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## OBJECTIVE

The purpose of these installation guidelines is to provide valuable information and guidance for building professionals, construction experts and contractors qualified to install commercial building envelope components who utilize DRYline® Building Envelope products in commercial projects.

Due to the significant variations in design, height, and location of commercial buildings, it is crucial for the design professional to assess the loads exerted on the materials. This evaluation is necessary to ensure that the chosen material is suitable and capable of fulfilling its intended purpose in a specific building. The design professional should carefully examine these guidelines to ascertain their relevance to their project.

Please note that this installation guide presents the basic requirements for installation but does not encompass all the specific details which may be necessary for a particular building.

## APPLICABLE PRODUCTS

### Mechanically Attached Water Resistive and Air Barriers ("DRYline Commercial WRBs")

Product	Dimension	Description
<b>DRYline HPX Commercial (white)</b>	5' x 200' 10' x 100'	Three-layer UV stabilized water resistive barrier and air barrier with 9-month UV exposure.
<b>DRYline HPX Commercial (black)</b>	5' x 200' 10' x 100'	Three-layer UV stabilized water resistive barrier and air barrier with 12-month UV exposure

Notes: (1) Other sizes upon request.

### Self-Adhering Flashing Products and Transition Membranes ("DRYline Accessory Products")

Product	Dimension	Description
<b>DRYline ATX Flashing</b>	3" x 75' 4" x 75' 6" x 75' 9" x 75' 12" x 75'	UV stabilized flashing and transition membrane for straight (non-extensible) details.
<b>DRYline ATX Flex Flashing</b>	6" x 50' 9" x 50' 6" x 25'	UV stabilized flashing and transition membrane for radial and other details requiring an extensible membrane material.
<b>DRYline MTX Transition Wrap</b>	9" x 300'	UV stabilized flashing and transition membrane for straight (non-extensible) details.
<b>DRYline Seam Tape</b>	3" x 165'	Self-wound detailing tape for seaming overlap joints of DRYline Commercial WRBs.

## Accessory Products

Product	Dimension	Description
<b>TRUFAST® Walls Grip-Deck screws with TRUFAST® Thermal-Grip FastCap™</b>	2" diameter cap, screw length and type (SDS or HiLo) in accordance with manufacturer's guidelines.	Stabilized fastener caps for maintaining air barrier properties.
<b>Approved Sealants</b>	n/a	For information regarding chemical compatibility of these products, please visit <a href="http://nationalshelter.com/resources">nationalshelter.com/resources</a> .
<b>Approved Primers</b>	n/a	For information regarding chemical compatibility of these products, please visit <a href="http://nationalshelter.com/resources">nationalshelter.com/resources</a> .

Notes: (1) The reference to Approved Sealants and Approved Primers shall not be construed as an endorsement of their specific performance attributes or a recommendation for their use. There is no warranty by National Shelter Products, Inc., express or implied, related to the use of an Approved Sealant or Approved Primer.

Please visit [nationalshelter.com/resources](http://nationalshelter.com/resources) for additional information and disclaimers related to the use of the Approved Sealants and Approved Primers with DRYline Commercial WRBs and DRYline Accessories.

## WARRANTY

01. A limited warranty applies to all DRYline products referenced in this document. For details, please visit [nationalshelter.com/resources](http://nationalshelter.com/resources).
02. National Shelter Products does not warrant or guarantee the performance of any accessory products which are not supplied by National Shelter Products. Please refer to the specific accessory manufacturer for warranty information.

## BUILDING CODE REQUIREMENTS

### DRYline Commercial WRB Products

01. DRYline Commercial WRBs have been evaluated by accredited certification bodies having ISO-IEC 17065 accreditation as water-resistive barriers in accordance with ICC-ES AC 38 for the following scope:
  - a. 2021 International Building Code
  - b. 2018 International Building Code
  - c. 2015 International Building Code
  - d. 2021 International Energy Conservation Code
  - e. 2018 International Energy Conservation Code
  - f. 2015 International Energy Conservation Code
02. DRYline Commercial WRBs are recognized for use under the codes referenced above through the following evaluation reports:
  - a. Intertek Testing Services CCRR No. 1125

### Dryline Self-Adhering Flashing Products

01. DRYline Self-Adhering Flashing Products have been tested by accredited testing facilities for compliance with the following standard(s):
  - a. AAMA 711 – Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products

### Additional Codes and Standards

01. ASTM E 2556 - Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment
02. ASTM E 84 - Standard Method of Test for Surface Burning Characteristics of Building Materials
03. ASTM E 2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials
04. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Pressure
05. ASTM E 2273 - Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies

06. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior

## ADDITIONAL CONSIDERATIONS

DRYline Commercial WRBs are designed as secondary barriers which shed liquid water that may penetrate through the cladding when installed as part of a water-resistive barrier assembly. Additional materials and components shall be used to work with the DRYline Commercial WRBs to direct the water to the exterior of the building enclosure.

