DuPont™ Tyvek® Sheathing Membrane Installation Guidelines

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HELPING YOU GET THE JOB DONE RIGHT

DUPONT®

Tyvek®

FOR BUILDINGS LESS THAN 5 STORIES AND LOW-RISE MULTI-FAMILY RESIDENTIAL BUILDINGS LESS THAN 6 STORIES

Canadian Version

REVISION 1/19

Table of Contents

Applicable Products

Sheathing Membranes

PRODUCT	DIMENSIONS	AREA
DuPont™ Tyvek® HomeWrap®	18 in x 100 ft (0.46 m x 30.48 m)	150 sq ft (13.93 m²)
	3 ft x 100 ft (0.91 m x 30.48 m)	300 sq ft (27.87 m²)
	5 ft x 200 ft (1.52 m x 60.96 m)	1,000 sq ft (92.90 m²)
	9 ft x 100 ft (2.74 m x 30.48 m)	900 sq ft (83.61 m²)
	9 ft x 150 ft (2.74 m x 45.72 m)	1,350 sq ft (125.42 m²)
	10 ft x 100 ft (3.05 m x 30.48 m)	1,000 sq ft (92.90 m²)
	10 ft x 150 ft (3.05 m x 45.72 m)	1,500 sq ft (139.35 m²)
DuPont™ Tyvek® DrainWrap™ CA	9 ft x 125 ft (2.74 m x 38.10 m)	1,125 sq ft (104.52 m²)
	10 ft x 125 ft (3.05 m x 38.10 m)	1,250 sq ft (118.92 m²)
DuPont™ Tyvek® CommercialWrap®	5 ft x 200 ft (1.52 m x 60.96 m	1,000 sq ft 1,250 sq ft
	10 ft x 125 ft (3.05 m x 38.10 m)	(92.90 m²) (118.92 m²)

Flashing Products

PRODUCT	WIDTH
DuPont™ FlexWrap™ EZ	2.75 in (0.07 m)
DuPont™ FlexWrap™ NF	6 in (0.15 m)
	9 in (0.23 m)
DuPont™ StraightFlash™	4 in (0.10 m)
	9 in (0.15 m)
DuPont™ StraightFlash™ VF	6 in (0.23 m)

Flashing Products (continued)

PRODUCT	WIDTH
DuPont™ Flashing Tape	4 in (0.10 m)
	6 in (0.15 m)
	9 in (0.23 m)
	12 in (0.30 m)

Installation Accessories

PRODUCT	TYPE	QUANTITY
DuPont™ Tyvek® Tape	60 mm x 66 m (2 in. x 216 ft.)	36 rolls/case
	72 mm x 66 m (3 in. x 216 ft.)	24 rolls /case
DuPont™ Tyvek® Wrap Cap staples or other cap staples for Stinger™ Cap Stapler	7/8", 1-1/4", and 1-1/2" lengths (22 mm, 32 mm, and 38 mm)	2,016 per box
	3/8" and 5/8" lengths (10 mm and 16 mm)	2,000 per box
DuPont™ Tyvek® Wrap Cap Nails	1" (25 mm) electro-galvanized ring shank nail	2,000 per box
DuPont™ Tyvek® Wrap Cap screws	2" (50 mm) dia. plastic cap, 1-3/4" (44 mm) screw length	1,000 per box

Required Materials Based on Project Requirements, Details, and Specifications

- DuPont™ Tyvek® Sheathing Membrane
- DuPont™ Tyvek® Tape
- DuPont™ Tyvek® Wrap Cap Fasteners for Stinger® Cap Stapler or other DuPont-approved wrap cap staples, nails, or screws (see Step 3 of Installation Instructions)
- Sealant* (see *Key Installation Requirements for Wraps Under the Limited Product and Labor Warranty Section* for more information).
- Vertical furring strips on stud lines (i.e. strapping) where rainscreen is desired or required by code.

*Apply per manufacturers' guidelines. DuPont assumes no liability in use of non-DuPont products; installers need to evaluate suitability of recommended products in their end-use applications. See note on sealants, Key Installation Requirements.

Warranty

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*. For buildings greater than 5 stories, please refer to the *DuPont Weatherization Products 10-Year Limited Warranty for Buildings Greater than 4 Stories*.

Sheathing Membrane Code Requirements

The 2015 National Building Code (NBC) of Canada (Sections 9.27.2.3, 9.27.3.1 and 9.27.3.2) requires first and second planes of protection from precipitation and water intrusion into a wall. The second plane of protection is described as "a drainage plane having an appropriate inner boundary and flashing to dissipate rainwater to the exterior." A sheathing membrane meeting CAN/CBSC-51.32-M is listed as a suitable second plane of protection. DuPont™ Tyvek® sheathing membranes perform as second planes of protection as recognized in the following CCMC Evaluation Reports and associated Listing Number:

- CCMC Evaluation Report 12808-R: Tyvek® HomeWrap®
- CCMC Evaluation Report 13119-R: Tyvek® CommercialWrap®
- CCMC Evaluation Report 14037-R: Tyvek® DrainWrap™ CA
- CCMC Evaluation Report 11955-R: DuPont™ Tyvek® Tape

NOTE: Section 3 of the CCMC Evaluation Reports outlines specific conditions and limitations required for a conforming installation. These conditions and limitations may differ from DuPont's Installation Guidelines. It is recommended that the CCMC Evaluation Report be reviewed, and the Authority Having Jurisdiction be contacted to confirm local building envelope installation requirements.

The 2015 NBC (Section 9.27.2.2) requires "a second plane of protection incorporating a capillary break, where: a) the number of degree-days is less than 3400 and the moisture index is greater than 0.90, or b) the number of degree-days is 3400 or more, and the moisture index is greater than 1.00."

Therefore, the installation of DuPont™ Tyvek® sheathing membranes in conjunction with an air space may be required behind specific claddings in some locations. It is recommended that the Authority Having Jurisdiction be contacted to confirm local building code requirements.

DuPont™ Tyvek® sheathing membranes have been tested to the following standards:

- ASTM E 1677 Standard Specification for an Air Retarder (AR) Material or System for Low-Rise Framed Building Walls
- ASTM E 2178 Standard Test Method for Air Permeance of Building Materials
- ASTM E96-05 Water Vapor Transmission
- ATTCC 127 Water Penetration Resistance
- ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

The application of DuPont™ Tyvek® sheathing membranes is governed by the code adopted and enforced by the local jurisdiction. Consult your jurisdiction to assure compliance with the local building code.

General Instructions

The best time to install DuPont™ Tyvek® sheathing membranes is:

- **AFTER** the roof sheathing is installed
- **AFTER** the step flashings and kickout flashings are installed
- **BEFORE** the windows and doors are installed

DuPont™ Self-Adhered Flashing products are not intended for through-wall flashing applications.

Special Considerations

1. Wall assemblies using equivalent fasteners must meet or exceed ASTM E1677 performance requirements of 65 mph equivalent structural load resistance and 15 mph equivalent wind-driven rain water infiltration resistance.
2. When performance requirements exceed ASTM E1677, 65 mph (105 kph) equivalent structural load and 15 mph (24 kph) equivalent wind-driven rain water infiltration for buildings less than 5 stories, it is recommended to install a high pressure skirt to help prevent water intrusion at the sill or threshold and follow the *DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines For Buildings Greater Than 4 Stories and High Performance Installations of Any Height and the DuPont Self- Adhered Flashing Systems Installation Guidelines For Buildings Greater Than 4 Stories and High Performance Installations of Any Height*.
3. DuPont™ Tyvek® DrainWrap™ CA must be installed with drainage grooves vertical, going up and down. No surface preparation is needed for the installation of DuPont™ Tyvek® sheathing membranes.
4. DuPont requires that DuPont™ Tyvek® HomeWrap® be covered within 4 months (120 days) of its installation. DuPont™ Tyvek® CommercialWrap®, and DuPont™ Tyvek® DrainWrap™ CA, must be covered within 9 months (270 days) of its installation.
5. 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.
6. DuPont™ Self-Adhered Flashing products perform best when installed at temperatures above 25°F (–4°C).
7. DuPont™ Self-Adhered Flashing products should be installed on clean, dry surfaces that are free of frost. Wipe surfaces to remove moisture, dirt, grease and other debris that could interfere with adhesion.
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.
9. Concrete, masonry, and fiber-faced exterior gypsum board require the use of a compatible adhesive or primer.
10. 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.

When installing windows and doors prior to the DuPont™ Tyvek® sheathing membrane, refer to the *DuPont™ Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors BEFORE Water-Resistive Barrier (WRB) is Installed*, which will direct you back to this guide at the appropriate step.

If the windows and doors have already been installed and flashed, **integrate the DuPont™ Tyvek® sheathing membrane by following the DuPont™ Flashing Systems Integration section of this guide**.

NOTE: If DuPont™ FlexWrap™ NF and apron are used, install the sheathing membrane under the apron with DuPont™ Tyvek® and ensure proper shingling. If a non-self-adhering sill flashing product is used, please maintain proper shingling.

Installation Instructions

Start at bottom corner of structure to ensure proper shingling throughout the installation. Proper shingling is required to shed water and to prevent water from entering the wall system. Printed stud marks are available on some DuPont™ Tyvek® sheathing membranes to aid in aligning with the studs (e.g. studmarks are 8″ (203 mm) apart for DuPont™ Tyvek® HomeWrap®).

STEP 1

Align roll at bottom corner of structure. Roll should be plumb.

Bottom edge of roll must:

- Extend over sill plate interface by at least 1″ (25 mm) [2″ (50 mm) or greater is recommended]
- Extend to bottom of sill plate for slab on grade foundations, OR,
- Be properly integrated with water drainage components such as kick out flashing or weep screed (for stucco exteriors).

