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### 1-KOTE EXTERIOR CEMENTITIOUS ONE-COAT WALL COATING SYSTEM

#### CSI Section:

**09 24 00 Cement Plastering**

#### 1.0 RECOGNITION

Kwik-Kote Stucco System has been evaluated as an exterior wall covering in compliance with Chapters 14 and 25 of the IBC and Chapter 7 of the IRC. The Exterior Stucco System consists of cement plaster, metal or wire fabric lath, weather-resistant barrier, and backings of concrete, masonry, foam plastic insulation, gypsum board, fiberboard wood structural panel wall sheathing. The Exterior Stucco System has been evaluated for exterior durability, wind resistance, interior and exterior fire exposure, fire-resistance ratings, and installation on walls required to be of Types I, II, III, IV and V construction. The Exterior Stucco Systems evaluated in this report are satisfactory alternatives to the following codes and regulations:

- 2018, 2015, 2012 and 2009 International Building Code® (IBC)
- 2018, 2015, 2012 and 2009 International Residential Code® (IRC)
- ICC-ES AC11®
- 2019 and 2016 California Building Code (CBC)-attached Supplement
- 2019 and 2016 California Residential Code (CRC) - attached Supplement

#### 2.0 LIMITATIONS

Use of the Exterior Stucco Systems recognized in this report are subject to the following limitations:

**2.1** The Exterior Stucco Systems shall be installed in accordance with this report, the applicable code, and Kwik Kote's installation instructions. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.

**2.2** All inspections by the building official are required in IBC Section 110 or IRC Section R109, including lath inspection, shall be completed.

**2.3** Buildings shall be provided with braced wall lines or shear walls in accordance with the IBC or IRC.

**2.4** The Kwik Kote Base Coat shall be moist-cured in accordance with the manufacturer's installation instructions and the finish coat installation instructions, but no less than 48 hours.

**2.5** Where foam plastic insulation is used, a thermal barrier complying with IBC Section 2603.4 or IRC Section R316 is required.

**2.6** Where foam plastic insulation is used, installations shall comply with 2018, 2015 and 2009 IBC Section 2603.8 (2012 IBC Section 2603.9) or IRC Section R318.4, as applicable.

**2.7** Where applied over a wood-based sheathing, installation shall include a water resistive barrier conforming with IBC Section 2510.6 or IRC R703.7.3, as applicable, and under the IBC where installed in Climate Zone 1A, 2A or 3A a ventilated air space shall be provided between the stucco and water-resistive barrier.

**2.8** The Kwik-Kote Stucco System recognized in this report is produced in West Sacramento, CA.

#### 3.0 PRODUCT USE

**3.1** The Exterior Stucco Systems in this report comply with Chapter 14 and Chapter 25 of the IBC and Chapter 7 of the IRC as an alternative exterior wall covering. The Exterior Stucco Systems also comply with Chapter 8 of the IBC and Chapter 7 of the IRC as an interior wall covering. The Exterior Stucco Systems may be used as standard 3/4-inch (19.1 mm) thick first and second (scratch and brown) coats complying with ASTM C926 in accordance with Sections 2510.3 and 2512.1 of the IBC. When applied in accordance with Section 4.4.2 of this report, the Exterior Stucco Systems are a component of one-hour fire-resistance-rated exterior wall assemblies. The Exterior Stucco Systems may be applied on exterior walls of buildings of Type I, II, III or IV construction as described in Section 4.5 of this report. The manufacturer's published installation instructions shall be considered as part of this report. The manufacturer's installation instructions shall be strictly adhered to and be available at the jobsite during application.

#### 4.0 PRODUCT DESCRIPTION

**4.1** The Exterior Stucco Systems addressed in this report comply with Chapter 14 of the 2018, 2015, 2012 and 2009 IBC and Chapter 25 and IRC Chapter 7 as an alternative exterior wall covering. The Exterior Stucco System also complies with Chapter 8 of the IBC and Chapter 7 of the IRC as an interior wall covering. When applied in accordance with the specific sections of this report, the Exterior Stucco System is a component of one-hour fire-resistance-rated exterior wall assemblies and exterior walls of buildings on Type I, II, III or IV construction, installation shall be as described in Section 4.5 of this report.

*The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.*

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### 4.2 EXTERIOR STUCCO SYSTEM COMPONENTS

**4.2.1 Kwik-Kote Premix and Kwik Kote Premix Enhanced:** The Concentrates are factory prepared, dry-blended, fiber-reinforced, modified portland cement complying with ASTM C150. The Kwik-Kote Premix and Kwik-Kote Premix Enhanced are packaged in 80 lb. (36.29 kg) bags. Kwik-Kote complies as noncombustible material in accordance with Section 703.5 of the IBC. Bags shall be kept indoors or if stored outdoors, shall be adequately covered to keep dry, and shall be stored off the ground. Each bag of Kwik-Kote is mixed with two hundred pounds (approximately 16 #2 shovels) of sand and approximately 4 gallons of water. Each bag of Kwik-Kote Enhanced is mixed with 250 pounds (approximately 20 #2 shovels) of sand and approximately 5.6 gallons of water. The sand “shall be clean and free of deleterious amounts of loam, clay, silt, soluble salts and organic matter. Sampling and testing shall comply with ASTM C144 or C897. Aggregate shall be graded in accordance with ASTM C144, ASTM C897, or within the following limits” [AC11] as shown in Table 1 of this report. The AF concentrate falls under ASTM C595, C1157 and C926.

U.S. Standard Sieve	Weight Percent of Aggregate Retained ± 2 Percent	
	Min.	Max.
No. 4	—	0
No. 8	0	10
No. 16	10	40
No. 30	30	65
No. 50	70	90
No. 100	95	100

[Section 3.1.2 of ICC-ES AC11]

The Kwik Kote enhanced, sand and water shall be mixed for a minimum of five minutes.

**4.2.2 Kwik-Kote Sanded Premix:** Kwik-Kote’s Sanded Premix is a factory prepared, dry-blended, fiber-reinforced, modified Portland cement complying with ASTM C150. The Kwik-Kote Sanded Premix is packaged in 80 lb. (36.29 kg) bags. The plaster complies as noncombustible material in accordance with Section 703.5 of the IBC. Bags shall be kept indoors or if stored outdoors, shall be adequately covered to keep dry and be stored off the ground. Each bag is mixed with no more than one and one-third gallons of water. One gallon of clean potable water shall be added to the mixer before the addition of each bag of Kwik-Kote Sanded Premix. The additional one-third gallon or 40 fluid ounces per bag may be added as the product is mixing.

### 4.3 Foam Plastic Insulation

**4.3.1 General requirements:** All foam plastic insulation shall have a flame spread index and smoke-developed complying with Section 2603.5.4 of the IBC. Verification of compliance is beyond the scope of this report and may be determined by a separate research report, or as otherwise determined by the building official. Table 2 of this report provides information when foam plastic insulation is installed over sheathing or open studs.

Backing	Configuration
Open framing	1.0” to 1.5” thick with 3/8-inch high tongue and groove horizontal joints complying with Figure 2
	1” thick, 2’ by 8’ Dow StyroFoam Tongue and Groove XPS with 4-sided tongue and groove edges installed according to ICC ESR-2142.
Wood structural panel sheathing	0.5” thick minimum
Wood structural panel sheathing where foam plastic forms part of the weather- resistive barrier	1.0” thick minimum with 3/8-inch high tongue and groove horizontal joints complying with Figure 1
Solid sheathing	0.5” minimum thick, 1.0 pcf minimum density, with vertical drainage grooves <sup>1</sup> (¼” wide x 1/8” deep spaced 12” on-center) on the back face of the EPS

<sup>1</sup> As an alternative to the vertical drainage grooves, the EPS may be installed over Tyvek® Stuccowrap® or Tyvek® DrainWrap™ water-resistive barrier.