DRYline Commercial WRBs are specifically designed to minimize air infiltration and exfiltration as a key component of a finished wall assembly. They surpass the maximum requirements for classification as an air barrier material.

Care shall be taken by the design professional to ensure that condensation and dew points wall on the exterior side of the DRYline Commercial WRB.

07. Buildings that require NFPA 285 compliance must incorporate DRYline Commercial WRBs in assemblies that undergo review by a licensed engineer. For wall assemblies that have been evaluated and approved by a licensed engineer, please visit [nationalshelter.com/resources](http://nationalshelter.com/resources).
08. DRYline HPX Commercial achieved 98% drainage efficiency during testing conducted in accordance with ASTM E2273.
09. For building envelope design requirements that exceed 0.56 psf water infiltration resistance per ASTM E1677 (15 mph equivalent wind-driven rain), the use of DRYline ATX Flashing or other patches approved by National Shelter Products behind fastening plates such as brick tie base plates, metal fastening clips, and metal channels is required. When utilized behind facade fasteners and/or fastening plates, the flashing patch must be securely adhered to the DRYline Commercial WRB.
10. DRYline Self-Adhering Flashing Products should be installed on clean, dry surfaces free of frost. Prior to installation, wipe the surfaces to remove moisture, dirt, grease, and other debris that could hinder adhesion
11. DRYline Self-Adhering Flashing Products exhibit optimal performance when installed at temperatures above 10°F (-12°C).
12. In the presence of adverse weather conditions or cold temperatures, it may be necessary to use a recommended adhesive/primer to enhance the adhesion of DRYline Self-Adhering Flashing Products to common substrates. When working with concrete, masonry, and fiber-faced exterior gypsum board, the use of a recommended adhesive/primer is required. Please note that applying an adhesive/primer to exterior continuous insulation may cause potential sheathing degradation and is not recommended.
13. During the installation of DRYline Self-Adhering Flashing Products, apply pressure along the entire surface of the flashing to ensure a strong bond. This can be achieved through firm hand pressure, a J-roller, or an alternative

