

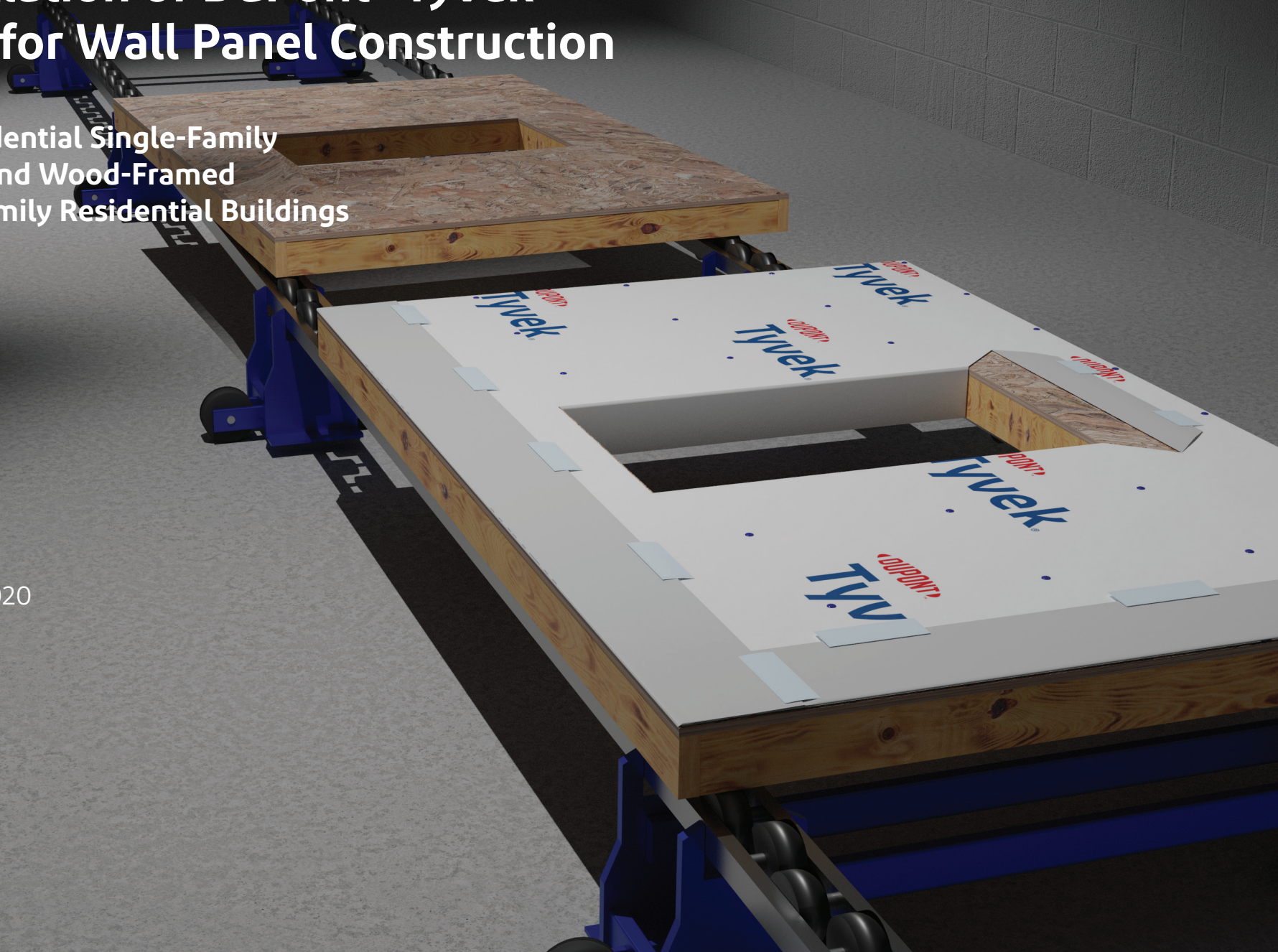


DuPont Performance Building Solutions

# Installation of DuPont™ Tyvek® WRB for Wall Panel Construction

For Residential Single-Family  
Homes and Wood-Framed  
Multi-Family Residential Buildings

January 2020

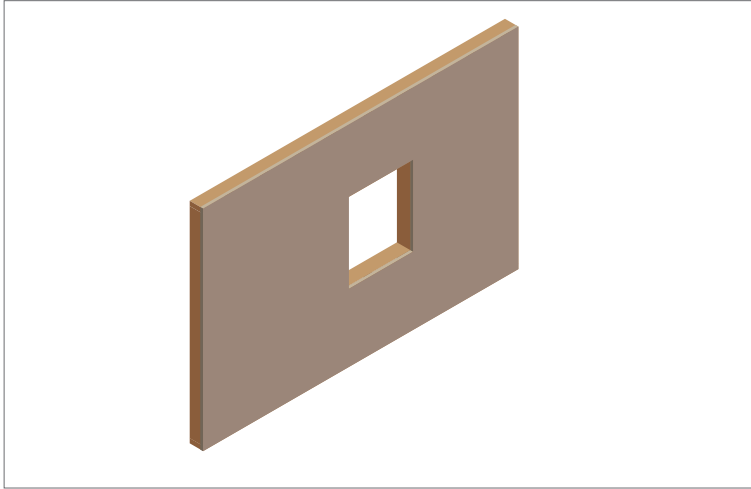




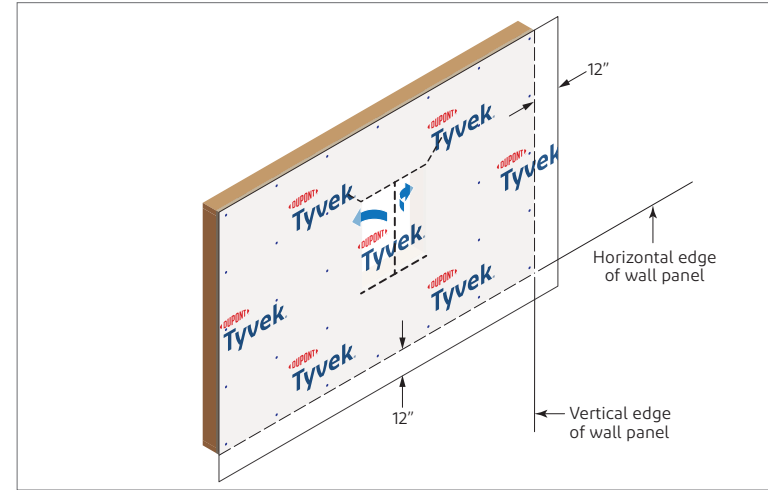
## Introduction

Wall panels built off site may include the exterior wall envelope. Ensuring continuity of the wall envelope can be challenging when panels are integrated with each other during construction at the job site. The wall envelope is also susceptible to damage during transport and at the job site, jeopardizing intended air and water barrier properties. This installation guideline provides instructions for installing **DuPont™ Tyvek® WRB** with flaps that can be easily folded and secured onto the face of the panels for transport. The flaps can then be unfolded and sealed as necessary during the construction process for wall envelope continuity. The process for installing the **Tyvek® WRB** at the manufacturing site and subsequent integration with adjacent panels is summarized below.

### 1. Panel with window rough opening

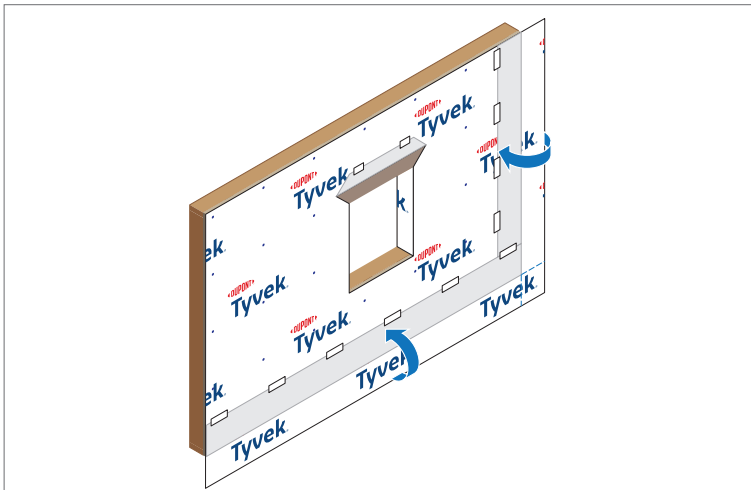


### 2. Panel with Tyvek® WRB

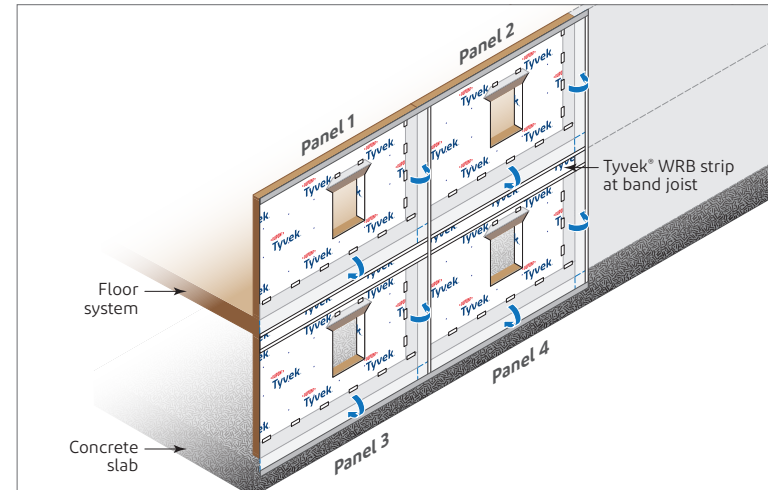


**Note:** Window rough opening prepared for integral flanged window

### 3. Panel with Tyvek® WRB installed and prepared for window installation



### 4. Multiple panels at job site with Tyvek® WRB flaps unfolded and sealed



**Note:** If building requires additional floors, panels from higher floors will be integrated to floors below in a similar manner.

