



## SECTION 07 26 00-Vapor Retarders

### Guide Specification for CUTDOWN® II

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#### PART I – GENERAL

##### 1.1 SUMMARY

- A. Furnish all labor, materials, tools and equipment as necessary to perform installation of Concrete Floor Sealer on new and/or existing concrete slabs as shown on drawings and as specified in this section.
- B. Repairs and preparation of concrete floors.
- C. Related Sections: (Delete or add necessary Sections)
  - 1. See section 09 62 00 – Specialty Flooring.
  - 2. See section 09 63 00 – Masonry Flooring.
  - 3. See section 09 64 00 – Wood Flooring.
  - 4. See section 09 65 00 – Resilient Flooring.
  - 5. See section 09 68 00 – Carpet.

##### 1.2 REFERENCES

- A. American Society for Testing and Materials:
  - 1. ASTM F 1869 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2004.
  - 2. ASTM F 2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using In Situ Probes.

##### 1.3 SUBMITTALS

- A. General:  
Submit manufacturer's certification that proposed materials, details and systems as indicated and specified fully comply with manufacturer's details and specifications. If any portion of Contract Documents does not conform to manufacturer's standard recommendations, submit notification of portions of design that are at variance with manufacturer's specifications.
- B. Product Data:
  - 1. Submit manufacturer's literature, installation instructions and MSDS for each product.
- C. Concrete Slab Test Results:  
Submit slab moisture test results. Testing conducted in accordance with ASTM F1869 and / or ASTM F 2170.

##### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
  - 1. Company specializing in manufacturing floor sealing and floor leveling materials that will upon application and inspection of installation, provide a five year warranty that moisture emission will not exceed three pounds per 1000 square feet per 24 hours (from a maximum initial level of 15 lbs.).
- B. Installer Qualifications:
  - 1. Contractor shall be knowledgeable and well trained with regards to subfloor preparation, including surface preparation, and material application.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store in a dry, well ventilated area at minimum 50 deg. F (10 deg C) and maximum 90 deg F (32 deg C).
- B. Deliver materials in manufacturer's unopened containers, fully identified with brand, type, grade, class and all other qualifying information. Provide Materials Safety Data Sheets for each product.

## 1.6 SYSTEM REQUIREMENTS

- A. Coordinate floor sealing installation with other trades.
- B. Provide materials and accessories in timely manner so as not to delay Work.

## 1.7 PROJECT CONDITIONS

- A. Surfaces to be sealed should have a minimum temperature of 55 deg F. The area should be conditioned at 70 deg F with a maximum humidity of 60% for 48 hours prior to application.
- B. Once applied, the area must be kept at 70 deg F and 60% relative humidity for 72 hours.

# PART II – PRODUCTS

## 2.1 MANUFACTURERS

- A. Dependable, LLC phone 1-800-227-3434.
- B. Substitutions: Comply with [Instructions to Bidders] [ ] for substitution request procedures.

## 2.2 MATERIALS

- A. Concrete Floor Sealer – two component, high density, latex based product:
  - 1. Product: CUTDOWN<sup>®</sup> II

# PART III – EXECUTION

## 3.1 EXAMINATION

- A. Examine all construction substrates and conditions under which concrete floor sealer material is to be installed. Do not proceed with the concrete floor sealer installation until unsatisfactory conditions are corrected.

## 3.2 PREPERATION

- A. Protect adjacent surfaces not designated to receive concrete floor sealer.
- B. Substrate preparation:
  - 1. All surfaces to be treated must be sound, solid, clean and absorptive. Substrate must be clean and free of any dirt, paint, curing compound, sealer or any other contaminant that might interfere with the product's penetration and bond. Make sure there is no standing water. Damp mopping is acceptable to remove dust and help prime porous substrates.
  - 2. Polished or very smooth concrete slabs should be mechanically profiled to allow the material to soak into the pores and properly bond to the slab. Preparation
  - 3. When installing a self-leveling material over CUTDOWN<sup>®</sup> II follow the surface preparation guidelines for that material for the concrete substrate.

## 3.3 INSTALLATION

- A. Cutdown<sup>®</sup> II is a two component material. Pour all of Part A into a 5 gallon mixing bucket followed by all of Part B. Mechanically mix until streak free.
- B. Apply concrete floor sealer material in quantities and in manner set forth in manufacturer's full written directions, technical bulletins and recommendations.

