



Tyvek.

DuPont™
Tyvek®
CommercialWrap®

DuPont™
Tyvek®
Wrap Caps

DuPont™
Tyvek®
CommercialWrap® D

DuPont™
Tyvek®
Tape



DUPONT™ TYVEK® MECHANICALLY FASTENED AIR AND WATER BARRIER INSTALLATION GUIDELINES

FOR BUILDINGS GREATER THAN 4 STORIES AND HIGH PERFORMANCE INSTALLATIONS OF ANY HEIGHT

REVISION 6/18

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Note

This installation guideline outlines recommended installation techniques and details for DuPont™ Tyvek® CommercialWrap and/or DuPont™ Tyvek® CommercialWrap D, referred to in this document as DuPont™ Tyvek® air and water barriers and where applicable, DuPont™ self-adhered flashing products.

DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Applicable Products

Air and Water Barriers

PRODUCT	DIMENSIONS	AREA
DuPont™ Tyvek® CommercialWrap®	5 ft x 200 ft 10 ft x 125 ft	1,000 sq ft 1,250 sq ft
DuPont™ Tyvek® CommercialWrap® D	5 ft x 200 ft 10 ft x 125 ft	1,000 sq ft 1,250 sq ft

Installation Accessories

PRODUCT	TYPE	QUANTITY
DuPont™ Tyvek® Tape	3" Bulk Pack	24 Rolls/Case
DuPont™ Tyvek® Wrap Caps screws	2" dia. plastic cap, 1-3/4" screw length	1,000 Caps/Box

Self-Adhered Flashing Products

PRODUCT	WIDTH
DuPont™ FlexWrap™ NF	6 in 9 in
DuPont™ FlexWrap™ EZ	2-3/4 in
DuPont™ StraightFlash™	4 in 9 in
DuPont™ StraightFlash™ VF	6 in
DuPont™ Flashing Tape	4 in 6 in 9 in 12 in

Required Materials Based on Project Requirements, Details, and Specifications*

PRODUCT
DuPont™ Adhesive/Primer
DuPont™ Window & Door Foam Sealant*

*Apply per manufacturer's guidelines. For non DuPont products, DuPont assumes no liability in use of recommended products; installers need to evaluate suitability of recommended products in their end-use applications.

Warranty

Please refer to the [DuPont Weatherization Products 10-Year Limited Warranty for Buildings Greater Than 4 Stories](#). For buildings less than 5 stories, and low-rise multi-family buildings less than 6 stories, please refer to the [DuPont Weatherization Products 10-Year Limited Warranty for Buildings Less Than 5 Stories and Low-Rise Multi-Family Residential Buildings Less Than 6 Stories](#).

Weather Barrier & Energy Conservation Codes and Standards

The 2018 International Building Code (Section 1402.2 Weather Protection) requires that "exterior walls shall provide the building with a weather resistant exterior wall envelope. The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-resistive barrier behind the exterior veneer, as described in Section 1403.2, and a means for draining water that enters the assembly to the exterior. The exterior wall envelope shall include flashing, as described in Section 1404.4." DuPont™ Tyvek® Weatherization System products for commercial construction have been tested to the following standards:

- ABAA Evaluated
- ASTM E 2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- ASTM E 1677 Standard Specification for an Air Retarder (AR) Material or System for Low-Rise Framed Building Walls
- ASTM E 331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Pressure
- ASTM E 2178 Standard Test Method for Air Permeance of Building Materials
- ASTM E 283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen
- ASTM E 2556 Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment
- ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
- NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Energy Conservation Codes for commercial buildings are being adopted in many regions across the U.S. DuPont™ Tyvek® mechanically-fastened air and water barrier products meet the following codes and guidelines.

- ASHRAE 90.1 Model Energy Code air barrier requirements
- 2015 International Energy Conservation Code® (IECC)
- 2015 International Green Construction Code™ (IgCC)
- Minnesota Commercial Energy Code, Section 1323.0543, Section 5.4.3
- Massachusetts State Building Code 780 CMR 120.AA
- Wisconsin Building Code, Energy Conservation, Chapter Comm 63
- Michigan Building Code
- Rhode Island Building Code
- Georgia Building Code
- Florida Building Code

The DuPont™ Tyvek® mechanically-fastened air and water barriers meet the ICC-ES AC-38 Water-Resistive and Air-Barrier requirements as listed in the following code reports.

ICC-ES Evaluation Report ESR-2375:

- DuPont™ Tyvek® CommercialWrap®
- DuPont™ Tyvek® CommercialWrap® D

Special Considerations

1. High performance installations are defined as building envelope design requirements that exceed ASTM E1677, 65 mph equivalent structural load and 15 mph equivalent wind-driven rain water infiltration resistance.
2. DuPont™ Tyvek® CommercialWrap® D shall be installed with the grooves going up and down.
3. DuPont requires that DuPont™ Tyvek® CommercialWrap® and DuPont™ Tyvek® CommercialWrap® D be covered within nine (9) months (270 days) of installation.
4. DuPont requires that DuPont™ FlexWrap™ EZ, FlexWrap™ NF, StraightFlash™, and StraightFlash™ VF be covered within nine months (270 days) of installation. DuPont requires that DuPont™ Flashing Tape be covered within four months (120 days) of installation.
5. DuPont™ self-adhered flashing products are not intended for through-wall flashing applications.
6. When using mechanically fastened through-wall flashing, DuPont recommends sealing top edge with DuPont™ self-adhered flashing products.
7. No surface preparation is needed for the installation of DuPont™ Tyvek® air and water barriers.
8. Adverse weather conditions or cold temperatures may require use of a primer to promote adhesion of DuPont™ self-adhered flashing products to most common building materials. Concrete, masonry, and fiber faced exterior gypsum board require the use of DuPont™ Adhesive/Primer. Do not apply DuPont™ Adhesive/Primer to foam sheathing due to potential sheathing degradation.
9. DuPont™ self-adhered flashing products perform best when installed at temperatures above 25°F (-4°C).
10. Before applying 3" DuPont™ Tyvek® Tape, surfaces should be dry and clean. During installation apply firm, even pressure with hand or "J" roller.
11. 4" DuPont™ Flashing Tape is an alternative to 3" DuPont™ Tyvek® Tape where specified.
12. Remove all wrinkles and bubbles that may allow for water intrusion by smoothing surface and repositioning as necessary during installation of DuPont™ self-adhered flashing products. Apply pressure along entire surface of flashing for a good bond using firm hand pressure, J-roller, or alternate tool without sharp edges (such as a plastic carpet tuck tool) to assist with application of uniform pressure.
13. DuPont™ StraightFlash™, DuPont™ Flashing Tape or DuPont recommended alternate patches behind cladding fasteners is considered a recommended best practice to improve performance in commercial construction. High performance installations require DuPont™ StraightFlash™, DuPont™ Flashing Tape or DuPont recommended alternate must be used at terminations and as patches behind fastening plates (brick tie base plates, metal fastening clips, metal channels, etc.)
14. Uncured DuPont™ Tyvek® Fluid Applied products must not come in contact with building wraps due to potential impact on performance properties.
15. DuPont™ Tyvek® CommercialWrap® and CommercialWrap® D may be installed over DuPont™ Tyvek® Fluid Applied products after 48 hours of curing at 70°F (20°C) and 50% RH.
16. When DuPont™ Tyvek® Fluid Applied products are used as the primary air and water barrier, DuPont™ Tyvek® mechanically-fastened air and water barrier products may be installed as an "intervening layer" over DuPont™ Tyvek® Fluid Applied products after 48 hours of curing at 70°F (20°C) and 50% RH. For additional information about the use of "intervening layers" see the Stucco section under *Facade/Exterior Considerations*.

DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

17. DuPont recommends the use of the DuPont™ Tyvek® Fluid Applied Air Barrier System for CMU walls with embedded brick ties. Please refer to the *DuPont™ Tyvek® Fluid Applied WB+™ Wall and Substrate Guidelines* for specific installation instructions.
18. DuPont™ Tyvek® CommercialWrap® and CommercialWrap® D must not come in direct contact with other manufacturer's cured or uncured fluid-applied and/or deck coating waterproofing products due to potential impact on performance properties. DuPont™ StraightFlash™ can be used as transitional membrane
19. The maximum in-service temperature for DuPont™ Tyvek® air and water barriers is 180°F.

For additional guidance, please call 1-800-44-Tyvek (800-448-9835), visit our website at www.Weatherization.Tyvek.com, or consult your local DuPont™ Tyvek® Specialist.

Key Installation Requirements for Wraps Under the Limited Product and Labor Warranty

Continuity

It is important to maintain the continuity of the air and water barrier throughout the building envelope. The entire wall surface shall be wrapped, including unconditioned spaces. Special attention should be given to ensure a proper 6" overlap at all terminations, seams, penetrations, and transitions to maintain a continuous downward drainage plane and air and water barrier.

Penetrations

Seal the DuPont™ Tyvek® air and water barrier around all penetrations (electrical, HVAC and plumbing, etc.) with the appropriate DuPont™ self-adhered flashing product, DuPont™ Tyvek® Tape, or sealant. Products that have flanges should be integrated into the DuPont™ Tyvek® air and water barrier. DuPont™ StraightFlash™ or DuPont recommended alternate patches should be applied behind fastening plates (brick tie base plates, metal fastening clips, metal channels, etc.) when building envelope design requirements exceed ASTM E1677, 65 mph equivalent structural load and 15 mph equivalent wind-driven rain water infiltration resistance.

Overlap

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

Sealant

Review the sealant manufacturer's literature or label to confirm that the product(s) used have the chemical and adhesive properties necessary for use with DuPont™ Tyvek® air and water barriers and DuPont flashing materials. Refer to *Chemical Compatibility of Representative Building Sealants (K-27282)* for more information about chemical compatibility.

Fasteners

Use DuPont™ Tyvek® Wrap Cap Fasteners or DuPont recommended alternates per the fastening schedule included in this installation guideline. Temporary fasteners should not be relied upon to permanently attach DuPont™ Tyvek® air and water barriers, due to the limited holding power of these fastening methods. If temporary fasteners are used, permanent fastening must be applied as soon as practically possible in order to maintain the integrity and performance of the DuPont™ Tyvek® air and water barrier and to be in compliance with DuPont Installation Guidelines if making a claim under the DuPont Product and Labor Warranty. Refer to the *Recommended Fasteners and Spacing and Temporary Fastening* section for more complete fastening information. Examples of recommended fasteners include:

RECOMMENDED FASTENERS

- 2" DuPont™ Tyvek® Wrap Cap Screws (for steel frame construction, may also be used for wood frame)
- 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)

Special Considerations

Refer to the *Technical Specifications* section for UV exposure and surface burning characteristics.

Installation Instructions

STEP 1

- A. Starting at a corner of the building unroll DuPont™ Tyvek® air and water barrier keeping the roll plumb. Extend approximately 12" past either the inside or outside corner of the wall.
- B. Vertically overlap the next sheet of DuPont™ Tyvek® by at least 6". Vertical grid lines have been provided every 8" on DuPont™ Tyvek® CommercialWrap® to assist in alignment with stud spacing.

NOTE: It is important that proper shingling is maintained. DuPont™ Tyvek® air and water barriers should be installed from the bottom of the building up to ensure proper shingling.

NOTE: Vertical installation of DuPont™ Tyvek® CommercialWrap® is acceptable. 6" overlap and proper shingling of vertical and horizontal seams is required. This installation is not permitted for DuPont™ Tyvek® CommercialWrap® D.

STEP 2

The DuPont™ Tyvek® air and water barrier should overlap through wall flashing by a minimum of 6". Terminate the DuPont™ Tyvek® air and water barrier at the bottom of the wall with 3" DuPont™ Tyvek® Tape, or DuPont™ self-adhered flashing products.

STEP 3

Secure DuPont™ Tyvek® air and water barrier by fastening into the studs. For fastener type and spacing refer to the *Recommended Fasteners and Spacing* section of this document.

NOTE: In order to keep DuPont™ Tyvek® air and water barrier 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

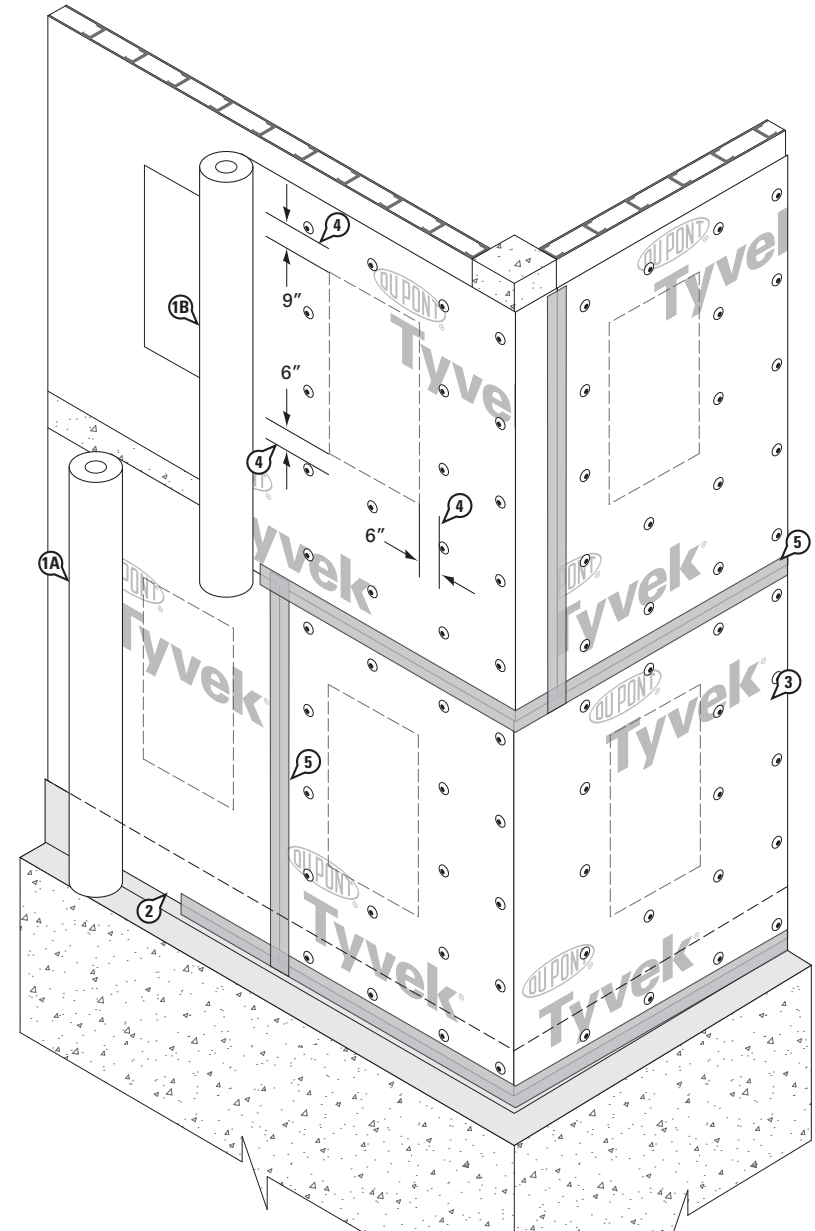
Unroll the DuPont™ Tyvek® air and water barrier directly over window and door rough openings. Upper layer of DuPont™ Tyvek® air and water barrier should overlap bottom layer of DuPont™ Tyvek® air and water barrier by a minimum of 6". Do not install fasteners within 6" of the sills and jambs of the openings and within 9" of the head of the openings. The DuPont™ Tyvek® air and water barrier will be secured at these locations during flashing installation.