When bottom edge of roll is less than 2″ (50 mm) over the sill plate interface, it is recommended to seal or skip-seal the DuPont™ Tyvek® sheathing membrane at the bottom of the wall.*

STEP 2

UNWRAP roll starting at corner. Overlap all vertical seems by 6-12″ (152-304 mm).

STEP 3

Secure DuPont™ Tyvek® sheathing membrane to the stud or other nail-base material, i.e., wood sheathing. Fasteners should be placed no closer than 6″ (152 mm) and no farther than 18″ (457 mm) on vertical stud lines. Securing along stud lines will assist in maintaining fastening pattern. Penetrating bandboard or other horizontal members may be necessary to maintain fastening pattern. Do not install fasteners within 6″ (152 mm) of the sills and jambs and within 9″ (228 mm) of the head of the window rough openings. Use one or more of the recommended fasteners below for use with DuPont™ Tyvek® sheathing membranes:

- DuPont™ Tyvek® Wrap Cap nails
- DuPont™ Tyvek® Wrap Cap screws
- DuPont™ Tyvek® Wrap Cap staples or other cap staples for Stinger™ Cap Stapler*
- Other manufacturers' equivalent fasteners.

Please see "Special Considerations" section above for equivalent fastener requirements and "Temporary Fastening" section below for more information on alternative fastening schedules and requirements.

*Except when installing DuPont™ Tyvek® sheathing membrane over foam and other non-nail-base sheathings.

STEP 4

Unroll directly over windows and doors. Upper layer of DuPont™ Tyvek® sheathing membrane should overlap bottom layer by a minimum of 6″ (152 mm). Refer to the DuPont™ Flashing Systems Installation Guidelines to prepare and flash window and door openings.

NOTE: If windows are already installed, the DuPont™ Tyvek® sheathing membrane must be integrated with proper shingling with window flashings. If DuPont™ FlexWrap™ NF and apron are used according to the *DuPont™ Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors BEFORE Water-Resistive Barrier (WRB) is Installed*, install the DuPont™ Tyvek® sheathing membrane under the apron to ensure proper shingling and follow the DuPont™ Flashing Systems Integration steps on page 14 to tie the DuPont™ Tyvek® sheathing membrane into the flashing. If non-self adhering sill flashing is used, install the sheathing membrane under the bottom of the sill flashing to maintain proper shingling.

STEP 5

Tape all vertical seams with DuPont™ Tyvek® Tape. If the DuPont™ Tyvek® sheathing membrane is not being installed as an air barrier, DuPont™ Tyvek® Tape is not required on horizontal seams but is considered a recommended best practice. Use 3″ (76 mm) DuPont™ Tyvek® Tape for the horizontal seams of DuPont™ Tyvek® StuccoWrap® and DuPont™ Tyvek® DrainWrap™ CA.

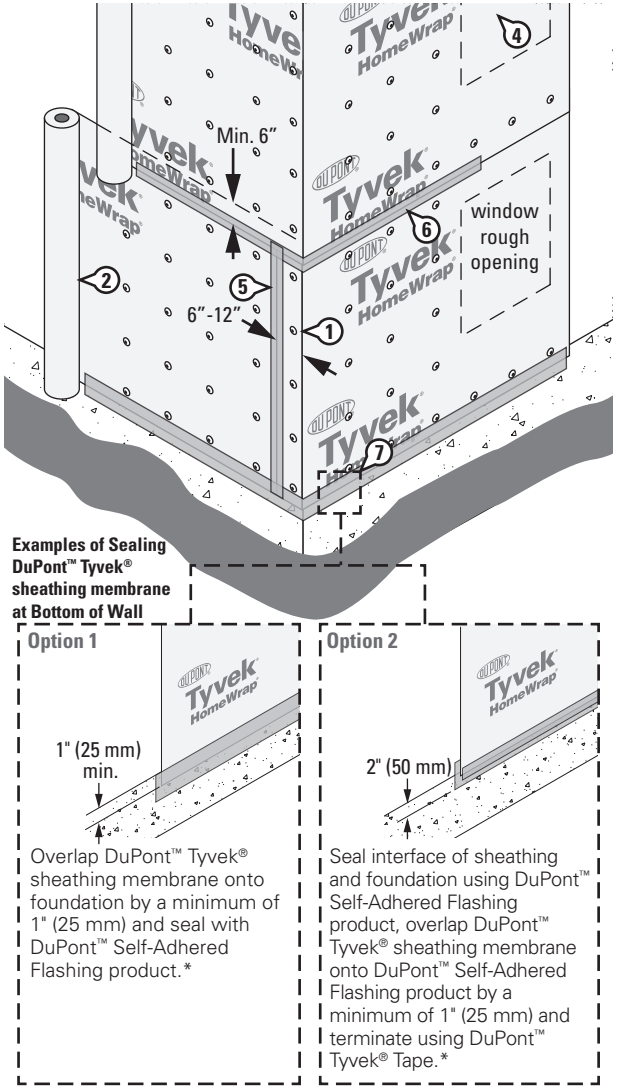
STEP 6 (For Air Barrier Installations)

When installing as an air barrier, the horizontal seams must be taped. The use of 3″ (76 mm) DuPont™ Tyvek® Tape is required for both vertical and horizontal seams of DuPont™ Tyvek® DrainWrap™ CA for air barrier installations.

STEP 7 (For Air Barrier Installations)

Taping or sealing all terminations of DuPont™ Tyvek® sheathing membranes (including, but not limited to, roof-wall and bottom of the wall interfaces) using DuPont™ Tyvek® Tape, compatible sealant, DuPont™ StraightFlash™, or DuPont™ Flashing Tape is required when installing as an air barrier.**

**Use DuPont™ Self-Adhered Flashing products with DuPont™ Adhesive/Primer (or recommended primer) as applicable to seal the DuPont™ Tyvek® sheathing membrane directly to concrete, wood, or other rough surfaces. Sealant, applied per manufacturers' guidelines, can be used to seal the Tyvek® sheathing membrane to rough surfaces.

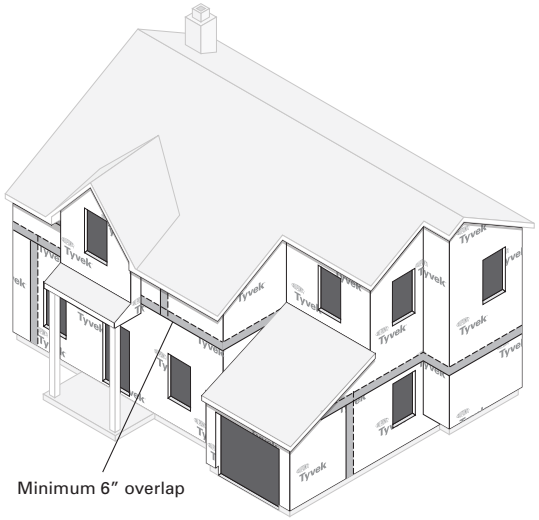


STEP 8

After DuPont™ Tyvek® sheathing membrane is installed refer to the DuPont™ Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors AFTER Water-Resistive Barrier (WRB) is Installed to prepare and flash windows and doors.

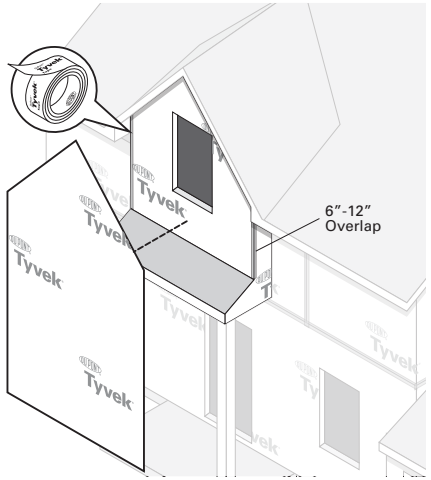
Continuity

It is important to maintain the continuity of the sheathing membrane from bottom to top with proper shingling. Starting from the bottom of the structure, continue wrapping all the way up, overlapping the previous layer of DuPont™ Tyvek® sheathing membrane by a minimum of 6" (150 mm). Wrap the entire wall surface including unconditioned spaces.



Gable Ends

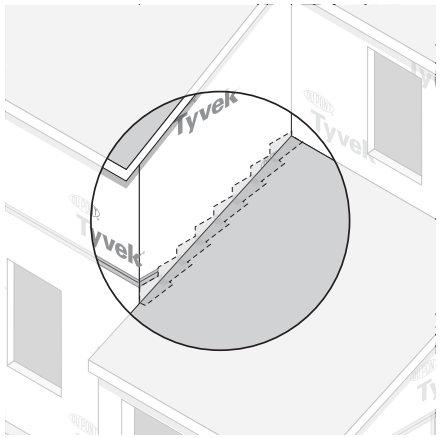
Completely cover the Gable End with the DuPont™ Tyvek® sheathing membrane including a 6"-12" (150-300 mm) overlap at each corner. Cut away the excess sheathing membrane and tape all seams.



Terminations

Lap DuPont™ Tyvek® sheathing membrane over all flashing (e.g. step flashing, wall to roof intersections and through wall flashings).

