JONES WHOLESALE LUMBER

HOOVER TREATED WOOD PRODUCTS, INC.

TECHNICAL NOTE

FOR ADDITIONAL INFORMATION: 1-800-TEC-WOOD (832-9663)

CODE REFERENCES FOR THE USE OF FIRE-RETARDANT-TREATED WOOD

USES OF FIRE-RETARDANT-TREATED WOOD	NBC 1999	SBC 1999	UBC 1997	IBC 2006
Architectural trim, exterior	1407.2.2	F102.2.6		1406.2.2
Awning and Canopies.		3106.2		3105.3
Balconies and similar appendages; bay and oriel windows.	1407.4	1404.2		1406.3&.4
Combustible projections.				704.2.3
Exterior bearing and nonbearing walls in joisted masonry const.			503.4.3	602.3
Exterior bearing and nonbearing walls in heavy timber construction.			503.4.3	602.4
Exterior nonbearing walls with 0 fire resistance or NC materials req.		T600 Ak@		603.1 #1.2
Fire barriers, corridors, partitions.	T602 Ad@	609.2[3]	602.1 & 603.1	603.1 #1.1
FRTW in enclosed combustible spaces in sprinklered buildings.	Sprinklers not required: 8.14.1.2.11 NFPA 13,2002 ed			
Fixed partitions establishing corridors in building with one tenant serving no more than 30 people.	603.2[5]	704.2.3[3]	601.5.2	603.1 #8
Fuel dispensing station (marine and motor vehicle).		404.2.2	311.2.3.2	406.5.2
Kiosks in Covered Mall Buildings.	402.14.1			402.10
Interior finish with flame spread index 25 or less (Class A or I).	T803.4	T803.3	T8-B	T803.4
Parapets not required when FRTW is used for sheathing:				
Exterior walls.	705.6			704.11#5[1]
Fire and party walls.	707.6.2[1]	704.5.1.1[2]		705.6 #4
Townhouses, 4 ft. each side of wall.	707.6.2	704.4.1		*R317.2.2
Platforms.		403.2.4		410.4
Plenums.	SMC			IMC
Roof and roof/ceiling assemblies in noncombustible buildings.	T602 Ad@	T600 Ae@[4]		603.1#1.3
Roof construction, pedestrian walkways.				3104.3
Shakes and shingles Class A, B, and C roofs.	1506.3	1509.8.7	1504	T1505.1
Wood Veneer.	1407.2.2	1403.6.8.1	601.5.4 #2	1405.4
Walls and ceilings furred and dropped more than 1 3/4 inch.		803.8.2	803 #2	803.4.2

* International Residential Code
Standard Mechanical Code=SMC
International Mechanical Code=IMC

NOTES:

[1] R-2 and R-3 occupancies in Types III, IV or V construction.
[2] Types III, V, and VI construction.
[3] Except Type I and II construction of I-restrained occupancy.
[4] Building two stories or less in height.
[5] Area can be increased to a maximum of 7500 sq. ft.
[6] When required fire resistance is 1 hour or 2 hours.

12/06
P/E TN-01

As of 3/01/2013

(323) 567-1301

JONES WHOLESALE LUMBER

Interior Fire Retardant

HOOVER TREATED WOOD PRODUCTS, INC.

TECHNICAL NOTE

FOR ADDITIONAL INFORMATION: **1-800-TEC-WOOD (832-9663) or www.frtw.com**

SPECIFICATION GUIDE for *PYRO-GUARD* Interior Fire Retardant Treated Wood

PART 1 – GENERAL

1.01 PRODUCT INDENTIFICATION

A. All lumber and plywood specified to be interior fire retardant treated wood shall be pressure impregnated with ***PYRO-GUARD*** which has a flame spread rating of 25 or less when tested in accordance with ASTM E 84, "Standard Test Method for Surface Burning Characteristics of Building Materials". ***PYRO-GUARD*** fire retardant treated wood shall show no evidence of significant progressive combustion when the test is extended for an additional 20 minute period. In addition, the flame front shall not progress more than 10½ feet beyond the centerline of the burners at any time during the test.

B. Fire retardant treated lumber and plywood shall be manufactured under the independent third party inspection of Underwriters Laboratories Inc. (UL) Follow-Up Service and each piece shall bear the UL classified mark indicating the extended 30 minute ASTM E 84 test.

