ICC EVALUATION SERVICE

ICC-ES Evaluation Report

ESR-2303

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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:

DORKEN SYSTEMS INC.

EVALUATION SUBJECT:

DELTA®-MS DAMPPROOFING AND WALL WATERPROOFING MEMBRANE SYSTEM

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2015, 2012, 2009 and 2006 *International Building Code®* (IBC)
- 2015, 2012, 2009 and 2006 *International Residential Code®* (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†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)

1.2 Evaluation to the following green standards:

- 2015, 2012 and 2008 ICC 700 *National Green Building Standard™* (ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attribute verified:

- See Section 3.0

2.0 USES

DELTA®-MS Membrane system is a below-grade, exterior-wall, sheet membrane system that performs 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 membrane is a 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 membrane is 28 mils (0.7 mm) thick and has a compressive strength of 5200 lbs/ft² (250 kN/m²). The membrane system is available in rolls 65.6 feet (20 m) in length and up to 9.8 feet (3 m) in width. The membrane unit weight is a minimum of 1.77 oz/ft² (540 g/m²). The dimple height is 0.31 inch (8 mm).

DELTA®-MS Membrane system 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 Membrane is installed with the “dimple” protrusion side against the foundation wall (refer to Figure 1), forming a continuous air gap around the basement wall. The membrane functions to keep basements dry as follows:

- The membrane keeps 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.

The attributes of the DELTA®-MS Membrane have been verified as conforming to the provisions of ICC 700-2015 and ICC 700-2012 Section 602.1.2 and ICC 700-2008 Section 602.11 for foundation waterproofing. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

4.0 INSTALLATION

Installation of DELTA®-MS Membrane system 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 top of the membrane must be mechanically fastened and sealed to the foundation wall to prevent soil particles from entering and flowing into the air gap. 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®-TERMINATION BAR must be installed and fastened at 8 inches (200 mm) on center along the top flange of the membrane or in locations where the membrane terminates, to prevent soil from entering the air gap. When DELTA®-T-FAST'ners are used, DELTA®-MOLD STRIP, DELTA®-FLASH, or DELTA®-TERMINATION BAR is not required to terminate the flat flange at the top. The membrane must be lapped a minimum of 6 inches (152 mm) horizontally and vertically. The dimples must be interlocked. A continuous approximately $^1/_2$-inch (12.7 mm) 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®-MS membrane 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.

5.0 CONDITIONS OF USE

The DELTA®-MS Membrane system described in this report complies with, or is a suitable alternative 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®-MS Membrane material must be stored out of direct sunlight and at temperatures above -24°F (-31°C) and no greater than 122°F (50°C). DELTA®-MS materials must not be installed when temperatures are below -24°F (-31°C).

5.4 DELTA®-MS Membrane must be backfilled within 30 days of its installation to protect the material from prolonged exposure to ultraviolet radiation (sunlight).

5.5 DELTA®-MS Membrane 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®-MS Membrane 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 2015, 2012 and 2009 IBC Section 1805.4 (2006 IBC Section 1807.4) or IRC Section R405, 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 September 2018).

7.0 IDENTIFICATION

7.1 The DELTA®-MS Membrane 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).

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

DORKEN SYSTEMS INC.
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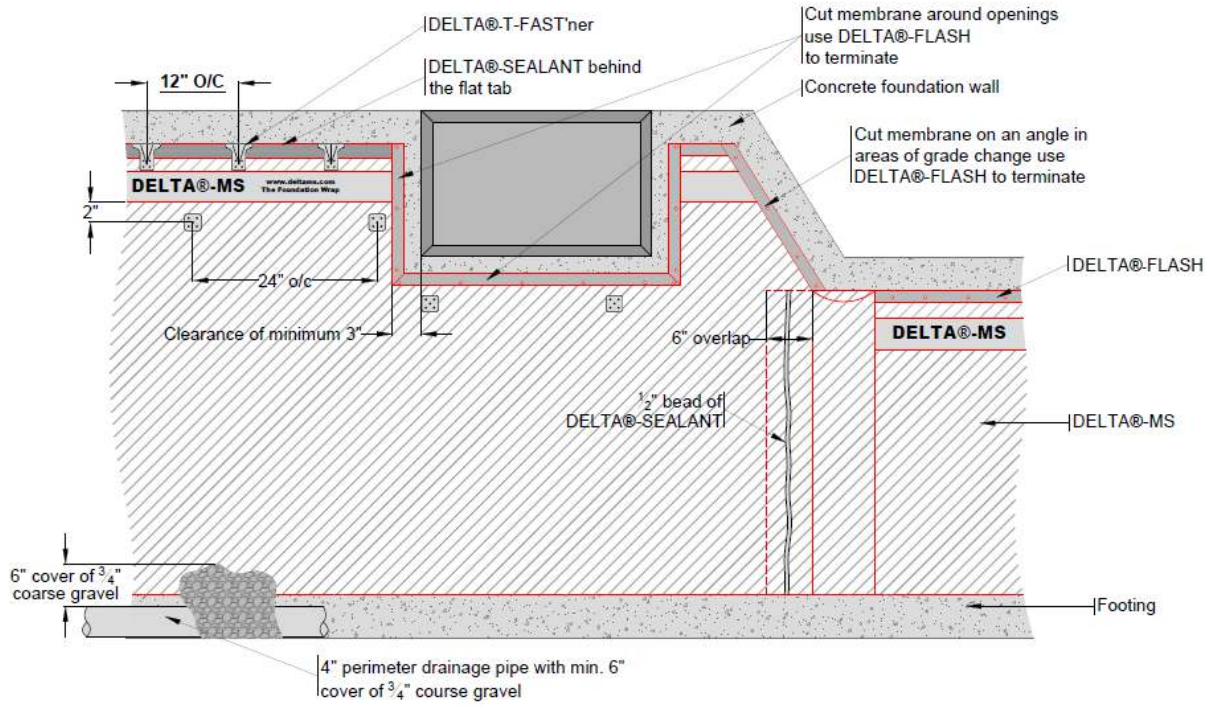