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## Applicable Products

### Water-Resistive Barriers (WRB)

Product	Dimensions	Area
<b>DuPont™ Tyvek® HomeWrap®</b>	3 ft x 100 ft	300 sq ft
	3 ft x 165 ft	495 sq ft
	5 ft x 200 ft	1,000 sq ft
	9 ft x 100 ft	900 sq ft
	9 ft x 150 ft	1,350 sq ft
	10 ft x 100 ft	1,000 sq ft
10 ft x 150 ft	1,500 sq ft	
<b>DuPont™ Tyvek® StuccoWrap®</b>	5 ft x 200 ft	1,000 sq ft
<b>DuPont™ Tyvek® DrainWrap™</b>	9 ft x 125 ft	1,125 sq ft
	10 ft x 125 ft	1,250 sq ft
<b>DuPont™ Tyvek® ThermaWrap™ LE</b>	5 ft x 150 ft	750 sq
	9 ft x 100 ft ft	900 sq ft
<b>DuPont™ Tyvek® CommercialWrap®</b>	5 ft x 200 ft	1,000 sq ft
	10 ft x 125 ft	1,250 sq ft
<b>DuPont™ Tyvek® CommercialWrap® D</b>	5 ft x 200 ft	1,000 sq ft
	10 ft x 125 ft	1,250 sq ft

### Self-Adhered Flashing Products

Product	Width
<b>DuPont™ FlexWrap™ EZ</b>	2.75 in
<b>DuPont™ FlexWrap™</b>	6 in
	9 in
<b>DuPont™ StraightFlash™</b>	4 in
	9 in
<b>DuPont™ StraightFlash™ VF</b>	6 in
<b>DuPont™ Flashing Tape</b>	4 in
	6 in
	9 in
	12 in

## Applicable Products

### Installation Accessories

Product	Type	Quantity
<b>DuPont™ Tyvek® Tape</b>	2" Bulk Pack	36 rolls/case
	3" Bulk Pack	24 rolls/case
<b>DuPont™ Tyvek® Metallized Tape</b>	2" x 100' Rolls	12 rolls/case
<b>DuPont™ Tyvek® Wrap Cap</b> staples or other cap staples for Stinger™ Cap Stapler	7/8", 1-1/4", and 1-1/2" lengths	2,000/box
	3/8" and 5/8" lengths	2,016/box
<b>DuPont™ Tyvek® Wrap Cap</b> nails	1" electro-galvanized ring shank nail	2,000/box
<b>DuPont™ Tyvek® Wrap Cap</b> screws	2" dia. plastic cap, 1-3/4" screw length	1,000/box
<b>DuPont™ Adhesive/Primer</b>		
<b>DuPont™ Residential Sealant</b>		
<b>DuPont™ RainVent™ Battens</b>	5/8 in x 3/8 in x 8 ft	40/pack

## Warranty

Please refer to the *DuPont Weatherization Products 10-Year Limited Warranty for Buildings Less Than 5 Stories and Low-Rise Multi-Family Buildings Less Than 6 Stories*. For buildings greater than 4 stories, please refer to the *DuPont Weatherization Products 10-Year Limited Warranty for Buildings Greater Than 4 Stories*. For more information about DuPont Performance Building Solutions warranties, please call 1-800-448-9835 or visit us at [building.dupont.com](http://building.dupont.com)

## Water-Resistive Barrier (WRB) Code Requirements

The 2015 International Residential Code (Section R703.1.1 Water Resistance) requires that "the exterior wall envelope shall be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer as required by Section R703.2 and a means of draining to the exterior water that enters the assembly." Section R703.2 (Water-resistive barrier) states that "one layer of No. 15 asphalt felt, free from holes and breaks, complying with ASTM D 226 for Type 1 felt or other approved water-resistive barrier shall be applied over studs or sheathing of all exterior walls. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm). Where joints occur, felt shall be lapped not less than 6 inches (152 mm). The felt or other approved material shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to meet the requirements of the exterior wall envelope as described in Section R703.1."

The 2015 International Building Code (Section 1403.2 Weather Protection) requires that "exterior walls shall provide the building with a weather resistant exterior wall envelope. The exterior wall envelope shall include flashing, as described in Section 1405.4. 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 1404.2, and a means for draining water that enters the assembly to the exterior. Section 1404.2 (Water-resistive barrier) states that "not fewer than one layer of No. 15 asphalt felt, complying with ASTM D 226 for Type 1 felt or other approved materials, shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous water-resistive barrier behind the exterior veneer."

The **DuPont™ Tyvek® WRBs** listed below qualify as approved water-resistive barriers based on ICC-ES AC38 Acceptance Criteria according to the associated Evaluation Reports:

- ICC-ES Evaluation Report ESR 2375
  - **DuPont™ Tyvek® HomeWrap®**
  - **DuPont™ Tyvek® StuccoWrap®**
  - **DuPont™ Tyvek® DrainWrap™**
  - **DuPont™ Tyvek® CommercialWrap®**
  - **DuPont™ Tyvek® CommercialWrap® D**
- ICC-ESR-1993: **DuPont™ Tyvek® ThermaWrap™ LE**

And Type II designation per ASTM E2556, Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment

Air leakage control and air barriers are required in the IECC-2015 Sections R402.4 and C402.4. Specifically, Section C402.5 identifies three compliance options for air barriers. **DuPont™ Tyvek® WRBs** comply with the option detailed in Section C402.5.1.2.1: "C402.5.1.2.1 Materials. Materials with an air permeability no greater than 0.004 cfm/ft<sup>2</sup> (0.02 L/s x m<sup>2</sup>) under a pressure differential of 0.3 inches water gauge (75 Pa) when tested in accordance with ASTM E 2178 shall comply with this section." **Tyvek® WRBs** have been tested in accordance with ASTM E2178 and have air permeability less than 0.02 L/s x m<sup>2</sup>.

**DuPont™ Tyvek® WRBs** 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 Standard Test Methods for Water Vapor Transmission of Materials
- AATCC 127 Water Resistance: Hydrostatic Pressure Test
- ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials



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

## Special Considerations

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.

When performance requirements exceed ASTM E1677, 65 mph equivalent structural load and 15 mph 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*.

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

**DuPont™ Tyvek® StuccoWrap®** and **DuPont™ Tyvek® DrainWrap™** must be installed with drainage grooves vertical, going up and down. No surface preparation is needed for the installation of **DuPont™ Tyvek® WRBs**.

**DuPont™ Tyvek® ThermaWrap™ LE** must be installed with shiny, metallic side facing towards a clear ¾ inch minimum air space to obtain the installed R-Value benefits. **ThermaWrap™ LE** will still act as a water-resistive barrier without an air space. Refer to the *DuPont™ Tyvek® ThermaWrap™ LE Fact Sheet* for more information.

DuPont requires that **DuPont™ Tyvek® HomeWrap®**, **DuPont™ Tyvek® StuccoWrap®**, **DuPont™ Tyvek® DrainWrap™** and **DuPont™ Tyvek® ThermaWrap™ LE** be covered within 4 months (120 days) of installation. **DuPont™ Tyvek® CommercialWrap®** and **DuPont™ Tyvek® CommercialWrap® D** must be covered within 9 months (270 days) of installation.

DuPont requires that **DuPont™ FlexWrap™ EZ**, **FlexWrap™**, **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.

**DuPont™ Self-Adhered Flashing products** perform best when installed at temperatures above 25°F (-4°C).

**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.

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.

**DuPont™ Self-Adhered Flashing products** require the use of a compatible adhesive/primer when installed onto concrete, masonry, and/or fiber-faced exterior gypsum sheathing.

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.

**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® WRBs** are air and water barriers and not the primary water barrier. The exterior 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 **Tyvek® WRBs**. Use of additives, coatings or cleansers on or in the facade system may impact the performance of **Tyvek® WRBs**. DuPont products are to be used as outlined in this installation guideline. **DuPont™ Self-Adhered Flashing products** should only be used to seal penetrations, flash openings in buildings, and terminate **Tyvek® WRBs** when necessary. **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 WRB and exterior sheathing, high quality windows and doors, and appropriate flashing materials paying attention to proper installation of each component.

## Installation Instructions

### STEP 1

#### Install DuPont™ Tyvek® WRB on Exterior Wall Panel

- A. Begin installing the **Tyvek® WRB** with the left and top edges of the wall panel. The **Tyvek® WRB** will extend beyond the bottom and right edges. The excess **Tyvek® WRB** along the bottom edge of the wall panel will ensure proper shingling and a 12" overlap onto the **Tyvek® WRB** on the lower panel, band joist, or foundation, if applicable, once wall panels are installed on the job site. The **Tyvek® WRB** extending beyond the right edge will be used to overlap the **Tyvek® WRB** on the adjacent wall panel by 12".

