



Postsaver® System

TER No. 1501-01

Planet Savers Industries, LLC

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DIVISION: 06 00 00 – WOOD, PLASTICS, AND COMPOSITES

Section: 06 05 83 – Shop-Applied Wood Coatings
Section: 06 11 00 – Wood Framing

1. Product Lines Evaluated:

- 1.1. Postsaver® System for use with sawn lumber and round posts in ground-contact applications.
- 1.2. Postsaver® System may be marketed with one of the following names:
 - 1.2.1. Postsaver® USA
 - 1.2.2. SmartPost™
 - 1.2.3. GreenPost™
- 1.3. For the most recent version of this Technical Evaluation Report (TER), visit drjengineering.org. For more detailed state professional engineering and code compliance legal requirements and references, visit drjengineering.org/statelaw. DrJ is fully compliant with all state professional engineering and code compliance laws.
- 1.4. This TER can be used to obtain product approval in any country that is an IAF MLA Signatory (all countries found [here](#)) and covered by an [IAF MLA Evaluation](#) per the [Purpose of the MLA](#) (as an example, see [letter to ANSI](#) from the Standards Council of Canada). Manufacturers can go to jurisdictions in the U.S., Canada and other [IAF MLA Signatory Countries](#) and have their products readily approved by authorities having jurisdiction using [DrJ's ANSI accreditation](#).

DrJ is a Professional Engineering Approved Source

Learn more about DrJ's Accreditation

- DrJ is an ISO/IEC 17065 accredited product certification body through ANSI Accreditation Services.
- DrJ provides certified evaluations that are signed and sealed by a P.E.
- DrJ's work is backed up by professional liability insurance.
- DrJ is fully compliant with IBC Section 1703.

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- 1.5. Building code regulations require that evaluation reports are provided by an approved agency meeting specific requirements, such as those found in [IBC Section 1703](#). Any agency accredited in accordance with ANSI ISO/IEC 17065 meets this requirement within ANSI's scope of accreditation. For a list of accredited agencies, visit ANSI's [website](#). For more information, see [drjcertification.org](#).
- 1.6. Requiring an evaluation report from a specific private company (i.e., ICC-ES, IAPMO, CCMC, DrJ, etc.) can be viewed as discriminatory and is a violation of international, federal, state, provincial and local anti-trust and free trade regulations.
- 1.7. DrJ's code compliance work:
 - 1.7.1. Conforms to code language adopted into law by individual states and any relevant consensus based standard such as an ANSI or ASTM standard.
 - 1.7.2. Complies with accepted engineering practice, all professional engineering laws and by providing an engineer's seal DrJ takes professional responsibility for its specified scope of work.

2. Applicable Codes and Standards:¹

- 2.1. *2012, 2015 and 2018 International Building Code (IBC)*
- 2.2. *2012, 2015 and 2018 International Residential Code (IRC)*
- 2.3. *ANSI/AWC NDS-2015 – NDS National Design Specification for Wood Construction*
- 2.4. *AWPA E1 – Laboratory Methods for Evaluating the Termite Resistance of Wood-based Materials: Choice and No-choice Tests*
- 2.5. *AWPA P20 – All Barrier Protection Systems*
- 2.6. *EN 252 – Field Test Method for Determining the Relative Protective Effectiveness of a Wood Preservative in Ground Contact*
- 2.7. *ENV 807 – Wood Preservatives – Determination of the Effectiveness Against Soft Rotting Micro-Fungi and Other Soil Inhabiting Micro-Organisms*
- 2.8. *ASTM D143 – Standard Test Methods for Small Clear Specimens of Timber*
- 2.9. *ASTM D312 – Standard Specification for Asphalt Used in Roofing*
- 2.10. *ASTM D882 – Standard Test Method for Tensile Properties of Thin Plastic Sheeting*
- 2.11. *ASTM D1204 – Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature*
- 2.12. *ASTM D4801 – Standard Specification for Polyethylene Sheeting in Thickness of 0.25 mm (0.010 in.) and Greater*
- 2.13. *ASTM D4976 – Standard Specification for Polyethylene Plastics Molding and Extrusion Materials*