STEP 5

Tape all horizontal and vertical seams with 3" DuPont™ Tyvek® Tape.

STEP 6

After the air and water barrier is installed, refer to the *DuPont Self-Adhered Flashing Systems Installation Guidelines for Buildings Greater Than 4 Stories* to prepare and flash windows and doors.



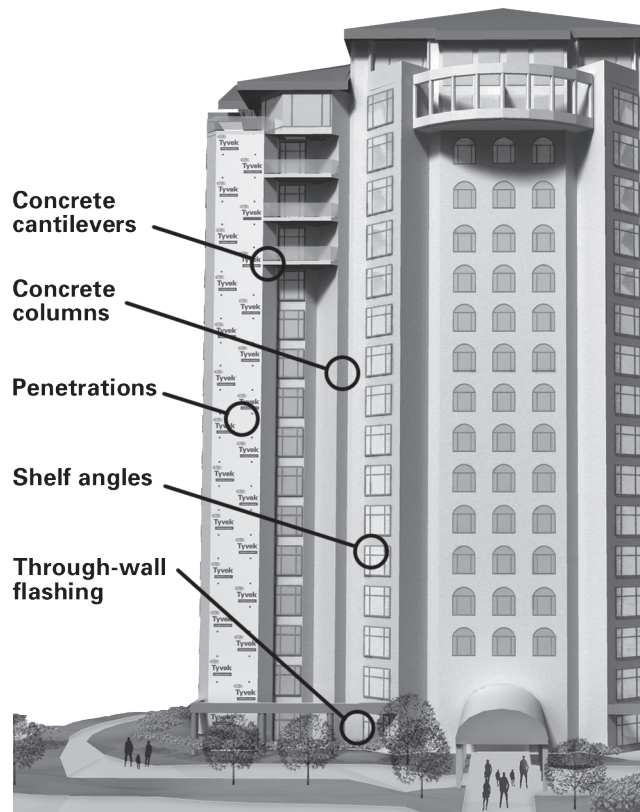
Continuity

Terminations

It is important to maintain the continuity of the air and water barrier from top to bottom with proper shingling. The entire wall surface shall be wrapped, including unconditioned spaces.

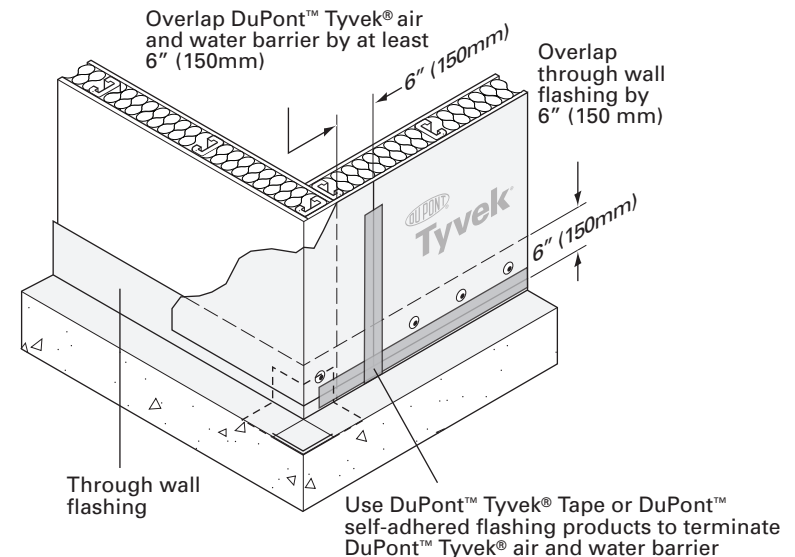
Special attention should be given to all terminations and transitions to ensure a proper drainage plane and a continuous air and water barrier is maintained.

For high performance installations, for areas of extreme exposure and to exceed ASTM E1677, install mechanical fasteners through the DuPont™ Tyvek® air and water barrier terminated at the base of the wall. Use appropriate fastener for each substrate.



Through Wall Flashing

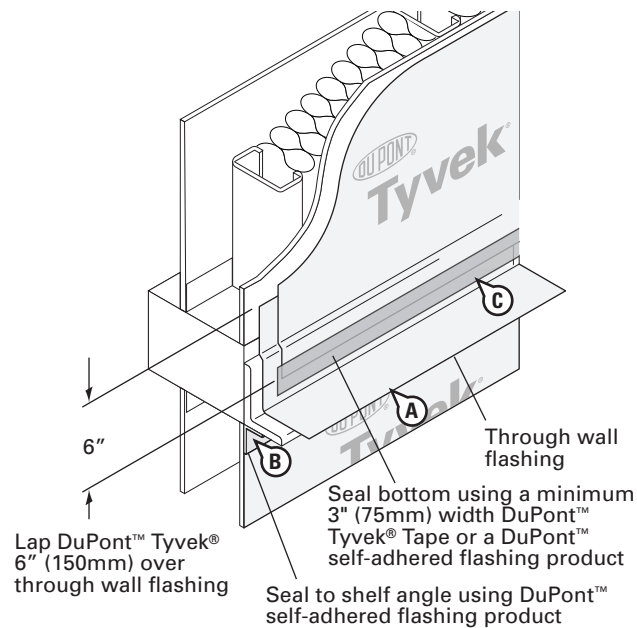
- Install through wall flashing on the vertical wall per plans and specifications. The through wall flashing may be terminated by using a reglet, counterflashing, termination bar or by embedding in a mortar joint.
- Overlap through wall flashing with DuPont™ Tyvek® air and water barrier by 6".
- Mechanically fasten bottom of the air and water barrier through top of through wall flashing.
- Seal vertical and horizontal seams using 3" DuPont™ Tyvek® Tape or a DuPont™ self-adhered flashing product.



DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Shelf Angles

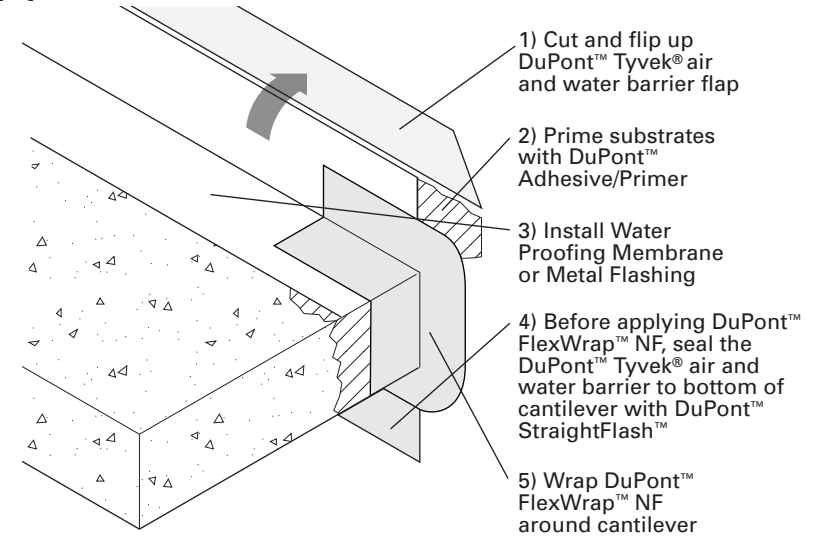
- A. Through wall flashing should be applied to the top of the shelf angle and the DuPont™ Tyvek® air and water barrier should be properly shingled over by at least 6".
- B. Seal the DuPont™ Tyvek® air and water barrier to the bottom of the shelf angle using DuPont™ self-adhered flashing products.
- C. Seal bottom of the DuPont™ Tyvek® air and water barrier to through wall flashing using 3" DuPont™ Tyvek® Tape or a DuPont™ self-adhered flashing product.



