TECHNICAL DATA SHEET

# DELTA®-VENT SA

**Self-Adhered Water-resistive Barrier & Air Barrier**

## MATERIAL

DELTA®-VENT SA is a 3-layer self-adhered water-resistive barrier (WRB) and air barrier. Its two outer layers are made of a high strength spun-bonded polypropylene (PP) fabric. They are thermally bonded to a highly vapor permeable, watertight polymeric middle layer. DELTA®-VENT SA maintains high vapor permeability and has a full surface coating of a high tack adhesive for bonding to common substrates. It has a split release liner for ease of application. The matte gray color of DELTA®-VENT SA prevents blinding glare during installation.

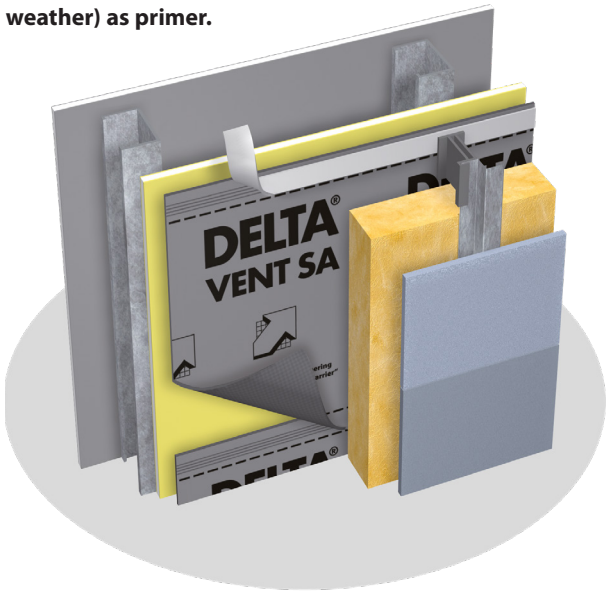
## PROPERTIES

DELTA®-VENT SA is a vapor permeable WRB, allowing moisture within the building enclosure to escape through the membrane via diffusion. Its permeability and air-tightness make it an ideal air and water-resistive barrier membrane for energy-efficient construction. DELTA®-VENT SA not only passes, but also dramatically exceeds the most stringent requirements of the Air Barrier Association of America (ABAA) and of the National Building Code of Canada (NBC 2010 and NBC 2015) based on the results of ASTM E2357 and CAN/ULC-S742 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies. Full adhesion maximizes air tightness and minimizes fastener penetrations. The product is watertight and protects the building enclosure from wind-driven rain. DELTA®-VENT SA is very light-weight and tear-resistant. This membrane withstands the rigors of jobsites, as well as tough wind and weather. DELTA®-VENT SA is equivalant to a 60 minute Grade D building paper.

## APPLICATION

DELTA®-VENT SA is installed outboard of the sheathing prior to the application of the final cladding system. DELTA® Accessories complement the WRB / Air Barrier installation. It may be adhered to concrete, masonry, OSB, plywood, or exterior grade drywall.

**Where required, use DELTA®-HF PRIMER DELTA®-ADHESIVE LVC or DELTA®-ADHESIVE (cold weather) as primer.**

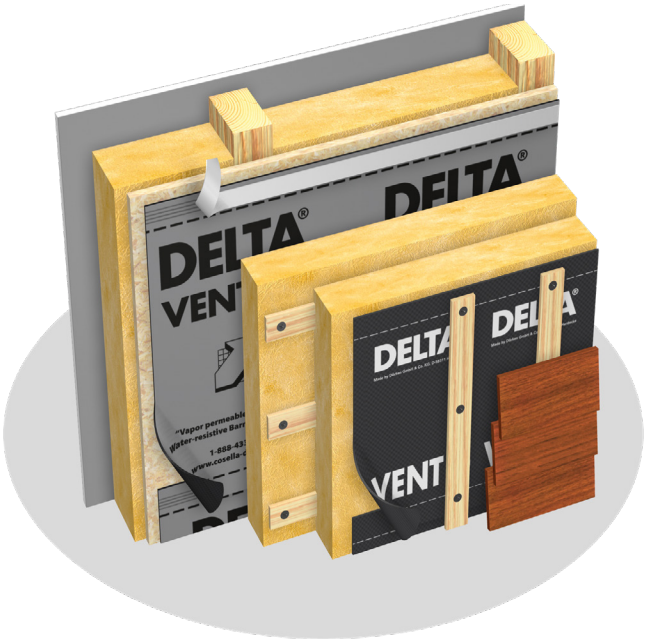



## Technical Data

| | | |
|---|---|---|
| Product name | DELTA®-VENT SA | |
| Color | gray | |
| Adhesive coating | Full surface coating with vapor permeable pressure-sensitive adhesive | |
| Water vapor transmission | 214 g/m²/24 h | ASTM E96-05, Proc. A |
| | 343 g/m²/24 h | ASTM E96-05, Proc. B |
| Vapor permeance | 31 perms [grains/h/ft²/in Hg] | ASTM E96-05, Proc. A |
| | 50 perms [grains/h/ft²/in Hg] | ASTM E96-05, Proc. B |
| Air Leakage of Air Barrier Assemblies | < 0.2 L/(s•m²) @ 75 Pa (0.04 cfm/ft2 @ 1.57 lb/ft²) as per ABAA | ASTM 2357-11 |
| Air Leakage of Air Barrier Assemblies | Class A1 Meets the recommendations of NBC 2010, NBC 2015 and ABAA requirements. | CAN/ULC-S742-11 |
| Breaking strength | MD 71 lb | ASTM D5034-95 |
| | CD 65.4 lb | |
| Elongation at break | MD 27.8 % | ASTM D5034-95 |
| | CD 60.1 % | |
| 90° Peel adhesion | Pass | AAMA 711-5.3 (ASTM D3330) |
| Accelerated aging (U.V) | Pass | AAMA 711-5.4 |
| Elevated temperature | Pass (Level 3) | AAMA 711-5.5 (ASTM D3330) |
| Thermal cycling | Pass | AAMA 711-5.6 |
| Adhesion after water immersion | Pass | AAMA 711-5.8 |
| Bent test | Pass | AC-38 3.3.4 |
| Nail Sealability | Pass | ASTM D1970-01 |
| Water resistance hydrostatic pressure | Pass (55 cm > 5 hours) 60 minute Grade D building paper equivalent | AATCC 127-1985 |
| Linear dimensional change at elevated temperature 185 °F (85 °C) | MD -1.4% | ASTM D1204-08 |
| | CD +0.1% | |
| Resistance to puncture | 78.6 lbs (333.1 N) | ASTM E154-99 (10) |
| Low temperature flexibility | Pass | ASTM D1970-01 |
| Crack bridging ability | Pass -15 °F (-26 °C) | ASTM C1305-06 |

## LOCKED TIGHT ADHESIVE EDGE

DELTA®-VENT SA has a special edge running along the front side of one long edge. It has a release liner that, when removed, exposes a high tack adhesive. This adhesive bonds tightly and permanently with the next overlapping course of DELTA®-VENT SA, creating a secure and very air and water-tight seal.