3. Performance Evaluation:

- 3.1. Postsaver® System has been evaluated to determine its suitability as a barrier system for protection of sawn lumber and round posts used in ground-contact applications where it is required by code to provide the following:
 - 3.1.1. Weather resistance in accordance with *AWPA E1* and *EN 252*.
 - 3.1.2. Resistance to fungal decay as required by [IBC Section 2304.12](#)² and [IRC Section R317](#).
 - 3.1.3. Protection from subterranean termites where required by [IBC Section 2304.12](#)² and [IRC Section R318](#).
 - 3.1.4. Dynamic impact performance in accordance with *EN 252*.
 - 3.1.5. Strength retention of lumber in barrier system in accordance with *ASTM D143*.

¹ Unless otherwise noted, all references in this code compliant technical evaluation report (TER) are from the 2018 version of the codes and the standards referenced therein, including, but not limited to, *ASCE 7*, *SDPWS* and *WFCM*. This product also complies with the 2000-2015 versions of the *IBC* and *IRC* and the standards referenced therein. As required by law, where this TER is not approved, the building official shall respond in writing, stating the reasons this TER was not approved. For variations in state and local codes, if any see [Section 8](#).

² [2012 IBC Section 2304.11](#)

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3.2. Any code compliance issues not specifically addressed in this section are outside the scope of this TER.

4. Product Description and Materials:

4.1. Postsaver® System is a factory-applied polyethylene wrap for wood posts and columns that provides protection from decay and termites when applied to one end of preservative-treated or nonpreservative-treated solid-sawn lumber and engineered products made from solid-sawn lumber (e.g. glulam or built-up sawn lumber posts/columns).

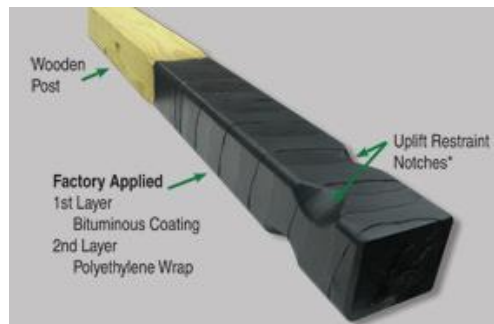


Figure 1: Postsaver® System

4.2. Materials:

4.2.1. Wrap

4.2.1.1. Polyethylene sheathing is applied in a spiral technique with a 1½" overlap (minimum 1¼") and shrink-wrapped to the bottom of the wood post. Minimum 0.12" thick (30 mm) in accordance with *ASTM D4801 and D4976*.

4.2.2. Adhesive

4.2.2.1. Bitumen

4.2.2.1.1. Applied to the inside of the polyethylene boot prior to installation on post. Once applied to the post, the heat shrinking process liquefies the bitumen allowing it to penetrate the wood creating a solid bond. Bitumen is prepared from asphalt in accordance with *ASTM D312* or *EN 13304* with an average minimum thickness of 0.010" (0.25 mm).

4.2.3. Wood post members

4.2.3.1. Any grade wood post may be used but grade mark shall be visible after fabrication. Preservative-treated and engineered wood must feature quality label from accredited third-party inspection agency and the label must be visible at all times.

4.3. Postsaver® System applied to preservative-treated wood products are acceptable for use in the following AWWA Use Categories:³

4.3.1. UC4A Ground Contact – General Use/Non-Critical Component. Typical applications include: fence posts, deck posts, guardrail posts and utility poles located in regions of low natural potential for wood decay and insect attack.

4.3.2. UC4B Ground Contact – Heavy Duty/Critical Components. Typical applications include: building poles, horticultural posts and utility poles located in regions of high natural potential for wood decay and insect attack.

