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

ICC-ES Evaluation Report
ESR-2667

Reissued April 2023

Revised May 2023

This report is subject to renewal April 2025.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 05 73.33—Preservative Wood Treatment

REPORT HOLDER:

KOPPERS PERFORMANCE CHEMICALS INC.

EVALUATION SUBJECT:

ADVANCE GUARD® / Hi-bor® PRESERVATIVE-TREATED WOOD

ADDITIONAL LISTEES:

ALLWEATHER WOOD LLC
HAWAII PLANING MILL, LIMITED

HIXSON LUMBER SALES, INC.

HONOLULU WOOD TREATING COMPANY

ROYAL PACIFIC INDUSTRIES, INC.

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2021, 2018, 2015, 2012 and 2009 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

- Other Codes (see Section 8.0)

Properties evaluated:

- Preservative-treated wood
- Decay resistance above ground
- Termite resistance
- Corrosion
- Structural

1.2 Evaluation to the following green standards:

2020, 2015, 2012 and 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 3.1

2.0 USES

Advance Guard® / Hi-bor® preservative-treated wood products are used in above ground applications that are required by code to be protected against decay and termites.

3.0 DESCRIPTION

3.1 General:

Advance Guard® / Hi-bor® preservative-treated wood products are for use in above-ground applications and to resist attack by fungal decay and subterranean termites, including Formosan termites.

Advance Guard® / Hi-bor® preservative-treated wood uses WoodBor brand and/or TIMBOR Industrial brand wood preservatives that are supplied by Koppers Performance Chemicals Inc., and are used by the wood-preserving treatment facilities listed in Table 3, to preservative-treat wood members in accordance with the Koppers Performance Chemicals Inc. Quality Control Manual.

The attributes of the Advance Guard® / Hi-bor® preservative-treated wood using the WoodBor brand and/or TIMBOR Industrial brand wood preservatives have been verified as conforming to the provisions of (i) ICC 700-2020, ICC 700-2015 and ICC 700-2012 Sections 602.1.6 and 11.602.1.6; and (ii) ICC 700-2008 Section 602.8. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These standards often provide supplemental information as guidance. See Sections 5.3 and 5.4 for limitations of use.

3.2 Preservative System:

WoodBor brand and/or TIMBOR Industrial brand wood preservative is a Disodium Octaborate Tetrahydrate (DOT) wood-preservative-treatment chemical for treating wood members.

3.3 Materials:

The following wood products may be treated with the WoodBor brand and/or TIMBOR Industrial brand wood preservative:

a. Dimensional lumber and timbers of the following species: Mixed Southern pine, Radiata pine, red pine, ponderosa pine, hem-fir, Coastal Douglas-fir, and spruce-pine-fir.

b. Plywood must have veneers consisting of the following species: Southern pine and Douglas-fir.

Minimum preservative retention levels must comply with the values shown in Table 1.

4.0 DESIGN AND INSTALLATION

4.1 General:

Advance Guard® / Hi-bor® preservative-treated wood is installed as preservative-treated lumber, timbers and plywood in accordance with the requirements of the applicable code.

Koppers Performance Chemicals, Inc., and industry-published installation instructions for wood and pressure-treated wood and this report must be strictly adhered to, and a copy of the instructions must be available at all times on the jobsite during installation.

The instructions within this report govern if there are any conflicts between the Koppers Performance Chemicals Inc., instructions and this report.

4.2 Applications:

Advance Guard® / Hi-bor® preservative-treated wood products may be used in locations where wood is permitted and/or in locations where wood is required by the code to be fungal decay or termite resistant in all building types and occupancies as defined by the applicable code. The treated wood members in this report may be used in above-ground applications where they are continuously protected from liquid water. Advance Guard® / Hi-bor® preservative-treated wood may be used as sill-plates over concrete slabs and foundations in accordance with the applicable code. Typical applications are described in Table 2.

Locations requiring preservative-treated wood for decay or termite resistance are described in 2021, 2018 and 2015 IBC Section 2304.12 (2012 and 2009 IBC 2304.11) and IRC Sections R317 and R318.

4.3 Fasteners:

Fasteners used with Advance Guard® / Hi-bor® preservative-treated wood products must be in accordance with 2021 IBC Section 2304.10.5 [2018 and 2015 IBC Section 2304.10.4 (2012 and 2009 IBC 2304.9.5)] and IRC Section R317.3, except that aluminum fasteners and carbon steel fasteners are also permitted when used for interior applications.

4.4 Protection from Water:

The borate preservative in Advance Guard® / Hi-bor® preservative-treated wood is water soluble and the treated wood must be protected from liquid water, where permanently installed.

