

# DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

HELPING YOU GET THE JOB DONE RIGHT



Tyvek®

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

**REVISION 11/16**

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## Applicable Products

### Water-Resistive Barriers (WRB)

PRODUCT	DIMENSIONS	AREA
DuPont™ Tyvek® HomeWrap®	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
DuPont™ Tyvek® StuccoWrap®	5 ft x 200 ft	1,000 sq ft
DuPont™ Tyvek® DrainWrap™	9 ft x 125 ft	1,125 sq ft
	10 ft x 125 ft	1,250 sq ft
DuPont™ Tyvek® ThermaWrap™ LE	5 ft x 150 ft	750 sq ft
	9 ft x 100 ft	900 sq ft
DuPont™ Tyvek® CommercialWrap®	5 ft x 200 ft	1,000 sq ft
	10 ft x 125 ft	1,250 sq ft
DuPont™ Tyvek® CommercialWrap® D	5 ft x 200 ft	1,000 sq ft
	10 ft x 125 ft	1,250 sq ft

### Flashing Products

PRODUCT	WIDTH
DuPont™ FlexWrap™ NF	6 in
	9 in
DuPont™ StraightFlash™	4 in
	9 in
DuPont™ StraightFlash™ VF	6 in
DuPont™ Flashing Tape	4 in
	6 in
	9 in
	12 in

# DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

## Installation Accessories

PRODUCT	TYPE	QUANTITY
DuPont™ Tyvek® Tape	2" Bulk Pack	36 rolls/case
	3" Bulk Pack	24 rolls/case
DuPont™ Tyvek® Metallized Tape	2" x 100' Rolls	12 rolls/case
DuPont™ Tyvek® Wrap Cap staples or other cap staples for Stinger™ Cap Stapler	16 gauge; available in 7/8", 1-1/4", and 1-1/2" lengths	2,000/box
	16 gauge; 3/8" length	2,016/box
DuPont™ Tyvek® Wrap Cap nails	1" electro-galvanized ring shank nail	2,000/box
DuPont™ Tyvek® Wrap Cap screws	2" Wrap Cap Screws	1,000/box
DuPont™ Adhesive/Primer		
DuPont™ Window and Door Foam		
DuPont™ Residential Sealant		
DuPont™ RainVent™ Battens	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*.

## 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 Industry Standard ASTM E 2556 Type II 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® Water-Resistive and Air Barriers Residing Installation Guidelines

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 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® WRBs 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® water-resistive barriers is:

- After the roof sheathing is installed
- After the step flashings and kickout flashings have been installed
- **BEFORE** any new windows and doors are installed.

**DuPont™ self-adhered flashing systems 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 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*.
3. 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.

4. 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 airspace. Refer to the DuPont™ Tyvek® ThermaWrap™ LE Fact Sheet for more information.
5. 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.

When installing windows and doors prior to the DuPont™ Tyvek® WRB, 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® WRB by following the DuPont™ Flashing Systems Integration section in this guide (page 10).**

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

# DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

## Installation Instructions

Start at the bottom of the structure to ensure proper shingling throughout the installation. Proper shingling is required to shed water and to prevent water from entering the wall system.

### STEP 1

#### Wall Preparation

If siding is being removed:

- Remove existing siding
- Remove and replace any damaged wall material

If leveling board is being installed over existing siding:

- Remove and repair any damaged wall material
- Install leveling board

### STEP 2

UNWRAP roll at corner, leaving 6" to 12" inches vertical overlap. Printed stud marks are available on some DuPont™ Tyvek® WRBs to aid in aligning with the studs. (e.g. studmarks are 8" apart for DuPont™ Tyvek® HomeWrap®)

### STEP 3

Roll should be plumb. Bottom edge of roll must:

- extend over sill plate interface by at least 1" (2" 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" over the sill plate interface, it is recommended to seal or skip-seal with DuPont™ Tyvek® Tape or DuPont™ Residential Sealant (or recommended sealant) at the bottom of the wall\*.

For maximum air leakage reduction (when installing as an air barrier), seal the DuPont™ Tyvek® WRB at the bottom of the wall\*.

### STEP 4

Secure DuPont™ Tyvek® WRB to the stud or other nail-base material, i.e. wood sheathing. Fasteners should be spaced no closer than 6" and no farther than 18" on vertical stud lines. This may involve penetrating bandboard or other horizontal members to maintain proper spacing. Use one or more of the recommended fasteners below for use with DuPont™ Tyvek® WRBs:

- 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 1" cap screws, cap nails, and/or cap staples\*\*. **NOTE:** Other manufacturers' cap staples must have a min. 5/8" leg length
- 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.