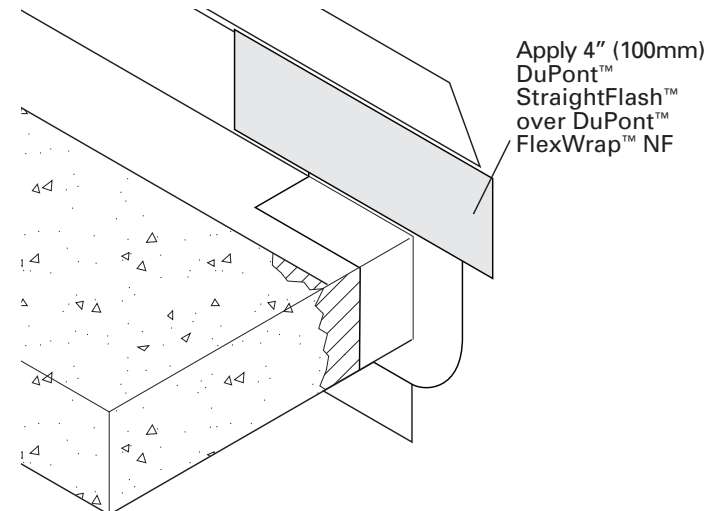
Concrete Cantilevers

Seal to concrete cantilevers using DuPont™ Adhesive/Primer and DuPont™ self-adhered flashing products.

STEP 1

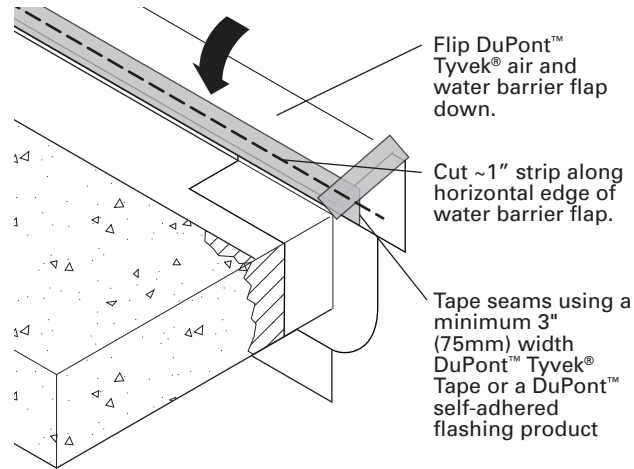


STEP 2



DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

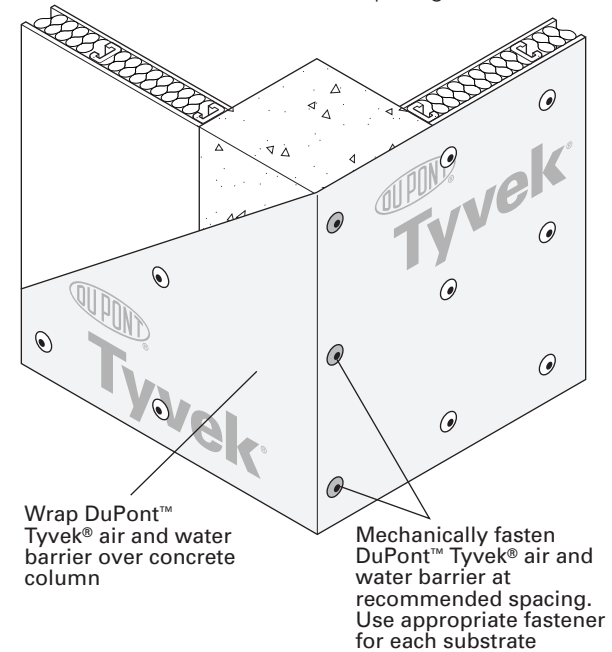
STEP 3



Concrete Column (Method 1)

- Wrap DuPont™ Tyvek® air and water barrier around concrete column.
- Mechanically fasten DuPont™ Tyvek® air and water barrier at recommended spacing.
(See *Recommended Fasteners and Spacing* section of this document)

NOTE: Mechanically fasten DuPont™ Tyvek® air and water barrier to concrete column if necessary to maintain recommended fastener spacing.

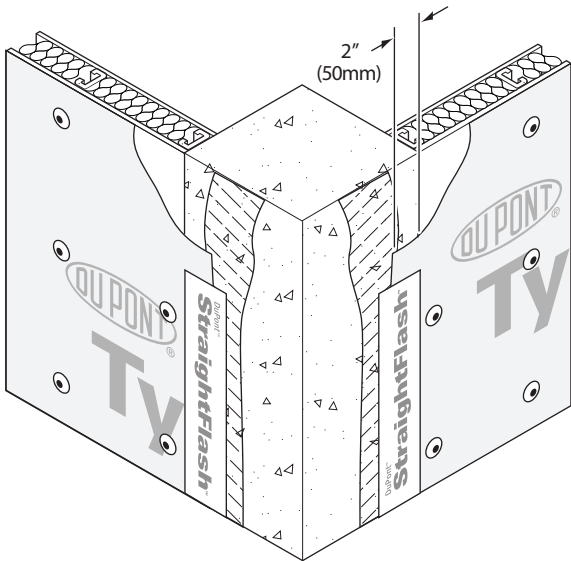


DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Concrete Column (Method 2)

- Prime concrete column with DuPont™ Adhesive/Primer.
- Cut DuPont™ Tyvek® air and water barrier at concrete column, leaving approximately 2" overlapping column.
- Mechanically fasten DuPont™ Tyvek® air and water barrier into studs.
- Seal DuPont™ Tyvek® air and water barrier to concrete using DuPont™ StraightFlash™.

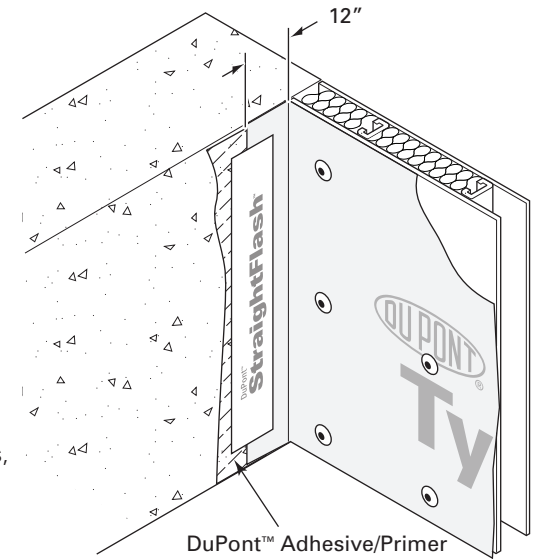
NOTE: For high performance installations, additional fasteners may be necessary to secure DuPont™ StraightFlash™. Use appropriate fastener for each substrate.



Inside Corner Transition to Concrete (Method 1)

- Cut DuPont™ Tyvek® air and water barrier so there is approximately 12" overlapping concrete.
- Mechanically fasten DuPont™ Tyvek® air and water barrier to studs.
- Prime concrete with DuPont™ Adhesive/Primer.
- Seal DuPont™ Tyvek® air and water barrier to concrete using DuPont™ StraightFlash™.

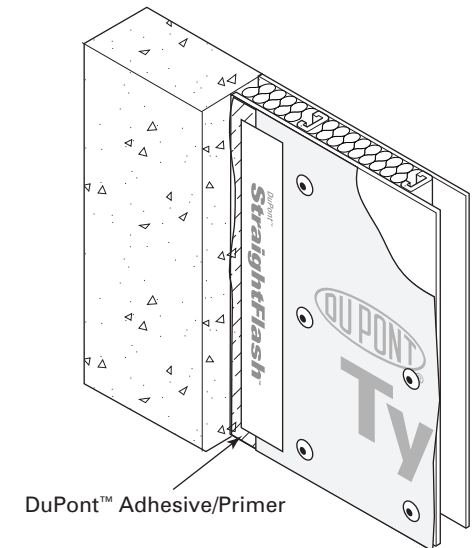
NOTE: For high performance installations, additional fasteners may be necessary to secure DuPont™ StraightFlash™. Use appropriate fastener for each substrate.