C. Each piece shall be labeled kiln dried after treatment (KDAT). Timber Products Inspection, Inc. (TP) shall monitor the process and the TP mark shall appear on the label.

PART 2 – PRODUCTS

2.01 FIRE RETARDANT TREATMENT

A. Treatment shall be ***PYRO-GUARD*** manufactured by Hoover Treated Wood Products, Inc.

B. Structural performance of fire retardant treated wood shall be evaluated in accordance with ASTM D 5664 for lumber and ASTM D 5516 for plywood. Evaluation of plywood data shall be in accordance with ASTM D 6305. The resulting design value and span rating adjustments shall be published in ICC Evaluation Service Report (ESR)-1791 issued by the ICC Evaluation Service, Inc. which includes evaluation of high temperature (HT) strength testing for roof applications.

C. "Type A" Interior fire retardant treated lumber and plywood shall have equilibrium moisture content of not over 28% when tested in accordance with ASTM D 3201 at 92% relative humidity.

D. Interior fire retardant treated wood shall be kiln dried after treatment to a maximum moisture content of 19% for lumber and 15% for plywood.

E. The fire retardant formulation shall be free of halogens, sulfates, chlorides, arsenic, chromium, ammonium phosphate, formaldehyde, and urea formaldehyde.

F. Provide lumber of the appropriate grade and species as specified by the design criteria of the intended application after consideration of design value adjustments.

G. Provide plywood of the appropriate size, grade and species as specified by the design criteria of the intended application after consideration of span rating adjustments.

2.02 PRODUCT SUBSTITUTION

No substitutions permitted.

PART 3 – EXECUTION

3.01 FIELD CUTS

A. Lumber: Do not rip or mill fire retardant treated lumber. Cross cuts, joining cuts, and drilling holes are permitted.

B. Plywood: Fire retardant treated plywood may be cut in any direction.

3.02 APPLICATION

A. ***PYRO-GUARD*** fire retardant treated lumber and plywood used in structural applications shall be installed in accordance with the conditions and limitations listed in ESR-1791 as issued by the ICC Evaluation Service, Inc.

B. Treated wood shall not be installed in areas where it is exposed to precipitation, direct wetting, or regular condensation.

C. Exposure to precipitation during shipping, storage and installation shall be avoided. If material does become wet, it shall be replaced or permitted to dry to a maximum moisture content of 19% for lumber and 15% for plywood prior to covering or enclosure by wallboard, roofing or other construction materials.

PGD-SPEC: 09/08

As of 3/01/2013

JONES WHOLESALE LUMBER

Interior Fire Retardant

Hoover Treated Wood Products, Inc.
154 Wire Road
Thomson, GA 30824

Attn: Steven Hill
(706) 595-7355

RESEARCH REPORT: RR 25150
(CSI 06070)

BASED UPON ICC EVALUATION
SERVICE REPORT NO. ESR-1791

REEVALUATION DUE
DATE: December 1, 2014
Issued Date: November 1, 2012
Code: 2008 LABC

GENERAL APPROVAL - Reevaluation- PYRO-GUARD® Fire-Retardant-Treated Wood.

DETAILS

The above products are approved when in compliance with the description, use identification and findings of Report No. ESR-1791, dated March 1, 2009, of the ICC Evaluation Service. That report, in its entirety, is attached and made a part of this general approval.

The parts of Report No. ESR-1791 marked by the asterisks are modified by the Los Angeles City Department of Building and Safety from this general approval.

The fire retardant treated lumber and plywood are approved for use subject to the following conditions:

1. All fire retardant treated lumber and plywood used on exterior walls shall be protected by a weather barrier in accordance with Section 1403 and 2508.2.1 of the 2011 Los Angeles City Building Code.

DISCUSSION

The report includes reduction factors for fasteners/connectors and requires corrosion protection in accordance with Section 2304.9.5 of the Building Code.

The report is in compliance with the 2008 Los Angeles City Building Code.

The approval is based on tests in accordance with the ICC-ES Acceptance Criteria for Fire-retardant-treated Wood (AC66), dated February 2006.

As of 3/01/2013

(323) 567-1301

JONES WHOLESALE LUMBER

Interior Fire Retardant

Hoover Treated Wood Products, Inc.
Re: PYRO-GUARD® Fire-Retardant – Treated Wood

DISCUSSION

The approval is based on tests in accordance with UBC Standards 23-5, 23-6 and 8-1.