- C. Spread using roller (3/8" nap for most substrates) to the dry substrate. Avoid pouring the material directly on the substrate, instead dip into pail or pour the material into a paint pan. Roll with even and consistent strokes to ensure uniform coverage. Be careful to avoid material build-up where the product overlaps.
- D. Allow 2 –3 hour dry time in between coats.
- E. Apply the second coat in the direction perpendicular to the first. When applying 3 coats, drying time of second coat is 2 – 3 hours. **Allow a minimum of 24 hours to cure**, at recommended atmospheric conditions, prior to patch or floor covering application.
- F. Where specified install floor covering as per manufacturer's directions and recommendations. If the surface is irregular and smoothing is required use a suitable hydraulic cement repair material such as DEPENDABLE SKIMCRETE XL or SKIMFLOW ES after the CUTDOWN<sup>®</sup> II treatment.

### 3.4 ACCEPTANCE

- A. Remove left over materials and any foreign material resulting from the work from the site.
- B. Clean adjacent surfaces and materials.

### 3.5 PRECAUTIONS / LIMITATIONS

- A. Do not nail into CUTDOWN<sup>®</sup> II.
- B. Do not apply over existing coatings or floor coverings.
- C. Not recommended prior to the use of protective floor coatings.

END OF SECTION

# Modifications/Changes in this update

Department of Veterans Affairs



Office of Construction & Facilities  
Management

DATE SUBMITTED: 7 / 19 / 12

DESCRIPTION OF DOCUMENT:

(previous section title, number and date)

Fluid Applied Membrane Air Barriers, Vapor Permeable, 07 27 26 (date: 08-01-12)

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REVISION / EFFECT:

New VA Master Spec. Section

**SECTION 07 27 26**  
**FLUID-APPLIED MEMBRANE AIR BARRIERS, VAPOR PERMEABLE**

**PART 1 - GENERAL**

**1.1 DESCRIPTION:**

This section specifies fluid-applied vapor-permeable membrane air barrier material and accessories used for exterior above grade wall assembly air barriers and their extension and connection to adjacent air barrier components in roof and opening construction to provide a durable, continuous, air- and moisture- impermeable full-building system.

**1.2 RELATED WORK**

- A. General quality assurance and quality control requirements: Section 01 45 29 TESTING LABORATORY SERVICES.
- B. General sustainable design documentation requirements: Section 01 81 13 SUSTAINABLE DESIGN REQUIREMENTS.
- C. Commissioning of building envelope components: Section 01 91 00 GENERAL COMMISSIONING REQUIREMENTS.
- D. Masonry units serving as substrate for membrane air barriers, including preparation of surface: Section 04 20 00 UNIT MASONRY.
- E. Membrane base flashings and stripping to which membrane air barriers will transition: //Section 07 51 00, BUILT-UP BITUMINOUS ROOFING//  
//Section 07 52 16 MODIFIED BITUMINOUS MEMBRANE ROOFING//.
- F. Flashing components of factory finished roofing and wall systems to which membrane air barriers will transition: Division 07 roofing and wall system sections.
- G. Other flashing components to which membrane air barriers will transition: Section 07 60 00 FLASHING AND SHEET METAL.
- H. Joint Sealants: Section 07 92 00, JOINT SEALANTS.
- I. Division 08 exterior openings sections for opening transitions providing airtight seal between membrane air barrier and [aluminum-framed entrances and storefronts] [aluminum windows] [glazed aluminum curtain walls] [louvers and vents].
- J. Wall sheathings serving as substrate for membrane air barriers: Section 09 29 00 GYPSUM BOARD.

**1.3 APPLICABLE PUBLICATIONS**

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic

designation only. Editions of applicable publications current on date of issue of bidding documents apply unless otherwise indicated.

1. Air Barrier Association of America (ABAA):Quality Assurance Program
2. American Society of Testing and Materials (ASTM):
  - C920-10.....Standard Specification for Elastomeric Joint Sealants
  - C1193-09.....Standard Guide for Use of Joint Sealants
  - D412-06.....Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
  - D2369-10.....Standard Test Method for Volatile Content of Coatings
  - E96/E96M-05.....Standard Test Methods for Water Vapor Transmission of Materials
  - E162-09.....Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source
  - E783-02.....Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors
  - E1186-03(2009).....Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems
  - E2178-03.....Standard Test Method for Air Permeance of Building Materials
  - E2357-05.....Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
3. U.S. Environmental Protection Agency (EPA)
  - 40 CFR 59, Subpart D....National Volatile Organic Compound Emission Standards for Consumer and Commercial Products
4. SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD):
  - 1168-89(2003).....Adhesive and Sealant Applications

#### **1.4 PERFORMANCE REQUIREMENTS**

- A. General: Membrane air barrier shall be capable of performing as a continuous vapor- permeable air barrier and as a moisture drainage plane transitioned to adjacent flashings and discharging water to the building exterior. Membrane air barriers shall accommodate substrate movement and seal expansion and control joints, construction material transitions, opening transitions, penetrations, and perimeter

conditions without moisture deterioration and air leakage exceeding performance requirements.

