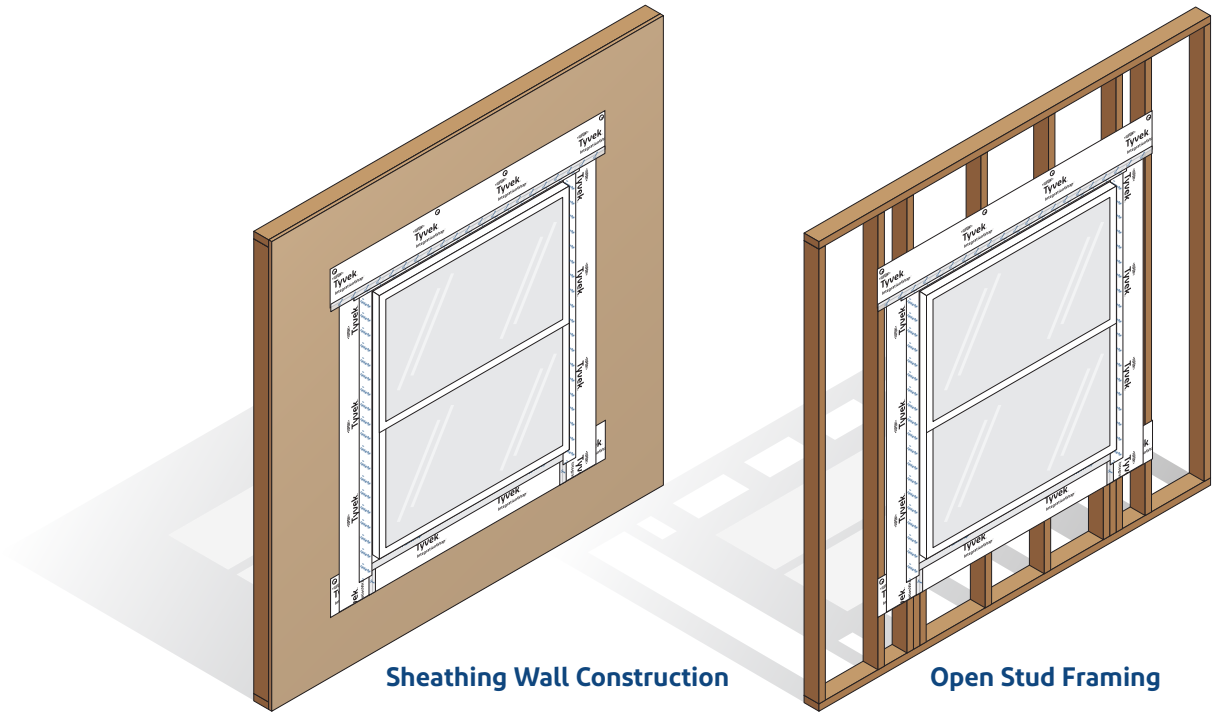
DuPont Performance Building Solutions

DuPont Flashing Products Installation Guidelines

Integral Flanged Window Installed **BEFORE** the DuPont™ Tyvek® Water-Resistive and Air Barrier (**WRB**) using **DuPont™ Tyvek® IntegrationWrap™**

For Single-Family Residential and Wood-Framed Multi-Family/Light Commercial Buildings

December 2023



Sheathing Wall Construction

Open Stud Framing

43-D101093

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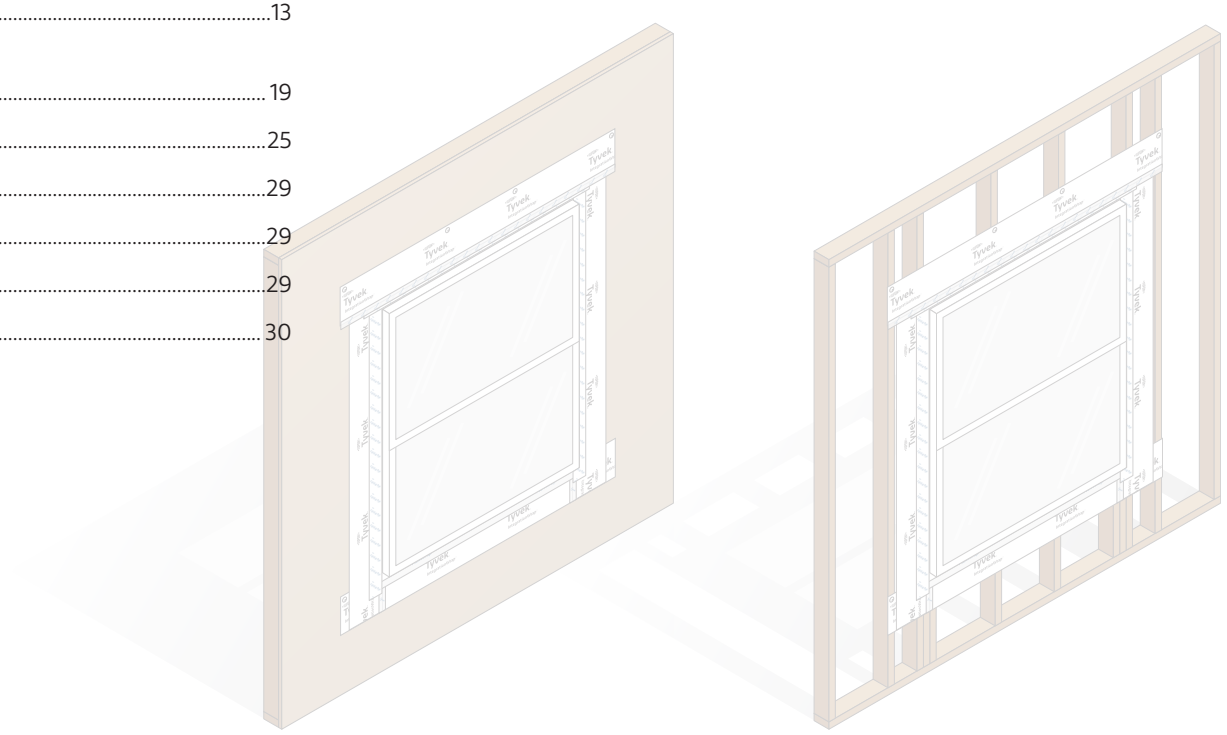


Introduction

This Installation Guideline pertains to wood-framed buildings of any height, of Type III and Type V construction, including single-family residential, multi-family, and light commercial buildings. See *Applicable Structures and Performance Criteria* for more information regarding building types and building envelope performance.

This Installation Guideline outlines recommended installation techniques and details for integral flanged windows installed **BEFORE** the **DuPont™ Tyvek® Water-Resistive and Air Barriers**, referred to in this document as **DuPont™ Tyvek® WRBs**, using the **DuPont™ Tyvek® IntegrationWrap™** method.

Always check building.dupont.com for the latest versions of DuPont Installation Guidelines and other product literature.

Applicable Products

Flashing Integration Membrane

Product	Dimensions	Area
DuPont™ Tyvek® IntegrationWrap™	9 in x 300 ft	225 sq ft

Self-Adhered Flashing Products

Product	Width
DuPont™ FlexWrap™	6 in 9 in
DuPont™ Flashing Tape	4 in 6 in 9 in 12 in
DuPont™ StraightFlash™	4 in 9 in
DuPont™ VersaFlange™ (Formerly **DuPont™ StraightFlash™ VF**)	6 in

Water-Resistive and Air Barriers (Tyvek® WRBs)

Product	Dimensions	Area
DuPont™ Tyvek® HomeWrap®	3 ft x 100 ft 3 ft x 165 ft 5 ft x 200 ft 9 ft x 100 ft 9 ft x 150 ft 10 ft x 100 ft 10 ft x 150 ft	300 sq ft 495 sq ft 1,000 sq ft 900 sq ft 1,350 sq ft 1,000 sq 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 10 ft x 125 ft	1,125 sq ft 1,250 sq ft
DuPont™ Tyvek® CommercialWrap®	5 ft x 200 ft 10 ft x 125 ft	1,000 sq ft 1,250 sq ft
DuPont™ Tyvek® CommercialWrap® D	5 ft x 200 ft 10 ft x 125 ft	1,000 sq ft 1,250 sq ft

Installation Accessories

Product	Type	Quantity
DuPont™ Tyvek® Tape	2 in Bulk Pack 3 in Bulk Pack	6 rolls/bulk pack
DuPont™ Tyvek® Wrap Cap Staples or other cap staples for Stinger® Cap Stapler	7/8 in, 1-1/4 in, and 1-1/2 in lengths 3/8 in and 5/8 in lengths	2,000/box 2,016/box
DuPont™ Tyvek® Wrap Cap Nails	1 in electro-galvanized ring shank nail	2,000/box
DuPont™ Tyvek® Wrap Cap Screws	2 in dia. plastic cap, 1-3/4 in screw length	1,000/box
Great Stuff Pro™ Window & Door Polyurethane Foam Sealant	Can (reusable dispensing gun sold separately)	20 oz
Great Stuff Pro™ Gaps & Cracks Polyurethane Foam Sealant	Can (reusable dispensing gun sold separately)	20 oz
Tower® Residential Sealant (formerly DuPont™ Residential Sealant)		
TRUFAST® Walls Grip-Deck® screws with Thermal-Grip FastCap™ washers (TRUFAST® Walls formerly Rodenhouse)[1]		

[1]For information regarding installation of TRUFAST® Walls fasteners, refer to the *Key Installation Requirements for DuPont™ Tyvek® WRBs* section of this document.

Additional Materials Based on Project Requirements, Details, and Specifications[1]

- Backer Rod
- Sealant[2]
- Adhesive/Primer[2]
- Brushes for Surface Preparation
- J-Roller
- Trowels

Warranty

Please refer to the *DuPont Building Envelope Solutions Products 10-Year Limited Warranty for Single-Family, Wood-Framed Multi-Family, and Light Commercial Buildings*.

NOTE: In order to make a claim under the DuPont Performance Building Solutions 10-Year Limited Product and Labor Warranty, you must have met all of the terms and conditions of the warranty, including use of the applicable DuPont Installation Guidelines available at the date of original installation. In the event that a specific detail or installation technique is not covered in the DuPont Installation Guidelines at the time of construction, then the Key Installation Requirements outlined in this document must have been followed in order to make a claim under the warranty. It is in the sole discretion of DuPont to determine if full compliance with the Key Installation Requirements exists. Please contact DuPont or a DuPont Representative if you have any questions regarding any DuPont Installation Guideline.

[1]Apply per manufacturers' guidelines. **For non DuPont products, DuPont assumes no liability in use of recommended products** — installers need to evaluate suitability of recommended products in their end-use applications.

[2]For information regarding chemically compatibility of sealants, see technical bulletin *Chemical Compatibility of Representative Building Sealants and Adhesives/Primers*.

Applicable Structures and Performance Criteria

Applicable Structures

These Installation Guidelines pertain to Single-Family Residential, and Wood-Framed Multi-Family and Light Commercial Buildings as defined below.

DuPont categorizes structures into three primary groups:

i.) "**Single-Family Residential Buildings**" are defined as fully-detached one or two family structures, as well as townhouse structures not more than three stories above grade plane as defined in the 2018 International Residential Code (IRC) Section R101.2, both to the extent they are exclusively Residential Use building structures.

ii.) "**Wood-Framed Multi-Family and Light Commercial Buildings**" are defined as the following (must meet **ALL** criteria):

a. Constructed of wood-based structural exterior framing of Type III or Type V Construction* (International Building Code (IBC) (Chapter 6)); and

b. Does not exceed 2018 IBC max height (Table 504.3) for Type V construction (70 ft.) or Type III construction (85 ft.), including allowances for Automatic Sprinkler height increase (IBC 504.1 and Table 504.4) and 'podium' structures outlined in the Special Provisions* (IBC Section 510); and

c. Design requirements for the building envelope do not exceed air barrier performance of ASTM E1677 (10.8 psf structural load, 65 mph equivalent wind load), and water infiltration resistance criteria of 6.24 psf (50 mph equivalent wind-driven rain) when tested in accordance with ASTM E331, ASTM E1105, or equivalent.

*Special Provisions (IBC Section 510) allows for a "horizontal building separation", or 'podium', to be built under the wood-framed Type III or Type V building. The podium is typically constructed of steel framing or concrete. Podium-style buildings are included under "Wood-Framed Multi-Family and Light Commercial Buildings", as long as all other definition criteria (a. through c. above) are met.

iii.) "**Commercial and High-Performance Buildings of Any Height**" can be defined as any of the following:

a. Structures constructed of steel-based structural exterior framing and any exterior sheathing, or

b. Structures with exterior above grade walls constructed of concrete or concrete masonry units (CMU), or

c. Structures of any height and construction type (including any framing type) that are designated as high-performance. "High-performance" is defined as air barrier performance exceeding ASTM E1677 and/or water infiltration resistance criteria exceeding 6.24 psf when tested in accordance with ASTM E331, ASTM E1105, or equivalent.