**NOTE:** Do not install fasteners within 6" of the sills and jambs and within 9" of the head of the window rough openings.

### STEP 5

Unroll directly over windows and doors. Upper layer of DuPont™ Tyvek® WRB should overlap bottom layer by a minimum of 6".

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® WRB must be integrated with proper shingling with window flashings. If DuPont™ FlexWrap™ NF and apron are used, install the DuPont™ Tyvek® WRB under the apron to ensure proper shingling. If non-self adhering sill flashing is used, install the DuPont™ Tyvek® WRB under the bottom of the sill flashing to maintain proper shingling.

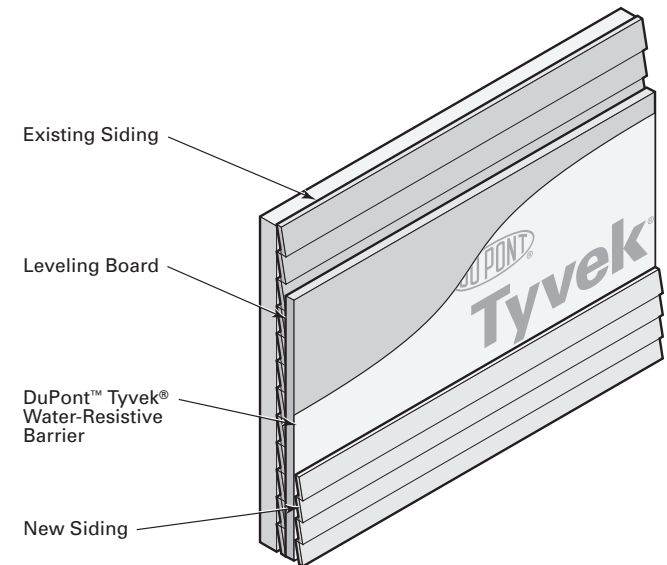
### STEP 6

Tape all vertical seams with DuPont™ Tyvek® Tape. When installing as an air barrier, the horizontal seams must also be taped. The use of 3" DuPont™ Tyvek® Tape is required for both vertical and horizontal seams of DuPont™ Tyvek® StuccoWrap® and DuPont™ Tyvek® DrainWrap™ for air barrier

installations. If the DuPont™ Tyvek® WRB 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 DuPont™ Tyvek® Metalized Tape when taping DuPont™ Tyvek® ThermaWrap™ LE. Taping or sealing all terminations of DuPont™ Tyvek® WRBs (including, but not limited to, roof-wall interfaces and sill plates) using DuPont™ Tyvek® Tape, DuPont™ Residential Sealant (or recommended sealant), DuPont™ StraightFlash™, or DuPont™ Flashing Tape is also required when installing as an air barrier.\*

### STEP 7

If windows are being replaced along with cladding, flash window openings according 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.



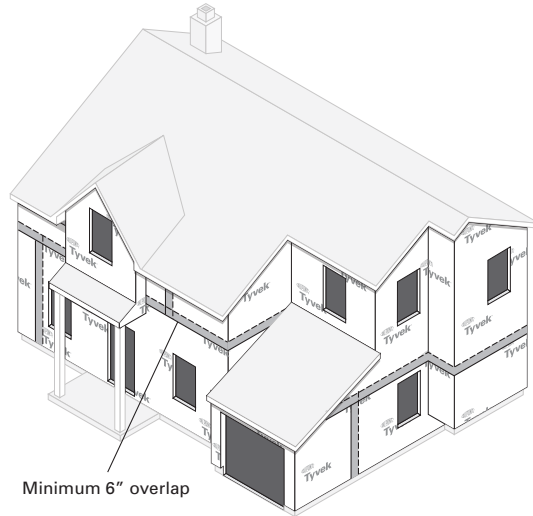
\*When sealing directly to concrete, wood, or other rough surfaces, use DuPont™ Adhesive/Primer (or recommended primer). Seal the DuPont™ Tyvek® WRB using DuPont™ Residential Sealant (or recommended sealant), DuPont™ StraightFlash™, or DuPont™ Flashing Tape.

