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This report is subject to renewal 08/2016.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 25 00—WATER-RESISTIVE BARRIERS/WEATHER BARRIERS
SECTION: 07 27 00—AIR BARRIERS

REPORT HOLDER:

E.I. DUPONT DE NEMOURS AND COMPANY, INC. (DUPONT™)

CHESTNUT RUN PLAZA
POST OFFICE BOX 80721
WILMINGTON, DELAWARE 19880-0721

EVALUATION SUBJECT:

DUPONT™ TYVEK® THERMAWRAP™ LE (STYLE 3583M)

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REPORT HOLDER:

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EVALUATION SUBJECT:

DUPONT™ TYVEK® THERMAWRAP™ LE (STYLE 3583M)

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)
- 2015, 2012, 2009 and 2006 *International Energy Conservation Code®* (IECC)

Properties evaluated:

- Water resistance
- Air leakage
- Surface-burning characteristics
- Exterior walls of Types I, II, III and IV construction

1.2 Evaluation to the following green codes and/or standards:

- 2013 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2012 and 2015 International Green Construction Code® (IgCC)
- 2011 and 2014 ANSI/ASHRAE/USGBC/IES Standard 189.1–Standard for the Design of High-Performance Green Buildings, Except Low-Rise Residential Buildings
- 2012 and 2008 ICC 700 National Green Building Standard™ (ICC 700-2012 and ICC 700-2008)

2.0 USES

DuPont™ Tyvek® ThermaWrap™ LE (Style 3583M) is used as a water-resistive barrier on the exterior side of exterior walls of buildings of all construction types (IBC) and construction permitted under the IRC. DuPont™ Tyvek® ThermaWrap™ LE is an alternative to the water-resistive barrier specified in IBC Section 1404.2 and IRC Section R703.2. The product is also considered equivalent to a 60-minute Grade D paper in accordance with Section 2012, 2009 and 2006 2510.6 of the IBC and Section R703.6.3 of the IRC, and may be used to provide an air barrier in accordance with IRC Section N1102.4.1 and 2015 IECC Section 402.5.1.2.1 and R402.4 (2012 IECC Sections C402.4.1.2.1 and R402.4 and 2009 and 2006 IECC Sections 402.4.1 and 502.4.3).

The attributes of the water-resistive barriers have been verified as conforming to the requirements of (i) 2013 CALGreen Section 5.407.1 for water-resistive barriers and Section A4.407.5 for air barriers; (ii) 2012 and 2015 IgCC Section 605.1.2.1 for air barriers; (iii) 2014 ASHRAE 189.1 Section 7.3.1.1 and 2011 ASHRAE 189.1 Section 7.4.2.9 for air barriers; (iv) ICC 700-2012 Section 602.1.8 and ICC 700-2008 Section 602.9 for water-resistive barriers. 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.

3.0 DESCRIPTION

DuPont™ Tyvek® ThermaWrap™ LE is a nonwoven, spun bonded, nonperforated, white-colored polyethylene with an aluminum coating on one face available in Style 3583M. The sheet has a nominal thickness of 0.010 inch (0.25 mm) and a basis weight of 2.4 oz/yd^2 (81 g/m^2). The sheet is available in rolls of varying size. The product logo may appear on either side.

The DuPont™ Tyvek® ThermaWrap™ LE has an air leakage rate not exceeding 0.02 L/s-m^2 [0.004 cfm/ft^2 at 0.3 w.g. (1.57 psf)].

The DuPont™ Tyvek® ThermaWrap™ LE sheet demonstrates Class A performance in accordance with IBC Section 803.1.1 based on data in accordance with ASTM E84 (UL 723), and may be installed on walls required to be constructed of noncombustible materials.