NOTE: "Podium" style structures with wood-framed floors built above steel-framed or concrete/CMU floors are covered under "Wood-Framed Multi-Family and Light Commercial Buildings" unless they are "high-performance".

Water-Resistive Barrier Performance Requirements

These Installation Guidelines pertain to single family residential, wood-framed multi-family and light commercial buildings with air barrier performance not exceeding ASTM E1677 (10.8 psf structural load, 65 mph equivalent wind load), and water infiltration resistance criteria not exceeding 6.24 psf (50 mph equivalent wind-driven rain) when tested in accordance with ASTM E331, ASTM E1105, or equivalent.

Buildings with high-performance air barrier designs are defined by DuPont as those with air barrier performance equivalent to ASTM E2357 (or other exceeding ASTM E1677), and/or water infiltration resistance criteria greater than 6.24 psf when tested in accordance with ASTM E331, ASTM E1105, or equivalent.

Allowable Building Height and Number of Stories

Chapter 5 of the 2018 IBC contains information regarding the maximum height and number of stories for buildings of Group R Occupancy Classification (IBC Section 310). Including increased allowances for automatic sprinklers and a "podium" horizontal building separation (Section 510), Group R buildings of Type III or Type V construction can have the following **maximum heights above grade plane**:

Buildings with Group R (Residential) Occupancy Classification

Type of Construction	Maximum Building Height in Feet Per 2018 IBC Table 504.3
VA	70
VB	60
IIIA	85
IIIB	75

For Wood-Framed Multi-Family and Light Commercial Buildings up to 70 feet in height, any DuPont™ Tyvek® WRB can be used. For buildings between 70 and 85 feet in height, DuPont™ Tyvek® CommercialWrap® or DuPont™ Tyvek® CommercialWrap® D must be used on all above grade wood-framed exterior walls, and 3" Tyvek® Tape must be used.

NOTE: In general, **Tyvek® CommercialWrap®** or **Tyvek® CommercialWrap® D** are recommended for Wood-Framed Multi-Family and Light Commercial Buildings due to their increased durability and UV exposure limit which can help accommodate longer construction times. See *Product Composition and UV Stability* section for more information.

Applicable Structures and Performance Criteria

DuPont Building Envelope Solutions Products Installation Considerations for Single-Family Residential Buildings

These Installation Guidelines should be used for buildings which meet the applicable structures definitions and performance criteria on the previous page. The following table provides a summary of typical installation information.

Installation Considerations	Non-Air Barrier Installations (water details only)	Air Barrier Installations
Tyvek® WRB	**DuPont™ Tyvek® HomeWrap®**, **Tyvek® DrainWrap™**, **Tyvek® StuccoWrap®**, **Tyvek® CommercialWrap®**, and **Tyvek® CommercialWrap® D**	
DuPont™ Tyvek® Fluid Applied Products	Can be used on any above grade exterior wall where specified in hybrid details in this guide. Recommended for use on above grade exterior CMU and/or concrete walls. Refer to the *DuPont™ Tyvek® Fluid Applied WB+™ and DuPont Flashing Products Installation Guidelines* for additional information.	
DuPont™ Tyvek® Tape	2" (3" **required** when using **Tyvek® DrainWrap™**, **Tyvek® StuccoWrap®**, or **Tyvek® CommercialWrap® D**)	
Typical Recommended Fasteners and Spacing[1]	1" **DuPont™ Tyvek® Wrap Cap Staples or Nails** (or equivalent) fastened along stud lines spaced at 6"– 18" vertically	
Tyvek® WRB Top of Wall Termination	Skip-sealing along top of wall using Tower® Residential Sealant, a recommended sealant[2], or **Tyvek® Tape**	Full seal along top of wall using Tower® Residential Sealant, a recommended sealant[2], or **Tyvek® Tape**.
Tyvek® WRB Bottom of Wall Termination	Skip-sealing along bottom of wall using Tower® Residential Sealant, a recommended sealant[2], or **Tyvek® Tape**	Full seal along bottom of wall using Tower® Residential Sealant, a recommended sealant[2], or **Tyvek® Tape**.
Recommended Window/Door Head Flap Treatment	Skip-sealing along horizontal edge using **Tyvek® Tape** is acceptable	Full seal along horizontal edge and 45° cuts using **Tyvek® Tape**.

[1]For increased holding power and for higher air and water holdout performance, DuPont recommends fasteners of sufficient length to penetrate securely into the stud. Temporary Fastening methods can be used. For more information, refer to the applicable **Tyvek® WRB** Installation Guideline that can be found on building.dupont.com.

[2]For information regarding chemically compatibility of sealants, see technical bulletin *Chemical Compatibility of Representative Building Sealants and Adhesives/Primers*.

Applicable Structures and Performance Criteria

DuPont Building Envelope Solutions Products Installation Considerations for Wood-Framed Multi-Family and Light Commercial Buildings

These Installation Guidelines should be used for buildings which meet the applicable structures definitions and performance criteria on the previous page. The following table provides a summary of typical installation information.

Installation Considerations	Total Building Height Above Grade Plane[1]	
	70 Feet and Under	70 – 85 Feet
Performance Criteria	Building air barrier performance not exceeding ASTM E1677, **AND** WRB and self-adhered flashing water infiltration resistance criteria not exceeding 6.24 psf when tested in accordance with ASTM E331, ASTM E1105, or equivalent.	
Tyvek® WRB[2]	**DuPont™ Tyvek® HomeWrap®**, **Tyvek® DrainWrap™**, **Tyvek® StuccoWrap®**, **Tyvek® CommercialWrap®**, and **Tyvek® CommercialWrap® D**	**Tyvek® CommercialWrap®**, **Tyvek® CommercialWrap® D** (required on all above grade wood-framed exterior walls)
DuPont™ Tyvek® Fluid Applied Products	Can be used on any above grade exterior wall where specified in hybrid details in this guide. Recommended for use on above grade exterior CMU and/or concrete walls. Refer to the *DuPont™ Tyvek® Fluid Applied WB+™ and DuPont Flashing Products Installation Guidelines* for additional information.	
DuPont™ Tyvek® Tape	2″ (3″ **required** when using **Tyvek® DrainWrap™, Tyvek® StuccoWrap®**, or **Tyvek® CommercialWrap® D**)	3″
Typical Recommended Fasteners and Spacing[3]	1″ **DuPont™ Tyvek® Wrap Cap Staples or Nails** (or equivalent) fastened along stud lines spaced at 6″ – 18″ vertically	2″ **DuPont™ Tyvek® Wrap Cap Screws** or approved TRUFAST® Walls Fasteners (formerly Rodenhouse) 1″ plastic cap fasteners are considered temporary fasteners
Air Barrier Details	Required when the designated building envelope performance requirements are equivalent to ASTM E1677	
Tyvek® WRB Terminations to Sheathing	**DuPont Self-Adhered Flashing Products**	
Self-Adhered Flashing Patches behind Cladding Fasteners	Required when water infiltration resistance criteria for the building envelope exceeds 0.56 psf (15 mph equivalent wind-driven rain), nominal test pressure per ASTM E1677.	
Recommended Window/Door Head Flap Treatment	**DuPont™ Tyvek® Tape** or **DuPont Self-Adhered Flashing Products**	**DuPont Self-Adhered Flashing Products** Install mechanical fasteners through flashing as needed for increased holding power

[1]Height above grade plane based on the approved calculation method as defined in architectural plans/construction documents.

[2]Buildings requiring NFPA 285 compliance must use **Tyvek® CommercialWrap®** or **Tyvek® CommercialWrap® D** in accordance with DuPont NFPA 285 documentation.

[3]For increased holding power and for higher air and water holdout performance, DuPont recommends fasteners of sufficient length to penetrate securely into the stud. Temporary Fastening methods can be used. For more information, refer to the applicable **Tyvek® WRB** Installation Guideline that can be found on building.dupont.com.

Flashing Products Code Requirements

The 2018 International Residential Code (Section R703.4 Flashing) requires that "approved corrosion-resistant flashing shall be applied shingle-fashion in a manner to prevent entry of water into the wall cavity or penetration of water to the building structural framing components. Self-adhered membrane used as flashing shall comply with **AAMA 711**. Fluid-applied membranes used as flashing in exterior walls shall comply with **AAMA 714**. The flashing shall extend to the surface of the exterior wall finish.

The 2018 International Building Code (Section 1404.4 Flashing) requires that "flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect that moisture to the exterior. Flashing shall be installed at the perimeters of exterior door and window assemblies, penetrations and terminations of exterior wall assemblies, exterior wall intersections with roofs, chimneys, porches, decks, balconies and similar projections and at built-in gutters and similar locations where moisture could enter the wall. Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting trim. Where self-adhered membranes are used as flashings of fenestration in wall assemblies, those self-adhered flashings shall comply with **AAMA 711**. Where fluid applied membranes are used as flashing for exterior wall openings, those fluid applied membrane flashings shall comply with **AAMA 714**."

DuPont Self-Adhered Flashing Products comply with AAMA 711 (an FGIA Specification) *Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products*.

DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound+ complies with AAMA 714, *Voluntary Specification for Liquid Applied Flashing Used to Create a Water-Resistive Seal around Exterior Wall*.

Water-Resistive Barrier (WRB) Code Requirements

The 2018 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 cladding as required by Section R703.2 and a means of draining to the exterior water that penetrates the exterior cladding." 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. No. 15 asphalt felt 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). Other approved materials shall be installed in accordance with the water-resistive barrier manufacturer's installation instructions. The No. 15 asphalt felt or other approved water-resistive barrier 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 2018 International Building Code (Section 1402.2 Weather Protection) requires that "exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-resistive barrier behind the exterior veneer, as described in Section 1403.2, and a means for draining water that enters the assembly to the exterior. The exterior wall envelope shall include flashing, as described in Section 1404.4. Section 1403.2 (Water-resistive barrier) states that "not fewer than one layer of No. 15 asphalt felt, complying with ASTM D226 for Type 1 felt or other approved materials, shall be attached to the studs or sheathing, with flashing as described in Section 1404.4 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**

All **DuPont™ Tyvek® WRBs** have been tested to the following standards:

- ASTM E2556 *Type II Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment*
- ASTM E1677 *Standard Specification for an Air Retarder (AR) Material or System for Low-Rise Framed Building Walls*

- ASTM E2178 *Standard Test Method for Air Permeance of Building Materials*
- ASTM E96 *Standard Test Methods for Water Vapor Transmission of Materials*
- AATCC 127 *Test Method for Water Resistance: Hydrostatic Pressure*
- ASTM E84 *Standard Test Method for Surface Burning Characteristics of Building Materials*
- ASTM E2273 *Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies* (excludes **DuPont™ Tyvek® Fluid Applied WB+™**)

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.

Additional Codes and Standards Information for DuPont™ Tyvek® Commercial Air and Water Barrier Systems

DuPont™ Tyvek® CommercialWrap®, **Tyvek® CommercialWrap® D**, **DuPont™ StraightFlash™**, **DuPont™ FlexWrap™**, and **DuPont™ Tyvek® Fluid Applied Products** were designed for the rigors of heavy commercial construction. These commercial products have been tested to the following standards:

- ABAA Evaluated
- ASTM E2357 *Standard Test Method for Determining Air Leakage of Air Barrier Assemblies*
- ASTM E331 *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Pressure*
- ASTM E1105 *Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Door, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference*
- ASTM E283 *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen*
- AAMA 501.5 *Test Method for Thermal Cycling of Exterior Walls*
- NFPA 285 *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components*

Energy Conservation Codes for commercial buildings are being adopted in many regions across the U.S. **DuPont™ Tyvek® Water-Resistive and Air Barriers (WRBs)** currently meet the following codes and guidelines.

- ASHRAE 90.1 Model Energy Code air barrier requirements
- 2018 International Energy Conservation Code® (IECC)
- 2018 International Green Construction Code® (IgCC)

General Instructions

The best time to install **Tyvek® WRBs** is:

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

DuPont Self-Adhered Flashing Products and Tyvek® Fluid Applied Products are not intended for through-wall flashing applications.

