



D-BLAZE® is a superior fire retardant for the pressure treatment of wood products. It is a unique formulation of fire retardant chemicals, developed by Chemical Specialties, Inc., for interior use. It effectively increases the safety of wood products in applications where protection from fire is critical to human life.

D-BLAZE treated lumber and plywood meets Underwriters Laboratories classification requirements for a flame spread and smoke development rating of 25 or less in tests of 30 minutes duration. Further, tests show D-BLAZE to have exceptionally low hygroscopic and corrosion properties which makes it ideal for interior uses such as floor and roof trusses, roof decking, architectural mill work, paneling, load-bearing and non-loadbearing partitions.

STRUCTURAL STRENGTH

D-BLAZE fire retardant treated lumber and plywood have been carefully tested under high temperatures and humid conditions.

HYGROSCOPICITY

D-BLAZE is a sulfate and halogen free formulation. The surface of the material will remain dry in applications where other fire retardant treated wood materials will become damp and wet. It will perform effectively in relative humidities as high as 95%. D-BLAZE meets or exceeds AWWA Standards C-20 and C-27 for an Interior Type A fire retardant.

CORROSIVITY

D-BLAZE has excellent non-corrosive properties (see attached chart). Tests show D-BLAZE will give the same surface finish and integrity to fasteners as untreated wood in the same environment.

BLOOMING

D-BLAZE treatment leaves wood a clear, natural color free from unsightly surface bloom.

PAINTING AND FINISHING

D-BLAZE wood can be painted or stained. Material must be dry after treatment and the surfaces clean. Oil based finishes are recommended.

DRYING

All D-BLAZE lumber and plywood must be dried after treatment to a moisture content of 19% or less for lumber and 15% for plywood. This assures the material will meet code requirements and help in dimensional stability, paintability and eliminates a possible source of corrosion.

BUILDING CODES

D-BLAZE meets all the requirements of the new International Building Code as well as the four major building codes. It can be used in the codes as an alternate to "Non-Combustible" materials in many applications.

INSURANCE RATES

D-BLAZE meets the requirements of insurance rating bureaus and enables buildings to qualify for lower insurance rates.



QUESTIONS & ANSWERS

HAS D-BLAZE BEEN HIGH-TEMPERATURE TESTED?

Yes! D-Blaze lumber has been high-temperature tested per industry standards at 80°F and 150°F and 75% RH. D-Blaze plywood has been tested at 170°F and 90% RH. See D-Blaze brochures and warranty for Strength Design Factors to use.

HAS D-BLAZE EVER HAD A STRUCTURAL FAILURE?

D-Blaze has never had structural or any other kind of failure. Due to its excellent performance in the market place and in accelerated exposure testing, D-Blaze has never required a formulation change.

DOES D-BLAZE HAVE A WARRANTY?

Yes! D-Blaze material has a 50-year Limited Warranty covering "the reasonable cost of repair of that portion of the structure damaged as a direct result of the failure of D-Blaze."

DOES D-BLAZE MEET THE MODEL BUILDING CODES?

Yes! D-Blaze is approved by ICC-ES-Legacy Report 562.

IS D-BLAZE A TYPE-A FIRE RETARDANT?

Yes! D-Blaze has been tested and exceeds AWPAC20 and C27 (ASTM D3201 at 92 ± 2 percent relative humidity).

CAN D-BLAZE BE USED FOR ROOF SHINGLES OR EXTERIOR SIDING?

D-Blaze is an interior fire retardant and cannot be used when it will be exposed directly to rain or continual wetting.

CAN D-BLAZE BE GLUED

Yes. The material must be dry, 19% MC for lumber 15% MC for plywood. The surfaces should be clean and free of all foreign material. A light brushing or sanding may be necessary. A solvent-based contact cement works best. Water-based glues should be tested before use.

CAN D-BLAZE BE PAINTED OR STAINED?

Yes. Surfaces must be clean. A light sanding or brushing is recommended. Material must be dry. Follow paint manufacturer instructions. Use only high quality stains and paints.

DOES D-BLAZE MEET A ONE-HOUR FIRE RATING?

No fire retardant treated wood meets a one-hour rating. D-Blaze studs, plywood, etc. are used in wall and roof assemblies that have one to four hour classifications. However, fire retardant treated material itself does not qualify for an hourly rating.