Alternatively, the excess **Tyvek® WRB** can be cut to accommodate additional space between panels based on building design. Additional space may include band joists at floor lines or framing members between panels. In this case, it is important to know the position of the panel on the building to account for **Tyvek® WRB** coverage onto these areas (shown as Method 2, the lower image, in each Step 1-8).

$$\text{Total length of Tyvek® WRB (L)} = \text{Length of wall panel} + 12" + \text{Width of additional framing between panels if applicable}$$

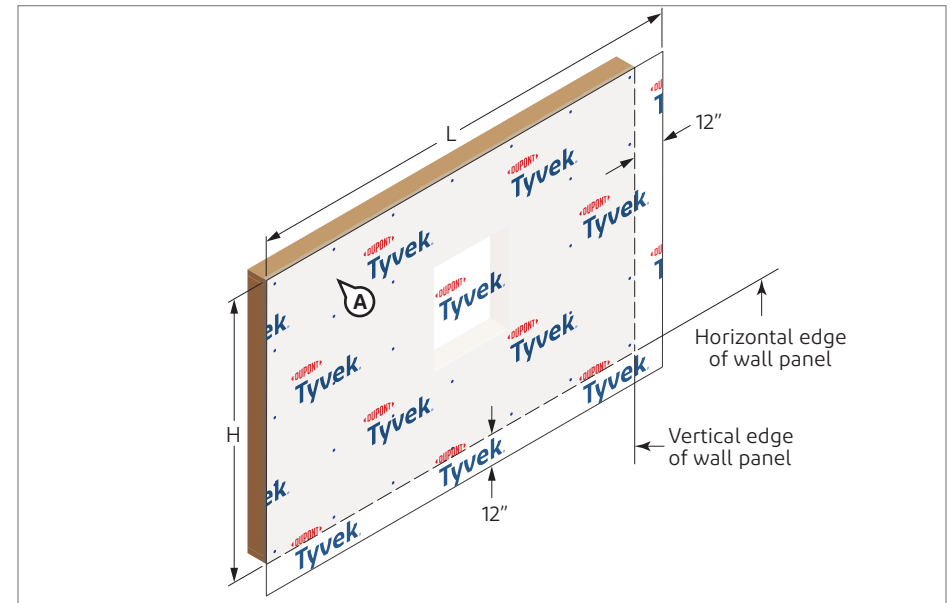
$$\text{Total height of Tyvek® WRB (H)} = \text{Height of wall panel} + 12" + \text{Width of additional framing or band joists between wall panels if applicable}$$

- B. If additional courses of **Tyvek® WRB** are required to cover the wall panel as described above, the top **Tyvek® WRB** course must overlap the bottom course by a minimum of 6". **Tyvek® WRBs** should also maintain a minimum vertical overlap of 6". Tape all horizontal and vertical seams with **DuPont™ Tyvek® Tape**. Use 3" **Tyvek® Tape** for **DuPont™ Tyvek® StuccoWrap®**, **Tyvek® DrainWrap™**, and **Tyvek® CommercialWrap® D**, and for high performance installations\*.

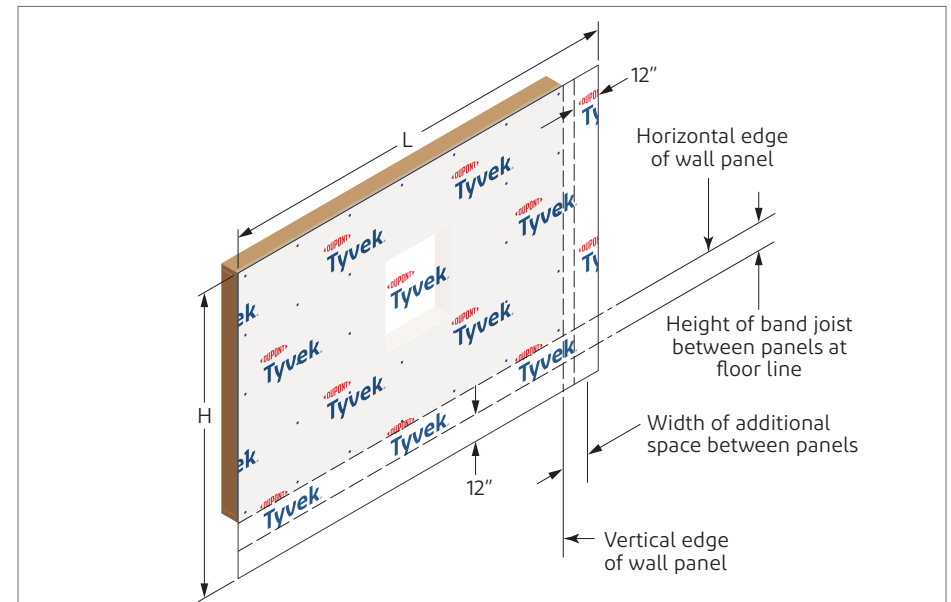
#### Notes:

- Cutting the **Tyvek® WRB** with 12" excess at bottom and left sides of wall panel will assist to ensure a 6" minimum horizontal and vertical overlap during job site construction.
- If sill plate is not included with wall panel, the horizontal **Tyvek® WRB** flap of lower panels will be cut to accommodate the sill plate and overlap onto foundation.
- The **Tyvek® WRB** may be installed from right to left in which case the vertical flap will extend beyond the left edge of the wall panel.

#### Method 1 – Tyvek® WRB cut to overlap adjacent panels



#### Method 2 – Tyvek® WRB cut to accommodate additional space between panels based on job site building design





C. Secure **DuPont™ Tyvek® WRB** along the studs with one of the following recommended fasteners:

- **DuPont™ Tyvek® Wrap Cap** nails
- **DuPont™ Tyvek® Wrap Cap** screws
- **DuPont™ Tyvek® Wrap Cap** staples or other cap staples for Stinger™ Cap Stapler (Except when installing **Tyvek® WRB** over foam and other non-nail-base sheathings)
- Other manufacturers' equivalent fasteners. Please see "Special Considerations" section above for equivalent fastener requirements.

Fasteners should be no closer than 6" and no farther than 18" apart on vertical stud lines. Securing along stud lines will assist in maintaining fastening pattern.

Cover window and door rough openings with **Tyvek® WRBs**, but do not install fasteners within 6" of the sills and jambs and within 9" of the head of window rough openings.

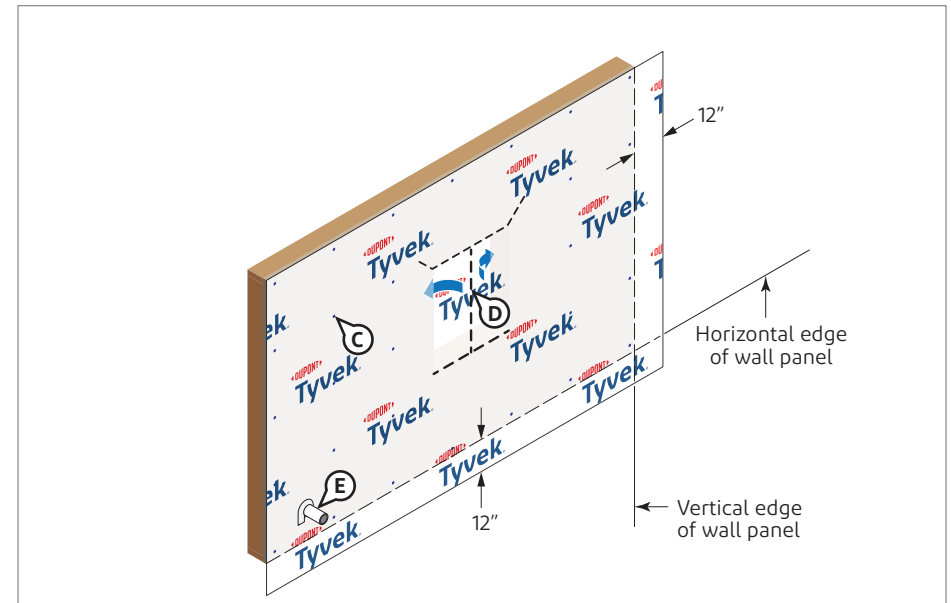
D. Prepare **Tyvek® WRB** for window and door installation at job site by creating an "I-Cut" or other approved cut. Fold and secure flaps into rough opening. For window and door installation and flashing, refer to the *DuPont™ Self-Adhered Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors AFTER Water-Resistive Barrier (WRB) is Installed*. For high performance installations\*, refer to the *DuPont Self-Adhered Flashing Systems Installation Guidelines For Buildings Greater Than 4 Stories and High Performance Installations of Any Height*.

**Note:** Packaged Terminal Air Conditioner (PTAC) units should be flashed in accordance with the non-flanged or brick mold window flashing methods included in the *DuPont Self-Adhered Flashing Systems Installation Guidelines For Buildings Greater Than 4 Stories and High Performance Installations of Any Height*.

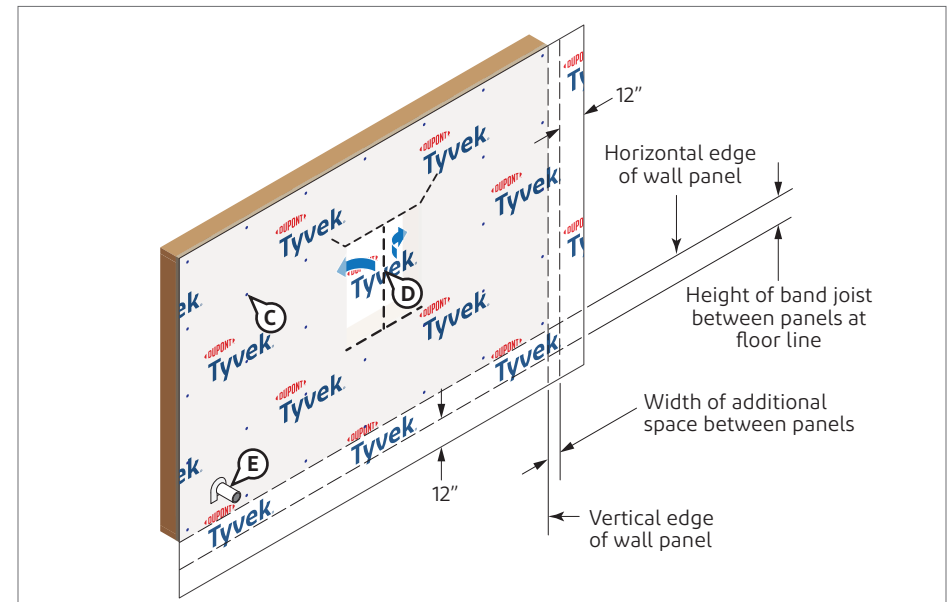
E. For wall penetration flashing details, refer to the *DuPont™ Tyvek® Water-Resistive and Air Barriers Installation Guidelines*. For high performance\* wall penetration flashing details, refer to the *DuPont™ Tyvek® Mechanically Fastened Air and Water Barrier Installation Guidelines For Buildings Greater Than 4 Stories and High Performance Installations of Any Height*.