Special Considerations

1. These Installation Guidelines, including the allowable use of DuPont Products, are based on building air barrier performance not exceeding ASTM E1677, and **Tyvek® WRBs** and self-adhered flashing water infiltration resistance criteria not exceeding 6.24 psf when tested in accordance with ASTM E331, ASTM E1105, or equivalent.
2. Buildings requiring NFPA 285 compliance must use **Tyvek® CommercialWrap®** or **Tyvek® CommercialWrap® D** in accordance with DuPont NFPA 285 documentation. See *NFPA 285 Compliant Wall Assemblies with DuPont™ Tyvek® Commercial Air and Water Barrier Systems* and building.dupont.com for more information.
3. **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.
4. **DuPont Self-Adhered Flashing Products** perform best when installed at temperatures above 25°F (–4°C).
5. Adverse weather conditions or cold temperatures may require use of a primer to promote adhesion of **DuPont Self-Adhered Flashing Products** to most common building materials. **Concrete, masonry, and fiber-faced exterior gypsum board require the use of a recommended primer**. Do not apply the recommended primer, to exterior continuous insulation due to potential sheathing degradation.
6. 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.
7. Building envelope design requirements exceeding 0.56 psf (15 mph equivalent wind-driven rain) water infiltration resistance per ASTM E1677 require **DuPont™ StraightFlash™**, **DuPont™ Flashing Tape** or recommended alternate patches behind fastening plates (brick tie base plates, metal fastening clips, metal channels, etc.). When used behind the cladding fasteners and/or fastening plates, the flashing patch must be adhered to the **Tyvek® WRB**.
8. **DuPont Self-Adhered Flashing Products** are not intended for through-wall flashing applications.
9. When using mechanically fastened through-wall flashing, DuPont recommends sealing top edge with **DuPont™ Flashing Tape** or **StraightFlash™**.

10. When flashing the sill area for windows and doors, DuPont recommends the use of 6" wide **DuPont™ FlexWrap™** for 2" x 4" framing and 9" wide FlexWrap™ for 2" x 6" framing. When rigid back dams are required or desired, an option would be to use a 3/4" corner guard (back dam) cut to the length of the sill and nail into place on the interior edge of the sill prior to installation of 9" wide **FlexWrap™**. Then install 9" wide **FlexWrap™** over sill and corner guard back dam.
11. Use **DuPont Self-Adhered Flashing Products** with roll widths sufficient to achieve a minimum of 1" adhesion **BEYOND** where the back of the window or door frame will be located to allow for the creation of the interior perimeter seal.
12. **DO NOT STRETCH FlexWrap™** when installing along sills or jambs. **FlexWrap™** is only intended to be stretched when covering corners or curved sections.
13. When installing **DuPont™ FlexWrap™ EZ** and **FlexWrap™** on penetrations or other wall conditions, ensure the flashing will not be exposed after completion of cladding.
14. **DuPont Self-Adhered Flashing Products** can be used to bridge non-movement gaps up to 1" unsupported. Flashing must maintain a 2" adhesive lap on the wall substrate.
15. **DO NOT APPLY DuPont™ Tyvek® Tape** or **DuPont Self-Adhered Flashing Products** over **DuPont™ Tyvek® Wrap Cap Fasteners**, or recommended fasteners however, fasteners can be installed over the flashing.
16. When installing the **DuPont™ Tyvek® WRB**, **DO NOT INSTALL** fasteners within 6" of the sills and jambs of the openings and within 9" of the head of the openings.
17. **Great Stuff Pro™ Window and Door Polyurethane Foam Sealant** can be used in lieu of sealant to create a continuous seal around the interior perimeter of the window openings. When using **Great Stuff Pro™ Window and Door Polyurethane Foam Sealant** in perimeter openings less than 1/2", apply using the plastic extension tip for the **Great Stuff™ Dispenser Gun** during installation.
18. For additional wind load resistance, the use of **DuPont™ Flashing Tape** or **DuPont™ StraightFlash™** with **Tyvek® Wrap Cap Fasteners**, or recommended fasteners can be installed to secure the head flap of the windows.
19. **DuPont™ Tyvek® Tape** is a seam tape primarily designed to seal **Tyvek® WRB** seams. **Tyvek® Tape** is **NOT** a flashing product, and should not be used in applications where a flashing product is required.
20. Before applying **Tyvek® Tape**, surfaces should be dry and clean. During installation apply firm, even pressure with hand or "J" roller.
21. In lieu of temporarily taping, **Tyvek® WRB** flaps at window head and jambs can be tucked under the installed **Tyvek® WRB**.
22. Door and window rough sill framing must be level or slightly sloped to the exterior to ensure proper drainage to the exterior. This best practice ensures continuous support with positive slope to the exterior.
23. For window or door openings greater than 6 feet wide, **DuPont™ Flashing Tape** or **StraightFlash™** can be used with **FlexWrap™** in 3-piece sill applications. **DuPont™ Flashing Tape** or **StraightFlash™** should be applied the length of the sill prior to placing the **FlexWrap™** corners. The **FlexWrap™** corners should be at least 12" long allowing for 6" up the jamb and 6" of overlap on the **FlexWrap™** sill flashing. When applying the 3-piece flashing detail to the head of the opening, the **DuPont™ Flashing Tape** or **StraightFlash™** head piece should be applied prior to installing the **FlexWrap™** corner flashing. Minimum overlapping of the **FlexWrap™** head flashing and jamb flashing should be a minimum of 6".
24. **DuPont™ Tyvek® DrainWrap™**, **DuPont™ Tyvek® StuccoWrap®**, and **DuPont™ Tyvek® CommercialWrap® D must** be installed with the grooves going up and down.
25. **DuPont™ Tyvek® HomeWrap®** and **DuPont™ Tyvek® CommercialWrap®** provide >90% drainage efficiency, and **Tyvek® DrainWrap™**, **Tyvek® StuccoWrap®**, and **Tyvek® CommercialWrap® D** provide >98% drainage efficiency when tested in accordance with ASTM E2273.
26. No surface preparation is needed for the installation of **Tyvek® WRBs**.
27. Suitable substrates for **DuPont™ Tyvek® Fluid Applied Products** include concrete masonry unit (CMU), concrete (48 hr. cure for green concrete), exterior gypsum, OSB, plywood, wood, and metal. Contact your local DuPont Representative for use with pressure treated or fire retardant treated wood (FRT).
28. DuPont recommends the use of the **DuPont™ Tyvek® Fluid Applied Air Barrier System** for CMU walls with embedded brick ties. Please refer to the *DuPont™ Tyvek® Fluid Applied WB+™ and DuPont Flashing Products Installation Guidelines* for specific installation instructions.
29. **Tyvek® Fluid Applied Products** should only be used for wall systems that include a continuous path for drainage allowing moisture that penetrates the facade to exit to the exterior. The drainage path should be continuous throughout the wall assembly, including but not limited to areas such as eyebrows, band boards, penetrations, or other locations where transitions and changes of plane occur. For membrane drainage wall systems, ensure that the drainage path is not blocked or disrupted to prevent excess moisture buildup in the wall cavity.
30. When **Tyvek® Fluid Applied Products** are used as the air and water barrier, **Tyvek® WRBs** may be installed as an "intervening layer" over **Tyvek® Fluid Applied Products** after 48 hours of curing at 70°F (20°C) and 50% RH. For additional information about the use of "intervening layers" see the Stucco section under *Facade Considerations* in the applicable **Tyvek® WRB** Installation Guideline.
31. Uncured **Tyvek® Fluid Applied Products** must not come in contact with building wraps due to potential impact on performance properties.
32. **Tyvek® CommercialWrap®** and **Tyvek® CommercialWrap® D** may be installed over **Tyvek® Fluid Applied Products** after 48 hours of curing at 70°F (20°C) and 50% RH.
33. **Tyvek® HomeWrap®**, **Tyvek® StuccoWrap®**, and/or **Tyvek® DrainWrap™** should not come in direct contact with cured or uncured **Tyvek® Fluid Applied Products**.
34. **Tyvek® Fluid Applied Products** can be applied to damp surfaces. A surface is considered damp if there is no visible water on the surface and no transfer of water to the skin when touched.
35. **DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound+** can be troweled or brushed to the required thickness in any application outlined in the guide.
36. **Tyvek® Fluid Applied Products** should be applied when air and surface temperatures are above 25°F. Do not install once the ambient temperature exceeds 95°F (35°C), unless the application surface is shaded. The maximum surface temperature for application is 140°F (60°C).
37. **Tyvek® Fluid Applied Products** may be overcoated once a tack-free skin has formed. Exterior insulation and/or exterior facade may be installed after **Tyvek® Fluid Applied Products** have cured for 48 hours. Please refer to *Drying/Curing* information in the *DuPont™ Tyvek® Fluid Applied WB+™ and DuPont Flashing Products Installation Guidelines*.

38. Performance testing, included but not limited to peel adhesion, pull strength analysis, field or third-party testing of air and/or water barrier properties, should be conducted after **DuPont™ Tyvek® Fluid Applied Products** are fully cured (~14 days).
39. **DuPont™ Tyvek® WRBs** must not come in direct contact with other manufacturers' cured or uncured fluid-applied and/or deck coating waterproofing products due to potential impact on performance properties. **DuPont™ StraightFlash™** can be used as transitional membrane.
40. DuPont requires **DuPont™ Tyvek® HomeWrap®**, **DuPont™ Tyvek® StuccoWrap®**, and **DuPont™ Tyvek® DrainWrap™** be covered within 4 months (120 days) of installation. DuPont requires **DuPont™ Tyvek® CommercialWrap®** and **DuPont™ Tyvek® CommercialWrap® D** and **Tyvek® Fluid Applied Products** be covered within 9 months (270 days) of installation.
41. DuPont requires that **DuPont™ FlexWrap™**, **DuPont™ FlexWrap™ EZ**, and **StraightFlash™** be covered within 9 months (270 days) of installation. DuPont requires that **DuPont™ Flashing Tape** be covered within four months (120 days) of installation.
42. The maximum in-service temperature for **Tyvek® WRBs**, **DuPont Self-Adhered Flashing Products**, and **Tyvek® Fluid Applied Products** is 180°F.
43. Tower® Residential Sealant (formerly DuPont™ Residential Sealant) is designed for use with DuPont products and can be used where sealant is outlined in this guide. This change represents a branding change only—chemical composition and performance characteristics of the sealant are unchanged.
44. For details regarding flashing garage door openings, refer to *Installation Instructions for Garage Doors Installed AFTER the DuPont™ Tyvek® Water-Resistive and Air Barrier (WRB) is Installed*.
45. When applying Tower® Residential Sealant or recommended sealant during window installation, DuPont recommends minimizing or removing excess sealant that may interfere with adhesion of **DuPont Self-Adhered Flashing Products**.

For additional guidance, please call 1-833-338-7668, visit our website at building.dupont.com, or consult your local DuPont Representative.

Key Installation Requirements for Drainable Window/Door Installation

When flashing windows or doors, the following principles must be followed:

- An integral flanged window/door is defined as a window/door unit with a nailing fin or flange that is continuous around the perimeter of the window and that is a direct extrusion of the window frame.
- Any window/door that has a nailing fin or flange that is **not continuous around the perimeter** of the window/door or the fin/flange is **not a direct extrusion of the frame** (e.g. field-applied flanges) is considered a **non-integral flanged unit**.
- When installed properly, **DuPont™ StraightFlash™**, **DuPont™ FlexWrap™**, and **DuPont™ Flashing Tape** provide nail sealability at window/door openings to help protect critical window-wall interfaces. Metal sill pan flashing may be used, but must not replace flexible sill flashing that provides nail sealability.
- Ensure that sill flashing does not slope to the interior. An exterior slope is recommended, but not required.
- Direct water onto an acceptable air and water barrier drainage plane with an unobstructed path to the exterior of the wall. Provide a drainage path for any water intrusion through the window/door attachment system that collects at the sill.
- Properly integrate flashing with acceptable **DuPont™ Tyvek® WRB**. **DuPont Self-Adhered Flashing Products** must be applied with a minimum 2" lap onto the WRB.
- When applying recommended sealant during window installation, DuPont recommends minimizing or removing excess sealant that may interfere with adhesion of **DuPont Self-Adhered Flashing Products**.
- DuPont requires that **FlexWrap™**, **FlexWrap™ EZ**, and **StraightFlash™** be covered within 9 months (270 days) of installation. DuPont requires that **DuPont™ Flashing Tape** be covered within 4 months (120 days) of installation.
- Properly prepare all surfaces (remove dirt, dust, or moisture, etc.) per manufacturer's recommendations.
- Barrier installations (full perimeter seal on exterior) are acceptable only in the following instances:
  - Slab on grade doors, store front windows, or other systems with built-in drainage mechanisms that have potential for exposure to standing water
  - Surface barrier wall systems with non-water sensitive framing material (i.e., CMU walls)
  - Very low wind/rain exposure regions (southwest/desert) that follow AAMA 2400 installation guideline
- Ensure that window/door and flashing system design takes into account common factors that will impact performance, such as:
  - Climate considerations: Rainfall, Wind, Temperature (hot/cold cycles), Humidity
  - Building design: Window/Wall Design (overhangs, recessed openings, bump-outs), Wall Assembly (wood frame or masonry), Window System (wood or vinyl), New Construction or Replacement Window drainage path
  - UV exposure prior to the construction of the exterior facade
  - Compliance with fire resistance code requirements. For more information about NFPA 285 compliant wall assemblies utilizing **Tyvek® WRBs** visit building.dupont.com.
- Field testing the window/door and wall installation as a complete system is a recommended best practice.
- DuPont recommends DuPont Building Envelope Solutions Products be installed by a DuPont Certified Installer. Contact your local Building Envelope Specialist for more information about the DuPont Certified Installer program.