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

# DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

## Continuity

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

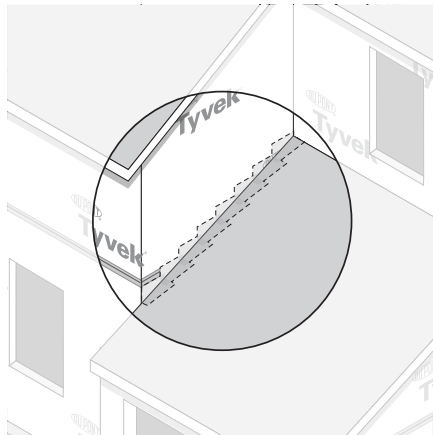


Minimum 6" overlap

## Terminations

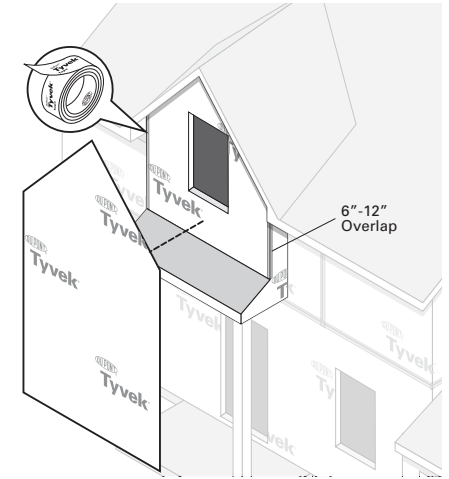
Lap DuPont™ Tyvek® WRB over all flashing (e.g. step flashing, wall to roof intersections and through wall flashings).

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



## Gable Ends

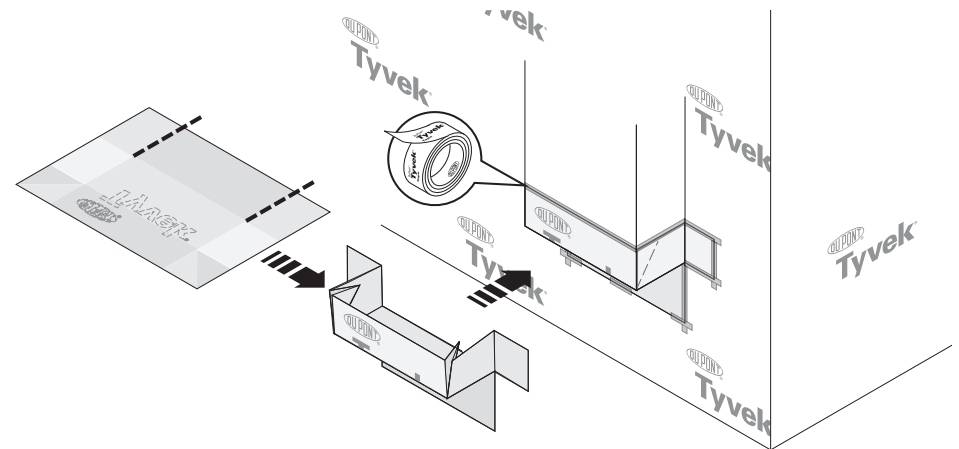
Completely cover the Gable End with the DuPont™ Tyvek® WRB including a 6"-12" overlap at each corner. Cut away the excess WRB and tape all seams.



## Cantilever Floors

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

**NOTE:** Make the inside corner as tight as possible using a 1x4 or similar.



# DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

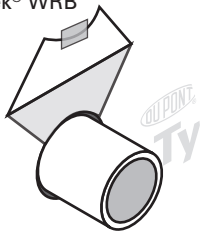
## Penetrations - Method 1 for Non-Flanged Products

Seal the DuPont™ Tyvek® WRB around penetrations made to accommodate plumbing pipes, HVAC components, dryer vents, bathroom exhaust fans, exterior electrical outlets, exterior lights, gas lines, or other objects.

**NOTE:** Always use positive shingling by installing DuPont™ Flashing Systems products or DuPont™ Tyvek® Tape from bottom of penetrations to top, with upper layer installed over lower layer.

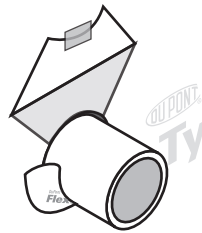
### STEP 1

Cut head flap in DuPont™ Tyvek® WRB



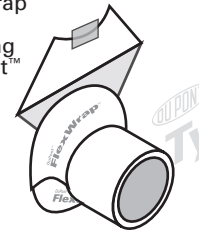
### STEP 2

Install DuPont™ FlexWrap™ NF around bottom of penetration



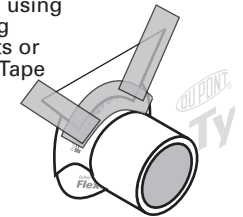
### STEP 3

Install DuPont™ FlexWrap™ NF around top of penetration overlapping bottom layer of DuPont™ FlexWrap™ NF by 2"