\*Performance requirements exceeding ASTM E1677, 65 mph equivalent structural load and 15 mph equivalent wind-driven rain water infiltration, or for buildings over 60' require the use of **DuPont™ Tyvek® CommercialWrap®** or **CommercialWrap® D** and sealing all seams of WRB with 3" **DuPont™ Tyvek® Tape**. In addition, **DuPont™ Flashing Tape** is only permitted to flash the flanges of windows for Residential-Use building structures. Residential-Use (Group R) is defined by the 2015/2018 International Building Code.

### Method 1 – Tyvek® WRB cut to overlap adjacent panels



### Method 2 – Tyvek® WRB cut to accommodate additional space between panels based on job site building design



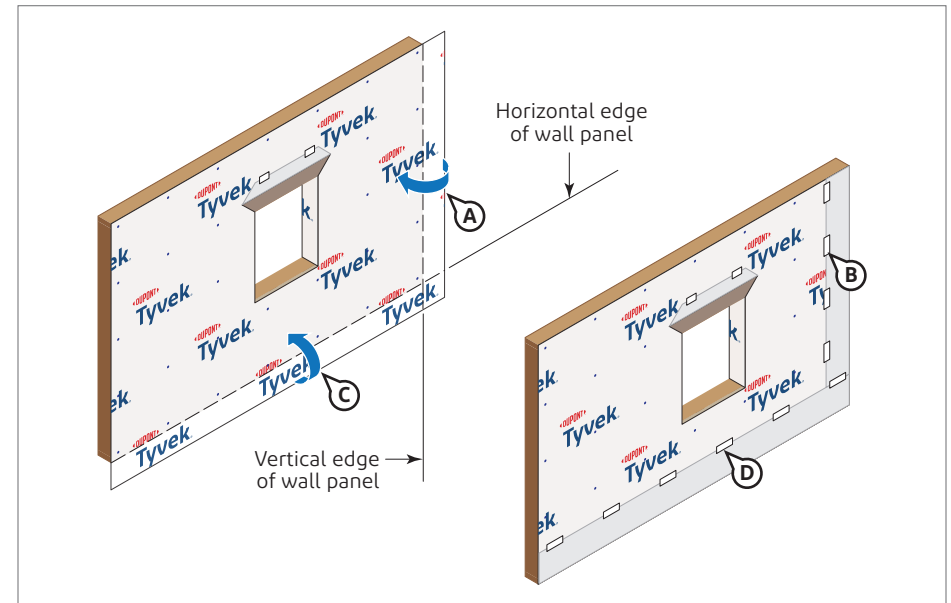
## STEP 2

### Fold DuPont™ Tyvek® WRB Flaps onto Face of Wall Panel and Fasten

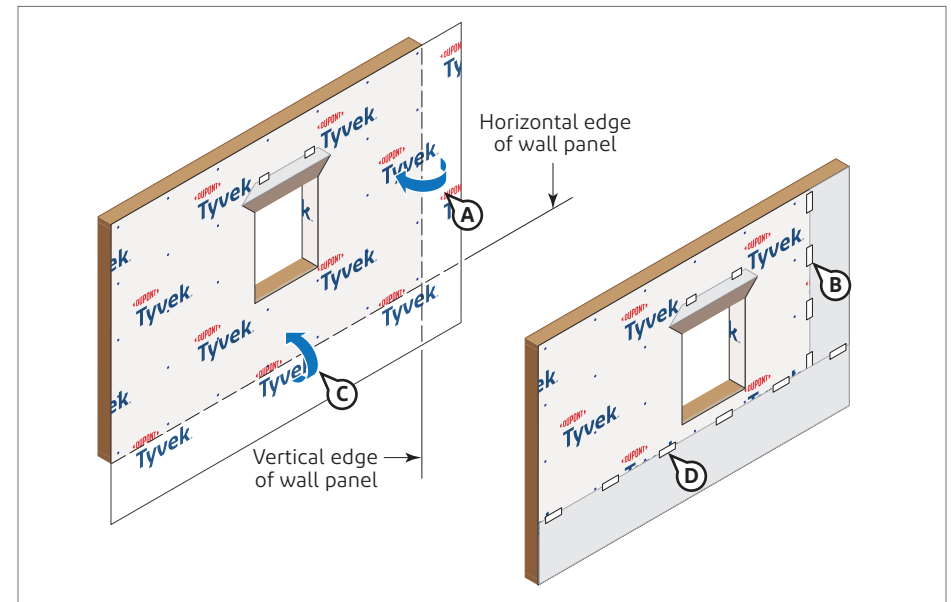
- A. Fold the **Tyvek® WRB** flap at the vertical edge of the wall panel. Create fold such that the edge of the flap can be secured through sheathing into a stud.
- B. Secure the vertical flap using a 4" piece of **DuPont™ Tyvek® Tape** every 2' of the wall panel.
- C. Fold up the **Tyvek® WRB** flap at the bottom horizontal edge of the wall panel.
- D. Secure the horizontal flap using a 4" piece of **Tyvek® Tape** every 2' of the wall panel.

**Note:** Mechanical fasteners can also be used to secure flaps. In this case, ensure holes created by the fasteners are sealed using **Tyvek® Tape** once flaps are unfolded and sealed at the job site. Do not fasten mechanical fasteners within 6" of window, door, or other wall penetrations in order to avoid damaging the flashing or window/door components.

### Method 1 – Tyvek® WRB cut to overlap adjacent panels



### Method 2 – Tyvek® WRB cut to accommodate additional space between panels based on job site building design





## Follow the Steps Below After Wall Panels are Constructed at Job Site

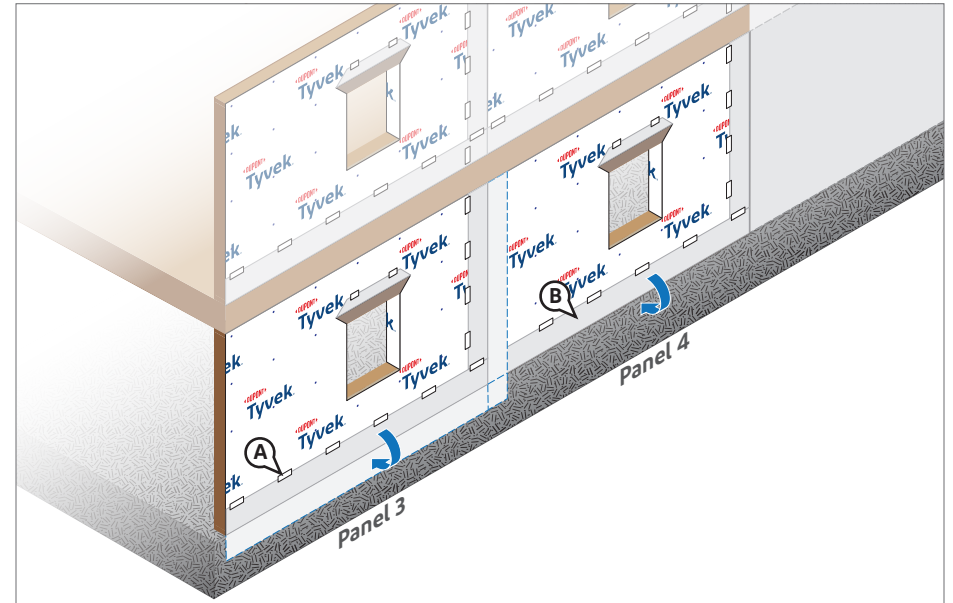
### STEP 3

#### Unfold Horizontal DuPont™ Tyvek® WRB Flaps over Foundation

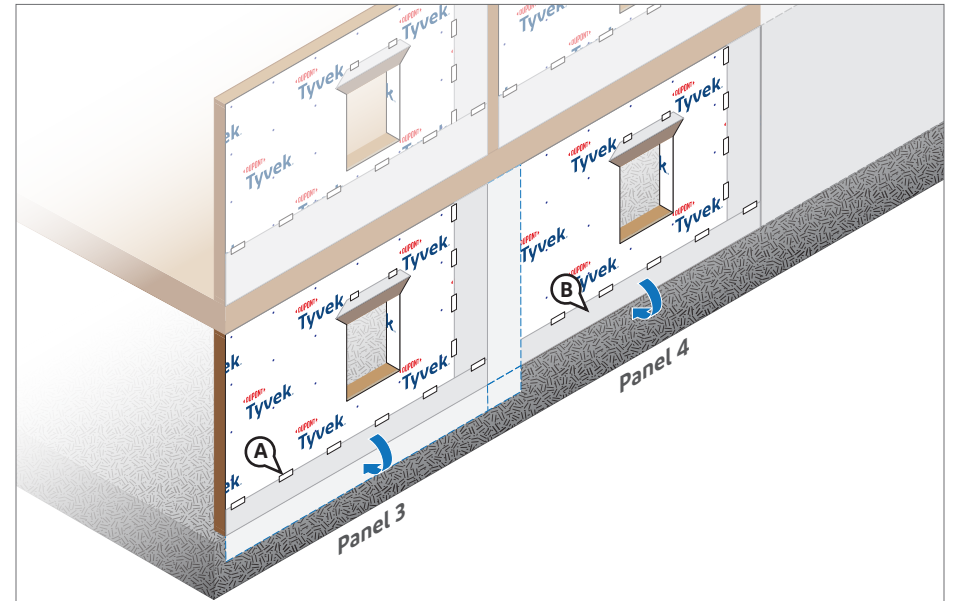
- A. Starting at the bottom left wall panel, carefully cut the **DuPont™ Tyvek® Tape** used to secure the horizontal flap and fold down over foundation. When cutting the **Tyvek® Tape**, be sure to avoid damaging the **Tyvek® WRB**.
- B. Repeat for adjacent modules to right.

