

22-DrJ-0044.02  
April 14, 2023

National Shelter Products  
50 SE Bush St  
Issaquah, WA 98027-3807

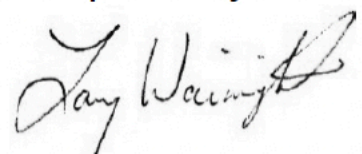
Re: Review of National Shelter Products Installation Instructions<sup>1,2,3</sup>

Dear Sir or Madam:

Thank you for contacting DrJ Engineering regarding proper installation of DRYline® TSX and Thermo-Sheath Structural Sheathing products. DrJ has reviewed the attached DRYline® TSX and Thermo-Sheath Structural Sheathing Installation Instructions and found the instructions consistent with and meet the requirements of the DRYline® TSX TERs and the Thermo-Sheath Structural Sheathing TERs.

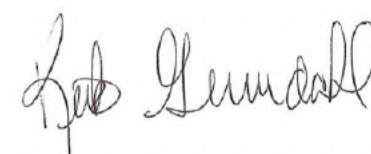
Please feel free to contact us at <https://www.drjcertification.org/contact-drj> if we can help further in any way.

Respectfully Submitted by:



Larry Wainright  
Vice President Product Certification  
608-310-6742

Reviewed and Respectfully Submitted by:



Kirk Grundahl, P.E. (47 states)  
Missouri P.E. No. PE-2012002145  
President  
608-217-3713



April 14, 2023

<sup>1</sup> The scope of work contained herein is limited to the specific engineering and/or code compliance analysis undertaken in this Research Report, which is also known as a duly authenticated report. This work has been prepared by an Approved Source, who is a Registered Design Professional (RDP). No representation or warranty is expressed or implied by this Research Report beyond the scope of work performed. Information, data, and/or analysis that becomes available in the future may justify modifications to this Research Report.

<sup>2</sup> Approval of an RDP takes place when the RDP is properly licensed in this state. Professional engineering laws grant the RDP the ability to undertake commerce applying engineering principles in their area of expertise.

<sup>3</sup> If terms used in this letter are defined in the building code, reference standards, TPI 1, the NDS, AISI S202, professional engineering law, these definitions apply. Undefined terms shall have ordinarily accepted meanings as the context implies.



## DRYline® TSX Structural Sheathing Installation Instructions

### General Provisions

DRYline® TSX Structural Sheathing shall be installed in accordance with the installation instructions outlined in the [appropriate National Shelter Products Technical Evaluation Report](#) and this installation detail. A copy of the installation instructions shall be available on the jobsite at all times during construction.

### Product Description

DRYline® TSX is a proprietary wall sheathing consisting of a multi-ply Engineered Fiber Sheathing Board laminated with a water-resistive adhesive and proprietary water-resistive facer on both sides.

Standard product width: 48 inches or 48  $\frac{3}{4}$  inches

Standard Lengths: 96 inches, 108 inches and 120 inches; other lengths available upon request.

### Orientation

Dryline® TSX Structural Sheathing shall be installed in the vertical or horizontal orientation with board joints placed directly over exterior framing that has a nominal thickness of not less than 2 inches (e.g., studs, plates or blocking) spaced a maximum of 24 inches o.c.

### Aspect Ratio

The maximum aspect ratio for Dryline® TSX Structural Sheathing shall be 4:1. The minimum full height panel width shall be 24 inches. Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with code-defined accepted engineering procedures, experience, and good technical judgement.

### Structural Applications

Dryline® TSX Structural Sheathing attachment to framing:

- Minimum 15/16-inch crown by 1  $\frac{1}{4}$  inch leg, 16 gage galvanized staples installed with the underside of the crown flush with the surface of the sheathing. Staples must penetrate a minimum of 1 inch into the stud.
- Minimum 0.120-inch x  $\frac{1}{4}$  inch galvanized roofing nail installed with the underside of the head flush with the surface of the sheathing. Nails must penetrate a minimum of 1 inch into the stud.
- Fastener spacing maximum of 3 inches o.c. (76.2 mm) along the edge and 3 inches o.c. in the field.
- Fastener edge distance is a minimum of 3/8 inch (9.5 mm). Staple crowns are to be parallel to the framing member.

Gypsum Wallboard attachment:

- Where required, gypsum wallboard shall be installed with a minimum #6 x 1  $\frac{1}{4}$  inch Type W or S screws or 5d cooler nails.
- For IRC and IBC prescriptive applications, gypsum fasteners shall be spaced a maximum of 8 inches o.c. at panel edges and 8 inches o.c. at intermediate framing. For engineered design, see the [appropriate National Shelter Products Technical Evaluation Report](#).
- Fastener edge distance is a minimum of 3/8 inch (9.5 mm).