## Technical Data

| | | |
|---|---|---|
| Flame spread | 14<br>NFPA Class A; IBC Class A | ASTM E84-09 |
| Smoke developed | 47<br>NFPA Class A; IBC Class A | ASTM E84-09 |
| Air permeance | Pass<br>(< 0.02 l/(s x m²) @ 75 Pa) | ASTM E2178<br>CAN/ULC-S741-08 |
| Application temperature | Minimum 40 °F (5 °C) | |
| Service temperature | -40 °F to +176 °F<br>(-40 °C to +80 °C)<br>W / Primer<br>-13 °F to +176 °F<br>(-25 °C to +80 °C)<br>W/O primer | |
| Roll weight | approx. 40 lb (18 kg) | |
| Roll size | 4' 11" (1.5 m), 19.5" (50 cm), 9.75" (25 cm) x 115' (35 m) | |
| Maximum UV (sunlight) exposure | Always cover as soon as possible. Maximum exposure 50 days. | |
| DELTA® Accessories | DELTA®-MULTI BAND<br>2" x 82' (60 mm x 25m)<br>DELTA®-FLEXX-BAND<br>4" x 33' (100 mm x 10 m)<br>6" x 33' (15 cm x 10 m)<br>9" x 33' (22 cm x 10 m)<br>12" x 33' (30 cm x 10 m)<br>DELTA®-FLASHING<br>6" x 75' (150 mm x 22.8 m)<br>DELTA®-FLASHING<br>9" x 75' (230 mm x 22.8 m)<br>DELTA®-FAS CORNER<br>DELTA®-THAN<br>310 ml (10.9 lf oz) / cartridge and 20.48 fl.oz. (600 ml) (sausage)<br>DELTA®-TILEXX<br>310 ml (10.9 lf oz) / cartridge<br>DELTA®-HF PRIMER<br>1.3 gal. (5 L) / pail or<br>DELTA®-ADHESIVE LVC<br>4.72 gal. (17.9 L) / pail<br>DELTA®-ADHESIVE<br>4.72 gal. (17.9 L) / pail | |

DELTA® products support sustainable and energy-efficient building practices, including efforts toward achieving LEED® certification (LEED® for New Construction & Major Renovations, LEED® for Core and Shell, LEED® for Existing Buildings and LEED® for Homes).

For technical support, call our technical support team at 1-888-4DELTA4 (1-888-433-5824) extension 326, or visit www.dorken.com.

air barrier association of america abaa EVALUATED

ICC ES AC38 Approved ESR-2932

cool, temperate climate CERTIFIED COMPONENT Passive House Institute

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1-888-4 DELTA 4, (905) 563-3255 Fax: (905) 563-5582
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PREMIUM QUALITY

DELTA® is a registered trademark of Ewald Dörken AG, Herdecke, Germany

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DÖRKEN SYSTEMS INC. GUIDE NOTE: This master specification section includes DÖRKEN SYSTEMS INC. GUIDE NOTES identified as "DÖRKEN SYSTEMS INC. GUIDE NOTE" for information purposes and to assist the specification writer in making appropriate decisions. The DÖRKEN SYSTEMS INC GUIDE NOTE always immediately precedes the text to which it is referring. The section serves as a guideline only and should be edited with deletions and additions to meet specific project requirements.

DÖRKEN SYSTEMS INC. GUIDE NOTE: This specification section follows the recommendations of the Construction Specifications Institute, Project Resource Manual including MasterFormat™, SectionFormat™, and PageFormat™. Optional text is indicated by square brackets []; delete the optional text including the brackets in the final copy of the specification. Delete the DÖRKEN SYSTEMS INC. GUIDE NOTES in the final copy of the specification. Trade/brand names with appropriate product model numbers, styles and types are used in DÖRKEN SYSTEMS INC. GUIDE NOTES and in the specification text Article or Paragraph titled "Acceptable Material".

DÖRKEN SYSTEMS INC. GUIDE NOTE: If this section is to be used to specify an Air Barrier system, then use section number 07 27 00. If this section is to be used to specify a Water-resistive Barrier system, then use section number 07 28 00.

DÖRKEN SYSTEMS INC. GUIDE NOTE: This specification section is based upon the Dörken Systems Inc. DELTA®-VENT SA product line.

# 1 GENERAL

## 1.01 SUMMARY OF WORK

A. This Section specifies self-adhered water-resistive barriers, air barriers, and accessories.

## 1.02 RELATED REQUIREMENTS

DÖRKEN SYSTEMS INC. GUIDE NOTE: Include in this Paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the Paragraph below. Do not include Division 00 Documents or Division 01 Sections since it is assumed that all technical sections are related to all project Division 00 Documents and Division 01 Sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered a legal part of the Contract. Edit the following paragraphs to suit specific project conditions.

A. Section [_____].

DÖRKEN SYSTEMS INC. GUIDE NOTE: In the following Article, include only those reference standards which appear in the finished version of the project specification.

## 1.03 REFERENCE STANDARDS

A. Air Barrier Association of America (ABAA)
1. ABAA [2011], Installer's Certification Program.

DÖRKEN SYSTEMS INC. GUIDE NOTE: When this section was developed, ABAA had not yet published their installation procedures for air or water-resistive barriers. Check with ABAA for actual installation guideline publication date and title before including the following paragraph in the project specification.

2. ABAA [2012], Water-resistive Barrier Installation Guideline.

B. American Association of Textile Chemists and Colorists (AATCC)

1. AATCC 127 [2008], Water Resistance: Hydrostatic Penetration Test.

C. American Architectural Manufacturer's Association (AAMA)
AAMA 711-[2007], Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products.

D. ASTM International (ASTM).
1. ASTM D1204-[2008], Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature.

2. ASTM D3330-[2010], Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape.
3. ASTM D5034-09, Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
4. ASTM E84-[2010b], Standard Test Method for Surface Burning Characteristics of Building Materials.
5. ASTM E96/96M-[2010], Standard Test Methods for Water Vapor Transmission of Materials.
6. ASTM E154-[2008a], Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
7. ASTM E2178-[2003] and CAN/ULC-S741-08, Standard Test Method for Air Permeance of Building Materials.8.
8. ASTM E2357, Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.
9. CAN/ULC-S742-11, Standard for Air Barrier Assemblies.