This general approval will remain effective provided the Evaluation Report is maintained valid and unrevised with the issuing organization. Any revisions to the report must be submitted to this Department, with appropriate fee, for review in order to continue the approval of the revised report.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this approval have been met in the project in which it is to be used.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

YEUAN CHOU, Chief
Engineering Research Section
201 N. Figueroa Street, Room 880
Los Angeles, CA 90012
Phone – 213-202-9812
Fax – 213-202-9942

YC:elcm
RR25150/mxw3
R08/20/2009
1403/2507

Attachment: ICC ES Evaluation Service Report No. ESR-1791 (4 Pages).

As of 3/01/2013

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JONES WHOLESALE LUMBER

Interior Fire Retardant

ICC EVALUATION SERVICE

Most Widely Accepted and Trusted

ICC-ES Evaluation Report

ESR-1791

Reissued March 1, 2009

This report is subject to re-examination in two years.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

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

REPORT HOLDER:

HOOVER TREATED WOOD PRODUCTS, INC.
154 WIRE ROAD
THOMSON, GEORGIA 30824
(706) 595-7355
www.frtw.com

EVALUATION SUBJECT:

PYRO-GUARD® FIRE-RETARDANT-TREATED WOOD

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code®* (IBC)
- 2006 *International Residential Code®* (IRC)

Properties evaluated:

- Flame spread
- Structural
- Corrosion
- Hygroscopicity

2.0 USES

PYRO-GUARD® fire-retardant-treated wood is used in areas not exposed to the weather or wetting where the code permits the use of wood or fire-retardant-treated wood.

3.0 DESCRIPTION

3.1 General:

PYRO-GUARD® fire-retardant-treated wood is lumber and plywood that is pressure impregnated with the Hoover Treated Wood Products, Inc., fire retardant chemical PYRO-GUARD®. PYRO-GUARD® fire-retardant-treated lumber and plywood is produced in accordance with an approved quality control procedure at facilities listed in Section 5.6 of this report.

PYRO-GUARD® treated lumber of the following species is recognized as being fire-retardant-treated wood: alpine fir, balsam fir, black spruce, Douglas fir, Englemann spruce, hem-fir, jack pine, lodgepole pine, ponderosa pine, red spruce, southern pine, spruce-pine-fir (SPF), western hemlock, white fir, and white spruce.

PYRO-GUARD® treated plywood fabricated with face and back veneers of the following species is recognized as being fire-retardant-treated wood: southern pine and Douglas fir for structural applications, and lauan for interior applications.

3.2 Flame Spread:

PYRO-GUARD® fire-retardant-treated lumber and plywood have a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84, as modified by IBC Section 2303.2 and IRC Section R802.1.

3.3 Structural Strength:

The structural performance of PYRO-GUARD® fire-retardant-treated wood has been evaluated using ASTM D 5516 and D 6305 for plywood and ASTM D 5664 and D 6841 for lumber. The effects of the PYRO-GUARD® chemical treatment on the strength of treated lumber must be accounted for in the design of wood members and their connections. Load-duration factors greater than 1.6 must not be used in design.

3.3.1 Lumber: The design value adjustments in Table 2 must be used to modify the design values for untreated lumber found in the AF&PA National Design Specification (NDS) Supplement Design Values for Wood Construction, for the applicable species, use and property. Southern pine and Douglas fir have been evaluated for use in roof framing and must be subjected to the adjustments indicated in Table 2 for roof framing. Other softwood species described in Section 3.1 must be subjected to the design adjustments indicated in Table 2 for service temperatures up to 100EF (38EC).

3.3.2 Plywood: The maximum loads and spans shown in Table 1 must be used to modify the panel span rating for untreated plywood described in the applicable codes, as determined by thickness and construction. The adjusted maximum loads and spans are based on tests of southern pine and Douglas fir and are applicable to all softwood species.

3.4 Corrosion:

The corrosion rate of aluminum, carbon steel, galvanized steel, copper or red brass in contact with wood is not increased by PYRO-GUARD® fire-retardant treatment when the product is used as recommended by Hoover Treated Wood Products, Inc.

3.5 Hygroscopicity:

The moisture content of PYRO-GUARD® fire-retardant-treated lumber and plywood is less than 28 percent when

As of 3/01/2013

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Interior Fire Retardant

evaluated in accordance with ASTM D 3201 at 92 percent relative humidity (Section 2303.2.4 of the IBC). PYRO-GUARD® is suitable for use in interior conditions where sustained relative humidity is 92 percent or less and condensation does not occur.