- B. Air-Barrier Assembly Air Leakage: Maximum 0.2 L/s x sq. m of surface area at 75 Pa (0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft.)per ASTM E 2357.
- C. Full Building Air Leakage: Refer to Section 01 45 29 TESTING LABORATORY SERVICES
- D. Material Compatibility: Provide membrane air barrier materials that are compatible with one another and with adjacent materials under conditions of service and application required, as demonstrated by membrane air barrier manufacturer based on testing and field experience.

#### 1.5 QUALIFICATIONS:

- A. Approvals: Approval by Contracting Officer is required of products and services of proposed manufacturers, and installers, and will be based upon submission by Contractor that:
- B. Manufacturer Qualifications: Manufacturer regularly and presently manufactures fluid-applied membrane air barrier material meeting section requirements as one of its principal products.
  - 1. Manufacturer's product submitted has been in satisfactory and efficient operation on five similar installations for at least five years.
    - a. Submit list of installations, include name and location of project and name of owner.
  - 2. Accreditation: Manufacturer is accredited by the Air Barrier Association of America.
- C. Installer Qualifications: Installer has technical qualifications, experience, certifications, trained personnel, membrane air barrier manufacturer's approval, and facilities to install specified items.
 

SPEC WRITER NOTE: Retain "Accreditation" subparagraph below if retaining requirement for ABAA certification of Project.

  - 1. Accreditation: Installer shall be accredited by the Air Barrier Association of America (ABAA) and whose installers are certified in accordance with the site Quality Assurance Program used by ABAA.
  - 2. Installer's applicators shall be trained and certified by manufacturer of air barrier system.

3. Installer's full time on-site field supervisor shall have completed three projects of similar scope within last year, be able to communicate verbally with Contractor, Architect, testing agency, and employees.
  - a. Certification: Installer's supervisor shall hold Sealant, Waterproofing, and Restoration Institute (SWRI) Wall Coating Validation Program Certificate, or similar qualification acceptable to Resident Engineer.
  - b. Accreditation: Installer's supervisor shall be a Level 3 Accredited Installer by the ABAA.

SPEC WRITER NOTES:

- D. Testing Agency Qualifications: Testing laboratory accredited by International Accreditation Service, Inc. or American Association for Laboratory Accreditation.
  1. Testing agencies personnel shall be experienced in the installation of specified air barrier system and qualified to perform observation and inspection specified in Field Quality Control Article to determine Installer's compliance with the requirements of this Project.
  2. Accreditation: Contractor's testing agency performing Field Quality Control testing and inspection shall also be certified by ABAA to perform ABAA Quality Assurance Program installer audits.

**1.6 SUBMITTALS:**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
  1. Fluid-applied membrane air barrier.
  2. Primer.
  3. Mastic.
  4. Counterflashing strip.
  5. Modified bituminous strip.
  6. Sprayed polyurethane foam sealant.
  7. Opening transition assembly.
  8. Joint sealant.
  9. Printed installation instructions for conditions specified.
- C. Certificates:
  1. Indicating membrane air barrier manufacturer's qualifications as specified.

2. Indicating approval of installer by membrane air barrier manufacturer.
  3. Indicating qualifications of installer and installer's personnel.
  4. Indicating air barrier manufacturer's determination that proposed materials are chemically and adhesively compatible with adjacent materials.
  5. Indicating products meet project limitations on VOC content.
- D. Inspection Reports: Daily reports of testing agency and reports of testing and inspection agency. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions taken to correct defective work.

**1.7 COORDINATION:**

- A. Coordinate installation of work of this Section with adjacent and related work to ensure provision of continuous, unbroken, durable air barrier system.
- B. Installation Audit: Incorporate audit requirements of ABAA QAP. Coordinate and cooperate with ABAA auditors. Ensure air barrier assembly remains exposed to facilitate inspection, testing, and correction activities.

**1.8 PRODUCT DELIVERY, STORAGE AND HANDLING:**

- A. Deliver materials to job in manufacturer's original unopened containers.
- B. Do not store material in areas where temperature is lower than 10 degrees C (50 degrees F,) or where prolonged temperature is above 32 degrees C (90 degrees F).