E. US Green Building Council (USGBC).
1. LEED® NC Version 4.1, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.

## 1.04 ADMINISTRATIVE REQUIREMENTS

A. Co-ordination: Co-ordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays.

B. Pre-installation Meeting: Convene pre-installation meeting after Award of Contract and one week prior to commencing work of this Section to verify project requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written installation instructions.
1. Comply with Section 01 31 19 - Project Meetings and co-ordinate with other similar pre-installation meetings.
2. Notify attendees 2 weeks prior to meeting and ensure meeting attendees include as minimum:
   a. Owner;
   b. Consultant;
   c. [Air] [Water-resistive] barrier installer;
   d. Manufacturer's Technical Representative.
3. Ensure meeting agenda includes review of methods and procedures related to [air] [water-resistive] barrier installation including co-ordination with related work.
4. Record meeting proceedings including corrective measures and other actions required to ensure successful completion of work and distribute to each attendee within 1 week of meeting.

DÖRKEN SYSTEMS INC. GUIDE NOTE: Article below includes submittal of relevant data to be furnished by Contractor.

## 1.05 ACTION AND INFORMATIONAL SUBMITTALS

A. Make submittals in accordance with Contract Conditions and Section 01 33 00 - Submittal Procedures.

B. Product Data: Submit product data including manufacturer's literature for [air] [water-resistive] barrier membrane and accessories, indicating compliance with specified requirements and material characteristics.
1. Submit list on [air] [water-resistive] barrier manufacturer's letterhead of materials, components and accessories to be incorporated into Work.
2. MSDS report.
3. Include product names, types and series numbers.
4. Include contact information for manufacturer and their representative for this Project.

C. Samples:
1. Submit duplicate 12 x 12 inches sample of membrane.
2. Submit duplicate 12 inches long samples of seam tape and each type of flashing materials.

D. Test Reports:
1. Submit test reports showing compliance with specified performance characteristics and physical properties including air permeance, water vapour permeance and structural performance.

2. Submit ICC-ESR documentation demonstrating compliance with ICC-AC 38 Acceptance Criteria for Water-Resistive Barriers.

E. Field Reports: Submit manufacturer's field reports within 3 days of each manufacturer representative's site visit and inspection.

F. Sustainable Design (LEED).
1. LEED Submittals: In accordance with Section [01 35 21 – LEED Requirements]
2. Submit complete Health Product Declaration (HPD v2)

G. Installer Qualifications:
1. Submit [verification of manufacturer's approval of installer] [letter verifying installer's experience with work similar to work of this Section] [verification of ABAA certification].

## 1.06 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Supply maintenance data for [air] [water-resistive] barrier materials for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

DÖRKEN SYSTEMS INC. GUIDE NOTE: If LEED is not a part of the project delete the following Paragraph in its entirety.

B. Sustainable Design Closeout Documentation (LEED).
1. Provide calculations on end-of-project recycling rates, salvage rates, and landfill rates for work of this Section demonstrating percentage of construction wastes which were recycled.
2. Submit verification from recycling facility showing receipt of materials.

C. Record Documentation: In accordance with Section 01 78 00 - Closeout Submittals.
1. List materials used in [air] [water-resistive] barrier work.
2. Warranty: Submit warranty documents specified.

## 1.07 QUALITY ASSURANCE

A. Installer Quality Assurance: [manufacturer's approval of installer] [[2] years' experience with work similar to work of this Section] [ABAA certification]

B. Sustainability Standards Certification (LEED).
1. LEED NC Version 4.1 submittals: In accordance with Section 01 35 21 - LEED Requirements.

C. Mock-up: Construct full size 10 ft x 10 ft mock-up of wall showing [air] [water-resistive] barrier using proposed procedures, materials and quality of work where directed by Consultant [and in accordance with Section 01 43 00 - Quality Assurance].
1. Include examples of window frame, door frame, interior corner, exterior corner and common protrusions or penetrations of barrier membrane.
2. Purpose: To judge quality of work and material installation.
3. Allow Consultant [24] hours minimum prior to inspection of mock-up.
4. Do not proceed with work prior to receipt of written acceptance of mock-up by Consultant.
5. When accepted, mock-up will demonstrate minimum standard of quality required for work of this Section.
6. Approved mock-up will [not] remain part of finished work.

DÖRKEN SYSTEMS INC. GUIDE NOTE: The following Article although not part of Quality Assurance, can be used to enhance the quality of materials by ensuring that they are delivered and handled properly at the work site.

## 1.08 DELIVERY STORAGE AND HANDLING

A. Delivery and Acceptance Requirements:
1. Deliver material in accordance with Section 01 61 00 - Common Product Requirements.

2. Deliver materials and components in manufacture's original packaging with identification labels intact and in sizes to suit project.

B. Storage and Handling Requirements: Store materials off ground and protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
1. Ensure materials are protected from sunlight and UV radiation.

C. Packaging Waste Management:

DÖRKEN SYSTEMS INC. GUIDE NOTE: For smaller projects that do not have a separate Section for waste management and disposal, delete the following paragraph.

1. Separate and recycle waste packaging materials in accordance with Section 01 74 19 - Construction Waste Management and Disposal.
2. Remove waste packaging materials from site and dispose of packaging materials at appropriate recycling facilities.

DÖRKEN SYSTEMS INC. GUIDE NOTE: For smaller projects that do not have a Waste Management Plan, delete the option referring to a Waste Management Plan.

3. Collect and separate for disposal paper and plastic material in appropriate on-site storage containers for recycling [in accordance with Waste Management Plan].

## 1.09 WARRANTY

A. Project Warranty: Refer to Contract Conditions for project warranty provisions.

B. Manufacturer's warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to and not intended to limit other rights Owner may have under Contract Conditions.
1. [10] years limited material warranty.

DÖRKEN SYSTEMS INC. GUIDE NOTE: Coordinate article below with manufacturer's warranty requirements.

C. Warranty period: [1] years commencing on Date of Substantial Performance of Work.

# 2 PRODUCTS

## 2.01 MANUFACTURER

A. Manufacturer: Dörken Systems Inc., 4655 Delta Way, Beamsville, Ontario, L0R 1B4, Canada, Phone: 1-905-563-3255, Toll Free: 1-888-4DELTA4 (1-888-433-5824), e-mail: info@dorken.com , URL: http://www.dorken.com.

## 2.02 DESCRIPTION

A. Vapor permeable [air] [water-resistive] barrier, highly tear-resistant 3-layer membrane, with 2 outer layers of spun-bonded polypropylene fabric, water-tight polymeric middle layer and highly aggressive adhesive coating on the back.
1. Includes factory applied self-adhesive strip on each front upper longitudinal edge of barrier membrane.
2. Ensure materials meet requirements of AAMA 711.