4.0 DESIGN AND INSTALLATION

4.1 General:

Structural systems that include PYRO-GUARD® 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 and 2 of this report. Ventilation must be provided in compliance with the applicable codes.

The design value adjustment factors and plywood spans in Tables 1 and 2 of this report are applicable under elevated temperatures resulting from cyclic climatic conditions in the continental United States. They are not applicable under continuous elevated temperatures resulting from manufacturing or other processes which must require special consideration in design. Such conditions are outside the scope of this report.

All of the wood species listed in Section 3.1 of this report are permitted for interior applications and have been evaluated for structural performance for interior applications where the service temperature does not exceed 100EF (37.8EC). Southern pine and Douglas fir have been evaluated for structural performance for roof framing applications as indicated in Table 2 of this report. Southern pine and Douglas fir plywood are permitted for structural applications limited to the spans and loads indicated in Table 1 of this report.

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).

4.2 Fasteners:

Fasteners used in PYRO-GUARD® fire-retardant-treated wood must be in accordance with IBC Section 2304.9.5 , IRC Section R319.3, or other corrosion-resistant materials that are manufactured from materials listed in Section 3.4 of this report, and must be subject to the design value adjustments indicated in Table 2 of this report.

5.0 CONDITIONS OF USE

The PYRO-GUARD 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:

5.1 Strength calculations must be subject to the design value adjustment factors and span ratings shown in Tables 1 and 2 of this report.

5.2 he design value adjustment 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.

5.3 PYRO-GUARD treated wood must not be installed where it will be exposed to weather or damp or wet conditions.

5.4 PYRO-GUARD treated wood must not be used in contact with the ground.

5.5 Except for the following, PYRO-GUARD lumber must not be ripped or milled, as this will alter the surface-burning characteristics and invalidate the flame-spread classification: end cuts, holes, and joints such as tongue and groove, bevel, scarf and lap. PYRO-GUARD plywood may be cut or ripped in any direction.

5.6 Treatment is at the facilities of Hoover Treated Wood Products, Inc., in Thomson, Georgia; Pine Bluff, Arkansas; Milford, Virginia; Detroit, Michigan; and Winston, Oregon; 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 2006.

7.0 IDENTIFICATION

Lumber and plywood treated with PYRO-GUARD® 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 agencies [Underwriters Laboratories Inc. (AA-668) and Timber Products Inspection Inc. (AA-696)], the Hoover Treated Wood Products, Inc. or listee, name and treatment location, labeling information in accordance with Section 2303.2.1 of the IBC, and the evaluation report number (ESR-1791).

Interior Fire Retardant

TABLE 1— MAXIMUM LOADS AND SPANS FOR PYRO-GUARD® TREATED PLYWOOD

PLYWOOD[9] THICKNESS (inches)	UNTREATED ROOF/SUBFLOOR SPAN RATING	PYRO-GUARD® [1,2,3,4,5,8,11,12] ROOF SHEATHING MAX. LIVE LOAD (psf)				PYRO-GUARD®[2,10] SUBFLOOR
		Span (inches)	Climate Zone[6,7]			Span (inches)
			1A	1B	2	
$^{15}/_{32}$, $^{1}/_{2}$	32/16	24	19	30	43	16
$^{19}/_{32}$, $^{5}/_{8}$	40/20	24 32	42 20	64 32	87 45	20 20
$^{23}/_{32}$, $^{3}/_{4}$	48/24	32 48	34 10	51 18	71 27	24 24
$^{7}/_{8}$	—	48	12	20	30	—
$1^{1}/_{8}$	—	48	21	33	47	48

For **SI:** 1 inch = 25.4 mm, 1 psf = 48 N/m^2.