Sealants and Adhesives/Primers

Review the manufacturers' literature or label to confirm that the product(s) used have the chemical and adhesive properties necessary for use with **Tyvek® WRBs**, **DuPont Self-Adhered Flashing Products**, and **DuPont™ Tyvek® Fluid Applied Products**. Ensure the sealant materials meet the installation temperature requirements of the sealant manufacturer. Refer to *Chemical Compatibility of Representative Building Sealants and Adhesives/Primers* for more information about chemical compatibility.

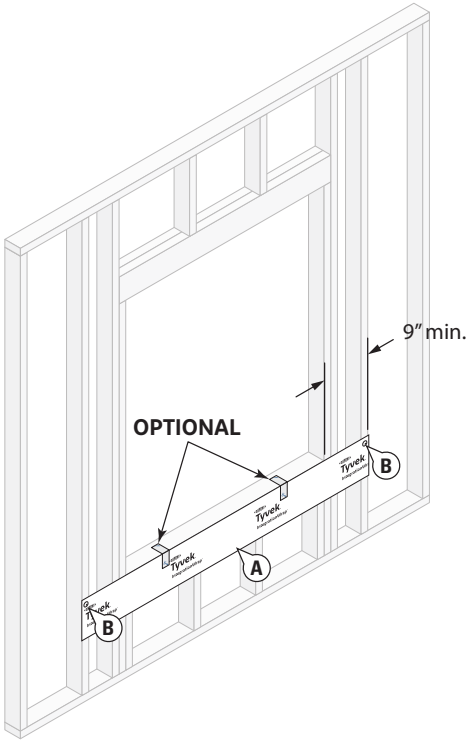
Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

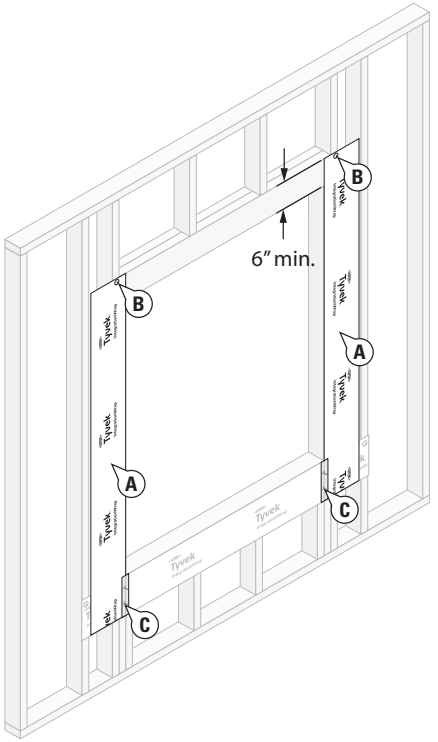
Flush Mount Integral Flanged Window Installed Over Standard Open Stud Framing

This method applies to the following products: DuPont™ Tyvek® IntegrationWrap™, DuPont™ Flashing Tape, DuPont™ StraightFlash™, and DuPont™ FlexWrap™

An integral flanged window is defined as a window unit with a nailing fin or flange that is continuous around the perimeter of the window and that is a direct extrusion of the window frame. The general sequence captured in this installation method for a flush mount integral flanged window can also be used for a flush mount integral flanged door.

NOTE: Rough opening with open stud framing should be designed to meet structural requirements, construction tolerances and site conditions without the use of exterior sheathing. Install additional framing or blocking as needed to provide a solid backing which can assist with installation of **DuPont Self-Adhered Flashing Products** and **DuPont™ Tyvek® Tape**.





STEP 1

Install Tyvek® IntegrationWrap™ Under Sill

A. Cut a piece of **Tyvek® IntegrationWrap™** long enough to extend at least 9" **BEYOND** the sides of the rough opening jambs and, if possible, to the next stud beyond the king stud.

B. The top of the **Tyvek® IntegrationWrap™** should be temporarily fastened to the studs and the bottom should be left unsecured so it can overlap the **DuPont™ Tyvek® WRB** which will be installed after the window. If using **DuPont™ Tyvek® Wrap Cap Fasteners**, or recommended fasteners, avoid fastener placement where **DuPont Self-Adhered Flashing Products** will be installed.

OPTIONAL: To assist with sill flashing installation in STEP 3, small pieces of **DuPont™ Tyvek® Tape** can be used to temporarily secure the **Tyvek® IntegrationWrap™** at the sill.

STEP 2

Install Tyvek® IntegrationWrap™ at Jambs

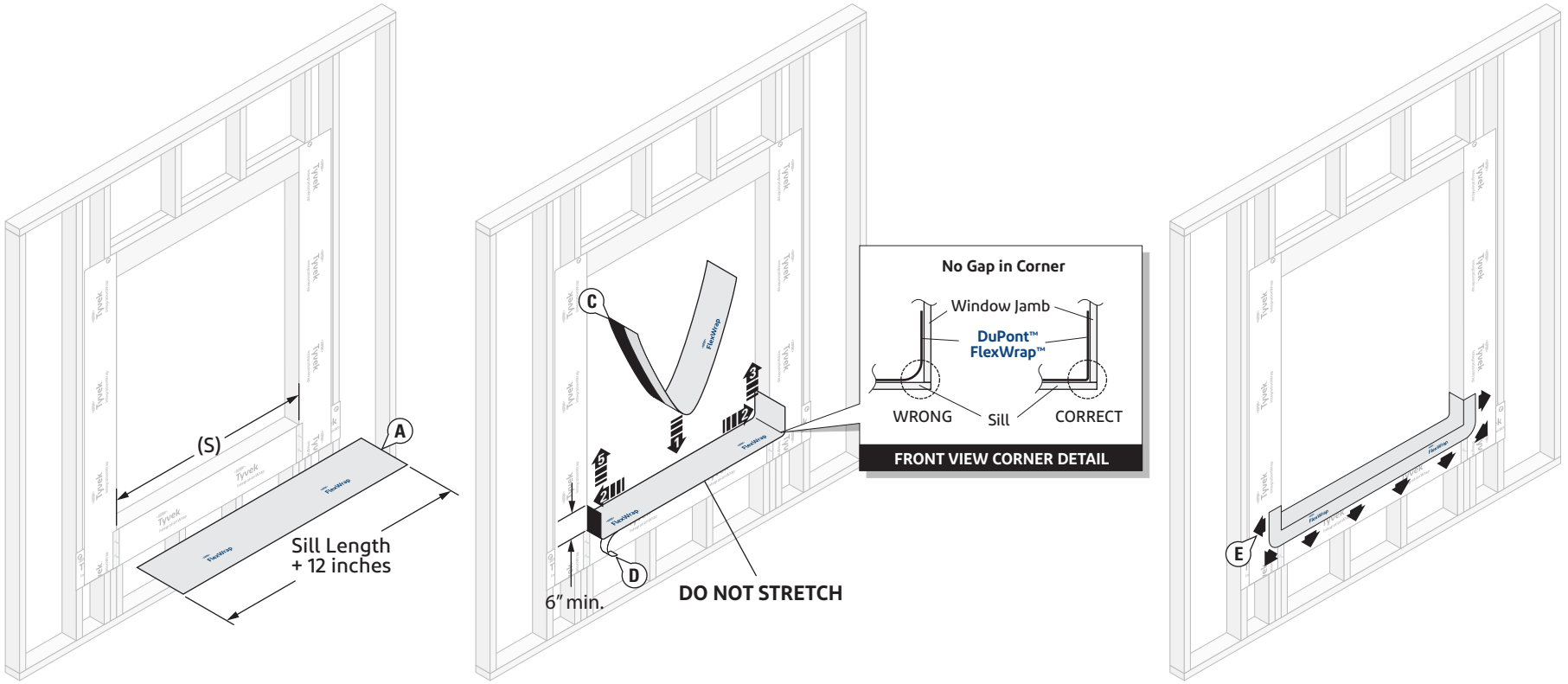
A. Cut two pieces of **Tyvek® IntegrationWrap™** long enough to extend from the bottom edge of the sill piece of **Tyvek® IntegrationWrap™** to minimum 6" **ABOVE** the rough opening.

B. Secure to the studs. If using **DuPont™ Tyvek® Wrap Cap Fasteners**, avoid fastener placement where **DuPont Self-Adhered Flashing Products** will be installed.

C. Seal inner vertical seams between the jamb pieces and sill piece with **DuPont™ Tyvek® Tape**.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Open Stud Framing



STEP 3

Install DuPont™ FlexWrap™ at Sill

A. Cut **FlexWrap™** at least 12" **LONGER** than width of rough opening sill (S). Use roll widths sufficient to achieve a minimum of 1" adhesion to the sill framing **BEYOND** where the interior edge of window frame will be located, ensuring 2"– 3" adhesion onto the face of the wall.

B. Fold the **FlexWrap™** along the perforations between the wide release paper and narrow release paper to help ensure clean removal of the papers. Unfold, and then fold the piece in half along the length to create a crease which will assist with installation in the next step.

C. Remove wide piece of release paper. Position on horizontal sill by aligning the inside edge of the narrow release paper with the face of the wall to ensure 2"– 3" of the **FlexWrap™** will be adhered to the face of the wall with a minimum of 6" up each jamb. Adhere into rough opening.

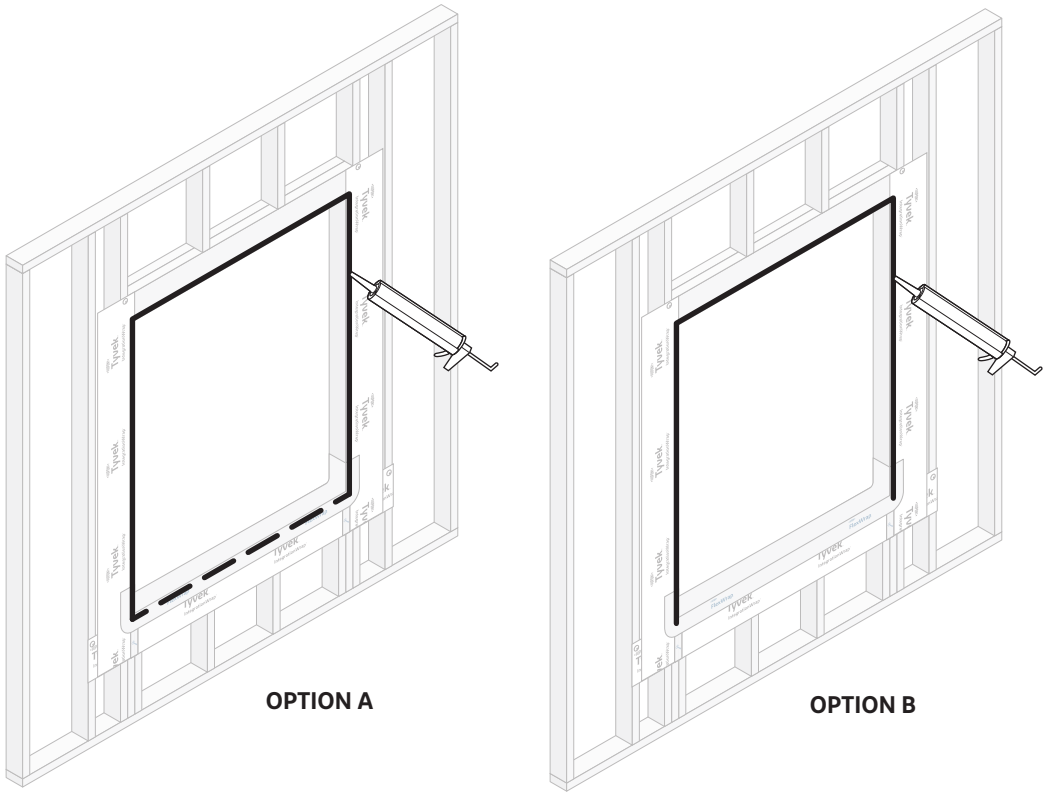
D. Remove narrow release paper.

E. Fan out the **FlexWrap™** at the corners and adhere onto face of wall. Continue adhering onto face of wall along sill. Minimize wrinkles during the application by applying firm pressure in direction of the grooves of the **FlexWrap™**, as indicated by the arrows above.

NOTE: DuPont™ Tyvek® Certified Installers may install a 3-piece sill (and head) detail for window openings less than 6 ft. wide. For windows greater than 6 ft. wide, see the *Special Considerations* section for more information regarding the 3-piece sill/head detail. Contact your local DuPont Building Envelope Specialist for more information about the Certified Installer program.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Open Stud Framing



OPTION A

OPTION B

STEP 4

Apply Recommended Sealant

OPTION A: Apply continuous bead of Tower® Residential Sealant, or recommended sealant, at window head and jambs to wall or back side of window mounting flange. **To allow for drainage, do not apply continuous sealant bead along sill**. Ensure a minimum 2" wide drainage gap in the sealant bead within 4" from **each corner** of the jamb-sill interface. Continue applying sealant along the sill with additional 2" wide (min.) drainage gaps for every 6"– 12" (on center) of sill width.