### STEP 4

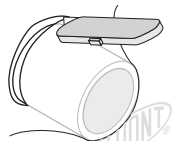
Secure head flap using DuPont™ Flashing Systems products or DuPont™ Tyvek® Tape



## Penetrations - Method 2 for Non-Flanged Products

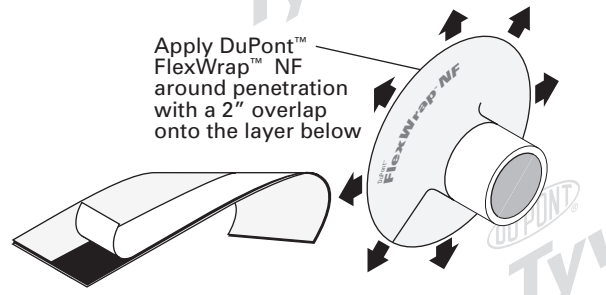
### STEP 1

Cut DuPont™ Tyvek® WRB back 1" around penetration

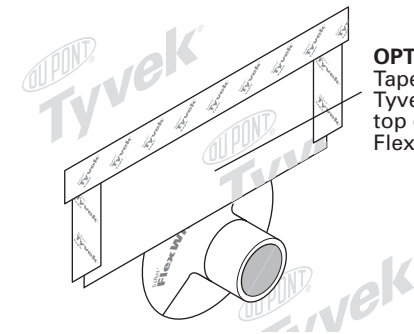


### STEP 2

Apply DuPont™ FlexWrap™ NF around penetration with a 2" overlap onto the layer below



### STEP 3



**OPTIONAL:** Tape a piece of DuPont™ Tyvek® WRB over the top of the DuPont™ FlexWrap™ NF

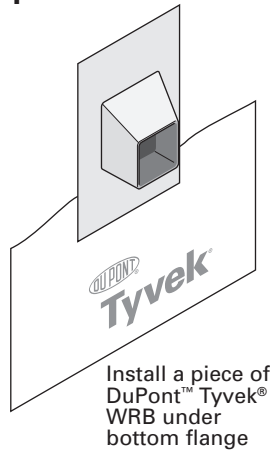
# DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

## Penetrations - Method 1 for Flanged Products

Products that have flanges should be integrated into the DuPont™ Tyvek® WRB using DuPont™ Tyvek® Tape or DuPont™ Flashing Systems products.

**NOTE:** Always use positive shingling by installing DuPont™ Flashing Systems products or DuPont™ Tyvek® Tape from bottom of penetrations to top, with upper layer installed over lower layer.

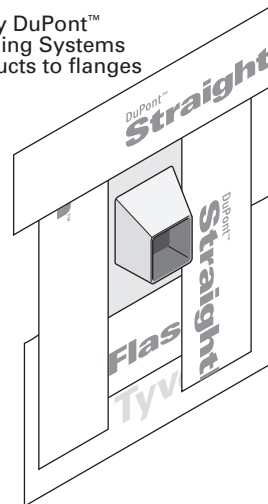
### STEP 1



Install a piece of DuPont™ Tyvek® WRB under bottom flange

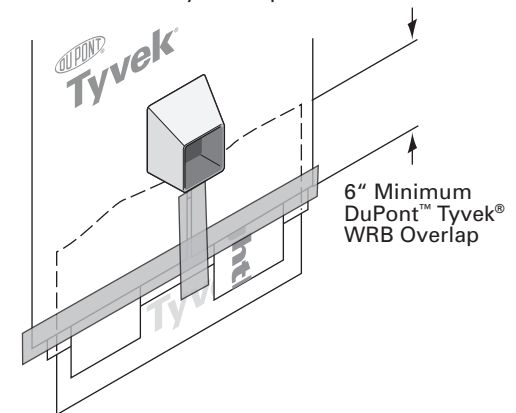
### STEP 2

Apply DuPont™ Flashing Systems products to flanges



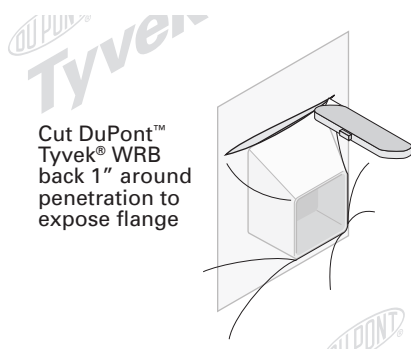
### STEP 3

Install DuPont™ Tyvek® WRB so it overlaps piece below by a minimum of 6" and use DuPont™ Tyvek® Tape at seams