³These are AWWA designated wood preservation systems and retentions that have been determined to be effective in protecting wood products under specified exposure conditions. The strength of the UCS and its focus is that all wood uses can be placed into one of five major Use Categories that clearly describe the exposure conditions that specific wood products can be subjected to in service. The major Use Categories are further broken down into sub-categories to define the associated degree of biodegradation hazard and product service life expectations for specific products and exposure conditions. The Use Category system is designed to help specifiers and product users locate the appropriate AWWA Standards that specifies preservatives deemed acceptable for specific products and end-use environments.

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5. Applications:

5.1. General

- 5.1.1. Postsaver® System provides protection to nonpreservative-treated and preservative-treated wood posts and columns used in ground contact applications. Nonpreservative-treated wood posts and columns protected with the Postsaver® System shall only be used in applications where the building code does not require the above ground portion of the member to be preservative-treated (i.e., covered conditions or applications not exposed to weather).
- 5.1.2. Wood members shall comply with all applicable building codes for each application and the design shall be based on the requirements of each individual application.
- 5.1.3. Duration of load increases shall be in accordance with the limitations of the applicable building code, but not greater than 1.6 in accordance with *ANSI/AWC NDS*, Section 2.3
- 5.1.4. Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience and technical judgment.

5.2. Decay

- 5.2.1. Postsaver® System was tested in accordance with *EN 252* and *ENV 807* for decay. No decay was reported in any of the wrapped stakes at the 5-year mark of the *EN 252* test plan. Wrapping in the *ENV 807* testing provided an adequate barrier to prevent moisture intrusion or access to air, which are required in decay.

5.3. Termite Resistance

- 5.3.1. Postsaver® System was tested in accordance with *AWPA E1* for termite resistance. Results indicated termites did not feed on wrapped wood even in the absence of other sources of food.

5.4. Dynamic Impact Performance

- 5.4.1. As part of *EN 252* testing, field stakes were purposely punctured/cut in an effort to show equivalent performance to intact barrier stakes after 5 years of exposure to below-grade contact. Test results confirm those stakes with deliberate punctures/cuts performed as good as those stakes left intact and all exhibited no sign of fungal attack.

5.5. Strength

- 5.5.1. As an alternative to *ASTM D143* testing, Postsaver® System was analyzed by an independent engineer for the ability of the lumber to retain strength properties after being subject to high heat during the heat-shrink process of installing the polyethylene wrap. The conclusion of the analysis letter states:
 - 5.5.1.1. New posts on which Postsaver® System boots have been installed according to the manufacturer's recommended procedures will not have impaired structural strength compared to either untreated or preservative treated posts of the same species, quality and dimensions.

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6. Installation:

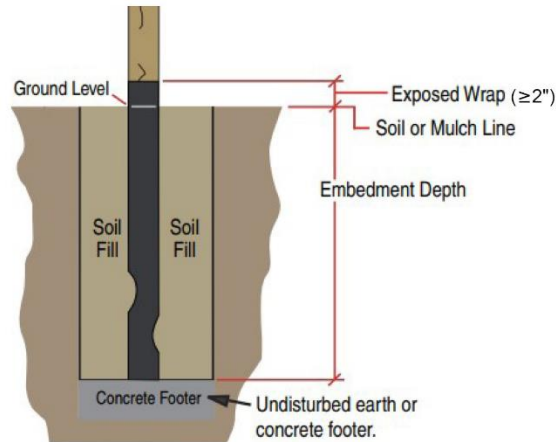
6.1. Postsaver® System protected wood posts shall be installed in accordance with the applicable code, the approved construction documents, this TER, the manufacturer's instructions and standard framing practice as applied to solid-sawn lumber, as applicable.