OPTION B: Apply continuous bead of Tower® Residential Sealant, or recommended sealant, at window head and jambs to wall or back side of window mounting flange. **To allow for drainage, do not apply sealant bead along sill**.

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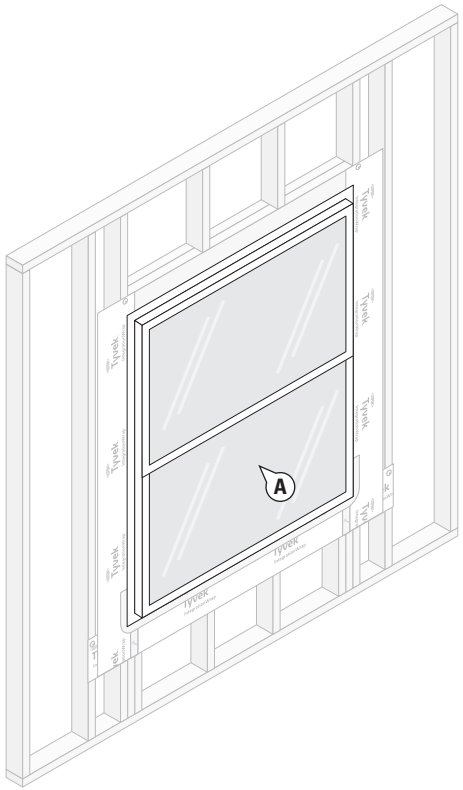
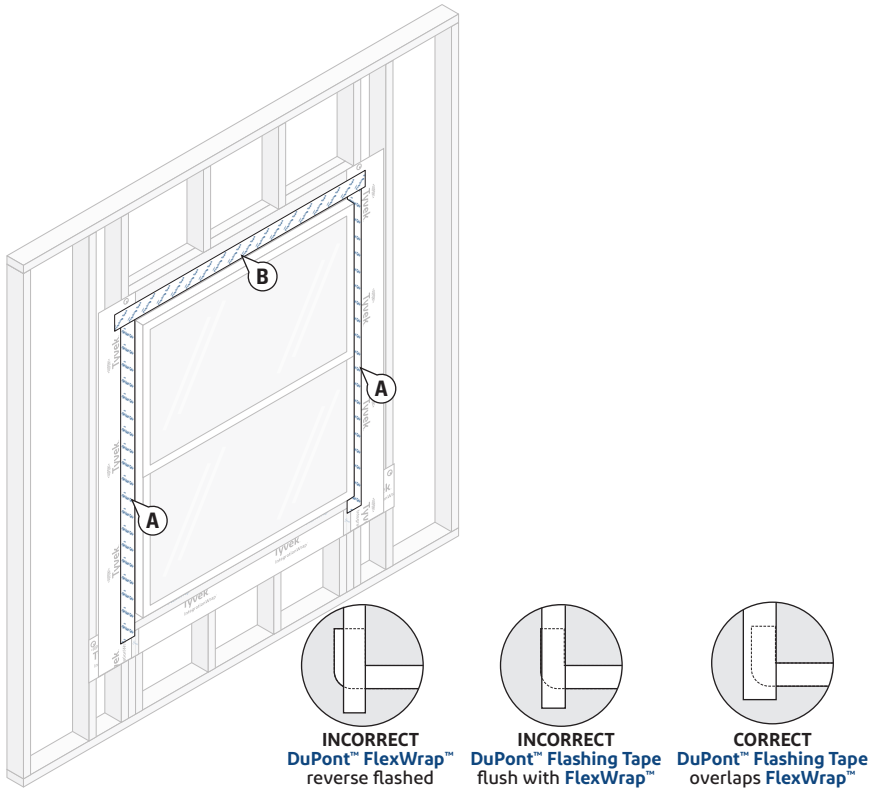
Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Open Stud Framing





STEP 5

Install Window

A. Install window per manufacturer's instructions.

STEP 6

Install DuPont™ Flashing Tape or DuPont™ StraightFlash™ at Jambs and Head

A. Cut two pieces of **DuPont™ Flashing Tape** or **StraightFlash™** for jamb flashing extending 1" **ABOVE** window head flange and **BELOW** bottom edge of sill flashing. Remove release paper and install completely covering flange, pressing tightly along sides of window frame. Jamb flashing should completely cover sill flashing as indicated in the diagram above.

B. Cut a piece of **DuPont™ Flashing Tape** or **StraightFlash™** for head flashing long enough to extend **BEYOND** the outer edges of the jamb flashings. Remove release paper and install completely covering flange and adhering to framing members or exposed sheathing above.

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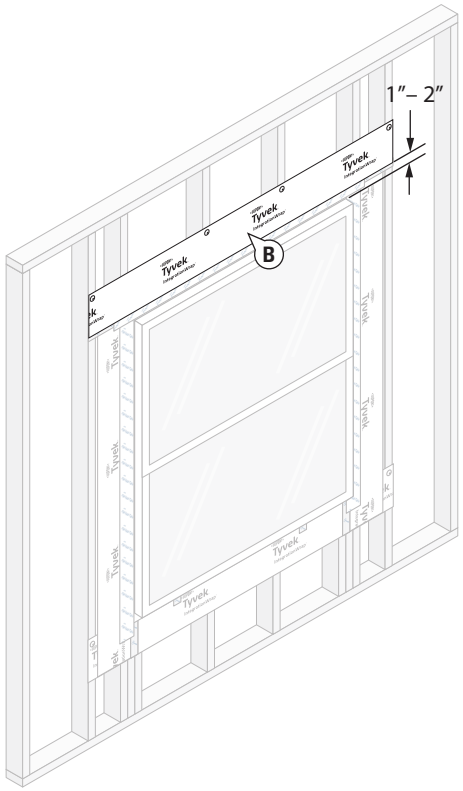
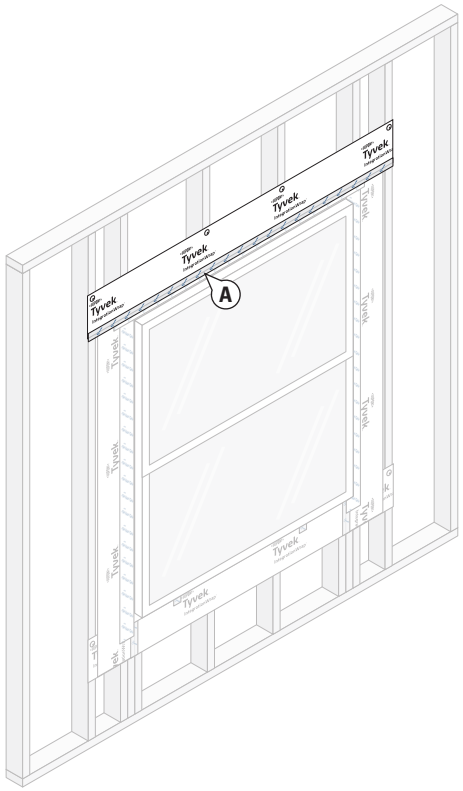
Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Open Stud Framing





STEP 7 – OPTIONAL

Install Tyvek® IntegrationWrap™ at Head

A. Cut a piece of **Tyvek® IntegrationWrap™** long enough to extend at a minimum to the outer edge of each jamb piece of **Tyvek® IntegrationWrap™** and, if possible, to the next stud **BEYOND** the king stud.

B. Install the piece of **Tyvek® IntegrationWrap™** so that the bottom edge is 1"– 2" **ABOVE** the bottom edge of the head flashing. This creates space to properly seal the **Tyvek® IntegrationWrap™** to the head flashing.

STEP 8 – OPTIONAL

Seal Head Piece of Tyvek® IntegrationWrap™

A. Seal horizontal seam using **DuPont™ Tyvek® Tape** or **DuPont Self-Adhered Flashing Product**.

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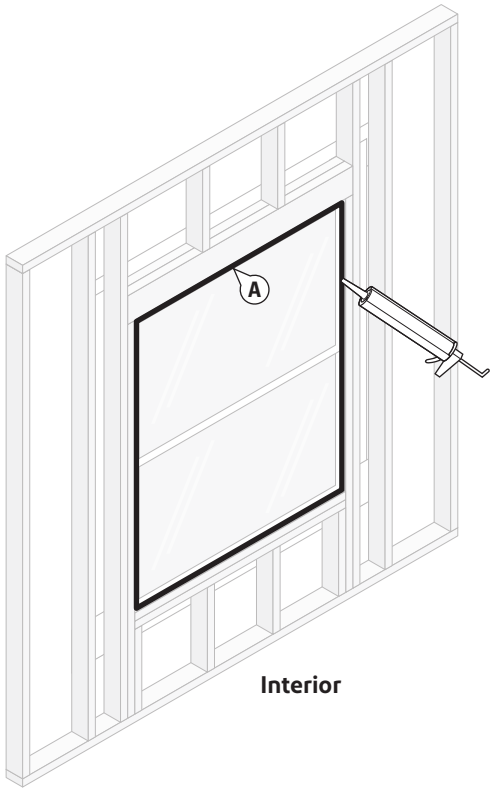
Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Open Stud Framing



STEP 9

Interior Perimeter Seal

A. Install Tower® Residential Sealant or recommended sealant (and backer rod as necessary) around the window opening at the interior. It is also acceptable to use **Great Stuff Pro™ Window and Door Polyurethane Foam Sealant**, or recommended foam. When using Tower® Residential Sealant, tool sealant bead flat to allow the natural curing process to create a concave shape. Be sure that the sealant penetrates the grooves of the **DuPont™ FlexWrap™** around the sill. When using **Great Stuff Pro™ Window and Door Polyurethane Foam Sealant** in perimeter openings less than 1/2", apply using the plastic extension tip for the **Great Stuff Pro™ Dispensing Gun** during installation.

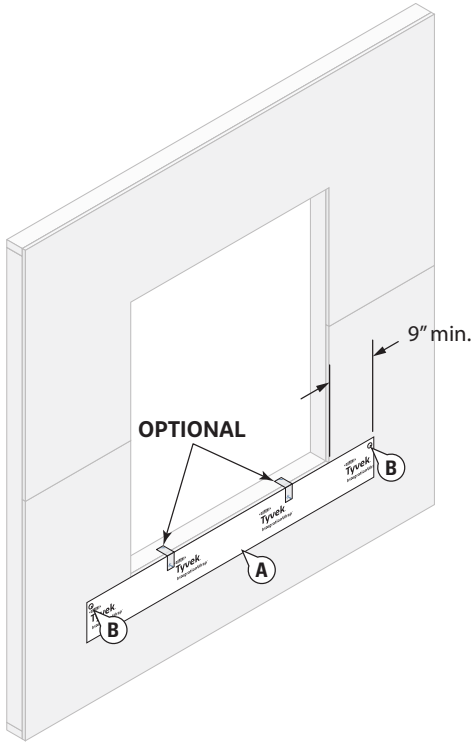
Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

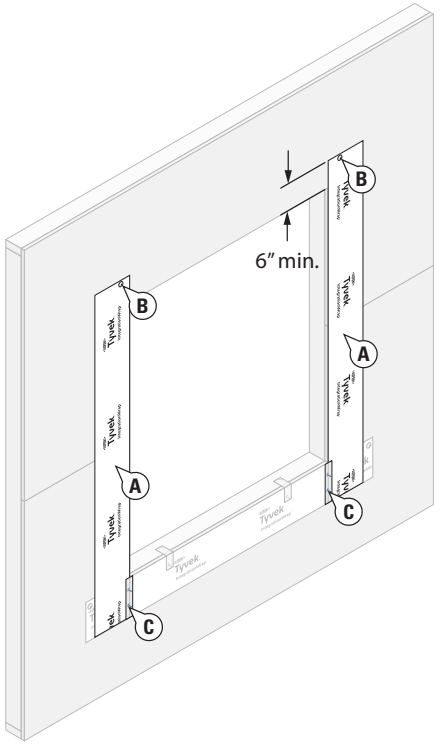
Flush Mount Integral Flanged Window Installed Over Standard Sheathing Wall Construction

This method applies to the following products: DuPont™ Tyvek® IntegrationWrap™, DuPont™ Flashing Tape, DuPont™ StraightFlash™, DuPont™ VersaFlange™, and DuPont™ FlexWrap™

An integral flanged window is defined as a window unit with a nailing fin or flange that is continuous around the perimeter of the window and that is a direct extrusion of the window frame. The general sequence captured in this installation method for a flush mount integral flanged window can also be used for a flush mount integral flanged door.

NOTE: Ensure sheathing is installed and fastened per local codes and regulations.





STEP 1

Install Tyvek® IntegrationWrap™ Under Sill

A. Cut a piece of **Tyvek® IntegrationWrap™** long enough to extend at least 9″ **BEYOND** the sides of the rough opening jambs.