**4.3.2 Expanded Polystyrene (EPS) Foam Plastic Insulation Board:** (EPS) foam plastic insulation boards shall be Type II as set forth in ASTM C578, with a minimum nominal density of 1.5 pcf (24 kg/m<sup>3</sup>).

**4.3.3 Extruded Polystyrene (XPS) Foam Plastic Insulation Board:** Extruded polystyrene (XPS) foam plastic insulation boards shall be Type IV or Type V as set forth in ASTM C578, with a minimum nominal density of 1.5 pcf (24 kg/m<sup>3</sup>).

**4.3.4 Polyisocyanurate Foam Plastic Insulation Board:** Polyisocyanurate foam plastic insulation boards shall be Type II as set forth in ASTM C1289, with a minimum nominal density of 2.0 pcf (32 kg/m<sup>3</sup>).

**4.3.5 Lath:** Lath shall be regular or self-furring wire fabric lath or metal lath and “shall comply with the ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath)



(AC191)”. [AC11] Verification of compliance is beyond the scope of this report and may be determined by a separate research report, or as otherwise determined by the building official. “The lath shall be corrosion-resistant and shall be self-furring or furred” [AC11]. Wire fabric lath shall be minimum No. 20 gauge [0.035 inch (0.89 mm)], 1-inch (25.4 mm), galvanized steel, woven-wire fabric. “The furring distance of self-furring lath shall comply with IBC Section 2510.3, IRC 2018 and 2015 Section R703.7 and 2012 IRC Section R703.6, as applicable, or with the following requirements:

- Furred No. 20 gauge lath shall be used with the Kwik-Kote products up to ½-inch (12.7 mm) thick. For coating thicknesses greater than 1/2 inch (12.7 mm), furred No. 17 gauge wire fabric lath shall be used.
- Furring crimps shall be provided at maximum 6-inch (152 mm) intervals each way. The crimps shall fur the body of the lath a minimum of ¼-inch (3.2 mm) from the substrate after installation.

**Exception:** Unfurred lath is permitted over unbacked polystyrene boards.” [AC11]

**4.3.6 Gypsum Board:** Gypsum Boards shall be minimum ½-inch (12.7 mm) thick and shall comply with Section 2506 of the IBC or Sections R602.3 and R702 of the IRC, as applicable. Permitted types include Water-Resistant Gypsum Backing Board and Gypsum sheathing board complying with ASTM C1396; and Glass Mat Gypsum Substrate complying with ASTM C1177. In addition, Gypsum wallboard complying with ASTM C1396 is permitted on the interior side walls where specifically mentioned in this report. Verification of compliance is beyond the scope of this report and may be determined by a separate research report, as set forth in the IBC or IRC, or as otherwise determined by the building official.

**4.3.7 Cellulosic Fiber Insulating Board:** Cellulosic Fiber Insulating Board (fiberboard) shall comply with Section 2303.1.6 of the 2018 and 2015 IBC (Section 2303.1.5 of the 2012 and 2009 IBC) and be Type IV, Grade 1 or Grade 2 wall sheathing as set forth in ASTM C208, minimum ½-inch (12.7 mm) thick. Verification of compliance is beyond the scope of this report and may be determined by a separate research report, as set forth in the IBC or IRC, or as otherwise determined by the building official.

**4.3.8 Wood Structural Panel Sheathing:** Wood structural panel sheathing shall comply with Sections 2303.1.5 of the 2018 and 2015 IBC (2303.1.4 of the 2012 and 2009 IBC), 2304.6.1, and Table 2304.6.1 of the IBC or Section R602.3 and Table R602.3 (3) of the IRC. Wood Structural Panel Sheathing includes exterior grade Plywood complying with DOC PS-1 and Oriented strand board (OSB) Exposure 1 complying with DOC PS-2. Verification of compliance is

beyond the scope of this report and may be determined by a separate research report, as set forth in the IBC or IRC, or as otherwise determined by the building official.

**4.3.9 Caulking:** Caulking shall be acrylic latex complying with ASTM C834 or polysulfide, polyurethane, polyurethane modified, or silyl-terminated polyether elastomeric sealant complying with ASTM C920.

**4.3.10 Water-resistive Barrier:** “Weather-resistive barriers shall comply IBC with Sections 1404.2 and 2510.6, IRC Section R703.2” [AC11], or the ICC-ES Acceptance Criteria for Water-resistive Barriers (AC38). Verification of compliance is beyond the scope of this report and may be determined by a separate research report, as set forth in the IBC or IRC, or as otherwise determined by the building official.

**4.3.11 Over Wood-based Sheathing:** For installations over wood-based sheathing (Cellulosic Fiber Insulating Board or Wood Structural Panel Sheathing), the water-resistive barrier shall be in accordance with Section 2510.6 of the IBC or Section R703.6.3 of the IRC, as applicable. Alternatively, the water-resistive barrier may consist of one layer of polystyrene (EPS or XPS) foam plastic insulation board in accordance with Sections 4.3.1 through 4.3.4 of this report, applied over one layer of 60-minute Grade D building paper.

**4.3.12 Other Sheathing:** For installations without wood-based sheathing the water-resistive barrier shall be a minimum of one layer of water resistive barrier.

**4.3.13 Vapor Retarder:** Vapor retarders shall comply with Section 1405.3 of the IBC or Section R702.7 of the IRC (Section R601.3 of the 2009 IRC), as applicable. Verification of compliance is beyond the scope of this report and may be determined by a separate research report, as set forth in the IBC or IRC, or as otherwise determined by the building official.

**4.3.14 Flashing:** Flashing shall comply with Section 1404.4 of the 2018 IBC; Section 1405.4 of the 2015 and 2012 IBC; Section R703.4 of the 2018 and 2015 IRC and Section R703.8 of the 2012 and 2009 IRC, as applicable. Membrane flashing shall be self-adhering flexible rubberized asphalt and polyethylene 0.030 inch (0.76 mm) thick. Verification of compliance is beyond the scope of this report and may be determined as set forth in the IBC or IRC, or as otherwise determined by the building official.

**4.3.15 Foundation Weep Screed:** Weep Screeds shall comply with Section 2512.1.2 of the IBC or Section R703.7.2.1 of the 2018 and 2015 IRC; Section R703.6.2.1 of the 2012 and 2009 IRC, and ASTM C1063. Verification of compliance is beyond the scope of this report and may be determined as set forth in the IBC or IRC, or as otherwise determined by the building official.



## 4.4 Documented Values

**4.4.1 Wind Load:** The maximum allowable wind loads on the stucco system are set forth in Table 3 of this report. Fastening of backing to framing and lath to framing shall comply with the applicable codes of this report.

Wall type	Minimum specification	Backing	Maximum Framing spacing <sup>1</sup>	Maximum Load (psf)
Wood-frame <sup>2</sup>	SG = 0.50 (Douglas Fir)	Foam Plastic	24	28
		Gypsum	24	25
		Fiberboard or WSPS <sup>3</sup>	24	35
Steel	No. 20 gauge (0.0359 inch)	Foam Plastic or any rigid sheathing	24	35
Concrete and Concrete Masonry	-	Direct	-	Limited by wall capacity

SI conversions: 1 inch = 25.4 mm

<sup>1</sup>Supporting wall shall have a maximum deflection of 1/240 of the span and be designed to support the design load.

<sup>2</sup>Tables 4 and 5 of this report provide for installation over wood structural sheathing using alternative fastener spacing's.

<sup>3</sup>Wind pressures for WSPS shall not exceed those set forth in IBC Table 2304.6.1 or IRC Table R602.3 (3).