## Penetrations - Method 2 for Flanged Products

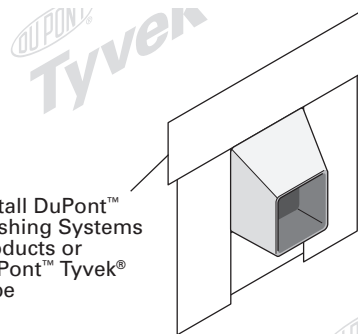
### STEP 1



Cut DuPont™ Tyvek® WRB back 1" around penetration to expose flange

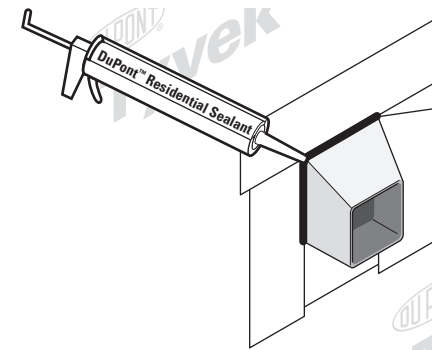
### STEP 2

Install DuPont™ Flashing Systems products or DuPont™ Tyvek® Tape



### STEP 3

OPTIONAL: Apply DuPont™ Residential Sealant, or recommended sealant, around penetration.





# DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

## Handling Tears and Holes

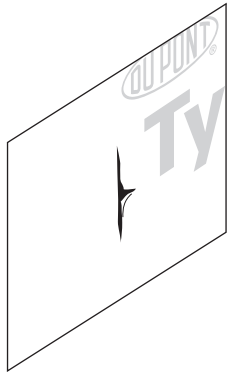
During the course of installing the DuPont™ Tyvek® WRB, minor tears may occur. Be sure to tape all tears. Tears can easily be covered with DuPont™ Tyvek® Tape (2" or 3") or DuPont™ Flashing Systems products.

Larger holes (greater than 1") may require cutting a piece of DuPont™ Tyvek® WRB to cover the hole, maintaining proper shingling.

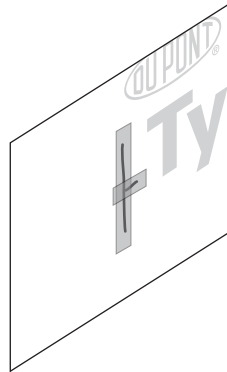
Cut a slit 2" above the hole and extending a minimum of 2" on each side of the hole. Measure and cut a piece of DuPont™ Tyvek® WRB to fit into the slit and cover the hole. Tuck the cut piece of DuPont™ Tyvek® WRB into the slit. Tape along the perimeter by starting at the bottom of the patch, shingling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