B. The top of the **Tyvek® IntegrationWrap™** should be temporarily fastened to the sheathing and the bottom should be left unsecured so it can overlap the **DuPont™ Tyvek® WRB** which will be installed after the window. If using **DuPont™ Tyvek® Wrap Cap Fasteners**, or recommended fasteners, avoid fastener placement where **DuPont Self-Adhered Flashing Products** will be installed.

OPTIONAL: To assist with sill flashing installation in STEP 3, small pieces of **DuPont™ Tyvek® Tape** can be used to temporarily secure the **Tyvek® IntegrationWrap™** at the sill.

STEP 2

Install Tyvek® IntegrationWrap™ at Jambs

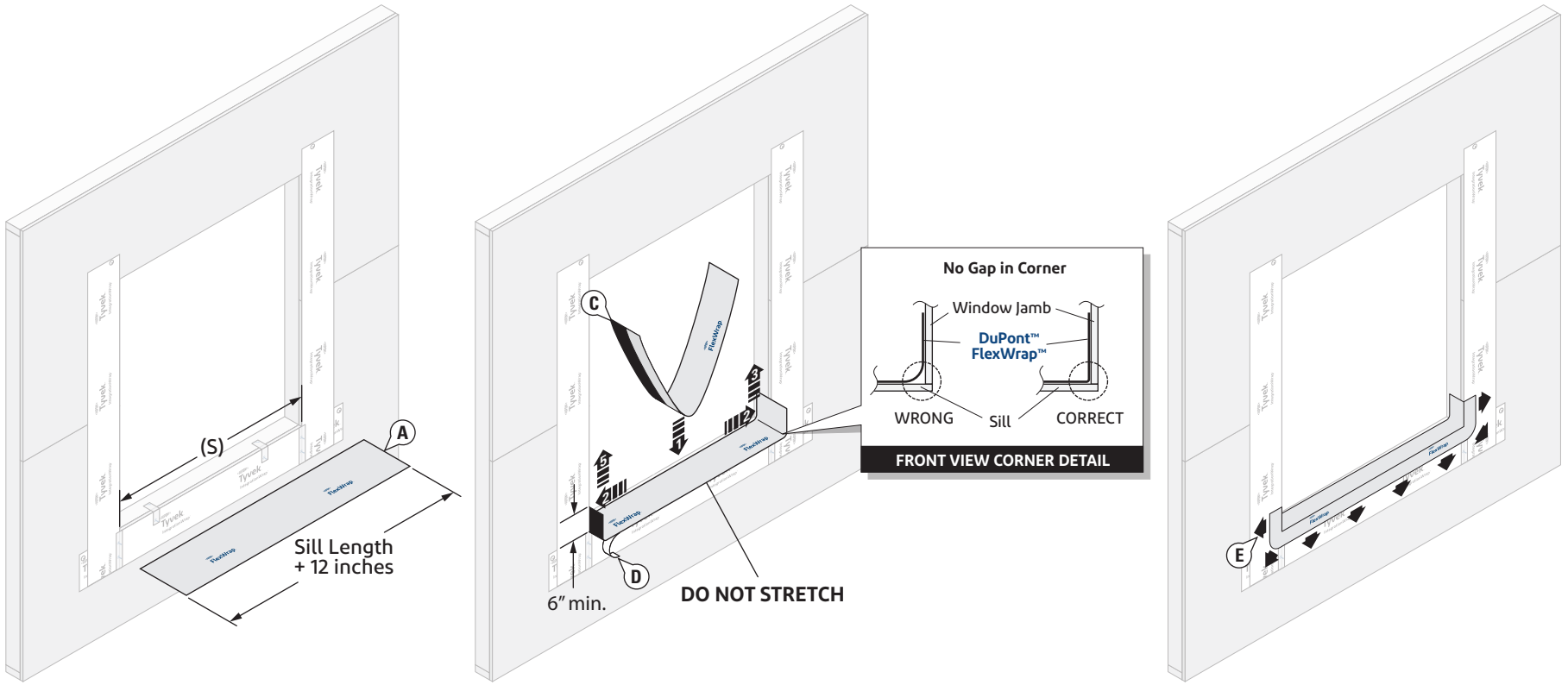
A. Cut two pieces of **Tyvek® IntegrationWrap™** long enough to extend from the bottom edge of the sill piece of **Tyvek® IntegrationWrap™** to minimum 6″ **ABOVE** the rough opening.

B. Secure to the wall. If using **DuPont™ Tyvek® Wrap Cap Fasteners**, avoid fastener placement where **DuPont Self-Adhered Flashing Products** will be installed.

C. Seal inner vertical seams between the jamb pieces and sill piece with **DuPont™ Tyvek® Tape**.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Sheathing Wall Construction



STEP 3

Install DuPont™ FlexWrap™ at Sill

A. Cut **FlexWrap™** at least 12" **LONGER** than width of rough opening sill (S). Use roll widths sufficient to achieve a minimum of 1" adhesion to the sill framing **BEYOND** where the interior edge of window frame will be located, ensuring 2"– 3" adhesion onto the face of the wall.

B. Fold the **FlexWrap™** along the perforations between the wide release paper and narrow release paper to help ensure clean removal of the papers. Unfold, and then fold the piece in half along the length to create a crease which will assist with installation in the next step.

C. Remove wide piece of release paper. Position on horizontal sill by aligning the inside edge of the narrow release paper with the face of the wall to ensure 2"– 3" of the **FlexWrap™** will be adhered to the face of the wall with a minimum of 6" up each jamb. Adhere into rough opening.

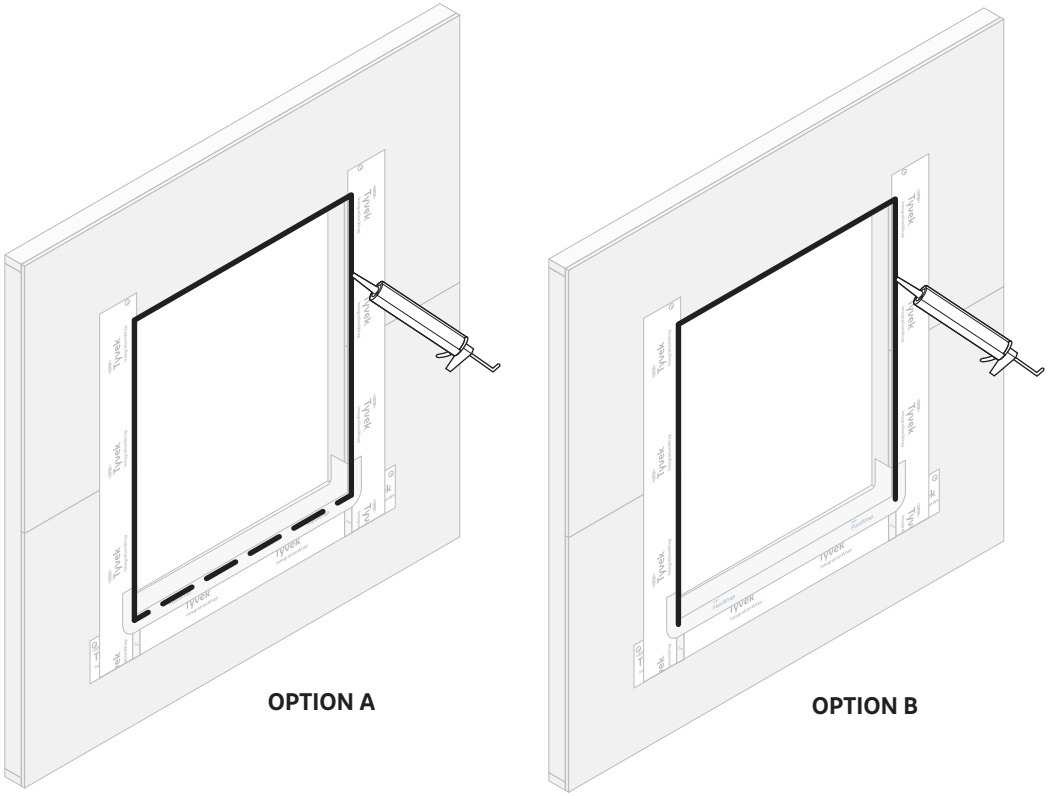
D. Remove narrow release paper.

E. Fan out the **FlexWrap™** at the corners and adhere onto face of wall. Continue adhering onto face of wall along sill. Minimize wrinkles during the application by applying firm pressure in direction of the grooves of the **FlexWrap™**, as indicated by the arrows above.

NOTE: DuPont™ Tyvek® Certified Installers may install a 3-piece sill (and head) detail for window openings less than 6 ft. wide. For windows greater than 6 ft. wide, see the *Special Considerations* section for more information regarding the 3-piece sill/head detail. Contact your local DuPont Building Envelope Specialist for more information about the Certified Installer program.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Sheathing Wall Construction



OPTION A

OPTION B

STEP 4

Apply Recommended Sealant

OPTION A: Apply continuous bead of Tower® Residential Sealant, or recommended sealant, at window head and jambs to wall or back side of window mounting flange. **To allow for drainage, do not apply continuous sealant bead along sill**. Ensure a minimum 2" wide drainage gap in the sealant bead within 4" from **each corner** of the jamb-sill interface. Continue applying sealant along the sill with additional 2" wide (min.) drainage gaps for every 6"– 12" (on center) of sill width.

OPTION B: Apply continuous bead of Tower® Residential Sealant, or recommended sealant, at window head and jambs to wall or back side of window mounting flange. **To allow for drainage, do not apply sealant bead along sill**.

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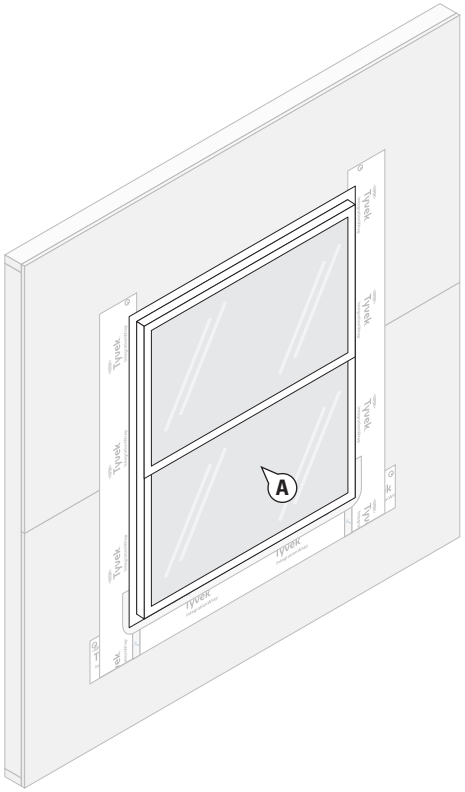
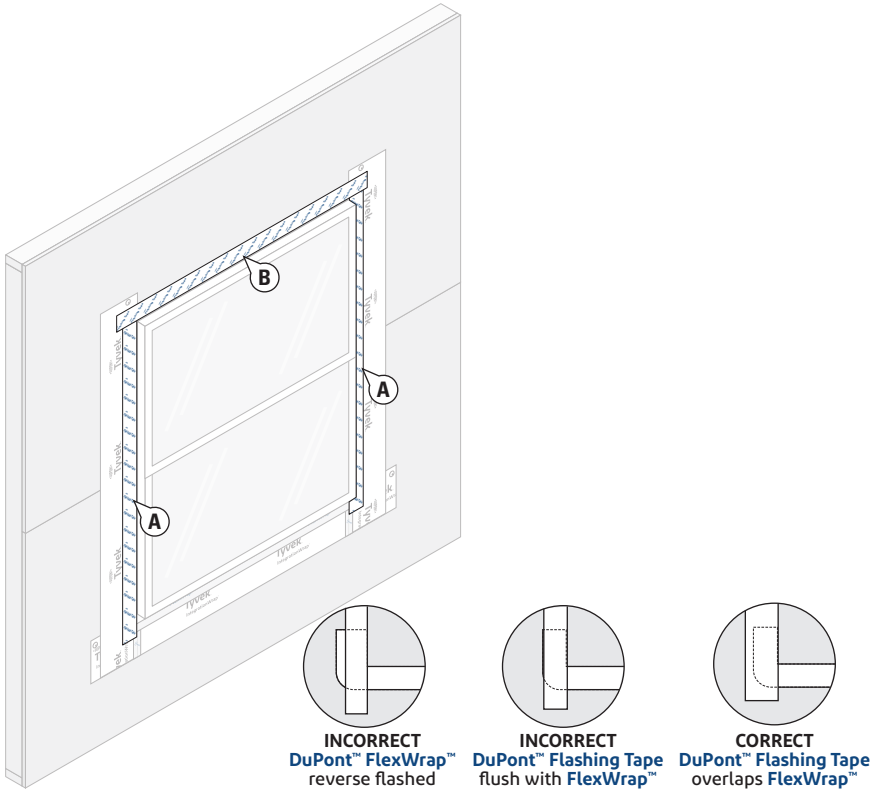
Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Sheathing Wall Construction