**Note:** Overlap of **Tyvek® WRB** flaps onto foundation (and sill plate if applicable) will vary based on bottom of wall conditions.

#### Method 1 – Tyvek® WRB cut to overlap adjacent panels



#### Method 2 – Tyvek® WRB cut to accommodate additional space between panels based on job site building design



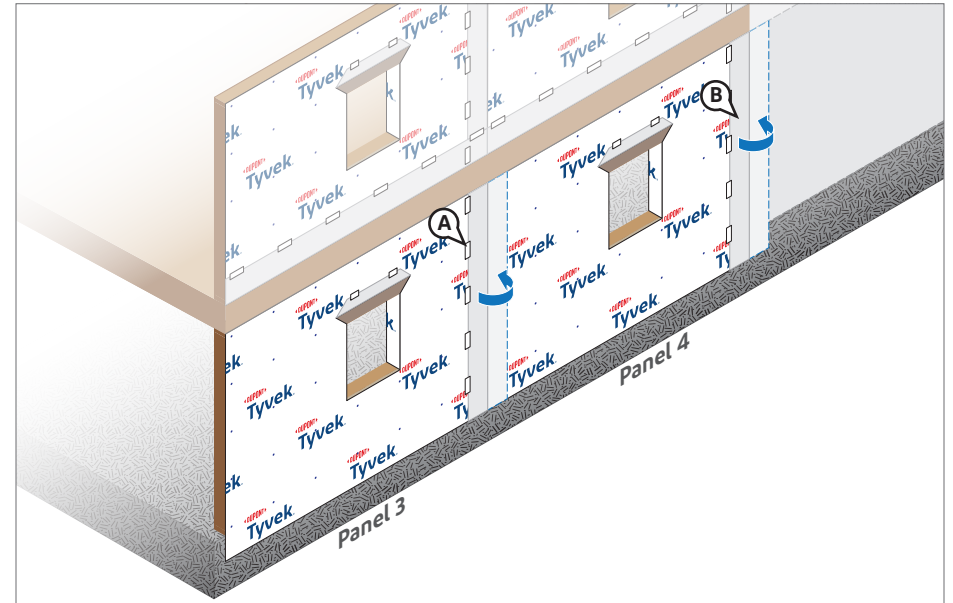
## STEP 4

### Unfold Vertical DuPont™ Tyvek® WRB Flaps of Lower Wall Panels

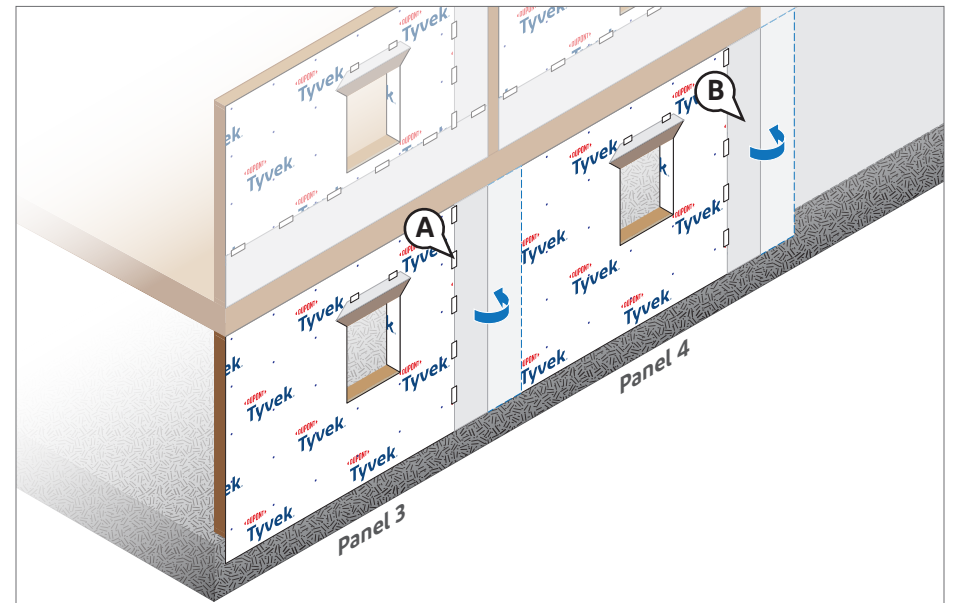
- A. Starting at the bottom left wall panel, carefully cut the DuPont™ Tyvek® Tape used to secure the vertical flap and unfold onto adjacent wall panel. When cutting the Tyvek® Tape, be sure to avoid damaging the Tyvek® WRB.
- B. Repeat for adjacent modules to right.

**Note:** If Tyvek® WRB flaps of upper wall panels were cut per Method 2 to accommodate the band joist, skip to Step 6.

### Method 1 – Tyvek® WRB cut to overlap adjacent panels



### Method 2 – Tyvek® WRB cut to accommodate additional space between panels based on job site building design



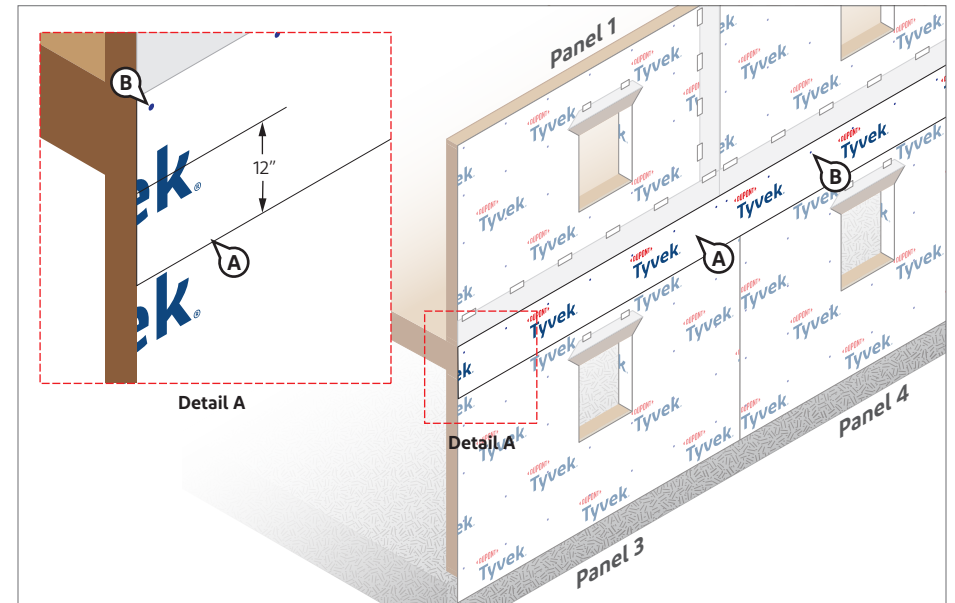


## STEP 5

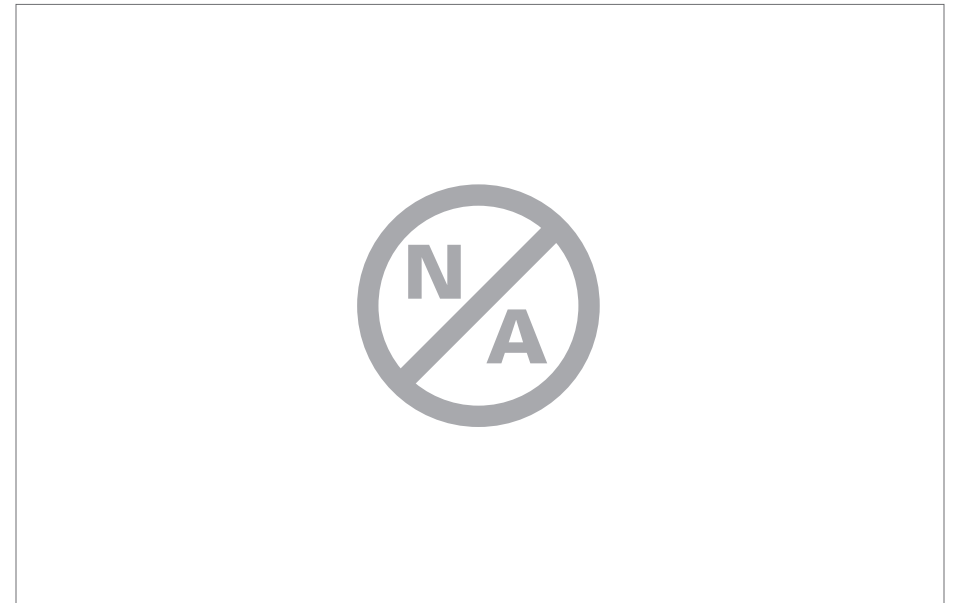
### Install DuPont™ Tyvek® WRB at Band Joist

- A. If **Tyvek™ WRB** flap was not cut to accommodate the band joist, it will be necessary to install a strip of **Tyvek™ WRB** with the width equal to the band joist plus 12". The strip can be cut the length of a single wall panel or continuous between panels as long as there is a 6" vertical overlap between strips.
- B. Secure **Tyvek™ WRB** strip with mechanical fasteners so top edge is aligned with top of band joist and bottom edge overlaps the lower panel by 12". Do not install fasteners where flap from panel above will be sealed with **DuPont™ Tyvek® Tape** in Step 8.