Method 2

- Cut DuPont™ Tyvek® air and water barrier to expose approximately 2" of the wall.
- Mechanically fasten DuPont™ Tyvek® air and water barrier to studs.
- Prime wall adjacent to concrete if necessary.
- Seal DuPont™ Tyvek® air and water barrier to the wall using DuPont™ StraightFlash™.

NOTE: For high performance installations, additional fasteners may be necessary to secure DuPont™ StraightFlash™.



DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Penetrations

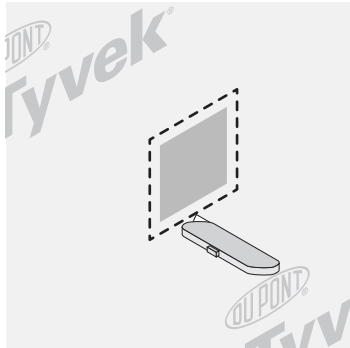
Seal around plumbing pipes, HVAC components, electrical outlets, exterior lights, flashing panels, and other objects that penetrate the DuPont™ Tyvek® air and water barrier. Always use positive shingling by installing DuPont™ Tyvek® air and water barriers and self adhered flashing products from bottom to top, with upper layer installed over lower layer.

OPTIONAL LAST STEP FOR ALL INSTALLATIONS: Install a piece of DuPont™ Tyvek® air and water barrier and seal with DuPont™ Tyvek® Tape to overlap the top edge of the DuPont™ Self-Adhered Flashing product (shown below).

Flashing Integral Flanged Products AFTER Installation of DuPont™ Tyvek® Air and Water Barrier

STEP 1

Install DuPont™ Tyvek® air and water barrier and cut as necessary to accommodate integral flanged product.



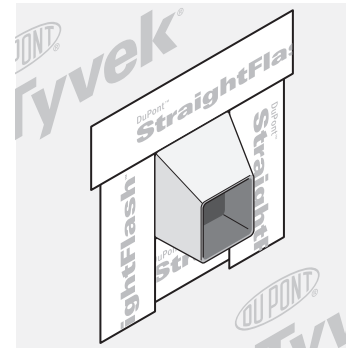
STEP 2

Install integral flanged product per manufacturer's instructions.



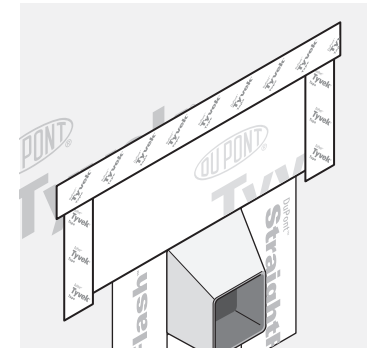
STEP 3

Install DuPont™ StraightFlash™ or DuPont™ Flashing Tape* onto flanges, extending onto DuPont™ Tyvek® air and water barrier by a minimum of 2".



STEP 4 (OPTIONAL)

Install a piece of DuPont™ Tyvek® air and water barrier to overlap the top edge of the DuPont™ StraightFlash™. Seal sides and top with DuPont™ Tyvek® Tape

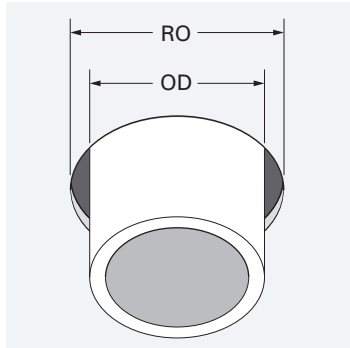


*DuPont™ Flashing Tape is only permitted for Residential-Use building structures. Residential-Use (Group R) is defined by the 2015/2018 International Building Code.

DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Option 1: Flashing Non-Flanged AFTER Installation of DuPont™ Tyvek® Air and Water Barrier Using DuPont™ FlexWrap™ EZ

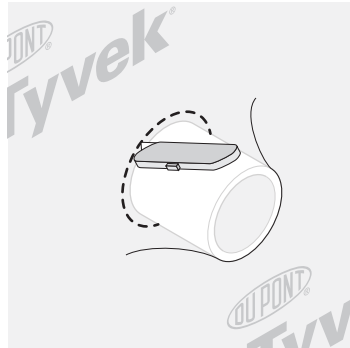
Use DuPont™ FlexWrap™ EZ only when penetration rough opening (RO) is not more than 1/2" larger than the outside diameter/dimension (OD) of non-flanged product.



For non-flanged products with OD GREATER than 2"

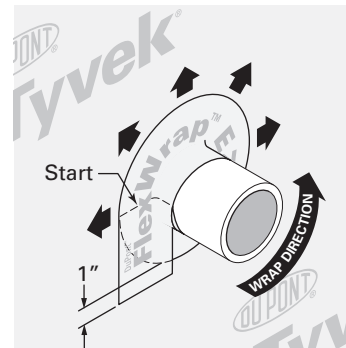
STEP 1

Install DuPont™ Tyvek® air and water barrier over non-flanged product and cut around penetration.



STEP 2

Cut a piece of DuPont™ FlexWrap™ EZ longer than circumference of non-flanged product to ensure a minimum 1" overlap onto the DuPont™ Tyvek® air and water barrier. Starting at the horizontal position on either side, adhere around penetration and onto DuPont™ Tyvek® air and water barrier.



For non-flanged products with OD LESS than 2"

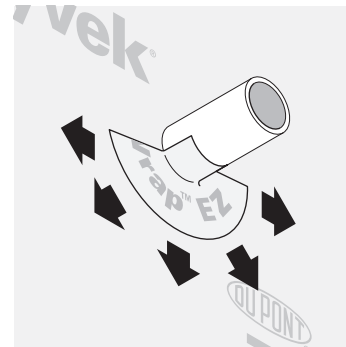
STEP 1

Install DuPont™ Tyvek® air and water barrier over non-flanged product and cut around penetration.



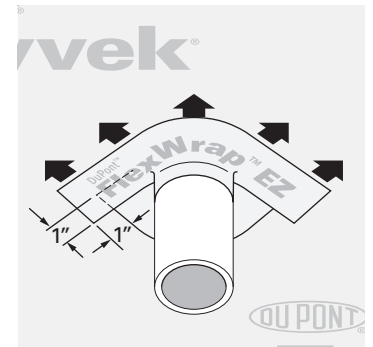
STEP 2

Cut a piece of DuPont™ FlexWrap™ EZ the length of 1/2 the circumference of the non-flanged product. Adhere onto bottom section and fan out onto DuPont™ Tyvek® air and water barrier.



STEP 3

Cut a second piece of DuPont™ FlexWrap™ EZ the length of the pipe circumference. Adhere onto top section and fan out onto face of wall with a minimum of 1" overlap of the edges of DuPont™ FlexWrap™ EZ below.

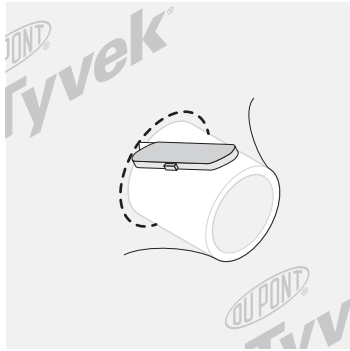


DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Option 2: Flashing Non-Flanged Products AFTER Installation of DuPont™ Tyvek® Air and Water Barrier Using DuPont™ FlexWrap™ NF

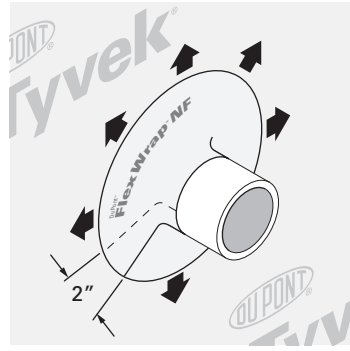
STEP 1

Install DuPont™ Tyvek® air and water barrier over non-flanged product and cut around penetration.