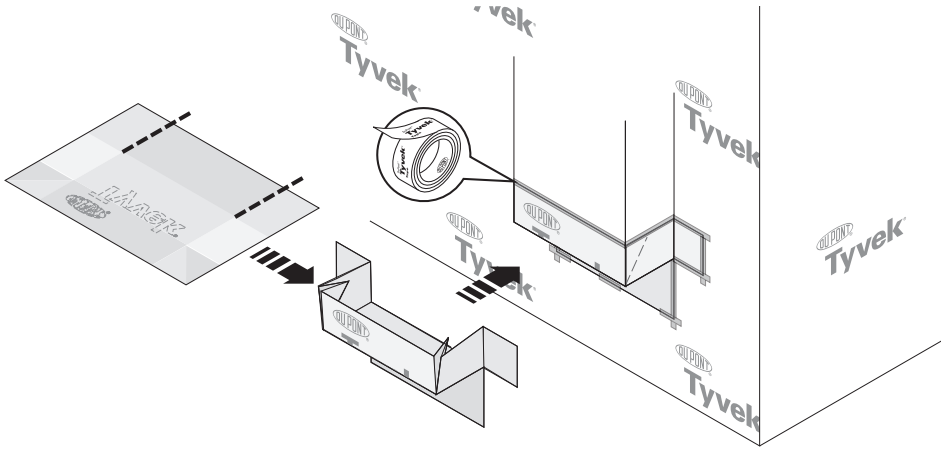
Weep screeds and expansion joints need to be integrated with flashings and the DuPont™ Tyvek® sheathing membrane.



Cantilever Floors

Wrap the DuPont™ Tyvek® sheathing membrane under and up the Cantilever floor and fold the sheathing membrane up the sides of the Cantilever wall a minimum of 6" (150 mm). Tape all corners. The top layer of DuPont™ Tyvek® sheathing membrane should go over the bottom layer a minimum of 6" (150 mm).

NOTE: Make the inside corner as tight as possible using a 1 x 4 (25 x 100 mm) or similar.



Installation of Metal Flashing at Façade Transitions

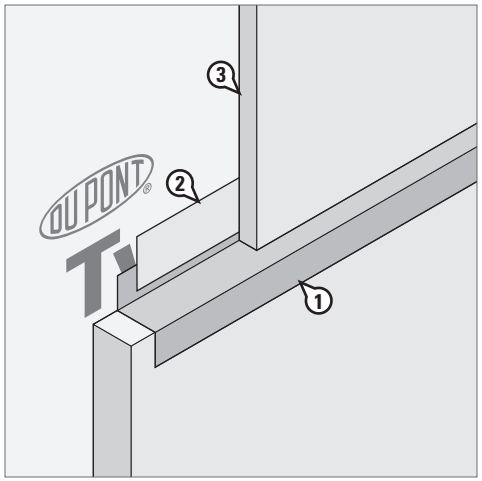
Option 1: Metal Flashing Terminated onto DuPont™ Tyvek® sheathing membrane

STEP 1
Install the "Z" or "L" metal flashing over the lower façade and onto the DuPont™ Tyvek® sheathing membrane with mechanical fasteners or compatible adhesive/primer.

NOTE: Do not install DuPont™ Tyvek® sheathing membrane fasteners where the metal flashing or DuPont™ Self-Adhered Flashing products will be installed.

STEP 2
Terminate the vertical leg of the metal flashing to DuPont™ Tyvek® sheathing membrane with DuPont™ Self-Adhered Flashing product so there is a minimum of 2" (50 mm) adhesion onto the DuPont™ Tyvek® sheathing membrane.

STEP 3
Install the upper façade according to the manufacturer's instructions.



Option 2: Metal Flashing Terminated onto Wood Sheathing

STEP 1
Install the first course of DuPont™ Tyvek® sheathing membrane so it extends a minimum of 2" (50 mm) beyond where the top edge of the lower façade will be located.

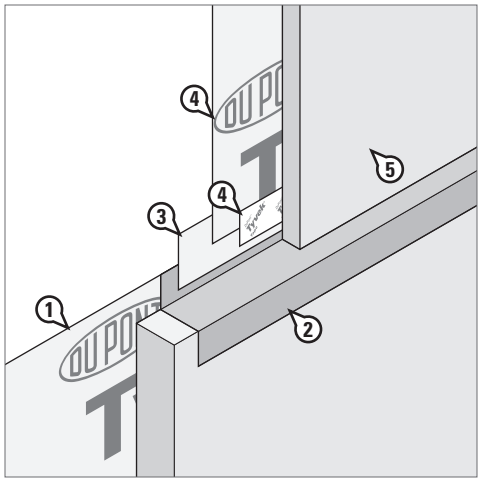
NOTE: Do not install DuPont™ Tyvek® sheathing membrane fasteners where the metal flashing or DuPont™ Self-Adhered Flashing products will be installed.

STEP 2
Install the "Z" or "L" metal flashing along the top edge of the lower façade with the vertical leg overlapping the DuPont™ Tyvek® sheathing membrane.

STEP 3
Terminate the vertical leg of the metal flashing directly to the sheathing with DuPont™ Self-Adhered Flashing product with minimum of 2" (50 mm) adhesion onto the sheathing.

STEP 4
Install the next course of DuPont™ Tyvek® sheathing membrane to overlap the DuPont™ Self-Adhered Flashing products by a minimum of 2" (50 mm) and seal with DuPont™ Tyvek® Tape or compatible sealant.

STEP 5
Install upper façade according to the manufacturer's instructions.



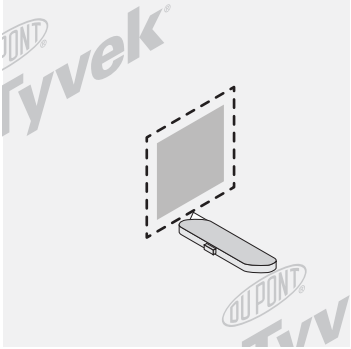
Penetrations

Seal around plumbing pipes, HVAC components, electrical outlets, exterior lights, flashing panels, and other objects that penetrate the DuPont™ Tyvek® sheathing membrane. Always use positive shingling by installing DuPont™ Tyvek® sheathing membranes and Self-Adhered Flashing products from bottom to top, with upper layer installed over lower layer.

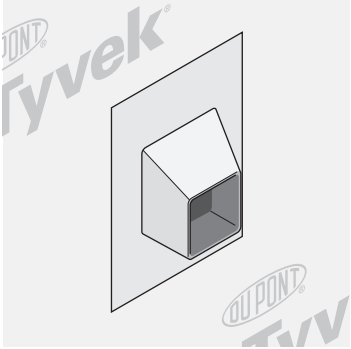
OPTIONAL LAST STEP FOR ALL INSTALLATIONS: Install a piece of DuPont™ Tyvek® sheathing membrane and seal with DuPont™ Tyvek® Tape to overlap the top edge of the DuPont™ Self-Adhered Flashing product (shown in Method 1 below).

Flashing Integral Flanged Products Installed AFTER DuPont™ Tyvek™ Sheathing Membrane

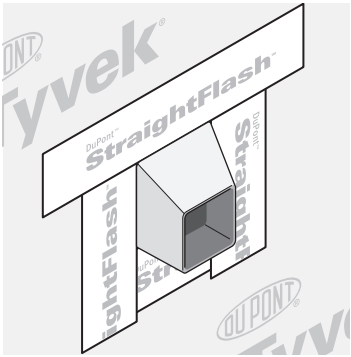
Method 1



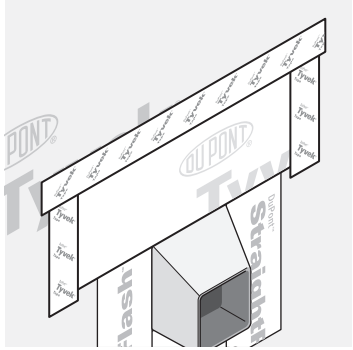
STEP 1
Install DuPont™ Tyvek® sheathing membrane and cut as necessary to accommodate integral flanged product.



STEP 2
Install integral flanged product per manufacturer's instructions.



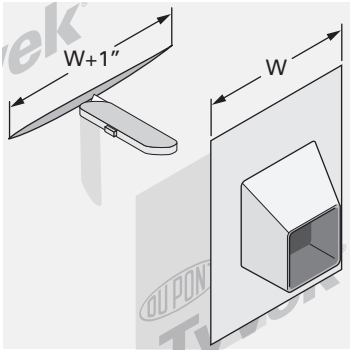
STEP 3
Install DuPont™ Self-Adhered Flashing onto sides and top flange, extending onto DuPont™ Tyvek® sheathing membrane by a minimum of 2". **NOTE**: Also install at bottom flange as a recommended best practice and for air barrier installations.



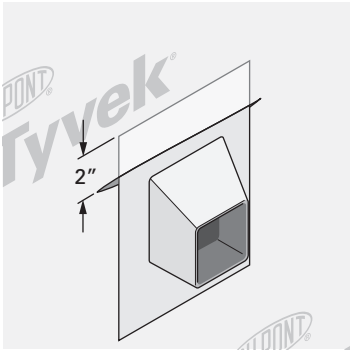
STEP 4 (OPTIONAL)
Install a piece of DuPont™ Tyvek® sheathing membrane to overlap the top edge of the DuPont™ Self-Adhered Flashing. Seal sides and top with DuPont™ Tyvek® Tape.

Flashing Integral Flanged Products Installed AFTER DuPont™ Tyvek™ Sheathing Membrane

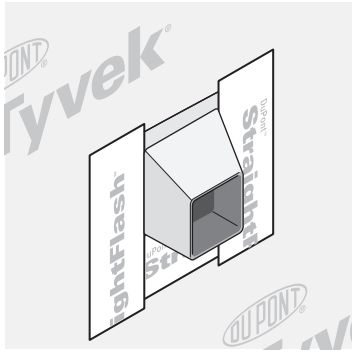
Method 2



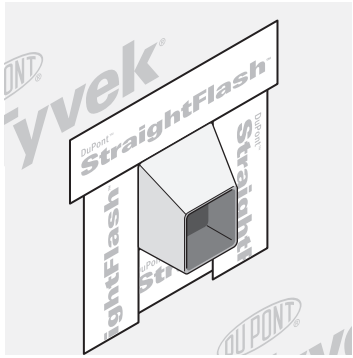
STEP 1
Install DuPont™ Tyvek® sheathing membrane and make horizontal cut a minimum of 1″ wider than flange.