Advance Guard® / Hi-bor® preservative-treated wood used in weather-protected exterior applications must be continuously protected from direct wetting with a minimum of one coat of primer and two coats of finish paint.

4.5 Structural:

4.5.1 Duration of Load: The maximum load duration factor allowed for Advance Guard / Hi-bor® treated wood products used for structural members is 1.6, in accordance with Section 2.3 of the American Wood Council (AWC) National Design Specification® for Wood Construction (NDS).

4.5.2 Incising Factor: When the treated wood products have been incised, the reference design values must be multiplied by the incising factor, C_i, in accordance with Section 4.3.8 of the NDS.

5.0 CONDITIONS OF USE

The Advance Guard® / Hi-bor® Preservative-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 Use of the preservative-treated wood is limited to the types of applications noted in Section 4.2.

5.2 Surface treatment of field cuts must be in accordance with the recommendations of Koppers Performance Chemicals Inc.

5.3 The Advance Guard® / Hi-bor® preservative-treated wood products are limited to the wood species noted in Section 3.3 and minimum retention levels noted in Table 1.

5.4 Treated lumber and plywood used for protection against Formosan termites must be labeled/identified for this use as described in Section 7.0.

5.5 Treatment of wood products is at the facilities of the treaters noted in Table 3, under a quality control program with inspections by ICC-ES and Timber Products Inspection Inc. (AA-664 and AA-696) or Southern Pine Inspection Bureau (AA-680).

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Proprietary Wood Preservative Systems—Common Requirements for Treatment Process, Test Methods and Performance (AC326), dated October 2021, Appendix J ─ Disodium Octaborate Tetrahydrate (DOT) Wood Preservative Systems.

6.2 Quality control documentation in accordance with Section 5.0 of AC326, and in compliance with AWPA M22 and AWPA M23.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-2667) along with the name, registered trademark, or registered logo of the report holder [and/or listee] must be included in the product label.

7.2 In addition, Advance Guard® / Hi-bor® preservative-treated lumber, timber and plywood must be stamped or end-tagged with the name of the inspection agency (Timber Products Inspection Inc.); the product name (Advance Guard® / Hi-bor®), the Koppers Performance Chemicals Inc. name; the treatment company name and plant location (refer to Table 3); the name of the preservative components; the intended end use application (see Table 2); minimum retention; and the evaluation report number (ESR-2667). Sample labels are shown in Figures 1 through 4.

Products treated for protection against Formosan termites must be labeled as shown in Figures 1 and 3.

7.3 The Advance Guard® / Hi-bor® Preservative-treated Wood is/are serialized to correspond with plant inspection records with a certificate of conformance. The certificate is signed by a representative of the manufacturer to certify that the Advance Guard® / Hi-bor® Preservative has/have been constructed and inspected in accordance with the terms of the evaluation report. [For prefabricated buildings and similar structures only]

7.4 The Advance Guard® / Hi-bor® Preservative is/are also labeled "For Use in One- and Two-Family Dwellings Only" for conformance with the IRC only. [When only evaluate to the IRC only]

7.5 The report holder's contact information is the following:

KOPPERS PERFORMANCE CHEMICALS INC.
1016 EVEREE INN ROAD
GRIFFIN, GEORGIA 30224
(770) 233-4200
www.koppersperformancechemicals.com

7.6 The Additional Listees' contact information is the following:

ALLWEATHER WOOD LLC
725 SOUTH 32ND STREET
WASHOUGAL, WASHINGTON 98671

HAWAII PLANING MILL, LIMITED
150 KEAA STREET
HILO, HAWAII 96720

HIXSON LUMBER SALES, INC.
POST OFFICE BOX 1466
MAGNOLIA, ARKANSAS 71753

HONOLULU WOOD TREATING COMPANY
91-291 HANUA STREET
KAPOLEI, HAWAII 96707

ROYAL PACIFIC INDUSTRIES, INC.
4035 NORTH RIVERSIDE DRIVE
MCMINNVILLE, OREGON 97128

8.0 OTHER CODES

In addition to the codes referenced in Section 1.0, the products described in this report were evaluated for compliance with the requirements of the following legacy codes and earlier editions of the International codes:

- 2006, 2003 and 2000 *International Building Code*® (IBC)
- 2006, 2003 and 2000 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)
- BOCA® *National Building Code*/1999 (BNBC)
- 1999 *Standard Building Code*© (SBC)

The Advance Guard® / Hi-bor® preservative-treated wood products described in this report comply with, or are suitable alternatives to what is specified in, the codes listed above, subject to the provisions of Sections 8.1 through 8.6.

