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**DIVISION: 06—WOOD AND PLASTICS**  
**Section: 06070—Wood Treatment**

**REPORT HOLDER:**

**ARCH WOOD PROTECTION, INC.**  
1955 LAKE PARK DRIVE, SUITE 100  
SMYRNA, GEORGIA 30080  
(770) 801-6600  
[www.dricon.com](http://www.dricon.com)

**EVALUATION SUBJECT:**

**DRICON® FIRE-RETARDANT-TREATED WOOD**

**ADDITIONAL LISTEES:**

**BESTWAY OF PENNSYLVANIA**  
3780 STATE ROUTE 191  
CRESCO, PENNSYLVANIA 18326

**BIEWER LUMBER COMPANY**  
524 EAST UNION STREET  
SENECA, ILLINOIS 61360-9493

**BIEWER OF LANSING**  
6111 WEST MOUNT HOPE HIGHWAY  
LANSING, MICHIGAN 48917

**CENTRAL NEBRASKA WOOD PRESERVERS, INC.**  
105 NORTH OWEN  
SUTTON, NEBRASKA 68979

**CLEVELAND WOOD PRESERVING CORPORATION**  
734 ALPHA DRIVE  
HIGHLAND HEIGHTS, OHIO 44143

**COX WOOD PRESERVING COMPANY**  
860 CANNON BRIDGE ROAD  
ORANGEBURG, SOUTH CAROLINA 29115

**EXTERIOR WOOD, INC.**  
2685 INDEX STREET  
WASHOUGAL, WASHINGTON 98671

**MID-STATES WOOD PRESERVERS**  
147 SHELBY ROAD  
SIMSBORO, LOUISIANA 71275-0560

**NORTHEAST TREATERS, INC.**  
796 SCHOHARIER TURNPIKE  
ATHENS, NEW YORK 12015

**PACIFIC WOOD PRESERVING OF BAKERSFIELD**  
5601 DISTRICT BOULEVARD  
BAKERSFIELD, CALIFORNIA 93313

**ROBBINS MANUFACTURING**  
1700 NW 8<sup>TH</sup> AVENUE, BUILDING 5  
OCALA, FLORIDA 34475

**SHAW/STEWART LUMBER COMPANY**  
645 JOHNSON STREET NORTHEAST  
MINNEAPOLIS, MINNESOTA 55413

**SOUTHERN WOOD TREATMENT COMPANY**  
441 GAWTHROPE DRIVE  
WINCHESTER, KENTUCKY 40391

**TRENT TIMBER TREATING LTD.**  
321 LANDSDOWNE STREET, EAST  
PETERBOROUGH, ONTARIO K9J 7X6  
CANADA

**UTAH WOOD PRESERVING COMPANY**  
1959 SOUTH 1100 WEST  
WOODS CROSS, UTAH 84087

**WOOD PRESERVERS, INC.**  
15939 HISTORY LAND HIGHWAY  
WARSAW, VIRGINIA 22572

**1.0 EVALUATION SCOPE**

**Compliance with the following codes:**

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)
- BOCA® *National Building Code*/1999 (BNBC)
- 1999 *Standard Building Code*® (SBC)

**Properties evaluated:**

- Flame spread
- Structural
- Corrosion
- Hygroscopicity

**2.0 USES**

Dricon® fire-retardant-treated wood is used in areas that are not exposed to the weather or wetting, but may be exposed to dampness where the code permits the use of wood or fire-retardant-treated wood.

**ES REPORTS™** are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, Inc., express or implied, as to any finding or other matter in this report, or as to any product covered by the report.



### 3.0 DESCRIPTION

#### 3.1 General:

Dricon® fire-retardant-treated wood is lumber and plywood impregnated with Dricon® fire-retardant chemicals by a pressure process.

Dricon® treatment of lumber of the following species is recognized as being fire retardant:

Douglas fir	Spruce-pine-fir
Redwood	Spruce
White pine	Ponderosa pine
Hem-fir	Western red cedar
Southern pine	White fir
Red pine	Western hemlock

Dricon® treatment of plywood fabricated with face and back veneers of the following species is recognized as being fire retardant:

Southern pine	Douglas fir	Spruce-pine-fir
Lauan	Redwood	

#### 3.2 Flame Spread:

Dricon® fire-retardant-treated wood has a flame-spread index of 25 or less when subjected to ASTM E 84 tests of 30 minutes duration without evidence of significant progressive combustion.