STEP 2
Slide top flange into slit with minimum 2″ overlap of DuPont™ Tyvek® sheathing membrane, and install per manufacturer's instructions.



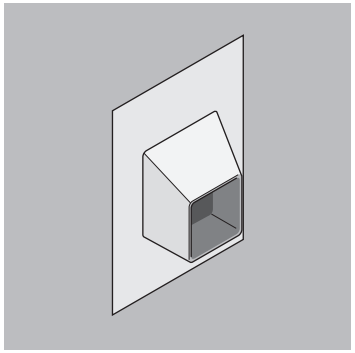
STEP 3
Adhere DuPont™ Self-Adhered Flashing onto side flanges, extending onto DuPont™ Tyvek® sheathing membrane by 2″. **NOTE**: Also install at bottom flange as a recommended best practice and for air barrier installations.



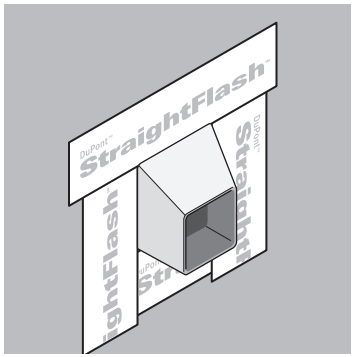
STEP 4
Install DuPont™ Self-Adhered Flashing to top flange, extending beyond DuPont™ Self-Adhered Flashing on side flanges.

Flashing Integral Flanged Products - Installed BEFORE DuPont™ Tyvek™ Sheathing Membrane

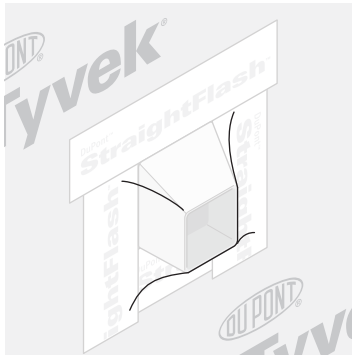
Method 1



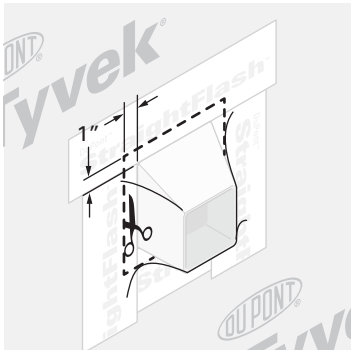
STEP 1
Install integral flanged product onto sheathing per manufacturer's instructions.



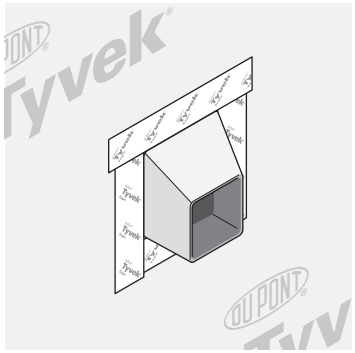
STEP 2
Install DuPont™ Self-Adhered Flashing onto flanges, extending onto sheathing by a minimum of 2".



STEP 3
Install DuPont™ Tyvek® sheathing membrane.

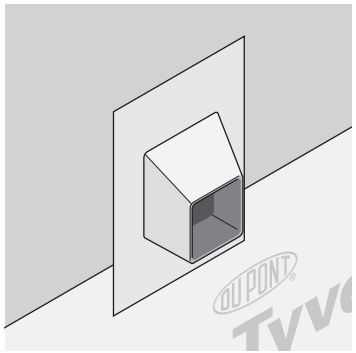


STEP 4
Make cut in DuPont™ Tyvek® sheathing membrane, ensuring a minimum of 1" gap for adhesion of DuPont™ Tyvek® Tape.

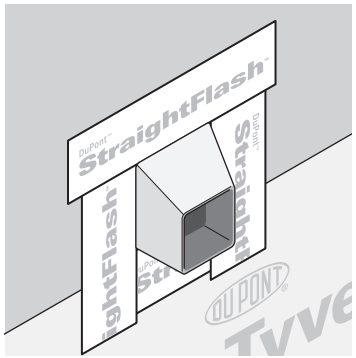


STEP 5
Seal edges of DuPont™ Tyvek® sheathing membrane with DuPont™ Tyvek® Tape.

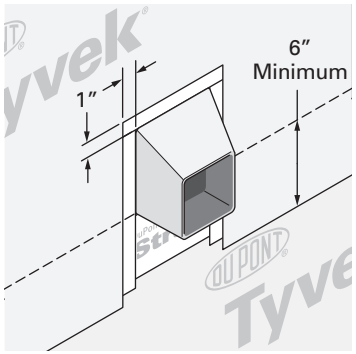
Method 2



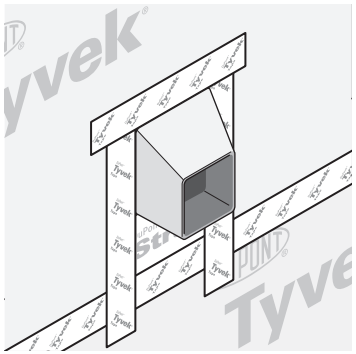
STEP 1
Install DuPont™ Tyvek® sheathing membrane under bottom flange.



STEP 2
Adhere DuPont™ Self-Adhered Flashing onto sides and top flange. **NOTE**: Also install at bottom flange as a recommended best practice and for air barrier installations.



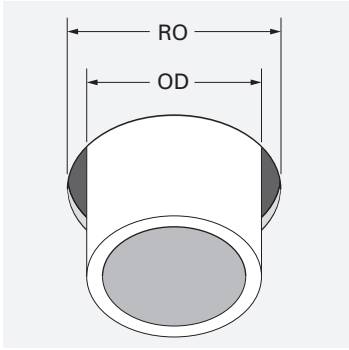
STEP 3
Install next course of DuPont™ Tyvek® sheathing membrane with a minimum of 6" overlap. Cut back 1" to expose flanges.



STEP 4
Seal seams using DuPont™ Tyvek® Tape.

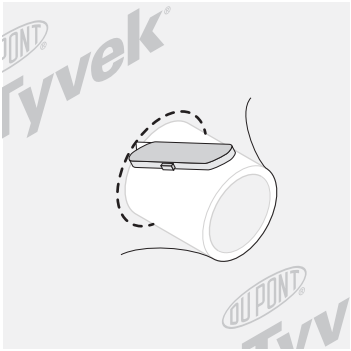
Flashing Non-Flanged Products - Installed AFTER DuPont™ Tyvek™ Sheathing Membrane

Method 1: Flashing Non-Flanged Products Using DuPont™ FlexWrap™ EZ

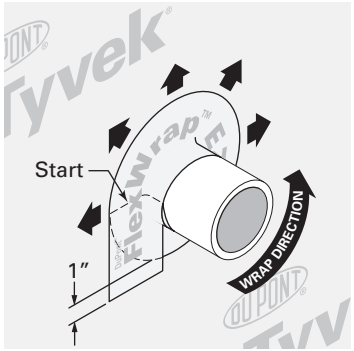


Use DuPont™ FlexWrap™ EZ only when penetration rough opening (**RO**) is not more than 1/2" larger than the outside diameter/dimension (**OD**) of non-flanged product.

For non-flanged products with OD GREATER than 2"



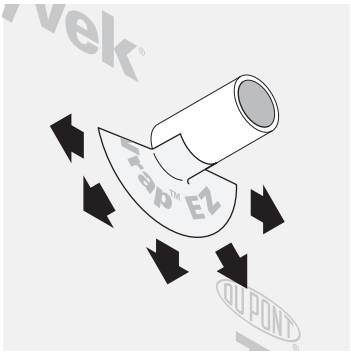
STEP 1
Install DuPont™ Tyvek® sheathing membrane over non-flanged product and cut around penetration.



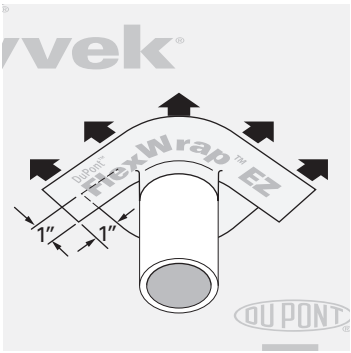
STEP 2
Cut a piece of DuPont™ FlexWrap™ EZ longer than the circumference of non-flanged product to ensure a minimum 1" overlap onto the DuPont™ Tyvek® sheathing membrane. Starting at the horizontal position on either side, adhere around penetration and onto DuPont™ Tyvek® sheathing membrane.

For non-flanged products with OD LESS than 2"

STEP 1
Install DuPont™ Tyvek® sheathing membrane over non-flanged product and cut around penetration.



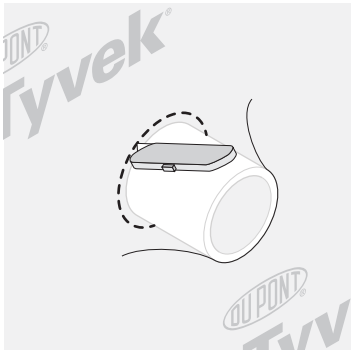
STEP 2
Cut a piece of DuPont™ FlexWrap™ EZ the length of ½ the circumference of the non-flanged product. Adhere onto bottom section and fan out onto DuPont™ Tyvek® sheathing membrane.