## 2.03 DESIGN CRITERIA

A. Water Vapor Permeance: To ASTM E96 (Procedure A) 31 perms, (Procedure B) 50 perms.

B. Water Vapor Transmission: To ASTM E96 (Procedure A), 214 $g/m^2/24$ hr, (Procedure B) 343 $g/m^2/24$ hr.

C. Water Penetration: AATCC 127, Pass.

D. Air Permeance: To ASTM E2178, <0.0034 cfm/sq ft @ 0.3 inches wg (< 0.02 l/(s x m²) @ 75 Pa).

E. Air Permeance: To CAN/ULC-S741 <0.0034 cfm/sq ft @ 0.3 inches wg (< 0.02 l/(s x m²) @ 75 Pa).

F. Air Assembly: To CAN/ULC-S742-11, Class A1

G. Resistance to Puncture: To ASTM E154, 78.6 lbs.

H. Breaking Strength: To ASTM D5034, MD 71 lb, CD 65.4 lb minimum.

I. Elongation at Break: To ASTM D5034, MD 27.8 %, CD 60.1 % minimum.

J. 90° Peel Adhesion: To ASTM D3330, Pass.

K. Peel Adhesion at Elevated Temperatures (176° F): To ASTM D3330, Pass (Level 3).

L. Linear Dimensional Change at Elevated Temperature: To ASTM D1204, MD -1.4 %, CD +0.1 %.

M. Fire Rating Characteristics: To ASTM E84:
1. Rating: NFPA Class A, IBC Class A minimum.
2. Flame Spread: 14 maximum.
3. Smoke Developed: 47 maximum.

## 2.04 MATERIALS

A. [Air] [Water-resistive] Barrier for Walls: Self-adhesive vapor permeable [air] [water-resistive] barrier; highly tear-resistant 3-layer membrane, with two outer layers of spun-bonded polypropylene fabric and a water-tight polymeric middle layer and factory applied adhesive edge strip.
1. Weight: 40 lb/roll nominal.
2. Roll Dimensions: [4’11” (1.5 m) x 115’ (35 m)], [19.5” (50 cm) x 115’ (35 m)], [9.75” (25 cm) x 115’ (35 m )].
3. Color: Matte Gray.

B. Acceptable Material: Dörken Systems Inc., DELTA®-VENT SA.

## 2.05 ACCESSORIES

A. Seam tape: Acrylic-based adhesive tape in accordance with [air] [water-resistive] barrier manufacturer’s written recommendations.
1. Acceptable material: Dörken Systems Inc., DELTA®-MULTIBAND (2-1/2” x 65’ 7”)

B. Flashings: Self-adhering, butyl-rubber based [air] [water-resistive] flashing membrane [in accordance with [air] [water-resistive] barrier manufacturer’s written recommendations] [and] [in accordance with Section 07 65 00 – Flexible Flashing]

DÖRKEN SYSTEMS INC. GUIDE NOTE: Specify DELTA®-FLASHING for flashing around windows, doors and general flashing areas.

1. Acceptable material: Dörken Systems Inc., DELTA®-FLASHING [(4” x 75’)] [9” x 75’)].

C. Penetration Flashings: Stretchable butyl-rubber based adhesive on non-woven fabric] flashing membrane [in accordance with [air] [water-resistive] barrier manufacturer’s written recommendations.

DÖRKEN SYSTEMS INC. GUIDE NOTE: Specify DELTA®-FLEXX BAND for flashing around penetrations and protrusions.

1. Acceptable material: Dörken Systems Inc, DELTA®-FLEXX BAND 4” x 33”.

D. Sealants and Adhesives: Elastomeric sealant and adhesive in accordance with [[air] [water-resistive] barrier manufacturer's written recommendations] [Section 07 92 00 – Joint Sealants].
1. Ensure sealants are compatible with adjacent materials.
2. Acceptable material: [Dörken Systems Inc., DELTA®-THAN, DETLA®-TILAXX].

E. Window Corner: Prefabricated rubber-compound window corner.
1. Acceptable materials: Dörken Systems Inc., DELTA®-FAS CORNER.

F. Primers: In accordance [air] [water-resistive] barrier manufacturer's written recommendations.
1. Acceptable materials: Dörken Systems Inc., DELTA®-HF PRIMER or DELTA®-LVC PRIMER.

G. Flexible Membrane Through-wall Flashing: Self-adhering, butyl-rubber based flashing membrane.
1. Acceptable materials: Dörken Systems Inc., DELTA®-TW FLASHING (18" x 75').

## 2.06 PRODUCT SUBSTITUTIONS

A. Ensure all accessories such as seam tape, flashing membranes, window corners, and sealants come from same source as [air] [water-resistive] barrier membrane.

B. Substitutions: [In accordance with Section 01 23 13 - Product Substitution Procedures] [No substitutions permitted].

# 3 EXECUTION

## 3.01 INSTALLERS

DÖRKEN SYSTEMS INC. GUIDE NOTE: [Manufacturer] authorized installers use only [Manufacturer] manufactured or approved components. Other installers may substitute other manufacturer's materials.

A. Use only [Dörken Systems Inc. authorized installers for] [installers with 2 years minimum experience in work similar to] [ABAA certified installers for] work of this Section.

## 3.02 EXAMINATION

A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for [air] [water-resistive] barrier installation in accordance with manufacturer's written recommendations.
1. Visually inspect substrate in presence of Consultant.
2. Inform Consultant of unacceptable conditions immediately upon discovery.
3. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

## 3.03 PREPARATION

A. Ensure step flashings and kick-out flashings are installed before beginning installation of [air] [water-resistive] membrane.

B. Ensure protrusions that may penetrate [air] [water-resistive] barrier membrane are removed before beginning installation.

## 3.04 INSTALLATION

DÖRKEN SYSTEMS INC. GUIDE NOTE: Refer to the air or water-resistive barrier manufacturer's current installation guide for detailed information regarding specific details and integration of auxiliary materials.

A. Install [air] [water-resistive] barrier before installation of windows and doors in accordance with manufacturer's written recommendations.

DÖRKEN SYSTEMS INC. GUIDE NOTE: When this section was developed, ABAA had not yet published their installation procedures. Check with ABAA for actual installation guideline publication before including the following paragraph in the project specification.

B. Do installation in accordance with ABAA written recommendations for installation of [air] [water-resistive] barriers.

C. Unroll [air] [water-resistive] barrier with printed side out, wrapping entire building, including rough openings for windows, doors and other protrusions or penetrations.
1. Prime substrate before applying [air] [water-resistive] barrier in accordance with manufacturer's written recommendations.
a. Allow to dry 120 minutes or until tacky (depending on weather conditions) before applying [air] [water-resistive] barrier.
2. Install [air] [water-resistive] barrier plumb and level to exterior face of structural [sheathing board] [insulation board] [exterior gypsum board] members in accordance with manufacturer written recommendations.
3. Ensure [air] [water-resistive] barrier is installed with printed side facing installer.
4. Remove release liner from back of membrane and press firmly onto substrate.
a. Roll firmly in place with hand roller.

D. Start installation of [air] [water-resistive] barrier at building corner, leaving 6-12 inches of membrane extended beyond corner.

