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# ICC-ES Evaluation Report

# ESR-2303

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Reissued 12/2017  
This report is subject to renewal 12/2019.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**SECTION: 07 11 00—DAMPPROOFING**  
**SECTION: 07 13 00—SHEET WATERPROOFING**

**REPORT HOLDER:**

**DORKEN SYSTEMS INC.**

**4655 DELTA WAY  
BEAMSVILLE, ONTARIO L0R 1B4  
CANADA**

**EVALUATION SUBJECT:**

**DELTA®-MS AND DELTA®-MS CLEAR DAMPPROOFING AND WALL  
WATERPROOFING MEMBRANE SYSTEMS**



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**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**

**Section: 07 11 00—Dampproofing**

**Section: 07 13 00—Sheet Waterproofing**

**REPORT HOLDER:**

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**EVALUATION SUBJECT:**

**DELTA®-MS AND DELTA®-MS CLEAR DAMPPROOFING AND WALL WATERPROOFING MEMBRANE SYSTEMS**

**1.0 EVALUATION SCOPE**

**Compliance with the following codes:**

- 2009 and 2006 *International Building Code*® (IBC)
- 2009 and 2006 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)<sup>†</sup>

<sup>†</sup>The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

**Properties evaluated:**

- Foundation dampproofing
- Wall waterproofing (IRC only)

**2.0 USES**

DELTA®-MS and DELTA®-MS CLEAR Membrane systems are below-grade, exterior-wall, sheet membrane systems that perform as a foundation wall dampproofing material on cast-in-place concrete, concrete masonry, insulated concrete forms (ICFs) or treated wood foundations. In those jurisdictions adopting the IRC, the membranes may be considered as a foundation wall waterproofing material for use in applications of low hydrostatic pressure (i.e., locations with perched water tables).

**3.0 DESCRIPTION**

DELTA®-MS and DELTA®-MS CLEAR membranes are high-density polyethylene (HDPE), semi-rigid, thermally formed sheet membrane, “dimpled” on one side to provide an air gap between the membrane and the wall surface.

The membranes are 28 mils (0.7 mm) thick and have a

compressive strength of 5200 lbs/ft<sup>2</sup> (250 kN/m<sup>2</sup>). The membrane systems are available in rolls 65.6 feet (20 m) in length and up to 9.8 feet (3 m) in width. The membranes unit weights are a minimum of 1.77 oz/ft<sup>2</sup> (540 g/m<sup>2</sup>). The dimple height is 0.31 inch (8 mm).

DELTA®-MS and DELTA®-MS CLEAR Membrane systems include rolls of membrane material, DELTA®-MOLD STRIP, DELTA®-FLASH, DELTA®-TERMINATION BAR, and DELTA®-T-FAST'ners, to fasten DELTA®-MS to the foundation wall, DELTA®-T-FAST'ners, DELTA®-FAST'ner, and DELTA®-PLUGS.

DELTA®-MS and DELTA®-MS CLEAR Membranes are installed with the “dimple” protrusion side against the foundation wall (refer to Figure 1), forming a continuous air gap around the basement wall. These membranes function to keep basements dry as follows:

- The membranes keep ground moisture (rain water) from coming into direct contact with the wall surface.
- The air gap allows moisture to condense against the membrane, flow down to the footing and drain away from the building.
- The air gap system continues to function despite any future foundation wall shifting or cracking.
- The impermeable dimpled membrane in conjunction with the air gap provides a complete capillary break.

**4.0 INSTALLATION**

Installation of DELTA®-MS and DELTA®-MS CLEAR Membrane systems must comply with this report and the manufacturer’s published installation instructions. The manufacturer’s published installation instructions must be available at the jobsite at all times during installation.

Except for concrete block foundation walls, which are required to be parged, primer material or other special treatment of the wall surface is not required prior to application of the membrane. Chalk lines must be made on the foundation wall at grade to establish placement of the upper edge of the membrane and the sealant bead. The membrane must be unrolled and applied to the substrate with the flat flange on the top.

The membrane must be mechanically fastened with fasteners approved by Dorken Systems Inc. Screws must be used for ICF and nails for concrete block and cast-in-place concrete foundation walls. The fastening must be in accordance with the manufacturer’s published installation instructions. For ICF foundations, fastener spacing must be determined by the spacing of the cross ties of the ICF Block system; fasteners must be installed into the flanges of the cross ties. DELTA®-MOLD STRIP, DELTA®-FLASH,

or DELTA<sup>®</sup>-TERMINATION BAR must be installed along the top flange of the membrane or in locations where the membrane terminates, to prevent soil from entering the air are mm) on center. When DELTA<sup>®</sup>-T-FAST'ners are used, DELTA<sup>®</sup>-MOLD STRIP, DELTA<sup>®</sup>-FLASH, or DELTA<sup>®</sup>-TERMINATION BAR is not required to terminate the flat flange at the top. When the spacing of the ICF webbing is equal to or less than 12 inches (305 mm) on center, DELTA<sup>®</sup>-T-FAST'ners may be used to fasten DELTA<sup>®</sup>-MS CLEAR. The membrane must be lapped a minimum of 6 inches (100 mm) horizontally and vertically. The dimples must be interlocked. A continuous approximately 1/2-inch bead of sealant must be applied between lapped edges of the membrane.