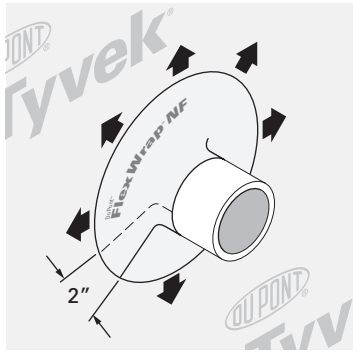
STEP 3
Cut a second piece of DuPont™ FlexWrap™ EZ the length of the pipe circumference. Adhere onto top section and fan out onto face of wall with a minimum of 1" overlap of the edges of DuPont™ FlexWrap™ EZ below.

Method 2: Flashing Non-Flanged Products Using DuPont™ FlexWrap™ NF

DuPont™ FlexWrap™ NF installed onto DuPont™ Tyvek® sheathing membrane around penetration

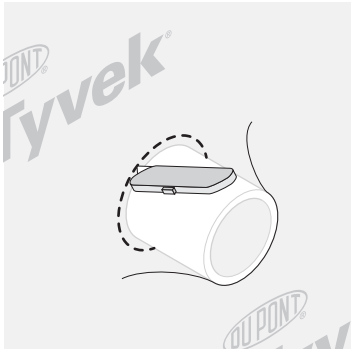


STEP 1
Install DuPont™ Tyvek® sheathing membrane over non-flanged product and cut around penetration.

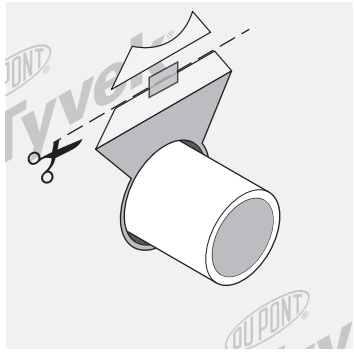


STEP 2
Starting at the horizontal position on either side, install DuPont™ FlexWrap™ NF around penetration with a minimum 2″ overlap.

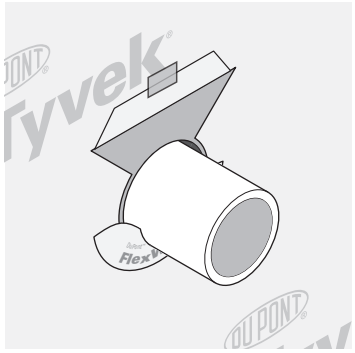
DuPont™ FlexWrap™ NF adhered to sheathing above penetration*



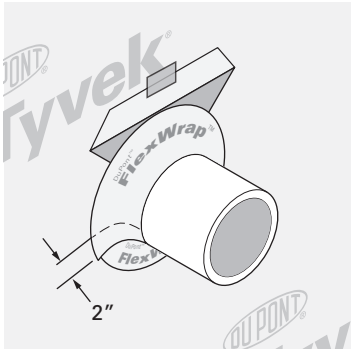
STEP 1
Install DuPont™ Tyvek® sheathing membrane over non-flanged product and cut around penetration.



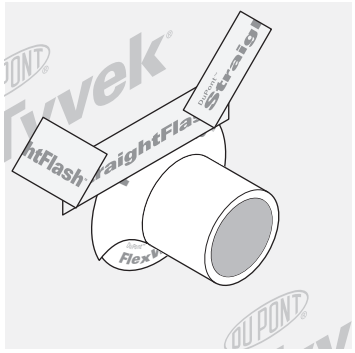
STEP 2
Cut diagonal flap in DuPont™ Tyvek® sheathing membrane, trim back ~1″ to make straight edge, and temporarily secure.



STEP 3
Install DuPont™ FlexWrap™ NF around bottom of penetration..



STEP 4
Install DuPont™ FlexWrap™ NF around top of penetration, overlapping bottom layer of DuPont™ FlexWrap™ NF by 2″ on either side.



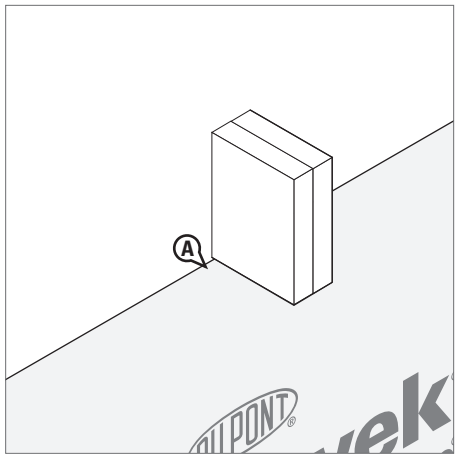
STEP 5
Flip down and secure head flap using DuPont™ Self-Adhered Flashing product.

* Allows positive shingling of DuPont™ Tyvek® sheathing membrane

Flashing Beam Penetrations

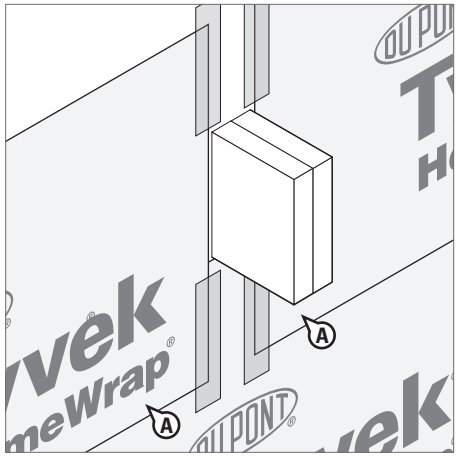
STEP 1

A. Install the first course of DuPont™ Tyvek® sheathing membrane so the top edge is flush with the bottom of the beam.



STEP 2

A. Cut pieces of DuPont™ Tyvek® sheathing membrane to fit between beams. The pieces should extend a minimum of 7″ (177 mm) above the beams and overlap the course below by a minimum of 6″ (150 mm). Seal the vertical seams with DuPont™ Tyvek® Tape. **NOTE**: For air barrier installations, seal all vertical and horizontal seams.

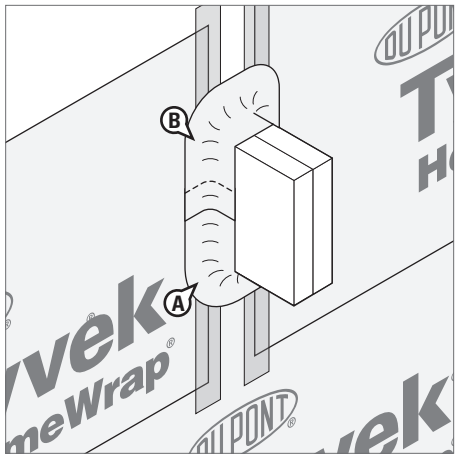


STEP 3

Seal around the beam using two pieces of 6″ wide DuPont™ FlexWrap™ NF.

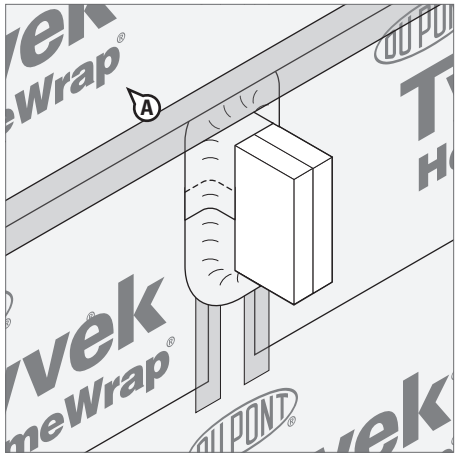
A. Cut the first piece of DuPont™ FlexWrap™ NF long enough wrap around the bottom half of the beam. Break the perforation in the release paper by folding the DuPont™ FlexWrap™ NF top sheet to the inside of the fold. With the DuPont™ FlexWrap™ NF still folded, remove the narrow piece of release paper and adhere the exposed butyl to the bottom and up each side of the beam. Remove the remaining release paper and fan the DuPont™ FlexWrap™ NF out onto the DuPont™ Tyvek® on the face of the wall.

B. Cut the second piece of DuPont™ FlexWrap™ NF long enough to wrap around the top half of the beam, overlapping the first piece of DuPont™ FlexWrap™ NF on each side by 2″ (50 mm). Install along the top of the beam and down each side, overlapping the lower piece of DuPont™ FlexWrap™ NF by 2″ (50 mm) using the method above.



STEP 4

A. Install the top course of the DuPont™ Tyvek® sheathing membrane, overlapping the DuPont™ Tyvek® sheathing membrane below with 1″ (25 mm) gap above the beam. Tape all vertical seams with DuPont™ Tyvek® Tape. **NOTE**: For air barrier installations, seal all vertical and horizontal seams.



Handling Tears and Holes

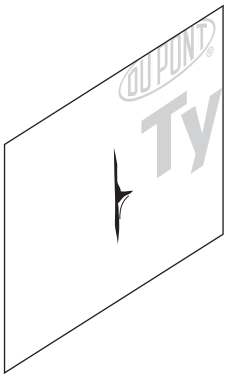
During the course of installing the DuPont™ Tyvek® sheathing membrane, minor tears may occur. Be sure to tape all tears. Tears can easily be covered with DuPont™ Tyvek® Tape (2″ (50 mm) or 3″ (75 mm)) or DuPont™ Flashing Systems products.

Larger holes (greater than 1″ (25 mm)) may require cutting a piece of DuPont™ Tyvek® sheathing membrane to cover the hole, maintaining proper shingling.

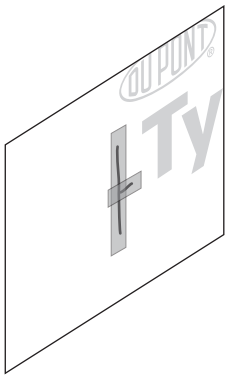
Cut a slit 2″ (50 mm) above the hole and extending a minimum of 2″ (50 mm) on each side of the hole. Measure and cut a piece of DuPont™ Tyvek® sheathing membrane to fit into the slit and cover the hole. Tuck the cut piece of DuPont™ Tyvek® sheathing membrane into the slit. Tape along the perimeter by starting at the bottom of the patch, shingling upper tape over bottom tape.

