5)	20	0
WESTERN RED CEDAR*	20 (10)	5-35	15
MAPLE	55-80 (30-40)	100-130	70-35
RED OAK	40 (20-30)	35-80	15-25
SPRUCE PINE FIR INCISED*	20 (15)	15	10-25

* IN TEST OF 30 MIN. DURATION, FLAME SPREAD NOT OVER EQUIVALENT OF 25 AND NO EVIDENCE OF SIGNIFICANT PROGRESSIVE COMBUSTION
 ALL SPECIES MAY BE SURFACED 1/32 INCH FOR COSMETIC PURPOSES.

UNDERWRITERS' LABORATORIES OF CANADA LISTED
ULC TREATED PLYWOOD
 FORM 50 ISSUE NO. 8007 C

CLASSIFIED AS TO SURFACE BURNING CHARACTERISTICS IN ACCORDANCE WITH THE STANDARD CAN 4-S102.
 FOR COMMENTARY ON METHOD OF REPORTING FLAME SPREAD RATING SEE ULC LIST OF EQUIPMENT AND MATERIALS, VOL. II, UNDER GUIDE NO. 40 U8.

CLASSIFICATION OR RATING

MATERIAL DETAILS	FLAME SPREAD FSC ₇₅ (GWL)	SMOKE DEVELOPED	FUEL CONTRIBUTED
SOUTHERN YELLOW PINE *	20 (15)	10	0
DOUGLAS FIR *	15 (15)	15	5
REDWOOD *	10 (5)	10	5

* IN TEST OF 30 MIN. DURATION, FLAME SPREAD NOT OVER EQUIVALENT OF 25 AND NO EVIDENCE OF SIGNIFICANT PROGRESSIVE COMBUSTION.

Interior Type

Fire-Retardant Treated Wood

Manufacturer's name, address, and product name

Figure 1. Sample labels/markings from one independent certification organization for fire-retardant-treated lumber and plywood.