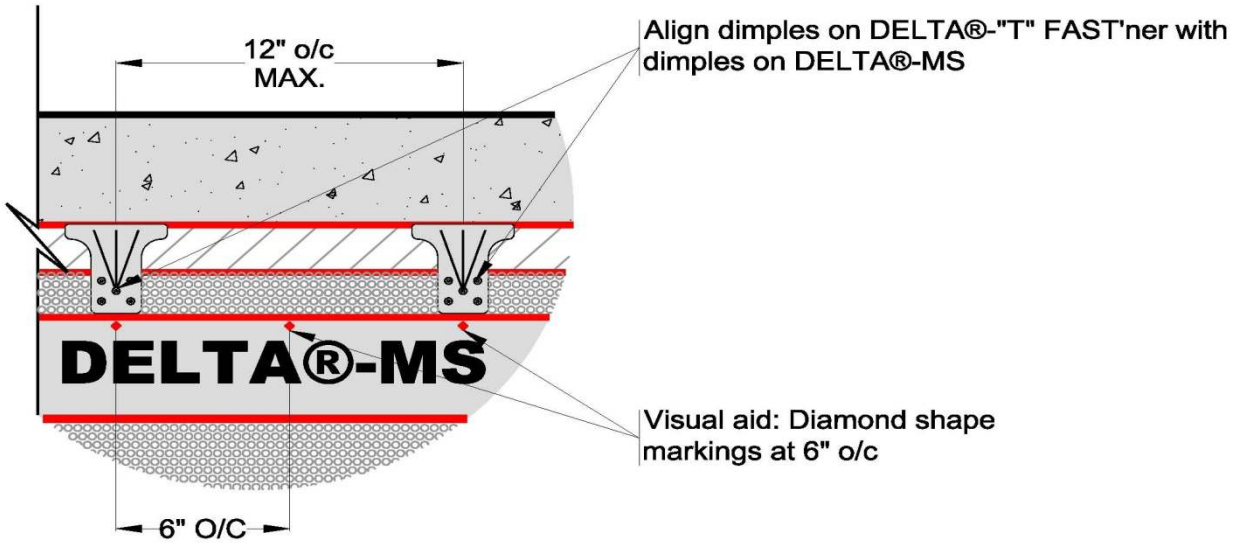

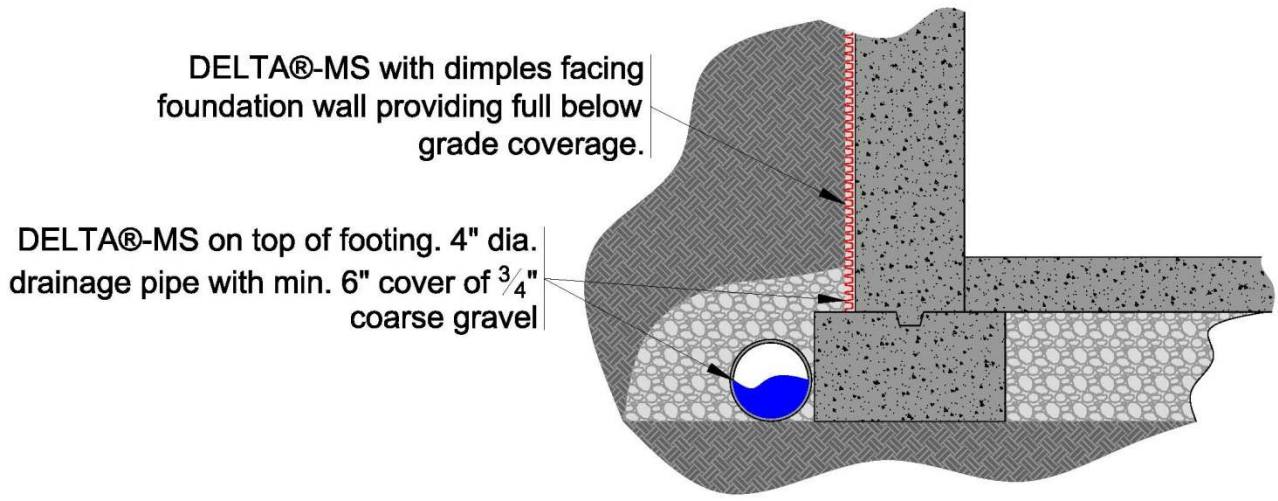

FIGURE 1—TYPICAL INSTALLATION DETAILS