Tears

STEP 1

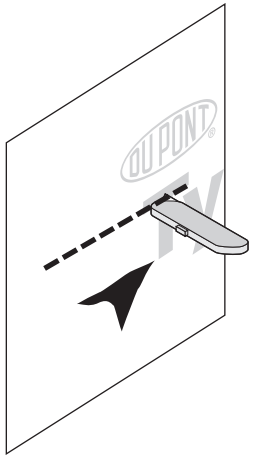


STEP 2

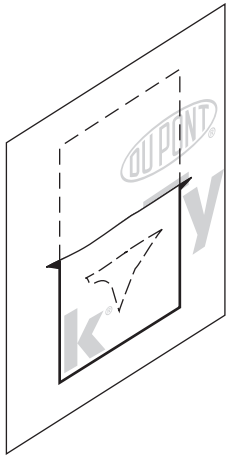


Holes

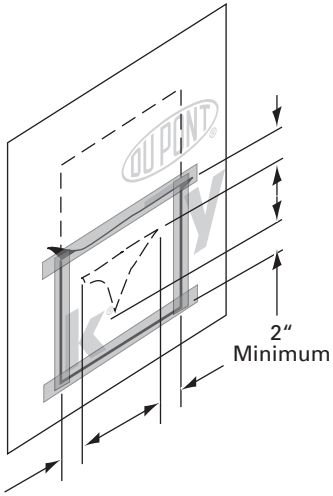
STEP 1



STEP 2

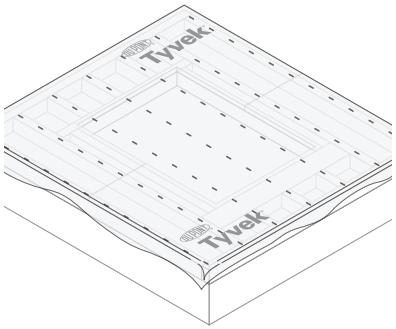


STEP 3

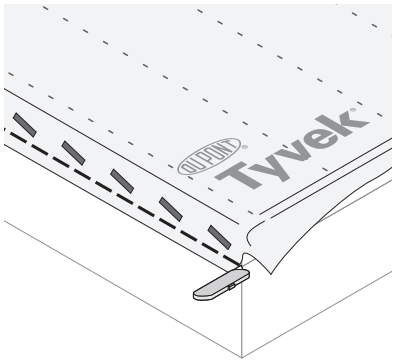


Tilt Wall Instructions

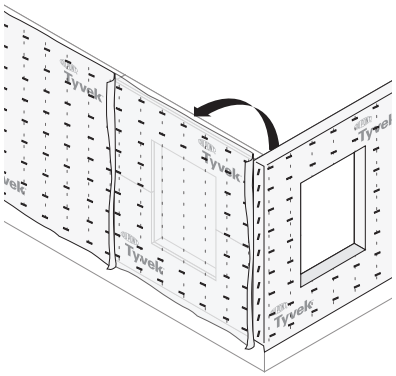
STEP 1 Unroll and secure DuPont™ Tyvek® sheathing membrane over the wall panel. Leave enough lap to ensure a minimum 6" (150 mm) overlap of the DuPont™ Tyvek® sheathing membrane on all sides except top of the wall. These flaps allow for a DuPont™ Tyvek® sheathing membrane-to-DuPont™ Tyvek® sheathing membrane seal with adjacent sides. When taping, make sure the stud marks printed on the DuPont™ Tyvek® sheathing membrane line up with the first stud and that the roll is plumb.



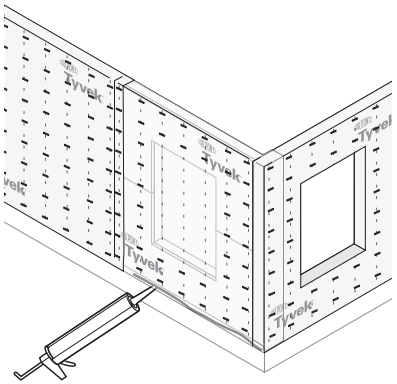
STEP 2 When starting a wall section, fold the beginning side flap over the vertical side of the stud and secure. Trim off excess. Ensure that the bottom flap overhangs enough so that, when the wall is tilted upright, it overlaps the sill plate.



STEP 3 As each wall section is raised, ensure that the bottom flaps overlap the sill plate and that the side flaps are on the exterior of the house.



STEP 4 Fasten the side flaps and secure the bottom flap to the foundation. For maximum air leakage reduction (when installing as an air barrier), seal wrap at the bottom of the wall with a recommended sealant, DuPont™ Tyvek® Tape, DuPont™ StraightFlash™ or DuPont™ Flashing Tape.



STEP 5 All vertical seams shall be taped with DuPont™ Tyvek® Tape. When installing as an air barrier, also tape all horizontal seams. Taping all vertical and horizontal seams, and taping or sealing all terminations (including, but not limited to, roof-wall interfaces and sill plates) is required when installing DuPont™ Tyvek® sheathing membranes as air barriers. Use 3" (75 mm) DuPont™ Tyvek® Tape when taping horizontal laps of DuPont™ Tyvek® DrainWrap™ CA.

STEP 6 After DuPont™ Tyvek® sheathing membrane is installed refer to the *DuPont™ Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors AFTER Water-Resistive Barrier (WRB) is Installed*.

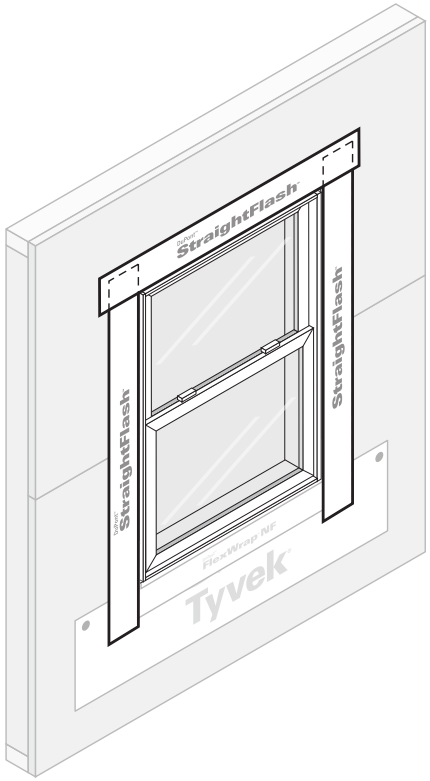
DuPont Flashing Systems Integration

If windows and doors have not been installed, reference the *DuPont™ Self-Adhered Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors AFTER Water-Resistive Barrier (WRB) is Installed* to prepare the rough opening.

If windows and doors will be installed before the sheathing membrane, then follow these last 4 integration steps to tie the DuPont™ Tyvek® sheathing membrane into the flashing.

STEP 1

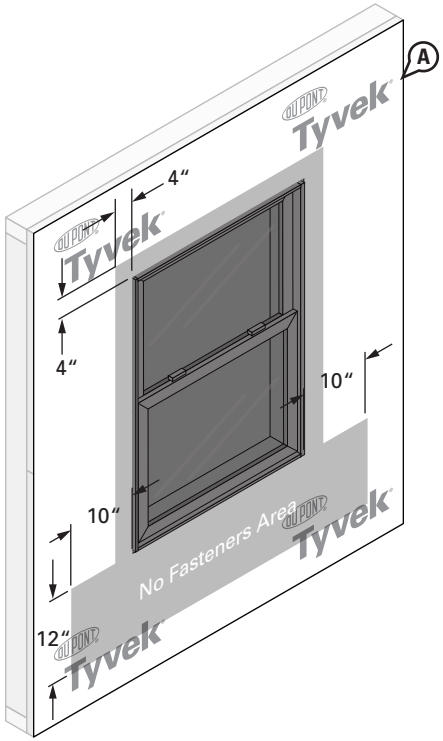
A. Install flashing and the window or door following the steps detailed in the *DuPont™ Self-Adhered Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors BEFORE Water-Resistive Barrier (WRB) is Installed*.

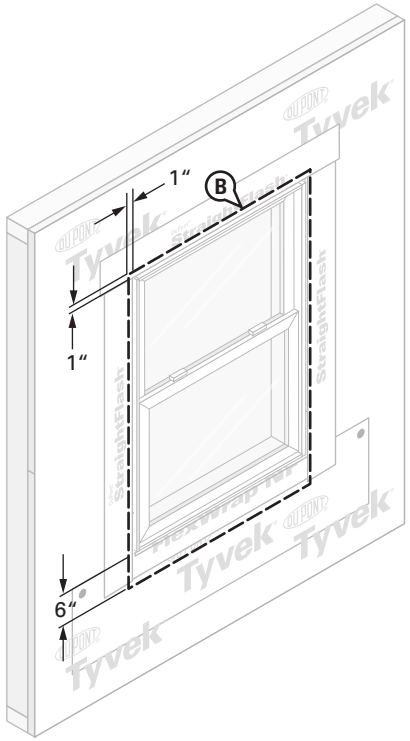


STEP 2

A. Install the DuPont™ Tyvek® sheathing membrane. Do not install fasteners within 4" of the window frame at jambs and head, and within 12" of the window frame at sill or location of apron.

B. Mark a perimeter on the DuPont™ Tyvek® sheathing membrane around the rough opening a minimum of 1" from the jambs and head of the window frame, and 6" below the sill of the window frame.