6.1.1. In the event of a conflict between any of the above and this TER, the more restrictive shall govern.

6.2. General

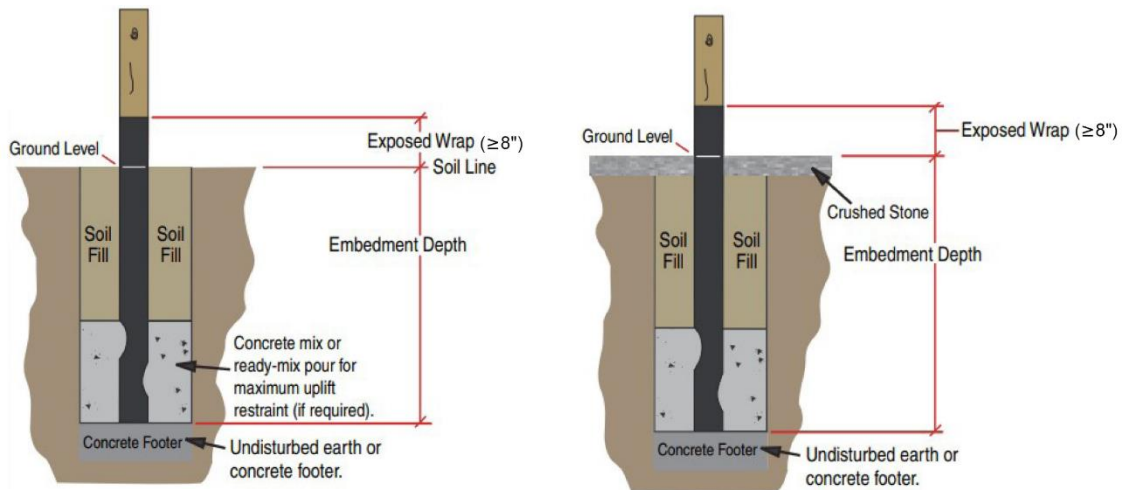
6.2.1. Note: Uplift Restraint Notches in bottom of post are enlarged for illustration purposes in the details below.

6.2.2. For non-structural applications such as fence posts, mailbox posts or sign posts, the top of the Postsaver® System wrap must be a minimum of 2" above the ground level or concrete surface line ([Detail 1](#)).



Detail 1

6.2.3. For structural applications requiring building code compliance such as support columns for post-frame construction, the top of the Postsaver® System wrap must be a minimum of 8" above the ground level. ([Detail 2](#) and [Detail 3](#)).

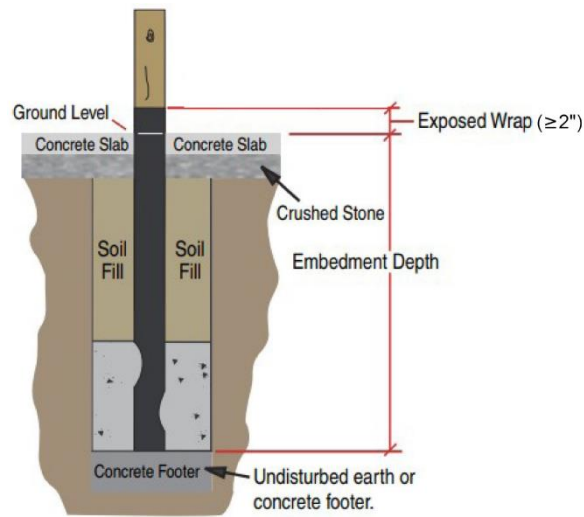


Detail 2

Detail 3

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- 6.2.4. If a concrete slab is installed, the top of the Postsaver® System wrap must be a minimum of 2" above the top of the concrete surface line ([Detail 4](#)).