STEP 2

Working counterclockwise, install DuPont™ FlexWrap™ NF around penetration with a minimum 2" overlap.

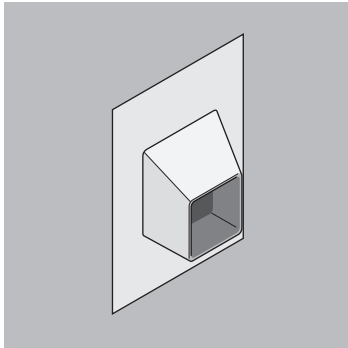


DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Flashing Integral Flanged Products BEFORE Installation of DuPont™ Tyvek® Air and Water Barrier

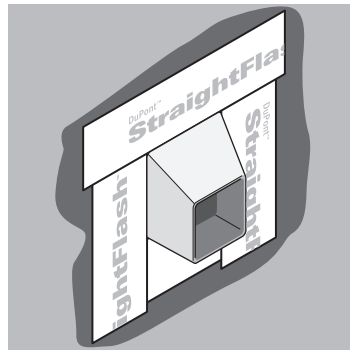
STEP 1

Install integral flanged product onto sheathing per manufacturer's instructions.



STEP 2

Prime as necessary with DuPont™ Adhesive/Primer. Install DuPont™ StraightFlash™ or DuPont™ Flashing Tape* onto flanges, extending onto sheathing by a minimum of 2".



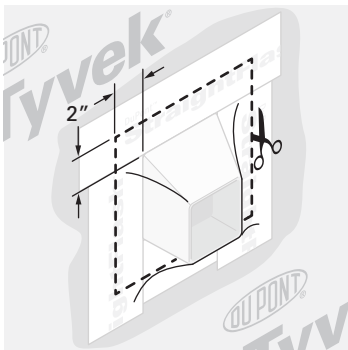
STEP 3

Install DuPont™ Tyvek® air and water barrier.



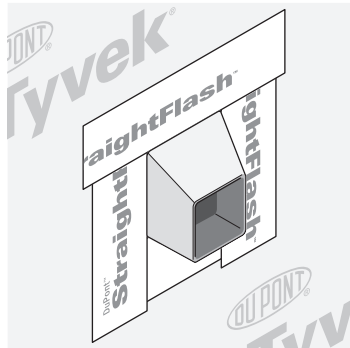
STEP 4

Make cut in DuPont™ Tyvek® air and water barrier, ensuring a minimum of 2" gap for adhesion of DuPont™ StraightFlash™.



STEP 5

Seal edges of DuPont™ Tyvek® air and water barrier with DuPont™ StraightFlash™.



*DuPont™ Flashing Tape is only permitted for Residential-Use building structures. Residential-Use (Group R) is defined by the 2015/2018 International Building Code.

Recommended Fasteners and Spacing

- 2" DuPont™ Tyvek® Wrap Cap Screws (for steel or wood frame construction)
- 1-1/4" metal gasketed washers with screws
- 2" metal gasketed washers with screws
- Tapcon® fasteners with 2" plastic caps (for masonry construction)

Table 1 – DuPont™ Tyvek® Air and Water Barrier with Screw Fasteners and 16" and 24" O.C. Steel Stud Spacing

Washer Size	Fastener Spacing inches	Vertical Stud Spacing O.C. inches	Allowable Pressure	
			psf	mph
2 Metal Gasketed Washer	8	24	90	188
	12	16	90	188
	12	24	60	153
	18	16	60	153
	16	24	45	133
	24	16	45	133
2 DuPont™ Wrap Cap Screw	8	24	60	153
	12	16	60	153
	12	24	45	133
	18	16	45	133
1.25 Metal Gasketed Washer	12	16	60	153
	18	16	40	125

Temporary Fastening

Selection and use of temporary fastening methods is an option dependent on building schedule, cladding options, and local building practices. Temporary fasteners should not be relied upon to permanently attach DuPont™ Tyvek® air and water barriers due to the limited holding power of these fastening methods. If temporary fasteners are used, permanent fastening should be applied as soon as practically possible in order to maintain the integrity and performance of the DuPont™ Tyvek® air and water barrier.

Temporary fastening methods:

- DuPont recommended fasteners at a reduced schedule 24" to 48".
- DuPont recommended adhesives applied in vertical strips at 24" to 36" spacing or along every other stud line.
- #4 nails with 1" plastic cap (for wood frame construction)
- 1" plastic cap staple with leg length sufficient to achieve 5/8" penetration into wood stud (for wood frame construction).
- If staples without caps are used to temporarily fasten DuPont™ Tyvek® air and water barriers to exterior sheathing, the fastening schedule must not exceed 4 per square yard and each staple must be covered with DuPont™ Tyvek® Tape. Covering the staples underneath a taped air and water barrier seam is acceptable.

Temporary fastening methods may not be suitable for high performance installations. For additional guidance, please consult your local DuPont™ Tyvek® Specialist.

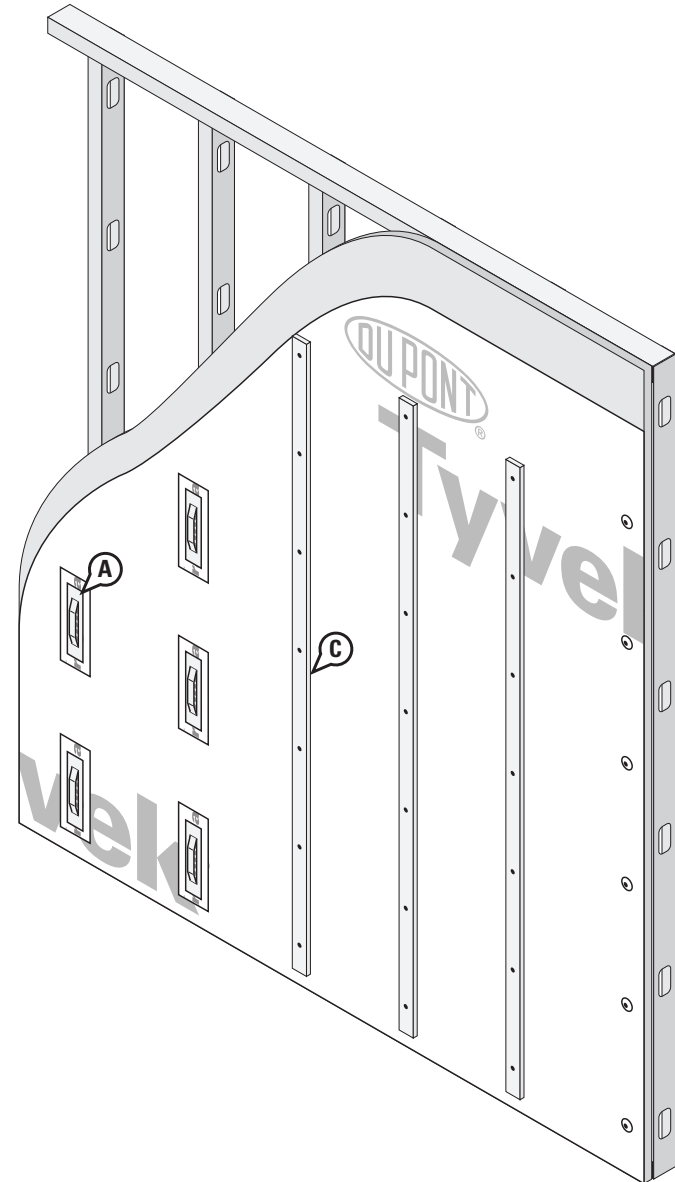
Alternate Fastening

- A. Standard brick tie base plates and metal plates with DuPont™ StraightFlash™, DuPont™ Flashing Tape or DuPont recommended alternate patches behind.
- B. Metal channels, horizontal z-girts, etc. with DuPont™ StraightFlash™, DuPont™ Flashing Tape or DuPont recommended alternate patches behind.
- C. Wood furring strips mounted vertically.