CAN D-BLAZE BE MILLED AFTER TREATMENT?

D-Blaze has received Underwriter's Laboratories highest classification possible: "FRS" on eighteen species of lumber and four species of plywood. This classification allows light sanding, end cutting, including diagonal end cutting and boring of holes after treatment.

Once in a great while, paneling or molding requires milling after treatment. UL has a special burn test, inspection service and classification for it. Besides the burn tests, the company doing the milling after treatment must separately contract with UL. Each time a company mills after treatment, a UL inspector must be present to inspect the material before treatment and re-label the material after treatment. Due to the lack of interest and the high cost of classification, Chemical Specialties, Inc. has not tested any species for milling after treatment. However, if the demand is sufficient, CSI would seriously consider it.

WHAT IF D-BLAZE MATERIAL GETS WET DURING SHIPPING OR STORAGE AT THE JOB SITE?

D-Blaze fire-retardant treated wood products are for use under continuously dry conditions. The treated wood products are not permitted in areas exposed to weather or wetting. Exposure to precipitation during shipping, storage or installation shall be avoided. If the treated wood products do become wet, they must be replaced or permitted to dry to a maximum 19 percent moisture content (MC) for lumber and 15 percent MC for plywood prior to covering or enclosure by wall board or other construction materials.

WILL D-BLAZE STOP TERMITE AND DECAY ATTACK?

To determine effectiveness of D-Blaze fire retardant treatment Chemical Specialties, Inc. retained the Mississippi Forest Products' Utilization Laboratory, Mississippi State University, to conduct tests to determine if wood properly pressure-treated with D-Blaze fire retardant chemicals would provide protection against termite and decay attack. Mississippi Forest Products' Utilization Laboratory tested D-Blaze treated wood material using ASTM D3345-74 and D1413 standard test procedures. The results of these tests showed that the D-Blaze treated material tested was effective in protecting the wood from attack of termites and decay for interior above ground use.



FIELD FRAMING OF D-BLAZE® FIRE RETARDANT TREATED WOOD

To ensure that D-Blaze® treated wood continues to conform to the Underwriters Laboratories Inc. label requirements following on-site machining during framing, please note the following:

It **IS** acceptable to:

- ✓ End Cut
- ✓ Bore holes
- ✓ Lightly sand

It is **NOT** acceptable to:

- ✗ Rip lumber length wise
- ✗ Plane the surface of lumber



HYGROSCOPICITY OF D-BLAZE® TREATED WOOD

D-Blaze® was tested per ASTM D-3201-94 at 92% RH by the Truesdail Laboratories, Inc. for hygroscopicity. The following test results show D-Blaze treated wood regardless of the species treated, was well below the 28% moisture content when exposed to a temperature of $27 \pm 1^\circ\text{C}$ (80°F) and constant relative humidity of $92\% \pm 1.0\%$ for 10 days.

Specie	% Moisture Content Increased After Conditioning		Treated Wood % Moisture Content After Conditioning
	Untreated	Treated	
Southern Yellow Pine Lumber	+6.9	+7.3	21.6
Douglas Fir Lumber	+6.8	+5.4	16.1
White Spruce Lumber	+7.5	+6.8	16.9
Southern Yellow Pine Plywood	10.6	11.2	23.7
Douglas Fir Plywood	10.3	8.2	26.6

D-Blaze therefore meets all the requirements of Underwriters Laboratories, AWPA Standards C20 and C27 and all three model building codes for an Interior **Type A fire retardant**.



D-BLAZE® CORROSION TEST SUMMARY

Sample	Mils Per Year*		
	Untreated	D-Blaze	D-Blaze Advantage
Carbon Steel	37.28	20.22	+17.06
Aluminum	.033	0.30	+0.03
Galvanized Steel	32.66	11.25	+21.41
Red Brass	1.29	1.50	-0.21

*Allowable loss is 25 mils per year. AWPA E12-94 Test Protocol used.



PAINT TESTS

August 1, 1984

Matched Southern Yellow Pine 2x6 samples were cut and one half of each set was D-Blaze® pressure treated and dried per D-Blaze UL specifications.

Both halves were then coated on four sides with

1) Latex water-base paint

and

2) Oil-base paint

Both treated and untreated samples were subjected to the following conditions in a humidity chamber for two cycles:

7 days @ 79°F and 85% RH
4 days ambient conditions
9 days @ 79°F and 85% RH
4 days ambient conditions

The treated samples were carefully checked for blooming and paint failure. None was found.