**1.9 ENVIRONMENTAL REQUIREMENTS:**

Ambient Surface and Material Conditions: Not less than 4 degrees C (40 degrees F), during application of waterproofing, visibly dry, and complying with manufacturer's written instructions.

**1.10 WARRANTY:**

Warrant membrane air barrier installation against air and moisture leaks subject to terms of "Warranty of Construction", FAR clause 52.246-21, except that warranty period is two years.

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. Source Limitations: Obtain membrane air barrier materials and accessories from single manufacturer.

B. VOC Content: Maximum 250 g/L per 40 CFR 59, Subpart D (EPA Method 24).

## **2.2 MEMBRANE AIR BARRIER:**

- A. Fluid-Applied, Vapor-Permeable Membrane Air Barrier: Elastomeric, modified bituminous or synthetic polymer membrane, meeting the following:
1. Air Permeance, ASTM E 2178: 0.02 L/s x sq. m of surface area at 75-Pa (0.004 cfm/sq. ft of surface area at 1.57-lbf/sq. ft.) pressure difference.
  2. Vapor Permeance, ASTM E 96/E96M: Minimum 580 ng/Pa x s x sq. m (10 perms).
  3. Elongation, Ultimate, ASTM D 412, Die C: 200 percent, minimum.
  4. Combustion Characteristics: Flame spread, not greater than 25; smoke developed, not greater than 450, ASTM E 84.
  5. Thickness of Membrane Air Barrier: Not less than 1.0 mm (40 mils), applied in single continuous coat.

## **2.3 ACCESSORY MATERIALS:**

- A. Primer: Liquid waterborne primer meeting VOC requirements, recommended for substrate by membrane air barrier manufacturer.
- B. Counterflashing Sheet: Modified bituminous, 1.0-mm- (40-mil- thick self-adhering composite sheet consisting of 0.9 mm (36 mils) of rubberized asphalt laminated to polyethylene film.
- C. Substrate Patching Material: Manufacturer's standard trowel-grade filler material.
- D. Sprayed Polyurethane Foam Sealant: Foamed-in-place, 24- to 32-kg.cu. m (1.5- to 2.0-lb/cu. ft) density, with flame-spread index of 25 or less per ASTM E 162.
- E. Flexible Opening Transition: Cured low-modulus silicone extrusion with reinforcing ribs, sized to fit opening widths, designed for adhesion to or insertion into aluminum framing extrusions, and compatible with air barrier system materials and accessories.
- F. Joint Sealant: ASTM C 920, single-component, neutral-curing silicone; Class 100/50 (low modulus), Grade NS, Use NT related to exposure, approved by membrane air barrier manufacturer for adhesion and compatibility with membrane air barrier and accessories.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION:**

- A. Surface Condition: Before applying membrane air barrier materials, ensure substrates are fully cured, smooth, clean, dry, and free from

high spots, depressions, loose and foreign particles and other deterrents to adhesion.

- B. Verify concrete surfaces have cured for time period recommended by membrane air barrier manufacturer, free from release agents, concrete curing agents, and other contaminants.
- C. Verify masonry joints are flush and filled with mortar.

### **3.2 INTERFACE WITH OTHER WORK**

- A. Commencement of Work: Commence work once membrane air barrier substrates are adequately protected from weather and will remain protected during remainder of construction.
- B. Sequencing of Work: Coordinate sequencing of work with work of other sections that form portions of building envelope air barrier to ensure that flashings and transition materials can be properly installed.
- C. Subsequent Work: Coordinate work with work of other sections installed subsequent to membrane air barrier to ensure complete inspection of installed membrane air barrier and sealing of membrane air barrier penetrations necessitated by subsequent work.

### **3.3 AIR BARRIER INSTALLATION**

- A. General: Prepare substrates and install and apply air barrier components in accordance with air barrier manufacturer's written instructions consistent with manufacturer's qualifying tested assemblies.
  - 1. Compliance: Prepare substrates and install and apply air barrier components in accordance with requirements of ABAA QAP.

### **3.4 PREPARATION**

- A. Prepare and treat substrate in accordance with membrane air barrier manufacturer's written instructions.
- B. Mask adjacent finished surfaces.
- C. Remove contaminants and film-forming coatings from concrete.
- D. Remove projections and excess materials and fill voids with substrate patching material.
- E. Prepare and treat joints and cracks in substrate per ASTM C 1193 and membrane air barrier manufacturer's written instructions.
- F. Apply primer to substrates.

### **3.5 APPLICATION OF TRANSITION STRIPS**

- A. Install transition strips and accessory materials according to membrane air barrier manufacturer's written instructions.