#### 3.3 Structural Strength and Durability:

The effects of the Dricon® fire-retardant treatment on the strength of the treated lumber and plywood must be accounted for in the design of the wood members and their connections. Load duration factors greater than 1.6 are not permitted to be used in the design.

The strength properties of lumber when treated with Dricon® fire-retardant chemicals and used in applications at ambient temperatures up to 100°F (38°C), are subject to the design factors shown in Table 1 of this report.

The strength properties of lumber, when treated with Dricon® fire-retardant chemicals and used in applications at elevated temperatures up to 150°F (66°C), are subject to the design factors shown in Table 2 of this report.

The strength properties of plywood, when treated with Dricon® fire-retardant chemicals and used in applications at temperatures up to 170°F (77°C), are subject to the span limitations shown in Table 3 of this report.

#### 3.4 Corrosion:

The corrosion rate of aluminum, carbon steel, galvanized steel, copper or red brass in contact with wood is not increased by Dricon® fire-retardant treatment when the product is used as recommended by the manufacturer.

#### 3.5 Hygroscopicity:

Dricon® treated wood qualifies as an Interior Type A (HT) fire-retardant wood in accordance with the American Wood-Preservers' Association (AWPA) Standard U1, Commodity Specification H, Use Category UCFA. Dricon® treated Douglas fir, southern pine and spruce-pine-fir lumber, and Douglas fir, southern pine and spruce-pine-fir plywood, qualify as Interior Type A (HT) fire-retardant-treated wood when tested at 95 percent relative humidity.

### 4.0 DESIGN AND INSTALLATION

Structural systems that include Dricon® fire-retardant-treated lumber or plywood must be designed and installed in accordance with the applicable code using the appropriate lumber design value adjustment factors and plywood spans from Tables 1, 2 and 3 of this report. Ventilation must be provided in accordance with the applicable codes.

Fasteners used in Dricon® fire-retardant-treated wood must be galvanized steel, stainless steel, silicon bronze or copper, in accordance with IBC Section 2304.9.5, IRC Section 319.3 or UBC Section 2304.3, and must be subject to the design value adjustments indicated in Table 4 of this report.

### 5.0 CONDITIONS OF USE

The Dricon® fire-retardant-treated wood described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- Strength calculations must be subject to the design factors or span ratings shown in Tables 1, 2 and 3 of this report.
- The strength design factors and span ratings given in this report must only be used for unincised dimensional lumber and plywood of the species noted in this report.
- The treated lumber and plywood must only be used in areas (including attic spaces) where the lumber is exposed to temperatures of 150°F (66°C) or less and the plywood is exposed to temperatures of 170°F (77°C) or less.
- Dricon® treated wood must not be installed where it will be exposed to precipitation, direct wetting or regular condensation.
- Dricon® treated wood must not be used in contact with the ground.
- Except as listed below, Dricon® lumber must not be ripped or milled as this will alter the surface-burning characteristics and invalidate the flame spread classification:
  - Western red cedar lumber may be surfaced  $\frac{1}{32}$  inch (0.79 mm).
  - Framing, end cuts, holes, joints such as tongue and groove, bevel, scarf and lap may be used.
- Exposure to precipitation during storage or installation must be avoided. If material does become wet, it must be replaced or permitted to dry (maximum 19 percent moisture content for lumber and 15 percent moisture content for plywood) prior to covering or enclosure by wallboard or other construction materials (except for protection during construction).
- The strength design factors and plywood spans in Tables 2 and 3 of this report are applicable under elevated temperatures resulting from cyclic climatic conditions. They are not applicable under continuous elevated temperatures resulting from manufacturing or other processes that require special consideration in design.
- Treatment is at the facilities of the listees noted in this report under a quality control program with inspections by Timber Products Inspection Inc. (AA-696).

### 6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Fire-retardant-treated Wood (AC66), dated February 2007.

### 7.0 IDENTIFICATION

Lumber and plywood treated with Dricon® fire-retardant chemicals must be identified by the structural grade mark of an approved agency. In addition, all treated lumber and plywood must be stamped with the name of the inspection agency [Timber Products Inspection Inc. (AA-696)]; the Arch Wood Protection, Inc., or listee, name and address; the production plant identification; labeling information in accordance with Section 2303.2.1 of the IBC; and the evaluation report number (ESR-1626). Refer to Figure 1.