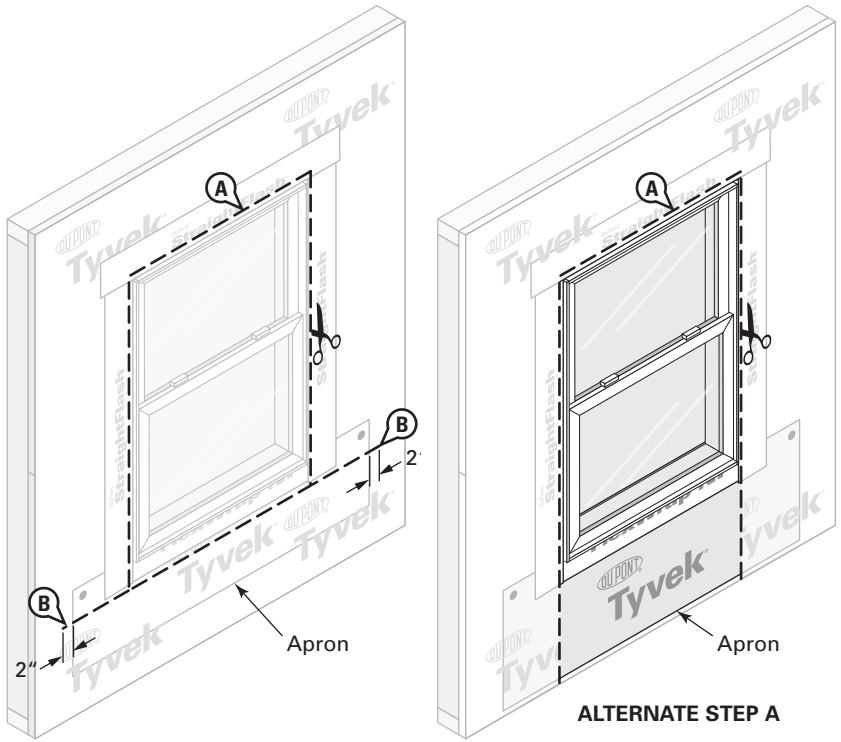


STEP 3

A. Cut the DuPont™ Tyvek® sheathing membrane along perimeter marking to expose window. Do not cut through the DuPont™ Self-Adhered Flashing products or DuPont™ Tyvek® sheathing membrane apron underneath.

ALTERNATE STEP A: If apron extends far enough below the sill rough opening to overlap the sill plate, base of wall flashing, or the DuPont™ Tyvek® sheathing membrane below, the DuPont™ Tyvek® sheathing membrane can be cut along jambs and head only to overlap apron.

B. Create horizontal slits in the DuPont™ Tyvek® sheathing membrane at each lower corner of the perimeter cut that extend a minimum of 2" beyond DuPont™ Tyvek® sheathing membrane apron.



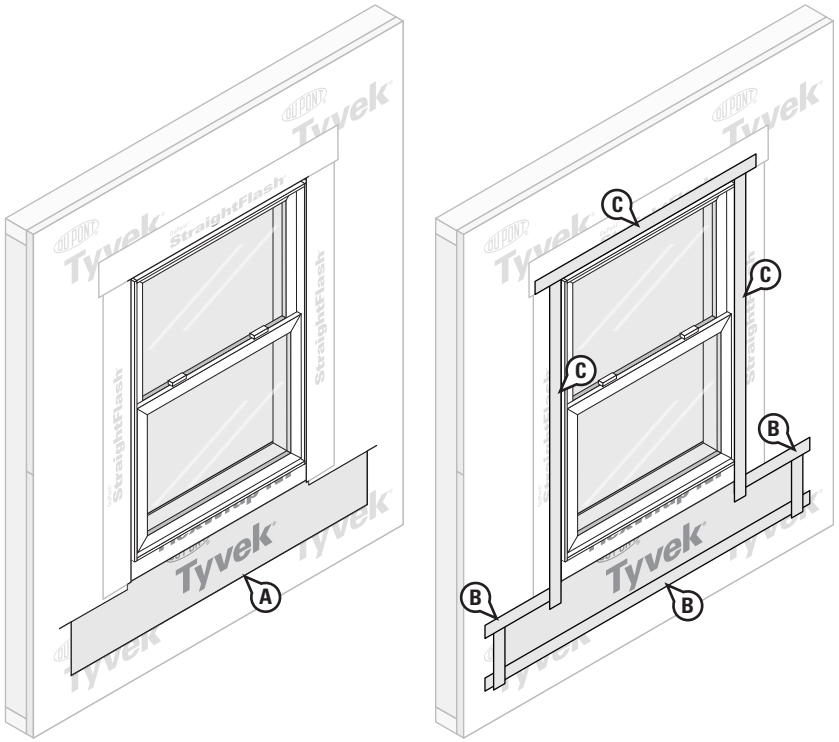
ALTERNATE STEP A

STEP 4

A. Bring the bottom portion of the DuPont™ Tyvek® sheathing membrane apron through the sill perimeter cut and horizontal slits so it laps over the top layer of DuPont™ Tyvek® sheathing membrane.

B. Working from bottom to top, install DuPont™ Tyvek® Tape to secure horizontal and vertical seams of DuPont™ Tyvek® sheathing membrane apron.

C. Install DuPont™ Tyvek® Tape along jambs and head to seal DuPont™ Tyvek® sheathing membrane around window.



Façade Considerations

The sheathing membrane performance is dependent upon the ability of the façade to drain. The following must be considered for specific façades.

Stucco and Direct-Applied Stone

When stucco is installed over wood-based sheathing it is required by International Building Codes, and to be eligible for the DuPont™ Tyvek® Products Material and Labor Residential 10-year Limited Warranty, that the sheathing membrane be separated from the stucco by an intervening, substantially non-water absorbing layer, or a drainage space.

The intervening layer can be a second layer of DuPont™ Tyvek® sheathing membrane, a layer of Grade D building paper, felt, rigid foam board or the paper-backed lath. 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. The first layer (directly over the sheathing or studs) serves as the wall system's water resistive barrier and is integrated with window and door flashings, the weep screed at the bottom of the wall and any through-wall flashings or expansion joints. Lath shall be installed over the intervening 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.

In some stucco systems, a rigid foam board is installed between the stucco lath and the DuPont™ Tyvek® sheathing membrane as an intervening layer. When rigid foam board is installed as an intervening layer over DuPont™ Tyvek® sheathing membranes it will 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® sheathing membrane if installed as soon as practically possible. DuPont™ Tyvek® DrainWrap™ CA is recommended for this application.

Brick

The 2015 National Building Code (Section 9.20.6.4) requires a minimum 1" (25 mm) air space separating the brick from the sheathing membrane. The Brick Industry Association recommends a nominal 1 inch (25 mm) air space in front of wood stud construction and a 2 inch (50 mm) air space in front of steel stud construction. Consistent with these requirements and recommendations, DuPont™ Tyvek® sheathing membranes shall be separated from the brick by a nominal 1 inch (25 mm) air space. Window and door flashing, and through-wall flashing shall be integrated with the DuPont™ Tyvek® layer ensuring proper shingling. For maximum moisture management and drying of the wall system the air space in front of the DuPont™ Tyvek® sheathing membrane shall be vented to the exterior at the top and bottom of the wall. Some types of brick ties will act as additional fasteners for sheathing membranes, and, if installed as soon as practically possible after the DuPont™ Tyvek® layer, may reduce the required number of fasteners used for the initial attachment of the DuPont™ Tyvek® sheathing membrane.

Stone Veneer

When stone (natural, manufactured, synthetic) veneers are installed over wood-based sheathing, it is required that the sheathing membrane be separated from the stone and mortar by an intervening layer as required by International Building Codes and to be eligible for the DuPont™ Tyvek® Products Material and Labor Residential 10-year Limited Warranty.

DuPont™ Tyvek® sheathing membrane shall be installed in a similar manner as they are installed behind stucco. DuPont™ Tyvek® sheathing membranes should be separated from the stone and mortar by a second layer of DuPont™ Tyvek® sheathing membrane, a layer of grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. The first layer (directly over the sheathing or studs) serves as the wall system's water resistive barrier and is integrated with window and door flashings, the weep screed at the bottom of the wall and any through-wall flashings or expansion joints. When rigid foam board is used as the second layer, it is installed over the DuPont™ Tyvek® sheathing membrane. DuPont™ Tyvek® DrainWrap™ CA is recommended for this application.

Wood Siding

DuPont™ Tyvek® sheathing membranes 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 be used to create an air space between the foam sheathing and siding.

Other recommendations that should be followed to minimize potential problems are:

- Use thicker siding patterns in widths of 8 inches (203 mm) 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™ Tyvek® DrainWrap™ CA 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® DrainWrap™ CA, by installing a drainage mesh over the water-resistive barrier, or by creating a rainscreen cladding with a larger air space behind the siding using furring strips. If furring is installed over the DuPont™ Tyvek® sheathing membrane to create a rainscreen, the primary fastener spacing can exceed 18" (457 mm).

Fiber Cement Siding

DuPont™ Tyvek® sheathing membranes and fiber cement siding shall be installed according to manufacturer's instructions, industry standards and applicable codes.

In high exposure installations, enhanced drainage and water management may be provided by using DuPont™ Tyvek® DrainWrap™ CA by installing a drainage mesh over the water-resistive barrier, or by creating a rainscreen cladding with a larger air space behind the siding using furring strips. If furring is installed over the DuPont™ Tyvek® sheathing membrane to create a rainscreen, the primary fastener spacing can exceed 18" (457 mm).

In high wind areas at gable end walls, FEMA recommends fiber cement siding be installed over wood sheathing rather than over plastic foam sheathing. DuPont™ Tyvek® sheathing membranes and fiber cement siding shall be installed according to manufacturer's instructions, industry standards and applicable codes.

