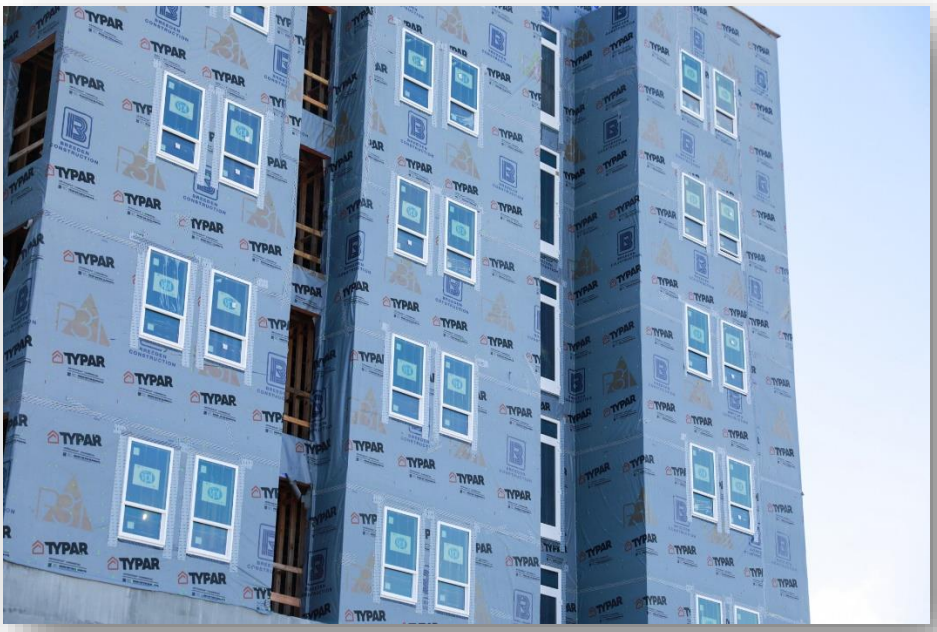
TYPAR
A Berry Global Product

TYPAR® DRAINABLEWRAP™, METROWRAP™ & DRAINABLEWRAP™ COMMERCIAL



Submittal Package for Architects & Specifiers

TYPAR® COMMERCIAL SUBMITTAL PACKAGE

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TYPAR® WEATHER PROTECTION SYSTEM FOR COMMERCIAL STRUCTURES

THE TYPAR® COMMERCIAL LINEUP

Aimed specifically for General Contractors, Architects, Designers and Project Engineers, our commercial lineup has what you need to make your specification submittal process easy. For the full list of commercial project resources including install guides, sell sheets and relevant code and warranty information visit TYPAR.com/downloads. Partner with TYPAR for your next commercial project.

APPLICABLE PRODUCTS

AIR AND WATER BARRIERS

PRODUCT	DIMENSIONS	AREA
TYPAR® MetroWrap	5′ x 150′ 10′ x 100′	750 ft² 1000 ft²
TYPAR® DrainableWrap™ Commercial	5′ x 150′	750 ft²

INSTALLATION ACCESSORIES

PRODUCT	DIMENSIONS	QUANTITY
TYPAR® Construction Tape	1-7/8″ x 165′ 3″ x 165′	24 rolls/case 16 rolls/case
TYPAR® Double-Sided Seaming Tape	1-1/2″ x 180′	20 rolls/case

SELF-ADHERED FLASHING PRODUCTS

PRODUCT	ROLL SIZES
TYPAR® Butyl Flashing	4″ x 75′, 6″ x 75′, 9″ x 75′, 12″ x 75′
TYPAR® All-Temperature Flashing	4″ x 75′, 6″ x 75′, 9″ x 75′, 12″ x 75′
TYPAR® Flexible Flashing	6″ x 75′, 9″ x 75′

ACCESSORIES

A. Primer: Use 3M™ Super 77™, Polyken® spray adhesive, or equal.
B: Seam Tape: TYPAR® Construction Tape or TYPAR® Double-Sided Seaming Tape
C. Fastener: Fastener is dependent on substrate construction.
D. Sealant: Must comply with ASTM C920 elastomeric polymer sealant.

WARRANTY

Please refer to TYPAR® Weather Protection System Limited Warranty* (located online at TYPAR.com/downloads for full details). Berry warrants to the Owner of a new structure four or more stories in height, for a period of 10 years from the date of purchase of the Products comprising the entire building envelope of such Structure, that the Products will perform according to published Specifications and Characteristics if installed in strict accordance with published Installation Instructions, accepted industry standards and applicable building codes in a properly designed and constructed wall system.

CODES & STANDARDS

The products encompassing the TYPAR® Weather Protection System for Commercial construction, as outlined in "Applicable Products", have been tested to and are in accordance with the following standards:

- ABAA Evaluated
- ASTM E 2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- ASTM E 1677 Standard Specification for an Air Retarder (AR) Material or System for Low-Rise Framed Building Walls
- ASTM D779 Standard Test Method for Determining the Water Vapor Resistance of Sheet Materials in Contact with Liquid Water by the Dry Indicator Method
- ASTM E 2178 Standard Test Method for Air Permeance of Building Materials
- ASTM E 2273 Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies
- ASTM E 283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen
- ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
- NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

All TYPAR® air and water barriers, installation accessories and self-adhered flashing products as outlined in the "Applicable Products" section are in accordance with the 2021 International Building Code (IBC) (Section 1402.2. Weather Protection).

TYPAR®
A Berry Global Brand

TYPAR®

METRO WRAP™

AN UNCOMPROMISING WEATHER BARRIER. WITH COMMERCIAL-GRADE MUSCLE.

Install the system. Get a lifetime limited warranty.* TYPAR® MetroWrap, along with the full TYPAR® Weather Protection System delivers unbeatable coverage.

*Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

TYPAR
LIFETIME LIMITED
SYSTEM
WARRANTY

TYPAR® METROWRAP™

WHEN YOU'RE BUILDING UP, IT'S TIME TO BULK UP.

That's right. TYPAR® brings heavyweight performance to the residential market. But we also deliver the superior weather barrier for multi-family dwellings, light commercial projects, and large commercial structures, too. Engineered specifically for buildings over four stories, TYPAR MetroWrap provides extraordinary tear strength to hold tighter where the elements hit harder. It handles harsh chemicals and jobsite cleaning . And with unbeatable UV resistance, it can even help take the pressures off of construction delays and changing timelines.

LEADING FEATURES AND BENEFITS:

- No UV degradation for up to 12 months
- Tear strength five times greater than the competition
- Superior air and water holdout reduces energy costs
- Won't support mold growth
- Protects indoor air quality
- Resists damaging surfactants and cleaning techniques

INSTALL THE SYSTEM. GET A LIFETIME LIMITED WARRANTY.*

Take your stand on unbeatable—and comprehensive—defense. TYPAR MetroWrap, along with our Flashings and Construction Tape, works as a part of the TYPAR® Weather Protection System. Install it all together and get covered by the only lifetime limited warranty in the industry.*

TYPICAL CHARACTERISTICS:		
Basis Weight	D5261	3.5 oz/yd²
Thickness	D1777	15 mils
Breaking Strength (Grab Tensile)	D5034	93 lbs MD 95 lbs CD
Trapezoidal Tear Resistance	D5733	60 lbs MD 67 lbs CD
Hydrostatic Pressure Resistance	AATCC 127-1995	>500 cm
Moisture Vapor Transmission Rate	E96-95 A	10 perms
Ultraviolet Light Exposure Resistance		12 months
Air Penetration Resistance (Gurley Hill Porosity)		>4800 sec/ 100 cc
Water Resistance Test	D779	PASS
Surface Burning Characteristics (ASTM E84)		
Flame Spread Index	Class A	
Smoke Spread Index	PASS	
NFPA 285	PASS	

ROLL SIZES:	
10' x 100'	5' x 150'

*TYPAR MetroWrap is part of the TYPAR® Lifetime Limited System Warranty when used with the complete TYPAR Weather Protection System. Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

The information contained herein is to the best of our knowledge accurate and reliable and is provided for the user's assessment and verification. However, since the circumstances and conditions under which such information and the products discussed can be used may vary and are beyond our control, **we make no warranties, express or implied, other than those warranties described in the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads, subject to the limitations and exclusions described therein.**

August 2019 | Made in USA. TYPAR® and TYPAR® MetroWrap™ are trademarks of Berry Global, Inc. or one of its affiliates.
Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape

TYPAR®

TYPAR® WEATHER PROTECTION SYSTEM
INSTALLATION GUIDE

FOR COMMERCIAL APPLICATIONS

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OBJECTIVE

The objective of these installation instructions for TYPAR® MetroWrap is to provide guidance to the design professional and to the installation contractor. TYPAR MetroWrap can provide the function of a water resistive barrier and the function of an air barrier in a commercial building when installed as an assembly.

Note: As commercial buildings vary significantly in design and height and are subject to different forces depending on where it is located, the design professional shall determine the loads on the material to determine the material is appropriate and usable for the intended use in a particular building. The design professional shall review these guidelines to determine if they are applicable to their specific project.

The design professional may use the model specification developed for TYPAR MetroWrap for additional guidance. This installation guide provides the basic requirements and does not cover all details which may be required for a specific building. Contact the manufacturer when more information is required.

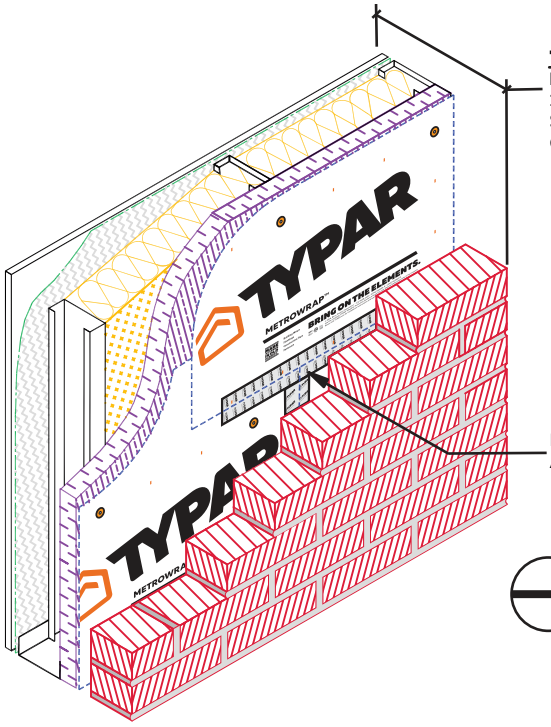
FUNCTIONS

Water Resistive Barrier Function

TYPAR MetroWrap has been designed to shed the liquid water which passes through the cladding when installed as a water resistive barrier assembly. Additional materials and components shall be used to work with the TYPAR MetroWrap to direct the water to the exterior of the building enclosure.

Air Barrier Assembly

TYPAR MetroWrap has been designed to reduce the air infiltration and exfiltration through the walls of the building. The material has an air permeance rate well below the maximum allowed air permeance rate to be classified as an air barrier material. Additional materials and components shall be used to seal the TYPAR MetroWrap to penetrations and to terminate the material at the roof intersection and at the foundation. Both the design professional and the installer have to keep in mind that the force on the material will be in both directions (positive and negative). This load must still be transferred to substrate. Therefore, the fastener type and spacing are very important.



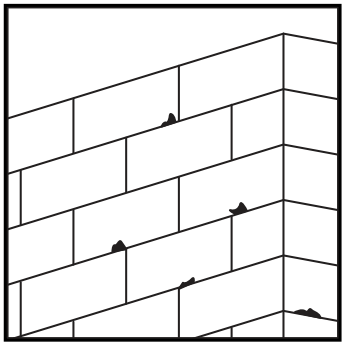
TYPICAL WALL
MASONRY VENEER
1" AIR SPACE TYPAR® METROWRAP RIGID INSULATION
STEEL STUDS w/BATT INSULATION VAPOR RETARDER
GYPSUM BOARD

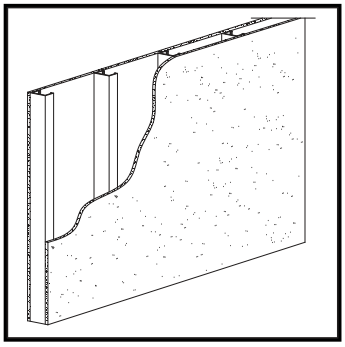
LAP AND TAPE TYPAR®
AT JOINTS

TYPICAL WALL ISOMETRIC
COMMERCIAL STEEL FRAME STRUCTURE w/MASONRY VENEER

INSTALLATION GUIDELINES

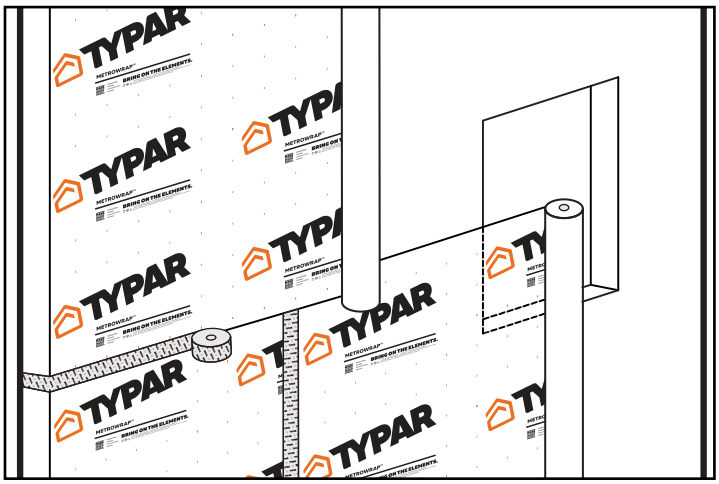
Substrate
TYPAR MetroWrap can be installed over any substrate. The installer shall check for any sharp protrusions on the substrate. These protrusions shall be removed so that the TYPAR MetroWrap is not penetrated. The material must be intact to keep the water and air out. The substrate on the building will determine what fasteners will be used.





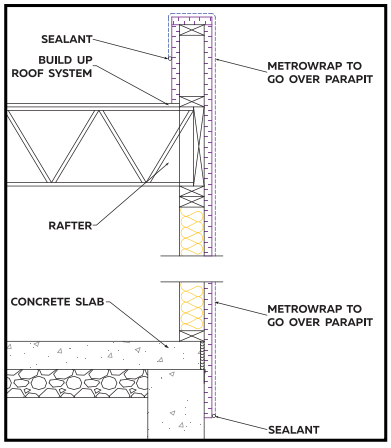
Weather Conditions
Temperature does not impact the installation procedure. High winds can affect installation as TYPAR MetroWrap will be installed in large sheets. TYPAR MetroWrap should not be installed when it is raining or before the substrate has dried after a rain.

Overlaps
TYPAR MetroWrap and all other materials and components used as part of the installation are to be installed in a shingle fashion, the material or component above must overlap the material or component below it. The overlap shall be 4 inches (101 mm) horizontally and 6 inches (152 mm) vertically everywhere this is possible. TYPAR® Construction Tape is then installed on every seam and each termination. TYPAR MetroWrap can also be installed vertically. This allows a single length to start at the top and continue to the bottom. The 6 inches (152 mm) vertical overlap is required. All corners are to be overlapped 12 inches (304 mm).



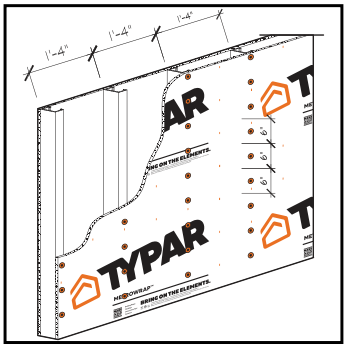
Penetrations
TYPAR® MetroWrap must be carefully cut around penetrations. A bead of approved sealant is then installed on the substrate, approximately 1 inch (2.5 cm) back from the edge of the cut. The TYPAR MetroWrap is then pressed into the sealant to keep out both water and air. TYPAR® Flexible Flashing or TYPAR straight flashing is then installed on the exterior of the TYPAR MetroWrap and joins the material to the penetration. For more detailed information, refer to the TYPAR Installation Manual.

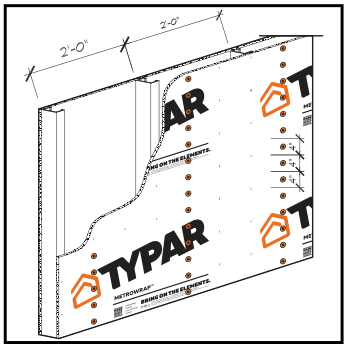
Terminations
Terminations are treated similar to penetrations. A bead of approved sealant is installed on the substrate approximately 1 to 2 inches (25 to 50 mm) back from the edge of the TYPAR MetroWrap. The TYPAR MetroWrap is pressed into the approved sealant. In high wind locations, consider installing a furring strip where the material is terminated to provide additional structural support.



Fasteners
Different fasteners would be used if the substrate is poured concrete, concrete block, steel stud, and gypsum board or wood framing. The most common walls used in commercial buildings are either steel studs with a treated gypsum board or wood framing with OSB sheathing. The fastener shall penetrate the substrate by 2 inches (50 mm) and shall have a 1 inch (50 mm) plastic head. When steel studs are used, the fasteners shall be self taping screws with a 7/8 inch (50 mm) plastic washer. The screw shall be 2 inches (50 mm) long when ½ inch (12 mm) gypsum board is used. When wood studs are used, a 1 inch (50 mm) plastic headed nail or screw shall be used which is 2 inches (50 mm) long when the ½ inch (12 mm) OSB sheathing is used, or a 1 inch plastic cap staple with leg length to penetrate at least 5/8 inch into the wood stud can be used. When the substrate is concrete block or poured concrete, use an adhesive approved by the manufacturer to adhere the TYPAR MetroWrap to the substrate.

Fastening Requirements
Attach one fastener or more every 24 inches (601 mm) in horizontal and vertical direction.





Windows and Doors
Windows and doors are similar to penetrations. Depending on whether the windows are installed or not installed before the TYPAR MetroWrap is installed, the installer will follow AAMA Procedure A or Procedure B. The installer shall always install the materials and components, so that the product above overlaps the product below. For more detailed information, refer to the TYPAR Installation Manual.

Completing the Installation
When one section or wall is complete, the installer shall visually inspect the installation and check to see if all rows of material have overlapped the row below it, that all materials and components have been installed in a shingle fashion, that the fasteners are the proper ones, that the nailing pattern is correct, that all penetrations and terminations have been done correctly and that doors and windows have been properly flashed and integrated into the TYPAR MetroWrap material. The installer shall repair any cuts or tears with TYPAR® Construction Tape.

Disclaimer: This guideline document provides general guidance only for the installation of TYPAR® MetroWrap on commercial buildings. The design professional or builder shall consider all of the physical properties of the material and design the installation requirements to suit specific building requirements. Failure to consider all specific requirements for a building may lead to improper use of the material resulting in non-optimum performance of the material.

70 Old Hickory Blvd, Old Hickory, TN 37138
Please visit TYPAR.com for installation instructions and product information.
Building Wraps | Flashings | Construction Tape

TYPAR® METROWRAP™
THREE-PART SPECIFICATIONS

PART 1. GENERAL

1.1 Summary

A. This Section specifies TYPAR MetroWrap applied as a water-resistive barrier and air barrier assembly on exterior walls.

1.2 Submittals

A. Product Data: Submit manufacturer's product data and installation instructions.
B. Samples: Submit 12" (300mm) square sample for approval.

1.3 Quality Assurance

A. Manufacturer:
1. Obtain primary materials from a single manufacturer regularly engaged in manufacturing building wraps. Obtain secondary materials from a source acceptable to the primary materials manufacturer.

B. Installer:
1. Minimum two years experience with installation of similar building wraps.

PART 2. PRODUCTS

2.1 Manufacturer

A. Berry Global, Inc., 70 Old Hickory Blvd, Old Hickory, TN 37138; +1 615-847-7000; www.TYPAR.com.

2.2 Water-Resistant Barrier

A. Material shall comply with the following:
1. Thickness: 0.121" average.
2. Breaking Strength Test: 94 pounds mean value per ASTM D5034.
3. Water Vapor Transmission: 9-15 perms (grains per hr.in.Hg.sqft) per ASTM E96, dessicant method.
4. Pliability: No signs of cracking per AC38, Sec. 3.3.4.
5. Ultraviolet Exposure: Not less than 10 months prior to exterior cladding coverage.
6. Accelerated Aging Cycling: No signs of failure at 21 days per AC38.
7. Water Resistance Test: Exceeds one hour per ASTM D779.
8. Elongation: 1.9" mean value per ASTM D5034, 4" wide sample.
9. Air Penetration Resistance (Gurley Hill Porosity) [TAPPI T 460] [sec/100cc] >4800.
10. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84. Flame Spread: Pass. Smoke Spread: Pass. NFPA 285: Pass.

2.2 Manufacturer's Accessory Products – Sealing Tape/Fasteners

A. Tape: TYPAR® Construction Tape.
1. . Description:
a. Face Material Composition: Polyethylene barrier.
b. Face Color: Gray.
c. Adhesive Composition: Acrylic.
d. Thickness: 3.6mil.
e. Dimensions: 1-7/8" x 165', 3" x 165.'
2. Performance Characteristics:
a. Temperature Resistance: 0°F (-18°C) – Min. application temperature; 230°F (110°C) – Max. application temperature.
b. Peel Adhesion PSTC-1.*
c. Tensile Strength PSTC – 31.*
*Pressure-Sensitive Tape Council.
3. Accessories:
a. Primer: Polyken spray adhesive or equal.
b. Flashing Tape: TYPAR® All-Temperature Flashing, TYPAR® Flexible Flashing, and TYPAR® Butyl Flashing.
c. Fastener: Fastener is dependent on substrate construction.
d. Sealant: Must comply with ASTM C920 elastomeric polymer sealant.

B. Flashing: TYPAR Butyl Flashing.
1. Description:
a. Face Material Composition: Polyethylene barrier.
b. Face Color: Gray.
c. Adhesive Composition: Butyl rubber adhesive.
d. Thickness: 18.5mil.
e. Release Liner: Kraft paper.
f. Dimensions: 4" x 25'; 4" x 75'; 6" x 75'; 9" x 75'; 12" x 75.'

TYPAR®

2. Performance Characteristics:
    a. Low Temp Pliability ASTM C765 PASS.
    b. Nail Sealability ASTM D1970 PASS.
    c. Tensile Strength ASTM D5034-95 PASS.
    d. Peel Adhesion: ASTM D3330-04 PASS.
3. Accessories:
    a. Primer: Polyken spray adhesive or equal.
    b. Seam Tape: TYPAR® Construction Tape.
    c. Fastener: Fastener is dependent on substrate construction.
    d. Sealant: Must comply with ASTM C920 elastomeric polymer sealant.

C. Recommended Sealants Against TYPAR® Logo-Side Coating:
1. Elastomeric polymer-based, butyl rubber, rubber-based, meeting ASTM C920 evaluation.

D. Recommended Fasteners for Wood, Insulated Sheathing Board, Exterior Gypsum:
1 . Plastic cap nails.
2. Plastic cap staples.

E. Recommended Fasteners for Steel Frame Construction:
1. Rust-resistant screws with washers.

F. Recommended Fastening to Masonry:
1 . Sealant: Polyurethane-based, meeting ASTM C920 evaluation.
2. Mechanical: Masonry fastener with washer.

PART 3. EXECUTION

3.1 Installation

A. TYPAR MetroWrap.
Install in accordance with manufacturer's instruction over exterior sheathing or open studs. Seal joints and penetrations through weather-resistive barrier with specified tape and fasteners prior to installation of finish material. Air infiltration barrier shall be airtight and free from holes, tears, and punctures. All window and door penetrations are to be flashed and sealed per ASTM 2112, AAMA guidelines and manufacturer instructions. Cover with exterior cladding within six months of installation.

B. TYPAR® Butyl Flashing.
1. Follow the TYPAR® Flashing installation procedures.

C. TYPAR Construction Tape.
1. Follow the TYPAR Construction Tape installation procedures.

3.2 Examination

A. TYPAR MetroWrap.
1. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation.

B. TYPAR Butyl Flashing.
1. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation.

C. TYPAR Construction Tape.
1. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation.

3.3. Protection

A. TYPAR Butyl Flashing.
1. Protect installed self-adhesive and flashing tapes from damage during construction.

B. TYPAR Construction Tape.
1. Protect installed self-adhesive and flashing tapes from damage during construction.

CCMC #13286-R · CCMC #13289-R

Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape | Fasteners

TYPAR® METROWRAP
TYPICAL CHARACTERISTICS

FOR COMMERCIAL APPLICATIONS

Characteristic	Test Method	Value
Thickness		12.1m
Base Weight	Tappi T-410	3.5 oz/yd²
Breaking Strength (grab tensile)	ASTM D-5034 ASTM D-5034	93 lbs MD 95 lbs CD
Trapezoidal Tear Resistance	ASTM D-1117	60 lbs MD 67 lbs CD
Water Resistance Test	ATTC-127	>500 cm
Air Penetration Resistance	Tappi T-410	>4800 sec/100 cc
Water Vapor Transmission	ASTN E 96 Method A	10 Perms
Ultra Violet Light Exposure Resistance (UV)		12 Months
Surface Burning Characteristics Flame Spread Index Smoke Developed Index	ASTM E84	Class A PASS

ROLL SIZES:

10' x 100'

5' x 150'

The information contained herein is to the best of our knowledge accurate and reliable and is provided for the user's assessment and verification. However, since the circumstances and conditions under which such information and the products discussed can be used may vary and are beyond our control, **WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, OTHER THAN THOSE WARRANTIES DESCRIBED IN THE TYPAR® WEATHER PROTECTION SYSTEM LIMITED WARRANTY LOCATED ONLINE AT HTTP://WWW.TYPAR.COM/DOWNLOADS, SUBJECT TO THE LIMITATIONS AND EXCLUSIONS DESCRIBED THEREIN.**

ICC ES
4981

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Building Wraps | Flashings | Construction Tape

TYPAR™

PRI Construction Materials Technologies LLC

6412 Badger Drive
Tampa, FL 33610
813.621.5777
https://www.pri-group.com/

Laboratory Test Report

Report for:	Berry Global 70 Old Hickory Blvd Old Hickory, TN 37138
Product Name(s):	Typar™ MetroWrap
Project No.:	2084T0019.01
Date(s) Tested:	June 28th – July 10th, 2023
Test Method(s):	ASTM E2357
Results Summary:	Opaque Wall (After Wind Conditioning 75Pa) – 0.185 L/(s·m²) Penetration Wall (After Wind Conditioning 75Pa) – 0.085 L/(s·m²)

Purpose: Evaluate the air leakage of Berry Global's Typar™ MetroWrap mechanically attached membrane in accordance with ASTM E2357 Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies. Air leakage is reported at the reference pressure differential (ΔP) of 75Pa.

Test Methods: Testing was completed as described in ASTM E2357-18 Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies. Test methods assigned or referenced include 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.

Sampling: The following materials were received by PRI-CMT. All other materials were procured by PRI-CMT thru local distribution.

Product	Source	Date	Sampling
Typar™ MetroWrap Typar™ All Temp Flashing Tape 4" Typar™ Flexible Flashing Tape 9" Typar™ Double-Sided Seaming Tape 1-1/2"	Old Hickory, TN	Feb. 9th, 2023	Berry Global

Installation: Two (2) air barrier assembly specimens were evaluated for air leakage: Specimen 1 – Opaque Wall and Specimen 2 – Penetration Wall. Each specimen was frame construction utilizing C-Stud Steel (2" x 6" – 18 ga 33ksi galvanized) framing members spaced 16" on center. Steel studs were fastened together with #8 x 1" pan head Phillips self-drilling screws. In Specimen 2 – Penetration Wall, a window opening was framed per ASTM E2357 descriptions and in accordance with standard construction practice. DensGlass® Sheathing (5/8" thick) was fastened to steel studs with #6 x 1-1/4" scavenger head Phillips self-drilling screws spaced approximately 8" on center around the perimeter and vertical intermediates. The sheathing contained one (1) horizontal and two (2) vertical staggered joints in accordance with ASTM E2357 description. Additional penetrations included a square galvanized duct, and a round PVC pipe. All additional penetrations were mitered and installed through the sheathing, which were cut to provide a gap in accordance with ASTM E2357 description. Junction boxes and masonry ties were mounted in accordance with ASTM E2357 description. Schematic drawings of Specimen 1 and Specimen 2 are located in Appendix A of this report.

The air barrier assembly consisted of mechanically attaching Typar™ MetroWrap to the exterior side of the DensGlass® sheathing horizontally beginning at the bottom with one (1) horizontal and one (1) vertical lap. The Typar™ MetroWrap was secured to the wall using #8 x 1-1/2" SDS screws with 1" Ø plastic cap washers spaced 1-1/2" from the edges and 6" O.C thereafter on all vertical members; all joints were overlapped 4" prior to fastening. The Specimen detailing was performed as follows:

Specimen #1 (Opaque Wall)

One (1) continuous strip of Typar™ Double-Sided Seaming Tape was applied between the 4" vertical and horizontal Typar™ MetroWrap overlapping joints.

Specimen #2 (Penetration Wall)

One (1) continuous strip of Typar™ Double-Sided Seaming Tape was applied between the 4" vertical and horizontal Typar™ MetroWrap overlapping joints. The air barrier material was trimmed around the PVC pipe, galvanized duct, hexagonal and square junction boxes. A bead of polyurethane adhesive was applied around each penetration between the sheathing and backside of the Typar™ MetroWrap. Typar™ All Temperature Flashing 4" tape was applied around each penetration, sealing the penetration component to the air barrier.

Masonry tie's – Six (6) masonry ties were attached to the exterior of the wall assembly. Each masonry tie was anchored into the metal studs with one (1) with #8 x 1-1/2" SDS screw driven through a pile polyurethane adhesive.

Window – The window opening was flashed beginning at the sill with a continuous piece of Typar™ Flexible Flashing 9" Tape, extending 6" into the window opening, 3" over the air barrier material, and 6" up each jamb. The jambs were flashed with Typar™ Flexible Flashing 9" Tape extending 6" into the window opening and 3" over the air barrier material. The head was flashed with a continuous piece of Typar™ Flexible Flashing 9" Tape, extending 6" into the window opening, 3" over the air barrier material, and 6" down each jamb. The exterior perimeter of the Typar™ Flexible Flashing 9" Tape extending onto the air barrier material was covered with Typar™ All Temperature Flashing 4" tape. The window was set into place with ½" around the perimeter; a 5/8" foam backer rod was installed into the gap and back filled with polyurethane adhesive.

Results:

Table 1. ASTM E2357

Property	Test Method	Result[1,2]	Requirement
Performance Requirements			
System Air Leakage Specimen 1: Opaque Wall; After Wind Conditioning @ ΔP = 75Pa	ASTM E2357		
	L/(s·m^2)	0.185	≤ 0.2
	cfm/ft^2	0.0364	≤ 0.04
System Air Leakage Specimen 2: Penetration Wall; After Wind Conditioning @ ΔP = 75Pa	ASTM E 2357		
	L/(s·m^2)	0.085	≤ 0.2
	cfm/ft^2	0.0167	≤ 0.04

Note(s): 1 - Test data, including error analysis are contained in Appendix A.
2 – The air leakage rate at 75Pa determined for Specimen 1 shall be the system air leakage rating assigned to the assembly provided the air leakage at 75Pa for Specimen 2 is no more than 10% greater than the reference base air leakage for Specimen 1. In this testing, that condition was met, therefore the system air leakage rating is the air leakage rate at 75Pa determined for Specimen 1.

Statement of Compliance:

The product tested complies with the requirements for Mechanically Fastened Commercial Building Wraps as set forth in the **ABAA Process for Approval of Air Barrier Materials, Accessories and Assemblies- Date of issue 06/01/2015 Section 6.0 Air Barrier Assembly Testing.** The laboratory test results presented in this report are representative of the materials supplied. This report does not constitute certification of this product which may only be granted by the certification program administrator.

Signed: _____
Timothy Efaw
Manager

Date: July 25th, 2023

Report Issue History:

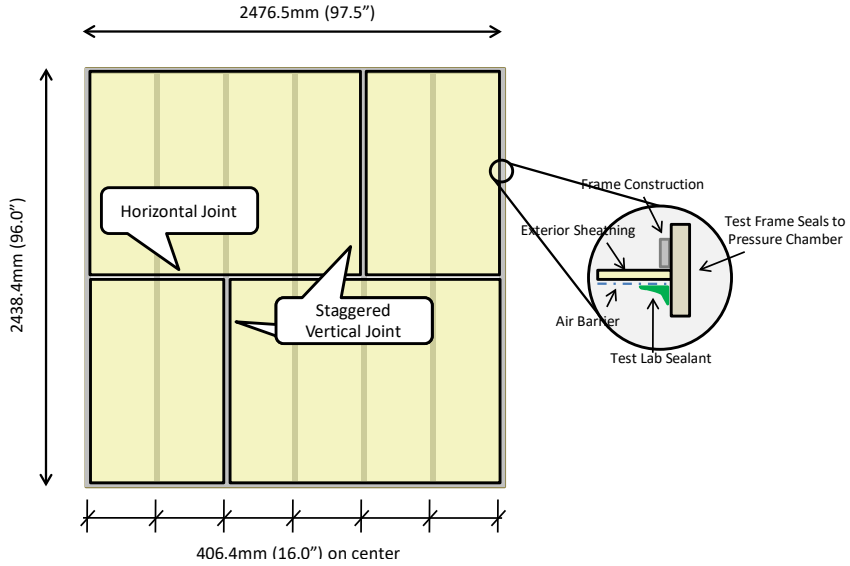
Issue #	Date	Pages	Revision Description (if applicable)
Original	07/25/2023	14	NA
Revision 1	07/27/2033	All	Added fastening description and various editorial.

