

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], Standard Test Method for Air Permeance of Building Materials.8.
- E. US Green Building Council (USGBC).
1. LEED® NC Version 2.2-[2009], 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.
- 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]
- 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 2.2 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/m²/24 hr, (Procedure B) 343 g/m²/24 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. Resistance to Puncture: To ASTM E154, 78.6 lbs.

- F. Breaking Strength: To ASTM D5034, MD 71 lb, CD 65.4 lb minimum.
- G. Elongation at Break: To ASTM D5034, MD 27.8 %, CD 60.1 % minimum.
- H. 90° Peel Adhesion: To ASTM D3330, Pass.
- I. Peel Adhesion at Elevated Temperatures (176° F): To ASTM D3330, Pass (Level 3).
- J. Linear Dimensional Change at Elevated Temperature: To ASTM D1204, MD -1.4 %, CD +0.1 %.
- K. 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 feet 11 inches x 115 feet.
 - 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] [Dow Corning® 758].

- 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. After delivery and storage of [air] [water-resistive] barrier and components, and when preparatory work on which Work of this Section depends is complete, but before installation begins.
 - b. Twice during progress of work at 25% and 60% complete.
 - c. Upon completion of Work, after cleaning is carried out.

- d. 50 days after installation to ensure [air] [water-resistive] barrier has not unnecessarily been left exposed to UV.
- e. 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