E. Install horizontally starting at bottom of wall.
1. Overlap [air] [water-resistive] barrier membrane as follows:
a. Exterior Corners: [12] inches minimum.
b. Vertical seams: [6] inches minimum.
c. Horizontal seams: [4] inches minimum. Remove release liner and press firmly together
d. Other seams, joints or at protrusions and penetrations: [6] inches minimum.

F. Sill Plate Interface: Extend lower edge of [air] [water-resistive] barrier over sill plate interface 3 - 6 inches.
1. Adhere to substrate by removing release liner in accordance with [air] [water-resistive] barrier manufacturer's written recommendation.

G. Ensure installed [air] [water-resistive] barrier is not exposed to UV for longer than 50 days.

## 3.05 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with Section [01 45 00 - Quality Control].

B. Site Installation Tolerances:
1.

DÖRKEN SYSTEMS INC. GUIDE NOTE: Specify requirements if manufacturers are to provide field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Manufacturer field reports are included under PART 1, Action and Informational Submittals.

C. Manufacturer's Services:

DÖRKEN SYSTEMS INC. GUIDE NOTE: Use the following Paragraphs only when manufacture's field services are provided and are required to verify the quality of the installed components. Establish the number and duration of periodic site visits required by manufacturer and specify below. Consult manufacturer for services required. Delete if field services are not required.

1. Coordinate manufacturer's services with Section [01 45 00 - Quality Control].

a. Have manufacturer review work involved in handling, installation, protection, and cleaning of [air] [water-resistive] barrier and components, and submit written reports in acceptable format to verify compliance of Work with Contract conditions.

2. Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.

a. Report any inconsistencies from manufacturer's recommendations immediately to Consultant.

3. Schedule site visits to review work at stages listed:

a. As required by consultant.

b. Obtain reports within three days of review and submit immediately to Consultant.

## 3.06 CLEANING

DÖRKEN SYSTEMS INC. GUIDE NOTE: For smaller projects that do not have a separate Division 01 Section for cleaning, delete the reference to Section 01 74 00 – Cleaning in the following two Paragraphs.

A. Progress Cleaning: Perform cleanup as work progresses [in accordance with Section 01 74 00 - Cleaning and Waste Management].

1. Leave work area clean at end of each day.

B. Final Cleaning: Upon completion, remove surplus materials, rubbish, tools, and equipment [in accordance with Section 01 74 00 – Cleaning and Waste Management].

C. Waste Management:

1. Co-ordinate recycling of waste materials with 01 74 19 - Construction Waste Management and Disposal.

2. Collect recyclable waste and dispose of or recycle field generated construction waste created during construction or final cleaning related to work of this Section.

3. Remove recycling containers and bins from site and dispose of materials at appropriate facility.

## 3.07 PROTECTION

A. Protect installed products and components from damage during construction.

B. Repair damage to adjacent materials caused by [air] [water-resistive] barrier installation.

**END OF SECTION [07 27 00] [07 28 00] – [AIR] [WATER-RESISTIVE] BARRIERS**

# NFPA 285 PERFORMANCE REQUIREMENTS 2012 IBC

Meeting the performance requirements of NFPA 285 is determined by the analysis of NFPA 285 fire test data obtained through the testing conducted in accordance with NFPA 285 and ASTM E1354.

In addition to NFPA 285, small-scale tests are conducted in accordance with ASTM E1354, Standard Test Method for Heat and Visible Smoke Release Rates for Material and Products Using Oxygen Consumption Calorimeter (Cone Calorimeter Test), whereby various fire performance properties are calculated and/or measured.

The NFPA 285 test provides a method for determining the flammability characteristics of exterior non-load-bearing wall assemblies. The test method is intended to evaluate the combustible components within the wall. The test simulates a multistory fire performance of an entire wall assembly. The NFPA 285 testing apparatus is a two story wall assembly that includes a window opening on the first floor. Pass / Fail criteria are given and are based on flame propagation and temperatures within the wall assembly. Flame propagation must not occur either vertically or laterally beyond an acceptable distance. Temperatures are measured by use of thermocouples that are placed within the wall assembly.

Assemblies in the accompanying table are based on the specific construction materials installed in the manner described in the table. Changes or modifications to the construction and/or materials used in the tested assemblies may result in a different fire performance, and may not meet the performance requirements of NFPA 285.

The testing of water-resistive barrier (WRB) products in assemblies is not specifically required in the 2000, 2003, 2006, and 2009 Editions of the International Building Code (IBC). In these editions of the building code, an exterior wall assembly required to meet NFPA 285 would have to be constructed for testing to include all combustible materials and products for which compliance is being sought. In the 2012 Edition of the IBC, a new section was added to the code specifically requiring the testing of WRB materials in wall assemblies. Section 1403.5 requires that exterior walls on buildings of Type I, II, III, and IV construction that are greater than 40 ft. above grade plane, and that incorporate a combustible water-resistive, barrier shall meet the requirements of NFPA 285. By virtue of this code requirement, all combustible WRB materials must be tested in accordance with and comply with the criteria of NFPA 285, even if the wall assembly excluding the WRB would not be required to meet NFPA 285.

> *International Building Code 2012*
> *1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.*

Attached is a table describing NFPA 285 Compliant Wall Assemblies, incorporating DELTA® air and water-resistive barriers. The table provides a list of wall components and materials that can be used to achieve approved walls.



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# NFPA 285 COMPLIANT WALL ASSEMBLIES 2012 IBC

The following assemblies meet the performance requirements of NFPA 285 (2012) as required by the International Building Code®.