4.0 INSTALLATION

4.1 General:

DuPont™ Tyvek® ThermaWrap™ LE is installed after wall framing is completed and before or after windows and doors are installed. The roll is placed 6 to 12 inches (152 to 305 mm) from the starting corner and fastened to the sheathing with corrosion-resistant staples or nails approved by the manufacturer, and is then unrolled around the building and fastened as set forth in the manufacturer's published installation instructions at top and bottom sill plates and at framing members. Either surface may be installed facing the exterior. A minimum of 6 inches (152 mm) of overlap is provided for vertical seams and 2 inches (51 mm) for horizontal seams, except where the manufacturer's installation instructions specify a greater overlap dimension. The seams are taped with either 2- or 3-inch-wide (51 to 76 mm) DuPont™ Tyvek® Metalized Tape. When use is over wood-based sheathing in exterior plaster applications in jurisdictions enforcing the IBC or IRC, two layers of water-resistive barrier must be applied over the sheathing in accordance with IBC Section 2510.6 or IRC Section R703.6.3, as applicable. For cementitious coatings or exterior insulation and finish systems, application must be in accordance with the ICC-ES evaluation report on the exterior coating.

The manufacturer's published installation instructions and this report must be strictly adhered to. If requested by the code official, a copy of this report must be available at the jobsite during installation. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

4.2 Air Barrier:

When used as a component of an air barrier material or as a component of an air barrier assembly, the product must be installed in accordance with the manufacturer's published installation instructions and this report.

4.3 Exterior Walls of Types I, II III and IV Construction:

The product may be used as a component of exterior walls of buildings of Type I, II, III or IV construction as follows:

Under the 2015 and 2012 IBC: Use on exterior walls greater than 40 feet (12.2. m) in height above grade is limited to the assemblies described in Table 1. The use on exterior walls of Types I, II, III or IV construction 40 feet or less above grade plane is not limited to any specific assembly, except that wall assemblies that use foam plastic insulation must also comply with the requirements of IBC Section 2603.5.

Under the 2006 and 2009 IBC: Use on exterior walls greater than 40 feet in height above grade is not limited to any specific assembly, except that wall assemblies that use foam plastic insulation must also comply with the requirements of IBC Section 2603.5.

5.0 CONDITIONS OF USE

The DuPont™ Tyvek® ThermaWrap™ LE 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 The system must be manufactured, identified and installed in accordance with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, the more restrictive governs.

5.2 The product must be covered after application with an approved exterior wall covering complying with the applicable code.

5.3 This report provides air leakage rates for the product as an air barrier material. When used as a component of an air barrier assembly, the design and evaluation of the air barrier assembly of which this is a component must be provided to the satisfaction of the code official.

5.4 Use on exterior walls of buildings of Type I, II, III or IV construction must be in accordance with the requirements of Section 4.3 and Table 1 for the applicable edition of the code.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Water-resistive Barriers (AC38), dated January 2015.

6.2 Report of optional testing in accordance with ASTM E2178.

6.3 Report of optional testing in accordance with ASTM E84 (UL 723).

6.4 Reports of testing in accordance with NFPA 285, and related fire analysis.

7.0 IDENTIFICATION

The DuPont™ Tyvek® ThermaWrap™ LE described in this report must be identified by a label, on the wrapper, package or container of each roll, bearing the manufacturer's name (E.I. DuPont de Nemours and Company, Inc.), the product name, the manufacturing location (Luxembourg), and the evaluation report number (ESR-1993).

TABLE 1
NFPA 285 Assemblies (Refer to Figure 1 for Component Locations.)