APPENDIX FOLLOWS…

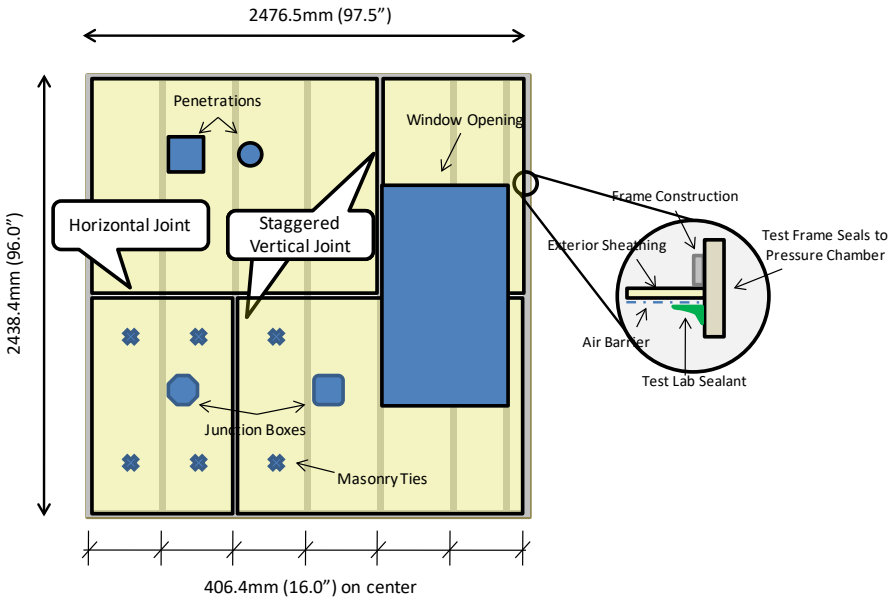
Schematic Drawings (Typ.)

ASTM E 2357 Schematics

Specimen 1 – Opaque Wall



Specimen 2 – Continuity at Penetrations



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Specimen 1 - Raw Data

ASTM E2357-18: Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

Client: Berry Global
Product Name: Typar™ MetroWrap
Product Decription: Mechanically Attached Wrap
Test Start Date: 7/7/2023 **Test End Date:** 7/10/2023

PRI Project ID: 2084T0019
Source:
Miami-Dade Notification: NA

Specimen 1:

Width: 2438.000 mm
Height: 2438.000 mm
Area: 5.944 m^2

Wall Construction: Opaque Wall

Wall construction is as follows. 2x6, 18ga steel studs on 16" centers. 5/8" DenGlass installed using #6x1-1/4" scavenger screws every 8" apart. Air barrier installed with a 4" overlap and attached suing 1" plastic cap self tapping screws 6" on center. Double sided tape added to the inside of the lap

Air Leakage (Before Wind Conditioning)

Pressure: 102.031 kPa
Temperature: 30 °C
Air Density: 1.174 kg/m^3

Specimen 1 (Before Wind Conditioning) - Infiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
26	8.32	26	11.26
50	14.33	50	17.92
74	19.83	74	23.38
99	25.55	99	29.98
150	34.68	150	39.79
251	49.19	251	58.42
299	57.84	299	64.76

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.26	2.12	3.26	2.42
3.91	2.66	3.91	2.89
4.30	2.99	4.30	3.15
4.60	3.24	4.60	3.40
5.01	3.55	5.01	3.68
5.53	3.90	5.53	4.07
5.70	4.06	5.70	4.17

Specimen 1 (Before Wind Conditioning) - Exfiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
26	8.80	26	16.26
50	11.26	50	28.64
74	17.64	74	36.19
99	20.11	99	46.75
150	34.19	150	59.86
251	44.58	251	80.90
299	48.06	299	86.54

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.26	2.17	3.26	2.79
3.91	2.42	3.91	3.35
4.30	2.87	4.30	3.59
4.60	3.00	4.60	3.84
5.01	3.53	5.01	4.09
5.53	3.80	5.53	4.39
5.70	3.87	5.70	4.46

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Coefficient of Determination:

Infiltration ΔP		Exfiltration ΔP	
R^2_{ei}	R^2_{ti}	R^2_{ei}	R^2_{ti}
0.999	1.000	0.989	0.996

Specimen 1 (Before Wind Conditioning) - Infiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m²))
25	2.57	0.007
50	3.64	0.010
75	4.38	0.012
100	4.95	0.014
150	5.78	0.016
250	6.76	0.019
300	7.04	0.020

log transformation

x_i	y_i
3.2189	-4.9314
3.9120	-4.5856
4.3175	-4.3997
4.6052	-4.2774
5.0106	-4.1222
5.5215	-3.9658
5.7038	-3.9245

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m³).

Specimen 1 (Before Wind Conditioning) - Exfiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m²))
25	9.37	0.026
50	14.38	0.040
75	18.44	0.052
100	21.98	0.062
150	28.10	0.079
250	38.20	0.107
300	42.59	0.119

log transformation

x_i	y_i
3.2189	-3.6387
3.9120	-3.2105
4.3175	-2.9620
4.6052	-2.7866
5.0106	-2.5408
5.5215	-2.2338
5.7038	-2.1250

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m³).

Wind Conditioning

	ΔP (Pa)	Time (s)	Observations Comments	
Sustained Loading	150	10	None noted.	
	300	10	None noted.	
	450	10	None noted.	
	600	3600	Specimen maintained differential pressure without incident.	
	-150	10	None noted.	
	-300	10	None noted.	
	-450	10	None noted.	
	-600	3600	Specimen maintained differential pressure without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]			Pass
Cyclic Loading	ΔP (Pa)	Cycle (s)	Observations Comments	
	0 to 800	1000	Cyclic deflection of wall assembly evident. Specimen maintained integrity without incident.	
	0 to -800	1000	Cyclic deflection of wall assembly evident. Specimen maintained integrity without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]			Pass
Gust Loading	ΔP (Pa)	Cycle (s)	Observations Comments	
	0 to 1200	1	Gust deflection of wall assembly evident. Specimen maintained integrity without incident.	
	0 to -1200	1	Gust deflection of wall assembly evident. Specimen maintained integrity without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]			Pass

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Air Leakage (After Wind Conditioning)

Pressure: 102.167 kPa
Temperature: 30 °C
Air Density: 1.175 kg/m^3

Specimen 1 (After Wind Conditioning) - Infiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
26	5.40	26	13.17
50	9.22	50	22.44
74	16.51	74	20.05
99	20.87	99	36.58
150	33.13	150	49.28
251	46.28	251	70.97
299	53.57	299	80.25

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.26	1.69	3.2581	2.5782
3.91	2.22	3.9120	3.1109
4.30	2.80	4.3041	2.9983
4.60	3.04	4.5951	3.5994
5.01	3.50	5.0106	3.8976
5.53	3.83	5.5255	4.2623
5.70	3.98	5.7004	4.3851

Specimen 1 (After Wind Conditioning) - Exfiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
26	6.39	26	25.48
50	8.03	50	49.81
74	23.46	74	84.37
99	24.49	99	101.67
150	44.61	150	134.97
251	48.81	251	483.20
299	72.15	299	578.30

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.26	1.85	3.2581	3.2377
3.91	2.08	3.9120	3.9082
4.30	3.16	4.3041	4.4353
4.60	3.20	4.5951	4.6218
5.01	3.80	5.0106	4.9050
5.53	3.89	5.5255	6.1804
5.70	4.28	5.7004	6.3601

Coefficient of Determination:

Infiltration ΔP		Exfiltration ΔP	
R^2_{ei}	R^2_{ti}	R^2_{ei}	R^2_{ti}
0.995	0.978	0.967	0.981

log transformation

Specimen 1 (After Wind Conditioning) - Infiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m^2))
25	6.72	0.019
50	10.04	0.028
75	12.46	0.035
100	14.38	0.040
150	17.25	0.048
250	20.70	0.058
300	21.70	0.061

x_i	y_i
3.2189	-3.9715
3.9120	-3.5705
4.3175	-3.3539
4.6052	-3.2110
5.0106	-3.0292
5.5215	-2.8467
5.7038	-2.7995

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

Specimen 1 (After Wind Conditioning) - Exfiltration ΔP

log transformation

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m^2))
25	14.82	0.042
50	38.17	0.107
75	65.97	0.185
100	97.02	0.272
150	166.63	0.467
250	328.02	0.920
300	417.31	1.170

x_i	y_i
3.2189	-3.1808
3.9120	-2.2346
4.3175	-1.6876
4.6052	-1.3018
5.0106	-0.7609
5.5215	-0.0836
5.7038	0.1571

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

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Calculation:

System Air Leakage Rating				
ΔP (Pa)	Permeance (L/(s*m^2*Pa))	95% Confidence Interval		
25	0.042	0.0409	-	0.0422
50	0.107	0.1053	-	0.1088
75	0.185	0.1820	-	0.1880
100	0.272	0.2677	-	0.2765
150	0.467	0.4597	-	0.4749
250	0.920	0.9049	-	0.9349
300	1.170	1.1513	-	1.1893

Analysis:

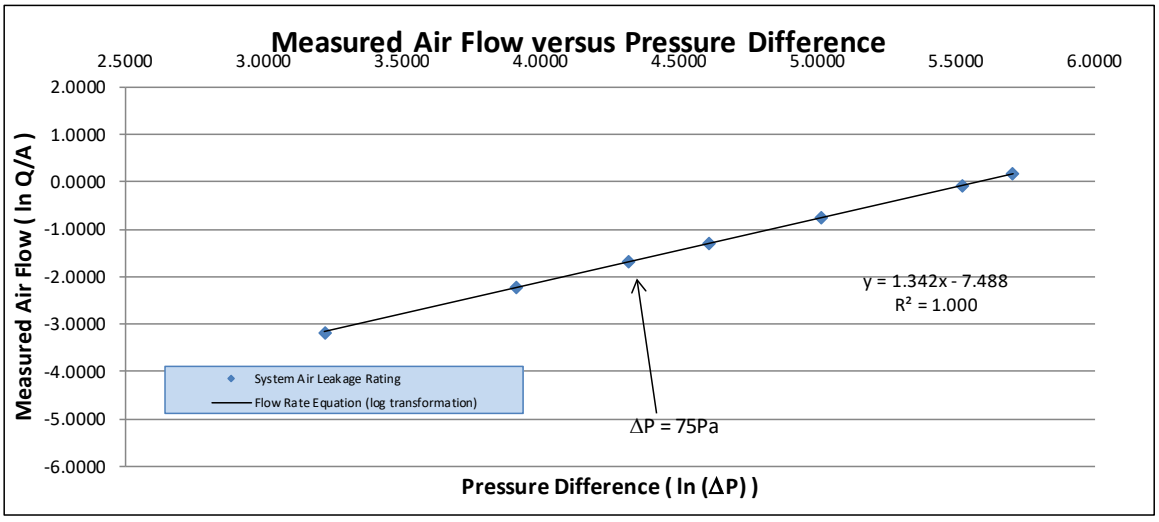
$Q=CA(\Delta P)^n$
$\ln(Q/A)=\ln(C) + n \ln(\Delta P)$
$y_i=\ln(C) + nx_i$

Flow Rate Equation
(log transformation)
(linear regression)

Statistical Analysis:

$\ddot{x}$ = 4.6128
$\ddot{y}$ = -1.2989
S_x^2 = 0.7826
S_y^2 = 1.4091
S_{xy} = 1.0501

		95% Confidence Interval		
n =	1.3418	1.3317	-	1.3519
ln(C) =	-7.4883	-7.5441	-	-7.4325
C =	0.0006	0.0005	-	0.0006



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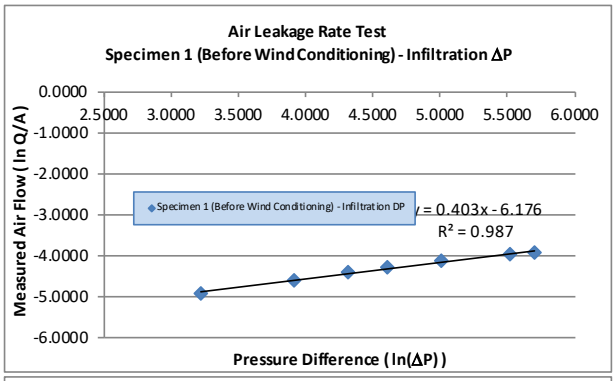
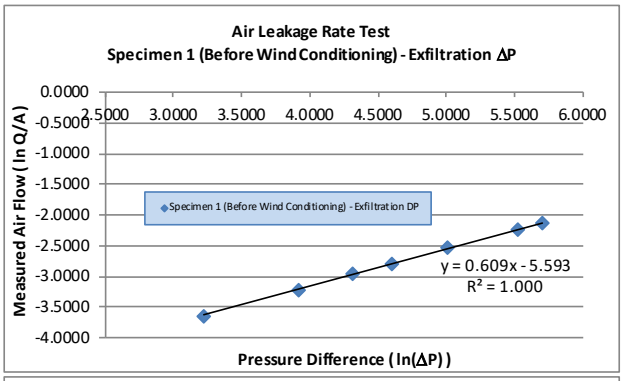
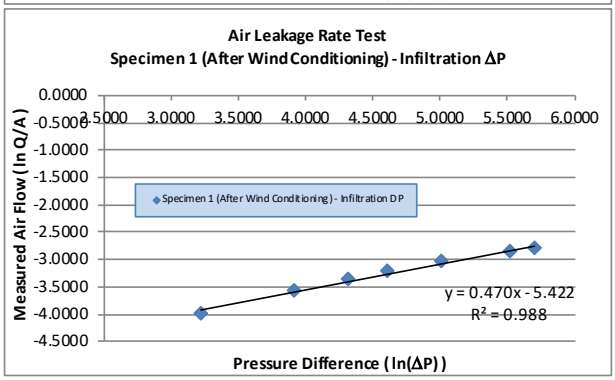
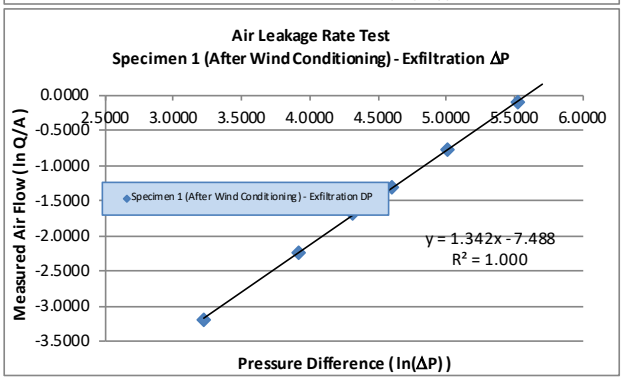
Air Leakage Rate Graphs:









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Specimen 2 - Raw Data

ASTM E2357-18: Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

Client: Berry Global **PRI Project ID: 2084T0019**
Product Name: Typar™ MetroWrap **Source:**
Product Decription: Mechanically Attached Wrap **Miami-Dade Notification:** NA
Test Start Date: 7/7/2023 **Test End Date:** ########

Specimen 2: Penetration Wall

Width: 2438.400 mm **Area:** 5.946 m^2
Height: 2438.400 mm
Wall Construction:

Typical E2357 construction: 8'x8' steel studs 16" OC with 5/8" DensGlass sheathing applied with prescribed joints. Air barrier installed with a 4" overlaps and attached using 1" plastic cap self tapping screws 6" on center. Double sided tape added to the inside of the laps. Window treatment: Flashed with flexible flashing 6" inside of opening, extending 3" over the exterior air barrier. The exterior perimeter had another layer of 4" all temperature window flashing. The window was set into place with 1/2" gap around perimeter; 5/8" backer rod was installed into the gap and back filled with polyurethane adhesive. All other penetrations were sealed with all temperature flashing, using a bead of polyurethane adhesive between the air barrier and sheathing prior to application.

Air Leakage (Before Wind Conditioning)

Pressure: 102.031 kPa
Temperature: 29 °C
Air Density: 1.177 kg/m^3

Specimen 2 (Before Wind Conditioning) - Infiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
24	1.96	26	15.24
50	8.16	50	24.81
74	12.89	74	33.48
99	17.08	99	40.60
150	26.87	150	54.18
251	35.34	251	73.17
299	39.48	299	81.26

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.18	0.67	3.26	2.72
3.91	2.10	3.91	3.21
4.30	2.56	4.30	3.51
4.60	2.84	4.60	3.70
5.01	3.29	5.01	3.99
5.53	3.56	5.53	4.29
5.70	3.68	5.70	4.40

Specimen 2 (Before Wind Conditioning) - Exfiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
26	4.65	26	17.27
50	8.76	50	28.48
74	19.87	74	35.42
99	22.20	99	45.79
150	27.28	150	60.26
251	47.81	251	81.78
299	50.12	299	87.33

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.26	1.54	3.26	2.85
3.91	2.17	3.91	3.35
4.30	2.99	4.30	3.57
4.60	3.10	4.60	3.82
5.01	3.31	5.01	4.10
5.53	3.87	5.53	4.40
5.70	3.91	5.70	4.47

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Coefficient of Determination:

Infiltration ΔP		Exfiltration ΔP	
R^2_{ei}	R^2_{ti}	R^2_{ei}	R^2_{ti}
0.971	0.999	0.982	0.998

Specimen 2 (Before Wind Conditioning) - Infiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m²))
25	12.42	0.035
50	18.18	0.051
75	22.23	0.062
100	25.31	0.071
150	29.57	0.083
250	33.54	0.094
300	34.04	0.095

log transformation

x_i	y_i
3.2189	-3.3576
3.9120	-2.9770
4.3175	-2.7754
4.6052	-2.6460
5.0106	-2.4904
5.5215	-2.3644
5.7038	-2.3495

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m³).

Specimen 2 (Before Wind Conditioning) - Exfiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m²))
25	12.39	0.035
50	17.81	0.050
75	21.64	0.061
100	24.59	0.069
150	28.89	0.081
250	33.78	0.095
300	35.09	0.098

log transformation

x_i	y_i
3.2189	-3.3599
3.9120	-2.9973
4.3175	-2.8024
4.6052	-2.6745
5.0106	-2.5136
5.5215	-2.3570
5.7038	-2.3191

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m³).

Wind Conditioning

	ΔP (Pa)	Time (s)	Observations Comments
Sustained Loading	150	10	None noted.
	300	10	None noted.
	450	10	None noted.
	600	3600	Specimen maintained differential pressure without incident.
	-150	10	None noted.
	-300	10	None noted.
	-450	10	None noted.
	-600	3600	Specimen maintained differential pressure without incident.
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]		Pass
Cyclic Loading	ΔP (Pa)	Cycle (s)	Observations Comments
	0 to 800	1000	Cyclic deflection of wall assembly evident. Specimen maintained integrity without incident.
	0 to -800	1000	Cyclic deflection of wall assembly evident. Specimen maintained integrity without incident.
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]		Pass
Gust Loading	ΔP (Pa)	Cycle (s)	Observations Comments
	0 to 1200	1	Gust deflection of wall assembly evident. Specimen maintained integrity without incident.
	0 to -1200	1	Gust deflection of wall assembly evident. Specimen maintained integrity without incident.
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]		Pass

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Air Leakage (After Wind Conditioning)

Pressure: 102.167 kPa
Temperature: 30 °C
Air Density: 1.175 kg/m^3

Specimen 2 (After Wind Conditioning) - Infiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
26	5.64	26	20.36
50	15.83	50	33.28
74	19.17	74	43.38
33	20.31	33	50.31
149	27.19	149	67.54
251	43.34	251	90.22
299	49.18	299	97.81

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.26	1.73	3.2581	3.0135
3.91	2.76	3.9120	3.5049
4.30	2.95	4.3041	3.7699
3.50	3.01	3.4965	3.9182
5.00	3.30	5.0039	4.2127
5.53	3.77	5.5255	4.5022
5.70	3.90	5.7004	4.5830

Specimen 2 (After Wind Conditioning) - Exfiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
26	6.08	26	20.75
50	13.41	50	34.73
74	19.24	74	44.72
33	21.27	33	54.43
150	28.18	150	71.63
251	42.81	251	96.33
299	53.05	299	107.33

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.26	1.81	3.2581	3.0324
3.91	2.60	3.9120	3.5475
4.30	2.96	4.3041	3.8004
3.50	3.06	3.4965	3.9969
5.01	3.34	5.0106	4.2715
5.53	3.76	5.5255	4.5678
5.70	3.97	5.7004	4.6759

Coefficient of Determination:

Infiltration ΔP		Exfiltration ΔP	
R^2_{ei}	R^2_{ti}	R^2_{ei}	R^2_{ti}
0.890	0.902	0.894	0.895

log transformation

Specimen 2 (After Wind Conditioning) - Infiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m^2))
25	17.32	0.049
50	23.44	0.066
75	27.85	0.078
100	31.40	0.088
150	37.04	0.104
250	45.28	0.127
300	48.53	0.136

x_i	y_i
3.2189	-3.0249
3.9120	-2.7226
4.3175	-2.5503
4.6052	-2.4303
5.0106	-2.2651
5.5215	-2.0643
5.7038	-1.9948

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

log transformation

Specimen 2 (After Wind Conditioning) - Exfiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m^2))
25	18.32	0.051
50	25.22	0.071
75	30.28	0.085
100	34.42	0.096
150	41.09	0.115
250	51.08	0.143
300	55.10	0.154

x_i	y_i
3.2189	-2.9688
3.9120	-2.6495
4.3175	-2.4664
4.6052	-2.3385
5.0106	-2.1612
5.5215	-1.9437
5.7038	-1.8678

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

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Calculation:

System Air Leakage Rating				
ΔP (Pa)	Permeance (L/(s*m^2*Pa))	95% Confidence Interval		
25	0.051	0.0506	-	0.0521
50	0.071	0.0696	-	0.0718
75	0.085	0.0836	-	0.0862
100	0.096	0.0950	-	0.0979
150	0.115	0.1135	-	0.1169
250	0.143	0.1411	-	0.1453
300	0.154	0.1522	-	0.1568

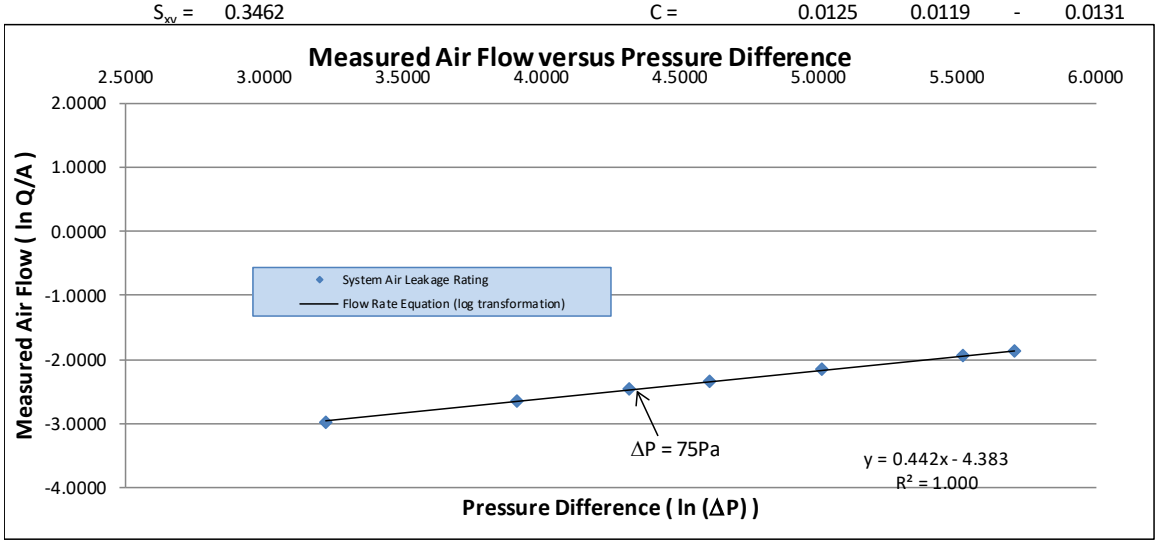
Analysis:

$Q=CA(\Delta P)^n$
$\ln(Q/A)=\ln(C)+n\ln(\Delta P)$
$y_i=\ln(C)+nx_i$

Flow Rate Equation
(log transformation)
(linear regression)

Statistical Analysis:

				95% Confidence Interval		
$\ddot{x}$ =	4.6128					
$\ddot{y}$ =	-2.3423					
S_x^2 =	0.7826	n =	0.4424	0.4331	-	0.4516
S_y^2 =	0.1532	ln(C) =	-4.3827	-4.4340	-	-4.3314
S_{xy} =	0.3462	C =	0.0125	0.0119	-	0.0131



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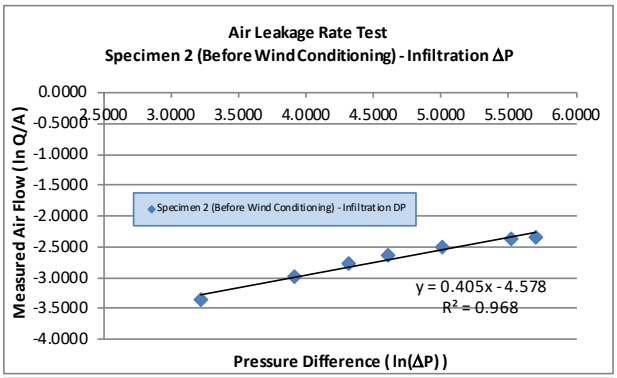
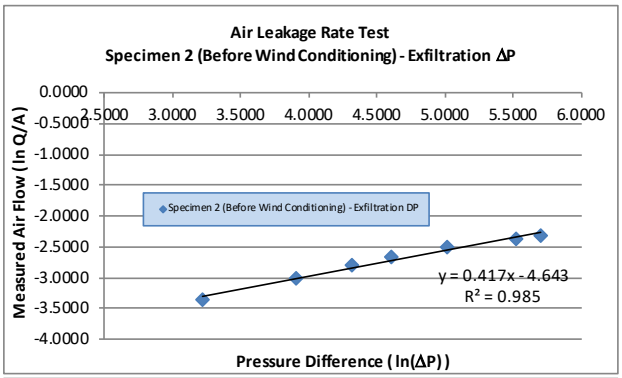
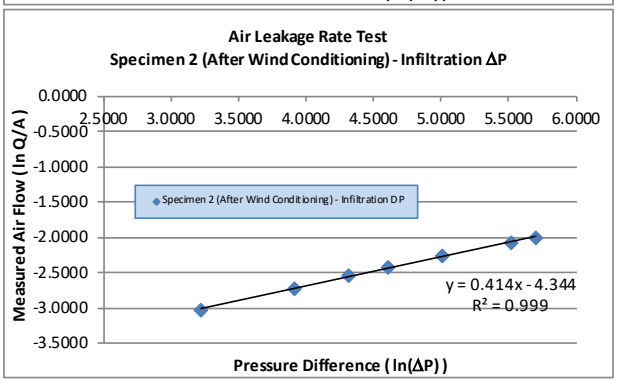
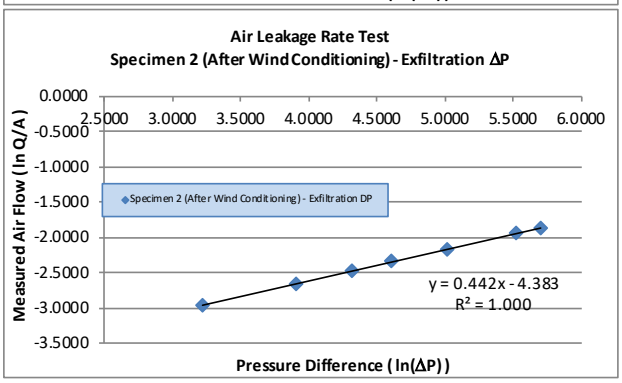
Air Leakage Rate Graphs:









End of Report

Article Information Sheet

OHK-COMW1

Section 0. General information

This product is an article according to 29 CFR 1910.1200(c). There is no obligation to provide a Safety Data Sheet for this product according to 29 CFR 1910.1200(b)(6)(v). Berry Plastics, however, is committed to communicating the appropriate information to its customers for assuring the safe handling and use of its products and, therefore, provides this Article Information Sheet in lieu of a Safety Data Sheet.

Section 1. Identification

Product code / Name : **OHK-COMW1**

Product description : Metrowrap

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Not applicable

Uses advised against : Not applicable

Supplier/Manufacturer : Fiberweb, Inc.
A Berry Plastics Company
70 Old Hickory Blvd
Old Hickory, TN 37138
USA

Email : regulatoryaffairs@berryplastics.com

Emergency telephone number (with hours of operation) : +1-615-847-7000 M-F 8AM-4:30PM CST

Section 2. Hazards identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Non-hazardous ingredients Name	%	CAS number
Polypropylene with Additives	50 - 75	-
Polyolefin Film	25 - 50	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

Inhalation : Not applicable.

Skin contact : Wash thoroughly after handling.

Ingestion : Not applicable.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.

Section 6. Accidental release measures

Environmental precautions : Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Spill : Use appropriate tools to transfer the spilled solid to a convenient waste disposal container.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Prevent product contamination. Store in a cool, well-ventilated area away from incompatible materials and ignition sources.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Safety glasses with side shields.

Skin protection

Hand protection : Recommended: Leather. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Physical state	:	Solid.
Color	:	Gray Fabric with a Silver Polyolefin Film
Odor	:	Odorless.
Odor threshold	:	Not available.
pH	:	Not available.
Melting point	:	>120°C (>248°F)
Boiling point	:	Not applicable.
Flash point	:	Not available.
Evaporation rate	:	Not applicable.
Flammability (solid, gas)	:	Not applicable.
Lower and upper explosive (flammable) limits	:	Not applicable.
Vapor pressure	:	Not applicable.
Vapor density	:	Not applicable.
Relative density	:	Not available.
Solubility	:	Not available.
Partition coefficient: n-octanol/water	:	Not applicable.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	Not available.
Viscosity	:	Not applicable.

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	No specific data.
Incompatible materials	:	No specific data.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

No known significant effects or critical hazards.

Irritation/Corrosion

No known significant effects or critical hazards.

Sensitization

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Carcinogenicity

Section 11. Toxicological information

Product/ingredient name	OSHA	IARC	NTP
carbon black non-respirable	-	2B	-

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

No known significant effects or critical hazards.

Aspiration hazard

Not applicable.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Potential chronic health effects

No known significant effects or critical hazards.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not applicable.

Section 12. Ecological information

Toxicity

Not applicable.

Persistence and degradability

Not applicable.

Bioaccumulative potential

Not applicable.

Mobility in soil

Section 12. Ecological information

Soil/water partition coefficient (K_{OC}) : Not applicable.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Dispose of according to all federal, state and local applicable regulations.

Section 14. Transport information

Not regulated.

Section 15. Regulatory information

U.S. Federal regulations

TSCA : All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

SARA 302/304

Composition/information on ingredients

No ingedients were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No ingedients were found.

State regulations

California Prop. 65

WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
carbon black, non respirable	Yes.	No.	No.	No.
titanium dioxide	Yes.	No.	No.	No.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 7/28/2015

Date of previous issue : No previous validation

Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

All statements, technical information and recommendations set forth herein are based on information or tests which Berry Plastics believes to be reliable as of the date of this Article Information Sheet. NOTHING CONTAINED IN THIS ARTICLE INFORMATION SHEET IS A REPRESENTATION, GUARANTEE OR WARRANTY OF ANY KIND. Berry Plastics does not assume any liability with respect to the accuracy and/or completeness of the information provided herein. Recipients of this information should be familiar with the regulatory requirements applicable to this product and their intended use of it and they should make their own determination as to the information's suitability and completeness for their particular application(s). The data in this Article Information Sheet pertains only to the specific material referred to herein and does not relate to use in combination with any other material or in any process.