- B. Connect and seal membrane air barrier material to adjacent components of building air barrier system, including, but not limited to, roofing system air barrier, exterior glazing and window systems, curtain wall systems, door framing, and other openings.
- C. Flexible Opening Transition: Prime concealed perimeter frame surfaces of windows, storefronts, curtain walls, louvers, and doors. Apply flexible opening transition so that a minimum of 75 mm (3 inches) over coverage is achieved over each substrate.
  - 1. Fill gaps at perimeter of openings with foam sealant.
- D. Penetrations: Fill gaps at perimeter of penetrations with foam sealant. Seal transition strips around penetrating objects with termination mastic.
- E. Flashings: Seal top of through-wall flashings to membrane air barrier with continuous transitions strip of type recommended by membrane air barrier manufacturer for type of flashing.

### **3.6 FLUID AIR-BARRIER MEMBRANE INSTALLATION**

- A. Apply fluid membrane air barrier material in full contact with substrate to produce a continuous seal with transition strips according to membrane air barrier manufacturers written instructions.
  - 1. Apply fluid membrane in thickness recommended by manufacturer, but not less than thickness specified in this section.
- B. Leave membrane air barrier exposed until tested and inspected by Owner's testing agency and approved by Resident Engineer.
- C. Correct deficient applications not passing tests and inspections, make necessary repairs, and retest as required to demonstrate compliance with requirements.

### **3.7 TESTING:**

- A. Testing Agency: // Contractor shall// //Owner will// engage a qualified testing agency to perform tests and inspections, including documenting of membrane air barrier prior to concealment.
  - 1. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements, including the following:
  - 2. Continuity of air-barrier system has been achieved throughout the building envelope with no gaps or holes.
  - 3. Continuous structural support of air-barrier system has been provided.

4. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
  5. Site conditions for application temperature and dryness of substrates have been maintained.
  6. Maximum exposure time of materials to UV deterioration has not been exceeded.
  7. Surfaces have been primed, if applicable.
  8. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
  9. Termination mastic has been applied on cut edges.
  10. Strips and transition strips have been firmly adhered to substrate.
  11. Compatible materials have been used.
  12. Transitions at changes in direction and structural support at gaps have been provided.
  13. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
  14. All penetrations have been sealed.
  15. Inspections and testing shall be carried out at the following rate:
    - a. Up to 10,000 square feet (930 square meters) - one inspection
    - b. 10,001 - 35,000 square feet (931 - 3,250 square meters) - two inspections
    - c. 35,001 - 75,000 square feet (3,251 - 6,970 square meters) - three inspections
    - d. 75,001 - 125,000 square feet (6,971 - 11,610 square meters) - four inspections
    - e. 125,001 - 200,000 square feet (11,611 - 18,580 square meters) - five inspections
    - f. Over 200,00 square feet (18,580 square meters) - six inspections.
  16. Forward written inspection reports to the Resident Engineer within 5 working days of the inspection and test being performed.
  17. If the inspections reveal any defects, promptly remove and replace defective work at no additional cost to the Owner.
- B. Inspections shall include:

1. Compatibility of materials within membrane air barrier system and with adjacent materials.
2. Suitability of substrate and support for membrane air barrier materials.
3. Suitability of conditions under which membrane air barrier will be applied.
4. Adequacy of substrate priming.
5. Proper application and joint and edge treatment of transition strips, flexible opening transitions, and accessory materials.
6. Continuity and gap-free installation of membrane air barrier, transition strips, and accessory materials.

C. Testing shall include:

1. Qualitative air-leakage testing per ASTM E 1186.
2. Quantitative air-leakage testing per ASTM E 783.

D. Audit: Provide installer audit by ABAA. Coordinate scheduling of work and associated audit inspections. Cooperate with ABAA's testing agency. Allow access to work areas and staging. Notify ABAA in writing of schedule for Work of this Section to allow sufficient time for testing and inspection. Do not cover Work of this Section until testing and inspection is accepted. Arrange and pay for site inspections by ABAA to verify conformance with the manufacturer's instructions, the site Quality Assurance Program used by ABAA, and this section of the project specification.

### **3.8 CLEANING AND PROTECTION**

- A. Clean spills, stains, and overspray resulting application utilizing cleaning agents recommended by manufacturers of affected construction. Remove masking materials.
- B. Protect membrane air barrier from damage from subsequent work. Protect membrane materials from exposure to UV light in excess of that acceptable to membrane air barrier manufacturer; replace overexposed materials and retest.

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