- tool without sharp edges (e.g., a plastic carpet tuck tool), facilitating the application of uniform pressure.
14. For best adhesion, while installing DRYline Self-Adhering Flashing Products, remove any wrinkles and air gaps by smoothing the surface and adjusting the positioning as necessary. Apply pressure along the entire surface of the flashing using firm hand pressure, a J-roller, or a tool without sharp edges (such as a plastic carpet tuck tool) to ensure uniform pressure and a consistent bond free of bubbles or other voids in adhesion.
  15. DRYline ATX and ATX Flex Flashing products are not intended for use as through-wall flashing applications.
  16. When utilizing mechanically-fastened through-wall flashing, DRYline ATX Flashing may be used to seal the top edge of the through-wall flashing.
  17. For sill areas of windows and doors being flashed with DRYline Self-Adhering Products, National Shelter Products recommends the use of 6" wide DRYline ATX Flex Flashing for 2" x 4" framing and 9" wide DRYline ATX Flex Flashing for 2" x 6" framing. If rigid back dams are required or desired, one option is to use a 3/4" corner guard (back dam) cut to the length of the sill and nail it in place on the interior edge of the sill before installing the 9" wide DRYline ATX Flex. Next, install the 9" wide DRYline ATX Flex over the sill and the corner guard back dam. It is essential to create an effective continuous interior perimeter seal, accounting for the presence of a back dam.
  18. Do not stretch DRYline ATX Flex Flashing when installing it along the rough opening (e.g., sill, jambs, and/or head). DRYline ATX Flex Flashing is intended to be stretched only when covering corners or curved sections.
  19. DRYline Self-Adhering Flashing Products can bridge non-movement gaps of up to 1" unsupported. The flashing must maintain a 2" adhesive lap on the wall substrate.
  20. When installing DRYline Commercial WRB near openings, do not install fasteners within 6" of the sills and jambs of the openings, as well as within 9" of the head of the openings.
  21. It is recommended that fasteners are not placed in areas where flashing will be installed. Do not apply DRYline Seam Tape or DRYline Self-Adhering Flashing Products over fasteners.
  22. When the DRYline Commercial WRB is installed over exterior insulation, it must be fastened with TRUFAST® Walls Thermal-Grip FastCap fasteners.
  23. Fasteners shall be installed into framing members or sheathing which is rated as a nailing base by the sheathing manufacturer. For high pressure design loads, it is mandatory to use DRYline ATX Flashing in conjunction with recommended fasteners to secure the head flap of the windows.
  24. For high pressure design loads, it is mandatory to use DRYline ATX Flashing in conjunction with recommended fasteners to secure the head flap of the windows.
  25. When building envelope design requirements exceed 65 mph equivalent structural load and 15 mph equivalent wind-driven rainwater infiltration resistance in accordance with ASTM E1677, 3" DRYline Seam Tape should not be used to terminate DRYline Commercial WRB flaps at window jambs and head. Instead, DRYline Self-Adhering Flashing Products provide a more robust termination.
  26. The framing of door and window rough sills must be level or slightly sloped to the exterior to ensure proper drainage away from the interior of the building. As a best practice ensures, maintain a continuous, positive slope towards the exterior.
  27. DRYline Commercial WRBs must not come into direct contact with other manufacturers' cured or uncured fluid-applied and/or deck coating waterproofing products, as this may affect their performance properties.
  28. DRYline HPX Commercial (white & black surface), DRYline ATX Self-Adhering Flashing Products, and DRYline MTX Transition Wrap must be covered within 9 months (270 days) of installation.
  29. When used in two-layers, DRYline HPX Commercial (black surface) may be used in conjunction with open-joint claddings. Maximum open joint size between cladding components is up to 2" horizontal and 1/2" vertical open joints. Maximum 40% total open wall area. DRYline HPX (black side exposed) shall be installed shingle fashion, with overlaps being 50% + 2" of the total roll width.
  30. The maximum in-service temperature for DRYline Commercial WRBs and DRYline Self-Adhering Flashing Products is 180°F.



## INSTALLATION GUIDELINES

### General Installation Requirements

#### 01. Continuity

- a. The continuity of the DRYline Commercial WRBs throughout the building envelope must be maintained. The entire wall surface shall be wrapped, including unconditioned spaces. Ensure a 6" overlap is incorporated at all terminations, seams, penetrations, and transitions to maintain a continuous downward drainage plane and water-resistive barrier.

#### 02. Substrate

- a. DRYline Commercial WRBs may be installed over compatible substrates. Ensure there are no underlying protrusions which could damage the DRYline Commercial WRBs or DRYline Self-Adhering Flashing Products.

#### 03. Penetrations

- a. Seal the DRYline WRB around all penetrations (electrical, HVAC and plumbing, etc.) with the appropriate DRYline Self-Adhering Flashing Product. The rough opening can be sealed from the interior side using a compatible sealant (and backer rod as necessary) or specified foam.

#### 04. Overlap

- a. Ensure proper shingling with a 6" minimum overlap of water-resistive barrier components from the bottom to the top of the wall to help facilitate proper drainage.

#### 05. Sealants and Adhesives/Primers

- a. Review the manufacturers' literature or label to confirm that the product(s) used have the chemical and adhesive properties necessary for use with DRYline Commercial WRBs and DRYline Self-Adhering Flashing Products. For information regarding chemical compatibility of these products, please reference Technical Bulletin [nationalshelter.com/resources](http://nationalshelter.com/resources).

### Fasteners

#### Performance Criteria

01. Building air barrier performance not exceeding ASTM E1677, water infiltration resistance criteria not exceeding 6.24 psf when tested in accordance with ASTM E331, ASTM E1105, or equivalent, and, total building height above grade plane not to exceed 70'.
  - a. Use nails or staples having a 1" diameter, UV-stable plastic cap.
  - b. Apply fasteners along stud lines spaced at 6–18" vertically. Fasteners that miss the framing member should be removed and the hole repaired with a compatible sealant or 4" x 4" patch of DRYline ATX Flashing.
02. Building air barrier performance exceeding ASTM E1677, water infiltration resistance criteria exceeding 6.24 psf when

tested in accordance with ASTM E331, ASTM E1105, or equivalent, and, total building height above grade plane greater than 70'.