Manufacturer's approved sealant must be used. For ICF foundation walls, sealant approved by the ICF manufacturer is used.

DELTA<sup>®</sup>-MS and DELTA<sup>®</sup>-MS CLEAR membranes must be installed tightly around foundation wall penetrations, and sealed at the entire intersection between the membrane and the penetrating item. Manufacturer's published installation instructions are available at [www.dorken.com](http://www.dorken.com).

## 5.0 CONDITIONS OF USE

The DELTA<sup>®</sup>-MS and DELTA<sup>®</sup>-MS CLEAR Membrane systems described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the manufacturer's published instructions and the applicable code. In the event of a conflict between the installation instructions and this report, this report must govern.
- 5.2 The backfill of the foundation must be clean soil free of rocks or other deleterious materials and placed (for jurisdictions adopting the IBC, the backfill must be placed in lifts and compacted) so as not to damage the foundation or the membrane system. The design and construction of the foundation is outside the scope of this report. For jurisdictions adopting the IRC, local backfilling requirements are followed. Caution must be taken so as not to damage the foundation or the membrane system.

- 5.3 DELTA<sup>®</sup>-MS and DELTA<sup>®</sup>-MS CLEAR Membrane materials must be stored out of direct sunlight and at temperatures above -24°F (-31°C) and no greater than 122°F (50°C). DELTA<sup>®</sup>-MS and DELTA<sup>®</sup>-MS CLEAR materials must not be installed when temperatures are below -24°F (-31°C).

- 5.4 DELTA<sup>®</sup>-MS and DELTA<sup>®</sup>-MS CLEAR Membranes must be backfilled within 30 days of its installation to protect the material from prolonged exposure to ultraviolet radiation (sunlight).

- 5.5 DELTA<sup>®</sup>-MS and DELTA<sup>®</sup>-MS CLEAR Membranes must not be installed on foundation walls greater than 16 feet (4.88 m) in height.

- 5.6 Use of the membrane under the IBC as waterproofing is outside the scope of this report.

- 5.7 DELTA<sup>®</sup>-MS and DELTA<sup>®</sup>-MS CLEAR Membranes may be used as dampproofing and wall waterproofing under the IRC.

- 5.8 The design and installation of the foundation drainage system is outside the scope of this report. The foundation drainage system must be installed in accordance with Section 1805.4 of the 2009 IBC or Section 1807.4 of the 2006 IBC, and/or Section R405 of the IRC, as applicable.

- 5.9 The use of the "cold joint protection membrane" described in the manufacturer's installation instructions as a special waterproofing arrangement is outside the scope of this report.

## 6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Rigid Polyethylene, Below-grade, Dampproofing and Wall Waterproofing Material (AC114), dated March 2012 (editorially revised December 2013).

## 7.0 IDENTIFICATION

The DELTA<sup>®</sup>-MS and DELTA<sup>®</sup>-MS CLEAR Membranes and manufacturer-specified components described in this report must be identified by a stamp on the packaging that bears the manufacturer's name (DORKEN SYSTEMS INC.), the product type and the evaluation report number (ESR-2303).