## **DRYline® TSX Structural Sheathing Installation Instructions**

### **General Instructions**

- Do not tack the corners of Dryline® TSX Structural Sheathing to framing. Install panels in accordance with the illustrated fastening schedule on Page 3.
- Walls sheathed with DRYline® TSX Structural Sheathing shall not be used to resist horizontal loads from concrete and masonry walls.
- When DRYline® TSX Structural Sheathing is not installed for use as wall bracing, the walls shall be braced by other materials in accordance with the applicable code.
- Where the sheathing from an upper story extends over the rim joist and overlaps a lower story, the sheathing shall be fastened along the sole plate of the story above at 3 inches o.c. Further, one row of fasteners spaced 12 inches o.c. shall be located along the bottom third of the rim joist. The sheathing from the story above shall overlap the sheathing on the story below by a minimum of 2 inches. Fastening along the bottom edge of the sheathing overlap from the story above is not required.
- Where sheathing is installed directly over the foundation, leave a minimum 3/8" gap between the sheathing edge and the foundation.
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### **Non-Structural Applications**

Dryline® TSX Structural Sheathing may be used where other means of wall bracing are provided, or are not required, and an approved exterior wall covering capable of separately resisting loads perpendicular to the face of the walls is installed.

- Sheathing panels are applied to wall framing with minimum 0.120-inch x 1 ¼ inch galvanized roofing nails or 16-gauge galvanized staples having a 7/16-inch crown and 1 ¼ inch length.
- Fastener spacing shall be a maximum of 16 inches at the edges and 12 inches on intermediate members. Minimum fastener penetration into the framing members is ¾ inch.
- Stud spacing shall be a maximum of 24 inches o.c.

### **Treatment of Joints**

Dryline® TSX Structural Sheathing joints may be butted at framing members, with a single row of fasteners applied at each panel edge into the stud below. When used as a Water-resistive barrier, (WRB), one of the following methods shall be used:

1. Seams and Joints between boards shall be treated with one of the following methods:
  - Lapped a nominal ¾ inches with a single row of fasteners along each framing member or:
  - Covered by a minimum 1.5" (38 mm) wide DRYline® Sheathing Tape or equivalent.
2. When used as part of a continuous air barrier assembly, all sheathing panel edges at the top and bottom of the wall assemblies and all joints shall be sealed in accordance with IRC Section N1102.4.1.1 and IECC Section R402.4.1.1 and C402.5.1. All joints between sheathing panels shall be overlapped a nominal ¾ inches (19 mm) or covered by a minimum 1.5" (38 mm) wide DRYline® Sheathing Tape or equivalent.
3. When Dryline® TSX Structural Sheathing is not installed for use as a Water-resistive barrier, no joint treatment is required when a code-approved Water-resistive Barrier is installed over the sheathing.