Wood Species	Specific Gravity	Staple Fastener - Gauge (inch) <sup>4</sup>					
		16 (0.0626)	15 (0.0731)	14 (0.0775)	13 (0.0875)	12 (0.0975)	10 (0.129)
Douglas Fir-Larch	0.50	6	6	6	6	6	6
Western Hemlock	0.47	6	6	6	6	6	6
Douglas Fir-South; Hem-Fir (North)	0.46	6	6	6	6	6	6
Hem-fir	0.43	5	6	6	6	6	6
Spruce-Pine-Fir	0.42	5	6	6	6	6	6
Western Woods	0.36	3	4	5	5	5	6

SI conversions: 1 inch = 25.4 mm

<sup>1</sup> Foam plastic insulation boards shall be installed over wood structural sheathing fastened to wood studs.

<sup>2</sup> Wood structural sheathing shall be attached to wood studs in accordance with the applicable code.

<sup>3</sup> Staple fasteners shall penetrate a minimum of 1-inch into wood framing; or minimum 13/32-inch-thick OSB wood structural sheathing and wood framing.

<sup>4</sup>Alternatively No. 11 gauge roofing nails with minimum 3/8-inch diameter heads may substitute for any staple gauge in this table.

Wood Species	Specific Gravity	Staple Fastener - Gauge (inch) <sup>4</sup>					
		16 (0.0626)	15 (0.0731)	14 (0.0775)	13 (0.0875)	12 (0.0975)	10 (0.129)
Western Hemlock	0.47	6	6	6	6	6	6
Douglas Fir-South; Hem-Fir (North)	0.46	6	6	6	6	6	6
Hem-fir	0.43	5	5	6	6	6	6
Spruce-Pine-Fir	0.42	5	5	6	6	6	6
Western Woods	0.36	3	4	4	5	5	6

SI conversions: 1 inch = 25.4 mm

<sup>1</sup> Foam plastic insulation boards shall be installed over wood structural sheathing fastened to wood studs.

<sup>2</sup> Wood structural sheathing shall be attached to wood studs in accordance with the applicable code.

<sup>3</sup> Staple fasteners shall penetrate a minimum of 1-inch into wood framing; or minimum 13/32-inch-thick OSB wood structural sheathing and wood framing.

<sup>4</sup> Alternatively No. 11 gauge roofing nails with minimum 3/8-inch diameter heads may substitute for any staple gauge in this table.

## 4.4.2 One-hour Fire-Resistant Wall Construction:

**4.4.2.1** The wall assembly described in Item No.1 in Table 6 of this report is rated for one-hour fire-resistance from both faces, and shall comply with GA File No. WP8105 referenced in The Gypsum Association Fire-resistance and Sound Control Design Manual (GA 600) and complying with IBC Table 721.1(2).

**4.4.2.2** The wall assemblies in Items No. 2 through No.5 in Table 6 of this report have been tested from both faces, for one-hour fire-resistance in accordance with ASTM E119, and comply with IBC Section 703.2.1.





**TABLE 6 - Fire-resistance-rated Walls**

Item	Material	Construction	Axial Loading (Allowable Stress Design)
1	Exterior Walls	<p>2-by-4 wood studs spaced a maximum 24-inches (610 mm) on center. Interior face has one layer of 5/8-inch (16 mm) thick Type X gypsum wallboard applied vertically with all joints backed by framing and attached with 6d x 1-7/8-inch (48 mm) long coated nails having 1/4 inch diameter heads at 7 inches (178 mm) on-center to studs, plates and blocking. Nail heads and Joints of wallboard shall be taped and treated with joint compound in accordance with IBC Section 2508.4, and either ASTM C840 or GA-216. Outside face has one layer of 5/8-inch (16 mm) thick or greater, 48-inch (1219 mm) wide Type X gypsum sheathing board shall be applied vertically with all joints backed by framing and attached with to wood studs using No. 11 gauge by 13/4-inch (44 mm) long galvanized roofing nails having 7/16-inch (11 mm) or 1/2-inch (12.7 mm) diameter heads spaced 4 inches (102 mm) on-center at edges and 7-inches (178 mm) on-center at intermediate studs and top and bottom plates. The water-resistive barrier, lath, and stucco shall be applied as described in Sections 4.1 and 4.3 of this report.</p>	<p>Lesser of:</p> <ol style="list-style-type: none"> <li>1. "For studs with a slenderness ratio, <math>l/d</math>, greater than 33, the design stress shall be reduced to 78 percent of allowable <math>F'_c</math> (IBC)"</li> <li>or</li> <li>2. "For studs with a slenderness ratio, <math>l/d</math>, not exceeding 33, the design stress shall be reduced to 78 percent of the adjusted stress <math>F'_c</math> calculated for studs having a slenderness ratio <math>l/d</math> of 33 (IBC)"</li> </ol>
2	Exterior Walls	<p>2x4 or 2x6 wood studs spaced a maximum 16 inches (406 mm) on-center. The interior face has one layer of 5/8-inch (15.9 mm) thick Type X gypsum wallboard with the long dimension applied horizontally with all joints backed by framing and attached with No. 13 gauge x 15/8-inch (41 mm) long gypsum wallboard nails having 19/64 inch (7.5 mm) diameter heads spaced 6-inches (152 mm) on-center to studs, plates and blocking. Nail heads and wallboard Joints shall be taped and treated with joint compound in accordance with IBC Section 2508.4 and either ASTM C840 or GA-216. Mineral wool batts, 3 1/2-inch or 5 1/2-inch (89 mm) thick, 15-inch (381 mm) wide, R-13, 1.72 pcf (28 kg/m<sup>3</sup>) density and with a vapor barrier on one face shall be placed between the studs and stapled to one face of the studs. One layer of 1/2-inch (12.7 mm) thick gypsum sheathing board is applied vertically or horizontally to the outside face of wood studs with all joints backed by framing and attached with No. 13 by 1-5/8-inch (41 mm) long gypsum wallboard nails having 19/64-inch (7.5 mm) diameter heads spaced 6-inches (152 mm) on-center to studs, plates and blocking. Nail heads and joints shall be taped and treated with joint compound in accordance with ASTM C840 or GA-216. The water- resistive barrier, galvanized wire fabric lath and the stucco shall be applied in accordance with Section 4.3.1 of this report.</p>	<p>Lesser of:</p> <ol style="list-style-type: none"> <li>1.1,100 pounds (4,893 N) per stud for 2x4 construction;</li> <li>2. 3,000 pounds (13,340 N) per stud for 2x6 construction;</li> <li>3. For 2x4 construction, a maximum of 54 percent of the load calculated in accordance with Sections and 3.7 of the NDS;</li> <li>4. For 2x6 construction, a maximum of 44.7 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS;</li> <li>5. "For studs with a slenderness ratio, <math>l/d</math>, greater than 33, the design stress shall be reduced to 78 percent of allowable <math>F'_c</math> (IBC)"</li> </ol>