TYPAR® METROWRAP For Commercial Applications:

Physical Properties Data Sheet:

PROPERTIES	METHOD	TYPAR® MetroWrap	TYVEK Commercial Wrap
Basis Weight	TAPPI T-410 (oz/yd^2)	3.5	2.7
Breaking Strength	ASTM D-5034 (lbs)	120	83
	ASTM D-5034 (lbs)	120	99 ASTM D882 (lbs/in) 38/35
Air Penetration resistance	TAPPI T-460 (sec/100cc)	> 4800	> 1500
Water Vapor Transmission	ASTM E96-00 Method A (perms)	10	23
Tear Resistance (Trapezoid)	ASTM D-1117 (MD) (lbs)	60	12
	ASTM D-1117 (MD) (lbs)	67	10
Surface Burning Characteristics	ASTM E-84	PASS	PASS
	ASTM E-84	PASS	PASS
Ultraviolet Light (UV) Exposure Resistance	QUV (months)	12	9

JENSEN HUGHES
Advancing the Science of Safety

July 9, 2018

Mr. Bijan Mansouri
Principal Engineer
TYPAR Building & Construction
Berry Global
70 Old Hickory Boulevard
Old Hickory, TN 37138

RE: Use of Typar® MetroWrap in an NFPA 285 Wall Assembly
Project No. 1JJB00171.000

Dear Mr. Mansouri:

This letter constitutes JENSEN HUGHES' summary report concerning the use of Typar® MetroWrap in an NFPA 285 complying exterior wall assembly.

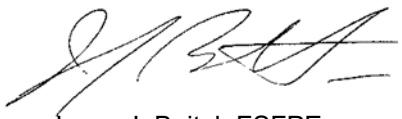
Fiberweb, Inc. (a division of Berry Global) has conducted a successful NFPA 285 "Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components" test. This successful test is reported in Southwest Research Institute Final Report Number 01.22384.01.305, dated April 28, 2017.

Based on additional small-scale fire testing and the JENSENHUGHES Analysis dated July 9, 2018, Typar® MetroWrap can be used in the tested assembly cited above. The use of the Typar® MetroWrap will result in the same or similar NFPA 285 fire performance as that exhibited by the tested exterior wall assembly.

If you have any questions, or if I can be further assistance, please feel free to contact me at 410-737-8677 or at jbeitel@haifire.com.

Sincerely,

JENSEN HUGHES



Jesse J. Beitel, FSFPE
Senior Scientist

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F: +1 410-737-8688

3610 Commerce Drive | Suite 817
Baltimore, MD 21227 USA

jensenhughes.com

TYPAR®

DRAINABLE WRAP™

BOOST YOUR LEVEL OF CONFIDENCE. IN DEALING WITH BULK WATER.

Install the system. Get a lifetime limited warranty.* TYPAR® Drainable Wrap, along with the full TYPAR® Weather Protection System delivers unbeatable coverage.

*Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

TYPAR LIFETIME LIMITED SYSTEM WARRANTY

TYPAR® DRAINABLE WRAP™

HANDLING THE EXCESS WITH SMART STRENGTH.

Here's the first thing to know: It's from TYPAR.® That means it's based on an already incredible material that leads in rugged, top-performing weather defense. But with a layer of integrated polypropylene fibers, we've added a highly effective drainage gap to shed bulk moisture. Better still, it works efficiently, no matter which direction you install it. Bottom line, are you concerned about drenching downpours, mold, and rot? Put up TYPAR Drainable Wrap to prevent water from compromising the wall cavity—and your reputation.

LEADING FEATURES AND BENEFITS:

- Delivers the tear strength, air holdout, and breathability of TYPAR® BuildingWrap™
- Drains significantly faster than most conventional house wraps, per ASTM E2273 testing
- Install it any direction without affecting performance
- Exceeds minimum AC38 Code Requirement for Drainage Efficiency as per ASTM E2273
- Lifetime limited warranty*

INSTALL THE SYSTEM. GET A LIFETIME LIMITED WARRANTY.*

Take your stand on unbeatable—and comprehensive—defense. Our Drainable Wrap, along with our Flashings and Construction Tape, works as a part of the TYPAR® Weather Protection System. Install it all together and get covered by the only lifetime limited warranty in the industry.*

*TYPAR Drainable Wrap is part of the TYPAR Lifetime Limited System Warranty when used with the complete TYPAR Weather Protection System. Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

The information contained herein is to the best of our knowledge accurate and reliable and is provided for the user's assessment and verification. However, since the circumstances and conditions under which such information and the products discussed can be used may vary and are beyond our control, **we make no warranties, express or implied, other than those warranties described in the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads, subject to the limitations and exclusions described therein.**

NOTE: TYPAR Drainable Wrap is not available in Canada.

TYPICAL CHARACTERISTICS:		
Basis Weight	D5261	3.04 oz/yd²
Thickness	D1777	25 mils
Drainage Efficiency	E2273	94.8%
Breaking Strength (Grab Tensile)	D5034	67 lbs MD 73 lbs CD
Trapezoidal Tear Resistance	D5733	30 lbs MD 33 lbs CD
Hydrostatic Pressure Resistance	AATCC 127-1995	>500 cm
Moisture Vapor Transmission Rate	E96-95 A	11.7 perms
Ultraviolet Light Exposure Resistance		6 months
Air Penetration Resistance (Gurley Hill Porosity)		>2500 sec/ 100 cc
Water Resistance Test	D779	PASS
Surface Burning Characteristics (ASTM E84)		
Flame Spread Index	Class A	
Smoke Spread Index	PASS	

ROLL SIZES:
5' x 100'

August 2019 | Made in USA. TYPAR® and TYPAR® Drainable Wrap™ are trademarks of Berry Global, Inc. or one of its affiliates.
Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape

TYPAR® DRAINABLEWRAP
INSTALLATION GUIDE

VERTICAL WALL INSTALLATION

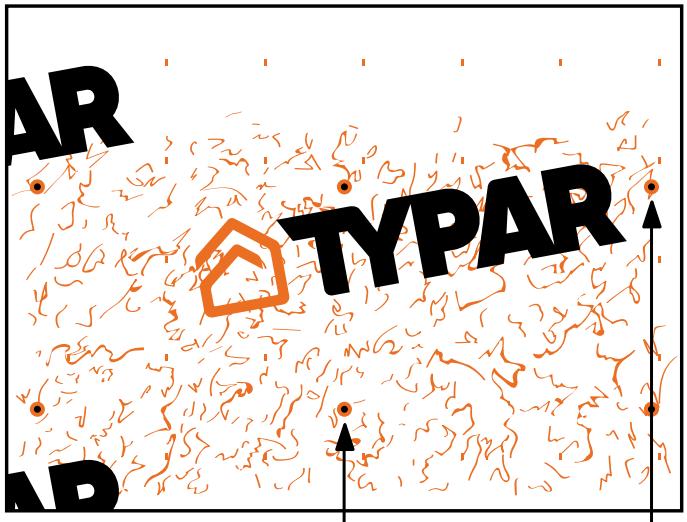
Install TYPAR® DrainableWrap over an approved exterior sheathing after the framing is complete and before the windows and doors have been installed. Plastic-capped fasteners should be used and spaced at 32" OC (vertically and horizontally) when being applied over 7/16" OSB or 15/32" plywood. When installing over metal framing, use screws with washers. If the windows and doors have already been installed, trim the TYPAR DrainableWrap close to the window frame and flash according to the TYPAR® flashing instructions.

STEP 1
Start at the bottom of one end of the wall with the side without fiber facing up. When starting at a corner, overlap by a minimum of 12".

Place the TYPAR DrainableWrap roll horizontally and roll out the first course evenly, covering rough window and door openings. A minimum of a 1" (25.4 mm) overlap on the sill plate is required; however, for maximum protection, a 2-4" (51-102 mm) overlap on the sill plate is recommended.

Pull the TYPAR DrainableWrap snug and avoid wrinkles and creases. Ensure that the product is level.

STEP 2A
Fasten the TYPAR DrainableWrap to the stud using plastic-capped nails or plastic-capped staples at 32" OC, both horizontally and vertically.

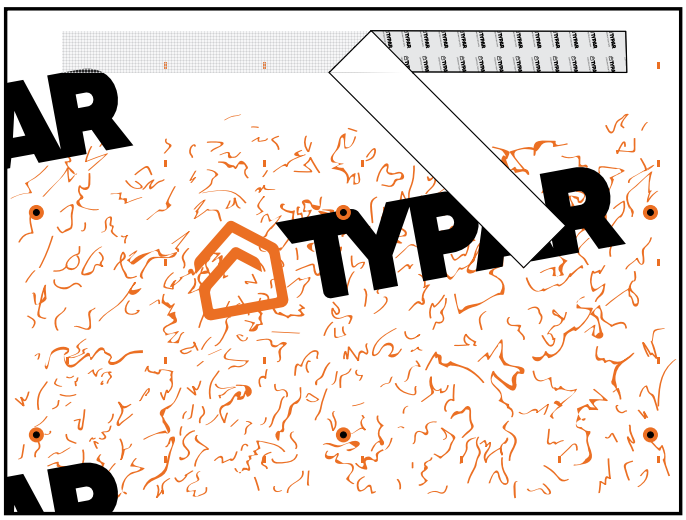


TYPAR™
A Berry Global Brand

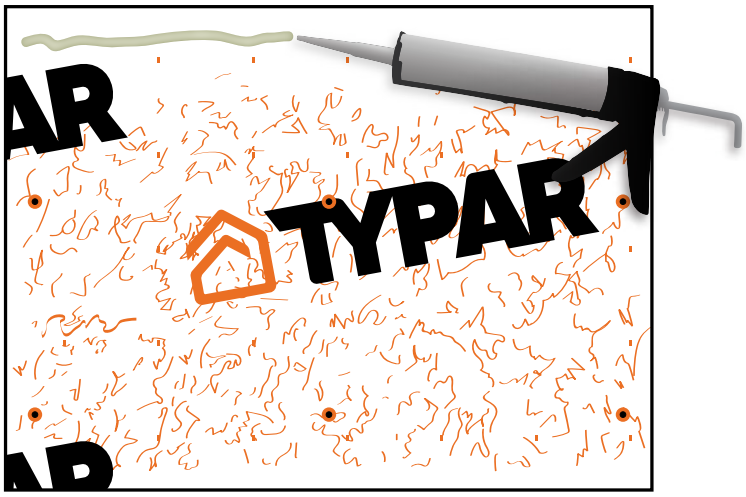
VERTICAL WALL INSTALLATION

STEP 2B

Apply TYPAR® Double Sided Seaming Tape or any polyurethane-based caulking sealant on the top edge of the TYPAR DrainableWrap within 6". We do not recommend use of silicone-based caulking sealants.



Option 1: TYPAR Double Sided Tape



Option 2: Any Polyurethane-Based Caulking Sealant

STEP 2C

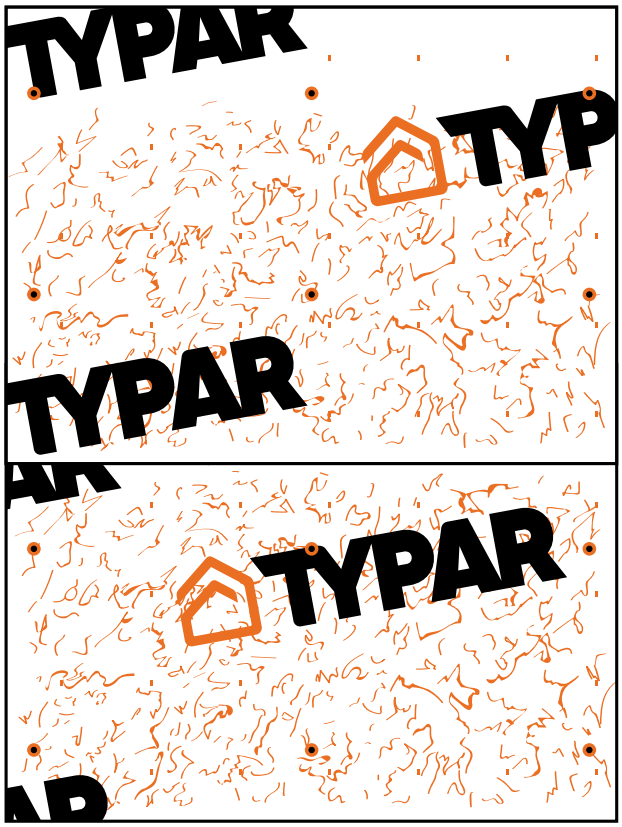
Apply the second layer TYPAR® DrainableWrap on top of the first.

STEP 3

The upper layer of TYPAR DrainableWrap should overlap the bottom layer by a minimum of 6" (152 mm) vertically and horizontally. Ensure proper shingling throughout the installation to properly shed water.

STEP 4

After the installation is complete, and before the exterior cladding is installed, inspect the TYPAR DrainableWrap for tears. Repair the issues with TYPAR® Construction Tape or TYPAR® flashing.



TYPAR® DRAINABLEWRAP™
THREE-PART SPECIFICATIONS

PART 1. GENERAL

1.1 Summary

A. Includes but not limited to:
   1. Furnish and install drainable weather-resistive barriers on exterior side of exterior wall sheathing as described in Contract Documents.

1.2 References

A. ASTM E2773-18 "Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies."
B. ASTM E1677-95 "Standard Specification for an Air Retarder (AR) Material or System for Low-Rise Framed Building Walls."
C. ASTM E96-90 "Standard Test Method for Water Transmission of Materials."
D. AATCC-127 "Hydrostatic Head Test."
E. ASTM D5733-9 Trapezoidal Test.
F. ASTM D779 Dry Indicator Method, Water Penetration Resistance.

1.3 Submittals

A. Quality Assurance:
   1. Submit copies of test results showing performance characteristics equaling or exceeding those specified.

PART 2. PRODUCTS

2.1 Water-Resistant Barrier

A. Spunbonded polypropylene weather membrane with a microporous coating and layer of integrated polypropylene fibers, nonwoven, nonperforated.
B. Performance Characteristics:
   1. Drainage Efficiency: 94.8%, when testing in accordance with ASTM E2773.
   2. Gurley Hill Air Penetration Resistance [TAPPI T 460] [sec/100cc] >2500.
   3. Type I Air Barrier Material when tested in accordance with ASTM E1677.
   4. Type II Water-Resistive Barrier when tested in accordance with ASTM E2556.
   5. Water Vapor Transmission: 9-15 perms as tested by ASTM E96-90, Method A.
   6. Water Resistance Test ASTM D779.
   7. Basis Weight: 3.04 oz/yd^2 ASTM D5261.
   8. Air-Ins (Air Leakage Test) <.02L/S·M^2 @ 75 PA.
   9. Breaking Strength (Grab Tensile): 67 MD/73 CD lbs/in, when tested in accordance with ASTM D5034.
   10. Trapezoidal Test of 30/33 in accordance with ASTM D5733-9.
   11. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84. Flame Spread: PASS. Smoke Spread: PASS. NFPA 285: PASS.
C. Approved Manufacturers:
   1. TYPAR® Weather-Protection Membrane by Berry Global, Inc. www.TYPAR.com.
D. Manufacturer's Warranty:
   1. Limited product and limited system warranty available depending on the application, see the TYPAR® Weather Protection System Limited Warranty located at www.TYPAR.com/downloads for warranty details.

2.2. Manufacturer's Accessory Products – Sealing Tape/Fasteners

A. Tape(s):
   1. TYPAR® Construction Tape.
      i. Description:
         a. Face Material Composition: Polyethylene Barrier.
         b. Face Color: Gray.
         c. Adhesive Composition: Acrylic.
         d. Thickness: 3.6mil.
         e. Dimensions: 1-7/8" x 165', 3" x 165'.
      ii. Performance Characteristics:
         a. Temperature Resistance: 0°F (-18°C) – Min. application temperature; 230°F (110°C) – Max. application temperature.
         b. Peel Adhesion PSTC-1.*
         c. Tensile Strength PSTC-31.*

*Pressure-Sensitive Tape Council.

TYPAR®

iii. Accessories:
a. Primer: Polyken® spray adhesive or equal.
b. Flashing Tape: TYPAR® All-Temperature Flashing, TYPAR® Flexible Flashing, and TYPAR® Butyl Flashing.
c. Fastener: Fastener is dependent on substrate construction.
d. Sealant: Must comply with ASTM C920 elastomeric polymer sealant.

2. TYPAR® Double-Sided Seam Tape.
i. Description:
a. Face Material Composition: Paper Liner.
b. Face Color: White Paper Liner, Clear Carrier Film.
c. Adhesive Composition: Acrylic.
d. Thickness: 10.3mil.
e. Dimensions: 1.5" x 180'.
ii. Performance Characteristics:
a. Temperature Resistance: -15°F (-9°C) – Min. application temperature; 200°F (92°C) – Max. application temperature.
b. Peel Adhesion PSTC-1.*
c. Tensile Strength PSTC–31.*
iii. Accessories:
a. Primer: Polyken spray adhesive or equal.
b. Flashing Tape: TYPAR All-Temperature Flashing, TYPAR Flexible Flashing, and TYPAR Butyl Flashing.
c. Fastener: Fastener is dependent on substrate construction.
d. Sealant: Must comply with ASTM C920 elastomeric polymer sealant.

B. Flashing:
1. TYPAR All-Temperature Flashing.
i. Description:
a. Face Material Composition: Polyethylene Barrier.
b. Face Color: Gray.
c. Adhesive Composition: Block Copolymer.
d. Thickness: 16mil.
e. Release Liner: Polyfilm.
f. Dimensions: 4" x 75'; 6" x 75'; 9" x 75'; 12" x 75'.
ii. Performance Characteristics:
a. Low Temp Pliability ASTM C765: PASS.
b. Nail Sealability ASTM D1970: PASS.
c. Tensile Strength ASTM D5034-95: PASS.
d. Peel Adhesion ASTM D3330-04: PASS.
iii. Accessories:
a. Primer: Use 3M™ Super 77,™ or equal.
b. Seam Tape: TYPAR® Construction Tape.
c. Fastener: Fastener is dependent on substrate construction.
d. Sealant: Must comply with ASTM C920 elastomeric polymer sealant.

2. TYPAR Butyl Flashing.
i. Description:
a. Face Material Composition: Polyethylene Barrier.
b. Face Color: Gray.
c. Adhesive Composition: Butyl Rubber Adhesive.
d. Thickness: 18.5mil.
e. Release Liner: Kraft Paper.
f. Dimensions: 4" x 75'; 6" x 75'; 9" x 75'; 12" x 75'.
ii. Performance Characteristics:
a. Low Temp Pliability ASTM C765: PASS.
b. Nail Sealability ASTM D1970: PASS.
c. Tensile Strength ASTM D5034-95: PASS.
d. Peel Adhesion ASTM D3330-04: PASS.
iii. Accessories:
a. Primer: Polyken spray adhesive or equal.
b. Seam Tape: TYPAR Construction Tape.
c. Fastener: Fastener is dependent on substrate construction.
d. Sealant: Must comply with ASTM C920 elastomeric polymer sealant.

C. Recommended Sealants Against TYPAR® Logo-Side Coating:
1. Elastomeric polymer-based, butyl rubber, rubber-based, meeting ASTM C920 evaluation.

D. Recommended Fasteners for Wood, Insulated Sheathing Board, Exterior Gypsum:
1. Plastic cap nails.
2. Plastic cap staples.

E. Recommended Fasteners for Steel Frame Construction:
1. Rust-resistant screws with washers.

F. Recommended Fastening to Masonry:
1. Sealant: Polyurethane-based, meeting ASTM C920 evaluation.
2. Mechanical: Masonry fastener with washer.

*Pressure-Sensitive Tape Council.

PART 3. EXECUTION

3.1 Installation

A. TYPAR® DrainableWrap.™
   1. Install in accordance with manufacturer's instruction over exterior sheathing or open studs. Seal joints and penetrations through weather-resistive barrier with specified tape and fasteners prior to installation of finish material. Air infiltration barrier shall be airtight and free from holes, tears, and punctures. All window and door penetrations are to be flashed and sealed per ASTM 2112, AAMA guidelines, and manufacturer instructions. Cover with exterior cladding within six months of installation.

B. TYPAR® Construction Tape.
   1. Follow the TYPAR® flashing installation procedures.

C. TYPAR® Double-Sided Seam Tape.
   1. Follow the TYPAR flashing installation procedures.

D. TYPAR® Butyl Flashing.
   1. Follow the TYPAR flashing installation procedures.

3.2 Examination

A. TYPAR DrainableWrap.
   1. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation.

B. TYPAR Butyl Flashing.
   1. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation.

NOTE: Flashing manufacturer recommends weather barrier be installed prior to the installation of the windows.

3.3 Protection

A. TYPAR Butyl Flashing.
   1. Protect installed self-adhesive and flashing tapes from damage during construction.

A. TYPAR Butyl Flashing.
   1. Protect installed flashing from damage during construction.

Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape

April 2020 | White Paper

DRAINABLE BUILDING WRAPS OFFER SOLUTION AGAINST MOISTURE INFILTRATION

TYPAR®

Figure 1. TYPAR® Drainable Wrap™ features a layer of polypropylene fibers that is integrated into the housewrap material, leading to a 94.8% drainage efficiency.

Drainable Building Wraps Offer Solution Against Moisture Infiltration

With as many ways as there are to construct a wall system, there are an equal number of ways to try to keep that wall dry. But as the race to waterproof wall assemblies continues, we may be inadvertently making it easier for moisture-related issues to fester. After all, no matter how tightly buildings are constructed, water will inevitably find its way in. There's no such thing as a "waterproof" wall.

The walls that will perform the highest are the ones that have been designed to realistically manage moisture and dry out—not those designed to achieve the unachievable goal of completely blocking out all moisture. Choices for managing moisture are expanding, driven by advances in technology, evolving building codes, and remaining concern with mold prevention, indoor air quality, and energy efficiency, among many other factors.

Thankfully, advances in weather-resistant barriers (also known as WRBs, building wrap or housewrap) have resulted in high-performing, labor-friendly solutions for protecting homes and buildings from the elements, while allowing them to both release vapor buildup and drain bulk water. And with a growing number of products hitting the market to address this need, it's important to understand the building codes related to weather protection, moisture drainage, and how specific a building wrap performs in order to specify the right building wrap for your project.

The Building Code

The 2018 International Building Code (IBC), Section 1402.2, "Weather Protection," requires exterior walls "provide the building with a weather-resistant exterior wall envelope… 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… and a means for draining water that enters the assembly to the exterior."

This water-resistive barrier, as defined by Section 1403.2, "Weather Protection," comprises at least "one layer of No. 15 asphalt felt, complying with ASTM D226, Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing, for Type 1 felt or other approved materials… attached to the studs or sheathing."

It is important to note the difference between a weather-resistant barrier (WRB) and a water-resistive barrier, as they have distinct purposes but are often confused with one another. The American Architectural Manufacturers Association (AAMA) defines WRBs as a surface or a wall responsible for preventing air and water infiltration to the building interior. The differentiating factor is a WRB must also prevent air infiltration, while water-resistive barriers are only responsible for stopping water intrusion.

WRBs are commonly specified for commercial buildings or projects where a higher level of performance is desired of the vertical building enclosure, and when it is critical

Figure 2. Building wraps made of polyethylene or polypropylene fabric have been a popular method of protecting homes and buildings against moisture intrusion since the 1970s.

to have greater control of interior environmental conditions. Water-resistive barriers, on the other hand, are usually limited to residential and low-rise structures.

Recently, some states have added even more prescriptive measures to their codes that now include the use of drainage planes, and others are expected to follow.

Oregon, for example, requires that the building envelope consist of an exterior veneer, a water-resistive barrier, a minimum 1/8" (3 mm) space between the WRB and the exterior veneer, and integrated flashings. The envelope must provide proper integration of flashings with the water-resistive barrier, the space provided, and the exterior veneer. In lieu of providing the 1/8" space between the exterior veneer and the water-resistive barrier, builders can install the exterior veneer over a water-resistive barrier that is manufactured to enhance drainage and meets the 75% drainage efficiency requirement of ASTM E2273 or other recognized national standards.

These considerations are driving the adoption of new WRB solutions that meet both bulk water blockage and drainage needs that satisfy the requirements for today's high-performing wall systems.

More Than One Way to Keep a Wall Dry

Due to their durability and ease of installation, building wraps made of polyethylene or polypropylene fabric have been a popular method of protecting against moisture intrusion since the 1970s. But as building assemblies have gotten tighter, building wraps have taken on a new function—helping to remove trapped water from the building enclosure. Their unique functionality enables them to both block moisture from the outside, while also allowing walls to "breathe" to prevent vapor buildup. And the very latest innovations in housewrap technology are taking this moisture removal function one step further to incorporate drainage capabilities, as well.

Water can find its way into a wall via numerous paths. High humidity and extreme temperatures can cause vapor diffusion with moisture flowing from warm to cold and condensing on the colder surface. Reservoir cladding materials such as brick and stucco can absorb and store moisture, which can be driven back into the wall assembly when warmed by the sun. Wind-driven rain can be forced into small openings in the exterior cladding at joints, laps, and utility cutouts. Further, wind blowing around the buildings can create a negative pressure within a wall assembly, siphoning water into the wall.

Drainage is widely accepted as one of the most effective measures for reducing the risk of potential damage due to rain penetration and is a critical component in allowing a building wrap to do its job—particularly in keeping walls dry. Historically, drainage has been achieved through the use of furring strips that separate the wrap from the structural sheathing and framing, but new technologies have emerged that are helping to simplify this process.

Figure 3. The American Architectural Manufacturers Association defines WRBs as a surface or a wall responsible for preventing air and water infiltration to the building interior.

Today's most advanced building wrap products feature integrated drainage gaps through creping, embossing, weaving, or filament spacers. These new products eliminate the need for furring strips, helping to reduce material costs and streamline installation.

The drainage efficiency of a building wrap is generally tested in accordance of ASTM E2273. In simple terms, this test involves spraying water onto a wall assembly and measuring its collection over time. However, given the variety of drainable building wraps available, how quickly bulk water is drained can vary significantly.

The Latest in Building Wrap Technology

One method for achieving bulk water drainage is attaching a rainscreen material onto the building wrap. These products eliminate the cost and time-consuming labor of installing furring strips by creating a gap between the sheathing and the cladding, which facilitates both drainage and continuous airflow. Where wood strapping only vents approximately 85 percent of the wall, building wraps with an integrated rainscreen provide a continuous vented airspace over the entire surface area of the wall, providing greater drainage and more effective drying. And because many rainscreen products use a matrix of plastic material to achieve the gap, they aren't subject to saturation and decomposition that could compromise wood furring.

Rainscreen products are recommended in areas with wind-driven rain, high amounts of rainfall (40 to 60 inches annually), or high temperature and humidity. Coastal areas and hilltop exposures are prime examples of when this technology would be ideal. In these situations, the importance of creating a drainage plane is heightened when using an absorptive cladding material like wood or fiber cement.

The cutting edge of drainable building wrap technology is products that create a drainage gap through an additional layer of polypropylene fibers. TYPAR® Drainable Wrap™ for example, uses this technology to create a 1 mm drainage gap and has been shown to achieve 94.8 percent drainage efficiency per ASTM E2273—without sacrificing any of the durability and ease of installation benefits builders and contractors have come to expect from premium building wraps. TYPAR Drainable Wrap essentially handles and installs the same as a standard TYPAR® BuildingWrap™ In addition, it is backed by an industry-leading, lifetime limited warranty that includes both materials and labor.*

These products can also be installed in any direction without affecting performance. And they are vapor-permeable, so moisture will not become trapped in the wall assembly and lead to mold or rot issues.

Making the Right Spec

With so many options to choose from, how do you know what type of weather protection is best for your project? In addition to the scenarios described within this paper, there are a number of factors to consider.

Figure 4. As building assemblies have gotten tighter, building wraps have taken on a new function—helping to remove trapped water from the building enclosure.

A key consideration is the type of cladding being used. When installing vinyl siding—which has built-in drainage holes and fits loosely on the wall—an ordinary smooth-faced building wrap should provide adequate drainage. However, tightly fastened cladding, such as cedar siding or fiber cement board, might allow water trapped between the siding and a smooth building wrap to pool and could eventually make its way through the building wrap and into the framing. These are cases where a drainable wrap would provide significant benefit.

Reservoir claddings, such as brick, stucco, and stone, present another set of issues. Because these materials hold water, once they get wet, the stored water can migrate elsewhere and cause problems. In these applications, it is imperative to separate the cladding from the rest of the assembly with a capillary break, which can be an airspace or a material that sheds water or does not absorb or pass water.

Geography and climate are important, as well, specifically as it relates to annual rainfall. As a rule of thumb, the Building Enclosure Moisture Management Institute recommends that any area receiving more than 20 inches of annual rainfall should incorporate enhanced drainage techniques—especially if using an absorptive cladding material—while areas receiving 40 inches or more should utilize rainscreen design regardless of cladding material. The geographic orientation of the wall, amount of overhang, altitude, and even nearby trees can also have an impact on how much water intrusion can be expected and how likely it is to dry.

Conclusion

While we can't completely stop water from getting into walls, advances in building wrap technology are a welcome way to help ensure potential damage from water intrusion is mitigated. And with a variety of drainable products to choose from, each offering a different approach to bulk water drainage, builders and contractors have many ways to keep walls dry in any climate or condition.

*Certain limitations and exclusions apply.

FOR MORE INFO, VISIT TYPAR.COM.

TYPAR®

Building Wraps | Flashings | Construction Tape

April 2020 | Made in USA

NEW to the TYPAR® DrainableWrap™ family.

DRAINABLEWRAP™ PEEL AND STICK

Defend Against Excess Moisture Without Excess Effort.

DRAINABLEWRAP™ COMMERCIAL

The Bulk Water Beater for Four Stories and Above.

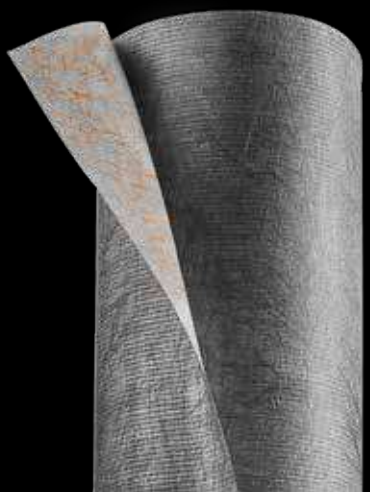
Thanks to our patented meltshot technology that adds an integrated layer of fibers to create an effective drainage plane, our DrainableWrap channels wind-driven rain and bulk water away from your structure. Better still, it's TYPAR, meaning you also get exceptional strength, surfactant resistance, optimal breathability, and unbeatable UV protection.

Read more about the next generation of moisture management in walls here:

TYPAR®

Berry INNOVATION FOR THE WORLD SOLUTIONS FOR YOU

DRAINABLEWRAP™ COMMERCIAL



THE BULK WATER BEATER FOR FOUR STORIES AND ABOVE.

Count on TYPAR® DrainableWrap Commercial to boost your defenses when you're building up. Plus it comes with a 10-year warranty that covers both labor and materials.*

*Certain limitations and exclusions apply. See warranty information online at TYPAR.com/downloads for full details.

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A Berry Global Brand

TYPAR® DRAINABLEWRAP™ COMMERCIAL

THE HIGHER YOU BUILD, THE MORE MUSCLE YOU NEED.

TYPAR® DrainableWrap™ Commercial is specially engineered to protect buildings four stories and above—and give you an elevated ability to deal with excess moisture. Thanks to our patented meltshot technology that adds an integrated layer of fibers to create an effective drainage plane, it channels wind-driven rain and bulk water away from your structure. Better still, it's TYPAR,® meaning you also get exceptional strength, surfactant resistance, optimal breathability, and unbeatable UV protection.

LEADING FEATURES AND BENEFITS:

- Exceeds minimum AC38 Code Requirement for Drainage Efficiency as per ASTM E2273
- Drains significantly faster than most conventional house wraps, per ASTM E2273 testing
- No UV degradation for up to 12 months
- Tear strength five times greater than the competition
- Superior air and water holdout reduces energy costs
- Won't support mold growth
- Protects indoor air quality
- Resists damaging surfactants and cleaning techniques

TAKE YOUR STAND WITH THE FULL SYSTEM.

Looking for comprehensive defense? TYPAR DrainableWrap Commercial is part of the industry's most complete weather protection lineup that includes flashings, tapes, and more. All manufactured by us for true ruggedness and higher performance.

TYPICAL CHARACTERISTICS:		
Basis Weight	D5261	3.8 oz/yd²
Thickness	D1777	20 mils
Drainage Efficiency	E2273	96.7%
Breaking Strength (Grab Tensile)	D5034	93 lbs MD 95 lbs CD
Trapezodial Tear Resistance	D5733	60 lbs MD 67 lbs CD
Hydrostatic Pressure Resistance	AATCC 127-1995	>500 cm
Moisture Vapor Transmission Rate	E96-95 A	10 perms
UV Light Exposure Resistance	–	12 months
Air Penetration Resistance (Gurley Hill Porosity)	–	>4800 sec /100 cc
Air-Ins (Air Leakage Test)	E1677	PASS .0038 L(S.M²) @ 75 PA
Water Resistance Test	D779	PASS
Surface Burning Characteristics (ASTM E84)		
Flame Spread Index	Class A	
Smoke Spread Index	PASS	
NFPA 285	PASS	
ROLL SIZE:		
5′ x 150′		

NOTE: TYPAR DrainableWrap Commercial is not available in Canada.

Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape
1510

INNOVATION FOR THE WORLD
SOLUTIONS FOR YOU

TYPAR® DRAINABLEWRAP™ COMMERCIAL INSTALLATION GUIDE

FOR COMMERCIAL APPLICATIONS

TABLE OF CONTENTS

OBJECTIVE

The objective of these installation instructions for TYPAR® DrainableWrap™ Commercial is to provide guidance to the design professional and to the installation contractor. TYPAR DrainableWrap Commercial can provide the function of a water resistive barrier and the function of an air barrier in a commercial building when installed as an assembly.

Note: As commercial buildings vary significantly in design and height and are subject to different forces depending on location, the design professional shall determine the number of material loads needed for the project and review the guidelines in this document to ensure they are applicable to their specific project.

This guide provides only the basic installation requirements for TYPAR DrainableWrap Commercial and does not provide all details which may be required for a specific building. For additional guidance, design professionals may reference the TYPAR model specification guide or contact the manufacturer.

FUNCTIONS

Water Resistive Barrier Function

TYPAR DrainableWrap Commercial has been designed to shed the liquid water which passes through the cladding when installed as a water resistive barrier assembly. Additional materials and components shall be used to work with the TYPAR DrainableWrap Commercial to direct the water to the exterior of the building enclosure.

Air Barrier Assembly

Designed with an air permeance rate well below the maximum level required for classification as an air barrier material, TYPAR significantly reduces air infiltration and exfiltration through the walls of your building. Additional materials and components shall be used to seal the TYPAR DrainableWrap Commercial to penetrations and to terminate the material at the roof intersection and at the foundation. Both the design professional and the installer have to keep in mind that the force on the material will be in both directions (positive and negative). This load must still be transferred to the substrate. Therefore, the fastener type and spacing are very important.

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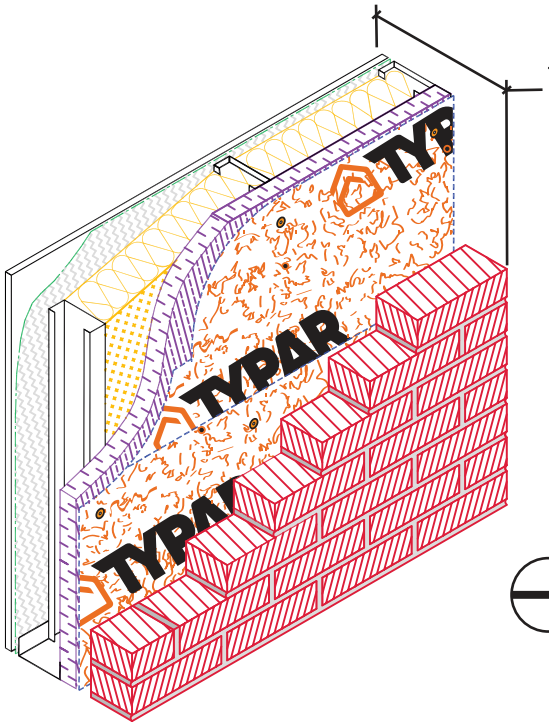
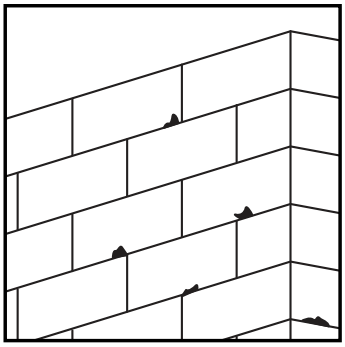


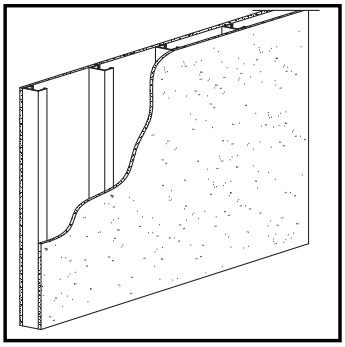
TYPICAL WALL
MASONRY VENEER
1" AIR SPACE TYPAR® METROWRAP RIGID INSULATION
STEEL STUDS w/BATT INSULATION VAPOR RETARDER
GYPSUM BOARD

TYPICAL WALL ISOMETRIC
COMMERCIAL STEEL FRAME STRUCTURE w/MASONRY VENEER

INSTALLATION GUIDELINES

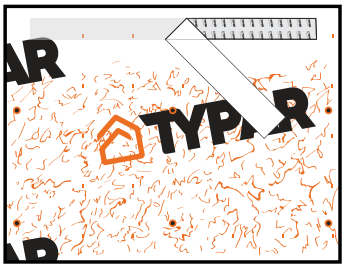
Substrate
TYPAR DrainableWrap Commercial can be installed over any substrate. Installers shall check for any sharp protrusions on the substrate and remove them to avoid penetrating the TYPAR DrainableWrap Commercial. The material must be intact to keep the water and air out.



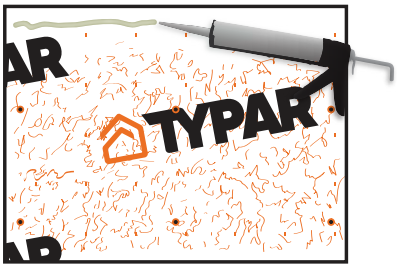


Weather Conditions
Temperature does not impact the installation procedure. High winds can affect installation as TYPAR DrainableWrap Commercial will be installed in large sheets. TYPAR DrainableWrap Commercial should not be installed when it is raining or before the substrate has dried after a rain.

Overlaps
TYPAR DrainableWrap Commercial and all other materials and components used as part of the installation are to be installed in a shingle fashion, the material or component above must overlap the material or component below it. The overlap shall be 6 inches (101 mm) both horizontally and vertically where possible. TYPAR DrainableWrap Commercial allows for either TYPAR Doubled Sided Seaming Tape or any polyurethane based caulking sealant to seam two overlapped rolls. When using TYPAR® Double Sided Seaming Tape, the tape should first be applied on the top edge of the TYPAR DrainableWrap Commercial within 6". The second layer of TYPAR DrainableWrap Commercial should then be applied on top of the first. When using any polyurethane-based caulking sealant, ensure a continuous bead of sealant is applied to top edge o the TYPAR DrainableWrap Commercial within 6" and then apply the second layer of TYPAR DrainableWrap Commercial on top of the first. Use of TYPAR® Construction Tape on horizontal and vertical seams is optional and not required for full warranty coverage under the TYPAR Weather Protection System Limited Lifetime Warranty.



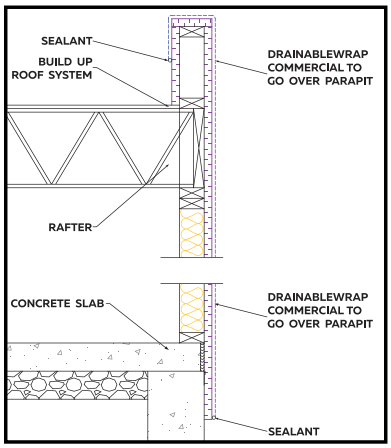
Option 1: TYPAR Double Sided Tape



Option 2: Any Polyurethane-Based Caulking Sealant

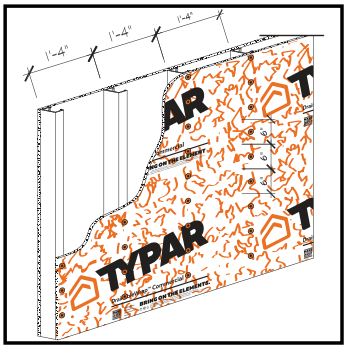
Penetrations
TYPAR® DrainableWrap Commercial must be carefully cut around penetrations. A bead of approved sealant is then installed on the substrate, approximately 1 inch (2.5 cm) back from the edge of the cut. The TYPAR DrainableWrap Commercial is then pressed into the sealant to keep out both water and air. TYPAR® Flexible Flashing or TYPAR straight flashing is then installed on the exterior of the TYPAR DrainableWrap Commercial, joining the material to the penetration. For more detailed information, refer to the TYPAR Installation Manual.

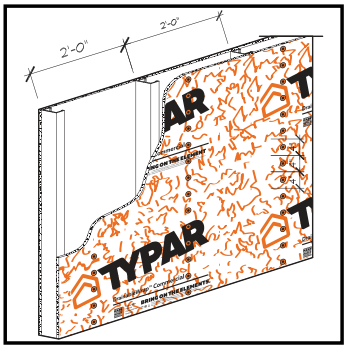
Terminations
Terminations are treated similar to penetrations. A bead of approved sealant is installed on the substrate approximately 1 to 2 inches (25 to 50 mm) back from the edge of the TYPAR DrainableWrap Commercial. The TYPAR DrainableWrap Commercial is pressed into the approved sealant. In high wind locations, consider installing a furring strip where the material is terminated to provide additional structural support.



Fasteners
Different fasteners shall be used depending on the substrate poured (concrete, concrete block, steel stud, gypsum board, or wood). The most common walls used in commercial buildings are either steel studs with a treated gypsum board or wood framing with OSB sheathing. The fastener shall penetrate the substrate by 2 inches (50 mm) and shall have a 2 inch (50 mm) plastic head. When steel studs are used, the fasteners shall be self taping screws with a 2 inch (50 mm) plastic washer. The screw shall be 2 inches (50 mm) long when ½ inch (12 mm) gypsum board is used. When wood studs are used, a 2 inch (50 mm) plastic headed nail or screw shall be used which is 2 inches (50 mm) long when the ½ inch (12 mm) OSB sheathing is used. When the substrate is concrete block or poured concrete, use an adhesive approved by the manufacturer to adhere the TYPAR DrainableWrap Commercial to the substrate.

Fastening Requirements
Attach one fastener or more every 24 inches in horizontal and vertical direction.





Windows and Doors
Windows and doors are similar to penetrations. Installers will follow AAMA Procedure A or B depending on whether or not windows were installed prior to the installation of TYPAR DrainableWrap Commercial.

Completing the Installation
Once one section or wall is complete, the installer should inspect the installation to ensure the following:

- All rows of material are overlapping the row below
- All materials and components have been installed in a shingle fashion
- The proper fasteners are used
- Nailing patterns are correct
- Penetrations and terminations are correct
- Doors and windows have been properly flashed and integrated into the TYPAR DrainableWrap Commercial material

Disclaimer: This guideline document provides general guidance only for the installation of TYPAR® DrainableWrap Commercial on commercial buildings. The design professional or builder shall consider all of the physical properties of the material and design the installation requirements to suit specific building requirements. Failure to consider all specific requirements for a building may lead to improper use of the material, resulting in non-optimum performance of the material.

PRI Construction Materials Technologies LLC

6412 Badger Drive
Tampa, FL 33610
813.621.5777
https://www.pri-group.com/

Laboratory Test Report

Report for:	Berry Global 70 Old Hickory Blvd Old Hickory, TN 37138
Product Name(s):	Typar™ DrainableWrap Commercial
Project No.:	2084T0020
Date(s) Tested:	June 28th – July 6th, 2023
Test Method(s):	ASTM E2357
Results Summary:	Opaque Wall (After Wind Conditioning 75Pa) – 0.027 L/(s·m²) Penetration Wall (After Wind Conditioning 75Pa) – 0.080 L/(s·m²)

Purpose: Evaluate the air leakage of Berry Global's Typar™ DrainableWrap Commercial mechanically attached membrane in accordance with ASTM E2357 Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies. Air leakage is reported at the reference pressure differential (ΔP) of 75Pa.

Test Methods: Testing was completed as described in ASTM E2357-18 Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies. Test methods assigned or referenced include 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.

Sampling: The following materials were received by PRI-CMT. All other materials were procured by PRI-CMT thru local distribution.

Product	Source	Date	Sampling
Typar™ DrainableWrap Commercial Typar™ All Temp Flashing Tape 4" Typar™ Flexible Flashing Tape 9" Typar™ Double-Sided Seaming Tape 1-1/2"	Old Hickory, TN	Feb. 9th, 2023	Berry Global

Installation: Two (2) air barrier assembly specimens were evaluated for air leakage: Specimen 1 – Opaque Wall and Specimen 2 – Penetration Wall. Each specimen was frame construction utilizing C-Stud Steel (2" x 6" – 18 ga 33ksi galvanized) framing members spaced 16" on center. Steel studs were fastened together with #8 x 1" pan head Phillips self-drilling screws. In Specimen 2 – Penetration Wall, a window opening was framed per ASTM E2357 descriptions and in accordance with standard construction practice. DensGlass® Sheathing (5/8" thick) was fastened to steel studs with #6 x 1-1/4" scavenger head Phillips self-drilling screws spaced approximately 8" on center around the perimeter and vertical intermediates. The sheathing contained one (1) horizontal and two (2) vertical staggered joints in accordance with ASTM E2357 description. Additional penetrations included a square galvanized duct, and a round PVC pipe. All additional penetrations were mitered and installed through the sheathing, which were cut to provide a gap in accordance with ASTM E2357 description. Junction boxes and masonry ties were mounted in accordance with ASTM E2357 description. Schematic drawings of Specimen 1 and Specimen 2 are located in Appendix A of this report.

The air barrier assembly consisted of mechanically attaching Typar™ DrainableWrap Commercial to the exterior side of the DensGlass® sheathing horizontally beginning at the bottom with one (1) horizontal and one (1) vertical lap. The Typar™ DrainableWrap Commercial was secured to the wall using #8 x 1-1/2" SDS screws with 1" Ø plastic cap washers spaced 1-1/2" from the edges and 6" O.C thereafter on all vertical members; all joints were overlapped 4" prior to fastening. The Specimen detailing was performed as follows:

Specimen #1 (Opaque Wall)

One (1) continuous strip of Typar™ Double-Sided Seaming Tape was applied between the 4" vertical and horizontal Typar™ DrainableWrap Commercial overlapping joints.

Specimen #2 (Penetration Wall)

One (1) continuous strip of Typar™ Double-Sided Seaming Tape was applied between the 4" vertical and horizontal Typar™ DrainableWrap Commercial overlapping joints. The air barrier material was trimmed around the PVC pipe, galvanized duct, hexagonal and square junction boxes. A bead of polyurethane adhesive was applied around each penetration between the sheathing and backside of the Typar™ DrainableWrap Commercial. Typar™ All Temperature Flashing 4" tape was applied around each penetration, sealing the penetration component to the air barrier. Masonry tie's – Six (6) masonry ties were attached to the exterior of the wall assembly. Each masonry tie was anchored into the metal studs with one (1) with #8 x 1-1/2" SDS screw driven through a pile polyurethane adhesive.

Window – The window opening was flashed beginning at the sill with a continuous piece of Typar™ Flexible Flashing 9" Tape, extending 6" into the window opening, 3" over the air barrier material, and 6" up each jamb. The jambs were flashed with Typar™ Flexible Flashing 9" Tape extending 6" into the window opening and 3" over the air barrier material. The head was flashed with a continuous piece of Typar™ Flexible Flashing 9" Tape, extending 6" into the window opening, 3" over the air barrier material, and 6" down each jamb. The exterior perimeter of the Typar™ Flexible Flashing 9" Tape extending onto the air barrier material was covered with Typar™ All Temperature Flashing 4" tape. The window was set into place with ½" around the perimeter; a 5/8" foam backer rod was installed into the gap and back filled with polyurethane adhesive.

Results:

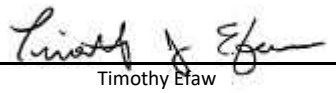
Table 1. ASTM E2357

Property	Test Method	Result[1,2]	Requirement
Performance Requirements			
System Air Leakage Specimen 1: Opaque Wall; After Wind Conditioning @ ΔP = 75Pa	ASTM E2357		
	L/(s·m^2)	0.027	≤ 0.2
	cfm/ft^2	0.0054	≤ 0.04
System Air Leakage Specimen 2: Penetration Wall; After Wind Conditioning @ ΔP = 75Pa	ASTM E 2357		
	L/(s·m^2)	0.080	≤ 0.2
	cfm/ft^2	0.0157	≤ 0.04

Note(s): 1 - Test data, including error analysis are contained in Appendix A.
2 – The air leakage rate at 75Pa determined for Specimen 1 shall be the system air leakage rating assigned to the assembly provided the air leakage at 75Pa for Specimen 2 is no more than 10% greater than the reference base air leakage for Specimen 1. In this testing, that condition was not met, therefore the system air leakage rating is the air leakage rate at 75Pa determined for Specimen 2.

Statement of Compliance:

The product tested complies with the requirements for Mechanically Fastened Commercial Building Wraps as set forth in the **ABAA Process for Approval of Air Barrier Materials, Accessories and Assemblies- Date of issue 06/01/2015 Section 6.0 Air Barrier Assembly Testing.** The laboratory test results presented in this report are representative of the materials supplied. This report does not constitute certification of this product which may only be granted by the certification program administrator.

Signed: 

Timothy Elaw
Manager

Date: July 28th, 2023

Report Issue History:

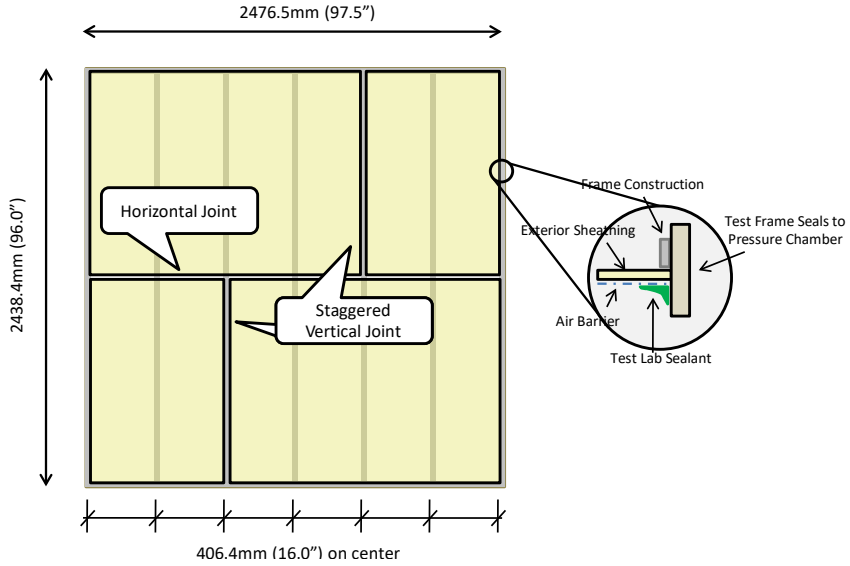
Issue #	Date	Pages	Revision Description (if applicable)
Original	07/28/2023	14	NA

APPENDIX FOLLOWS…

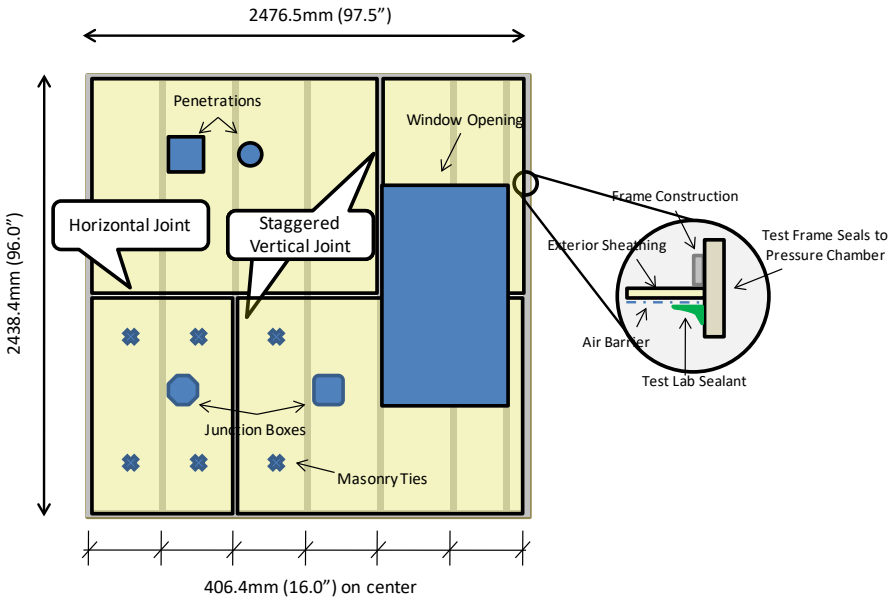
Schematic Drawings (Typ.)

ASTM E 2357 Schematics

Specimen 1 – Opaque Wall



Specimen 2 – Continuity at Penetrations



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Specimen 1 - Raw Data

ASTM E 2357-18: Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

Client: Berry Global
Product Name: Typar™ DrainableWrap Commercial
Product Decription: Mechanically Attached Wrap
Test Start Date: 6/28/2023 **Test End Date:** 7/6/2023

PRI Project ID:2084T0020
Source:
Miami-Dade Notification: NA

Specimen 1:

Width: 2438.400 mm
Height: 2438.400 mm
Area: 5.946 m^2

Wall Construction: Opaque Wall

Wall construction is as follows. 2x6, 18ga steel studs on 16" centers. 5/8" DenGlass installed using #6x1-1/4" scavenger screws every 8" apart. Air barrier installed with a 4" overlaps and attached using 1" plastic cap self tapping screws 6" on center. Double sided tape added to the inside of the lap

Air Leakage (Before Wind Conditioning)

Pressure: 101.6 kPa
Temperature: 28 °C
Air Density: 1.177 kg/m^3

Specimen 1 (Before Wind Conditioning) - Infiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa	Q_{ti} (LPM)
25	10.30	25	17.46
50	19.34	50	25.96
75	27.68	75	35.02
100	35.36	100	42.42
150	49.88	150	58.04
250	64.64	250	81.94
300	71.66	300	91.54

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.22	2.33	3.22	2.86
3.91	2.96	3.91	3.26
4.32	3.32	4.32	3.56
4.61	3.57	4.61	3.75
5.01	3.91	5.01	4.06
5.52	4.17	5.52	4.41
5.70	4.27	5.70	4.52

Specimen 1 (Before Wind Conditioning) - Exfiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa	Q_{ti} (LPM)
25	1.69	25	3.3
50	10.90	50	19.1
75	18.16	75	27.5
100	25.12	100	35.5
150	38.02	150	52.2
250	60.26	250	73.4
300	68.84	300	83.0

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.22	0.52	3.22	1.21
3.91	2.39	3.91	2.95
4.32	2.90	4.32	3.31
4.61	3.22	4.61	3.57
5.01	3.64	5.01	3.96
5.52	4.10	5.52	4.30
5.70	4.23	5.70	4.42

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Coefficient of Determination:

Infiltration ΔP		Exfiltration ΔP	
R^2_{ei}	R^2_{ti}	R^2_{ei}	R^2_{ti}
0.994	0.999	0.964	0.954

Specimen 1 (Before Wind Conditioning) - Infiltration ΔP **log transformation**

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m^2))	x_i	y_i
25	5.62	0.016	3.2189	-4.1505
50	7.73	0.022	3.9120	-3.8324
75	9.14	0.026	4.3175	-3.6648
100	10.18	0.029	4.6052	-3.5570
150	11.61	0.033	5.0106	-3.4251
250	13.07	0.037	5.5215	-3.3065
300	13.39	0.038	5.7038	-3.2824

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

Specimen 1 (Before Wind Conditioning) - Exfiltration ΔP **log transformation**

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m^2))	x_i	y_i
25	2.78	0.008	3.2189	-4.8535
50	5.31	0.015	3.9120	-4.2080
75	7.51	0.021	4.3175	-3.8610
100	9.41	0.026	4.6052	-3.6348
150	12.43	0.035	5.0106	-3.3568
250	15.73	0.044	5.5215	-3.1213
300	16.19	0.045	5.7038	-3.0926

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

Wind Conditioning

	ΔP (Pa)	Time (s)	Observations Comments	
Sustained Loading	150	10	None noted.	
	300	10	None noted.	
	450	10	None noted.	
	600	3600	Specimen maintained differential pressure without incident.	
	-150	10	None noted.	
	-300	10	None noted.	
	-450	10	None noted.	
	-600	3600	Specimen maintained differential pressure without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fai			Pass
Cyclic Loading	ΔP (Pa)	Cycle (s)	Observations Comments	
	0 to 800	1000	Cyclic deflection of wall assembly evident. Specimen maintained integrity without incident.	
	0 to -800	1000	Cyclic deflection of wall assembly evident. Specimen maintained integrity without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fai			Pass
Gust Loading	ΔP (Pa)	Cycle (s)	Observations Comments	
	0 to 1200	1	Gust deflection of wall assembly evident. Specimen maintained integrity without incident.	
	0 to -1200	1	Gust deflection of wall assembly evident. Specimen maintained integrity without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fai			Pass

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Air Leakage (After Wind Conditioning)

Pressure: 102 kPa
Temperature: 30 °C
Air Density: 1.174 kg/m^3

Specimen 1 (After Wind Conditioning) - Infiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa	Q_{ti} (LPM)
25	6.28	25	10.32
50	12.12	50	21.62
74	18.77	74	27.46
99	22.84	99	34.26
150	30.23	149	46.70
251	45.18	250	65.91
299	52.32	299	74.57

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.22	1.84	3.2189	2.3336
3.91	2.49	3.9120	3.0737
4.30	2.93	4.3041	3.3126
4.60	3.13	4.5951	3.5339
5.01	3.41	5.0039	3.8438
5.53	3.81	5.5215	4.1884
5.70	3.96	5.7004	4.3117

Specimen 1 (After Wind Conditioning) - Exfiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa	Q_{ti} (LPM)
26	11.21	26	13.0
50	20.52	50	21.5
74	28.84	74	29.3
99	34.12	99	35.5
150	35.77	149	43.7
249	41.08	249	60.8
299	52.53	299	66.6

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.26	2.42	3.2581	2.5649
3.91	3.02	3.9120	3.0673
4.30	3.36	4.3041	3.3781
4.60	3.53	4.5951	3.5693
5.01	3.58	5.0039	3.7766
5.52	3.72	5.5175	4.1078
5.70	3.96	5.7004	4.1986

Coefficient of Determination:

Infiltration ΔP		Exfiltration ΔP	
R^2_{ei}	R^2_{ti}	R^2_{ei}	R^2_{ti}
0.996	0.995	0.960	0.997

log transformation

Specimen 1 (After Wind Conditioning) - Infiltration ΔP

ΔP (Pa)	Q_c (LPM)[a]	Q/A (L/(s*m^2))
25	4.68	0.013
50	7.46	0.021
75	9.77	0.027
100	11.80	0.033
150	15.35	0.043
250	21.27	0.060
300	23.85	0.067

x_i	y_i
3.2189	-4.3337
3.9120	-3.8670
4.3175	-3.5978
4.6052	-3.4089
5.0106	-3.1456
5.5215	-2.8199
5.7038	-2.7054

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

Specimen 1 (After Wind Conditioning) - Exfiltration ΔP

log transformation

ΔP (Pa)	Q_c (LPM)[a]	Q/A (L/(s*m^2))
25	0.22	0.001
50	1.74	0.005
75	3.29	0.009
100	4.81	0.013
150	7.77	0.022
250	13.41	0.038
300	16.10	0.045

x_i	y_i
3.2189	-7.3794
3.9120	-5.3213
4.3175	-4.6873
4.6052	-4.3064
5.0106	-3.8262
5.5215	-3.2813
5.7038	-3.0983

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

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Calculation:

System Air Leakage Rating		95% Confidence Interval		
ΔP (Pa)	Permeance (L/(s*m²*Pa))			
25	0.013	0.0129	-	0.0133
50	0.021	0.0206	-	0.0212
75	0.027	0.0270	-	0.0278
100	0.033	0.0326	-	0.0336
150	0.043	0.0424	-	0.0437
250	0.060	0.0587	-	0.0605
300	0.067	0.0658	-	0.0679

Analysis:

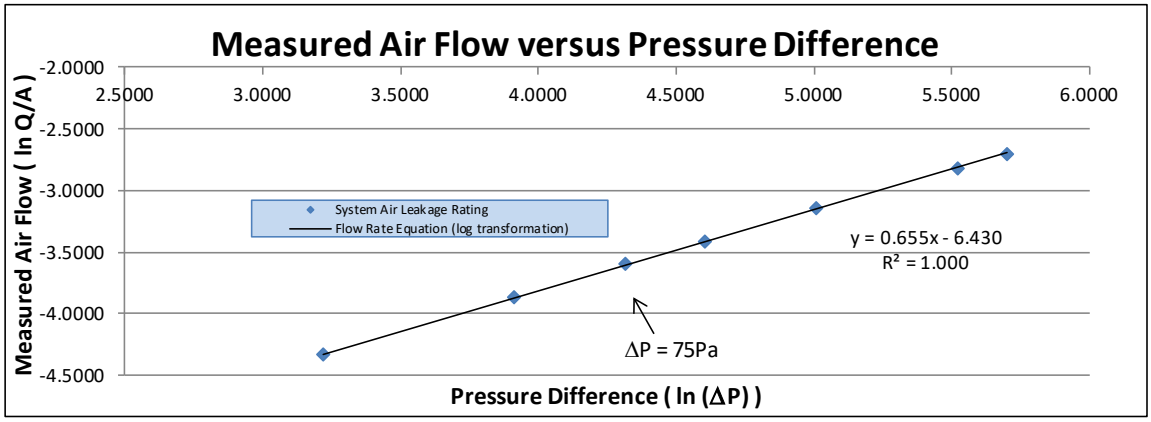
$Q=CA(\Delta P)^n$ Flow Rate Equation

$\ln(Q/A)=\ln(C) + n \ln(\Delta P)$ (log transformation)

$y_i=\ln(C) + nx_i$ (linear regression)

Statistical Analysis:

				95% Confidence Interval		
$\ddot{x}$ =	4.6128					
$\ddot{y}$ =	-3.4112					
S_x^2 =	0.7826	n =	0.6545	0.6451	-	0.6640
S_y^2 =	0.3353	ln(C) =	-6.4303	-6.4827	-	-6.3780
S_{xy} =	0.5122	C =	0.0016	0.0015	-	0.0017



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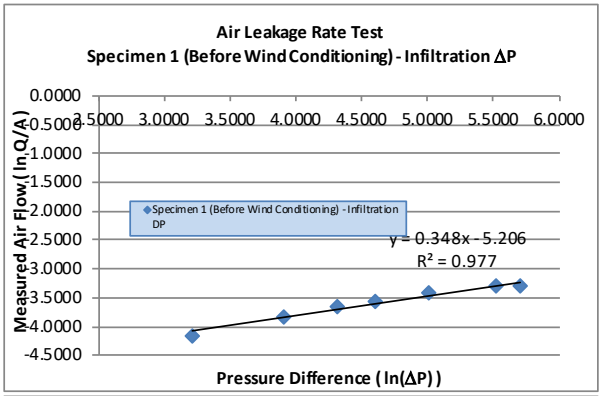
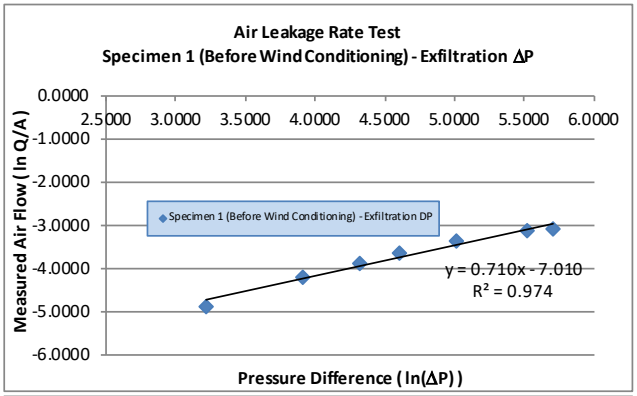
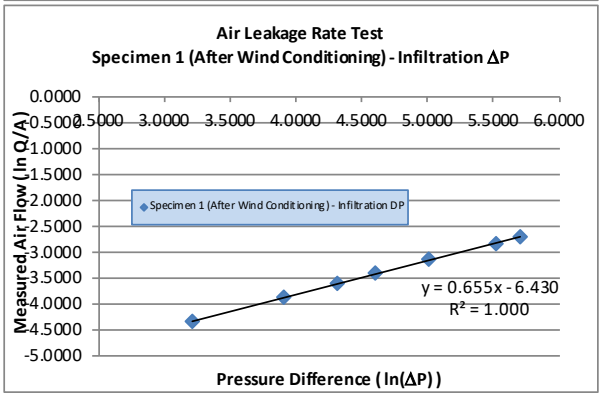
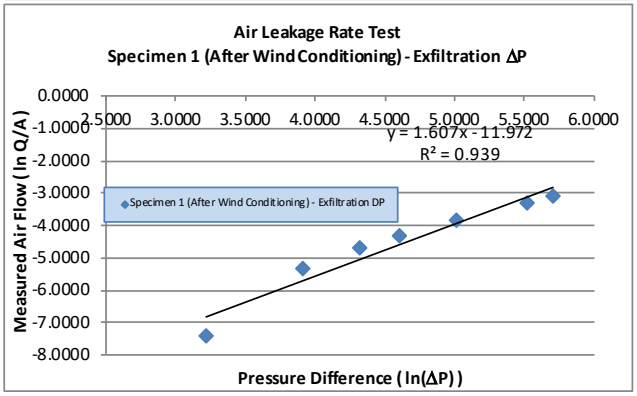
Air Leakage Rate Graphs:









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Specimen 2 - Raw Data

ASTM E 2357-18: Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

Client: Berry Global **PRI Project ID:2084T0020**
Product Name: Typar™ DrainableWrap Commercial **Source:**
Product Decription: Mechanically Attached Wrap **Miami-Dade Notification:** NA
Test Start Date: 6/28/2023 **Test End Date:** 7/6/2023

Specimen 2:

Width: 2438.400 mm **Area:** 5.946 m^2
Height: 2438.400 mm
Wall Construction: Penetration Wall

Typical E2357 construction: 8'x8' steel studs 16" OC with 5/8" DensGlass sheathing applied with prescribed joints. Air barrier installed with a 4" overlaps and attached using 1" plastic cap self tapping screws 6" on center. Double sided tape added to the inside of the laps. Window treatment: Flashed with flexible flashing 6" inside of opening, extending 3" over the exterior air barrier. The exterior perimeter had another layer of 4" all temperature window flashing. The window was set into place with 1/2" gap around perimeter; 5/8" backer rod was installed into the gap and back filled with polyurethane adhesive. All other penetrations were sealed with all temperature flashing, using a bead of polyurethane adhesive between the air barrier and sheathing prior to application.