DuPont™ StraightFlash™, DuPont™ Flashing Tape or DuPont recommended alternate not required unless the furring strips are shimmed.

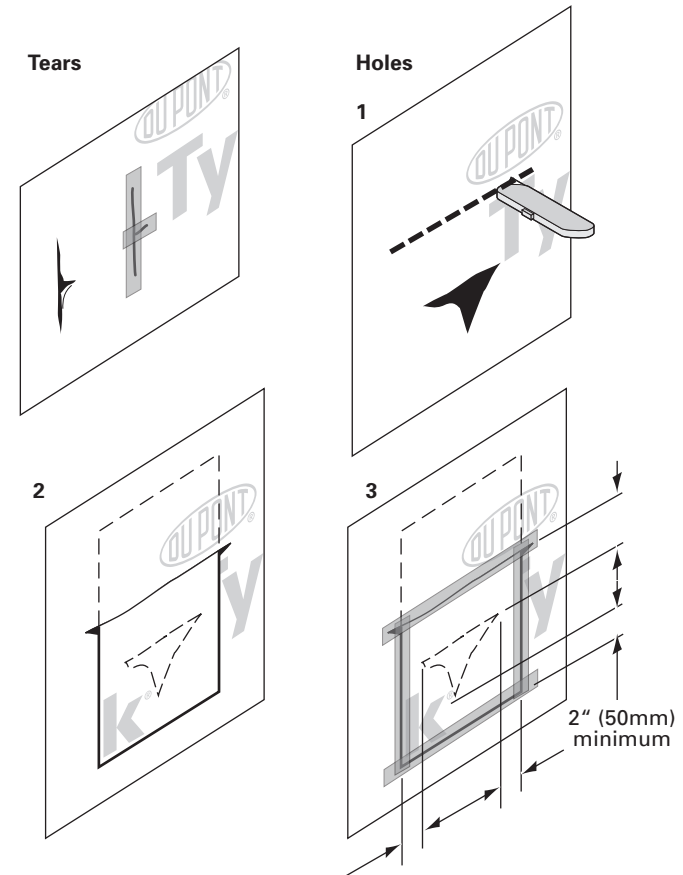
NOTE:

- Additional fasteners may be needed between brick ties, and other alternate fasteners to maintain recommended fastener spacing.
- DuPont™ StraightFlash™, DuPont™ Flashing Tape or DuPont recommended alternate patches should be applied behind fastening plates (brick tie base plates, metal fastening clips, metal channels, etc.) when building envelope design requirements exceed ASTM E1677, 65 mph equivalent structural load and 15 mph equivalent wind-driven rain water infiltration resistance.



Handling Tears and Holes

- During the course of installing the DuPont™ Tyvek® air and water barrier, minor tears may occur. Be sure to tape all tears. Tears can easily be covered with 3" DuPont™ Tyvek® Tape or DuPont™ self-adhered flashing products.
- Larger tears may require cutting a piece of DuPont™ Tyvek® air and water barrier to repair the tear. Measure and cut a piece of DuPont™ Tyvek® large enough to cover tear with an excess of 2" around the tear plus an extra 6" in height. Cut a slit 2" above the tear large enough to accommodate the patch. Tuck patch into slit at least 6" and shingle over lower air and water barrier. Tape along the perimeter by starting at bottom of tear and shingling the upper tape over the bottom tape.



Facade/Exterior Considerations

Brick

The Brick Industry Association recommends a 1" air space in front of wood stud construction and a 2" air space in front of steel stud construction. Consistent with these requirements and recommendations, DuPont™ Tyvek® air and water barriers shall be separated from the brick veneer by a minimum 1" air space. Window and door flashing, and through wall flashing shall be integrated with the DuPont™ Tyvek® air and water barrier layer ensuring proper shingling. For maximum moisture management and drying of the wall system the air space in front of the DuPont™ Tyvek® air and water barrier shall be vented to the exterior at the top and bottom of the wall. Some types of brick ties can act as alternate fasteners for DuPont™ Tyvek® air and water barriers and may reduce the required number of fasteners if installed as soon as practically possible. DuPont™ self-adhered flashing products or recommended alternate may be required for high performance installations.

EIFS

DuPont™ Tyvek® air and water barriers and EIFS cladding shall be installed according to manufacturer's instructions and industry standards. In order to promote drainage, it is recommended that DuPont™ Tyvek® CommercialWrap® D be installed behind the exterior insulation. Window and door flashing, and through wall flashing shall be integrated with the DuPont™ Tyvek® air and water barrier layer ensuring proper shingling. The successful installation and performance of EIFS cladding is dependent upon the proper design and construction of the adjacent materials and systems of the structure.

Exterior Insulation

DuPont™ Tyvek® air and water barriers and exterior insulation shall be installed according to the manufacturer's instructions and industry standards. DuPont™ Tyvek® air and water barriers can be installed either over the rigid exterior insulation or underneath between the sheathing and the exterior insulation. In order to promote drainage, it is recommended that DuPont™ Tyvek® CommercialWrap® D be used when installing the DuPont™ Tyvek® layer between the sheathing and exterior insulation. Window flashing, door flashing, and through wall flashing shall be integrated with the DuPont™ Tyvek® air and water barrier layer ensuring proper shingling. The successful installation and performance of exterior insulation is dependent upon the proper design and construction of adjacent materials and systems of the structure.

Stucco

When stucco is installed over wood-based sheathing, the 2018 International Building Code (Section 2510.6) requires a water-resistive vapor-permeable barrier with performance at least equivalent to two layers of water resistive barrier complying with ASTM E 2556, Type I, or a water resistive barrier which is separated from the stucco by an intervening, substantially non water-absorbing layer or drainage space. "The individual layers shall be installed independently such that each layer provides a separate continuous plane and any flashing intended to drain to the water-resistive barrier is directed between the layers." DuPont™ Tyvek® WRBs used behind stucco should be separated from the stucco by a second layer of DuPont™ Tyvek® air and water barrier, a layer of Grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. The first layer (directly over sheathing or studs) serves as the wall system's air and water barrier and is integrated with window and door flashings, the weep screed at the bottom of the wall and any through wall flashing or expansion joints. Lath shall be installed over the intervening layer (second layer) in accordance with ASTM C1063-03 Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster and applicable codes. Rigid foam board, when installed over DuPont™ Tyvek® air and water barrier as an intervening layer, may provide enhanced structural support to the DuPont™ Tyvek® layer and may reduce the required number of fasteners used for the attachment of the DuPont™ Tyvek® air and water barrier if installed as soon as practically possible. DuPont self-adhered flashing products or recommended alternate may be required for high performance installations.

Metal Panel

DuPont™ Tyvek® air and water barriers and metal panel cladding systems shall be installed according to manufacturer's instructions and industry standards. It is recommended that DuPont™ StraightFlash™ or DuPont recommended alternate patches be installed behind all metal installation brackets and hat-channels fasteners.

DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Stone Veneer

The 2018 International Building Code (Section 1404.7) requires two layers of air and water barrier behind stone veneers over wood frame construction. When used behind stone veneer, DuPont™ Tyvek® air and water barriers shall be installed in a similar manner as they are installed behind stucco. DuPont™ Tyvek® air and water barriers should be separated from the stone and mortar by a second layer of DuPont™ Tyvek® air and water barrier, a layer of grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. The first layer (directly over sheathing or studs) serves as the wall system's air and water barrier and shall be integrated with window and door flashings, the weep screed at the bottom of the wall and any through wall flashing or expansion joints. Lath shall be installed over the intervening layer (second layer) in accordance with ASTM C1063-03 Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster and applicable codes. When rigid foam board is used as the second layer, it is installed over the DuPont™ Tyvek® WRB. DuPont™ CommercialWrap® D is recommended for this application. DuPont self-adhered flashing products or recommended alternate may be required for high performance installations.