1. All loads are based on two-span condition with panels 24 inches wide or wider, strength axis perpendicular to supports.
2. Fastener size and spacing must be as required in the applicable building code for untreated plywood of the same thickness; except that roof sheathing must be fastened with (1) minimum 8d common or 8d deformed shank nails spaced a maximum 6 inches o.c. at edges and a maximum of 12 inches o.c. at intermediate supports for panels on 24- and 32-inch spans and spaced a maximum of 6 inches o.c. on all supports for panels on a 48-inch span, or (2) other fasteners with comparable withdrawal and lateral load capacities at the same maximum spacings. For $1^{1}/_{8}$-inch roof sheathing panels, minimum 10d common or deformed shank nails must be used.
3. Roof spans and loads apply to roof systems having the minimum ventilation areas required by the applicable building code. Fifty percent of required vent area must be located on upper portion of sloped roofs to provide natural air flow.
4. For low-sloped or flat roofs with membrane or built-up roofing having a perm rating less than 0.2, use rigid insulation having a minimum *R* value of 4.0 between sheathing and roofing, or use next thicker panel than tabulated for the span and load (e.g., $^{19}/_{32}$ for 24 inches, $^{23}/_{32}$ for 32 inches); and use a continuous ceiling air barrier and vapor retarder with a perm rating less than 0.2 on the bottom of the roof framing above the ceiling finish.
5. For unblocked roof diaphragms panel edge clips are required for roof sheathing: one midway between supports for 24-inch and 32-inch spans, two at $^{1}/_{3}$ points between supports for 48-inch span. Clips must be specifically manufactured for the plywood thickness used.
6. Tabulated loads for Zone 1A are based on a duration of load adjustment for 7-day (construction) loads of 1.25. Tabulated loads for Zone 1B and Zone 2 are based on a duration of load adjustment for snow of 1.15. All values within the table are based on a dead load (DL) of 8 psf. If the DL is less than or greater than 8 psf, the tabulated live load may be increased or decreased by the difference. Applicable material weights, psf: asphalt shingles - 2.0, $^{1}/_{2}$-inch plywood - 1.5, $^{5}/_{8}$-inch plywood - 1.8, $^{3}/_{4}$-inch plywood - 2.2.
7. Climate Zone definition:
   1 - Minimum design roof live load or maximum ground snow load up to 20 psf:
   A - Southwest Arizona, Southeast Nevada (area bounded by Las Vegas-Yuma-Phoenix-Tucson)
   B - All other qualifying areas of the continental United States
   2 - Minimum ground snow load over 20 psf
8. PYRO-GUARD® treated plywood must not be used as roof sheathing if a radiant shield is used beneath the roof sheathing.
9. The $^{19}/_{32}$-inch and $^{5}/_{8}$-inch thickness are limited to performance rated 4-ply or 5-ply. $^{23}/_{32}$- and $^{3}/_{4}$-inch thicknesses are limited to performance rated 5-ply or 7-ply.
10. Subfloor applications are limited to 100 psf maximum live load, except $1^{1}/_{8}$-inch thickness on 48-inch span limited to 65 psf total load.
11. Deflection of roof sheathing at tabulated maximum live load is less than $^{1}/_{240}$ of the span, and under maximum live load plus dead load is less than $^{1}/_{180}$ of the span.
12. Staples used to attach asphalt shingles must be minimum $^{15}/_{16}$-inch crown and minimum 1-inch leg, or otherwise comply with the applicable code, with the quantity of fasteners adjusted in accordance with Table 2 of this report.