Air Leakage (Before Wind Conditioning)

Pressure: 101.93 kPa
Temperature: 31 °C
Air Density: 1.169 kg/m^3

Specimen 2 (Before Wind Conditioning) - Infiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
25	9.96	25	21.72
50	18.36	50	36.50
75	28.42	75	47.22
100	36.24	100	59.80
150	52.02	150	79.54
250	76.32	250	105.26
300	85.84	300	113.90

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.22	2.30	3.22	3.08
3.91	2.91	3.91	3.60
4.32	3.35	4.32	3.85
4.61	3.59	4.61	4.09
5.01	3.95	5.01	4.38
5.52	4.33	5.52	4.66
5.70	4.45	5.70	4.74

Specimen 2 (Before Wind Conditioning) - Exfiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
25	7.52	25	26.52
50	18.84	50	37.78
75	32.72	75	58.16
100	37.84	100	68.88
150	51.74	150	87.96
250	65.56	250	110.02
300	66.88	300	117.56

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.22	2.02	3.22	3.28
3.91	2.94	3.91	3.63
4.32	3.49	4.32	4.06
4.61	3.63	4.61	4.23
5.01	3.95	5.01	4.48
5.52	4.18	5.52	4.70
5.70	4.20	5.70	4.77

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Coefficient of Determination:

Infiltration ΔP		Exfiltration ΔP	
R^2_{ei}	R^2_{ti}	R^2_{ei}	R^2_{ti}
0.998	0.998	0.968	0.991

Specimen 2 (Before Wind Conditioning) - Infiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m²))
25	12.28	0.034
50	17.08	0.048
75	20.31	0.057
100	22.67	0.064
150	25.86	0.073
250	28.84	0.081
300	29.30	0.082

log transformation

x_i	y_i
3.2189	-3.3692
3.9120	-3.0389
4.3175	-2.8661
4.6052	-2.7559
5.0106	-2.6242
5.5215	-2.5153
5.7038	-2.4995

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m³).

Specimen 2 (Before Wind Conditioning) - Exfiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m²))
25	17.26	0.048
50	23.78	0.067
75	28.23	0.079
100	31.58	0.089
150	36.34	0.102
250	41.67	0.117
300	43.10	0.121

log transformation

x_i	y_i
3.2189	-3.0284
3.9120	-2.7080
4.3175	-2.5367
4.6052	-2.4246
5.0106	-2.2840
5.5215	-2.1471
5.7038	-2.1135

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m³).

Wind Conditioning

	ΔP (Pa)	Time (s)	Observations Comments	
Sustianed Loading	150	10	None noted.	
	300	10	None noted.	
	450	10	None noted.	
	600	3600	Specimen maintained differential pressure without incident.	
	-150	10	None noted.	
	-300	10	None noted.	
	-450	10	None noted.	
	-600	3600	Specimen maintained differential pressure without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]			Pass
Cyclic Loading	ΔP (Pa)	Cycle (s)	Observations Comments	
	0 to 800	1000	Cyclic deflection of wall assembly evident. Specimen maintained integrity without incident.	
	0 to -800	1000	Cyclic deflection of wall assembly evident. Specimen maintained integrity without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]			Pass
Gust Loading	ΔP (Pa)	Cycle (s)	Observations Comments	
	0 to 1200	1	Gust deflection of wall assembly evident. Specimen maintained integrity without incident.	
	0 to -1200	1	Gust deflection of wall assembly evident. Specimen maintained integrity without incident.	
	Visual inspection for signs of fracture, delamination, loosening of fasteners, blistering, rupture, etc. [Pass/Fail]			Pass

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Air Leakage (After Wind Conditioning)

Pressure: 102.032 kPa
Temperature: 30 °C
Air Density: 1.174 kg/m^3

Specimen 2 (After Wind Conditioning) - Infiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
25	8.34	25	20.87
49	13.00	49	34.39
74	20.20	74	43.53
99	22.18	99	54.28
151	29.54	149	69.51
249	40.03	249	93.79
299	49.53	299	102.46

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.22	2.12	3.2189	3.0381
3.89	2.57	3.8918	3.5377
4.30	3.01	4.3041	3.7735
4.60	3.10	4.5951	3.9941
5.02	3.39	5.0039	4.2414
5.52	3.69	5.5175	4.5410
5.70	3.90	5.7004	4.6295

Specimen 2 (After Wind Conditioning) - Exfiltration ΔP

ΔP_{ei} (Pa)	Q_{ei} (LPM)	ΔPt_i (Pa)	Q_{ti} (LPM)
25	25.37	25	34.98
49	29.58	49	47.48
74	35.42	74	62.22
99	37.34	99	77.87
149	37.48	151	102.18
249	60.18	249	121.90
299	69.48	299	138.03

log transformation

x_{ei}	y_{ei}	x_{ti}	y_{ti}
3.22	3.23	3.2189	3.5548
3.89	3.39	3.8918	3.8602
4.30	3.57	4.3041	4.1306
4.60	3.62	4.5951	4.3550
5.00	3.62	5.0173	4.6268
5.52	4.10	5.5175	4.8032
5.70	4.24	5.7004	4.9275

Coefficient of Determination:

Infiltration ΔP		Exfiltration ΔP	
R^2_{ei}	R^2_{ti}	R^2_{ei}	R^2_{ti}
0.996	0.999	0.949	0.996

Specimen 2 (After Wind Conditioning) - Infiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m^2))
25	13.25	0.037
50	20.07	0.056
75	25.57	0.072
100	30.34	0.085
150	38.60	0.108
250	52.21	0.146
300	58.14	0.163

log transformation

x_i	y_i
3.2189	-3.2928
3.9120	-2.8776
4.3175	-2.6357
4.6052	-2.4644
5.0106	-2.2238
5.5215	-1.9217
5.7038	-1.8142

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

Specimen 2 (After Wind Conditioning) - Exfiltration ΔP

ΔP (Pa)	Q_s (LPM)[a]	Q/A (L/(s*m^2))
25	11.18	0.031
50	20.53	0.058
75	28.49	0.080
100	35.62	0.100
150	48.29	0.135
250	69.90	0.196
300	79.52	0.223

log transformation

x_i	y_i
3.2189	-3.4630
3.9120	-2.8551
4.3175	-2.5276
4.6052	-2.3043
5.0106	-1.9998
5.5215	-1.6299
5.7038	-1.5010

Notes: a- Air Flow Rates have been corrected to standard conditions (Air Density - 1.202 kg/m^3).

CONTINUED ON THE NEXT PAGE...

Calculation:

System Air Leakage Rating				
ΔP (Pa)	Permeance (L/(s*m^2*Pa))	95% Confidence Interval		
25	0.037	0.0349	-	0.0396
50	0.058	0.0540	-	0.0613
75	0.080	0.0750	-	0.0851
100	0.100	0.0937	-	0.1063
150	0.135	0.1271	-	0.1442
250	0.196	0.1840	-	0.2087
300	0.223	0.2093	-	0.2374

Analysis:

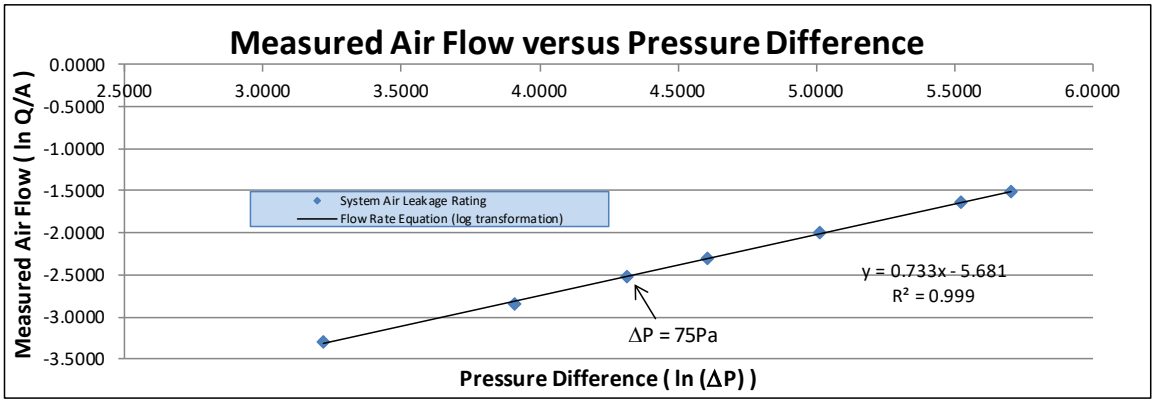
$Q=CA(\Delta P)^n$
$\ln(Q/A)=\ln(C) + n \ln(\Delta P)$
$y_i=\ln(C) + nx_i$

Flow Rate Equation
(log transformation)
(linear regression)

Statistical Analysis:

$\ddot{x}$ = 4.6128
$\ddot{y}$ = -2.3258
S_x^2 = 0.7826
S_y^2 = 0.4809
S_{xy} = 0.6129

		95% Confidence Interval		
n =	0.7831	0.7441	-	0.8222
ln(C) =	-5.9383	-6.1548	-	-5.7218
C =	0.0026	0.0021	-	0.0033



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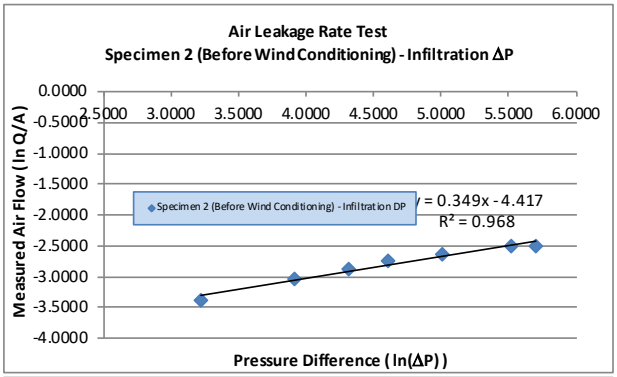
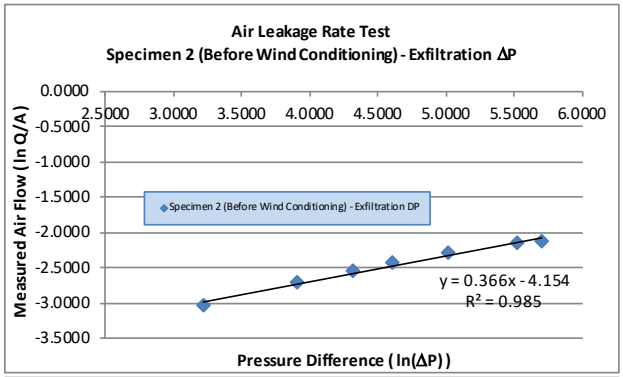
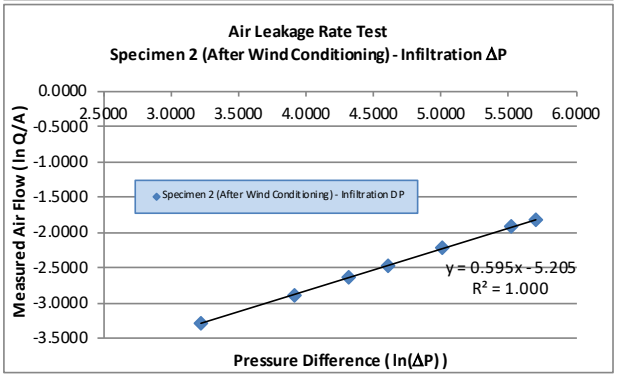
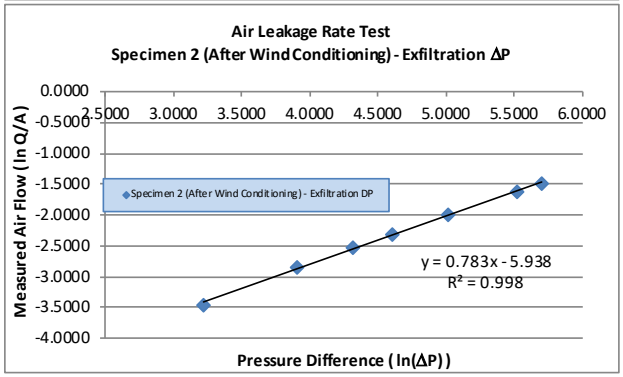
Air Leakage Rate Graphs:









End of Report

TYPAR®

ALL-TEMPERATURE FLASHING

APPLY SOME SERIOUS STICKING POWER. AND TACKLE THE EXTREME CONDITIONS.

Install the system. Get a lifetime limited warranty.* TYPAR® All-Temperature Flashing, along with the full TYPAR® Weather Protection System delivers unbeatable coverage.

*Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

TYPAR LIFETIME LIMITED SYSTEM WARRANTY

TYPAR® ALL-TEMPERATURE FLASHING

WHEN WE SAY MAXIMUM ADHESION, WE MEAN IT.

Bitter cold. Searing heat. They won't compromise your ability to get the strongest seal possible. TYPAR All-Temperature Flashing is engineered to perform in a broad range of extremes and protect against moisture penetration at windows, doors and through-wall entry points. Whether we're talking OSB, plywood, aluminum, vinyl, or the building wrap, it sticks tight under the toughest conditions. Its easy-to-install properties make it ideal for faster, hassle-free installation during construction. And its durable character defends homes for years after the cladding is up.

LEADING FEATURES AND BENEFITS:

- Suitable for installation down to 0° F (-18° C)
- Thermally stable up to 180° F (82° C)
- Sticks to wet surfaces
- Self-seals around nail penetrations
- Split poly backing for easy install
- No primer required
- No VOC, NFCC, or CFC
- Two-year shelf life
- Lifetime limited warranty*

INSTALL THE SYSTEM. GET A LIFETIME LIMITED WARRANTY.*

TYPAR All-Temperature Flashing, Building Wraps, and Construction Tape make up the complete TYPAR® Weather Protection System. It's the only lineup with superior air and water holdout, exceptional tear strength, optimal breathability, and this: lifetime limited warranty coverage.*

TYPICAL CHARACTERISTICS:	
Adhesive	Block copolymer
90 Peel Adhesion	
Plywood	5.0 lb/in
OSB	3.8 lb/in
Facer	4.6 lb/in
Mold Growth (ASTM G21)	No growth
Application Temp	0°F (-18°C) to 180°F (82°C)
Nail Sealability (AAMA 711-13)	PASS
UV Stability	6 months

ROLL SIZES:		
4" x 75'	6" x 75'	9" x 75'
12" x 75'		

*TYPAR All-Temperature Flashing is part of the TYPAR® Lifetime Limited System Warranty when used with the complete TYPAR Weather Protection System. Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

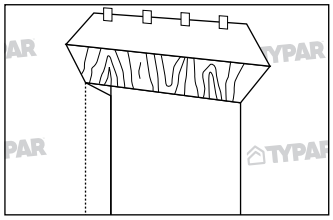
August 2019 | Made in USA. TYPAR® is a trademark of Berry Global, Inc. or one of its affiliates.
Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape

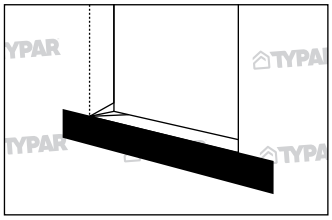
TYPAR® ALL-TEMPERATURE FLASHING SELF-ADHERING WINDOW FLASHING

TYPAR ALL-TEMPERATURE FLASHING—TYPICAL INSTALLATION

STEP 1

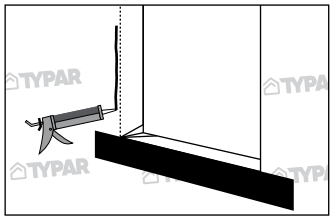
Make diagonal cuts on weather-resistant barrier. Gently lift and tape in place. Cut flashing long enough to extend beyond opening by a minimum of the width of flashing you are using. Attach flashing along bottom of rough opening.

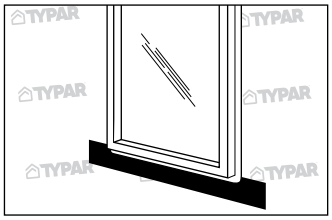




STEP 2

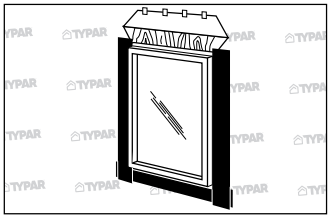
Before installing window, apply a continuous bead of sealant to interior window's mounting flange. Install window per manufacturer's instructions. Using release paper as a guide, slowly peel back release paper and press TYPAR All-Temperature Flashing in place.





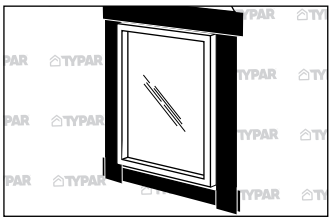
STEP 3

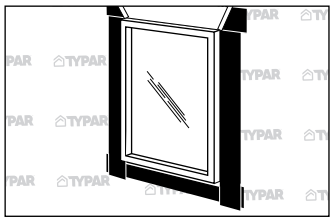
Embed jamb flashing into the sealant and fasten in place. Run jamb flashing beyond sill flashing and above where sill flashing will intersect. Using release paper to help guide flashing, peel release paper off as you press flashing in place. Insure flashing covers all nails and mounting slots on window's mounting flange.



STEP 4

Cut head flashing so it will extend beyond jamb flashing. Finally, lay weather-resistant barrier over head flashing. Apply sheathing tape over both diagonal cuts.





NOTE: All installation procedures and techniques must comply with local code requirements and latest version of ASTM 2112.

Installation methods approved by the American Architectural Manufacturers Association (AAMA) are acceptable for TYPAR® products and TYPAR® Weather Protection System Limited Warranty.

WARNING: Flashing will not address the water intrusion which may occur through the window itself.

For more information, visit TYPAR.com.

Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape | Fasteners

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TYPAR® ALL-TEMPERATURE FLASHING THREE-PART SPECIFICATIONS

PART 1. GENERAL

1.1 Section Includes

A. Self-adhering Flashing: TYPAR All-Temperature Flashing
B. Primers
C. Fasteners

1.2 References

A. ASTM International
1. ASTM D-3330-04, Standard test method for peel or stripping strength of adhesive bonds
2. ASTM C-765, Standard practice for cold pliability
3. ASTM D-1970, Standard specification for self-adhesion polymer modified bituminous sheet materials

1.3 Submittals

A. Product Data: Submit manufacturer current technical literature for each type of product
B. Submit copies of test results showing performance characteristics equaling or exceeding those specified

1.4 Quality Assurance

A. Qualifications
1. Installer shall have documented successful experience with installation of TYPAR Flashing products
2. Installation shall be in accordance with manufacturer's installation guidelines and recommendations

PART 2. PRODUCTS

2.1 Manufacturer

A. Berry Plastics, 70 Old Hickory Blvd, Old Hickory, TN 37138, +1 615-847-7000; www.TYPAR.com

2.2 Materials

A. Self-adhering/straight flashing
1. Description
i. Face material composition: polypropylene barrier
ii. Face color: gray
iii. Adhesive composition: block copolymer
iv. Thickness: 16mil
v. Release liner: polyfilm
vi. Dimensions: 4in x 25ft; 4in x 75ft; 6in x 75ft; 9in x 75ft; 12in x 75ft

B. Performance characterizations
1. Low temp pliability ASTM C-765 PASS
2. Nail sealability ASTM D-1970 PASS
3. Tensile strength ASTM D-5034-95 PASS
4. Peel adhesion ASTM D-3330-04 PASS

2.3 Assessories

A. Primer: Use 3M™ Super77™ or equal
B. Seam tape: TYPAR construction
C. Fastener: Fastener is dependent on substrate construction
D. Sealant: Must comply with ASTM C920 elastomeric polymer sealant

PART 3. EXECUTION

3.1 Examination

A. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation
NOTE – Flashing manufacturer recommends weather barrier be installed prior to the installation of the windows

3.2 Installation

A. Follow the TYPAR flashing installation procedures

3.3 Protection

A. Protect installed flashing from damage during construction

Article Information Sheet

OHK-ATFLH

Section 0. General information

This product is an article according to 29 CFR 1910.1200(c). There is no obligation to provide a Safety Data Sheet for this product according to 29 CFR 1910.1200(b)(6)(v). Berry Plastics, however, is committed to communicating the appropriate information to its customers for assuring the safe handling and use of its products and, therefore, provides this Article Information Sheet in lieu of a Safety Data Sheet.

Section 1. Identification

Product code / Name : **OHK-ATFLH**

Product description : Flashing AT

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Not applicable

Uses advised against : Not applicable

Supplier/Manufacturer : Fiberweb, Inc.
A Berry Plastics Company
70 Old Hickory Blvd
Old Hickory, TN 37138
USA

Email : regulatoryaffairs@berryplastics.com

Emergency telephone number (with hours of operation) : +1-615-847-7000 M-F 8AM-4:30PM CST

Section 2. Hazards identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Non-hazardous ingredients Name	%	CAS number
Proprietary	90 - 100	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

Inhalation : Not applicable.

Skin contact : Wash thoroughly after handling.

Ingestion : Not applicable.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.

Section 6. Accidental release measures

Environmental precautions : Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Spill : Use appropriate tools to transfer the spilled solid to a convenient waste disposal container.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Prevent product contamination. Store in a cool, well-ventilated area away from incompatible materials and ignition sources.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Safety glasses with side shields.

Skin protection

Hand protection : Recommended: Leather. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Physical state	:	Solid.
Color	:	Adhesive Backed Black Fabric with a Clear Polyolefin Film
Odor	:	Odorless.
Odor threshold	:	Not available.
pH	:	Not available.
Melting point	:	>120°C (>248°F)
Boiling point	:	Not applicable.
Flash point	:	Not available.
Evaporation rate	:	Not applicable.
Flammability (solid, gas)	:	Not applicable.
Lower and upper explosive (flammable) limits	:	Not applicable.
Vapor pressure	:	Not applicable.
Vapor density	:	Not applicable.
Relative density	:	Not available.
Solubility	:	Not available.
Partition coefficient: n-octanol/water	:	Not applicable.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	Not available.
Viscosity	:	Not applicable.

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	No specific data.
Incompatible materials	:	No specific data.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

No known significant effects or critical hazards.

Irritation/Corrosion

No known significant effects or critical hazards.

Sensitization

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Carcinogenicity

Section 11. Toxicological information

Product/ingredient name	OSHA	IARC	NTP
carbon black non-respirable	-	2B	-

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

No known significant effects or critical hazards.

Aspiration hazard

Not applicable.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Potential chronic health effects

No known significant effects or critical hazards.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not applicable.

Section 12. Ecological information

Toxicity

Not applicable.

Persistence and degradability

Not applicable.

Bioaccumulative potential

Not applicable.

Mobility in soil

Section 12. Ecological information

Soil/water partition coefficient (K_{OC}) : Not applicable.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Dispose of according to all federal, state and local applicable regulations.

Section 14. Transport information

Not regulated.

Section 15. Regulatory information

U.S. Federal regulations

TSCA : All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

SARA 302/304

Composition/information on ingredients

No ingedients were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No ingedients were found.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 7/28/2015

Date of previous issue : 7/24/2014

Version : 1.01

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

All statements, technical information and recommendations set forth herein are based on information or tests which Berry Plastics believes to be reliable as of the date of this Article Information Sheet. NOTHING CONTAINED IN THIS ARTICLE INFORMATION SHEET IS A REPRESENTATION, GUARANTEE OR WARRANTY OF ANY KIND. Berry Plastics does not assume any liability with respect to the accuracy and/or completeness of the information provided herein. Recipients of this information should be familiar with the regulatory requirements applicable to this product and their intended use of it and they should make their own determination as to the information's suitability and completeness for their particular application(s). The data in this Article Information Sheet pertains only to the specific material referred to herein and does not relate to use in combination with any other material or in any process.

TYPAR®

BUTYL FLASHING

EASY TO HANDLE EVERY DAY. WITH DURABILITY FOR THE LONG HAUL.

Install the system. Get a lifetime limited warranty.* TYPAR® Butyl Flashing, along with the full TYPAR® Weather Protection System delivers unbeatable coverage.

*Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

TYPAR LIFETIME LIMITED SYSTEM WARRANTY

TYPAR® BUTYL FLASHING

WORKS WELL WITH CAULKS, SEALANTS, AND YOU.

TYPAR Butyl Flashing definitely delivers on the basics. It's designed to peel quickly, stick fast, and keep projects on budget. But going beyond the fundamentals, it's formulated without VOCs, and it's compatible with most caulks and sealants used for window installation. Compared to rubberized asphalt-based flashings, TYPAR Butyl Flashing simply brings more to the job. It's pliable in cold weather. It's stable at high temperatures. Plus it maintains a flexible, but tight seal for far greater durability and long-lasting performance.

LEADING FEATURES AND BENEFITS:

- Contains no VOCs and won't off-gas
- Won't interact with most caulks and sealants
- Split poly backing for easy installation
- Suitable for installation down to 30° F (-1° C)
- Thermally stable up to 180° F (82° C)
- Remains pliable for a more durable seal
- Lifetime limited warranty*

INSTALL THE SYSTEM. GET A LIFETIME LIMITED WARRANTY.*

TYPAR Butyl Flashing, Building Wraps and Construction Tape make up the complete TYPAR® Weather Protection System. It's the only lineup with superior air and water holdout, exceptional tear strength, optimal breathability, and this: lifetime limited warranty coverage.*

TYPICAL CHARACTERISTICS:	
Adhesive	Butyl rubber copolymer
Recommended Exposure Limit	180 days
Low Temperature Flexibility (ASTM D3330)	PASS
Nail Sealability (ASTM D1970)	PASS
Tensile Strength (ASTM D5034)	PASS

ROLL SIZES:			
4" x 75'	6" x 75'	9" x 75'	12" x 75'

*TYPAR Butyl Flashing is part of the TYPAR® Lifetime Limited System Warranty when used with the complete TYPAR Weather Protection System. Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

The information contained herein is to the best of our knowledge accurate and reliable and is provided for the user's assessment and verification. However, since the circumstances and conditions under which such information and the products discussed can be used may vary and are beyond our control, **we make no warranties, express or implied, other than those warranties described in the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads, subject to the limitations and exclusions described therein.**

September 2020 | Made in USA of US and Global Components. TYPAR® is a trademark of Berry Global, Inc. or one of its affiliates.
Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape

TYPAR®

TYPAR® BUTYL FLASHING THREE-PART SPECIFICATIONS

PART 1. GENERAL

1.1 Section Includes

A. Self-adhering Flashing: **TYPAR BUTYL Flashing**
B. Primers
C. Fasteners

1.2 References

A. ASTM International
1. ASTM D-3330-04, Standard test method for peel or stripping strength of adhesive bonds
2. ASTM C-765, Standard practice for cold pliability
3. ASTM D-1970, Standard specification for self-adhesion polymer modified bituminous sheet materials

1.3 Submittals

A. Product Data: Submit manufacturer current technical literature for each type of product
B. Submit copies of test results showing performance characteristics equaling or exceeding those specified

1.4 Quality Assurance

A. Qualifications
1. Installer shall have documented successful experience with installation of TYPAR Flashing products
2. Installation shall be in accordance with manufacturer's installation guidelines and recommendations

PART 2. PRODUCTS

2.1 Manufacturer

A. Berry Plastics, 70 Old Hickory Blvd, Old Hickory, TN 37138, +1 615-847-7000; www.TYPAR.com

2.2 Materials

A. Self-adhering/straight flashing
1. Description
i. Face material composition: **polyethylene barrier**
ii. Face color**: gray**
iii. Adhesive composition: **Butyl Rubber Adhesive**
iv. Thickness **18.5 mil**
v. Release liner: **Kraft Paper**
vi. Dimensions: 4in x 25ft; 4in x 75ft; 6in x 75ft; 9in x 75ft; 12in x 75ft

B. Performance characterizations
1. Low temp pliability ASTM C-765 PASS
2. Nail sealability ASTM D-1970 PASS
3. Tensile strength ASTM D-5034-95 PASS
4. Peel adhesion ASTM D-3330-04 PASS

2.3 Assessories

A. Primer: Use 3M™ Super77™ or equal
B. Seam tape: TYPAR construction
C. Fastener: Fastener is dependent on substrate construction
D. Sealant: Must comply with ASTM C920 elastomeric polymer sealant

PART 3. EXECUTION

3.1 Examination

A. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation
NOTE – Flashing manufacturer recommends weather barrier be installed prior to the installation of the windows

3.2 Installation

A. Follow the TYPAR flashing installation procedures

3.3 Protection

A. Protect installed flashing from damage during construction

Article Information Sheet

OHK-BUTYL-004

Section 0. General information

This product is an article according to 29 CFR 1910.1200(c). There is no obligation to provide a Safety Data Sheet for this product according to 29 CFR 1910.1200(b)(6)(v). Berry Global, however, is committed to communicating the appropriate information to its customers for assuring the safe handling and use of its products and, therefore, provides this Article Information Sheet in lieu of a Safety Data Sheet.

Section 1. Identification

Product code / Name : **OHK-BUTYL-004**

Product description : Butyl Flashing

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Not applicable

Uses advised against : Not applicable

Supplier/Manufacturer : Fiberweb, Inc.
A Berry Global Company
70 Old Hickory Blvd
Old Hickory, TN 37138
USA

Email : regulatoryaffairs@berryglobal.com

Emergency telephone number (with hours of operation) : +1-615-847-7000 M-F 8AM-4:30PM CST

Section 2. Hazards identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Non-hazardous ingredients Name	%	CAS number
Liner	25 - 50	-
Butyl Rubber	25 - 50	-
Distillates (petroleum), hydrotreated heavy naphthenic	10 - 25	64742-52-5
Additive	10 - 25	-
Polyethylene	5 - 10	9002-88-4
Coloring agents	0.3 - 1	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

Inhalation : Not applicable.

Skin contact : Wash thoroughly after handling.

Ingestion : Not applicable.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.

Section 6. Accidental release measures

Environmental precautions : Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Spill : Use appropriate tools to transfer the spilled solid to a convenient waste disposal container.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Prevent product contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety glasses with side shields.

Skin protection

Hand protection : Recommended: Leather. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Physical state	:	Solid.
Color	:	Black.
Odor	:	Not available.
Odor threshold	:	Not available.
pH	:	Not available.
Melting point	:	Not available.
Boiling point	:	Not applicable.
Flash point	:	Not available.
Evaporation rate	:	Not applicable.
Flammability (solid, gas)	:	Not applicable.
Lower and upper explosive (flammable) limits	:	Not applicable.
Vapor pressure	:	Not available.
Vapor density	:	Not applicable.
Relative density	:	Not available.
Solubility	:	Not available.
Partition coefficient: n-octanol/water	:	Not applicable.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	Not available.
Viscosity	:	Not applicable.

Aerosol product

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	No specific data.
Incompatible materials	:	No specific data.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

No known significant effects or critical hazards.

Irritation/Corrosion

No known significant effects or critical hazards.

Sensitization

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Section 11. Toxicological information

Carcinogenicity

Product/ingredient name	OSHA	IARC	NTP
carbon black non-respirable	-	2B	-
titanium dioxide	-	2B	-

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

No known significant effects or critical hazards.

Aspiration hazard

Not applicable.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Potential chronic health effects

No known significant effects or critical hazards.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not applicable.

Section 12. Ecological information

Toxicity

Not applicable.

Persistence and degradability

Not applicable.

Bioaccumulative potential

Not applicable.

Section 12. Ecological information

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not applicable.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Dispose of according to all federal, state and local applicable regulations.

Section 14. Transport information

Not regulated.

Section 15. Regulatory information

U.S. Federal regulations

TSCA : All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

SARA 302/304

Composition/information on ingredients

No ingredients were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No ingredients were found.