**TABLE 1**  
**STRENGTH DESIGN FACTORS FOR**  
**DRICON® FIRE RETARDANT TREATED LUMBER COMPARED TO UNTREATED LUMBER**  
**APPLICABLE AT SERVICE TEMPERATURES UP TO 100°F (38°C)**

STRENGTH DESIGN FACTORS	SPECIES			
	Southern Pine	Douglas Fir	Spruce	Other Species
Compression Parallel, Fc	0.94	0.91	0.95	0.91
Horizontal Shear	0.95	0.94	0.95	0.94
Tension Parallel	0.92	0.87	0.98	0.87
Bending: Modulus of Elasticity, E	0.98	0.98	0.98	0.98
Extreme Fiber Stress, Fb	0.89	0.90	0.98	0.89

**TABLE 2**  
**STRENGTH DESIGN FACTORS FOR**  
**DRICON® FIRE RETARDANT TREATED LUMBER COMPARED TO UNTREATED LUMBER**  
**APPLICABLE AT SERVICE TEMPERATURES UP TO 150° F (66° C)**

STRENGTH DESIGN FACTORS	SPECIES											
	Southern Pine			Douglas Fir			Spruce			Other Species		
	Climate Zone			Climate Zone			Climate Zone			Climate Zone		
	1A	1B	2	1A	1B	2	1A	1B	2	1A	1B	2
Compression Parallel, Fc	0.87	0.89	0.91	0.84	0.86	0.88	0.87	0.89	0.91	0.84	0.86	0.88
Horizontal Shear	0.87	0.89	0.91	0.86	0.88	0.90	0.87	0.89	0.91	0.86	0.88	0.90
Tension Parallel	0.87	0.89	0.91	0.82	0.84	0.86	0.87	0.89	0.91	0.82	0.84	0.86
Bending: Modulus of Elasticity, E	0.94	0.95	0.96	0.94	0.95	0.96	0.94	0.95	0.96	0.94	0.95	0.96
Extreme Fiber Stress, Fb	0.87	0.89	0.91	0.87	0.89	0.91	0.87	0.89	0.91	0.87	0.89	0.91

Climate Zone definitions:

1. Minimum design roof load or maximum ground snow load up to 20 psf
  - a. Southwest Arizona, Southeast Nevada (Las Vegas-Yuma-Phoenix-Tucson triangle)
  - b. All other qualifying areas of the continental United States
2. Minimum ground snow load over 20 psf

**TABLE 3**  
**TOTAL ALLOWABLE LOADS AND SPANS FOR DRICON®**  
**FIRE RETARDANT TREATED PLYWOOD<sup>1,2</sup> COMPARED TO UNTREATED PLYWOOD**  
**APPLICABLE AT SERVICE TEMPERATURES UP TO 170° F (77° C)**

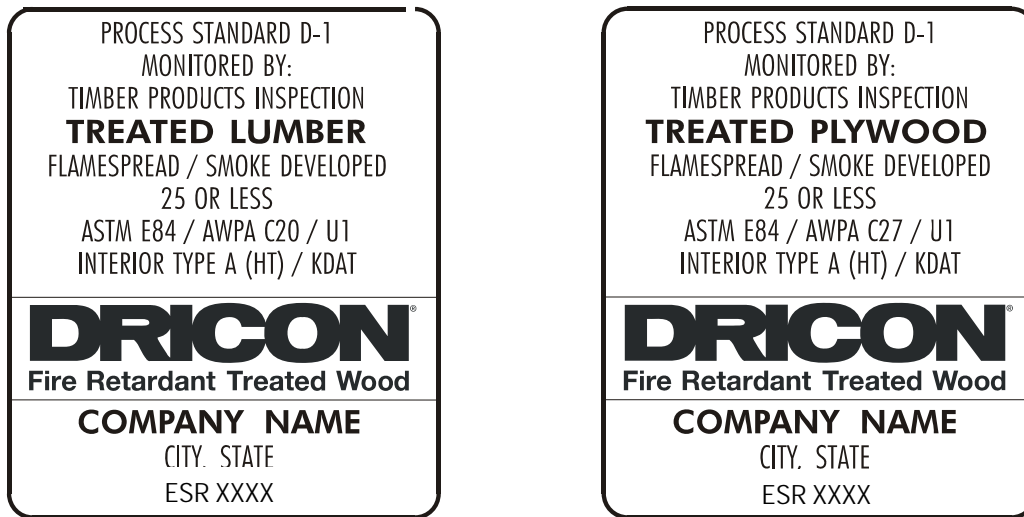
PLYWOOD THICKNESS (INCHES) <sup>9,10</sup>	UNTREATED SPAN RATING ROOF/SUBFLOOR	DRICON® ROOF SHEATHING <sup>3</sup>				DRICON® SUBFLOOR SPAN RATING <sup>7</sup> (INCHES)
		SPAN <sup>6</sup> (INCHES)	Total Allowable Loads (psf) <sup>4,5</sup>			
			Climate Zone <sup>8</sup>			
			1A	1B	2	
$\frac{5}{16}$ <sup>9</sup>	12/0	12	69	93	126	0
$\frac{5}{16}, \frac{3}{8}$ <sup>9</sup>	16/0	16	39	52	71	0
$\frac{5}{16}, \frac{3}{8}$ <sup>9</sup>	20/0	20	25	33	45	0
$\frac{3}{8}, \frac{1}{2}$ <sup>9</sup>	24/0	24	27	36	49	0
$\frac{15}{32}, \frac{1}{2}$ <sup>9</sup>	32/16	24	38	51	70	16
$\frac{19}{32}, \frac{5}{8}$ <sup>9,10</sup>	40/20	24	60	80	109	20
$\frac{19}{32}, \frac{5}{8}$ <sup>9,10</sup>	40/20	32	34	45	61	20
$\frac{23}{32}, \frac{3}{4}$ <sup>9,10</sup>	48/24	32	43	57	77	24
$\frac{1}{8}$	60/32	48	24	32	43	32
$1\frac{1}{8}$	60/48	48	40	53	73	48