- a. Use TRUFAST® Walls Grip-Deck® screws with Thermal-Grip FastCap™ washers, or recommended alternates, per the fastening schedule included in this installation guideline. Fasteners should be secured to the framing membrane. It is not acceptable for screw fasteners to attach to the exterior sheathing only. Recommended screw cap fasteners that miss the framing member should be removed and the hole repaired with an approved sealant or 4" x 4" patch of DRYline ATX Flashing.
- b. Recommended Fasteners:
  - TRUFAST® Walls Grip-Deck® screws with Thermal-Grip FastCap™ washers installed at 16" vertical spacing along stud lines for 16" o.c. framing.
  - 1-1/4" metal gasketed washers with screws (for steel frame construction)
  - 2" metal gasketed washers with screws (for steel frame construction)
  - Tapcon® fasteners with 2" plastic caps (for masonry construction)
  - For use of additional fastener types, please send request to [sales@nationalshelter.com](mailto:sales@nationalshelter.com).
- c. Metal frame construction:
  - 1-5/8" - 6" TRUFAST® Walls Grip-Deck® Self-Drilling screws with 2" dia. Thermal-Grip FastCap™ washer.
  - 1-5/8", 2", 2-1/2", and 3" screws can be installed with standard hand drill or Grip-Lok® Autofeed Fastening System with modified nose adaptor.
  - 3-1/2" to 6" screws should be installed with standard hand drill.
  - A minimum of 4 threads screw penetration through the steel stud is required.
- d. Wood frame construction:
  - 1-5/8" - 6" TRUFAST® Walls Grip-Deck® HiLo Thread Screws with 2" Thermal-Grip FastCap™ washer.
  - 1-5/8" screws can be used for structural loading performance requirements per ASTM E2357 and water infiltration resistance up to 9 psf. 2" or longer screws must be used for structural loading performance requirements per ASTM E2357 and water infiltration resistance up to 15 psf. A minimum 1" of screw penetration into the wood stud is required for assemblies requiring 15 psf water infiltration resistance.

# INSTALLATION METHOD FOR NEW BUILDINGS, DRYline COMMERCIAL WRB INSTALLED BEFORE WINDOWS/DOORS

## STEP 1

01. Starting at a corner of the building unroll the DRYline Commercial WRB keeping the roll plumb. Extend approximately 12" past either the inside or outside corner of the wall.
02. Vertically overlap the next sheet of DRYline Commercial WRB by at least 6".
03. It is critical that all laps have proper shingling. It is recommended that DRYline Commercial WRBs are installed from the bottom of the building up to ensure proper shingling.
04. Vertical installation of DRYline Commercial WRBs is acceptable. 6" overlap and proper shingling of vertical and horizontal seams is required.

## STEP 2

01. Ensure DRYline Commercial WRBs overlaps the through wall flashing by a minimum 4".

## STEP 3

01. Secure the DRYline Commercial WRBs by fastening into the studs. For fastener type and spacing refer to the applicable section of this document.
02. NOTE: In order to keep the DRYline Commercial WRBs from being damaged by cladding installation, special attention should be taken to ensure that the product is pressed tightly into any inside corners before fastening.

## STEP 4

01. Unroll the DRYline Commercial WRB directly over window and door rough openings. Upper layer of DRYline Commercial WRB should overlap bottom layer of the DRYline Commercial WRB by a minimum of 6". Do not install fasteners within 6" of the sills and jambs of the openings and within 9" of the head of the openings. The DRYline Commercial WRB will be secured at these locations during flashing installation.