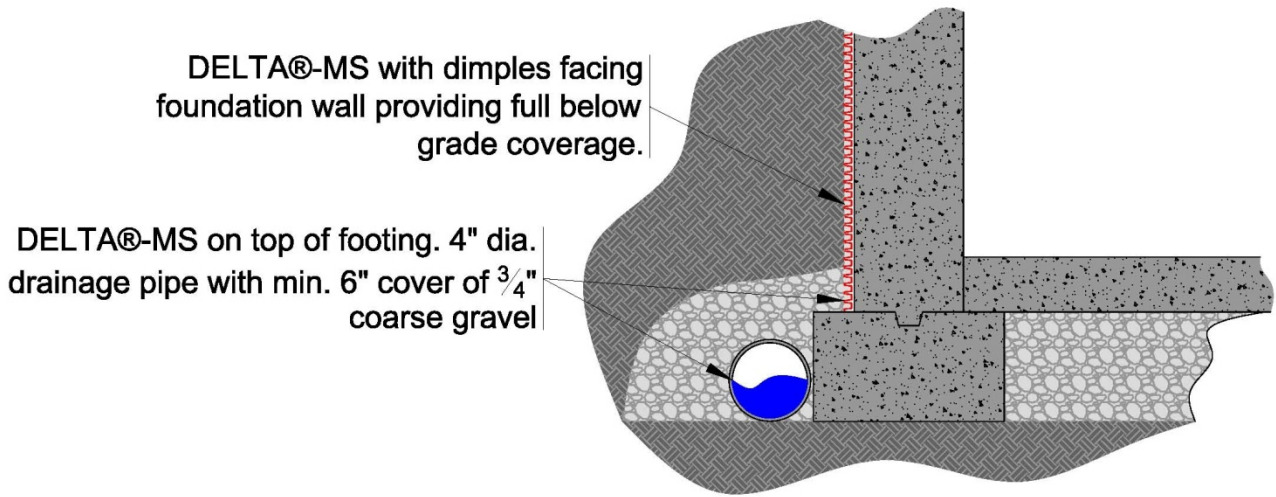
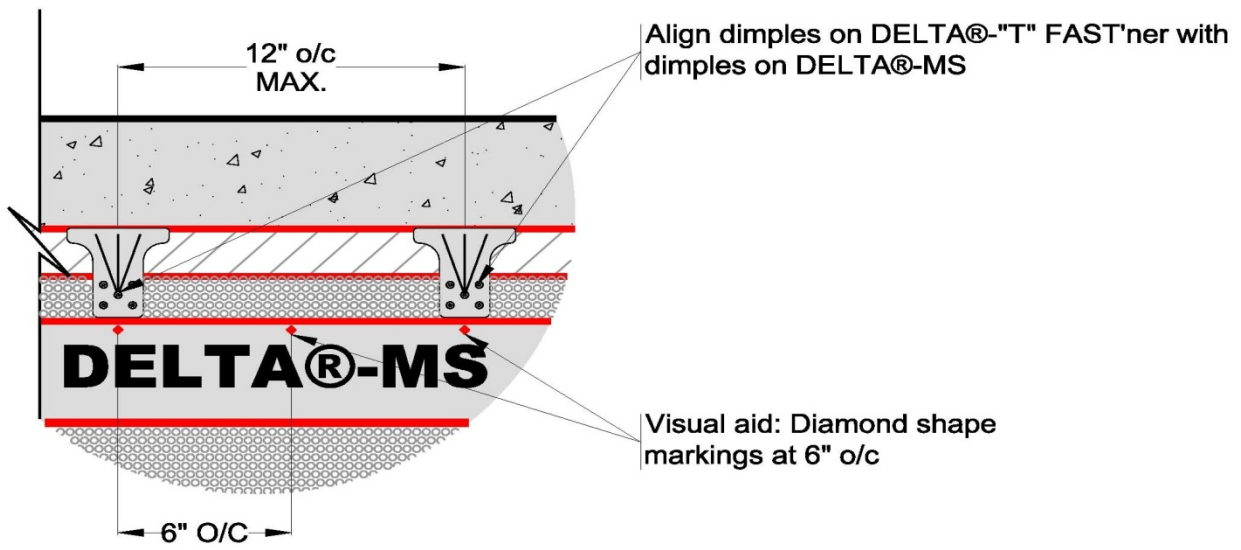
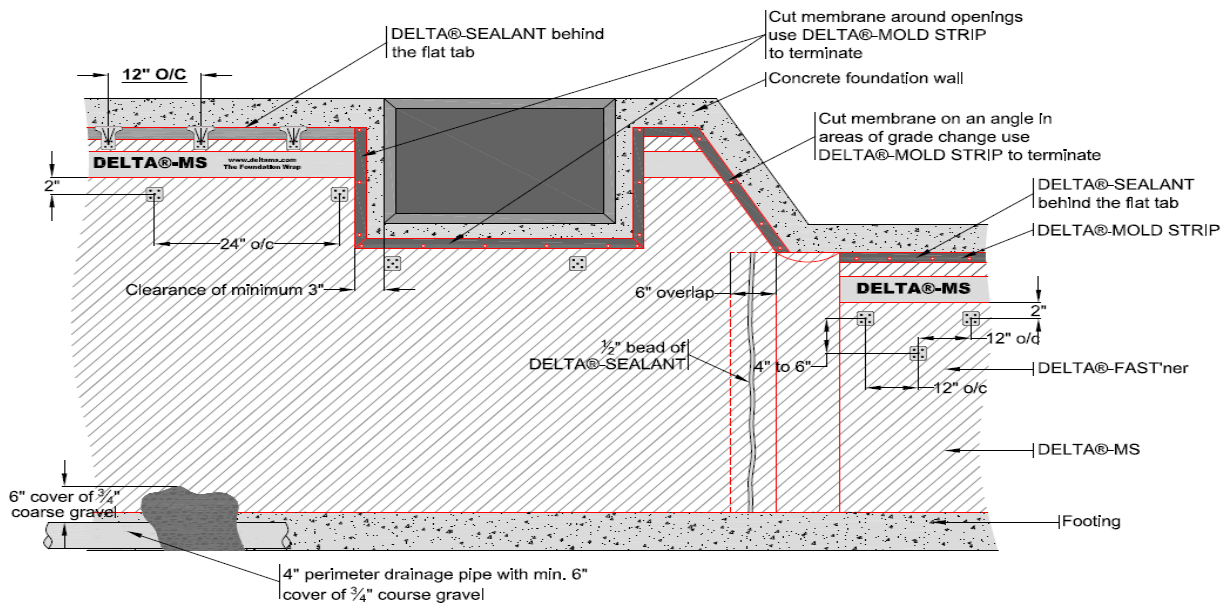


FIGURE 1—TYPICAL INSTALLATION DETAILS