UNDERWRITERS LABORATORIES LISTING

LUMBER UL FILE NO. R10647

Southern Yellow Pine	FRS
Ponderosa Pine	FRS
Red Pine	FRS
Douglas Fir	FRS
Western Hemlock	FRS
White Fir	FRS
Hem-Fir	FRS
Jack Pine	FRS
Red Spruce	FRS
Black Spruce	FRS
Engelmann Spruce	FRS
White Spruce	FRS
Alpine Fir	FRS
Balsam Fir	FRS
Lodgepole Pine	FRS
S-P-F	FRS

PLYWOOD UL FILE NO. 10950:

Southern Yellow Pine	FRS
Douglas Fir	FRS
Lauan	FRS
Red Pine	FRS

HARDWOOD LUMBER UL FILE NO. R10647:

Basswood	FRS
Red Oak	FRS



TESTED UNDER CONDITIONS OF HIGH TEMPERATURE AND HUMIDITY

The D-Blaze® fire retardant formula for the pressure treatment of lumber and plywood was developed and first marketed nationwide in 1984. There has never been a case of structural failure with any D-Blaze treated products because of strength degradation. The original formula for D-Blaze is the one used today. D-Blaze treated products are covered by a 50-Year Limited Warranty. Use them with confidence.

To give architects, truss fabricators, contractors and owners continued confidence in D-Blaze treated material, CSI has had it tested by independent third-party laboratories to determine structural strength design reduction factors after exposure to high temperature and relative humidities. The data is presented in the enclosed technical brochure.

D-Blaze fire Retardant Treated (FRT) wood has been thoroughly tested by several leading independent laboratories and universities. This testing has provided the data required for proper specification and resulted in approval of D-Blaze by the new International Building Code (IBC) as well

as all model codes. D-Blaze FRT lumber was tested in accordance with National Forest Products Association Appendix Q by Mississippi State University's Forest Products Laboratory and by industry protocol for high temperature (150°F) and humidity (75%) exposure by Clemson Department of Forestry Laboratory, Clemson University.

D-Blaze FRT plywood was tested in accordance with the new ASTM D5516 Standard Test Method for Evaluating the Mechanical Properties of Fire Retardant Treated Softwood Plywood Exposed to Elevated Temperatures for high temperature (170°F) and humidity (50%) by Clemson Department of Forestry Laboratory, Clemson University. These test results were analyzed per the industry's "Standard Method for Establishing Allowable Spans and Loads for Fire Retardant Treated Plywood Roof Sheathing" to establish strength reduction factors based on a 50-year minimum life. Span tables were then developed based on this data by KCI, a registered professional structural engineering firm.



D-BLAZE® MEETS ALL THE REQUIREMENTS OF BUILDING CODES FOR AN INTERIOR FIRE RETARDANT TREATMENT FOR WOOD PRODUCTS

D-Blaze® has been thoroughly tested by the Underwriters Laboratories, Northbrook, Illinois, and has been awarded a UL classification of 25 or less for flame spread, smoke development and fuel contributed. Further, there was no evidence of significant progressive combustion when tested for 30-minutes duration.

D-Blazes meets or exceeds the requirements of the following tests in standards:

- ICC-ES-Legacy Report 562
- NER Report No. 562
- ASTM E-84
- UL 723
- International Building Code
- BOCA Building Code
- Southern Building Code
- Uniform Building Code
- NFPA 255
- AWWA C20 and C27
- City of Los Angeles RR 24502
- City of New York MEA

D-Blaze is non-hygroscopic even up to 95% relative humidity. It is no more corrosive to metal fasteners than untreated wood.

D-Blaze is a clear treatment that does not discolor or darken the wood. Each piece of material will bear a UL stamp or label for recognition.