### Method 1 – Tyvek® WRB cut to overlap adjacent panels



### Method 2 – Tyvek® WRB cut to accommodate additional space between panels based on job site building design



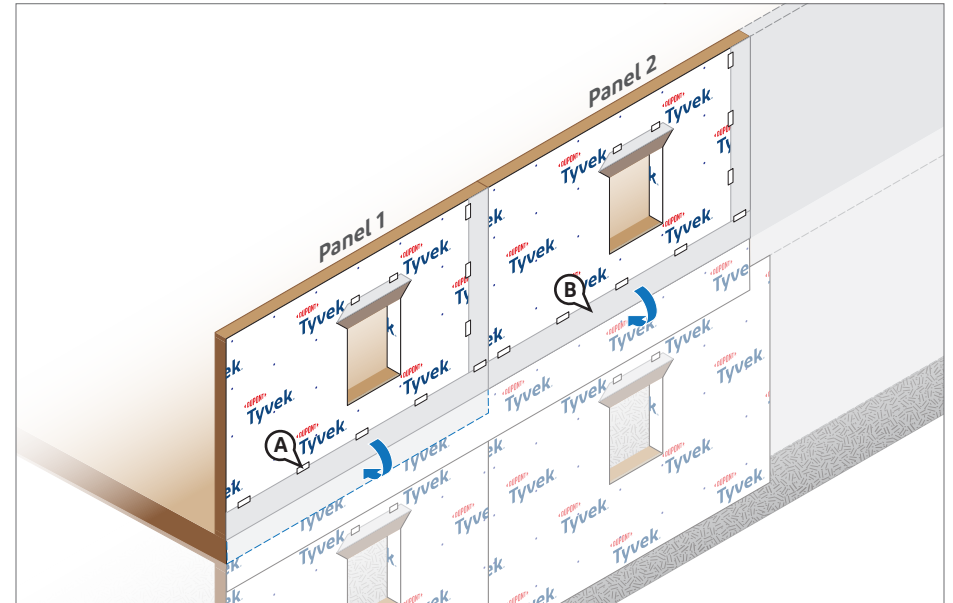
Skip to Step 6

## STEP 6

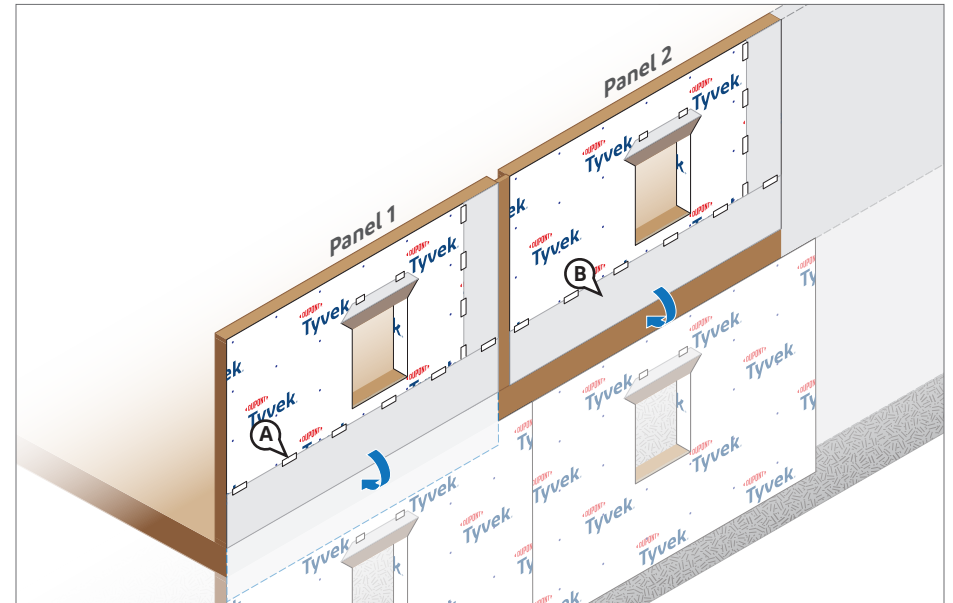
### Unfold Horizontal **DuPont™ Tyvek® WRB** Flap of Upper Wall Panels

- A. Starting at the top left wall panel, carefully cut the **DuPont™ Tyvek® Tape** used to secure the horizontal flap and fold down to overlap Tyvek® WRB strip at band joist by 12". When cutting the **Tyvek® Tape**, be sure to avoid damaging the **Tyvek® WRB**.
- B. Repeat for adjacent modules to right.

### Method 1 – Tyvek® WRB cut to overlap adjacent panels



### Method 2 – Tyvek® WRB cut to accommodate additional space between panels based on job site building design

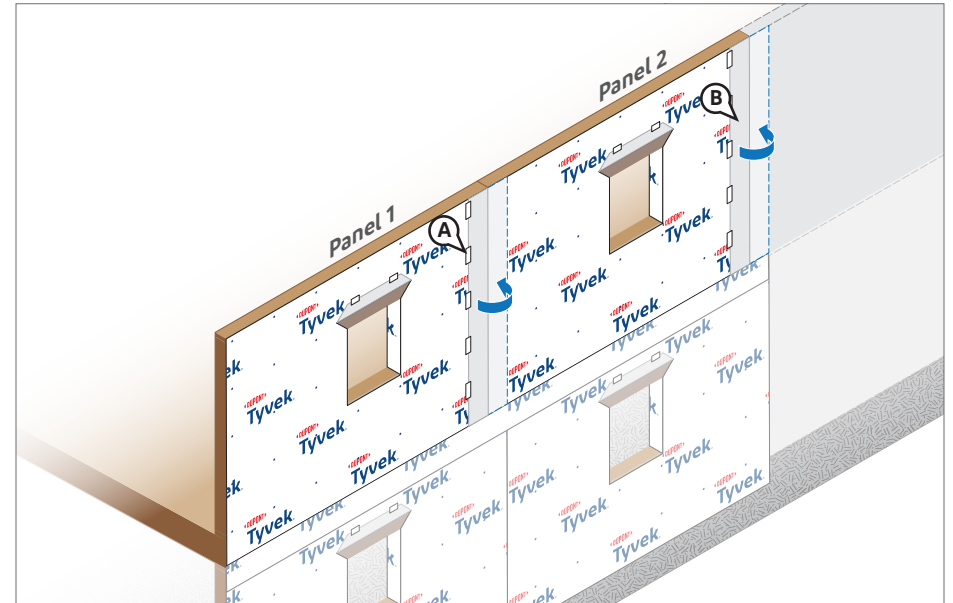


## STEP 7

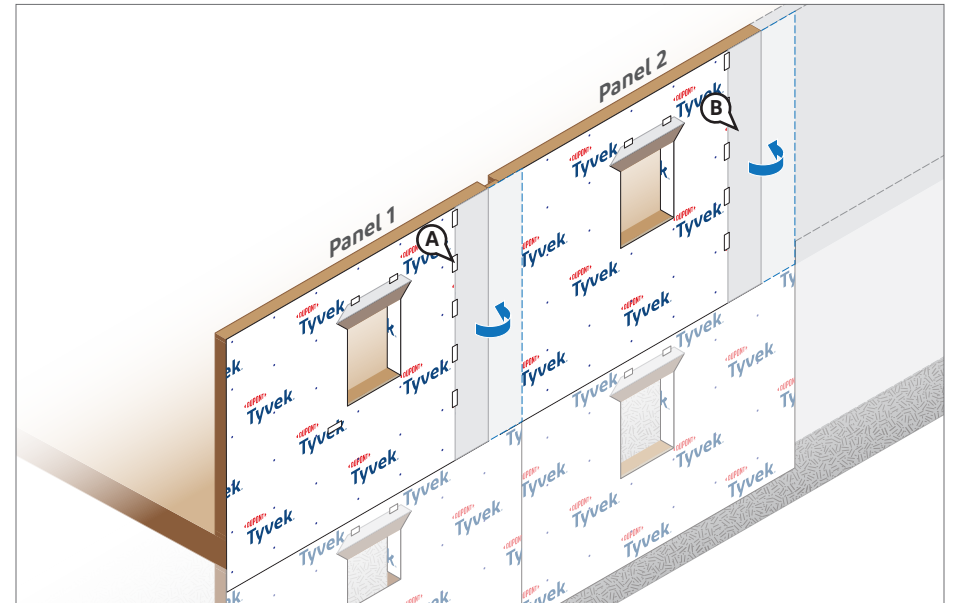
### Unfold Vertical **DuPont™ Tyvek® WRB** Flaps of Upper Wall Panels

- A. Starting at the top left wall panel, carefully cut the **DuPont™ Tyvek® Tape** used to secure the vertical flap and unfold onto adjacent wall panel. When cutting the **Tyvek® Tape**, be sure to avoid damaging the **Tyvek® WRB**.
- B. Repeat for adjacent modules to right.

### Method 1 – **Tyvek® WRB** cut to overlap adjacent panels



### Method 2 – **Tyvek® WRB** cut to accommodate additional space between panels based on job site building design





## STEP 8

### Secure and Tape Seams of DuPont™ Tyvek® WRB Flaps

- A. Mechanically fasten the horizontal and vertical **DuPont™ Tyvek® WRB** flaps using the recommended fasteners and spacing in Step 1 above. Do not place fasteners where seams will be sealed with **DuPont™ Tyvek® Tape**.
- B. Trim **DuPont™ Tyvek® WRB** flap at bottom of wall interface, if applicable. Bottom edge of flap must:
- Extend over bottom of wall interface by at least 1" (2" or greater is recommended)
  - Extend to bottom of sill plate for slab on grade foundations, if applicable, or,
  - Be properly integrated with water drainage components such as kick out flashing or weep screed (for stucco exteriors).