STEP 5

Install Window

A. Install window per manufacturer's instructions.

STEP 6

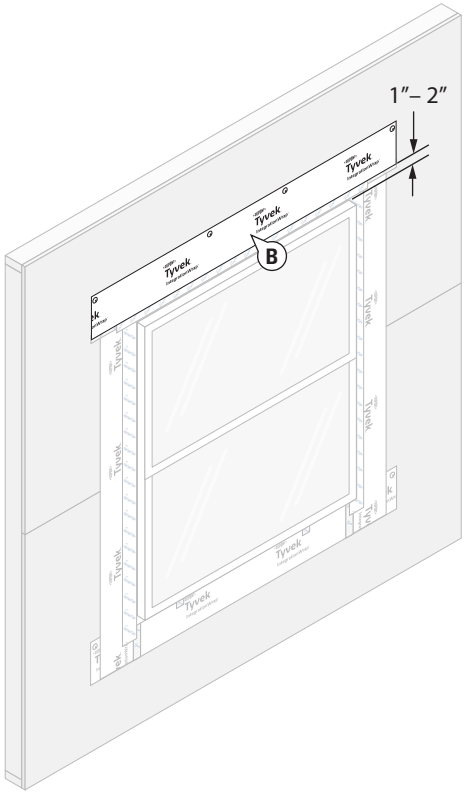
Install DuPont™ Flashing Tape or DuPont™ StraightFlash™ at Jambs and Head

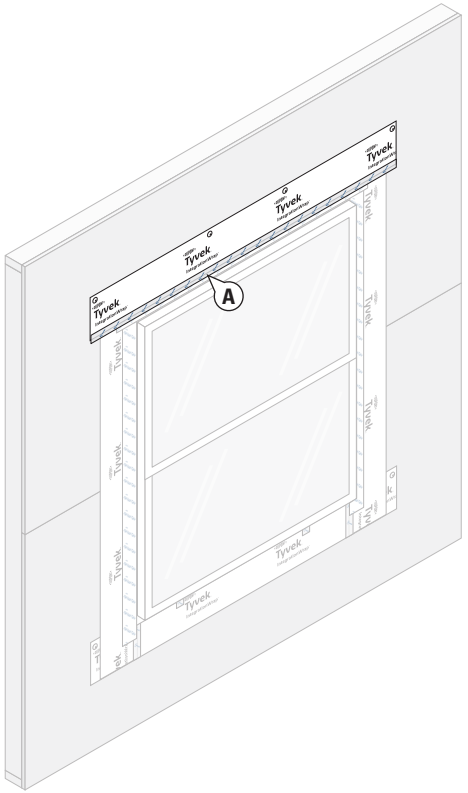
A. Cut two pieces of **DuPont™ Flashing Tape** or **StraightFlash™** for jamb flashing extending 1" **ABOVE** window head flange and **BELOW** bottom edge of sill flashing. Remove release paper and install completely covering flange, pressing tightly along sides of window frame. Jamb flashing should completely cover sill flashing as indicated in the diagram above.

B. Cut a piece of **DuPont™ Flashing Tape** or **StraightFlash™** for head flashing long enough to extend **BEYOND** the outer edges of the jamb flashings. Remove release paper and install completely covering flange and exposed sheathing above.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Sheathing Wall Construction





STEP 7 – OPTIONAL

Install Tyvek® IntegrationWrap™ at Head

A. Cut a piece of **Tyvek® IntegrationWrap™** long enough to extend at a minimum to the outer edge of each jamb piece of **Tyvek® IntegrationWrap™**.

B. Install the piece of **Tyvek® IntegrationWrap™** so that the bottom edge is 1″– 2″ **ABOVE** the bottom edge of the head flashing. This creates space to properly seal the **Tyvek® IntegrationWrap™** to the head flashing.

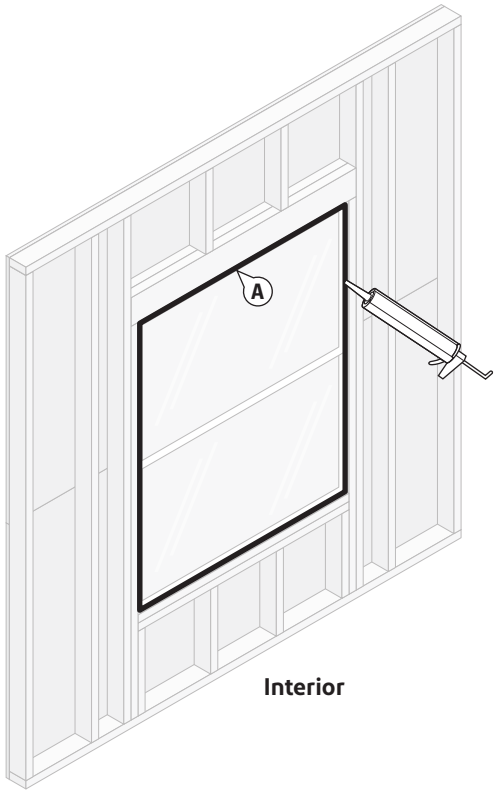
STEP 8 – OPTIONAL

Seal Head Piece of Tyvek® IntegrationWrap™

A. Seal horizontal seam using **DuPont™ Tyvek® Tape** or **DuPont Self-Adhered Flashing Product**.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™

Flush Mount Integral Flanged Window Installed Over Standard Sheathing Wall Construction



STEP 9

Interior Perimeter Seal

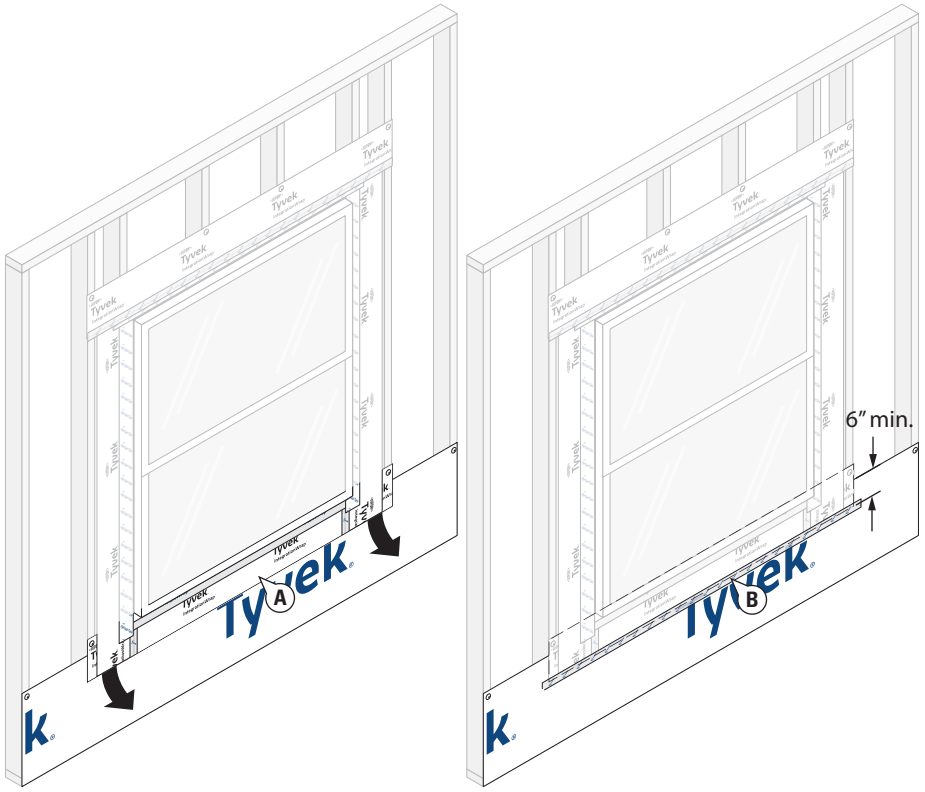
A. Install Tower® Residential Sealant or recommended sealant (and backer rod as necessary) around the window opening at the interior. It is also acceptable to use **Great Stuff Pro™ Window and Door Polyurethane Foam Sealant**, or recommended foam. When using Tower® Residential Sealant, tool sealant bead flat to allow the natural curing process to create a concave shape. Be sure that the sealant penetrates the grooves of the **DuPont™ FlexWrap™** around the sill. When using **Great Stuff Pro™ Window and Door Polyurethane Foam Sealant** in perimeter openings less than 1/2", apply using the plastic extension tip for the **Great Stuff Pro™ Dispensing Gun** during installation.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™ Tyvek® WRB Integration

NOTE: The details captured in this section depict open stud construction; however, the installation steps would be similar for wall framing with sheathing.

Method 1

For STEPS 1 – 3, install the **Tyvek® WRB** with the proper fasteners, fastener spacing, overlaps, etc. as shown in the *DuPont™ Tyvek® WRB Installation Instructions* section in the applicable DuPont Installation Guideline that can be found at building.dupont.com.

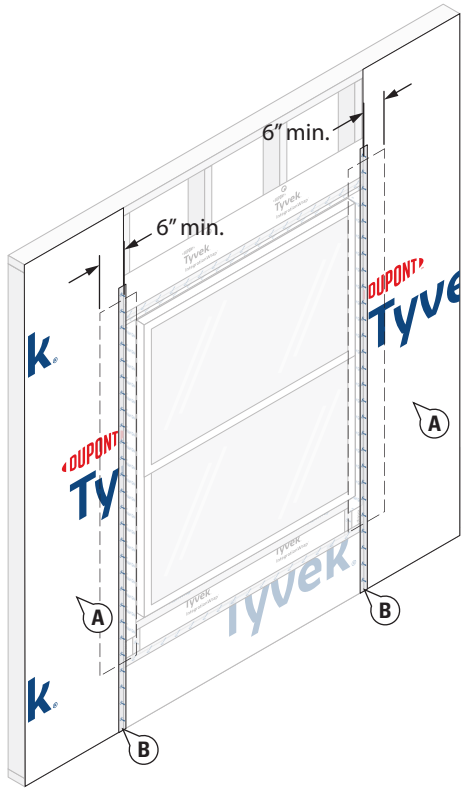


STEP 1

Install Tyvek® WRB Below Window

A. Raise sill piece of **Tyvek® IntegrationWrap™** and install first course of **DuPont™ Tyvek® WRB** to extend far enough to overlap the sill plate, weep screed, base of wall flashing, or the **DuPont™ Tyvek® WRB** below. **Tyvek® IntegrationWrap™** must overlap **DuPont™ Tyvek® WRB** a minimum of 6".

B. For air barrier installations, seal horizontal seam using **DuPont™ Tyvek® Tape**.



STEP 2

Install Tyvek® WRB at Jambs

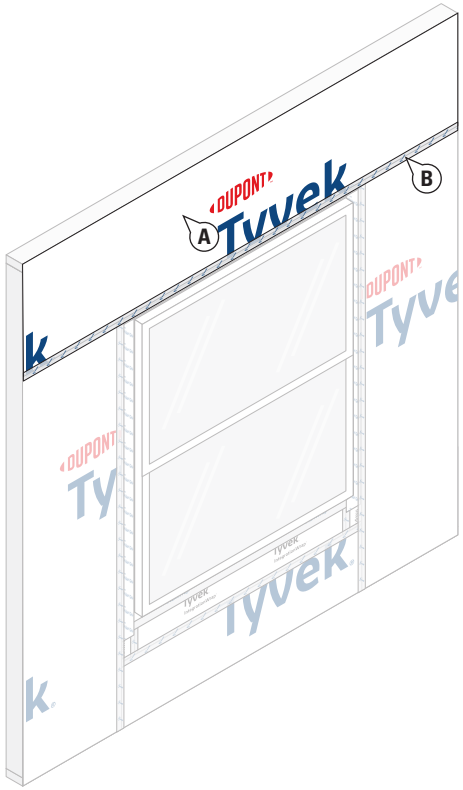
A. Install **Tyvek® WRB** on both sides of window, with 6" minimum overlap of **Tyvek® IntegrationWrap™**.