Detail 4

7. Test and Engineering Substantiating Data:

7.1. Test reports and data support the following properties:

- 7.1.1. Tensile strength and shrinkage in accordance with *ASTM D882* and *ASTM 4801 (ASTM D1204)* by RADCO - Resources, Applications, Designs and Controls, Inc.
 - 7.1.2. Rate of decay in preservative-treated wood stakes and dynamic impact performance in accordance with *EN 252* by Building Research Establishment Ltd.
 - 7.1.3. Prevention of decay by soil inhabiting microflora in accordance with *ENV 807* by Building Research Establishment Ltd.
 - 7.1.4. Termite resistance in accordance with *AWPA E1* by Mississippi State University, Forest and Wildlife Research Center Mississippi Forest Products Laboratory.
 - 7.1.5. Professional engineering letter regarding *AWPA E10* testing by Mississippi State University, Forest and Wildlife Research Center Mississippi Forest Products Laboratory.
 - 7.1.6. Professional engineering letter regarding the Postsaver® System process heat effects on post strength by Stephen T. Smith, PE.
- 7.2. The product(s) evaluated by this TER fall within the scope of one or more of the model, state or local building codes for building construction. The testing and/or substantiating data used in this TER is limited to buildings, structures, building elements, construction materials and civil engineering related specifically to buildings.
- 7.3. The provisions of model, state or local building codes for building construction do not intend to prevent the installation of any material or to prohibit any design or method of construction. Alternatives shall use consensus standards, performance-based design methods or other engineering mechanics based means of compliance. This TER assesses compliance with defined standards, accepted engineering analysis, performance-based design methods, etc. in the context of the pertinent building code requirements.
- 7.4. Some information contained herein is the result of testing and/or data analysis by other sources, which DrJ relies on to be accurate, as it undertakes its engineering analysis.
- 7.5. DrJ has reviewed and found the data provided by other professional sources are credible. The information in this TER conforms with DrJ's procedure for acceptance of data from approved sources.
- 7.6. DrJ's responsibility for data provided by approved sources conforms with [IBC Section 1703](#) and any relevant professional engineering law.
- 7.7. Where appropriate, DrJ relies on the derivation of design values, which have been codified into law through codes and standards (e.g., *IRC*, *WFCM*, *IBC*, *SDPWS*, *NDS*, *ACI*, *AISI*, *PS-20*, *PS-2*, etc.). This includes

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review of code provisions and any related test data that aids in comparative analysis or provides support for equivalency to an intended end-use application. Where the accuracy of design values provided herein is reliant upon the published properties of commodity materials (e.g., lumber, steel, concrete, etc.), DrJ relies upon grade/properties provided by the raw material supplier to be accurate and conforming to the mechanical properties defined in the relevant material standard.

8. Findings:

8.1. When used in accordance with the manufacturer's installation instructions and this TER, Postsaver® System complies with, or provides a suitable alternative to, the codes and standards listed in [Section 2](#) as follows:

- 8.1.1. Resistance to fungal decay as required by [IBC Section 2304.12](#) and [IRC Section R317](#).
- 8.1.2. Protection from subterranean termites where required by [IBC Section 2304.12](#) and [IRC Section R318](#).
- 8.1.3. Weather resistance in accordance with *ASTM D4801*.
- 8.1.4. Dynamic impact performance in accordance with *EN 252*.
- 8.1.5. Strength retention of lumber in barrier system.

8.2. [IBC Section 104.11](#) and [IRC Section R104.11](#) ([IFC Section 104.9](#) is similar) state:

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code. [...] Where the alternative material, design or method of construction is not *approved*, the *building official* shall respond in writing, stating the reasons the alternative was not *approved*.

8.3. This product has been evaluated with the codes listed in [Section 2](#) and is compliant with all known state and local building codes. Where there are known variations in state or local codes that are applicable to this TER, they are listed here:

8.3.1. No known variations

8.4. This TER uses professional engineering law, the building code, ANSI/ASTM consensus standards and generally accepted engineering practice as its criteria for all testing and engineering analysis. DrJ's professional engineering work falls under the jurisdiction of each state board of professional engineers when signed and sealed.