			<p>or</p> <p>6. "For studs with a slenderness ratio, <math>le/d</math>, not exceeding 33, the design stress shall be reduced to 78 percent of the adjusted stress <math>F'_c</math> calculated for studs having a slenderness ratio <math>le/d</math> of 33 (IBC)"</p>
3	Exterior Walls	<p>2-by-4 or 2-by-6 wood studs spaced a maximum 24-inches (610 mm) on center. Interior face has one layer of 5/8-inch (15.9 mm) thick Type X gypsum wallboard be applied horizontally to the interior face of wood studs with joints backed by framing and solid blocking installed horizontally at the wall mid-height and attached with 1-5/8-inch (41 mm) long cupped-head gypsum wallboard nails having a 0.10 inch (2.5 mm) diameter shank and 0.30 inch (7.6 mm) diameter head spaced 8 inches (203 mm) on center to studs, plates and blocking. Nail heads and board joints shall be taped and treated with joint compound in accordance with IBC Section 2508.4 and either ASTM C840 or GA-216. 3 1/2-inch (89 mm) thick, R-11 Kraft-paper-faced fiberglass batt insulation, complying with Section 720 of the IBC or Section R302.10 of the IRC shall be placed between the studs. The outside face of the studs shall be covered with 1/2-inch (12.7 mm) thick gypsum sheathing or 7/16-inch (11 mm) thick wood structural panel sheathing attached in accordance with Section 4.3.1 or 4.3.3 of this report as applicable. Exterior sheathing shall have the horizontal joints offset 24-inches (610 mm) from the horizontal joints of the interior gypsum wallboard. The water-resistive barrier, lath, and stucco shall be applied as described in Sections 4.1 and 4.3 of this report.</p>	<p>Lesser of:</p> <ol style="list-style-type: none"> <li>1,100 pounds (4,893 N) per stud for 2x4 construction;</li> <li>3,000 pounds (13,340 N) per stud for 2x6 construction;</li> <li>A maximum of 44.7 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS;</li> <li>"For studs with a slenderness ratio, <math>le/d</math>, greater than 33, the design stress shall be reduced to 78 percent of allowable <math>F'_c</math> (IBC)"</li> </ol> <p>or</p> <p>5. "For studs with a slenderness ratio, <math>le/d</math>, not exceeding 33, the design stress shall be reduced to 78 percent of the adjusted stress <math>F'_c</math> calculated for studs having a slenderness ratio <math>le/d</math> of 33 (IBC)"</p>
4	Exterior Walls	<p>2-by-4 or 2-by-6 wood studs spaced a maximum 24-inches (610 mm) on center. Interior Face has one layer of 5/8-inch (15.9 mm) thick Type X gypsum wallboard applied with the long dimension vertically and fastened with No. 13, 1-5/8-inch (41 mm) long cupped-head gypsum wallboard nails having a 19/64-inch (7.5 mm) diameter head spaced 8-inches (203 mm) on-center to studs and plates. Nail heads and board Joints shall be taped and treated with joint compound in accordance with ASTM C840 or GA-216. 3 1/2-inch (89 mm) thick, R-11 Kraft-paper-faced fiberglass batt insulation complying with Section 720 of the IBC or Section R302.10 of the IRC shall be placed between the studs. The exterior face has 7/16 inch (11.1 mm) thick OSB attached in accordance with Section 4.3.3 of this report. A water-resistive barrier shall be installed over the sheathing. Foam plastic, lath and stucco shall be applied as described in Sections 4.1 and 4.3 of this report.</p>	<p>Lesser of:</p> <ol style="list-style-type: none"> <li>1,100 pounds (4,893 N) per stud for 2x4 construction;</li> <li>3,000 pounds (13,340 N) per stud for 2x6 construction;</li> <li>For 2x4 construction, a maximum of 47.5 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS;</li> <li>For 2x6 construction, a maximum of 44.7 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS;</li> </ol>



			<p>5. "For studs with a slenderness ratio, <math>le/d</math>, greater than 33, the design stress shall be reduced to 78 percent of allowable <math>F'_c</math> (IBC)"</p> <p>or</p> <p>6. "For studs with a slenderness ratio, <math>le/d</math>, not exceeding 33, the design stress shall be reduced to 78 percent of the adjusted stress <math>F'_c</math> calculated for studs having a slenderness ratio <math>le/d</math> of 33 (IBC)"</p>
5	Exterior Walls	<p>2-by-4 wood studs spaced a maximum 24-inches (610 mm) on-center. Interior face has one layer of 5/8-inch (15.9 mm) thick Type X gypsum wallboard applied vertically, and attached with No. 13, 1 5/8 - inch (41 mm) long cupped-head gypsum wallboard nails having a 19/64-inch (7.5 mm) diameter head spaced 8-inches (203 mm) on-center to studs and plates. Nail heads and board joints shall be taped and treated with joint compound in accordance with IBC Section 2508.4 and either ASTM C840 or GA-216. The spaces between studs shall be completely filled with 3 1/2 inch (89 mm) thick, R-11, kraft-paper-faced, fiberglass batt insulation. The insulation shall comply with IBC Section 720.1 and 720.2, or IRC Section R302.10.1. A water-resistive barrier shall be installed over the open studs. Foam plastic insulation, lath and stucco shall be applied over the water-resistive barrier as described in Sections 4.1, 4.2 and 4.3 of this report.</p>	<p>Lesser of:</p> <ol style="list-style-type: none"> <li>1,100 pounds (4,893 N) per stud for 2x4 construction;</li> <li>3,000 pounds (13,340 N) per stud for 2x6 construction;</li> <li>For 2x4 construction, a maximum of 47.5 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS;</li> </ol> <p>4. "For studs with a slenderness ratio, <math>le/d</math>, greater than 33, the design stress shall be reduced to 78 percent of allowable <math>F'_c</math> (IBC)"</p> <p>or</p> <p>5. "For studs with a slenderness ratio, <math>le/d</math>, not exceeding 33, the design stress shall be reduced to 78 percent of the adjusted stress <math>F'_c</math> calculated for studs having a slenderness ratio <math>le/d</math> of 33 (IBC)"</p>



## 4.5 Exterior Walls on Buildings of Type I, II, III or IV Construction

### 4.5.1 System 1 with Foam Plastic

**4.5.1.1 Permitted Heights:** 2018 IBC Section 1402.5 (2015 and 2012 IBC Section 1403.5) limit walls with the stucco system, foam plastic, and weather resistive barrier to 40 feet (12,192 mm) in height above grade plane. When constructed under the 2009 IBC Section 2603.5 permits walls with the stucco system, foam plastic insulation and weather resistive barrier to be of any height allowed in IBC Section 504. Concrete and Masonry walls with direct stucco application in accordance with Section 4.6.3 of this report are permitted to be of any height allowed in IBC Section 504.

**4.5.1.2 Wall Construction:** No. 20 gauge [0.0359 inch] 3<sup>5</sup>/<sub>8</sub>-inch-wide (92 mm) nonload-bearing steel framing spaced a maximum of 16 inches (406 mm) on-center. Inside face has one layer of 5/<sub>8</sub>-inch (15.9 mm) thick Type X gypsum wallboard applied vertically and attached with No. 8, 1<sup>1</sup>/<sub>4</sub>-inch (32 mm) long bugle-head screws spaced 8-inches (203 mm) on-center at board joints and 12 inches on-center in the field. Fasteners and joints of wallboard shall be taped and treated as set forth in Section 2508.4 of the IBC and either ASTM C840 or GA-216. Fireblocking in accordance with Section 718.2 of the IBC is required in the wall stud spaces at ceiling and floor levels and shall consist of minimum nominal density of 4 pcf (64 kg/m<sup>3</sup>) density Thermafiber mineral fiber insulation. Verification of compliance is beyond the scope of this report and may be determined by a separate research report, or as otherwise determined by the building official. Wall openings shall be framed with minimum 0.125 inch (3.2 mm) thick steel or tubular aluminum framing. The insulation shall be 4-inches (102 mm) thick, 6 to 8 inches (152 to 203 mm) wide and long enough to achieve a friction fit within the stud space. Outside face has one layer of 1/2-inch (12.7 mm) thick gypsum sheathing applied horizontally and attached with No. 8, 1<sup>1</sup>/<sub>4</sub>-inch (31.7 mm) long bugle-head screws spaced 8-inches (203 mm) on-center to all framing. A Type I, Grade A water-resistive barrier shall be installed over the gypsum sheathing, followed by 1-inch (25.4 mm) thick, Type II EPS placed horizontally with offset vertical joints. Woven-wire fabric lath shall be fastened to all framing using No. 8 by 2<sup>1</sup>/<sub>2</sub>-inch (63.5mm) long wafer-head screws spaced 8 inches (203 mm) on-center. The stucco shall be applied in accordance with Section 4.4 of this report.