I. Base Wall System Use either 1, 2 3, 4, or 5)	1. Concrete Wall
	2. Concrete Masonry Wall (CMU)
	3. Standard Clay Brick Wall
	4. Adobe Block Wall
	5. Steel Stud Framed Wall (Use a, b, c, d or e, as applicable) – Minimum 20-gauge, $3^5/_8$-inch-deep, studs with lateral bracing every 4 feet vertically, spaced 24 inches on center maximum
	a. Interior Wallboard – Minimum of 1 layer of $^5/_8$–inch-thick Type X gypsum wallboard on interior face of studs
	b. Interior Vapor Barrier (optional) – 1 layer of maximum 6 mil thick polyethylene plastic or equivalent can be applied
	c. Cavity Insulation – None or any noncombustible insulation (faced or unfaced)
	d. Floorline Firestopping – (where studs are outboard of the floor assembly): 4 lb/ft^3 mineral wool in each stud cavity and at each floorline – attached with Z-clips
	e. Exterior Sheathing – $^1/_2$– or $^5/_8$–inch-thick, exterior type gypsum sheathing
II. Air and Water Barrier Applied to I. Base Wall System or over III. Exterior Insulation (Use either 1 or 2)	1. DuPont™ Tyvek® ThermaWrap™ LE
III. Exterior Insulation (Use either 1, 2, 3 or 4)[1, 2]	1. None
	2. Any noncombustible mineral wool insulation, faced or unfaced, classified as Class A when tested in accordance with ASTM E84 or UL 723, minimum 2 inches (51 mm) thick
	3. Dow Thermax™ Polyisocyanurate rigid insulation (see ICC-ES ESR-1659) with total thickness to be a minimum of $^5/_8$ inch and a maximum of 3 inch
	4. Extruded Polystyrene Foam Insulation (XPS) – Type IV complying with ASTM C578 with total thickness to be a minimum of $^1/_2$ inch to maximum of 3 inch and recognized in a current ICC-ES evaluation report.
IV. Exterior Cladding[3] (Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10)	1. Brick: Standard nominal 4-inch thick clay brick. Use standard brick veneer anchors installed maximum 24 inches on center vertically on each stud with a 2-inch maximum air gap between exterior insulation and brick.
	2. Stucco: Minimum $^3/_4$–inch-thick, exterior cement plaster and lath. An optional 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. (Cannot be combined with Exterior Insulation: #4-XPS)
	3. Stone Veneer: Minimum 2 inches thick, limestone or natural stone veneer or minimum $1^1/_2$-inch-thick cast artificial stone veneer. Any standard installation technique can be used.
	4. Fiber Cement Siding or Panels: Any standard installation technique can be used. (Cannot be combined with Exterior Insulation: #4-XPS)
	5. Metal Exterior Wall Coverings: Including but not limited to steel, aluminum, and copper installed using standard installation techniques. (Cannot be combined with Exterior Insulation: #4-XPS)
	6. Terra Cotta Cladding: Use any Terra cotta cladding system in which terracotta is minimum 1^1/-inch thick. Any standard installation technique can be used.
	7. Metal Composite Material (MCM): Alpolic/fr wall panels (see ICC-ES ESR-2653), Alcoa Reynobond FR 6-mm ACM panels or other MCM panel that has been tested in accordance with NFPA 285 and which is recognized in a current ICC-ES evaluation report. The MCM panels cannot be combined with Exterior Insulation: #4-XPS.
	8. Concrete Masonry Units (CMU): Minimum 4-inch thick CMU, with a 2-inch maximum air gap between exterior insulation and CMU.
	9. Concrete Panels: Minimum 2-inch thick panel, with a 2-inch maximum air gap between exterior insulation and concrete panel.
	10. Insulated Concrete Sandwich Panels: Minimum 2-inch thick outer and inner faces. Maximum 2-inch air gap between panel and wall system.

For **SI**: 1 inch = 25.4 mm; 1 lb/ft^3 = 16 kg/m^3

Notes:
[1] On insulation joints, an asphalt or butyl-based flashing tape with a 4-inch maximum width may be used.
[2] Use any header treatment shown in Window Head Detail Options, Figures 2 through 7 for all window and door openings in the exterior wall.
[3] Exterior claddings must comply with the applicable provisions of IBC Chapter 14 and IRC Chapter 7.