9. Conditions of Use:

- 9.1. Where required by the authority having jurisdiction (AHJ) in which the project is to be constructed, this report and the installation instructions shall be submitted at the time of permit application.
- 9.2. Any generally accepted engineering calculations needed to show compliance with this TER shall be submitted to the code official for review and approval.
- 9.3. Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed.
- 9.4. Postsaver® System complies with the codes listed in [Section 2](#), subject to the following conditions:
 - 9.4.1. Do not drop or dump Postsaver® System products when unloading. Do not pick up the wrapped/barrier area of the post with a forklift or crane.
 - 9.4.2. Take all normal precautions to not damage the lumber material when handling. Do not use chains to unload material.
 - 9.4.3. Protect the wooden posts by keeping them off the ground when storing on a jobsite.
 - 9.4.4. Always protect the wrapped/barrier area from excessive heat.
 - 9.4.5. Do not apply banding on the wrapped/barrier area of the posts.

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- 9.4.6. Penetration of the wrap material below ground level by fasteners, bolts or nails is not permitted. Fastener penetration of the wrap material is permitted as long as it is at least 2" above ground level and there is no direct exposure to weather.
- 9.4.7. Use of Postsaver® System with non-preservative-treated wood is not permitted in applications where untreated areas of the wood are subject to direct exposure to the weather.
- 9.4.8. Postsaver® System shall not be used in areas where exposure to Formosan subterranean termites is expected.⁴
- 9.4.9. Use in tropical climate zones is outside the scope of this TER.

9.5. Design

9.5.1. Building Designer Responsibility

- 9.5.1.1. Unless the AHJ allows otherwise, the Construction Documents shall be prepared by a Building Designer for the Building and shall be in accordance with [IRC Section R106](#) and [IBC Section 107](#).
- 9.5.1.2. The Construction Documents shall be accurate and reliable and shall provide the location, direction and magnitude of all applied loads and shall be in accordance with [IRC Section R301](#) and [IBC Section 1603](#).

9.5.2. Construction Documents

- 9.5.2.1. Construction Documents shall be submitted to the building official for approval and shall contain the plans, specifications and details needed for the building official to approve such documents.

9.6. Responsibilities

- 9.6.1. The information contained herein is a product, material, detail, design and/or application TER evaluated in accordance with the referenced building codes, testing and/or analysis through the use of accepted engineering practice, experience and technical judgment.
- 9.6.2. DrJ TERs provide an assessment of only those attributes specifically addressed in the Products Evaluated or Code Compliance Process Evaluated sections.
- 9.6.3. The engineering evaluation was performed on the dates provided in this TER, within DrJ's professional scope of work.
- 9.6.4. This product is manufactured under a third-party quality control program in accordance with [IRC Section R104.4](#) and [R109.2](#) and [IBC Section 104.4](#) and [110.4](#).
- 9.6.5. The actual design, suitability and use of this TER, for any particular building, is the responsibility of the Owner or the Owner's authorized agent, and the TER shall be reviewed for code compliance by the Building Official.
- 9.6.6. The use of this TER is dependent on the manufacturer's in-plant QC, the ISO/IEC 17020 third-party quality assurance program and procedures, proper installation per the manufacturer's instructions, the Building Official's inspection and any other code requirements that may apply to demonstrate and verify compliance with the applicable building code.

10. Identification:

- 10.1. Postsaver System described in this TER is identified by a label on the material itself or the packaging material bearing the manufacturer's name, product name, TER number, Quality assurance agency name, additional listee's name and address and other information to confirm code compliance.
- 10.2. Additional technical information can be found at www.planetsaverind.com.

⁴ The Formosan subterranean termite (*Coptotermes formosanus*) has now become established in Florida and other southern states. At least one colony has been found in California (1995). www.termite.com/termites/formosan-subterranean-termite.html

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11. Review Schedule:

- 11.1. This TER is subject to periodic review and revision. For the most recent version of this TER, visit drjengineering.org.
- 11.2. For information on the current status of this TER, contact [DrJ Engineering](#).



- [Mission and Professional Responsibilities](#)
- [Product Evaluation Policies](#)
- [Product Approval – Building Code, Administrative Law, and P.E. Law](#)