Wood Siding

DuPont™ Tyvek® air and water barriers and wood siding shall be installed according to manufacturer's instructions, industry standards and applicable codes. As recommended by the Western Red Cedar Lumber Association and U. S. Forest Product Laboratory, wood siding should be primed on all six sides before installation. Foam sheathing panels often have low vapor permeability, and therefore can cause moisture to accumulate on the back of siding and cause staining, buckling and damage to finish coats. As a result, the Western Red Cedar Lumber Association and other wood siding manufacturers recommend that furring strips are used to create an air space between foam sheathing and siding. Other recommendations that should be followed to minimize potential problems are:

- Use thicker siding patterns in widths of 8 inches or less. Thick, narrow siding is more stable than thinner, wider patterns and better able to resist dimensional changes.
- Use kiln-dried siding over rigid foam sheathing.
- Proper pre-finishing is essential.

- Use light color finish coats to maximize heat reflection and reduce dimensional movement.
- DuPont™ CommercialWrap® D applied over the foam sheathing is recommended for this application.

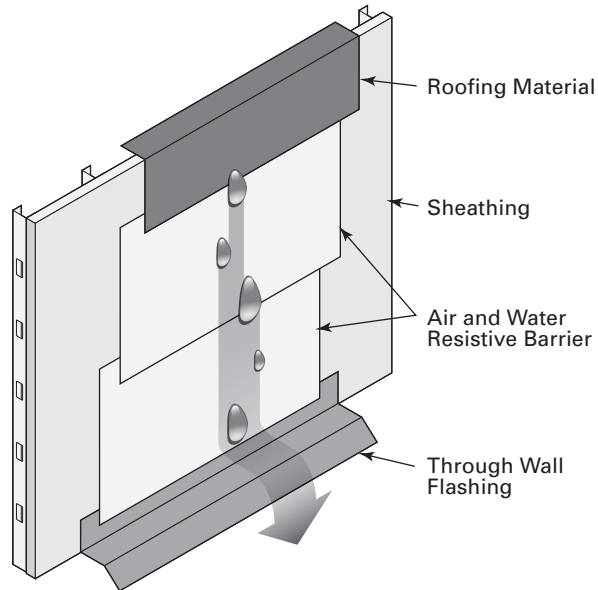
In high exposure installations, enhanced drainage and water management may be provided by using DuPont™ Tyvek® CommercialWrap® D, by installing a drainage mesh over the DuPont™ Tyvek® air and water barrier, or by creating a rain screen cladding with a larger air space behind the siding using furring strips. DuPont™ Tyvek® CommercialWrap™ D offers > 98% drainage efficiency when tested in accordance with ASTM E2273. See the Alternate Fastening section for additional information.

Fiber Cement Siding

DuPont™ Tyvek® air and water barriers and fiber cement siding shall be installed according to manufacturer's instructions and industry standards. In high exposure installations, enhanced drainage and water management may be provided by using DuPont™ Tyvek® CommercialWrap® D, by installing a drainage mesh over the water-resistive barrier, or by creating rain screen cladding with a larger air space behind the siding using furring strips. DuPont™ Tyvek® air and water barriers and fiber cement siding shall be installed according to manufacturer's instructions, industry standards and applicable codes. DuPont™ Tyvek® CommercialWrap™ D offers > 98% drainage efficiency when tested in accordance with ASTM E2273. See *Alternate Fastening* section, for additional information.

PROPER OVERLAP FOR WATER MANAGEMENT

- D. Lap all components from bottom of the wall to the top of the wall
- E. Treat the walls of the building just like a roof



Note: In order to make a claim under the DuPont 10-Year Limited Product and Labor Warranty on DuPont Weatherization Products, you must have met all of the terms and conditions of the warranty, including use of the applicable DuPont Installation Guidelines. In the event that a specific detail or installation technique is not covered in the DuPont Installation Guidelines at the time you are building, then the Key Installation Requirements outlined in this document must have been followed in order to make a claim under the warranty. Compliance prior, during and post construction with the Key Installation Requirements are at the sole discretion of DuPont. Please contact DuPont or a DuPont™ Tyvek® Specialist if you have any questions in connection with any DuPont Installation Guideline.

DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines

Technical Specifications

DuPont™ Tyvek® air and water barriers used in construction products are made from 100% flash spunbonded high density polyethylene fibers which have been bonded together by heat and pressure, without binders or fillers, into a tough durable sheet structure. Additives have been incorporated into the polyethylene to provide ultraviolet light resistance. DuPont requires that DuPont™ Tyvek® CommercialWrap® and CommercialWrap® D be covered within nine (9) months (270 days) of installation.

DuPont™ self-adhered flashing products are made from a synthetic rubber adhesive and a laminate of polyethylene film, polypropylene film, elastic fiber, synthetic rubber adhesive, polyurethane adhesive, and a top sheet of flash spunbonded high density polyethylene fibers or polypropylene film. Additives have been incorporated into these materials to provide ultraviolet light resistance. DuPont requires that DuPont™ FlexWrap™ EZ, FlexWrap™ NF, StraightFlash™ and StraightFlash™ VF be covered within nine months (270 days) of installation. DuPont requires that DuPont™ Flashing Tape be covered within four months (120 days) of installation.

Warning

DuPont™ Tyvek® air and water barriers are slippery and should not be used in any application where they will be walked on. In addition, because they are slippery, DuPont recommends using kickjacks, scaffolding, or lifts for exterior work above the first floor. If ladders must be used, extra caution must be taken to use them safely by following the requirements set forth in ANSI Standards 14.1, 14.2, and 14.5 for ladders made of wood, aluminum, and fiberglass, respectively. DuPont™ Tyvek® is combustible and should be protected from flames and other high heat sources. DuPont™ Tyvek® will melt at 275°F (135°C) and if the temperature of DuPont™ Tyvek® reaches 750°F (400°C), it will burn and the fire may spread and fall away from the point of ignition.

DuPont™ DuPont™ self-adhered flashing products and their release paper are slippery and should not be walked on. Remove release paper from work area immediately. DuPont™ self-adhered flashing products will melt at temperatures greater than 250°F (121°C). DuPont™ self-adhered flashing products are combustible and should be protected from flames and other high heat sources. DuPont™ self-adhered flashing products will not support combustion if the heat source is removed. However, if burning occurs, ignited droplets may fall away from the point of ignition.

Note

When installed in conjunction with other building materials, DuPont™ self-adhered flashing products must be properly shingled with these materials such that water is diverted to the exterior of the wall system. DuPont™ Tyvek® products are air and water barriers and not the primary water barrier. The outer facade is the primary barrier. You must follow facade manufacturer's installation and maintenance requirements for all facade systems in order to maintain water holdout properties and ensure performance of DuPont™ Tyvek® air and water barriers. Use of additives, coatings or cleansers on or in the facade system may impact the performance of DuPont™ Tyvek® air and water barriers. DuPont™ Tyvek® Weatherization Systems products are to be used as outlined in this installation guideline. DuPont™ self-adhered flashing products should only be used to seal penetrations and flash openings in houses or buildings. DuPont™ self-adhered flashing products are not to be used in roofing applications. For superior protection against bulk water penetration, DuPont suggests a system combining a quality exterior facade, a good secondary air and water barrier and exterior sheathing, high quality windows and doors, and appropriate flashing materials paying attention to proper installation of each component. In a system where no exterior sheathing is used and DuPont™ Tyvek® air and water barrier is installed directly over the wall studs, exterior facade materials should be selected to ensure maximum protection against water intrusion. Careful workmanship and proper installation of each component is very important.

DuPont believes this information to be reliable and accurate. The information may be subject to revision as additional experience and knowledge is gained. It is the user's responsibility to determine the proper construction materials needed.

This information is not intended to be used by others for advertising, promotion, or other publication for commercial purposes.

For more information about DuPont Weatherization Systems, please call 1-800-44-Tyvek or visit us at www.Weatherization.Tyvek.com