**4.5.2 System 2 with DuPont Tyvek CommercialWrap – Style 1162B and DuPont Tyvek CommercialWrap D-Style 1083 Water-Resistive Barriers:** The Kwik-Kote Stucco System applied on exterior wall assemblies greater than 40 feet (12,192 mm) in height above grade plane may be used where the DuPont™ Tyvek® CommercialWrap® – Style 1162B and DuPont™ Tyvek® CommercialWrap® D-Style 1083 Water-Resistive Barriers recognized in ESR-2375 are the only combustible components in accordance with the 2018 IBC Section 1402.5, Exception 2 (2015 IBC Section 1403.5, Exception 2).

**4.5.2.2 Wall Construction:** No. 20 gauge (0.0359 inch) 3-5/8-inch-wide (92 mm) nonload-bearing steel framing spaced a maximum of 16 inches (406 mm) on-center. Inside face has one layer of 5/8-inch (15.9 mm) thick Type X gypsum wallboard applied vertically and attached with No. 8, 1<sup>1</sup>/<sub>4</sub>-inch (32 mm) long bugle-head screws spaced 8-inches (203 mm) on-center at board joints and 12 inches on-center in the field. Fasteners and joints of wallboard shall be taped and treated as set forth in Section 2508.4 of the IBC and either ASTM C840 or GA-216. Fireblocking in accordance with Section 718.2 of the IBC is required in the wall stud spaces at ceiling and floor levels and shall consist of minimum nominal density of 4 pcf (64 kg/m<sup>3</sup>) density Thermafiber mineral fiber insulation. Verification of compliance is beyond the scope of this report and may be determined by a separate research report, or as otherwise determined by the building official. Wall openings shall be framed with minimum 0.125 inch (3.2 mm) thick steel or tubular aluminum framing. The insulation shall be 4-inches (102 mm) thick, 6 to 8 inches (152 to 203 mm) wide and long enough to achieve a friction fit within the stud space. Outside face has one layer of 3/8-inch (12.7 mm) thick Type X gypsum sheathing applied horizontally and attached with No. 8, 1<sup>1</sup>/<sub>4</sub>-inch (31.7 mm) long bugle-head screws spaced 8-inches (203 mm) on-center to all framing. The DuPont Tyvek CommercialWrap – Style 1162B or DuPont Tyvek CommercialWrap D-Style 1083 Water-Resistive Barrier is then installed over the gypsum sheathing. Woven-wire fabric lath shall be fastened to all framing using No. 8 by 2<sup>1</sup>/<sub>2</sub>-inch (63.5mm) long wafer-head screws spaced 8 inches (203 mm) on-center. The stucco shall be applied in accordance with Section 4.4 of this report.

## 4.6 Installation

**4.6.1 General:** Installation shall comply with this report. Additional requirements not mentioned herein shall comply with the IBC or IRC, ASTM C926, ASTM C1063, and the published instructions of Kwik Kote Corp., as applicable. The Figures 2 to 7 in this report shall be referenced as needed.

**4.6.2 Applicators:** “Installation shall be by a plastering contractor approved, by Kwik Kote Corp., as being qualified to perform such installations. A list containing the names and addresses of approved contractors shall be maintained by Kwik Kote Corp., and shall be made available to the building official. An installation card with a format as shown in Figure 8 of this report shall be completed by the plastering contractor and presented to the code official at the completion of each project.” [AC11]

**4.6.3 Concrete or Masonry:** “Direct application of the exterior coating to concrete or masonry is permitted when this is done in accordance with ASTM C926 (IBC), or IRC Section R703.6.” No bituminous, water repellent coatings or other foreign matter shall exist on masonry surface. Masonry surfaces shall be dampened to reduce excessive suction. The concrete surfaces shall be cleaned of foreign matter using acid solutions, solvents or detergents. And then washed with clean water. Smooth concrete surfaces shall be roughened,





and an approved bonding agent applied to block, concrete or masonry surfaces.

**4.6.4 Lathing:** Lathing for wood or steel framed walls shall be in accordance with the following sequence:

**4.6.5 Weep Screed:** IBC or IRC and ASTM C1063.

**4.6.6 Water-Resistive Barrier:** IBC Section 1404.2 or IRC Section R703.2 or applicable research report.

**4.6.7 Casing Beads and Corner Beads:** ASTM C1063.

**4.6.8 Flashing:** IBC Section 1405.4 or IRC Section R703.8, and manufacturer's instructions.

**4.6.9 Foam Plastic Insulation:** Foam plastic insulation shall be in accordance with Section 4.3 of this report. The EPS or XPS foam plastic are placed horizontally over the water-resistive barrier beginning at wall base with tongued edges facing up. Vertical edges shall over stud framing and staggered to fall one or more studs away as the layers progress upwards. The boards are attached to wood framing using No. 11 gauge roofing nails or No. 16 gauge staples with  $\frac{7}{16}$  inch (11.1 mm) wide crowns complying with ASTM F1667 and penetrate no less than 1 inch (25.4 mm). Boards are attached to steel framing using No. 6 Type S screws and penetrate no less than  $\frac{1}{4}$  inch (6.3 mm). Fastener spacing is 6 inches (152 mm) or less.

**4.6.10 Metal Lath or wire fabric lath:** IBC Section 2510 to 2512 or IRC Section R703, ASTM C1063 and Section 4.3.5 of this report. Fastening shall penetrate through foam plastic insulation and sheathing into framing. The brown coat shall be hard floated to promote densification.

**4.6.11 Control or Expansion joints:** Control or expansion joints shall be as specified by the designer, builder or stucco manufacturer, in that order.

**4.7 Plastering:** ASTM C926. Base Coat shall be  $\frac{3}{8}$  to  $\frac{1}{2}$  inch (9.5 to 12.7 mm) thick without cold joints. Finish coats may be applied in accordance with the finish coat application instructions after base coat fully cures. The permitted air temperatures during application are 40°F to 110°F (4.4°C to 43°C).

**4.8 Unbacked:** Minimum 0.5 SG (Douglas Fir) wood framing or structural (load-bearing) steel framing with No. 20 gauge and greater thickness spaced 24 inches (610 mm) on center or less. The water resistive barrier is installed direct to framing. For Dow Styrofoam Tongue and Groove XPS, installation shall comply with Section 3 of this report and ICC ESR-2142. All foam plastic shall be covered by plaster or galvanized steel casing beads. Joints formed where the boards abut dissimilar materials such as at windows, door, and other penetrations shall be filled with caulk. Lathing and plastering shall comply with Sections 4.4.5 and 4.5 of this report.

**4.8.1 Rigid Backing:** Rigid backings include gypsum board, fiberboard, and wood structural panel sheathing. All backings shall be covered by plaster or galvanized steel casing beads. Joints formed where the backings abut dissimilar materials such as at windows, door, and other penetrations shall be filled with caulk. The weather-resistive barrier shall be applied over the backing. Lathing and plastering shall comply with Sections 4.4.5 and 4.5 of this report.

**4.8.2 Gypsum Board:** The boards shall be installed to minimum 0.5 SG (Douglas Fir) wood framing at 16 inch (406 mm) or less spacings or structural (load-bearing) steel framing with at No. 20 gauge and greater thickness at 24 inch (610 mm) or less spacings in accordance with IBC Section 2508.2 and ASTM C1280.