### **Flashing for Windows and Penetrations**

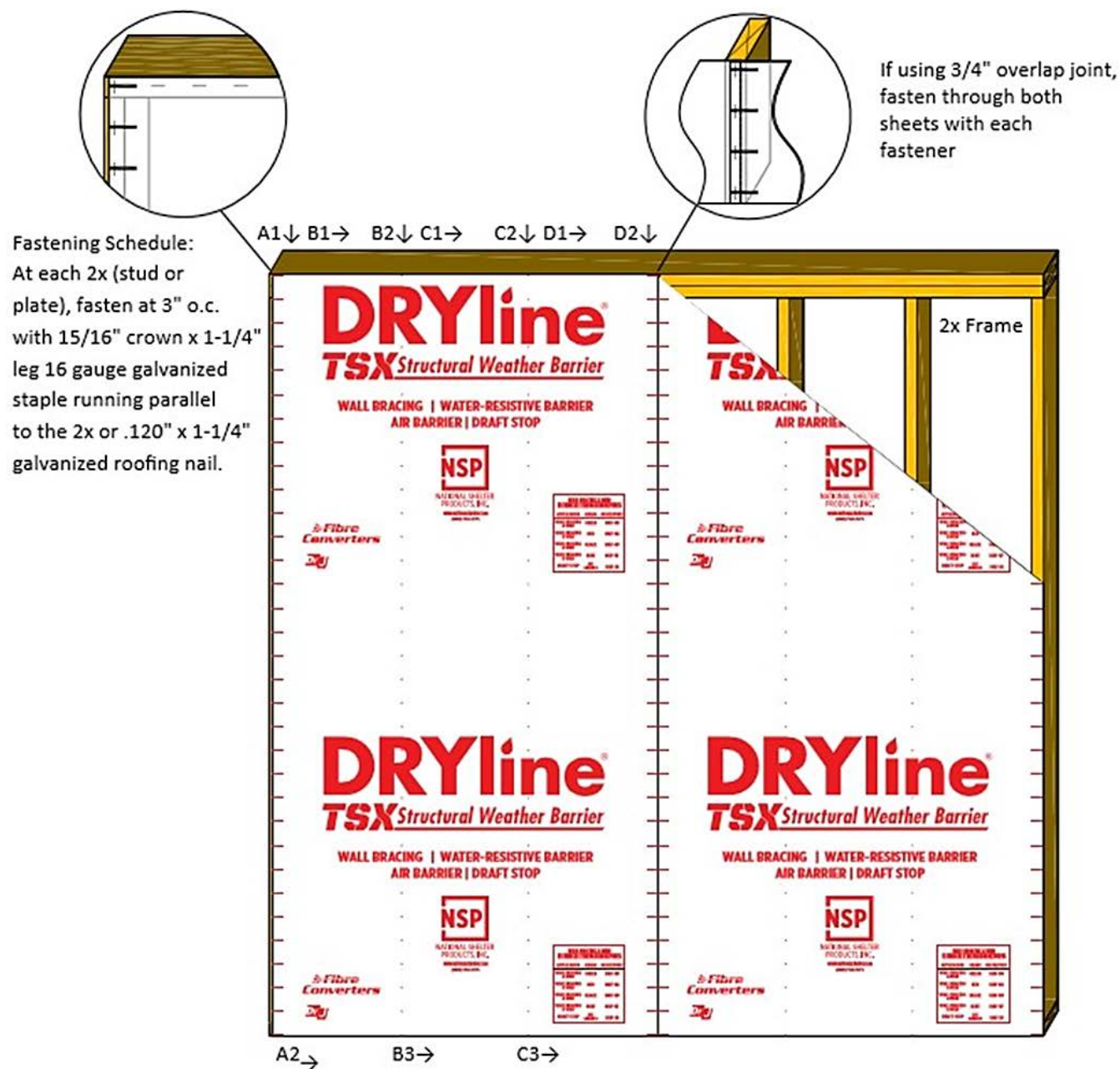
Flash all Windows and Penetrations with compatible AAMA 711 approved Self-Adhering Flashing Tapes or AAMA 714 approved liquid applied sealant, in accordance with IRC Section R703.4 and the manufacturer's installation instructions.





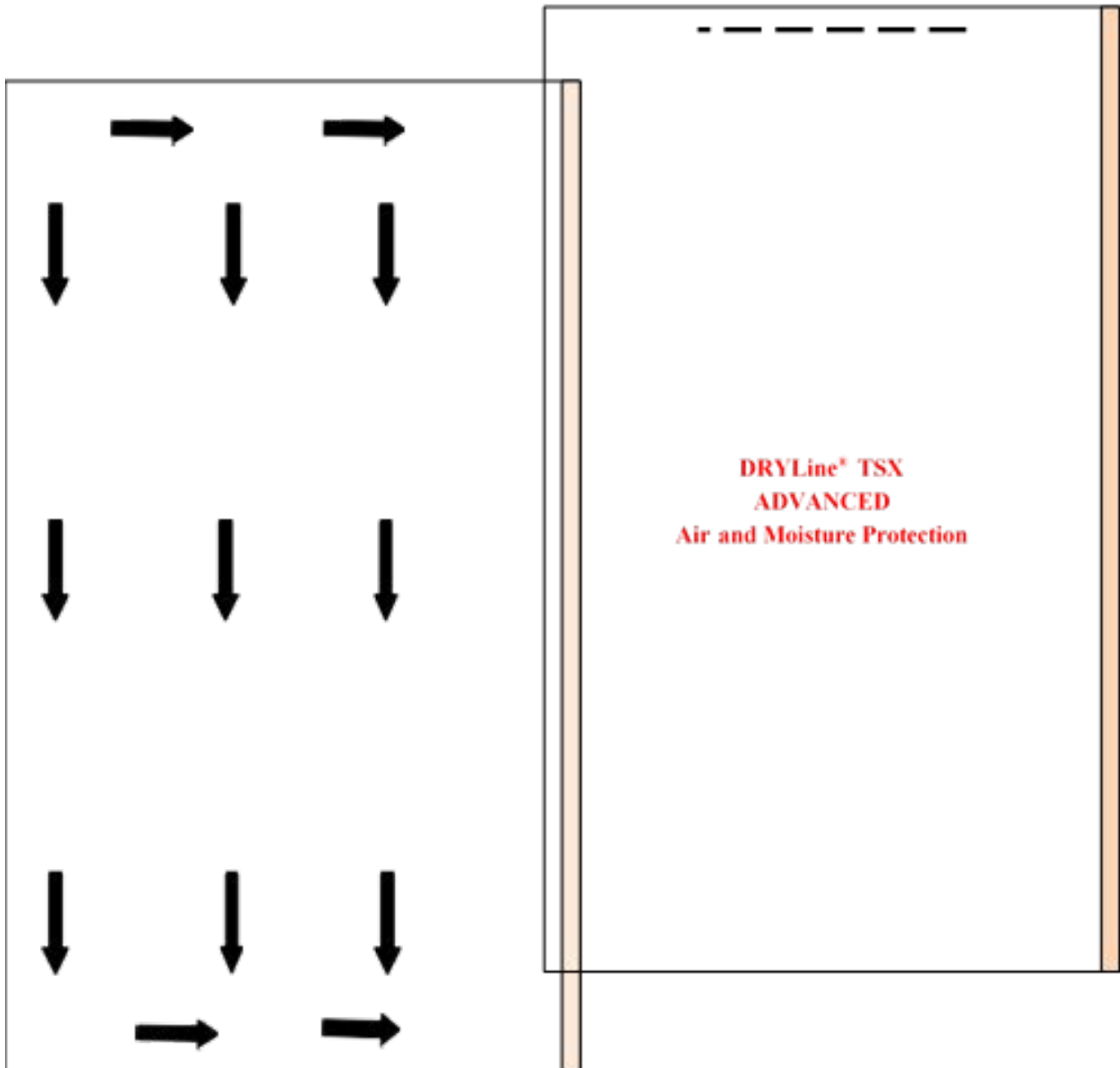
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## DRYline® TSX Structural Sheathing Installation Instructions