State regulations

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
titanium dioxide	Yes.	No.	No.	No.
carbon black, non respirable	Yes.	No.	No.	No.

Canada

WHMIS (Canada) : Class D-2A: Material causing other toxic effects (Very toxic).

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 6/20/2017

Date of previous issue : No previous validation

Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

Indicates information that has changed from previously issued version.

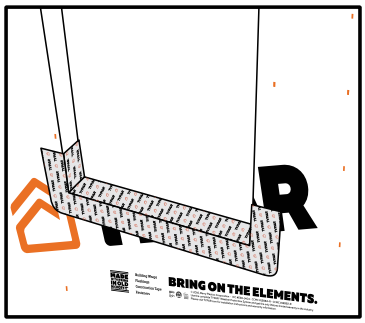
Notice to reader

All statements, technical information and recommendations set forth herein are based on information or tests which Berry Global believes to be reliable as of the date of this Article Information Sheet. NOTHING CONTAINED IN THIS ARTICLE INFORMATION SHEET IS A REPRESENTATION, GUARANTEE OR WARRANTY OF ANY KIND. Berry Global does not assume any liability with respect to the accuracy and/or completeness of the information provided herein. Recipients of this information should be familiar with the regulatory requirements applicable to this product and their intended use of it and they should make their own determination as to the information's suitability and completeness for their particular application(s). The data in this Article Information Sheet pertains only to the specific material referred to herein and does not relate to use in combination with any other material or in any process.

TYPAR® FLASHING TAPES
INSTALLATION GUIDE

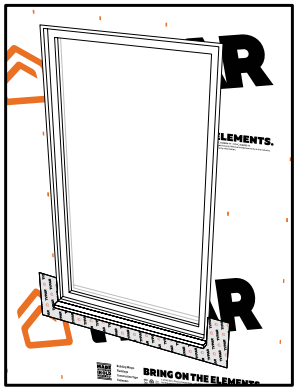
TYPICAL WINDOW FLASHING

Step 1
Install the window sill pan according to the manufacturer's instructions. Alternatively, you can create a sill pan using TYPAR® Flexible Flashing. Cut a piece that is 12" longer than the length of the rough opening window sill.
Carefully peel off the release liner. Center the flashing in the center of the rough opening and work your way toward the corners and then up the sides. Note: the Flexible Flashing should overlap to the outside of the wall by 2–3." Only stretch the flashing in the corners.
Alternatively to above, you can create a sill pan by installing TYPAR® straight flashing along the bottom sill and installing TYPAR® Flexible Flashing on the corners only.
If needed, secure the fanned edges of the TYPAR® Flexible Flashing with a plastic-capped nail or plastic-capped staple.

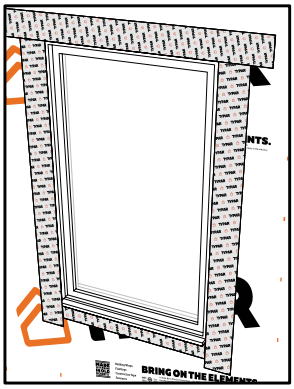


Step 2

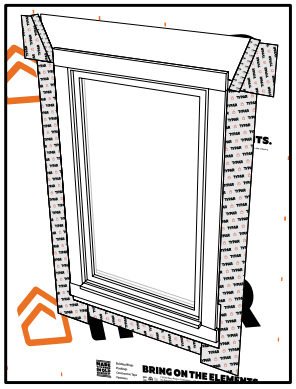
Apply a continuous bead of sealant to the back of the window or on the wall. Do not apply the sealant across the bottom of the sill or on the bottom of the window. This area is left open to allow for proper drainage. Install the window according to the manufacturer's installation instructions.



Step 3
Cut two pieces of TYPAR® flashing long enough to extend 1" above the window head flange and 1" below the window sill flange. Carefully peel off the release liner and apply the flashing on both sides of the window. Make sure to cover the entire window flange, and press firmly either by hand or using a J-roller. Ensure there are no wrinkles or bubbles.
Cut a piece of TYPAR® flashing for the head flashing. Ensure that the piece is long enough to extend by 1" on both sides of the jamb flashing. Remove the release liner and carefully install the flashing. Cover the window flange and press firmly by hand or using a J-roller.



Step 4
Release the upper flap of the TYPAR® WRB that you cut earlier. Tape the 45-degree cuts using TYPAR® Construction Tape or TYPAR flashing. DO NOT tape the WRB along the top of the window flange.



TYPAR® BuildingWrap is part of a complete Weather Protection System, which also includes TYPAR® MetroWrap™, TYPAR® Flashings and Construction Tape. For more information, visit TYPAR.com

INNOVATION FOR THE WORLD
SOLUTIONS FOR YOU

TYPAR®

FLEXIBLE FLASHING

CONFORMING TO THE JOB. WITHOUT COMPROMISING ON THE PERFORMANCE.

Install the system. Get a lifetime limited warranty.* TYPAR® Flexible Flashing, along with the full TYPAR® Weather Protection System delivers unbeatable coverage.

*Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

TYPAR LIFETIME LIMITED SYSTEM WARRANTY

TYPAR® FLEXIBLE FLASHING

WHEN PROJECTS THROW A CURVE, YOU'RE COVERED.

Rounded windows can be a challenge. But as far as we're concerned, the problem of getting a complete seal—and doing it efficiently—is solved. TYPAR Flexible Flashing is a two-ply oriented, high-density polyethylene film mated to a premium rubber adhesive and release sheet. That simply means it's a high-performance, highly conformable peel-and-stick product that blocks air and moisture intrusion in tricky places. Rely on it to play an integral role in ensuring all parts of your weather barrier system deliver the best level of defense.

LEADING FEATURES AND BENEFITS:

- Extremely rugged, yet easily conformable
- Ensures tight seal around curved windows, window flanges, sill plates, corners, and joists
- Improves air and moisture holdout
- Self-seals around nail penetrations
- Lifetime limited warranty*

INSTALL THE SYSTEM. GET A LIFETIME LIMITED WARRANTY.*

TYPAR Flexible Flashing, Building Wraps and Construction Tape make up the complete TYPAR® Weather Protection System. It's the only lineup with superior air and water holdout, exceptional tear strength, optimal breathability and this: lifetime limited warranty coverage.*

TYPICAL CHARACTERISTICS:	
Adhesive	Butyl rubber copolymer
Recommended Exposure Limit	180 days
Low Temperature Flexibility (ASTM D903)	PASS
Nail Sealability (ASTM D1970)	PASS
Tensile Strength (ASTM D2523)	PASS

ROLL SIZES:	
6" x 75'	9" x 75'

*TYPAR Flexible Flashing is part of the TYPAR® Lifetime Limited System Warranty when used with the complete TYPAR Weather Protection System. Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

August 2019 | Made in USA of US and Global Components. TYPAR® is a trademark of Berry Global, Inc. or one of its affiliates.
Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape

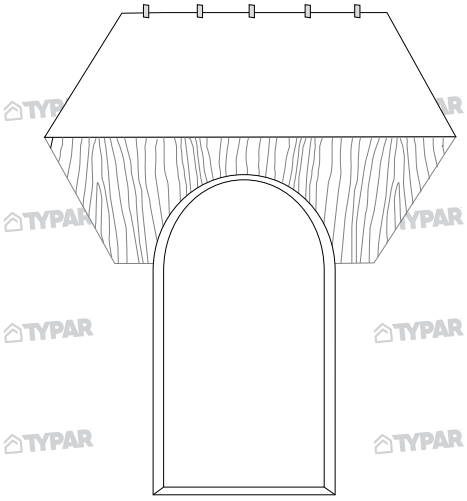
TYPAR®

TYPAR® FLEXIBLE FLASHING
SELF-ADHERING WINDOW FLASHING

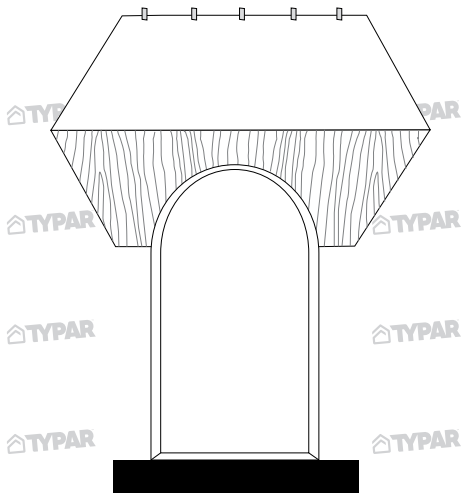
FOR CURVED APPLICATIONS

TYPAR® FLEXIBLE FLASHING- TYPICAL INSTALLATION

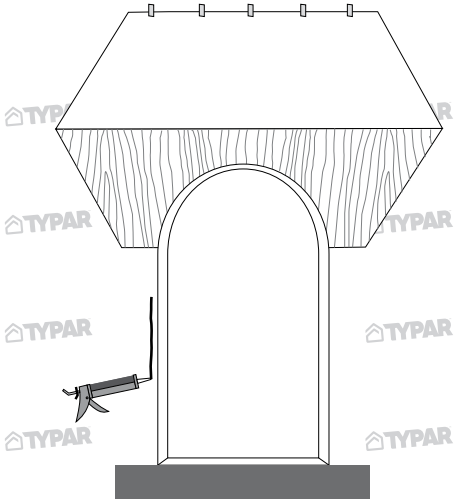
STEP 1
Cut horizontal slits where the curve starts on the window, out to a distance equal to the width of flashing used. Continue at a 45 degree angle upwards until you are above the top center of the window by at least the width of the flashing. Temporarily tape this flap up out of the way.



STEP 2
Cut a strip of TYPAR® Peel and Stick Flashing to extend past the edges of the rough opening on both sides by a little less than the width of the side (jamb) flashing to be installed in step #4. Using the release paper as a guide slowly peel back the release paper and press in place

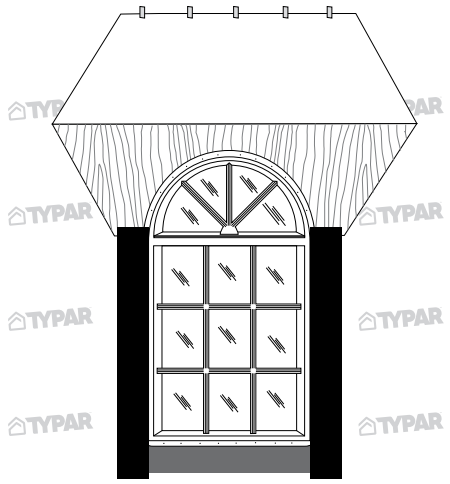


STEP 3
Apply a continuous bead of sealant around the interior edge of the window's nailing flange at, or just inside, the manufacturer's nailing slots or holes. Nail the window in place according to manufacturer's instructions.

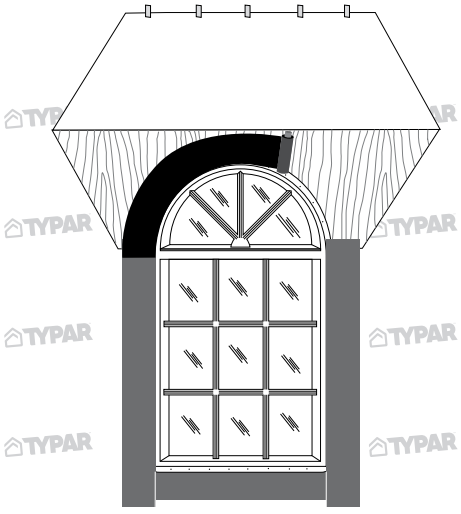


CONTINUED ON REVERSE.

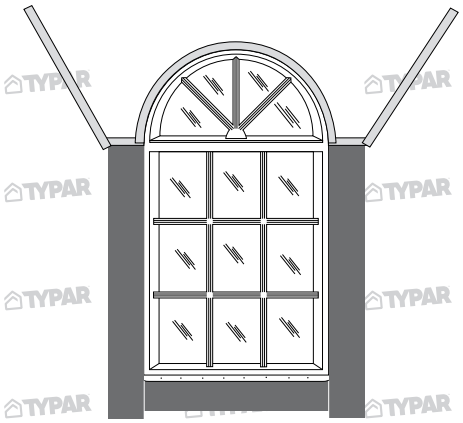
STEP 4
Cut two strips for the sides (jambs) of the window that cover the width of the previously installed flashing at the base. Slowly peel the release paper off as you press the flashing in place. Insure the flashing covers all nails and mounting slots on the window's mounting flange.



STEP 5
Cut a piece of TYPAR Flexible Flashing for the head of the window that is the length of the curve plus two times the width of the flashing. Slowly peel the release paper and press the edge next to the window frame. Cover all nails and mounting slots.



STEP 6
Fold down the flap (from step #1) over the head flashing and tape the horizontal and diagonal slits with TYPAR® Construction Tape.



NOTE: All installation procedures and techniques must comply with local code requirements and latest version of ASTM 2112.

Installation methods approved by the American Architectural Manufacturers Association (AAMA) are acceptable for TYPAR® products and TYPAR® Weather Protection System limited warranty.

WARNING: Flashing will not address the water intrusion which may occur through the window itself.

For more information, visit TYPAR.com.

TYPAR® FLEXIBLE FLASHING
THREE-PART SPECIFICATIONS

PART 1. GENERAL

1.1 Section Includes

A. Self-adhering Flashing (TYPAR® All-Temperature Flashing, TYPAR® Flexible Flashing, and TYPAR® Butyl Flashing)
B. Primers
C. Fasteners

1.2 References

A. ASTM International
1. ASTM D-3330, Standard test method for peel adhesion of pressure sensitive tape
2. ASTM D-5034, Standard practice for tensile strength of polymer or plastic sheet products
3. ASTM D-1970, Standard specification for water penetration around nails and cold temperature pliability

1.3 Submittals

A. Product Data: Submit current manufacturer technical literature for each type of product
B. Submit copies of test results showing performance characteristics equaling or exceeding those specified

1.4 Quality Assurance

A. Qualifications
1. Installer shall have documented successful experience with installation of TYPAR® flashing products
2. Installation shall be in accordance with manufacturer's installation guidelines and recommendations

PART 2. PRODUCTS

2.1 Manufacturer

A. Berry Plastics, 70 Old Hickory Blvd, Old Hickory, TN 37138; www.TYPAR.com

2.2 Materials

A. Self-adhering/straight flashing
1. Description
i. Face material composition: woven polypropylene barrier
ii. Face color: gray
iii. Adhesive composition: butyl rubber adhesive
iv. Thickness: 15mil
v. Release liner: siliconized paper
vi. Dimensions: 4 in. X 75 ft.; 6 in. X 75 ft.; 9 in. X 75 ft.

B. Self-adhering flexible flashing
1. Description
i. Face material composition: conformable textured cross-laminated polyolefin
ii. Face color: dark gray
iii. Adhesive composition: adhesive to copolymer
iv. Thickness: 50mil
v. Release liner: siliconized paper
vi. Dimensions: 6 in. X 75 ft.; 9 in. X 75 ft.

C. Performance characterizations
1. Low temp Flex ASTM D-903 PASS
2. Nail sealability ASTM D-1970 PASS
3. Tensile strength ASTM D-5034 PASS

2.3 Accessories

A. Primer: Use 3M™ Super77™ or equivalent
B. Seam tape: TYPAR® Construction Tape
C. Fastener: Fastener is dependent on substrate construction
D. Sealant: Must comply with ASTM C920 elastomeric polymer sealant

TYPAR™

PART 3. EXECUTION

3.1 Examination

A. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation.
NOTE – Flashing manufacturer recommends weather barrier be installed prior to the installation of the windows.

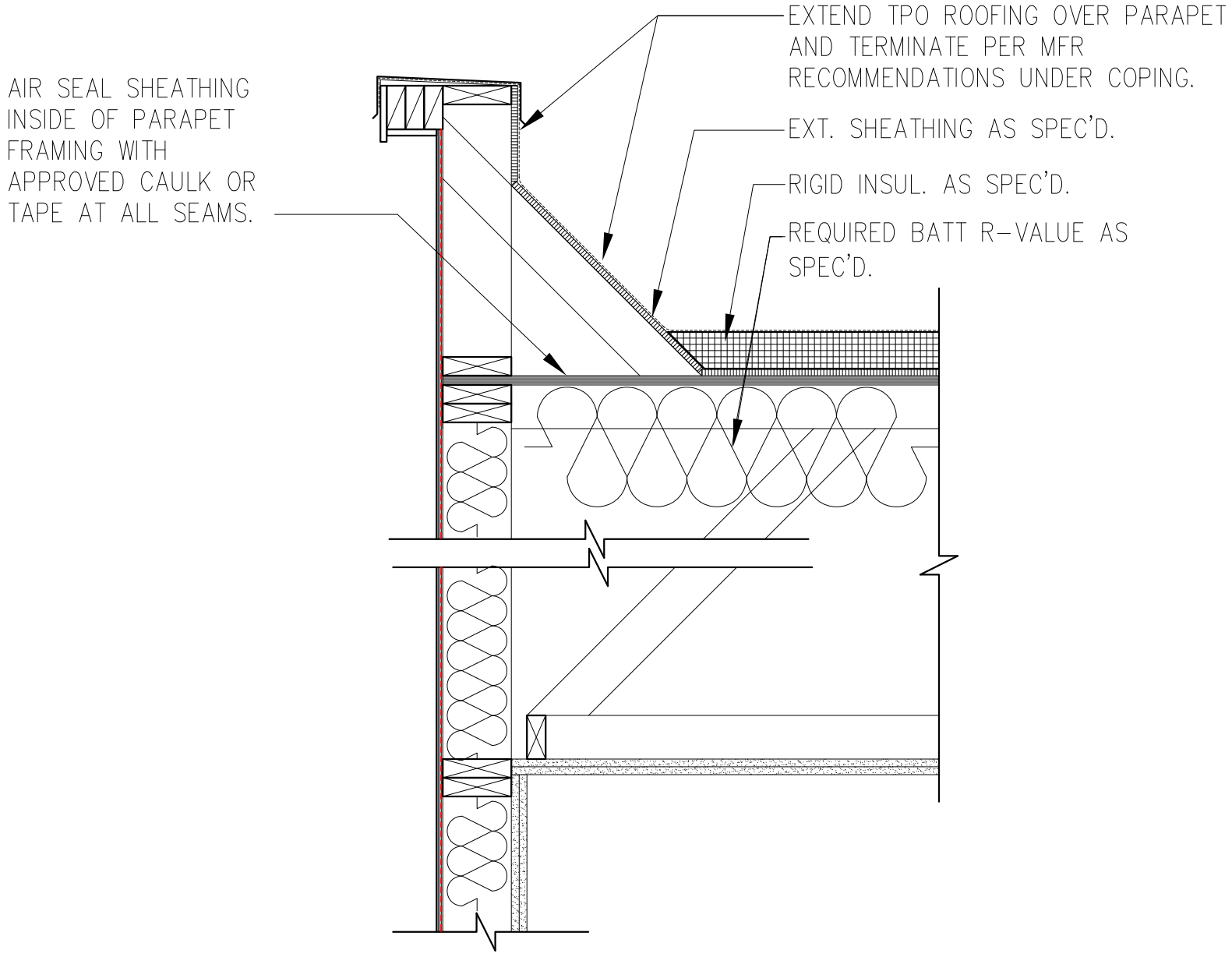
3.2 Installation

A. Follow the TYPAR® flashing installation procedures.

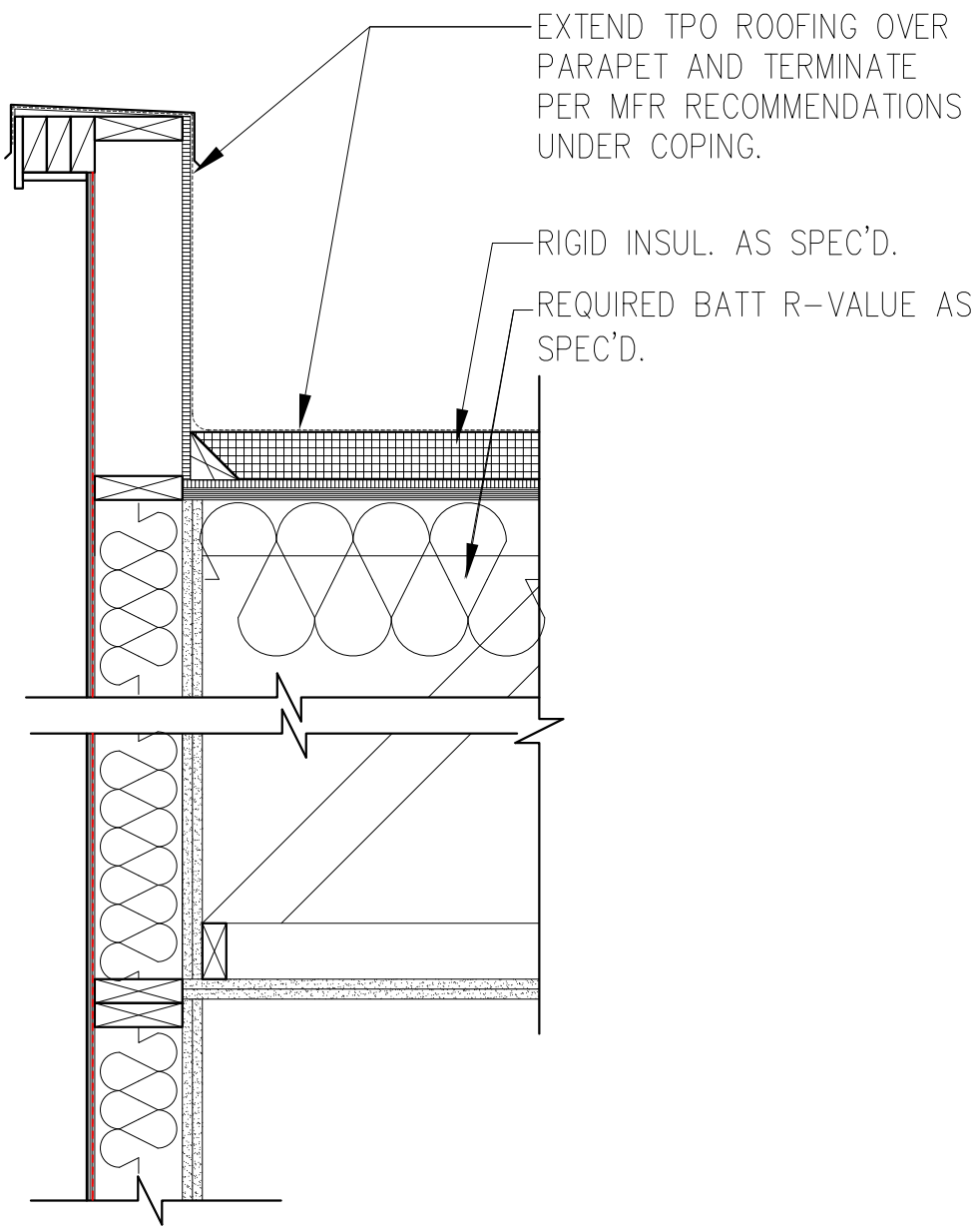
3.3 Protection

A. Protect installed flashing from damage during construction.

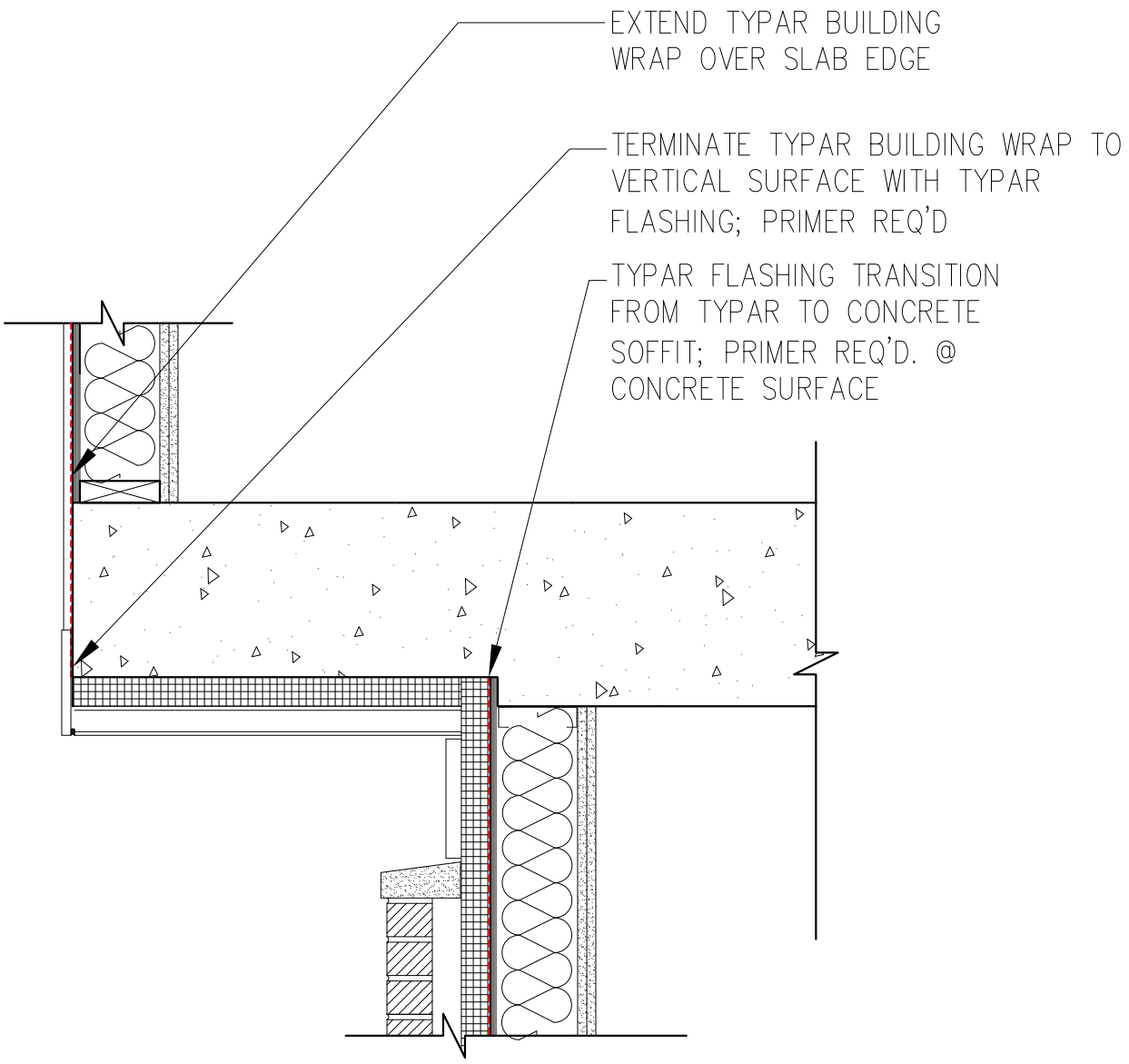
Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape | Fasteners