**4.8.3 Fiberboard:** The boards shall be installed to minimum 0.5 SG (Douglas Fir) wood framing at 16 inch (406 mm) or less spacings in accordance with IBC Section 2304.6 and 2304.10.1 of the 2018 and 2015 IBC (2304.9.1 of the 2012 and 2009 IBC) or IRC Table R602.3(1), as applicable.

**4.8.4 Wood Structural Panel Sheathing:** The OSB or plywood panels shall be installed to minimum 0.5 SG (Douglas Fir) wood framing at 24 inch (610 mm) or less spacings in accordance with IBC Sections 2304.6.1 and Table 2304.6.1 or IRC Section R602.3 and Table R602.3(3).

**4.9 Soffits:** Installation to soffits shall comply with ASTM C1063 as for ceilings, except wire fabric lath is not permitted. Fasteners shall penetrate into framing.

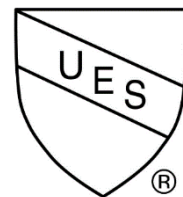
**4.10 Sills:** Installation to sills at windows or pop-outs may be done for walls where the sill is up to 6 inches wide. Wider sills require lumber or WSPS fastened to framing as set forth in IBC Section 2304.10.1 of the 2018 and 2015 IBC (2304.9.1 of the 2012 or 2009 IBC) or IRC Section R602.3. Lathing and plastering shall comply with Sections 4.4.5 and 4.5 of this report.

## 5.0 IDENTIFICATION

Product packaging shall include the company name or trademark, product name or model number, The IAPMO Uniform ES Mark of Conformity, the name of the inspection agency (when applicable) and the Evaluation Report Number (ER-536) to identify the products recognized in this report. Either Mark of Conformity may be used as shown below:

Alternatively, the product packaging may include a direct reference to the manufacturer's published installation instructions, and specifications available at:

- [www.incidetech.com/compliance](http://www.incidetech.com/compliance)





or  
**IAPMO UES ER-536**

## 6.0 SUBSTANTIATING DATA

**6.1** Data in accordance with the ICC-ES Acceptance Criteria for Cementitious Exterior Wall Coatings (AC11), dated January 2013 (editorially revised May 2018). Test results are from laboratories in compliance with ISO/IEC 17025.

**6.2** Manufacturer's descriptive literature and installation instructions.

**6.3** Reports of testing in accordance with ASTM E72, E136, G155, C926, C1063, C840, C1396, C1177, C834 and C920.

**6.4** Reports of testing in accordance with ASTM E119.

**6.5.** Data in accordance with IBC Sections 1402.5 and 2603.5.

## 7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research carried out by IAPMO Uniform Evaluation Service on Kwik Kote Co., Inc's Kwik-Kote Exterior Cementitious One-Coat Wall Coating System to assess its conformance to the codes and standards shown in Section 1.0 of this report and documents the product's certification. Products are manufactured at the location noted in Section 2.8 of this report under a quality control program with periodic inspections under the surveillance of IAPMO UES.

**Brian Gerber, P.E., S.E.**  
**Vice President, Technical Operations**  
**Uniform Evaluation Service**

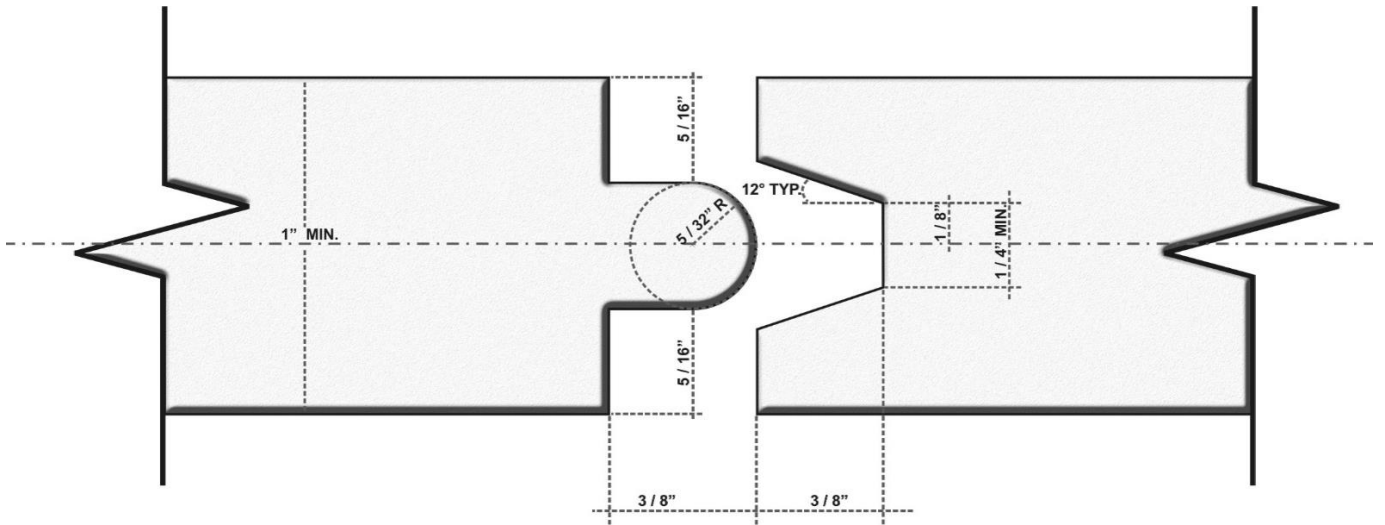
**Richard Beck, PE, CBO, MCP**  
**Vice President, Uniform Evaluation Service**

**GP Russ Chaney**  
**CEO, The IAPMO Group**

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)