## STEP 5

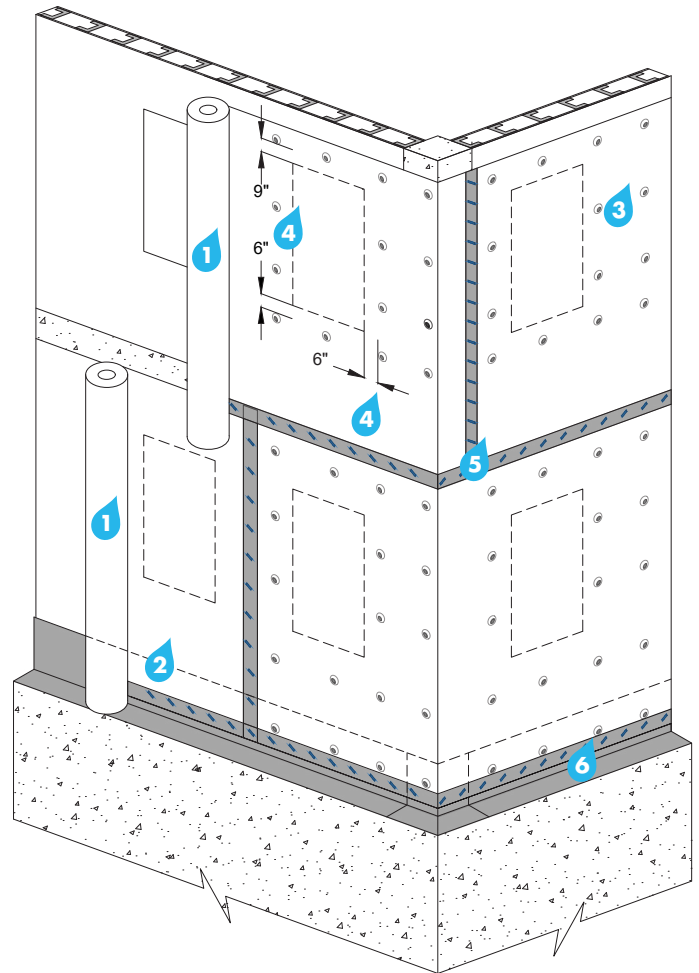
01. Tape all horizontal and vertical seams of the DRYline Commercial WRB with 3" DRYline Seam Tape.

## STEP 6

01. Terminate the DRYline Commercial WRB at the bottom of the wall with either 3" DRYline Seam Tape or DRYline ATX Flashing. If 3" DRYline Seam Tape is used to terminate the DRYline Commercial WRB along the base of a wall, install the 3" DRYline Seam Tape prior to taping the vertical DRYline Commercial WRB overlaps. DRYline ATX Flashing is the recommended product for terminating DRYline Commercial WRBs at the bottom of a wall.

## STEP 7

01. Following installation of the DRYline Commercial WRB, refer to the applicable standard for window installation published by the American Architectural Manufacturer's Association (AAMA).



## KEY INSTALLATION GUIDELINES FOR WINDOW AND DOOR FLASHING.

01. DRYline ATX Flashing Products have been tested in accordance with AAMA 711 (Voluntary Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products) and when installed properly, help protect window-wall interfaces in conjunction with other design elements.
  - a. Fenestration Products) and when installed properly, help protect window-wall interfaces in conjunction with other design elements.
02. Ensure that sill flashing does not slope to the interior. An exterior slope is recommended.
03. Wall assemblies shall be built to direct water onto an certified water resistive barrier complying with ICC-ES AC308 or ASTM E2556 with an unobstructed path to the exterior of the wall. A means for drainage shall be provided for any water intrusion which may occur through the window/door attachment system that collects at the sill.
04. DRYline ATX Flashing Products shall be integrated with the DRYline Commercial WRB in accordance with details provided by National Shelter Products or a licensed design professional. DRYline Self-Adhering Flashing Products shall maintain a minimum 2" lap onto the DRYline Commercial WRB.
05. DRYline Self-Adhering Flashing Products shall be covered within nine months (270 days) of installation.) of installation.
06. Properly prepare all surfaces (remove dirt, dust, or moisture, etc.) per manufacturer's recommendations.
07. Common factors which may impact intended performance and require attention by the design professional and installers include:
  - a. Environmental considerations including rainfall, wind, temperature and humidity;
  - b. Building design, such as window/wall design (including soffits, recessed openings, bump-outs, etc), wall structure (steel frame or masonry), window type (non-flanged, storefront, curtain wall, wood, or vinyl), new construction or replacement window drainage path;
  - c. UV exposure prior to the completion of the final wall assembly;
  - d. Code requirements for fire resistance. For NFPA 285 compliance, please visit [nationalshelter.com/resources](http://nationalshelter.com/resources).
08. Field testing the window and door, and wall installation as a complete system is a recommended best practice.
09. Installation by trained installers having expertise in the application of water-resistive barriers, air barriers and flashing systems is highly recommended.
10. Sealants and Adhesives/Primers
  - a. Ensure that all sealants, adhesives and primers are compatible with DRYline Commercial WRBs and DRYline Self-Adhering Flashing Products. Visit [nationalshelter.com/resources](http://nationalshelter.com/resources) for further information regarding sealants, adhesives and primers with DRYline Commercial WRBs and DRYline Self-Adhering Flashing Products.

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