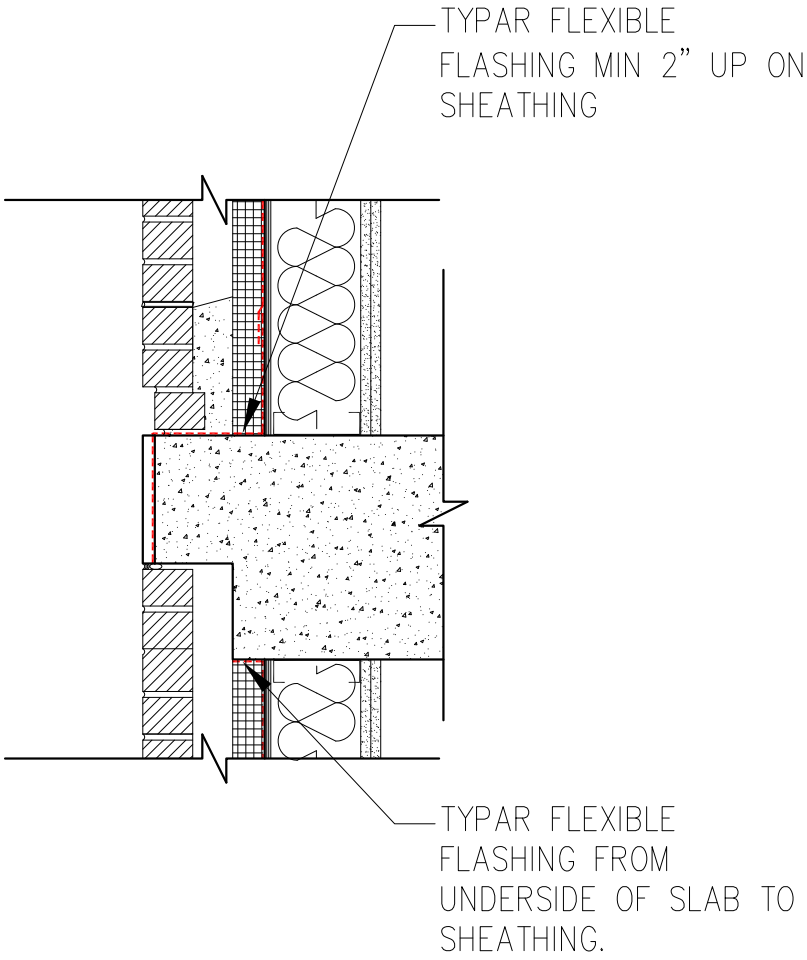
OVERFRAMED PARAPET DETAIL



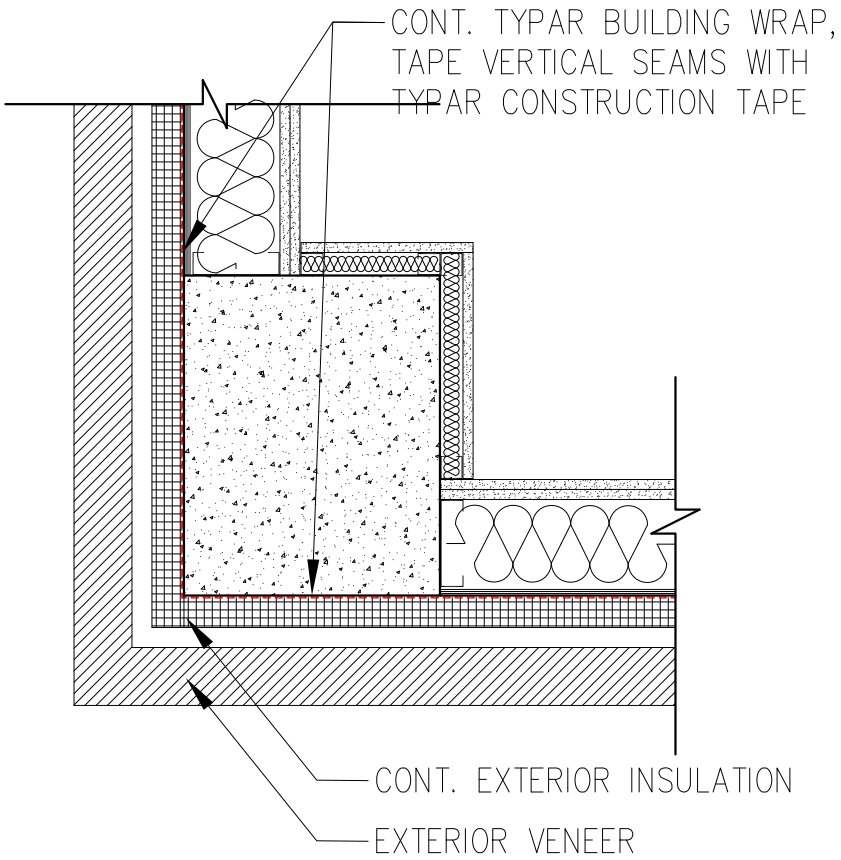
PARAPET DETAIL



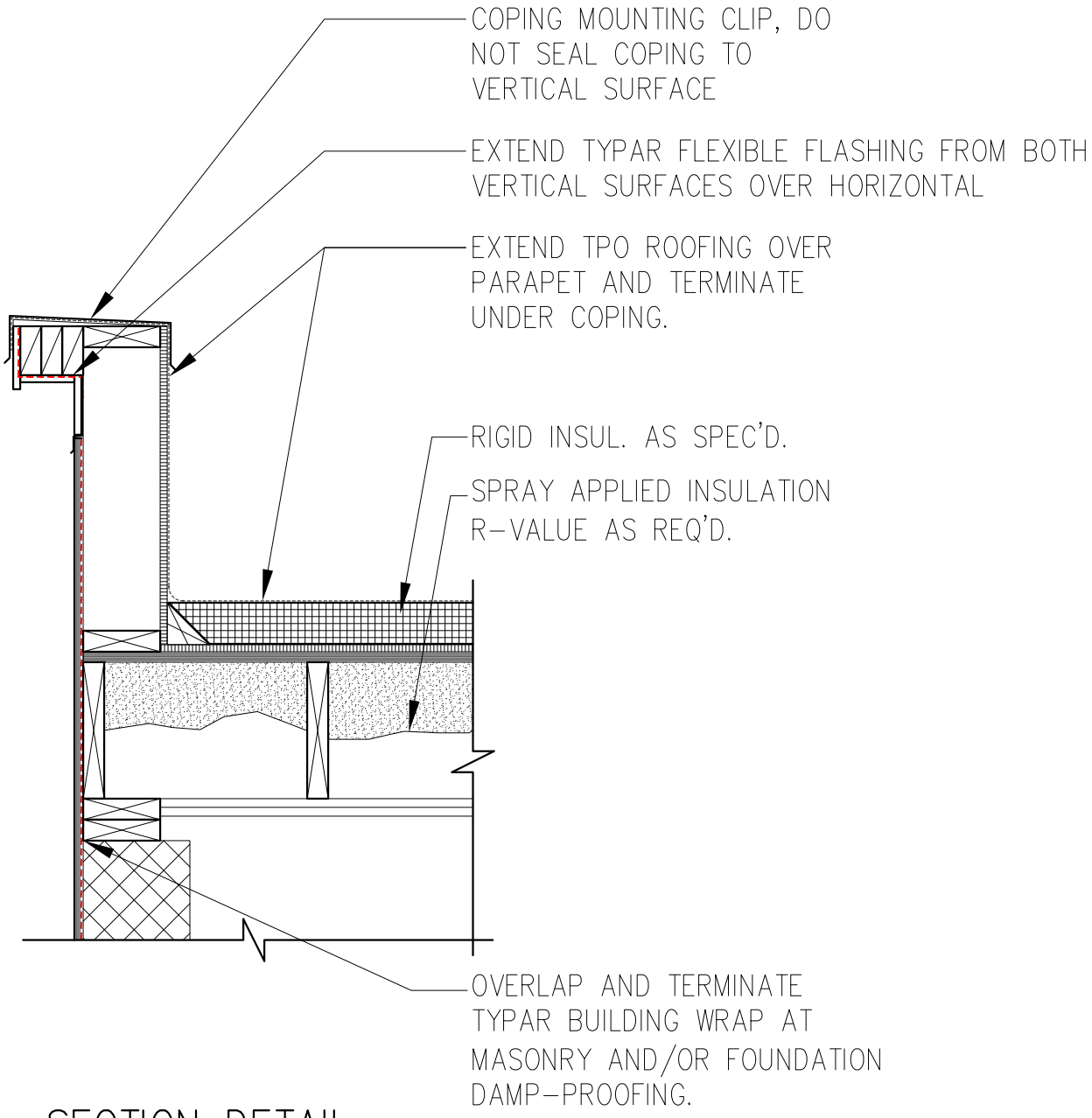
CONCRETE SOFFIT DETAIL



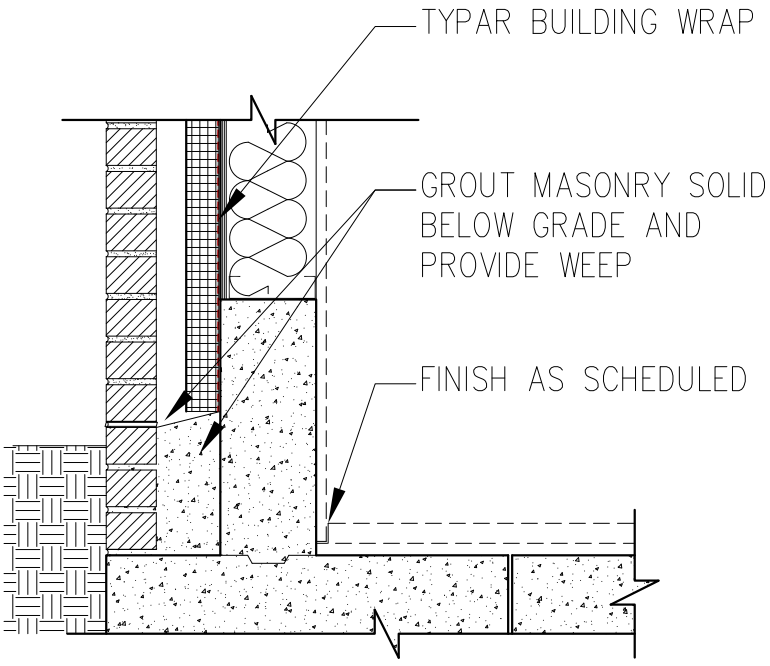
TYPICAL SLAB EDGE DETAIL



CORNER PLAN DETAIL

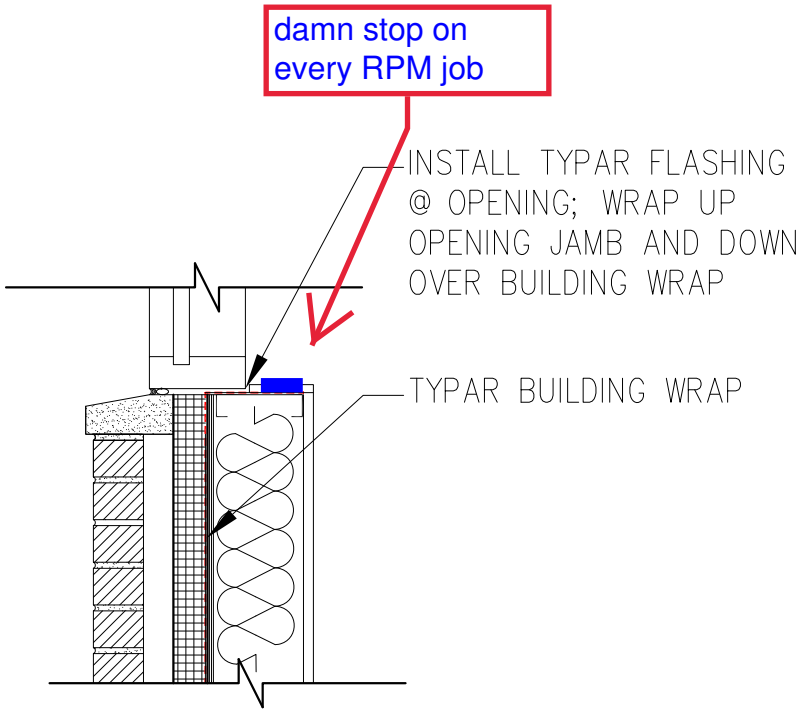


SECTION DETAIL

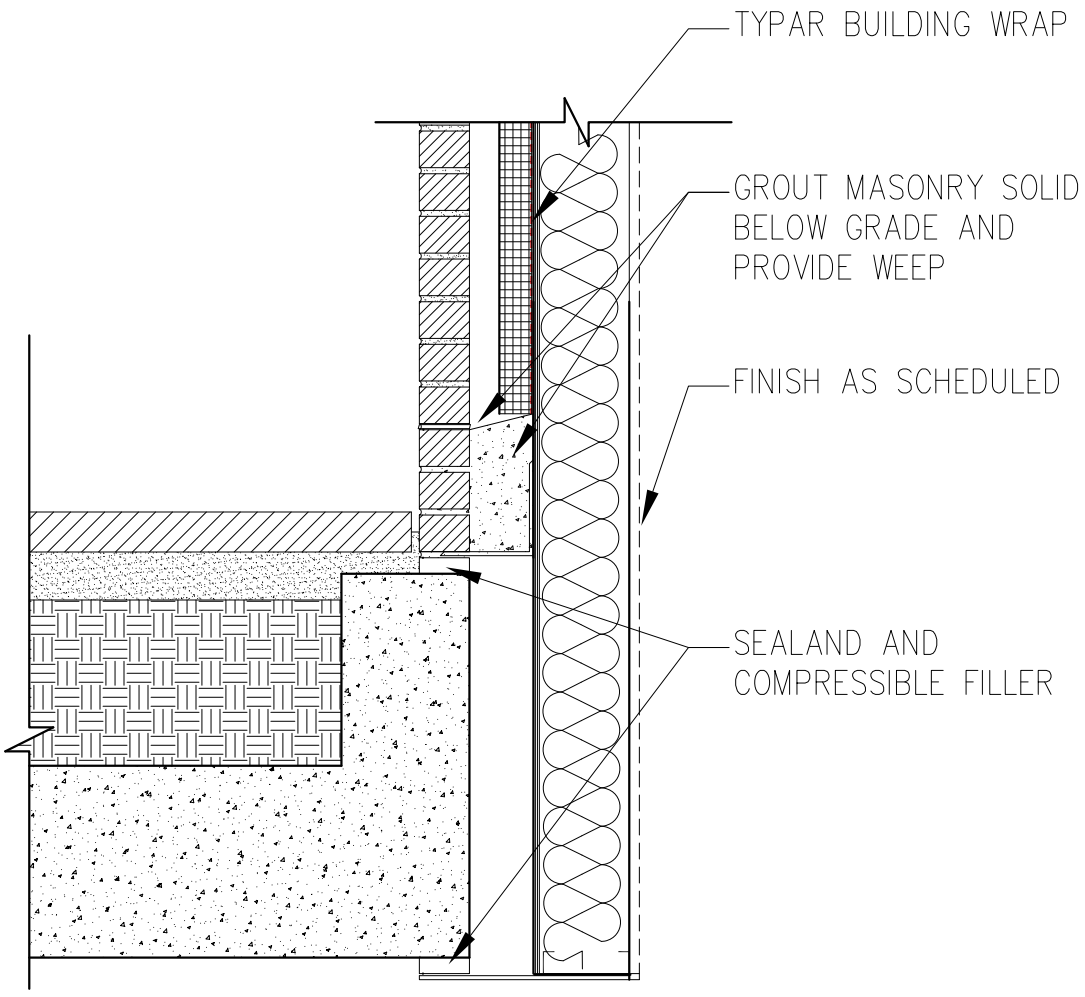


TYPICAL FOUNDATION DETAIL

#1

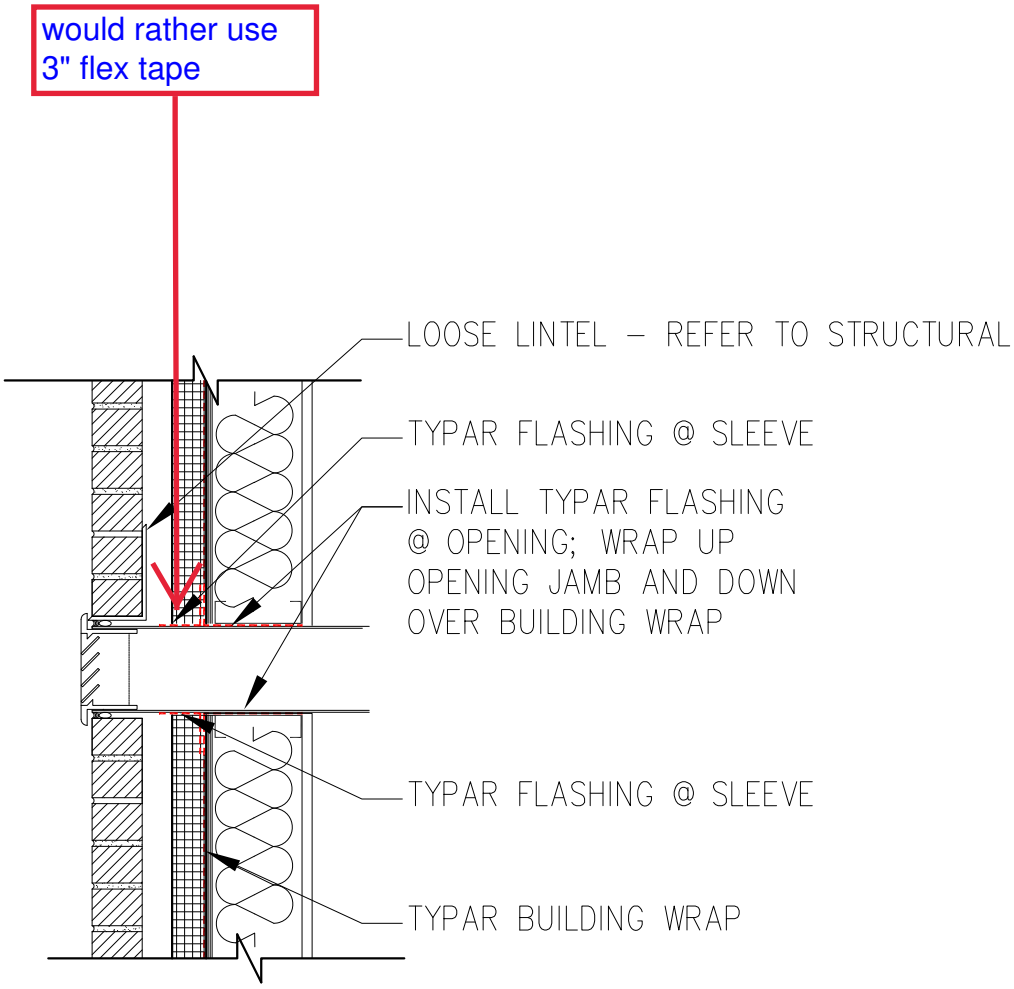


TYPICAL SILL DETAIL



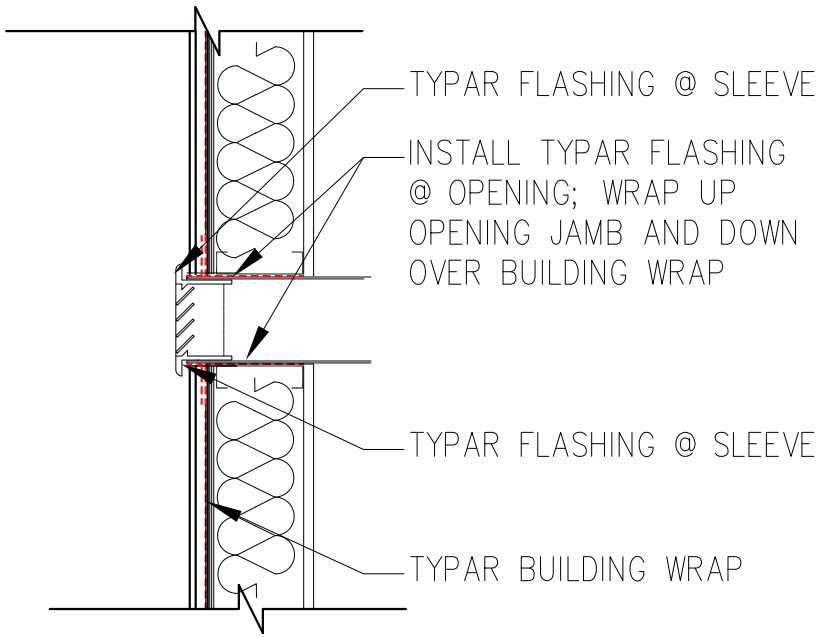
TYPICAL DETAIL @ ELEVATED TERRACE

#2

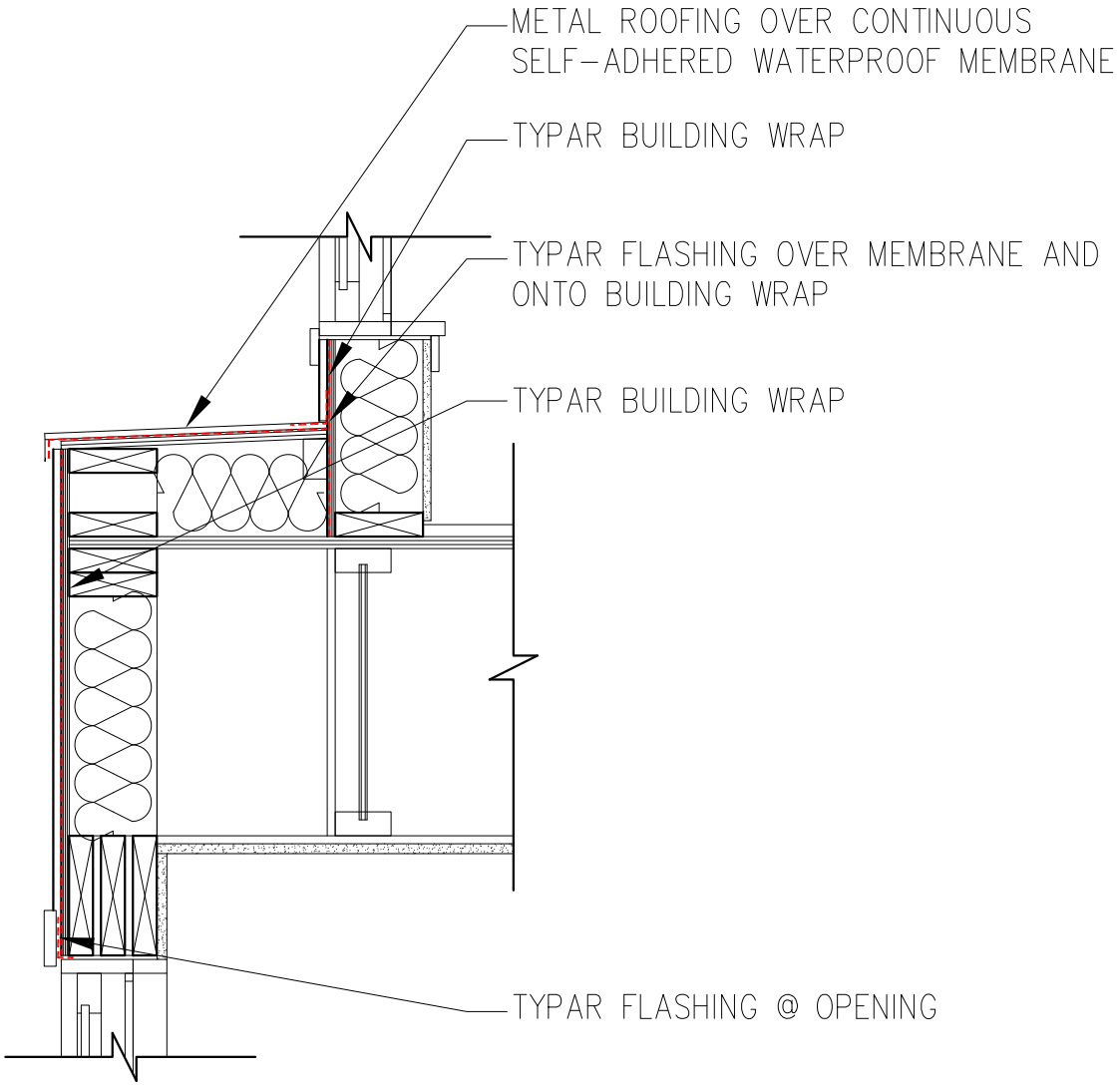


TYPICAL BRICK VENT DETAIL

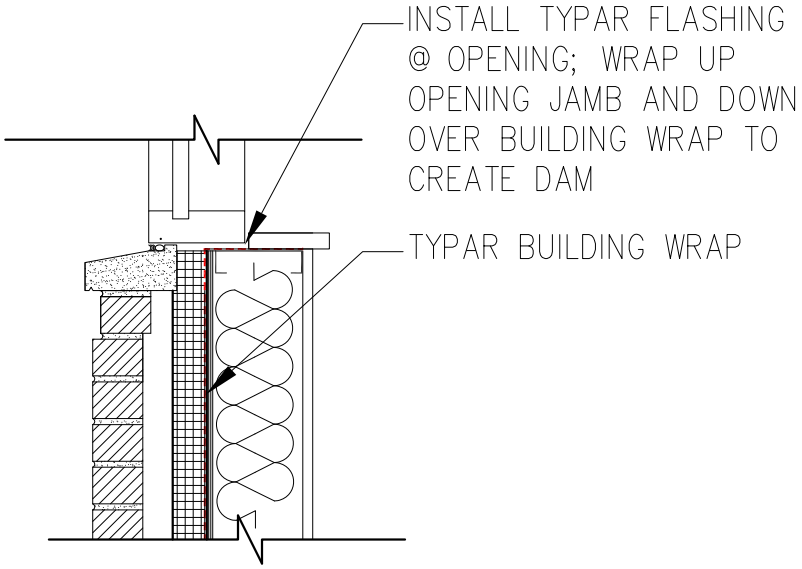
same #2



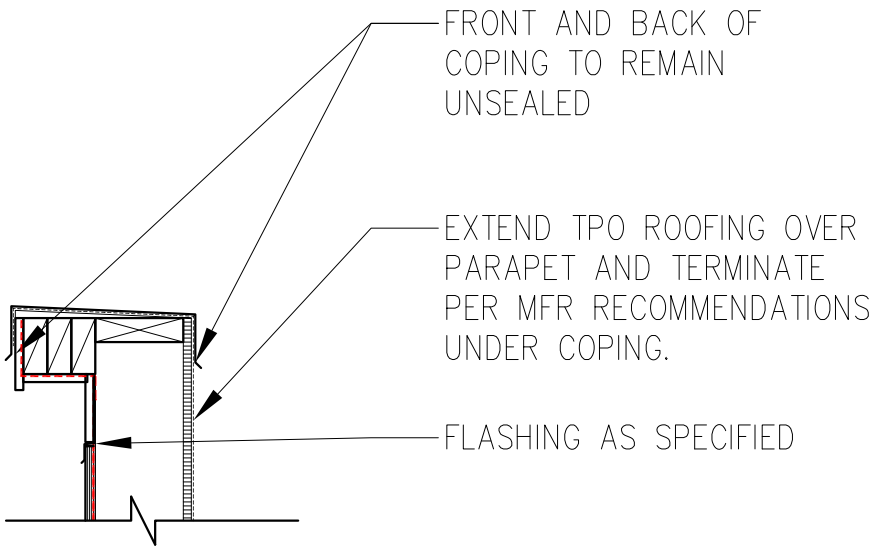
TYPICAL SIDING VENT DETAIL



TYPICAL LOW-SLOPE ROOF TRANSITION DETAIL



TYPICAL SILL DETAIL



PARAPET DETAIL

TYPAR®

CONSTRUCTION TAPE

SEALING OFF SEAMS AND EDGES. WITH SUPERIOR STRENGTH AND EASE.

Install the system. Get a lifetime limited warranty.* TYPAR® Construction Tape, along with the full TYPAR® Weather Protection System delivers unbeatable coverage.

*Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

TYPAR LIFETIME LIMITED SYSTEM WARRANTY

TYPAR® CONSTRUCTION TAPE

APPLY A LITTLE PRESSURE AND GET BIG-TIME PERFORMANCE.

It's just tape, right? Not even close. TYPAR Construction Tape does a critical job in maintaining the highest levels of integrity for the building envelope. It tears quickly, and its pressure-sensitive adhesive sticks aggressively—even if you're working under low-temperature conditions. Depend on it to grab tight immediately and stay strong for years, ensuring that air and moisture don't force their way in at seams and edges. TYPAR Construction Tape is a superior line of defense for your homes and structures, available by the roll.

LEADING FEATURES AND BENEFITS:

- Engineered for commercial and residential applications
- Apply to corners, joints, and seams
- Seals against air and moisture infiltration
- UV- and weather-resistant
- Easy-tear edge for fast application
- Excellent tensile strength
- Performs in cold weather; apply down to 0° F (-18° C)
- Lifetime limited warranty**

INSTALL THE SYSTEM. GET A LIFETIME LIMITED WARRANTY.**

TYPAR Construction Tape, Building Wraps and Flashings make up the complete TYPAR® Weather Protection System. It's the only lineup with superior air and water holdout, exceptional tear strength, optimal breathability and this: lifetime limited warranty coverage.**

TYPICAL CHARACTERISTICS:	
Peel Adhesion (PSTC-1*)	Immediate
TYPAR®	35 oz/in
Stainless Steel	75 oz/in
Tensile Strength (PSTC-31*)	20 lbs/in
Elongation	136%
Temperature Resistance:	0°F (-18°C) – Min. application temperature 230°F (110°C) – Max. use temperature

*Pressure-Sensitive Tape Council.

ROLL SIZES:	
1-7/8" x 165'	3" x 165'

**TYPAR Construction Tape is part of the TYPAR® Lifetime Limited System Warranty when used with the complete TYPAR Weather Protection System. Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

The information contained herein is to the best of our knowledge accurate and reliable and is provided for the user's assessment and verification. However, since the circumstances and conditions under which such information and the products discussed can be used may vary and are beyond our control, **we make no warranties, express or implied, other than those warranties described in the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads, subject to the limitations and exclusions described therein.**

September 2019 | Made in USA of US and Global Components. TYPAR® is a trademark of Berry Global, Inc. or one of its affiliates.
Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape

Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product:	US Construction Seam Tape
Chemical Family:	Polypropylene Tape with Acrylic Adhesive
Manufacturer Information:	Fiberweb, Inc 70 Old Hickory Blvd. Old Hickory, TN 37138
Company Contact:	Jim Reynolds
Telephone Number:	1-615-847-7501 (8am-5pm M-F Central Time)
Emergency Phone Contact:	Chemtrec (24 Hours)
Emergency Phone Number:	1-800-424-9300

Section 2 – Hazards Identification

Emergency Overview
None of the components in this material are considered hazardous.
Route of Exposure-Skin
Prolonged contact should be avoided, may cause redness and/or irritation.
Route of Exposure-Eye
Not expected to be a problem.
Route of Exposure -Ingestion
Not Applicable
Route of Exposure-Inhalation
Not expected to be a concern, given that this product is an inert solid.
HMIS Ratings
Health: 0 Fire: 1 Reactivity: 0 Personal Protection: A
Hazard Scale: 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic Hazard

Section 3 - Composition

CAS #	Component	Percent
9003-07-0	Polypropylene	40% - 60%
Mixture	Acrylic Adhesive	45% - 60%
Mixture	Rosin Based Tackifying Resin	3% - 6%
Mixture	Pigment	1% - 3%

Component Information: This product is not hazardous according to the criteria specified in 29CFR 1910.1200 (Hazard Communication Standard). This product is considered an article and does not require an SDS.

Section 4 - First Aid Measures

First Aid-Skin
Wash affected area with soap and water. If irritation develops, get medical attention.
First Aid-Eye
Rinse eyes with water for at least 15 minutes. If irritation persists, contact a physician.
First Aid-Ingestion
Not Applicable
First Aid-Inhalation
Not Applicable
First Aid-Notes to Physician
No health conditions aggravated by exposure are identified. Contact the poison control center if any problem occurs.

Section 5 - Fire Fighting Measures

Flash Point: Not Applicable
Method Used: Not Applicable
Auto Ignition: Not Applicable
Flammability Classification: Not Applicable
Lower Explosive Limit (%): Not Applicable
Upper Explosive Limit (%): Not Applicable
General Fire Hazards
Solid material may burn upon extended exposure to open flames.
Hazardous Combustion Products
Upon decomposition this product may emit carbon dioxide, carbon monoxide and/or low molecular weight hydrocarbons.
Extinguishing Media
Water spray, foam, carbon dioxide, or dry chemical
Fire Fighting Equipment/Instructions
As in any fire, wear a self-contained breathing apparatus and full protective gear.
NFPA Ratings
Health: 0 Fire: 1 Reactivity: 0
Hazard Scale: 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

Section 6 - Accidental Release Measures

Containment Procedures
Sweep waste fabric into a pile.
Clean -Up Procedures
Sweep waste fabric into a waste container and recycle, incinerate or landfill in conformity with local disposal regulations.
Evacuation Procedures
Not Applicable
Special Procedures
None

Section 7 - Handling and Storage

Handling Procedures
Avoid exposure to heat, sparks or open flames.
Use care in stacking and storing to avoid damage to product.
Storage Procedures
Store material in clean, cool and dry warehouse that is equipped with a sprinkler system.
Ensure product is not stacked too high.
Store product off the floor to prevent water damage.
Avoid direct exposure to UV light.
Avoid exposure to corrosive substances.
Limit exposure to petroleum powered engine exhaust.

Section 8 - Exposure Controls/Personal Protection

Component Exposure Limits

Component	CAS	Exposure Limits
Polypropylene	9003-07-0	ACGIH: None Available OSHA: None Available
Acrylic Adhesive	Mixture	ACGIH: None Available OSHA: None Available
Rosin Based Tackifying Resin	Mixture	ACGIH: None Available OSHA: None Available
Pigment	Mixture	ACGIH: None Available OSHA: None Available

Engineering Controls
Normal room ventilation is usually adequate.

Personal Protective Equipment
Personal Protective Equipment-Eyes/Face
None usually required
Personal Protective Equipment-Skin
None usually required
Personal Protective Equipment-Respiratory
None usually required
Personal Protective Equipment-General
Follow individual plant safety rules.

Section 9 - Physical & Chemical Properties

Appearance:	Gray Tape	**Odor:**	Essentially Odorless
Physical State:	Solid	**pH:**	Not Applicable
Vapor Pressure:	NIL	**Evaporation Rate:**	Not Applicable
Boiling Point:	Not Applicable	**Melting Point:**	Not Applicable
Solubility (H_2O):	Negligible	**Specific Gravity:**	Not Applicable
Vapor Density:	Not Applicable	**Percent Volatiles:**	NIL

Packing Density: Not Applicable

Section 10 - Chemical Stability & Reactivity Information

Chemical Stability
Stable under ordinary conditions of use and storage.
Conditions to Avoid
Material will burn when exposed to open flame.
Incompatibility
None Known
Hazardous Decomposition
Carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbon may be emitted upon decomposition.
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Acute and Chronic Toxicity
General Product Information
No components of this product are known to be hazardous according to the criteria specified in 29CFR1910.1200 (Hazard Communication Standard).
Component Analysis

Component	CAS	LD50/LC50
Polypropylene	9003-07-0	No information available
Acrylic Adhesive	Mixture	No information available
Rosin Based Tackifying Resin	Mixture	No information available
Pigment	Mixture	No information available

Carcinogenicity
General Product Information
Product is considered non-hazardous.
Epidemiology
No information available.
Neurotoxicity
No information available.
Mutagenicity
No information available.
Teratogenicity
No information available.
Other Toxicological Information
Specific toxicity testing has not been performed on this product. Hazard evaluation is based on information from similar products, raw material data, and technical literature.

Section 12 - Ecological Information

Ecotoxicity

General product Information

No available information.

Environmental Fate

No available information.

Section 13 - Disposal Considerations

US EPA Waste Number & Descriptions

General Product Information

None identified.

Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components

Disposal Instructions

Dispose of container and unused contents in accordance with federal, state and local requirements. Processing, use or contamination of this product may change the waste management options.

Section 14 - Transportation Information

Transportation Regulations

Product is not regulated for transportation.

Section 15 - Regulatory Information

US Federal Regulations

General Product Information

No additional information.

Component Analysis-Federal

Component	CAS #	SARA 302 (40CFR355 Appx A)	SARA 313 (40CFR372.65)	CERCLA (40CFR302.4)
Polypropylene Acrylic Adhesive	9003-07-0 Mixture	No UK	No UK	No UK
Rosin Based Tackifying Resin	Mixture	UK	UK	UK
Pigment	Mixture	UK	UK	UK

UK=Unknown

State Regulations

General Product Information

Other state regulations may apply. Check individual state requirements.

Component Analysis-State

The following components appear on one or more of the following state hazardous substances list:

Component	CAS	CA	FL	MA	MN	NJ	PA
Polypropylene Acrylic Adhesive	9003-07-0 Mixture	No UK	No UK	No UK	No UK	No UK	No UK
Rosin Based Tackifying Resin	Mixture	UK	UK	UK	UK	UK	UK
Pigment	Mixture	UK	UK	UK	UK	UK	UK

UK = Unknown

Component Analysis-WHMIS IDL

The following components are knowingly identified under the Canadian Hazardous Products Act Ingredient Disclosure List: None

Additional Regulatory Information

Component Analysis-Inventory

Component	CAS	TSCA	DSL	EINECS
Polypropylene Acrylic Adhesive	9003-07-0 Mixture	Yes UK	Yes UK	Yes (6-402) UK
Rosin Based Tackifying Resin	Mixture	UK	UK	UK
Pigment	Mixture	UK	UK	UK

UK = Unknown

Section 16 - Other Information

Other Information

Material for this SDS was taken from SDSs for raw materials

SDS History

New SDS 2-11-13

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information in this document is believed to be correct as of the date issued.
HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY USE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.
This information and the product are furnished on the condition that the person receiving them shall make his or her own determination as to the suitability of the product for his particular purpose and on the condition that they assume the risk of his use thereof.

THIS PRODUCT IS CONSIDERED AN ARTICLE AND DOES NOT REQUIRE A SAFETY DATA SHEET (SDS).

REVIEWED BY: Dustin Darnall

TYPAR® Construction Tape Three Part Specs:

SPECIFICATIONS:

PART 1 – GENERAL

1.1 Section Includes
- A. Typar Construction Top
- B. Primers.
- C. Fasteners.

1.2 References
- A. ASTM International
  1. ASTM D-903, Standard Test Method for Peel or Stripping Strength of adhesive bonds.
  2. ASTM D –2533, Standard practice for Twisting Load-Strain Properties.
  3. ASTM D-1970, Standard Specification for Self-Adhesion polymer modified bituminous sheet materials.

1.3 Submittals:
- A. Product Data: Submit manufacturer current technical literature for each type of product.
- B. Submit copies of test results showing performance characteristics equaling or exceeding those specified.