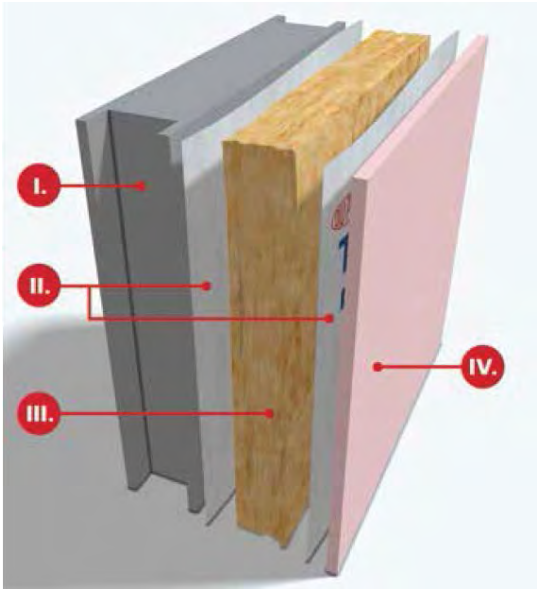


FIGURE 1
Refer to Table 1 for system components.

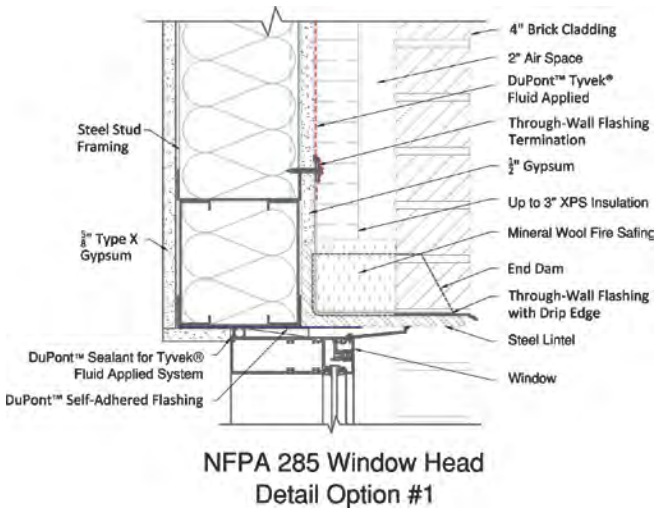


FIGURE 2

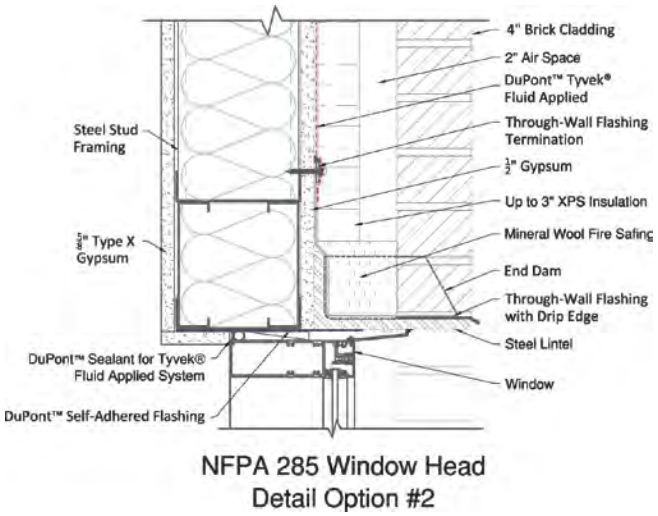
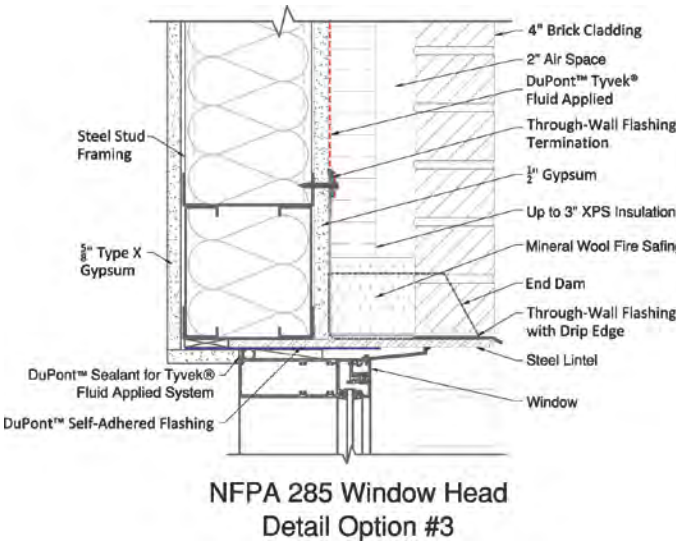