When bottom edge is less than 2" over the bottom of wall interface, it is recommended to seal or skip-seal the **Tyvek® WRB** at the bottom of the wall. Use **DuPont™ Self-Adhered Flashing products** with **DuPont™ Adhesive/Primer** (or recommended primer) as applicable to seal the **Tyvek® WRB** directly to concrete, wood, or other rough surfaces.

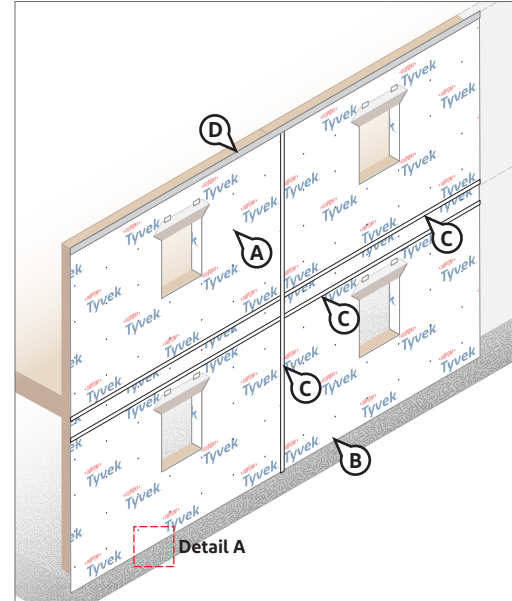
If air sealing, ensure flap is trimmed to allow adhesion of the **DuPont™ Self-Adhered Flashing** onto interface. If **Tyvek® WRB** directly overlaps foundation, seal the horizontal flaps overlapping the foundation using **DuPont™ Self-Adhered Flashing products** with **DuPont™ Adhesive/Primer** (or recommended primer) as applicable to seal the **Tyvek® WRB** directly to concrete, wood, or other rough surfaces. The **Tyvek® WRB** can also be sealed to rough surfaces using DuPont approved sealant.

If bottom of wall condition includes through wall flashing, it should be installed per plans and specifications. Trim **DuPont™ Tyvek® WRB** flap to overlap through wall flashing by a minimum of 6" and seal using **DuPont™ Tyvek® Tape** or **DuPont™ Self-Adhered Flashing products**. For high performance\* installations, mechanically fasten **Tyvek® WRB** through top of through wall flashing.

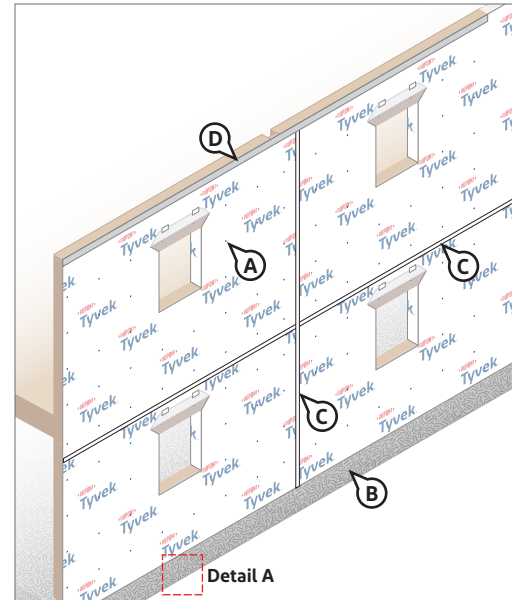
- C. Use **Tyvek® Tape** to seal the horizontal and vertical seams of the **Tyvek® WRB** flaps onto the adjacent panels. Seal the horizontal flaps before sealing the vertical flaps. When the **Tyvek® WRB** is not installed as an air barrier, **Tyvek® Tape** is not required on horizontal seams but is considered a recommended best practice.
- D. Terminate the **Tyvek® WRB** at the top of the wall with **DuPont™ Self-Adhered Flashing** or other approved method per plans and specifications.

\*Performance requirements exceeding ASTM E1677, 65 mph equivalent structural load and 15 mph equivalent wind-driven rain water infiltration, or for buildings over 60' require the use of **DuPont™ Tyvek® CommercialWrap®** or **CommercialWrap® D** and sealing all seams of WRB with 3" **Tyvek® Tape**. In addition, **DuPont™ Flashing Tape** is only permitted to flash the flanges of windows for Residential-Use building structures. Residential-Use (Group R) is defined by the 2015/2018 International Building Code.

### Method 1 – Tyvek® WRB cut to overlap adjacent panels



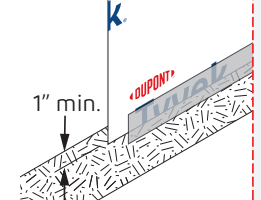
### Method 2 – Tyvek® WRB cut to accommodate additional space between panels based on job site building design



### Detail A

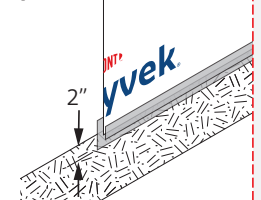
Examples of Sealing **DuPont™ Tyvek® WRB** at Bottom of Wall for Use with Both Method 1 and Method 2.

#### Option 1



Overlap **DuPont™ Tyvek® WRB** onto foundation by a minimum of 1" and seal with **DuPont™ Self-Adhered Flashing product**.

#### Option 2



Seal interface of sheathing and foundation using **DuPont™ Self-Adhered Flashing product**, overlap **DuPont™ Tyvek® WRB** onto **DuPont™ Self-Adhered Flashing product** by a minimum of 1" and terminate using **DuPont™ Tyvek® Tape**.

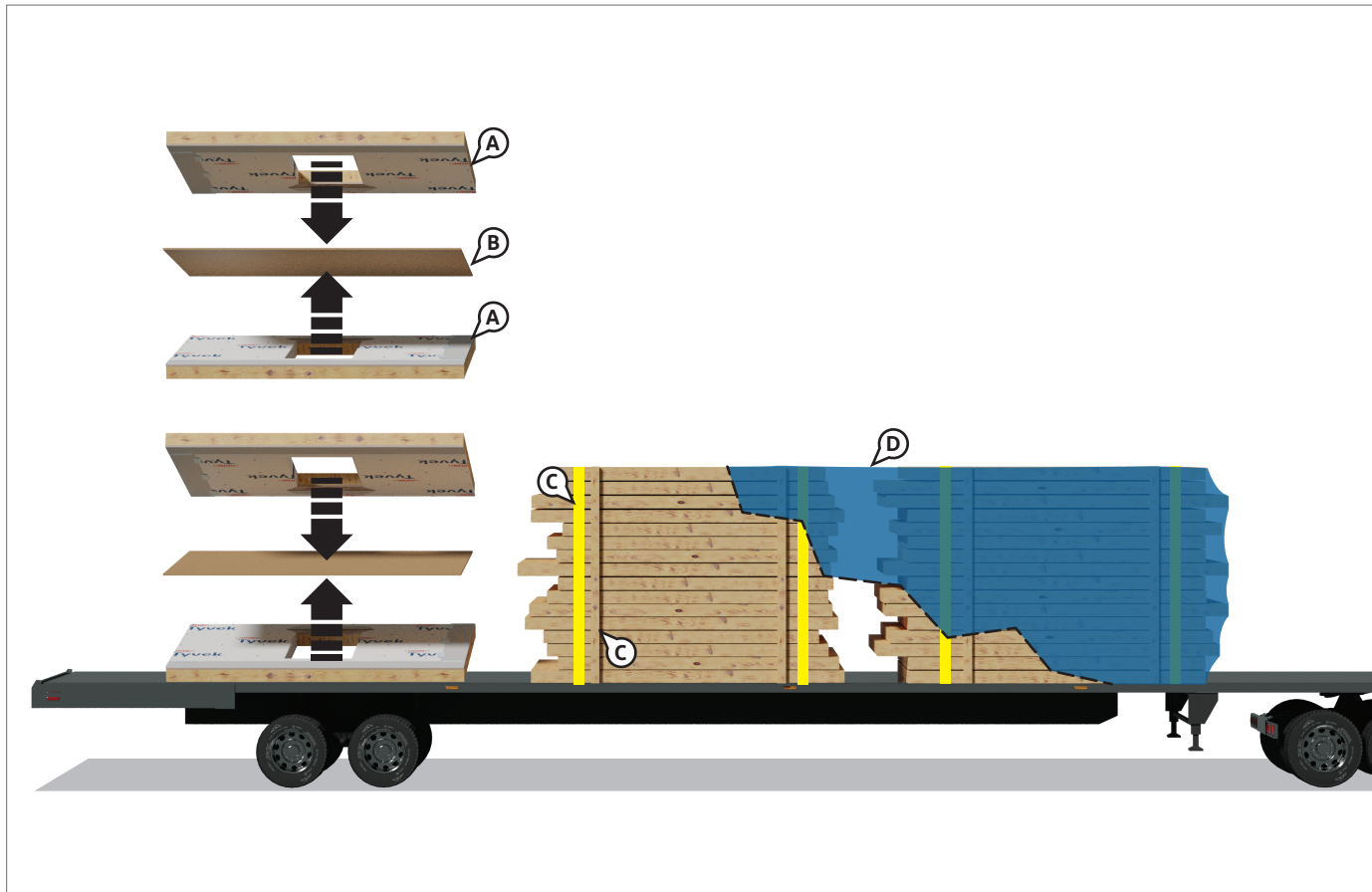
## Special Considerations for Packaging Wall Panels for Transport

Once the DuPont™ Tyvek® WRB is installed to wall panels with flaps secured, DuPont recommends that panels are protected during transport to prevent damage to the panels and the Tyvek® WRB.

The following methods can be employed to protect the Tyvek® WRB during transport. Protection of the panels will be determined by the manufacturer and is not limited to the methods shown.