1.4 Quality Assurance
- A. Qualifications
  1. Installer shall have documented successful experience with installation of TYPAR Flashing products.
  2. Installation shall be in accordance with manufacturer's installation guidelines and recommendations.

PART 2 - PRODUCTS

2.1 Manufacturer
- A. Berry Global, Inc., 70 Old Hickory Blvd, Old Hickory, TN 37138; 800-284-2780; www. TYPAR.com

2.2 Materials
- A. Typar Construction Tape
  1. Description
     a. Face material composition: polyethylene barrier
     b. Face color: Gray
     c. Adhesive composition: Acrylic
     d. Thickness: 3.6mil
     e. Dimensions: 1-7/8" x 165', 3" x 165'
- B. Performance characterizations
  1. Temperature Resistance: 0°F (-18°C) – Min. application temperature
     230°F (110°C) – Max. application temperature
  2. Peel Adhesion PSTC-1*
  3. Tensile strength PSTC – 31*

*Pressure-Sensitive Tape Council

2.3 Accessories
- A. Primer: Use 3M™ Super77™ or equal
- B. Flashing Tape: Typar All-Temperature Flashing, Typar Flexible Flashing, and Typar Butyl Flashing
- C. Fastener: Fastener is dependent on substrate construction
- D. Sealant: Must comply with ASTM C920 elastomeric polymer sealant

PART 3 – EXECUTION

3.1 Examination
- A. Verify substrate and surface conditions are in accordance with the flashing manufacturer's recommendation.

3.2 Installation
- A. Follow the TYPAR flashing installation procedures

3.3 Protection
- A. Protect installed self-adhesive and flashing tapes from damage during construction

MADE IN USA. ICC #ESR-1404 • CCMC #12884-R • CCMC #12892-R

Please visit typar.com for installation instructions and warranty information
Berry Global, Inc. 70 Old Hickory Blvd., Old Hickory, TN 37138 USA, typar.com

TYPAR®

DOUBLE-SIDED SEAMING TAPE

A TIGHT, SHINGLED SEAL FOR DRAINABLE WRAP.™

Install the system. Get a lifetime limited warranty.* TYPAR® Double-Sided Seaming Tape, along with the full TYPAR® Weather Protection System delivers unbeatable coverage.

*Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

TYPAR LIFETIME LIMITED SYSTEM WARRANTY

TYPAR® DOUBLE-SIDED SEAMING TAPE

WHEN GOING FOR THE SHINGLING EFFECT, GET THIS.

Superior materials. And smarter installation techniques. It takes both to eliminate the vulnerabilities and enhance the performance of your weather barrier. TYPAR Double-Sided Seaming Tape delivers the sticking power and installation speed needed to seal off building wrap seams with the proper shingled effect. We've made it part of our lineup to better protect the walls—and make sure no water gets through.

LEADING FEATURES AND BENEFITS:

- Preserves shingling effect
- Helps create sealed weather barrier
- Installs well over wide temperature range
- High-performance adhesive
- Sticks aggressively
- UV- and weather-resistant
- Lifetime limited warranty*

INSTALL THE SYSTEM. GET A LIFETIME LIMITED WARRANTY.*

TYPAR Double-Sided Seaming Tape, Building Wraps and Flashings make up the complete TYPAR® Weather Protection System. It's the only lineup with superior air and water holdout, exceptional tear strength, optimal breathability and this: lifetime limited warranty coverage.*

TYPICAL CHARACTERISTICS:	
Peel Adhesion (PSTC* 101 Mod; steel, 30 min dwell)	**(Air Side)** 110 oz/in 12.03 N/cm **(Liner Side)** 120 oz/in 13.13 N/cm
Tensile Strength (PSTC-31*)	12 lbs/in
Elongation	155%
Temperature Resistance	15°F (-9°C) – Min. application temperature 200°F (92°C) – Max. application temperature

*Pressure-Sensitive Tape Council.

ROLL SIZE:
1.5" x 180'

*TYPAR Double-Sided Seaming Tape is part of the TYPAR® Lifetime Limited System Warranty when used with the complete TYPAR Weather Protection System. Certain limitations and exclusions apply. See the TYPAR Weather Protection System Limited Warranty located online at TYPAR.com/downloads for full details.

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Please visit TYPAR.com for installation instructions and warranty information.
Building Wraps | Flashings | Construction Tape

TYPAR®

ICC EVALUATION SERVICE

www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

ICC-ES Evaluation Report

ESR-1404

Reissued November 2022

Revised January 2023

This report is subject to renewal November 2023.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers

REPORT HOLDER:

FIBERWEB, INC.

ADDITIONAL LISTEE:

CERTAINTEED CORPORATION

EVALUATION SUBJECT:

TYPAR® BUILDINGWRAP, TYPAR® METROWRAP™, TYPAR® DRAINABLEWRAP™, TYPAR® DRAINABLEWRAP™ PEEL AND STICK, TYPAR® DRAINABLEWRAP™ COMMERCIAL, AND CERTAWRAP™ WEATHER RESISTANT BARRIERS (PRIVATE LABEL I)

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015 and 2012 *International Building Code®* (IBC)
- 2021, 2018, 2015 and 2012 *International Residential Code®* (IRC)
- 2021, 2018, 2015 and 2012 *International Energy Conservation Code®* (IECC)

Properties evaluated:

- Surface-burning characteristics
- Water-resistance
- Air leakage
- Exterior walls of Type I, II, III and IV construction

1.2 Evaluation to the following green code(s) and/or standards:

- 2022 and 2019 *California Green Building Standards Code* (CALGreen), Title 24, Part 11
- 2021, 2018, 2015 and 2012 *International Green Construction Code®* (IgCC)
- 2020, 2017, 2014 and 2011 *ANSI/ASHRAE/USGBC/IES Standard* 189.1–Standard for the Design of High-Performance Green Buildings, Except Low-Rise Residential Buildings
- 2020, 2015 and 2012 ICC 700 *National Green Building Standard™* (ICC 700-2020, ICC 700-2015 and ICC 700-2012)

Attributes verified:

- See Section 3.0

2.0 USES

Typar® BuildingWrap, Typar® MetroWrap™ and CertaWrap™ Weather Resistant Barriers are used as water-resistive barriers on the exterior side of exterior walls of buildings of all construction types under the IBC and construction permitted under the IRC. Under the IBC for Types I, II, III and IV construction of buildings greater than 40 feet (12.2 m), see Section 4.3.1.

Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, and Typar® DrainableWrap™ Commercial are used as a water-resistive barrier on the exterior side of exterior walls of buildings and construction permitted under the IRC. Under the IBC for Types I, II, III, and IV construction of buildings greater than 40 feet (12.2 m), see Section 4.3.2.

Typar® BuildingWrap, Typar® MetroWrap™, Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ are also equivalent to Grade D building paper in accordance with Section 2510.6 of the 2021 IBC (the exception to Section 2510.6 of the and 2012 IBC), and Section R703.7.3 of the 2021, 2018 and 2015 IRC (2012 IRC Section R703.6.3). All products may be used as air barrier materials under IRC Section N1102.4.1 and 2021, 2018 and 2015 IECC Sections C402.5 and R402.4 (2012 IECC Sections C402.4 and R402.4).

3.0 DESCRIPTION

Typar® BuildingWrap and CertaWrap are nonwoven, nonperforated, polypropylene materials with a nominal thickness of 11 mils [0.011 inch (0.279 mm)] and a basis weight of 2.8 ounces per square yard (95 g/m^2).

Typar® MetroWrap™ is a nonwoven, nonperforated, polypropylene material with a nominal thickness of 13.7 mils [0.0137 inch (0.348 mm)] and a basis weight of 3.5 ounces per square yard (119 g/m^2).

Typar® DrainableWrap™ is a nonwoven, nonperforated, polypropylene material with a nominal thickness of 30 mils [0.03 inch (0.762 mm)] and a basis weight of 3.0 ounces per square yard (102 g/m^2).

Typar® DrainableWrap™ Peel and Stick is identical to the Typar® DrainableWrap™ product except that it is backed with an acrylic adhesive and a release film; the product has a nominal thickness of 22 mils [0.022 inch (0.56 -mm)].

Typar® DrainableWrap™ Commercial consists of layered nonwoven, nonperforated, polypropylene materials with a nominal thickness of 20 mils [0.02 inch (0.508 mm)] and a basis weight of 3.7 ounces per square yard (125 g/m^2).

All products are available in rolls of varying size.

Typar® BuildingWrap, Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® MetroWrap™, Typar® DrainableWrap™ Commercial and CertaWrap™ have a flame-spread index of less than 25 and a smoke-developed index of less than 450 when tested in accordance with ASTM E84 (UL 723).

When used as an air barrier material, the membranes have an air leakage rate not exceeding 0.02 L/(S-M^2) at 75 Pa [0.004 cfm/ft^2 at 0.3 w.g. (1.57 psf)].

The attributes of the Typar® BuildingWrap, Typar® MetroWrap™, Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ Weather Resistant Barriers have been verified as conforming to the provisions of (i) CALGreen Section 5.407.1 for water-resistive barriers ; (ii) 2021 IgCC Section 701.3.1.2, 2018 IgCC Section 701.3.1.1 and 2012 and 2015 IgCC Section 605.1.2.1 for air barriers; (iii) 2020 ASHRAE 189.1 Section 7.3.1.2, 2017 and 2014 ASHRAE 189.1 Section 7.3.1.1 and 2011 ASHRAE 189.1 Section 7.4.2.9 for air barriers; (iv) ICC 700-20 Section 602.1.8, 11.602.1.8, 1202.6 and 13.104.1.4, ICC 700-2015 Section 602.1.8, 11.602.1.8 and 12.6.602.1.8 and ICC 700-2012 Section 602.1.8, 11.602.1.8 and 12.5.602.1.8 for water-resistive barriers. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

4.0 INSTALLATION

4.1 Water-resistive Barrier:

Typar® BuildingWrap, Typar® MetroWrap™, Typar® DrainableWrap™, Typar® DrainableWrap™ Commercial and CertaWrap™ are installed after wall framing is completed and before windows and doors are installed. The roll is placed approximately 6 inches (152 mm) from the starting corner and fastened with corrosion-resistant cap staples or cap nails approved by the manufacturer and is then unrolled around the building and fastened as set forth in the manufacturer's published installation instructions. The printed side must be installed facing the outside. A minimum of 6 inches (152 mm) of overlap shall be provided for vertical seams and 2 inches (51 mm) for horizontal seams, except where the manufacturer's installation instructions specify a greater overlap dimension.

Typar® DrainableWrap™ Peel and Stick is installed after wall framing is completed and before windows and doors are installed. The exterior wall surfaces must be dry and free of dirt, dust or other foreign matter that would inhibit proper adhesion. Installation is limited to plywood, OSB, vinyl and aluminum substrates. Typar® DrainableWrap™ Peel and Stick must be applied when the ambient air and surface temperatures are above 50˚F (10˚C) and below 176˚F (80˚C). The membrane is installed horizontally over the substrate in accordance with the applicable code. The membrane must be installed with a minimum of 2-inch (50.8 mm) sidelaps and 2-inch (50.8 mm) headlaps

When use is over wood-based sheathing in exterior plaster applications, two layers of product must be applied over sheathing in accordance with 2012 IBC Section 2510.6 or 2018 and 2015 IRC Section R703.7.3 (2012 IRC Section R703.6.3), as applicable.

When used over wood based sheathing in exterior plaster applications in accordance with 2021 IBC Section 2510.6 and 2021 IRC Section R703.7.3 installations must be as follows:

- For dry climate zones (B) in accordance with 2021 IBC Section 2510.6.1 or 2021 IRC Section R703.7.3.1, the product must be applied in accordance with 2021 IBC Section 2510.6.1 Item 1 and 2021 IRC Section R703.7.3.1 Item 1, as applicable.

- For moist climate zones (A) or marine climate zones (C) in accordance with 2021 IBC Section 2510.6.2 or 2021 IRC Section R703.7.3.2, the product must be applied in accordance the dry climate zone (B) provisions noted above and with the additional requirements noted in 2021 IBC Section 2510.6.2 Item 1 or 2021 IRC Section R703.7.3.2 Item 1, as applicable.

For cementitious coatings or exterior insulation and finish systems, application must be in accordance with the evaluation report on the exterior coating.

The manufacturer's published installation instructions and this report must be strictly adhered to. If requested by the code official, a copy of this report must be available at the jobsite during installation.

4.2 Air Barrier Material:

When used as an air barrier, the product must be installed in accordance with the manufacturer's installation instruction and this report.

4.3 Exterior Walls of Types I, II, III and IV construction:

The water-resistive barriers may be used as a component of exterior walls on buildings of Types I, II, III or IV construction as follows:

4.3.1 Typar® BuildingWrap, Typar® MetroWrap™ and CertaWrap™: Under the IBC, Typar® BuildingWrap, Typar® MetroWrap™ and CertaWrap™ water-resistive barriers have been evaluated for use on exterior walls of buildings of any height above grade when the wall assembly complies with Table 1; the water-resistive barriers may also be installed on exterior walls of buildings of any height above grade when the wall assembly complies with exception 1 of 2021 and 2018 IBC Section 1402.5 (exception 1 of in 2015 IBC Section 1403.5).

4.3.2 Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, and Typar® DrainableWrap™ Commercial: Under the IBC, Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, and Typar® DrainableWrap™ Commercial water-resistive barriers have been evaluated for use on exterior walls of buildings not greater than 40 feet (12.2 m) above grade; the water-resistive barriers may be installed on exterior walls of

buildings of any height above grade when the wall assembly complies with exception 1 of 2021 and 2018 IBC Section 1402.5 (exception 1 of in 2015 IBC Section 1403.5).

5.0 CONDITIONS OF USE

The Typar® BuildingWrap, Typar® MetroWrap™, Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ Weather Resistant Barrier products described in this report comply with, or are suitable alternates to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report and the manufacturer's published installation instructions. In the event of conflict between the manufacturer's instructions and this report, this report governs.

5.2 The water-resistive barrier must be covered by an exterior wall finish complying with the requirements of the applicable code.

5.3 Use on exterior walls of buildings of Types I, II, III and IV construction must be in accordance with Section 4.3 and Table 1 for the applicable edition of the IBC.

5.4 The products must not be installed where ASTM E2556 Type I or II building paper is required.

5.5 The product is manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Water-resistive Barriers (AC38), approved August 2016 (editorially revised July 2021).

6.2 Report of testing in accordance with ASTM E84 (UL 723).

6.3 Reports of testing in accordance with ASTM E2178.

6.4 Report of testing in accordance with NFPA 285 and supporting fire analysis.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-1404) along with the name, registered trademark, or registered logo or the report holder [and/or listee] must be included in the product label.

7.2 In addition, the Typar® BuildingWrap, Typar® MetroWrap™, Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ products are identified by a label, on the container of each roll of membrane, bearing the company name (Fiberweb, or CertainTeed Corporation), the product name, the manufacturing location (Old Hickory, TN), and the evaluation report number (ESR-1404).

7.3 The report holder's contact information is the following:

FIBERWEB, INC.
70 OLD HICKORY BOULEVARD
OLD HICKORY, TENNESSEE 37138
(615) 847-7000
www.typar.com

7.4 The Additional Listee's contact information is the following:

CERTAINTEED CORPORATION
20 MOORES ROAD
MALVERN, PENNSYLVANIA 19355

TABLE 1—NFPA 285 WALL ASSEMBLY

I. Base Wall System (Use either 1, 2 3 or 4)	1. Concrete Wall
	2. Concrete Masonry Wall (CMU)
	3. Standard Clay Brick Wall
	4. Steel Stud Framed Wall (Use a, b, c, or d, as applicable) – Minimum 20-gauge, $3^5/_8$-inch-deep, studs with lateral bracing every 4 feet vertically, spaced 24 inches on center maximum
	a. Interior Wallboard – Minimum of 1 layer of $^5/_8$–inch-thick Type X gypsum wallboard on interior face of studs
	b. Cavity Insulation – None
	c. Floorline Firestopping – (where studs are outboard of the floor assembly): 4 lb/ft^3 mineral wool in each stud cavity and at each floorline – attached with Z-clips
	d. Exterior Sheathing – minimum 1 layer of $^1/_2$–inch-thick, exterior glass-mat gypsum sheathing complying with ASTM C1177
II. Air and Water Barrier Applied to I. Base Wall Systems 1, 2, 3 or 4	1. Typar® BuildingWrap, Typar® MetroWrap™ and CertaWrap™
III. Exterior Insulation[1]	1. None
IV. Exterior Cladding[2]	1. Brick: Standard nominal 4-inch thick clay brick. Use standard brick veneer anchors installed maximum 24 inches on center vertically on each stud with a 2-inch maximum air gap between exterior insulation and brick.

For **SI**: 1 inch = 25.4 mm; 1 lb/ft^3 = 16 kg/m^3

Notes:
[1] Use minimum 24 gauge (0.033-inch thick) galvanized steel flashing around all window and door openings in the exterior wall.
[2] Exterior cladding must comply with the applicable provisions of IBC Chapter 14 and IRC Chapter 7.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers

REPORT HOLDER:

FIBERWEB, INC.

EVALUATION SUBJECT:

TYPAR® BUILDINGWRAP, TYPAR® METROWRAP™, TYPAR® DRAINABLEWRAP™, TYPAR® DRAINABLEWRAP™ PEEL AND STICK, TYPAR® DRAINABLEWRAP™ COMMERCIAL AND CERTAWRAP™ WEATHER RESISTANT BARRIERS (PRIVATE LABEL I)

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Typar® BuildingWrap, Typar® MetroWrap™, Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ Weather Resistant Barriers, described in ICC-ES evaluation report ESR-1404, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2022 *California Building Code* (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 *California Residential Code* (CRC)
- 2022 *California Energy Code* (CEC)

2.0 CONCLUSIONS

2.1 CBC:

The Typar® BuildingWrap, Typar® MetroWrap™, Typar® Drainable Wrap, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ Weather Resistant Barriers, described in Sections 2.0 through 7.0 of the evaluation report ESR-1404, comply with CBC Chapter 14, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report ESR-1404. Use as an air barrier must be in accordance with the CEC.

2.1.1 OSHPD: The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA: The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Typar® BuildingWrap, Typar® MetroWrap™, Typar® DrainableWrap™, Typar® DrainableWrap™ Commercial and CertaWrap™ Weather Resistant Barriers, described in Sections 2.0 through 7.0 of the evaluation report ESR-1404, comply with CRC Chapter 7, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report ESR-1404 and the applicable provisions of the CRC. Use as an air barrier must be in accordance with the CEC.

This supplement expires concurrently with the evaluation report ESR-1404, reissued November 2022 and revised January 2023.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers

REPORT HOLDER:

FIBERWEB, INC.

ADDITIONAL LISTEE:

CERTAINTEED CORPORATION

EVALUATION SUBJECT:

TYPAR® BUILDINGWRAP, TYPAR® METROWRAP™, TYPAR® DRAINABLEWRAP™, TYPAR® DRAINABLEWRAP™ PEEL AND STICK, TYPAR® DRAINABLEWRAP™ COMMERCIAL AND CERTAWRAP™ WEATHER RESISTANT BARRIERS (PRIVATE LABEL I)

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Typar® BuildingWrap, Typar® MetroWrap™, Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ Weather Resistant Barriers, described in ICC-ES evaluation report ESR-1404, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 *Florida Building Code—Building*
- 2020 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The Typar® BuildingWrap, Typar® MetroWrap™ Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ Weather Resistant Barriers, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-1404, comply with the 2020 *Florida Building Code—Building* and the 2020 *Florida Building Code—Residential.* The design requirements shall be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential,* as applicable. The installation requirements noted in ICC-ES evaluation report ESR-1404 for the 2018 *International Building Code®* meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential,* as applicable.

Use of the Typar® BuildingWrap, Typar® MetroWrap™ Typar® DrainableWrap™, Typar® DrainableWrap™ Peel and Stick, Typar® DrainableWrap™ Commercial and CertaWrap™ Weather Resistant Barriers has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* or the *Florida Building Code—Residential*.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued November 2022 and revised January 2023.

TYPAR® WEATHER PROTECTION SYSTEM LIMITED WARRANTY

IMPORTANT NOTICE: Read this entire TYPAR® WEATHER PROTECTION SYSTEM PRODUCTS Limited Warranty and Limitation of Liability ("Limited Warranty") before installing this product. Refer to the Installation Instructions for the installation requirements. By installing or using this product, you are acknowledging that this Limited Warranty is part of the terms of sale.

Berry Global Corporation ("Berry") provides the following Limited Warranty for its TYPAR® Weather Protection System Products listed below ("Product" or "Products," as applicable) to the Owner of a Structure in the United States or Canada, subject to the terms and conditions stated below.

Wrap: TYPAR® BuildingWrap and TYPAR® MetroWrap™, TYPAR® DrainableWrap, TYPAR® DrainableWrap™ Peel & Stick

Flashings: TYPAR® Flexible Flashing, TYPAR® All Temperature Flashing and TYPAR® Butyl Flashing

Tape: TYPAR® Construction Tape

DEFINITIONS

As used in this Limited Warranty, the following terms have the following meanings:

- **"Structure"** means a (1) Single-Family Residence, (2) a detached unit or building within a multi-family, apartment, condominium or other residential project, or (3) a commercial building.
- **"Single-Family Residence"** means a dwelling which is designed, occupied or intended for occupancy by one family, which is permanently situated on a lot owned by the owner of the dwelling, which is physically detached from any other dwelling, and which does not include a manufactured or modular home.
- **"Owner"** means the first owner of a Structure following the installation of the Products. The Owner of a Single-Family Residence must also reside in (or intend to reside in) the Single-Family Residence or lease the Single-Family Residence to others for use as a Single-Family Residence.
- **"Specifications," "Characteristics" and "Installation Instructions"** are those that Berry publishes at http://www.typar.com/downloads and that are in effect on the date of the purchase of the Products from Berry or an authorized reseller.

SINGLE-FAMILY RESIDENCE LIMITED LIFETIME PRODUCT WARRANTY

Berry warrants to the Owner of a Structure that is a Single-Family Residence, for the lifetime of the Product(s) installed on such Structure, that the Product(s) will perform according to published Specifications and Characteristics if installed in strict accordance with published Installation Instructions, accepted industry standards and applicable building codes in a properly designed and constructed wall system. If any Product(s) fail(s) to meet performance Specifications or Characteristics, Berry will provide, at no cost, replacement product(s) for the failed Product(s), if available, or substantially similar product(s) being manufactured by Berry at the time of the replacement.

15-YEAR LIMITED PRODUCT WARRANTY FOR STRUCTURES OTHER THAN SINGLE-FAMILY RESIDENCES

Berry warrants to the Owner of a Structure other than a Single-Family Residence, for a period of 15 years from the date of purchase of the Product(s) installed on such Structure, that the Product(s) will perform according to published Specifications and Characteristics if installed in strict accordance with published Installation Instructions, accepted industry standards and applicable building codes in a properly designed and constructed wall system. If any Product(s) fail(s) to meet performance Specifications or Characteristics, Berry will provide, at no cost, replacement product(s) for the failed Product(s), or affected portions thereof, such replacement to consist of the same Product(s), if available, or substantially similar product(s) being manufactured by Berry at the time of replacement.

TYPAR™

LIMITED LIFETIME SYSTEM WARRANTY FOR STRUCTURES UP TO THREE STORIES IN HEIGHT

For Products comprising the entire building envelope of a new Structure up to three stories in height, and otherwise in accordance with the terms and conditions set forth herein, Berry will pay for the reasonable costs of construction (labor and materials) necessary to repair the actual area of damage to the wall system of the Structure caused solely by the failure of the Product(s) if installed in strict accordance with published Installation Instructions, accepted industry standards and applicable building codes in a properly designed and constructed wall system. To qualify for this Limited Lifetime System Warranty, the entire building envelope of the Structure must be constructed exclusively of a combination of the Products that includes at least one Product from each of the three Product categories listed on the previous page (wrap, flashing and tape). Use of any other building envelope product, when an applicable Product is available from Berry, or installation of Products on a Structure four or more stories in height, voids this Limited Lifetime System Warranty. This Limited Lifetime System Warranty shall apply only to a Structure on which the Products are installed during original construction.

10-YEAR LIMITED SYSTEM WARRANTY FOR STRUCTURES FOUR OR MORE STORIES IN HEIGHT

Berry warrants to the Owner of a new Structure four or more stories in height, for a period of 10 years from the date of purchase of the Products comprising the entire building envelope of such Structure, that the Products will perform according to published Specifications and Characteristics if installed in strict accordance with published Installation Instructions, accepted industry standards and applicable building codes in a properly designed and constructed wall system. To qualify for this Limited System Warranty, the entire building envelope of the Structure must be constructed exclusively of a combination of the Products that includes at least one Product from each of the three Product categories listed on the previous page (wrap, flashing and tape). Use of any other building envelope product, when an applicable Product is available from Berry voids this 10-Year Limited System Warranty. This 10-Year Limited System Warranty shall apply only to a Structure on which the Products are installed during original construction. If any Products fail to meet performance Specifications or Characteristics, Berry will pay for the reasonable costs of construction (labor and materials) necessary to repair the actual area of damage to the wall system of the Structure caused solely by the failure of the Product(s).

BERRY'S RESPONSIBILITY AND LIABILITY, IF ANY, FOR REPAIRS UNDER THE LIMITED SYSTEM WARRANTY SHALL BE LIMITED TO REPAIR COSTS OF NO MORE THAN $10 PER SQUARE FOOT OF DAMAGED EXTERIOR WALL AREA AND SHALL IN NO EVENT EXCEED A PROJECT MAXIMUM OF $500,000 USD, REGARDLESS OF SQUARE FOOTAGE OR NUMBER OF STRUCTURES AFFECTED.

ADDITIONAL LIMITED WARRANTY TERMS, CONDITIONS, AND EXCLUSIONS

This Limited Warranty is non-transferable and applies only to Product(s) purchased and installed in the United States or Canada on or after January 1, 2017.

Neither replacement of Product(s) nor repair of any Structure under this Limited Warranty shall renew or extend the warranty term, such term to always begin to run from the date of purchase of the Product(s) to which this Limited Warranty applies. This Limited Warranty does not apply to replacement Product(s).

No representative, agent or employee of Berry has the authority to modify the terms of this Limited Warranty.
This Limited Warranty and all the terms contained herein constitute the entire agreement between Berry and the Owner.

FAILURE TO COMPLY WITH PRODUCT INSTALLATION INSTRUCTIONS VOIDS ALL WARRANTIES UNLESS IT IS CLEARLY ESTABLISHED BY THE OWNER THAT THE DEFECT OR FAILURE IS UNRELATED TO SUCH NONCOMPLIANCE.

This Limited Warranty is not a statement of the useful life of the Product(s).

HOW TO MAKE A LIMITED WARRANTY CLAIM

All claims under this Limited Warranty must be made in writing to Berry Plastics Corporation, 101 Oakley Street, Evansville, IN 47710, Attention: General Counsel. All claims must be postmarked no later than sixty (60) days after discovery of the condition giving rise to the claim, and within the warranty period, and must include the name, address and phone number of the Owner, nature of the claim, date of discovery of the condition giving rise to the claim, list of the Product(s) involved and the type, number of stories and address of the Structure affected. All claims also must include acceptable proof, in Berry's sole discretion, of the date of purchase of the Product(s). Failure to follow these claim procedures will void this Limited Warranty.

INSPECTION

If Berry determines that an inspection or investigation of a claim is necessary, the Owner must provide access for a Berry representative to inspect the Structure specified in the claim and conduct an investigation, including but not limited to taking photographs and samples. Failure to follow these claim procedures will void this Limited Warranty.

LIMITATION OF REMEDY

THE EXCLUSIVE REMEDY OF THE OWNER, AND THE SOLE LIABILITY OF BERRY FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE SALE, INSTALLATION, OR USE OF THESE PRODUCTS SHALL BE THIS LIMITED WARRANTY.

To the extent permitted by law, any controversy or dispute arising out of or relating to this Limited Warranty, including alleged torts, shall be resolved by arbitration administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules (including, if such controversy or dispute involves a Single-Family Residence, its Supplementary Procedures for Consumer-Related Disputes), and judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. Any arbitration shall be conducted in Vanderburgh County, Indiana. The laws of the State of Indiana (without giving effect to its conflicts of law principles) govern all matters relating to this Limited Warranty. Some jurisdictions do not allow mandatory arbitration, so the above provision may not apply to you.

NOTICE OF ARBITRATION AGREEMENT

This Limited Warranty provides that all disputes between you and Berry will be resolved by BINDING ARBITRATION.

You thus GIVE UP YOUR RIGHT TO GO TO COURT to assert or defend your rights under this Limited Warranty (EXCEPT for matters that may be taken to SMALL CLAIMS COURT).

Your rights will be determined by a NEUTRAL ARBITRATOR and NOT a judge or jury.

You are entitled to a FAIR HEARING, BUT the arbitration procedures are SIMPLER AND MORE LIMITED THAN RULES APPLICABLE IN COURT.

Arbitrator decisions are as enforceable as any court order and are subject to VERY LIMITED REVIEW BY A COURT.

FOR MORE DETAILS, visit: www.adr.org/consumer_arbitration

LIMITATION OF WARRANTY

THE LIMITED WARRANTY IN THIS DOCUMENT IS COMPLETE AND IN LIEU OF ALL OTHER WARRANTIES. TO THE FULL EXTENT PERMITTED BY LAW, BERRY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER WARRANTIES CREATED OR IMPLIED BY STATUTE, CUSTOM OR USAGE OF TRADE.

This Limited Warranty gives you specific legal rights, and you may have additional rights, which vary from state to state.

LIMITATION OF LIABILITY

This Limited Warranty sets forth Berry's maximum liability for the Products.

BERRY'S RESPONSIBILITY AND LIABILITY, IF ANY, IN CONNECTION WITH THE PRODUCTS AND THIS LIMITED WARRANTY SHALL BE LIMITED TO REPLACEMENT OR REPAIR, AS SET FORTH ABOVE. TO THE FULL EXTENT PERMITTED BY LAW, BERRY SHALL NOT BE LIABLE IN TORT, CONTRACT OR OTHERWISE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, EXPECTATION OR OTHER DAMAGES OF ANY KIND ARISING OUT OF, RELATING TO OR IN CONNECTION WITH THE PRODUCTS OR THIS LIMITED WARRANTY, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST REVENUE, LOSS OF USE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

DISCLAIMER – WHAT THIS LIMITED WARRANTY DOES NOT COVER

This Limited Warranty shall not apply to damage to Products or Structures caused by or resulting from any of the following:

- Normal wear and tear.
- Abuse, mishandling, nonstandard use or application, neglect, improper maintenance, accident, modification, damage or vandalism by any party other than Berry.
- Foreign objects or agents, or use of materials incompatible with the Products, including but not limited to any caulks or sealants containing solvents or plasticizers coming into contact with the adhesive portion of TYPAR® Butyl Flashing.
- Defects in the Structure or a component of the Structure.
- Structural settlement, movement or vibration.
- Any penetration of the building envelope of the Structure, unless in accordance with applicable published installation instructions for the Products.
- Use of any Product(s) in an area containing a pool, hot tub, whirlpool, Jacuzzi, steam room, sauna or spa, or any other area exposed to a heightened amount of moisture, humidity or heat.
- Acts of God, including but not limited to lightning, flood, hail or high winds.
- UV Exposure of the Product(s) in excess of those set forth in the Specifications or Characteristics.
- Any defect arising out of the performance of any non-Berry product.

TYPAR® BuildingWrap is part of a complete Weather Protection System, which also includes TYPAR® MetroWrap, TYPAR® Flashings, TYPAR® DrainableWrap and TYPAR® Construction Tape.

TYPAR® is a registered trademark of Fiberweb, LLC, a wholly owned subsidiary of Berry Global Corporation

For more information, visit www.TYPAR.com

70 Old Hickory Blvd, Old Hickory, TN
Please visit TYPAR.com for installation instructions and product information.
Building Wraps | Flashings | Construction Tape | Fasteners

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

PROJECT: _____

SUBSTITUTION REQUEST NUMBER: _____

FROM: _____

TO: _____

DATE: _____

A/E PROJECT NUMBER: _____

RE: _____

CONTRACT FOR: _____

SPECIFICATION TITLE: _____

DESCRIPTION: _____

SECTION: _____ **PAGE:** _____

ARTICLE/PARAGRAPH: _____

PROPOSED SUBSTITUTUION: _____

MANUFACTURER: TYPAR **ADDRESS:** 70 Old Hickory Blvd, Old Hickory TN **PHONE:** _____

TRADE NAME: TYPAR - A Berry Global Brand **MODEL NO.:** _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:
- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY: _____

SIGNED BY: _____

FIRM: _____

ADDRESS: _____

TELEPHONE: _____

A/E's REVIEW AND RECOMMENDATION:

- ☐ Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Reject Substitution—Use specified materials.
- ☐ Substitution Request received too late—Use specified materials.

SIGNED BY: **DATE:**

SUPPORTING DATA ATTACHED: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____