## Tears

STEP 1

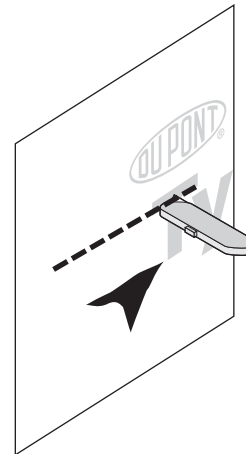


STEP 2

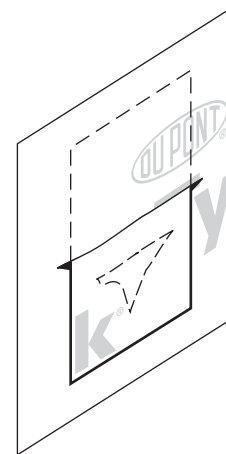


## Holes

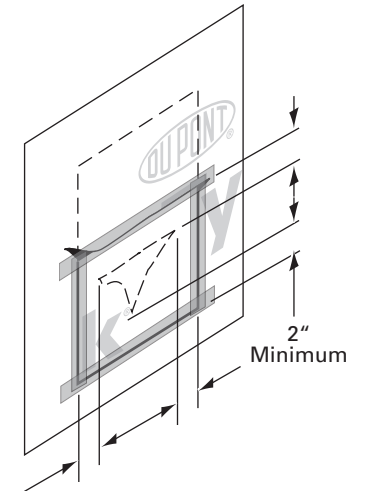
STEP 1



STEP 2



STEP 3



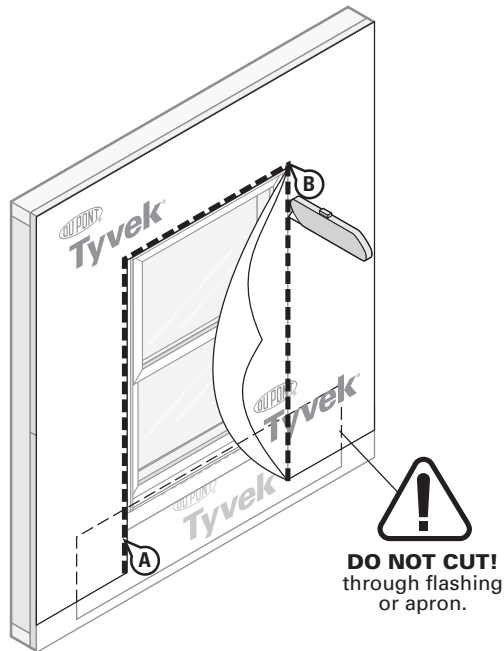
## DuPont™ Flashing Systems Integration

If windows and doors have not been installed, reference the *DuPont™ 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 are already installed and flashed, then follow these last 2 integration steps to tie the DuPont™ Tyvek® WRB into the flashing.

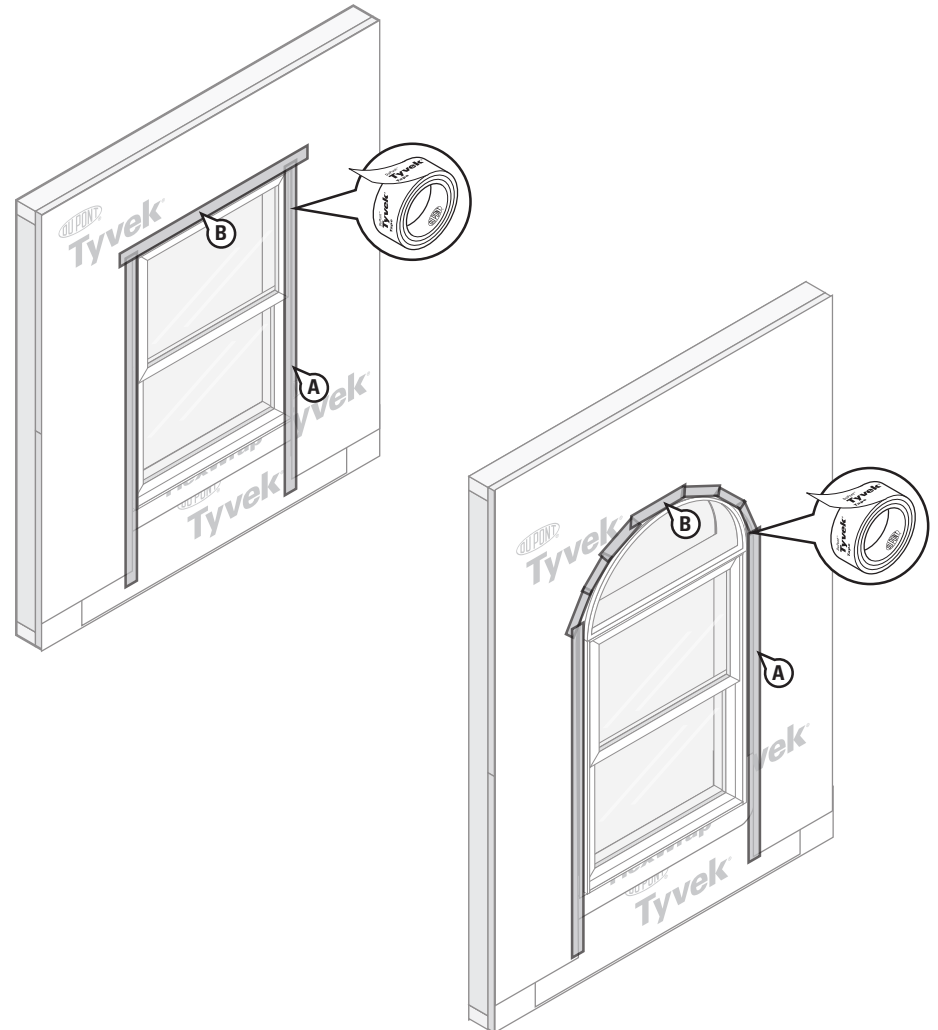
### STEP 1

- A. Verify that the DuPont™ Tyvek® WRB is properly shingled with the bottom of the apron.
- B. Cut as shown to expose window and apron. **DO NOT CUT THROUGH FLASHING OR APRON.**



### STEP 2

- A. Tape all seams as shown. **DO NOT TAPE** at bottom of window.
- B. At the head, continuous tape seams as shown with DuPont™ Tyvek® Tape. Skip-taping at the head is acceptable if an air barrier is not required or if additional drainage is desired.