| Wall Component | Materials |
|---|---|
| Base wall system – Use either 1, 2, or 3 | 1 – Concrete wall<br>2 – Concrete Masonry wall<br>3 – One layer of 5/8-inch thick Type X gypsum wallboard installed on the interior side of minimum 3 5/8-inch deep, minimum 20-gauge steel studs spaced at a maximum of 24-inch OC with lateral bracing every 4 ft. vertically. Minimum 4 lb/ft$^3$ mineral wool insulation (e.g. Thermafiber) friction fit in each stud cavity and at each floorline. |
| Cavity Insulation – Use either 1 or 2 | 1 - None<br>2 – noncombustible insulation (fiberglass or mineral wool) faced or unfaced |
| Exterior sheathing – Use either 1 or 2 | 1 – 1/2-inch thick, exterior type gypsum sheathing<br>2 – 5/8-inch thick, exterior type gypsum sheathing |
| Water resistive barrier applied to exterior sheathing – Use either 1, 2, 3, 4, or 5 | 1 – DELTA®-VENT SA<br>2 – DELTA®-VENT S/PLUS<br>3 – DELTA®-FASSADE S<br>4 – DELTA®-FOXX/PLUS<br>5 – DELTA®-MAXX/PLUS |
| Exterior Insulation – Use either 1 or 2 | 1 – Maximum 3-inch thick DOW THERMAX™ foil-faced polyisocyanurate insulation. All exterior insulation board joints taped with CW VentureTape foil tape or equivalent.<br>2 – Any noncombustible insulation material (e.g. mineral wool insulation). If batts, can be either faced or unfaced. |
| Exterior Wall Covering – Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 | 1 – Brick – Standard type brick veneer anchors, installed maximum 24 inches on center, vertically on each stud. Maximum 2-inch air gap between exterior insulation and brick. Standard nominal 4-inch thick, clay brick, running bond pattern, Type S mortar<br>2 – Stucco – Minimum ¾-inch thick, exterior cement plaster and lath. A secondary water-resistive barrier can be installed between the exterior insulation and the lath. The secondary water-resistive barrier shall not be full-coverage asphalt or butyl-based self-adhered membranes.<br>3 – Minimum 2-inch thick natural stone (granite, limestone, marble, sandstone) or minimum 1-½ inch thick cast artificial stone veneer. Any standard installation technique can be used.<br>4 – Minimum 1-½ inch thick artificial cast stone. Any standard installation technique can be used.<br>5 – Minimum 1-¼ inch thick Terra Cotta non-open jointed. Any standard installation technique can be used.<br>6 – Minimum 1-½ inch thick concrete or precast concrete panels with a maximum 2-inch air gap between the exterior insulation and the concrete panel. Any standard installation technique can be used.<br>7 – Metal composite material (MCM) system that has successfully been tested by the panel manufacturer in accordance with NFPA 285 using any attachment system with direct mechanical attachment to the support system.<br>8 – Metal exterior wall coverings such as steel, aluminum, copper, etc. using any standard direct mechanical attachment to the support system.<br>9 – Minimum 4-inch thick concrete masonry (CMU) with maximum 2-inch air gap between the exterior insulation and the CMU<br>10 – Fiber cement siding or fiber cement panels using any standard installation technique. |
| Other Approved Assemblies* | Trespa® Meteon® Façades<br>Hunter Exterior Wall Panel System<br>FunderMAX®<br>Parklex® Wall System |

*Contact our technical suport team for further details 1888-433-5824 ext. 326

PREMIUM QUALITY

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DELTA®

HIGH PERFORMANCE AIR & MOISTURE BARRIERS

DÖRKEN

# Technical Memorandum

## Priming.

November 2018 Edition

One of the most common questions we get about DELTA®-VENT SA is about primer. DELTA®-VENT SA is a self-adhering vapor permeable air and water-resistive barrier manufactured by Dörken Systems Inc.

Applicators and architects alike want to know if they have to use primer when installing DELTA®-VENT SA onto various substrates. What particularly drives this question is that one competitor insists that their self-adhered, vapor permeable air and water-resistive barrier does not require primer. This product is most similar in fitment to DELTA®-VENT SA.

To investigate this claim further, Sageos/CTT Group Laboratories, an accredited third-party testing agency, was engaged for comparative testing.

The test basis on which the objective comparison was done was AAMA (American Architectural Manufacturers Association) 711-07 §5.3 90 § Peel Adhesion using ASTM D3330. AAMA 711 is a performance specification entitled "Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products" and is described by them as follows:

"This specification establishes the test methods and minimum performance requirements for self adhering flashing products that are used around the perimeter of exterior fenestration products. It also provides a method to determine the minimum width of the flashing products and to evaluate the influence of the environmental factors on the installation of self adhering flashing products applied under typical field conditions" (AAMA 711-07)

It is a set of test methods focussed specifically on self-adhering construction products and performance needs. While this standard prescribes a wide range of tests for a wide range of performance criteria, Section § 5.3 90 § Peel Adhesion was chosen by the third party testing agency particularly because it is a stringent test to which AAMA applies a clear Pass/Fail requirement and involves several substrates that are common in actual project situations.

**Here are the results:**

| Test Standard | Competitor (without primer) | DELTA®-VENT SA (without primer) |
|---|---|---|
| AAMA 711-07 §5.3 90 § Peel Adhesion | – | – |
| OSB | 0.25 N/mm | 0.30 N/mm |
| Aluminium | 0.24 N/mm | 0.57 N/mm |
| Plywood | 0.18 N/mm | 0.28 N/mm |
| Densglass | 0.14 N/mm | 0.29 N/mm |

**Test Standard Requirement:**
Minimum 0.26 N/mm

Testing by Sageos/CTT Group

Based on this testing, the competitor fails to meet the standard on all common substrates.
It should be noted that the competitor reports results from ASTM D3330 on their data sheet of 37.6 oz/in (0.41 N/mm). No indication is given as to what substrates were used or whether a primer was used. Sageos/CTT Group was unable to reproduce these results.

However, does this mean that DELTA®-VENT SA should be used without a primer? Not all product installations require the use of primer. In certain exceptions, primer may be used to enhance adhesion. The ability of self-adhering membranes to adhere to a substrate may become compromised by irregular surface texture, chemical release agents, moisture content, dirt and debris, or even low temperatures or high wind conditions. An adhesion test is recommended to confirm substrate suitability. Adhesion enhancements are required when an assembly is unable to maintain a continuous and secure installation. Where enhanced adhesion is needed, Dörken Systems Inc. offers DELTA®-HF PRIMER (water-based, highly vapor permeable), DELTA®-ADHESIVE LVC or DELTA®-ADHESIVE for surface preparation. Primers are about surface preparation. The testing by Sageos/CTT Group was done in laboratory conditions. This means that all substrates were in optimal condition and results should be the best. Surfaces were reliably dry and dust-free. Applications were done conscientiously and according to each manufacturer's recommended procedures. Best possible conditions should give best possible results.