**Notes:**

- Total allowable loads and spans apply only to performance rated plywood for Structural 1, Exposure 1 or Exterior, unsanded and treated with Dricon® Fire Retardant according to AWPA standards.
- Plywood glue lines shall be exterior glue and face plies shall be Group 1 species as noted in Section 3.1 of this report.
- Panel edge support shall be required for roof sheathing. Panel edge clips when used shall be installed as follows: one midway between supports for 24-inch and 32-inch spans, two at  $\frac{1}{3}$ -points between supports for 48-inch span
- The total allowable load (as shown above) is the sum of the live and dead loads. Dead loads should be subtracted from the above values to determine the live load. Dead loads typically range from 8-10 psf.
- The loads shown are based on the most common one and two-span condition with strength axis perpendicular to supports. Other condition-load combinations exist and consult with Arch for the allowable loads for those combinations.
- Deflection of roof sheathing tabulated at maximum live load is less than  $\frac{1}{240}$  of the span, and under maximum live load plus dead load is less than  $\frac{1}{180}$  of the span
- Sub floor applications are limited to 100 psf maximum live load.
- Climate Zone definitions:
  - Minimum design roof load or maximum ground snow load up to 20 psf
    - Southwest Arizona, Southeast Nevada (Las Vegas-Yuma-Phoenix-Tucson triangle)
    - All other qualifying areas of the continental United States
  - Minimum ground snow load over 20 psf
- Arch Wood Protection, Inc. does not recommend  $\frac{5}{16}$  or  $\frac{3}{8}$  panel thicknesses for roofing applications
- $\frac{19}{32}$  and  $\frac{5}{8}$  inch thick plywood shall be limited to performance rated 4 or 5 ply.  $\frac{23}{32}$  and  $\frac{3}{4}$  inch thick plywood shall be limited to performance rated 5 or 7 ply.

**TABLE 4**  
**STRENGTH DESIGN FACTORS FOR FASTENERS/CONNECTORS IN**  
**DRICON® FIRE RETARDANT TREATED COMPARED TO UNTREATED LUMBER**  
**APPLICABLE AT SERVICE TEMPERATURES UP TO 100° F (38° C)**

FASTENER/CONNECTORS	STRENGTH DESIGN FACTORS	SPECIES			
		Southern Pine	Douglas Fir	Spruce	Other Species
Nails	Withdrawal	0.91	0.91	1.0	0.91
	Lateral	0.98	0.98	1.0	0.98
Wood Screws	Withdrawal	0.94	0.94	1.0	0.94
Bolted Joints	Parallel to Grain	0.92	0.92	1.0	0.92
	Perpendicular to Grain	0.96	0.96	1.0	0.96



**FIGURE 1—LUMBER AND PLYWOOD STAMPS<sup>1,2,3,4</sup>**

<sup>1</sup>The species designation shall be permitted to be shown on the same line with treated lumber and plywood.

<sup>2</sup>The plant identification number shall be permitted in place of the treating company name and plant location.

<sup>3</sup>All lumber and plywood shall be identified by the grade mark of an approved agency.

<sup>4</sup>Labeling information in accordance with Section 2303.2.1 must be included on the lumber and plywood.