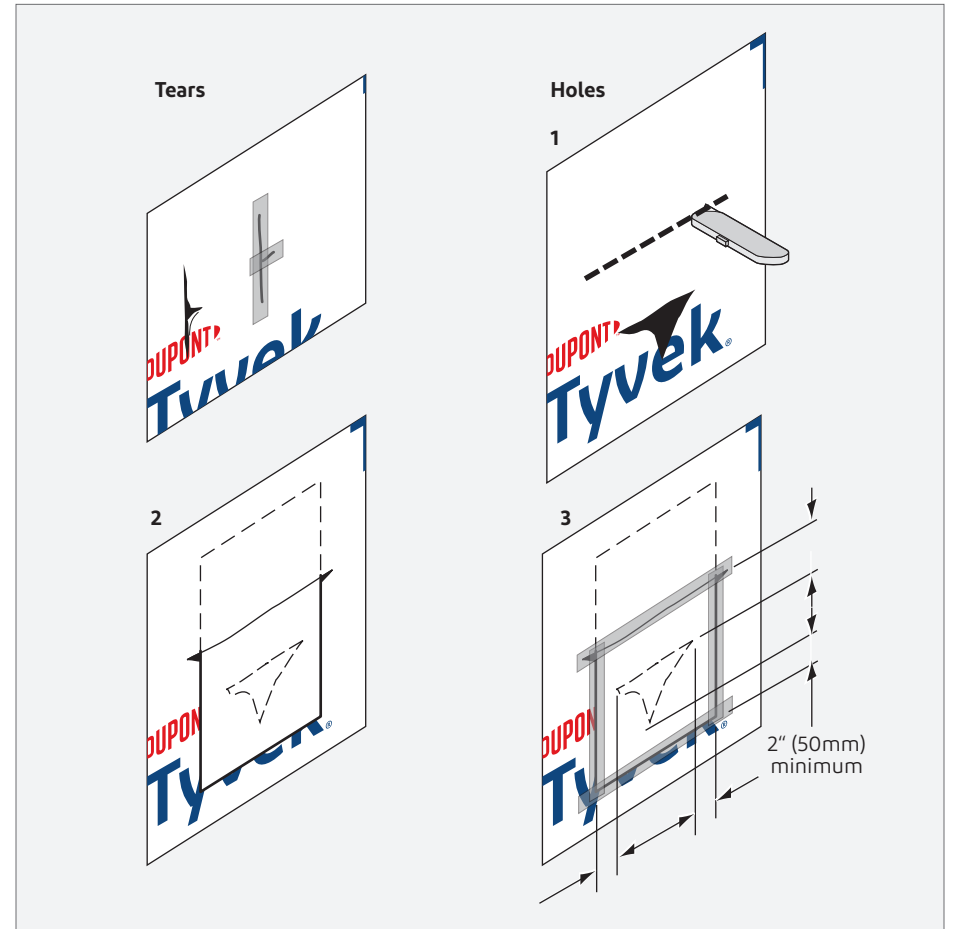
- A. Panels can be stacked with the Tyvek® WRB layer facing the Tyvek® WRB layer of the next panel so that the WRB is protected during transport.
- B. Additional separating material such as cardboard can be inserted between panels for additional protection.
- C. Stacks can be bundled using straps and/or additional framing members secured vertically to the stack. Panels can also be secured to flat bed with straps.
- D. Stacks of panels can be loaded on flat bed trailers and covered with a tarp, plastic sheeting, or heat activated shrink wrap to protect the panels during transport for extra protection as necessary. If securing the protective material to panels with mechanical fasteners, fasten to the framing of the panels to ensure the Tyvek® WRB is not damaged.

**Notes:** Regardless of which method is used, be careful when removing the protective covering and lifting panels off the stack to avoid damaging the Tyvek® WRB. Repair as necessary per the Repairing Holes and Tears Section below.



## Repairing Holes and Tears

- During the course of installing the **DuPont™ Tyvek® WRB**, minor tears may occur. Be sure to tape all tears. Tears can easily be covered with **DuPont™ Tyvek® Tape** or **DuPont™ Self-Adhered Flashing products**.
- Larger tears may require cutting a piece of **Tyvek® WRB** to repair the tear. Measure and cut a piece of **Tyvek® WRB** 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.





## 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.

### Notes:

- 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.



## Facade Considerations

Water-resistive barrier performance is dependent upon the ability of the facade to drain. The following must be considered for specific facades.

### Stucco and Direct-Applied Stone

When stucco is installed over wood-based sheathing, the 2015 International Building Code (Section 2510.6) requires a water-resistive vapor-permeable barrier with a 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 nonwater-absorbing layer or drainage space. When stucco is installed over wood-based sheathing, the 2015 International Residential Code (Section R703.7.3) requires a water-resistive vapor-permeable barrier with a performance at least equivalent to two layers of Grade D paper or a water-resistive barrier which is separated from the stucco by an intervening, substantially nonwater-absorbing layer or designed 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 **Tyvek® WRB**, a layer of Grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. **DuPont™ Tyvek® DrainVent™ Rainscreen** can also be used as the intervening layer over the WRB. The first layer (directly over 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. Rigid foam board, when installed over **Tyvek® WRB** as an intervening layer, will provide enhanced structural support to the **Tyvek® WRB** and may reduce the required number of fasteners used for the attachment of the **Tyvek® WRB** if installed as soon as practically possible. **DuPont™ Tyvek® StuccoWrap®, DrainWrap™** or **CommercialWrap® D** is recommended for this application.

### Brick

The 2015 International Residential Code (Section R703.8.4) requires a nominal 1 inch air space separating the brick from the water-resistive barrier (WRB). The Brick Industry Association recommends a 1 inch air-space in front of wood stud construction and a 2 inch air-space in front of steel stud construction. Consistent with these requirements and recommendations, **Tyvek® WRBs** shall be separated from the brick veneer by a nominal 1 inch air-space. Window and door flashing, and through-wall flashing shall be integrated with the **Tyvek® WRB** layer ensuring proper shingling. For maximum moisture management and drying of the wall system the air space in front of the **Tyvek® WRB** 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 **Tyvek® WRBs**, and, if installed as soon as practically possible after the **Tyvek® WRB**, may reduce the required number of fasteners used for the initial attachment of the **Tyvek® WRB**.

### Stone Veneer

The 2015 International Building Code (Section 1405.10) requires two layers of water resistive barrier (WRB) behind stone veneers over wood frame construction. When used behind stone veneer, **Tyvek® WRBs** shall be installed in a similar manner as they are installed behind stucco. **Tyvek® WRBs** should be separated from the stone and mortar by a second layer of **Tyvek® WRB**, a layer of grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. **DuPont™ Tyvek® DrainVent™ Rainscreen** can also be used as the intervening layer over the WRB. 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 **Tyvek® WRB**. **DuPont™ Tyvek® StuccoWrap®, DrainWrap®** or **CommercialWrap® D** is recommended for this application.

### Wood Siding

The **Tyvek® WRB** 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™ Tyvek® StuccoWrap®, DrainWrap™** or **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® StuccoWrap®, DrainWrap™** or **CommercialWrap® D**, by installing **DuPont™ Tyvek® DrainVent™ Rainscreen** or other drainage mesh over the water-resistive barrier, or by creating rainscreen cladding with a larger air space behind the siding using furring strips. If furring is installed over the **Tyvek® WRB** to create a rainscreen, the primary fastener spacing can exceed 18”.

## Fiber Cement Siding

**DuPont™ Tyvek® WRBs** 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® StuccoWrap®**, **DrainWrap™** or **CommercialWrap® D**, by installing a drainage mesh over the water-resistive barrier, or by creating rainscreen cladding with a larger air space behind the siding using furring strips. If furring is installed over the **Tyvek® WRB** to create a rainscreen, the primary fastener spacing can exceed 18". In high wind areas at gable end walls, FEMA recommends fiber cement siding be installed over wood sheathing rather than over plastic foam sheathing. **Tyvek® WRBs** 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 **Tyvek® WRBs**. Vinyl siding shall be installed in accordance with manufacturer's instructions, industry standards and applicable codes, including ASTM D4756-15 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

**Tyvek® WRBs** 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® StuccoWrap®**, **DrainWrap®** or **CommercialWrap® D** be installed behind the exterior insulation. Window and door flashing, and through wall flashing shall be integrated with the WRB 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

**Tyvek® WRBs** and exterior insulation shall be installed according to the manufacturer's instructions and industry standards. **Tyvek® WRBs** 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® StuccoWrap®**, **DrainWrap™** or **CommercialWrap® D** be used when installing the **Tyvek® WRB** layer between the sheathing and exterior insulation. Window flashing, door flashing, and through wall flashing shall be integrated with the **Tyvek® WRB** 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.

**Note:** **DuPont™ RainVent™ Battens** can be used to improve the ventilation and draining space behind wood, stucco or stone masonry, vinyl, and fiber cement cladding types.

## Technical Specifications

**Tyvek® WRBs** 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** WRB's be covered within 9 months (270 days) of installation and that all other DuPont WRB's be covered within 4 months (120 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

**Tyvek® WRBs** 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. **Tyvek® WRBs** are combustible and should be protected from flames and other high heat sources. **Tyvek® WRBs** will melt at 275°F (135°C) and if the temperature of **Tyvek® WRBs** reach 750°F (400°C), they 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.

**DuPont™ Residential Sealant** is irritating to skin, eyes, and respiratory tract. For proper usage, follow directions stated on the product label.

For DuPont Product health information, refer to the Material Safety Data Sheet or call Chemtrec at 1-800-424-9300.



*This document is limited to the installation details for using DuPont Products in wall panel construction applications as outlined herein. Please refer to the applicable DuPont Performance Building Solutions Installation Guidelines available at [building.dupont.com](http://building.dupont.com) for details not included in this bulletin. 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.*

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