**Figure 1 – Foam Plastic Tongue and Groove Horizontal Edge**



**Figure 2 – Stucco System with Wood-Based Panels and Foam Plastic**

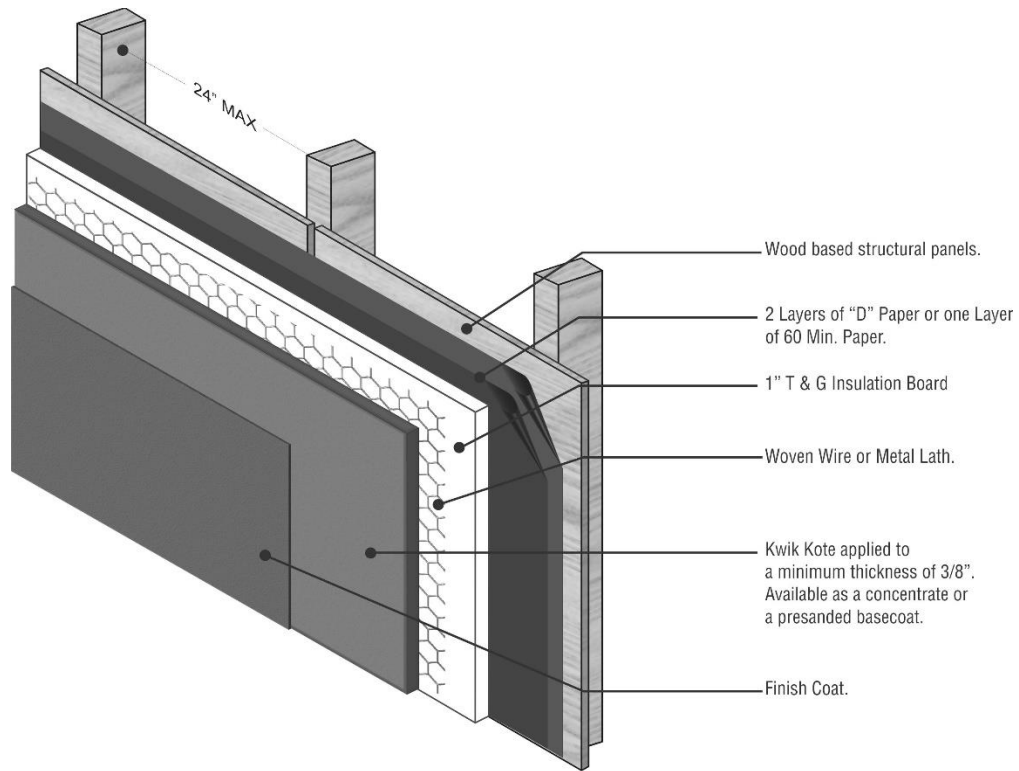


Figure 2. System with foam and wood sheathing

**Figure 3 – System with Unbacked Foam Plastic**

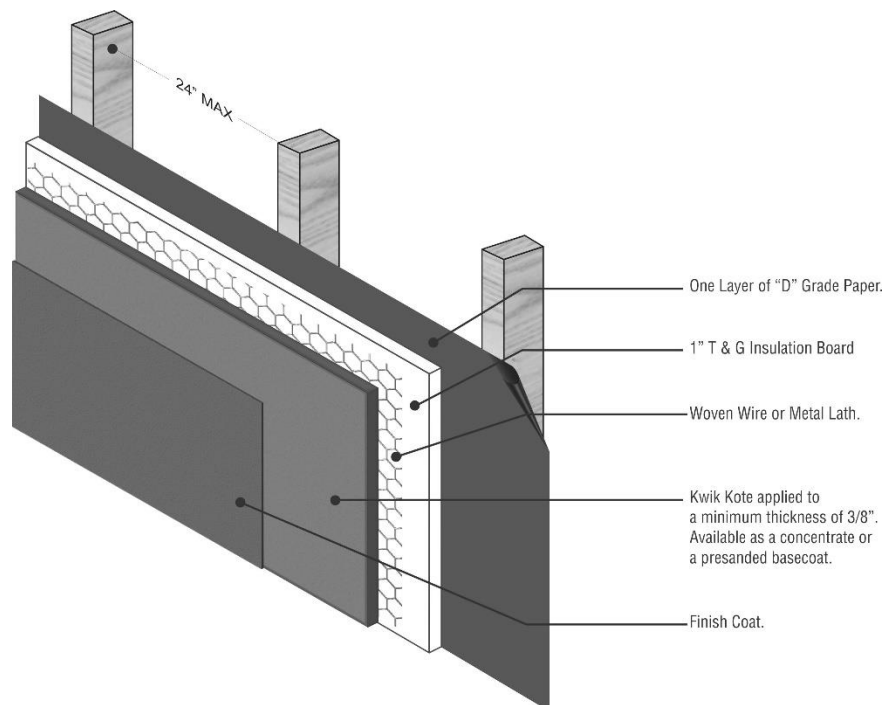


Figure 3. System with foam over open studs





# EVALUATION REPORT

Number:

**536**

Originally Issued: 08/21/2017

Revised: 04/17/2020

Valid Through: 08/31/2020



**Figure 4 – Interface at Window Openings  
Metal head flashing optional**

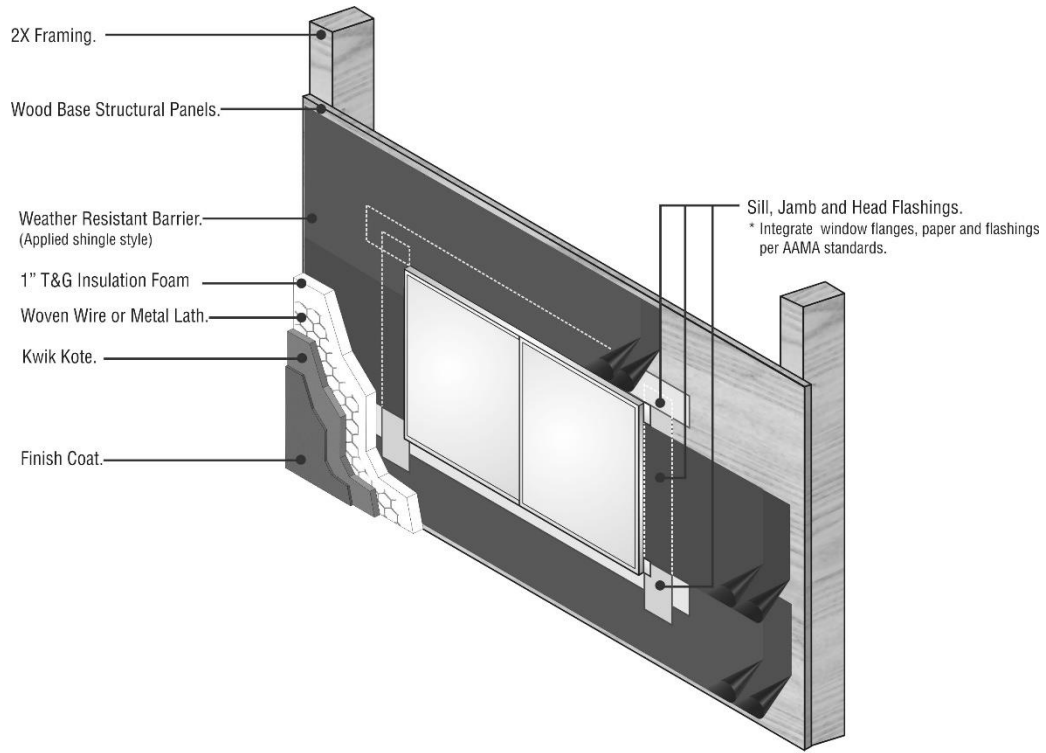


Figure 4. Typical paper and flashing detail at window  
\*Metal head flashing optional