Vinyl Siding

Vinyl Siding is installed directly over DuPont™ Tyvek® sheathing membranes. Vinyl siding shall be installed in accordance with manufacturer's instructions, industry standards and applicable codes, including ASTM D4756-06 Standard Practice for Installation of Rigid Poly (Vinyl Chloride) (PVC) Siding and Soffit.

In high wind areas at gable end walls, FEMA recommends vinyl siding be installed over wood sheathing rather than over plastic foam sheathing.

EIFS

DuPont™ Tyvek® sheathing membranes and EIFS cladding shall be installed according to manufacturer's instructions, industry standards and applicable codes. In order to promote drainage, it is recommended that DuPont™ Tyvek® DrainWrap™ CA be installed behind the exterior insulation. Window and door flashing, and through wall flashing shall be integrated with the DuPont™ Tyvek® sheathing membrane 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® sheathing membranes and exterior insulation shall be installed according to the manufacturer's instructions, industry standards and applicable codes. DuPont™ Tyvek® sheathing membranes 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® DrainWrap™ CA be used when installing the DuPont™ Tyvek® sheathing membrane layer between the sheathing and exterior insulation. Window flashing, door flashing, and through wall flashing shall be integrated with the DuPont™ Tyvek® sheathing membrane 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.

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® sheathing membranes 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® sheathing membrane. Permanent fasteners include cladding fasteners such as brick ties, lath fasteners for traditional stucco, exterior foam board fasteners, or siding installed with nails.

Temporary fastening methods:

- DuPont fasteners or equivalent alternate fasteners at a reduced schedule of 24" to 48" (600 to 1200 mm).
- DuPont recommended adhesive applied in vertical strips spaced at 24 to 36 inches (600 to 900 mm) spacing or along every other stud line. Vertical strips may be applied to the outer face of the sheathing or directly to the studs for open stud construction. When using adhesives, care must be taken to avoid excessive surface coverage as this may impact the vapor permeability of the DuPont™ Tyvek® sheathing membrane in that area. Adhesives should be evaluated for compatibility to DuPont™ Tyvek® sheathing membranes.
- If staples without caps are used to temporarily fasten DuPont™ Tyvek® sheathing membranes to OSB, plywood, or exterior gypsum sheathing, the fastening schedule must not exceed 4 per square yard. If installing as an air barrier, each staple must be covered with DuPont™ Tyvek® Tape. Covering the staples underneath a taped air and water barrier seam is also acceptable if installing DuPont™ Tyvek® sheathing membrane as an air barrier. Staples should not be used with fiberboard or foam sheathing.
- Selection and use of temporary fastening methods is an option dependent on building schedule, cladding options and local building practices.

NOTE: These Temporary Fastening Guidelines are subject to change based on new technology or testing information and may be superseded at any time. It is always important to follow the latest guidelines which may be found on www.construction.tyvek.ca. For additional guidance, please 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" (150 mm) overlap at all terminations, seams, penetrations, and transitions to maintain a continuous downward drainage plane and air and water barrier. Installing the DuPont™ Tyvek® sheathing membrane as an air barrier is the preferred installation method. However, skip-taping terminations and untaped horizontal seams is allowed when the DuPont™ Tyvek® sheathing membrane is being installed as a water-resistive barrier only for buildings less than 5 Stories and low-rise multi-family buildings less than 6 Stories with design requirements that don't exceed ASTM E1677, 65 mph (105 kph) equivalent structural load and 15 mph (24 kph) equivalent wind-driven rain water infiltration. All vertical seams must be taped for both air barrier and water-resistive barrier installations.

Penetrations

Seal the DuPont™ Tyvek® around all penetrations (electrical, HVAC and plumbing, etc.) with the appropriate DuPont™ Self-Adhered Flashing product, DuPont™ Tyvek® Tape, or recommended sealant. Products that have flanges should be integrated into the DuPont™ Tyvek® sheathing membrane. 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 (105 kph) equivalent structural load and 15 mph (24 kph) equivalent wind-driven rain water infiltration resistance. Please contact 1-800-44-Tyvek for recommended sealants and recommended alternate patches behind fastening plates.

Sealant

For additional information regarding sealant chemical compatibility with DuPont™ Tyvek® Weatherization Systems products, please refer to the technical bulletin titled *Chemical Compatibility and Adhesion Performance Reference Sheet* (K-29681).

Fasteners

Use DuPont or equivalent fasteners per the fastening schedule included in this installation guideline. Examples of recommended fasteners include:

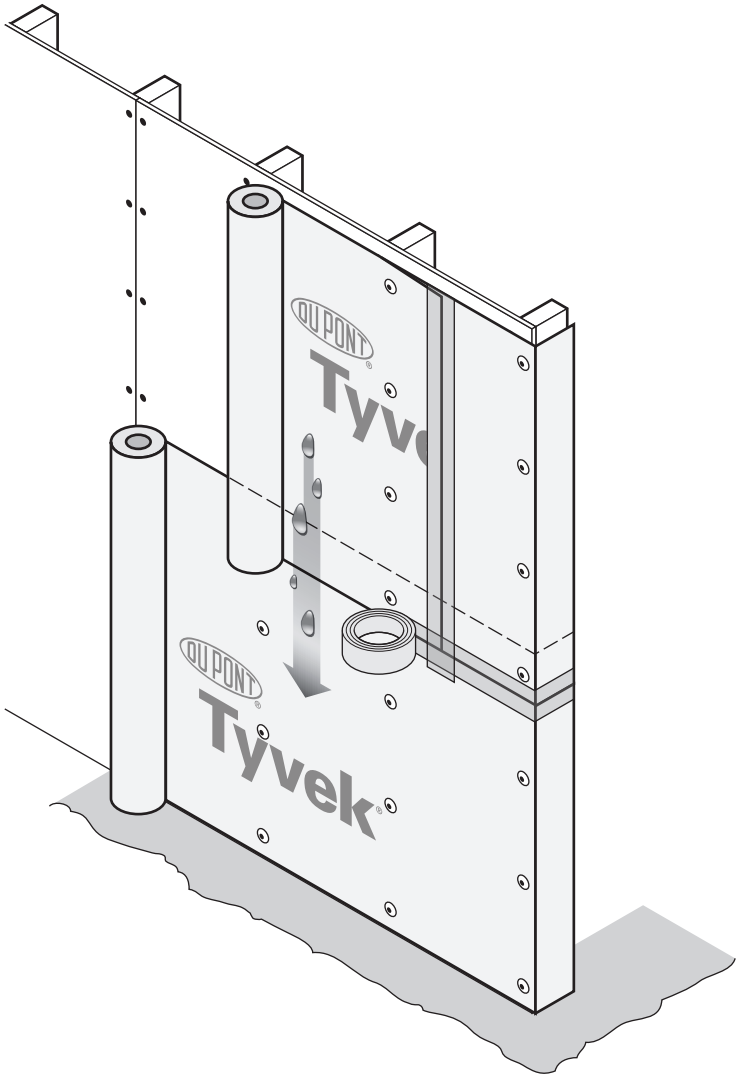
- DuPont™ Tyvek® Wrap Cap nails (for wood frame construction)
- DuPont™ Tyvek® Wrap Cap Staples or other cap staples for Stinger™ Cap Stapler (for wood frame construction)
- Other manufacturers' equivalent 1" (25 mm) plastic cap screws, nails, and staples (for wood frame construction).
- DuPont™ Tyvek® Wrap Cap or other manufacturers' equivalent 2" plastic cap screws (for steel or wood frame construction)
- 1-1/4" (32 mm) metal gasketed washers with screws (for steel frame construction)
- 2" (50 mm) metal gasketed washers with screws (for steel frame construction)
- Tapcon® fasteners with 2" (50 mm) plastic caps (for masonry construction)

If temporary fasteners are used, permanent fastening must be installed as soon as practically possible. In this case, permanent fasteners include cladding fasteners such as brick ties, lath fasteners for traditional stucco, exterior foam board fasteners, or siding installed with nails. Cladding shall be installed according to applicable building codes and industry standards.

Proper Overlap for Water Management

A. Lap all components from bottom of the wall to the top of the wall

B. 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.

Technical Specifications

DuPont™ Tyvek® sheathing membrane used in construction products is 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 Tyvek® DrainWrap™ CA be covered within nine months (270 days) of installation and Tyvek® HomeWrap® be covered within four months (120 days) of installation.

DuPont™ Self-Adhered Flashing products are made from a synthetic rubber adhesive and a laminate of polyethylene film, polypropelene film,elastic fiber, synthetic rubber adhesive, polyurethane adhesive, and a top sheet of flash spunbonded high density polyethylene fibers or polypropelene 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® sheathing membranes are slippery and should not be used in any application where it will be walked on. In addition, because it is slippery, DuPont recommends using kickjacks or scaffolding 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 CAN3-Z11-M81 (R2005) for portable ladders. DuPont™ Tyvek® is combustible and should be protected from a flame 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™ 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 flame 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. For more information, call 1-800-44-Tyvek.

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® sheathing membranes are air and water barriers and not the primary water barrier. The outer façade is the primary barrier. You must follow façade manufacturer's installation and maintenance requirements for all façade systems in order to maintain water holdout properties and ensure performance of DuPont™ Tyvek®. Use of additives, coatings or cleansers on or in the façade system may impact the performance of DuPont™ Tyvek® sheathing membranes. 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™ Flashing Systems 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 weather 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 the DuPont™ Tyvek® sheathing membrane is installed directly over the wall studs, exterior façade 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 on each project.

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

For more information about DuPont™ Tyvek® Building Envelope Solutions, please call 1-800-44-Tyvek or visit us at www.construction.tyvek.ca