FIGURE 3



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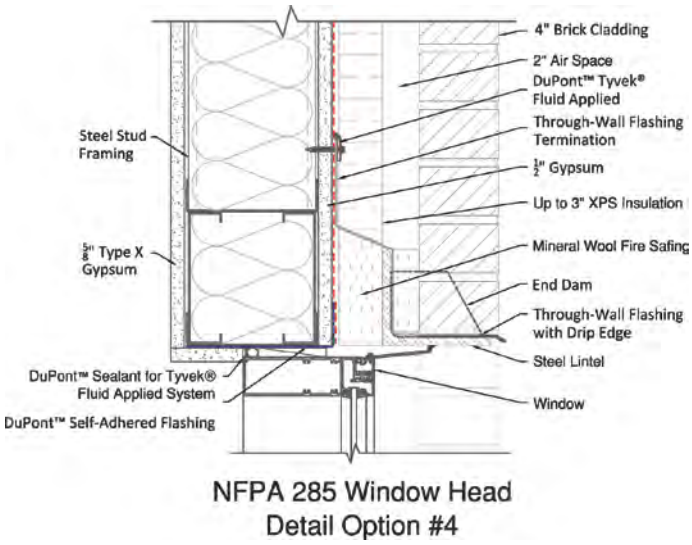

FIGURE 5

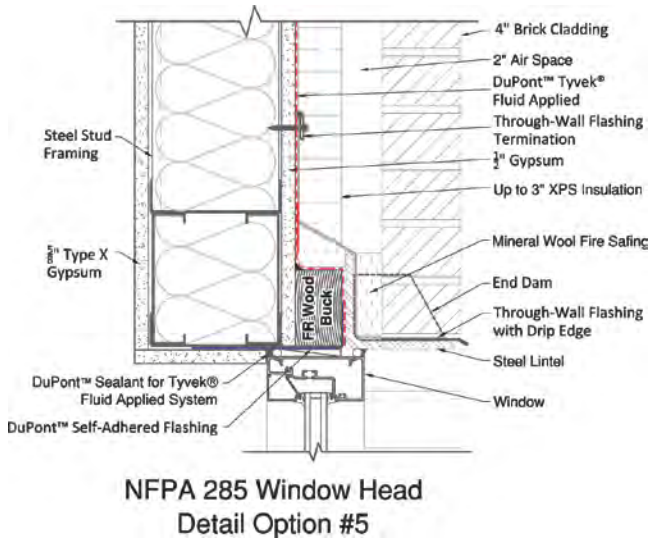

FIGURE 6

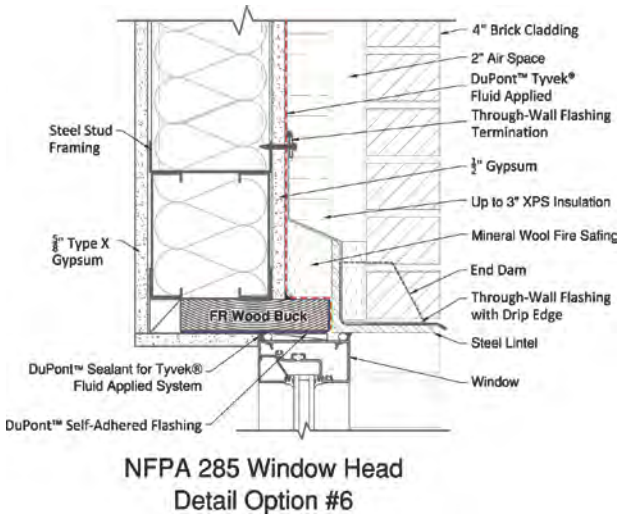

FIGURE 7