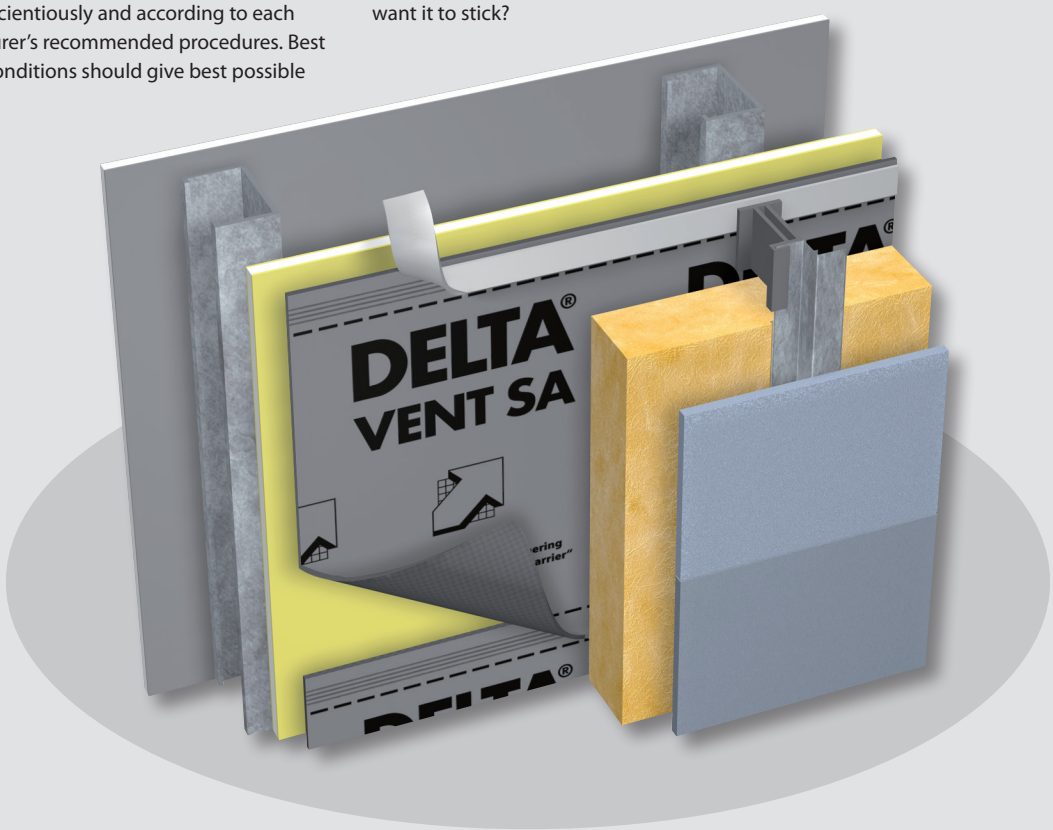
Jobsites are the real world where the products must perform. Jobsites are neither reliably dry nor reliably dust or dirt free. The optimal results obtained in the lab will not directly translate to the field. While any membrane might be sticky enough to stick to a given substrate without primer, it will stick to whatever it comes into contact with first. In most cases, that is the dust and the dirt. Because the dust and dirt are not bonded to the substrate, neither is the membrane truly stuck to the substrate.

This is the role of primer. Primers prepare the surface for the proper adhesion of the membrane by consolidating all the dust and dirt, allowing intimate contact between the adhesive and the substrate.

In short, membranes may stick without primer, just not very well, despite marketing claims. "No Primer Required" is a useful claim for sales, but not very useful for anyone who wants assurance of long term performance. Exactly how well do you want it to stick?

## ➜ Other Notes:

- 1. DELTA®-VENT SA meets all Air Barrier Association of America (ABAA) standards in both Self Adhered Sheet Membranes and Adhesive-backed Commercial Building Wrap categories
- 2. DELTA®-VENT SA uses as the primary performing membrane DELTA®-VENT S, which has a track record in the market of over 30 years. We manufacture the membrane ourselves with full production infrastructure to support the marketplace.

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November 2018, version 2.

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HIGH PERFORMANCE AIR & MOISTURE BARRIERS

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# Self-adhering Air and Water-resistive Barriers Offer Higher Performance

## See Which One is Best

| Performance Criteria | Requirement | Dörken Systems Inc. DELTA®-VENT SA | Henry Blueskin VP 160 | SopremaSopraseal Stick VP | | |
|---|---|---|---|---|---|---|
| Air leakage of air barrier assemblies (ASTM E2357-11) | < 0.2 L/(s • m²) @ 75 Pa (0.04 cfm/ft² @ 1.57 lb/ft²) | Pass | Pass | Pass | | |
| (CAN/ULC-S742-11 Class A1) | | Pass | Pass | Pass | | |
| Air permeance (ASTM E2178) | < 0.02 l/(s • m²) @ 75 Pa (0.004 cfm/ft² @ 1.57 lb/ft²) | Pass | Pass | Pass | | |
| (CAN/ULC-S741-08) | | Pass | Pass | Pass | | |
| Water resistance hydrostatic pressure (AATCC 127-1985) | 55 cm > 5 hours | Pass | – | Pass | | |
| Vapor permeance (ASTM E96-05, Proc. A) | min. 10 perms (per IBC) | 31 perms | 29 perms | 11 perms | | |
| Vapor permeance (ASTM E96-05, Proc. B) | – | 50 perms | – | 17 perms | | |
| Flame spread (ASTM E84-09) | Class A: < 25 | Class A | Class A | Class A | | |
| Smoke developed (ASTM E84-09) | Class A: < 450 | Class A | Class A | Class A | | |
| 90°Peel Adhesion (AAMA 711-07 §5.3) | min. 0.26 N/mm | OSB 0.30 N/mm<br>Plywood 0.28 N/mm<br>Densglass 0.29 N/mm | Pass<br>Unprimed Plywood | – | | |
| Breaking strength (ASTM D5034-95) | – | MD 71 lb/CD 65.4 lb | MD 127 lb/CD 91 lb | MD 89 lb/CD 69 lb | | |
| Elongation at break (ASTM D5034-95) | – | MD 27.8 %/CD 60.1 % | – | – | | |
| Water Penetration Resistance around Nails ASTM D1970 | Pass | Pass | Pass | Pass | | |
| ICC Evaluation (AC38) | as per AC38 | ICC ESR-2932 | ICC ESR-2975 | – | | |
| ABAA Evaluation – Self Adhered Sheet Material | as per ABAA Process for Approval of Air Barrier Materials, Accessories and Assemblies | Approved | – | Approved | | |
| ABAA Evaluation – Adhesive Backed Commercial Building Wrap | as per ABAA Process for Approval of Air Barrier Materials, Accessories and Assemblies | Approved | – | Approved | | |
| Self-adhering edge * | – | Yes | – | – | | |
| Manufacturing | – | In house | Manufacturing outsourced | Manufacturing outsourced | | |