## 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 DuPont™ Tyvek® WRB, a layer of Grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. The first layer (directly over sheathing or studs) serves as the wall system's 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 DuPont™ Tyvek® WRB as an intervening layer, will provide enhanced structural support to the DuPont™ Tyvek® WRB and may reduce the required number of fasteners used for the attachment of the DuPont™ Tyvek® WRB if installed as soon as practically possible. DuPont™ 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 airspace 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, DuPont™ 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 DuPont™ Tyvek® WRB layer ensuring proper shingling. For maximum moisture management and drying of the wall system the airspace in front of the DuPont™

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 DuPont™ Tyvek® WRBs, and, if installed as soon as practically possible after the DuPont™ Tyvek® WRB, may reduce the required number of fasteners used for the initial attachment of the DuPont™ 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, DuPont™ Tyvek® WRBs shall be installed in a similar manner as they are installed behind stucco. DuPont™ Tyvek® WRBs should be separated from the stone and mortar by a second layer of DuPont™ Tyvek® WRB, a layer of grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. The first layer (directly over sheathing or studs) serves as the wall system's air and water barrier and shall be integrated with window and door flashings, the weep screed at the bottom of the wall and any through wall flashing or expansion joints. Lath shall be installed over the intervening layer (second layer) in accordance with ASTM C1063-03 Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster and applicable codes. When rigid foam board is used as the second layer, it is installed over the DuPont™ Tyvek® WRB. DuPont™ StuccoWrap®, DrainWrap® or CommercialWrap® D is recommended for this application.

### Wood Siding

The DuPont™ 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™ StuccoWrap®, DrainWrap™ or CommercialWrap® D applied over the foam sheathing is recommended for this application.

## DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

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 airspace behind the siding using furring strips. If furring is installed over the DuPont™ 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 airspace behind the siding using furring strips. If furring is installed over the DuPont™ 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. DuPont™ 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 DuPont™ 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

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

DuPont™ Tyvek® WRBs and exterior insulation shall be installed according to the manufacturer’s instructions and industry standards. DuPont™ 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™ StuccoWrap®, DrainWrap® or CommercialWrap® D be used when installing the

DuPont™ Tyvek® WRB layer between the sheathing and exterior insulation. Window flashing, door flashing, and through wall flashing shall be integrated with the DuPont™ 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.

### 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® WRBs 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® WRB. 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”.
- DuPont™ Adhesive/Primer or other recommended adhesive applied in vertical strips at 24” to 36” 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® WRB in that area.
- If staples without caps are used to temporarily fasten DuPont™ Tyvek® WRBs 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® WRB as an air barrier. Staples should not be used with fiberboard or foam sheathing.

**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.Weatherization.Tyvek.com](http://www.Weatherization.Tyvek.com). For additional guidance, please consult your local DuPont™ Tyvek® Specialist.

### Key Installation Requirements for DuPont™ Tyvek® WRBs

#### Continuity

It is important to maintain the continuity of the WRB throughout the building envelope. The entire wall surface shall be wrapped, including unconditioned spaces. Special attention should be given to ensure a proper 6" overlap at all terminations, seams, penetrations, and transitions to maintain a continuous downward drainage plane and WRB. Installing the DuPont™ Tyvek® WRB as an air barrier is the preferred installation method. However, skip-taping terminations and untaped horizontal seams is allowed when the DuPont™ Tyvek® WRB 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 equivalent structural load and 15 mph equivalent wind-driven rain water infiltration. All vertical seams must be taped for both air barrier and water-resistive barrier installations.

#### Penetrations

Seal DuPont™ Tyvek® WRBs around all penetrations (electrical, HVAC and plumbing, etc.) with the appropriate DuPont™ Flashing Systems product, DuPont™ Tyvek® Tape, DuPont™ Residential Sealant or recommended sealant. Products that have flanges should be integrated into the DuPont™ Tyvek® WRB. 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. Please contact 1-800-44-Tyvek for recommended sealants and recommended alternate patches behind fastening plates.