BUILDING CODE REQUIREMENTS FOR PRESSURE-TREATED FIRE RETARDANT TREATED WOOD

BOCA NATIONAL BUILDING CODE: 1996 EDITION

Fire retardant treated wood is permitted in lieu of required noncombustible materials in the following areas:

	Code Section
1 Where a structure or part of a structure is required to be constructed of non-combustible construction fire retardant treated wood is permitted for use in roofs, floors and walls as permitted in section 602.	(602.4.1)
2 Fire separation assemblies installed for purposes of enclosure of exits, floor openings, shafts, areas of refuge and for subdividing purposes requiring a one-hour resistant rating on Types I and II construction.	(Table 602)
3 Fire partitions in exit access corridors and tenant spaces separation requiring a one-hour fire resistant rating in Types I and II.	(Table 602)
4 Dwelling unit and guest rooms separation in Type I and II construction requiring a one-hour fire resistant rating.	(Table 602)
5 Smoke barriers in Type I and II construction requiring a one-hour fire resistance rating.	(Table 602)
6 Non-load bearing partitions in Types I and II construction.	(Table 602)
7 Roof construction including beams, trusses and framing arches and roof deck, 15 feet or less in height to the lowest member in Type II construction.	(Table 602)
8 Roof construction including beams, trusses and framing, arches and roof decks more than 15 feet but less than 20' in height to the lowest member in Types I and II construction	(Table 602)
9 Roof construction including beams, trusses, and framing access and roof decks 20 feet or more to the lowest member	(Table 602)
10 Parapets are eliminated in residential occupancies, Group R-2 and R-3 construction where FRT roof deck is used 4 feet on each side of the wall.	(707.6.2)



Code Section

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| 11 | In roof slabs, arches and decking where the omission of fire protection from roof trusses, roof framing, and decking is permitted, roofs in Type I and II construction shall be constructed of non-combustible materials or fire retardant treated wood as permitted in Table 602 without specifying fire resistant rating or of Type 4 construction in buildings not over 5 stories or 65 feet in height. | (715.4) |
| 12 | Class 1 interior finish | (803.2
803.4) |
| 13 | As backing for Class II and III interior finish materials. | (804.3) |
| 14 | Miscellaneous roof structure such as towers, spires, dormers, or cupolas when over 85 feet high and 200 square feet in area. | (1510.9) |



BUILDING CODE REQUIREMENTS FOR PRESSURE-TREATED FIRE RETARDANT TREATED WOOD

STANDARD BUILDING CODE: 1994 EDITION

Fire retardant treated wood is permitted in lieu of required noncombustible materials in the following areas:

		Code Section
1	In two-story buildings of Type I, II, and IV construction for roof construction and beams, girders, trusses, and arches supporting a roof only.	(Table 600-footnote E)
2	In Types I and II construction for non-loadbearing partitions	(609.2.1)
3	As backing for furring strips for interior finish materials and hangers and assembly members of dropped ceilings below the main ceiling.	(803.8.2)
4	Exterior non-loadbearing walls and gable ends for any construction type, except for Type VI.	(Table 600-footnote K)
5	For Class A interior finish (10 min. test)	(Table 803.3)
6	Canopies on exterior walls	(3106.2)
7	Townhouse Fire Separation as roof sheathing when extending a minimum of four feet each side of the exterior dividing wall.	(704.4.1)



UNIFORM BUILDING CODE: 1997 EDITION

Fire retardant treated wood is permitted in lieu of required noncombustible materials in the following areas:

	Code Section
1 In Types I and II fire-resistive buildings, permanent non-bearing partitions of one-hour or two-hour fire resistive construction, which are not part of a shaft enclosure.	(602.1 603.1)
2 In Type II one-hour buildings, permanent non-loadbearing partitions.	(603.1, Table 6A)
3 In Type II, fire resistive buildings for permanent non loadbearing partitions of one hour or two hours fire resistive construction which is not part of a shaft enclosure	(Table 602.1)
4 For interior non-loadbearing partitions dividing portions of stores, offices or similar places occupied by one tenant only and which do not establish a corridor serving an occupant load that would require it to be of fire resistive construction under the provisions of Section 1005.7.	(601.5.2.1)
5 In exterior walls in Types III and IV construction where table 5-A allows a fire resistive rating of 2 hours or less, provided exposed outer and inner wall faces are noncombustible.	(503.4.3)
6 Marina or motor vehicle fuel-dispensing stations, including canopies and supports over pumps	(311.2.3.2)
7 As a Class I interior finish	(Table 8-A)
8 In hotel and apartments or interior non-loadbearing partitions within dwelling units when dwelling units are separated from each other and from corridor by no less than one hour fire resistive construction.	(601.5.2.2)
9 Hangars for dropped ceilings in Types III and V construction	(803.1)