* Self-adhering edge assures no leakage at seams

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# DELTA®-VENT SA

**Vapor permeable, fully adhered water-resistive barrier & air barrier.**

High Performance Air & Moisture Barrier

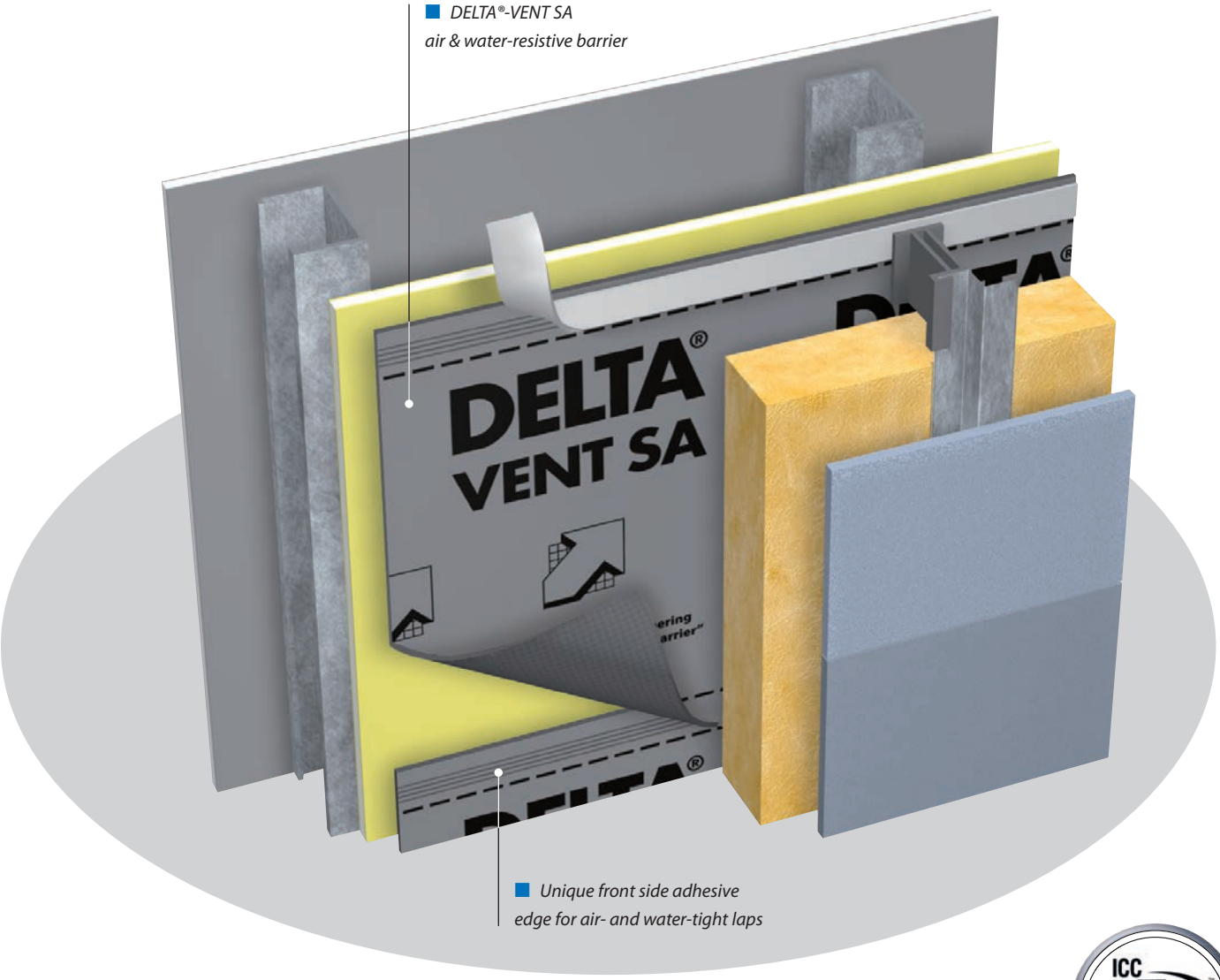
air barrier association of america
abaa
EVALUATED

**Fully Adhered:**

# DELTA®-VENT SA

## The high performance solution for energy efficient wall systems.

Fully adhered membranes are less prone to air and moisture leaks that are common with other types of barriers.




ICC ES
AC38 Approved
ESR-2932

DELTA® quality branded products made by Dörken.

Committed to sustainability & the environment
DELTA®

- Aggressively self-adhesive.
- Has an air- and water-tight adhesive edge.
- Highly vapor permeable (50 perms).
- Approved by Air Barrier Association of America (abaa).
- Meets the requirements of NBC 2010 & NBC 2015.
- Improves energy efficiency.
- Improves performance of building enclosure.
- Passes ASTM D1970 Nail Sealability.
- Helps to ensure a healthy and comfortable interior climate.
- Easy to install.
- Matte gray color reduces irritating glare during installation.
- NFPA 285 compliant.
- Produced in our ISO 9001 registered manufacturing plant.
- Approved under International Building Code and International Residential Code (ICC ESR-2932).

REGISTERED COMPANY ISO 9001: 2008

## Technical Data Overview:

| | |
|---|---|
| **Color** | light gray |
| **Vapor permeance** | 31 perms [grains/h/ft$^2$/in Hg] ASTM E96-05, Proc. A<br>50 perms [grains/h/ft$^2$/in Hg] ASTM E96-05, Proc. B |
| **Water vapor transmission** | 214 g/m$^2$/24 h ASTM E96-05, Proc. A<br>343 g/m$^2$/24 h ASTM E96-05, Proc. B |
| **Air leakage of air barrier assemblies** | < 0.2 L/(s • m$^2$) @ 75 Pa (0.04 cfm/ft$^2$ @ 1.57 lb/ft$^2$)<br>ASTM 2357 - Class A1 CAN/ULC-S742-11 |
| **Air permeance** | Pass (< 0.02 L/(s•m$^2$) @ 75 Pa) ASTM E2178 and CAN/ULC-S741-08 |
| **Breaking strength** | MD 71 lbs/in CD 65.4 lbs/in ASTM D5035-95 |
| **Elongation at break** | MD 27.8 % CD 60.1 % ASTM D882-02 |
| **90° Peel adhesion** | MD 1078 g CD 1588 g ASTM D4533-04 |
| **Accellerated aging (UV)** | Pass AAMA 711-5.5 |
| **Elevated temperature** | Pass (Level 3) AAMA 711-5.5 (ASTM D3330) |
| **Thermal cycling** | Pass AAMA 711-5.6 |
| **Adhesion after water immersion** | Pass AAMA 711-5.8 |
| **Bent test** | Pass AC-38 3.3.4 |
| **Nail sealability** | Pass ASTM D1970-01 |
| **Flame spread** | Class A ASTM E84-09 |
| **Smoke developed** | Class A ASTM E84-09 |
| **Roll length** | 115' (35 m) |
| **Roll width** | 4.92' (1.5 m), 19.5" (50 cm), 9.75" (25 cm) |

See Technical Data Sheet for further information.

# DELTA®-Accessories for DELTA®-VENT SA.

**Dörken makes your life easier – systematically.**

**DELTA®-MULTI BAND**
pure acrylic adhesive tape used at overlaps of DELTA® air & water-resistive barriers.

**DELTA®-FLASHING**
used to seal openings for windows and doors to complete the DELTA® air & WRB system.

**DELTA®-FLEXX-BAND**
stretchable butyl rubber tape used at penetrations.

**DELTA®-FAS CORNER**
preformed to make corners in window and door openings air and water tight.

**DELTA®-THAN**
permanently elastic, special rubber compound sealant and adhesive.

**DELTA®-HF PRIMER**
is a solvent-free primer for most construction substrates.

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