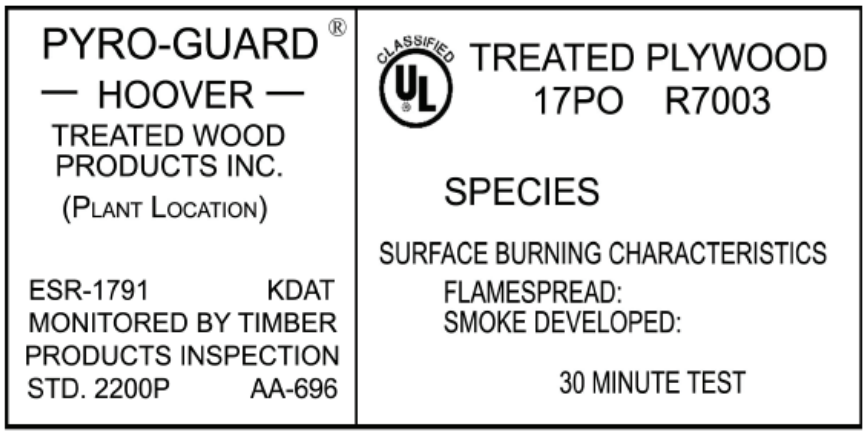

FIGURE 1—PLYWOOD STAMP

JONES WHOLESALE LUMBER

Interior Fire Retardant

TABLE 2—DESIGN VALUE ADJUSTMENTS FOR PYRO-GUARD® TREATED LUMBER

PROPERTY	SERVICE TEMPERATURE[6] TO 100EF/38EC			PYRO-GUARD® ROOF FRAMING, CLIMATE ZONE[1,2,5]					
	SP	DF	Other	1A		1B		2	
				SP	DF	SP	DF	SP	DF
Extreme fiber in bending	0.91	0.97	0.88	0.80	0.90	0.85	0.93	0.89	0.96
Tension parallel to grain	0.88	0.95	0.83	0.80	0.80	0.84	0.87	0.88	0.93
Compression parallel to grain	0.94	1.00	0.94	0.94	0.94	0.94	0.98	0.94	1.00
Horizontal shear	0.95	0.96	0.93	0.92	0.95	0.93	0.95	0.94	0.96
Modulus of elasticity	0.95	0.96	0.94	0.95	0.96	0.95	0.96	0.95	0.96
Compression perp. to grain	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fasteners/connectors	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90

1. Climate Zone definition:
   1 - Minimum design roof live load or maximum ground snow load up to 20 psf:
   A - Southwest Arizona, Southeast Nevada (area bounded by Las Vegas-Yuma-Phoenix-Tucson)
   B - All other qualifying areas of the Continental United States
   2 - Minimum ground snow load over 20 psf
2. Duration of load adjustments for snow loads, 7-day (construction) loads, and wind loads given in the National Design Specifications for Wood Construction apply.
3. Where lumber decking serves as both exposed ceiling and roof sheathing, extreme fiber in bending adjustments of 0.84, 0.83, and 0.89 must be used for southern pine in zones 1A, 1B, and 2, respectively; 0.92, 0.92, and 0.96 must be used for Douglas fir in zones 1A, 1B, and 2, respectively; except that where insulation having a minimum *R* value of 4.0 is installed above the decking, extreme fiber in bending adjustments of 0.91 for southern pine and 0.97 for Douglas fir are permitted in all zones.
4. Modulus of elasticity values apply to all treated lumber decking.
5. Roof framing adjustment factors apply to roof systems with minimum ventilation areas per applicable code. Locate 50 percent of required vent area on upper portion of sloped roofs to provide natural air flow.
6. Species: SP - southern pine; DF - Douglas fir; Other softwoods - limited to those species listed in Section 3.1 of this report.

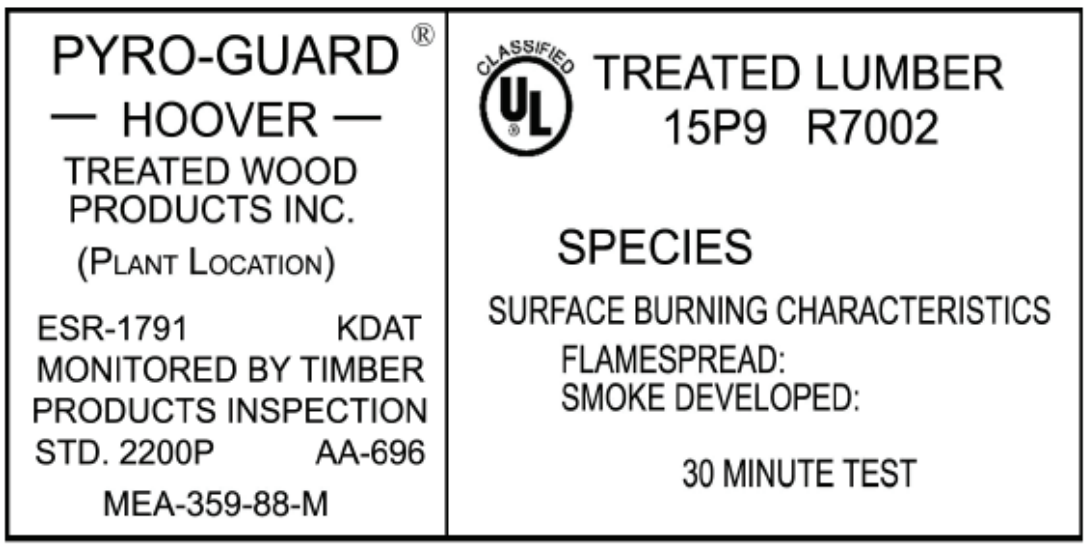

FIGURE 2—LUMBER STAMP