Figure 5 – Plaster Termination at Window with Integral

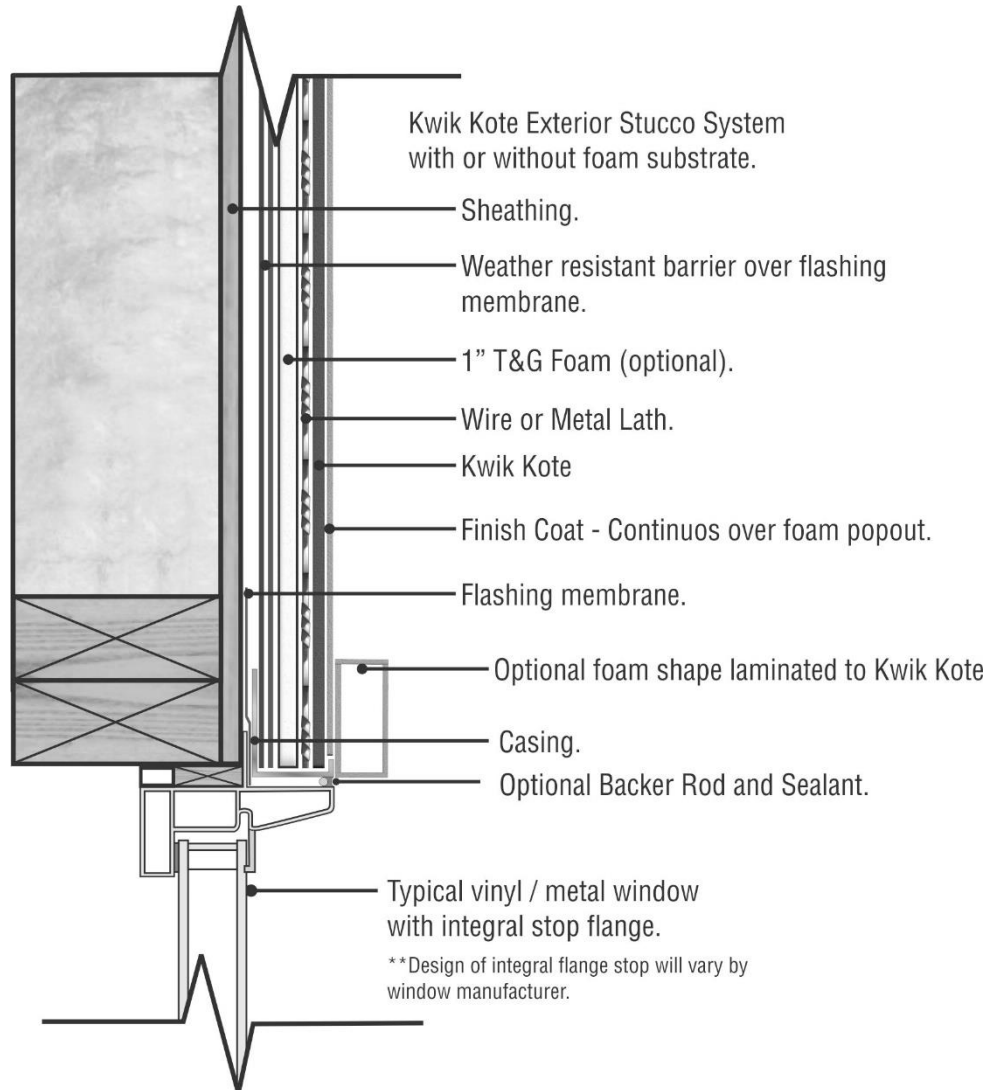
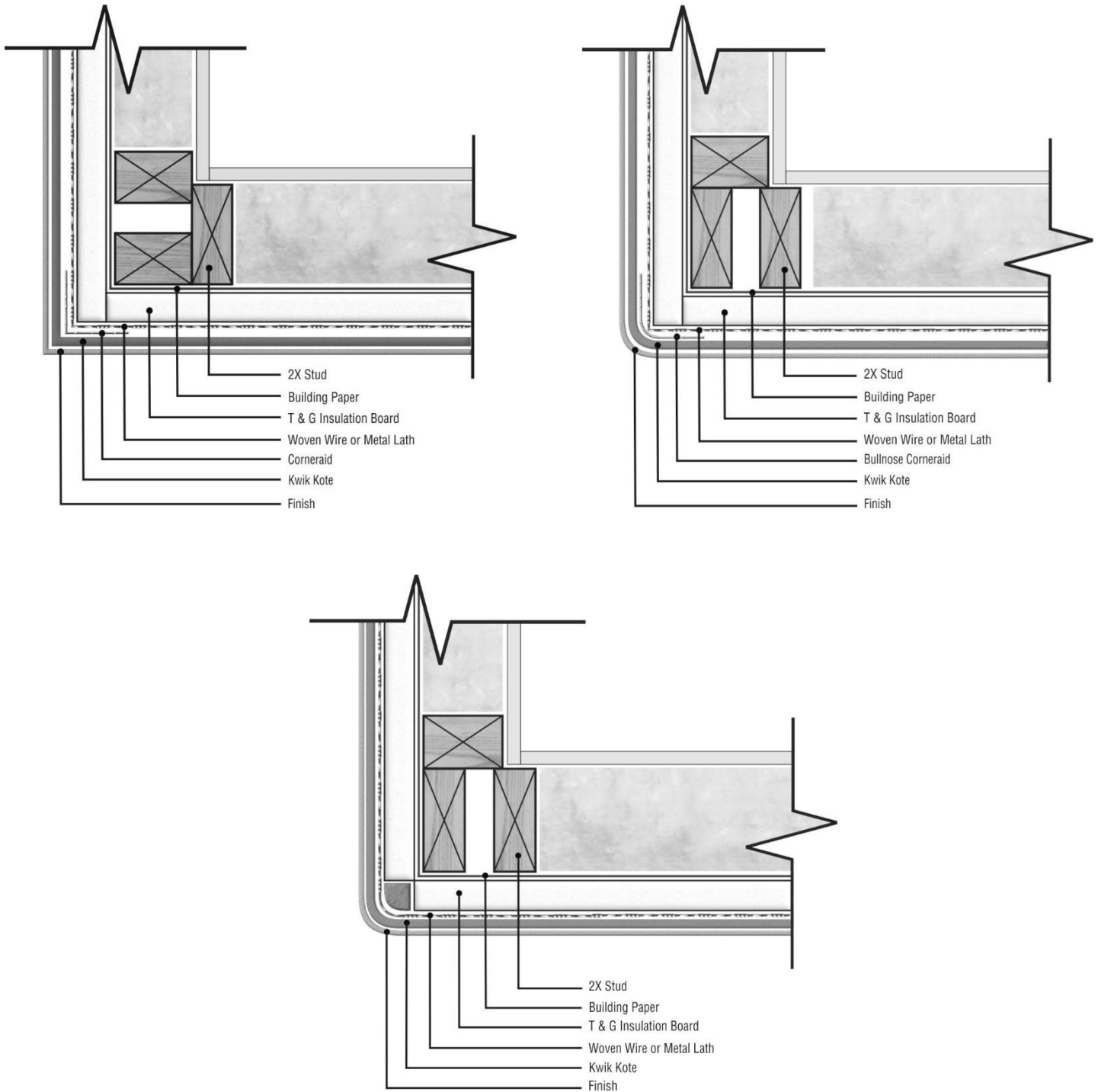




Figure 6 – Corner







**Figure 7 – Typical Installation Card**

	<p><b>INSTALLATION CARD</b>          Kwik Kote Exterior Stucco System          Kwik Kote Corporation</p>
<p><b>Job Address</b>          _____          _____          _____</p>	<p>IAPMO Evaluation Services          Evaluation Report # 536           Date of Job Completion: _____</p>
<p><b>Plastering Contractor</b></p>	
<p>Name: _____          Address: _____          Telephone No.: _____          Approved contractor number as issued by coating manufacturer: _____</p>	
<p>This is to certify that the exterior coating system on the building exterior at the above address has been installed in accordance with the evaluation report specified above and the manufacturer's instructions.</p>	
<p>_____          Signature of authorized representative or plastering contractor</p>	<p>_____          Date</p>
<p>This installation card must be presented to the building inspector after completion of work and before final inspection</p>	



## CALIFORNIA SUPPLEMENT

### **KWIK KOTE CO., INC.,**

525 Green Street

Martinez, CA 94553

510-741-8182

[www.kenvonweb.com](http://www.kenvonweb.com)

### **1-KOTE EXTERIOR CEMENTITIOUS ONE-COAT WALL COATING SYSTEM**

#### **CSI Sections:**

**09 24 00 Cement Plastering**

#### **1.0 RECOGNITION**

Kwik Kote Exterior Stucco System evaluated in IAPMO UES ER-536 is a satisfactory alternative to the following codes and regulations:

- 2019 and 2016 California Building Code (CBC)
- 2019 and 2016 California Residential Code (CRC)

#### **2.0 LIMITATIONS**

**2.1** The Exterior stucco system complies with Section 707A.3, item 1 of the CBC, and may be “used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area” [Section 701A.1 of the CBC] when the additional provisions of Section 707A of the CBC are satisfied.

**2.2** The Exterior stucco system complies with Section R337.7.3 item 1 of the CRC and may be “used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area” [Section R337.1.1 of the CRC] when the additional provisions of Section R337.7 of the CRC are satisfied.

**2.3** Protection against condensation shall be provided in accordance with Section R703.1.1 of the CRC.

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)