#### Fasteners

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

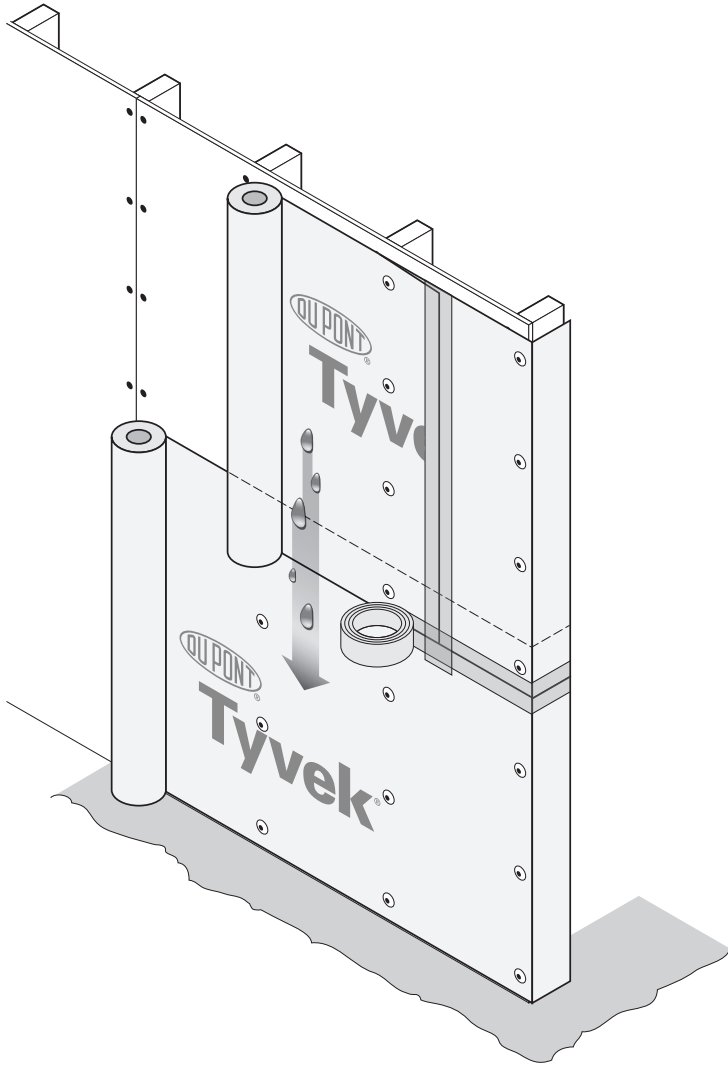
- DuPont™ Tyvek® Wrap Cap nails (for wood frame construction)
- DuPont™ Tyvek® Wrap Cap Staples or other cap staples for Stinger™ Cap Stapler (for wood frame construction)
- Other manufacturers' equivalent 1" plastic cap screws, nails, and staples (for wood frame construction). Note: Staples must have leg length sufficient to achieve 5/8" penetration into wood stud
- DuPont™ Tyvek® Wrap Cap or other manufacturers' equivalent 2" plastic cap screws (for steel or wood frame construction)
- 1-1/4" metal gasketed washers with screws (for steel frame construction)
- 2" metal gasketed washers with screws (for steel frame construction)
- Tapcon® fasteners with 2" plastic caps (for masonry construction)

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, external foam board fasteners, or siding installed with nails. Cladding shall be installed according to applicable building codes and industry standards.

## DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

### 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.

# DuPont™ Tyvek® Water-Resistive and Air Barriers Residing Installation Guidelines

## Technical Specifications

DuPont™ 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™ self-adhered flashing products be covered within nine months (270 days) of installation.

## Warning

**DuPont™ 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. DuPont™ Tyvek® WRBs are combustible and should be protected from flames and other high heat sources. DuPont™ Tyvek® WRBs will melt at 275°F (135°C) and if the temperature of DuPont™ 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 health information, refer to the Material Safety Data Sheet or call Chemtrec at 1-800-424-9300.**

## Note

When installed in conjunction with other building materials, DuPont™ Flashing Systems 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 outer facade is the primary barrier. You must follow facade manufacturer's installation and maintenance requirements for all facade systems in order to maintain water holdout properties and ensure performance of DuPont™ Tyvek® WRBs. Use of additives, coatings or cleansers on or in the facade system may impact the performance of DuPont™ Tyvek® WRBs. DuPont™ Tyvek® Weatherization Systems products are to be used as outlined in this installation guideline. DuPont™ Flashing Systems 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 WRB 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® WRB is installed directly over the wall studs, exterior facade materials should be selected to ensure maximum protection against water intrusion. Careful workmanship and proper installation of each component is very important.

DuPont believes this information to be reliable and accurate. This 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 Weatherization Systems, please call 1-800-44-Tyvek or visit us at [www.Weatherization.Tyvek.com](http://www.Weatherization.Tyvek.com)