B. Seal vertical overlaps using **Tyvek® Tape**.

NOTE: For a more robust termination at the window, seal with **DuPont™ Flashing Tape** or **StraightFlash™**. Install mechanical fasteners along stud lines through flashing or to studs in close proximity of the termination as needed for increased holding power; however, do not install fasteners through **Tyvek® Tape**. See the table in the *Applicable Structures and Performance Criteria* section for more information on air barrier requirements and head flap terminations.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™ Tyvek® WRB Integration

Method 1 (continued)



STEP 3

Install Tyvek® WRB Above Window

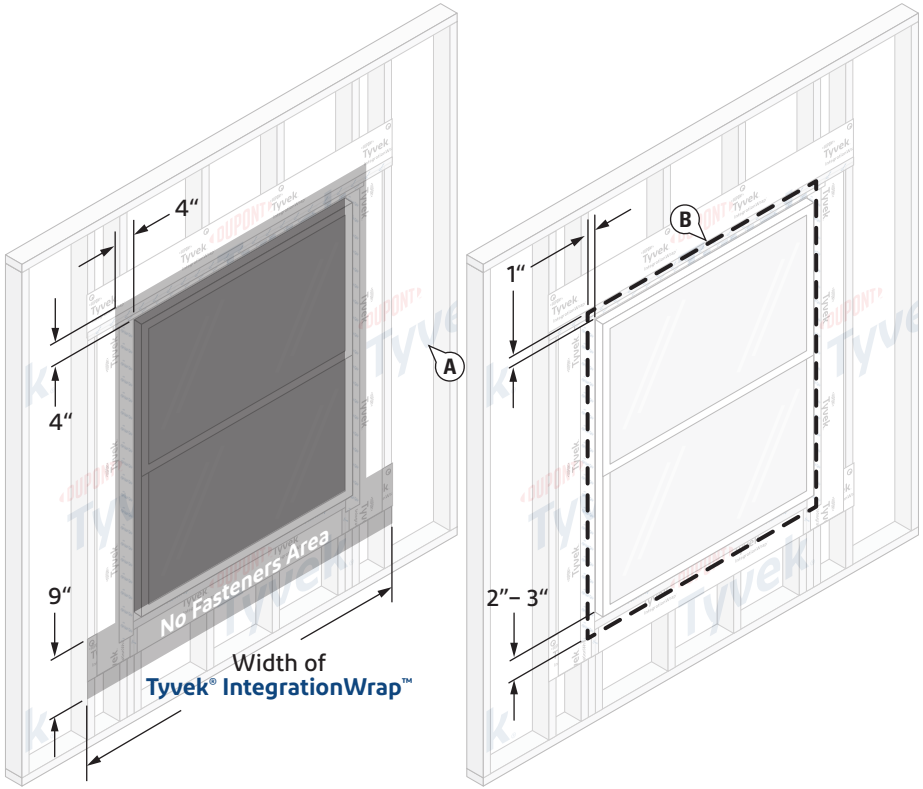
A. Install **Tyvek® WRB** above window with the bottom edge aligned 1"– 2" above window frame to allow space to seal to the head flashing in STEP 3B. Maintain a 6" minimum overlap of side pieces of **Tyvek® WRB** that were previously installed.

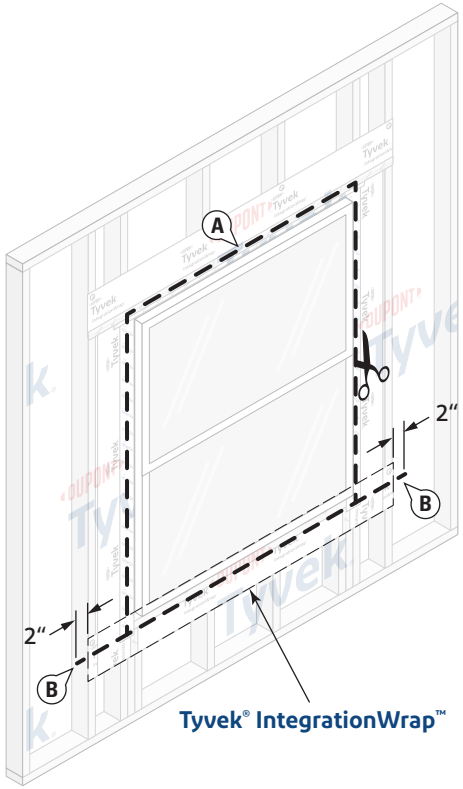
B. Seal horizontal seam using **DuPont™ Tyvek® Tape**.

NOTE: For a more robust termination above the window, seal with **DuPont™ Flashing Tape** or **StraightFlash™**. Install mechanical fasteners along stud lines through flashing or to head framing in close proximity of the termination as needed for increased holding power; however, do not install fasteners through **Tyvek® Tape**. See the table in the *Applicable Structures and Performance Criteria* section for more information on air barrier requirements and head flap terminations.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™ Tyvek® WRB Integration

Method 2





STEP 1

A. Install the **Tyvek® WRB** as shown in the applicable **Tyvek® WRB** Installation Guideline that can be found at building.dupont.com. Do not install fasteners within 4” of the window frame at jambs and head and within 12” of the window frame at sill. Do not fasten through the **Tyvek® IntegrationWrap™**.

B. Mark a perimeter on the **Tyvek® WRB** around the rough opening a minimum of 1” from the jambs and head of the window frame, and 2”– 3” below the sill of the window frame.

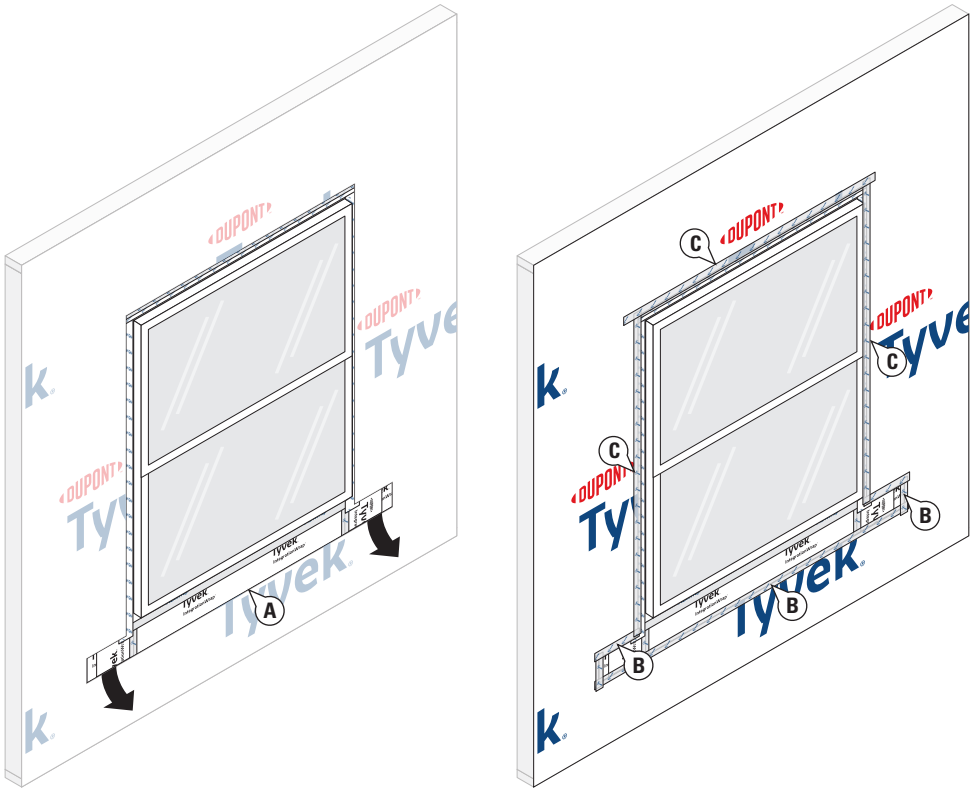
STEP 2

A. Cut the **Tyvek® WRB** along perimeter marking to expose window. Do not cut through the **DuPont Self-Adhered Flashing Products** or **Tyvek® IntegrationWrap™** underneath.

B. Create horizontal slits in the **Tyvek® WRB** at each lower corner of the perimeter cut that extend 1”– 2” **BEYOND** the **Tyvek® IntegrationWrap™**.

Installation Methods for Windows Installed **BEFORE** DuPont™ Tyvek® WRB using DuPont™ Tyvek® IntegrationWrap™ Tyvek® WRB Integration

Method 2 (continued)



STEP 3

Final Step

A. Bring the bottom portion of the **Tyvek® IntegrationWrap™** through the sill perimeter cut and horizontal slits so it laps over the top layer of **Tyvek® WRB**.

B. Working from bottom to top, install **DuPont™ Tyvek® Tape** to secure horizontal and vertical seams of the **Tyvek® IntegrationWrap™**.

C. Install **Tyvek® Tape** along jambs and head to seal **Tyvek® WRB** around window. For a more robust termination, **DuPont™ Flashing Tape** or **DuPont™ StraightFlash™** can be used.

NOTE: When installing **Tyvek® Tape**, a solid backing is recommended to help ensure wrinkles or "fish mouths" are not created during application.

Product Composition and UV Stability

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

DuPont™ Tyvek® IntegrationWrap™ is made from a coated, woven polypropylene membrane to provide for a highly durable flashing integration membrane during window and door installation. Additives have been incorporated into the material to provide ultraviolet light resistance. DuPont requires that **Tyvek® IntegrationWrap™** be covered within 4 months (120 days) of installation.

DuPont Self-Adhered Flashing Products are made from a synthetic rubber 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™** and **DuPont™ StraightFlash™** be covered within nine months (270 days) of installation. DuPont requires that **DuPont™ Flashing Tape** be covered within 4 months (120 days) of installation.

Design Considerations

When installed in conjunction with other building materials, **Tyvek® WRBs**, **Tyvek® IntegrationWrap™**, and **DuPont Self-Adhered Flashing Products**, must be properly shingled with these materials such that water is diverted to the exterior of the wall system. **Tyvek® WRBs** are secondary weather barriers. The outer facade is the primary barrier. 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**. Do not install on a wall that does not feature a continuous path for moisture drainage. Any standing water must be allowed to drain off the membrane.

Use of additives, coatings or cleaners on or in the facade system may impact the performance of **Tyvek® WRBs**. DuPont Building Envelope Solutions Products are to be used as outlined in this installation guideline. **DuPont Self-Adhered Flashing Products** should only be used to seal penetrations and flash openings in buildings. **Tyvek® WRBs** and **DuPont Self-Adhered Flashing Products** are not to be used in roofing applications. For superior protection against bulk water penetration, DuPont suggests a system combining a quality exterior facade, a good secondary air and water barrier and exterior sheathing, high quality windows and doors, and appropriate flashing materials paying attention to proper installation of each component.

In a system where no exterior sheathing is used and **Tyvek® WRBs** are 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.

Safety and Handling

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. **DuPont™ Tyvek®** is combustible and should be protected from flames and other high heat sources. **DuPont™ Tyvek®** will melt at 275°F (135°C) and if the temperature of **DuPont™ Tyvek®** reaches 750°F (400°C), it will burn and the fire may spread and fall away from the point of ignition. For more information, call 1-833-338-7668.

Tyvek® IntegrationWrap™ is slippery and should not be used in any application where it will be walked on. **Tyvek® IntegrationWrap™** is combustible and should be protected from flames and other high heat sources. **Tyvek® IntegrationWrap™** will melt at 320°F (160°C). For more information, call 1-833-338-7668.

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. For more information, call 1-833-338-7668.

Tower® Residential Sealant (formerly 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 Safety Data Sheet (SDS) or call Chemtrec at 1-800-424-9300.

Caution

When cured, **Great Stuff Pro™ Window & Door Polyurethane Foam Sealant** is combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F (116°C). For more information, consult the Safety Data Sheet (SDS), call DuPont at 1-866-583-2583. When air sealing buildings, ensure that combustion appliances, such as furnaces, water heaters, wood burning stoves, gas stoves and gas dryers are properly vented to the outside. See website: https://www.nrel.gov/docs/fy14osti/61326.pdf.

In Canada visit: https://nrc-publications.canada.ca/eng/view/ft/?id=96acba7c-afd4-4ea1-94b0-1f8f3500c582.

Safety and Handling (continued)

Great Stuff Pro™ polyurethane foam sealant and adhesive products contain isocyanate and a flammable blowing agent. Read all instructions and the Safety Data Sheet (SDS), carefully before use. Eliminate all sources of ignition before use. Cover all skin. Wear long sleeves, gloves, and safety glasses or goggles. Not for use in aviation, or food/beverage contact, or as structural support in marine applications. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure. Not to be used for filling closed cavities or voids such as behind walls and under tub surrounds; this improper use of the product could result in the accumulation of flammable vapors and/or uncured material. Failure to follow the warnings and instructions provided with the product, and/or all applicable rules and regulations, can result in injury or death.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplied by DuPont can give assurance that mold will not develop in any specific system.

Read all instructions and the Safety Data Sheet (SDS) carefully before use.

For more information, visit greatstuffpro.com or building.dupont.com

For More Information

Visit the *Quick Links* section of our website (https://www.dupont.com/building/resources.html) where you'll find links to essential documents and resources to help you get the job done right:

- Installation Guidelines
- Safety Data Sheets (SDS)
- CAD Drawings
- DuPont Performance Building Solutions Document Library

For complete warranty information please call 1-833-338-7668 or visit us at building.dupont.com.

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DUPONT Tyvek®

For more information about DuPont Performance Building Solutions, please call 1-833-338-7668 or visit us at building.dupont.com