### Fastening Schedule:

- Step A – (A1) starting in the top left corner, fasten down the left side of the sheet and then (A2) across the bottom stopping at the next vertical 2x.
- Step B – (B1) starting in the top left corner, fasten across the top of the sheet stopping at the next vertical 2x, then (B2) down that 2x starting at the top, and then (B3) across the bottom stopping at the next vertical 2x.
- Step C – Repeat step B.
- Step D – (D1) starting at the previous vertical 2x, fasten across the top of the sheet stopping at the next vertical 2x. If the last sheet or a butt joint, (D2) fasten starting at the top of the last 2x. If installing another sheet with an overlapping joint, overlap the next sheet and repeat starting with Step A, fastening through both sheets with each fastener.



(USE TER SPECIFIED FASTENER SCHEDULE)

**Steps:**

1. From the top un-taped corner fasten horizontally leaving the last 3" unfastened.
2. Again, from the top un-taped corner fasten downward toward the bottom corner.
3. Repeat the same downward fastening along each vertical framing member leaving the framing member nearest the taped edge unfastened.
4. Fasten along the bottom plate stopping 3" from the taped edge.
5. Position the next panel adjacent to the first with its un-taped vertical edge lapped  $\frac{3}{4}$ " over the first panel's taped edge.
6. Fasten the new panel along the top plate away from the vertical lapped seam.
7. From the top, peel-away the tape release liner at the lapped seam (always grasp the release liner dry edge, taking care to avoid damaging the DRYline® TSX ADVANCED AMP protective coating).
8. Press the seam together by smoothing it with hand pressure or a roller.
9. Fasten downward along the lapped and taped seam.
10. Repeat Steps 3-8 with each successive panel.



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### DRYline® TSX Structural Sheathing Installation Instructions

Over-driven and mis-located Fasteners	Install a new correctly seated fastener next to the Over-driven or mis located fastener. Seal over the Over-driven or mis-located fastener using AAMA 711 approved Flashing Tape.
Damage to Poly Surface	Seal the entire damaged area using AAMA 711 approved Flashing tape.
Minor Tear or damage in Non-Structural Applications	Cover the entire Tear/damaged area using AAMA 711 approved Flashing tape.
Tear or damage up to 5" in length/diameter in Structural Applications.	Seal the Tear or Damaged area with AAMA 711 approved Self-adhered flashing tape. Block around the Tear or Damaged area with minimum 2-inch x 4-inch wood frame blocking and fasten in accordance with TER 1407-07. If replacing a section of torn or damaged Sheathing, seal all edges with AAMA 711 approved Self-adhering Flashing Tape; always install the replacement section in a manner that provides a proper downward drainage path (Do not reverse shingle).
Tear or damage greater than 5" in length/diameter in Structural Applications	Remove and replace the damaged section of panel. Provide minimum 2-inch x 4-inch wood frame blocking around the perimeter of the newly installed section, ensuring it is fastened in accordance with TER 1407- 07. Seal the perimeter with AAMA 711 approved Self-adhered flashing tape; always install the replacement section in a manner that provides a proper downward drainage path (Do not reverse shingle).
Opening around installed electrical boxes, and/or plumbing.	Seal the perimeter with AAMA 711 approved Self-adhered flashing tape, providing downward drainage path (do not reverse shingle) or seal around the electrical box with an approved Water-resistant /Air Barrier spray foam in accordance with the manufacturer's installation instructions, ensuring that there are no voids to allow air or water penetration.