8.1 Uses:

See Section 2.0.

8.2 Description:

See Section 3.0.

8.3 Installation:

See Section 4.0, except for the following modifications:

Locations requiring preservative-treated wood for decay or termite resistance are described in Section 2304.11 of the 2006, 2003 and 2000 IBC, Sections R319 and R320 of the 2006 and 2003 IRC, Sections R323 and R324 of the 2000 IRC, Section 2304 of the SBC, Section 2311 of the BNBC, and Section 2306 of the UBC.

Fasteners used with Advance Guard® / Hi-bor® preservative-treated wood products must be in accordance with Section 2304.9.5 of the 2006, 2003 and 2000 IBC, Section R319.3 of the 2006 and 2003 and IRC, Section R323.3 of the 2000 IRC, Section 2306.3 of the SBC, Section 2311.3.3 of the BNBC, and Section 2304.3 of the UBC, except that aluminum fasteners and carbon steel fasteners are also permitted when used for interior applications.

8.4 Conditions of Use:

See Section 5.0.

8.5 Evidence Submitted:

See Section 6.0.

8.6 Identification:

See Section 7.0.

TABLE 1—MINIMUM PRESERVATIVE RETENTION REQUIREMENTS FOR ADVANCE GUARD® /Hi-bor® PRESERVATIVE-TREATED WOOD PRODUCTS BY END USE

END USE	MINIMUM TOTAL ACTIVES[1,2] RETENTION pcf (kg/m³)
	B_2O_3
Above-ground applications UC1, UC2 and UC3A, not subject to contact with liquid water, species listed in Section 3.3	0.17 (2.72) Not suitable for exposure to Formosan termites
	0.28 (4.49) Suitable for exposure to Formosan termites

[1]Retention is expressed in pounds of preservative per cubic foot (kilograms per cubic meter) of wood.

TABLE 2—TYPICAL APPLICATIONS FOR ADVANCE GUARD® /Hi-bor® PRESERVATIVE-TREATED WOOD PRODUCTS

SERVICE CONDITIONS	USE ENVIORNMENT	AWPA USE CATEGORY[1]	TYPICAL APPLICATIONS
Interior construction, above ground, dry	Continuously protected from weather or other sources of moisture	UC1 INTERIOR DRY	Interior construction - millwork and furnishings
Interior construction, above ground, damp	Protected from weather, but may be subject to sources of moisture	UC2 INTERIOR DAMP	Interior construction - interior beams, timbers, flooring millwork and sill plates
Exterior construction, above ground, coated and rapid water runoff	Exposed to all weather cycles, including intermittent wetting	UC3A ABOVE GROUND Protected	Exterior - coated millwork, siding and trim

[1]Refer to the AWPA 2020 Book of Standards, Standard U-1 Table 2-1 for a complete description of use category designations and typical applications.

TABLE 3—WOOD PRESERVATIVE TREATMENT LOCATIONS

LISTEES	WOOD PRESERVATIVE TREATMENT LOCATIONS
Allweather Wood LLC	Washougal, WA
	North Bend, OR
Hawaii Planing Mill	Hilo, HI
Hixson Lumber Sales, Inc.	Caddo Mills, TX Houston, TX
Honolulu Wood Treating	Kapolei, HI
Royal Pacific Industries, Inc.	McMinnville, OR Rainier, OR

TABLE 4—LISTEES AND PRIVATE BRAND NAME FOR EACH COMPANY FOR WOOD TREATED WITH ADVANCE GUARD® / Hi-Bor® WOOD PRESERVATIVE

COMPANY	PRIVATE BRAND NAME
Koppers Performance Chemicals Inc.	Advance Guard® and Hi-bor®
Allweather Wood LLC	Advance Guard® and Hi-bor®
Hawaii Planing Mill, Ltd.	Hi-bor®
Hixson Lumber Sales, Inc.	Advance Guard®
Honolulu Wood Treating Co., Ltd.	Hi-bor®
Royal Pacific Industries, Inc.	Advance Guard® and Hi-bor®

FIGURE 1–TYPICAL ADVANCE GUARD® BRAND BORATE PRESSURE TREATED STAMP DESIGN (0.42 DOT)

FIGURE 2–TYPICAL ADVANCE GUARD® BRAND BORATE PRESSURE TREATED STAMP DESIGN (0.25 DOT)

FIGURE 3–TYPICAL HI-BOR® BRAND BORATE PRESSURE TREATED STAMP DESIGN (0.42 DOT)

FIGURE 4–TYPICAL HI-BOR® BRAND BORATE PRESSURE TREATED STAMP DESIGN (0.25 DOT)