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VINYL SIDING AND INSULATED VINYL SIDING

CSI Section:
07 46 33 Plastic Siding

1.0 RECOGNITION

Royal Building Products Vinyl Siding and Insulated Vinyl Siding described in this report were evaluated for use as exterior covering materials as part of the weather-resistant exterior wall envelope.

The exterior veneer, wind resistance, surface burning, fire-resistance, combustibility, thermal resistance, and installation properties of the siding were evaluated for 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)
- 2017 and 2014 Florida Building Code, Building, and Florida Building Code, Residential (FBC, Building, and FBC, Residential) – (attached supplement)

The Vinyl Siding complies with the requirements for vinyl siding in IBC Section 1405.14 (2006 IBC Section 1405.13). The Insulated Vinyl Siding is recognized as an alternative product under Section 1405 of the IBC. The Vinyl Siding meets the requirements of IRC Section R703.11; the Insulated Vinyl Siding meets the requirements of 2015 IRC Section R703.13.

2.0 LIMITATIONS

Use of the Royal Building Products siding recognized in this report is subject to the following limitations:

2.1 The siding shall be installed in accordance with the applicable code, ASTM D4756, the manufacturer's published installation instructions, and this report. Where there is a conflict, the most restrictive requirements shall govern.

2.2 Flashing and a water-resistive barrier shall be installed as required by the applicable code.

3.0 PRODUCT USE

Royal Building Products Vinyl Siding and Insulated Vinyl Siding are for use in Type V Construction and buildings constructed in accordance with the IRC. The siding does not exhibit sustained flaming when tested in accordance with NFPA 268 and may be used at a fire separation distance of 5 feet (1.52 m) or less in Construction Types I, II, III and IV in accordance with Section 1406.2 of the IBC.

Royal Brand and Exterior Portfolio Brand vinyl and insulated vinyl siding was tested in accordance with ASTM E119 as part of a 1-hour fire-resistance-rated assembly and does not reduce the fire-resistance rating of code prescribed 1-hour fire-resistance-rated wall assemblies. The siding has a flame spread index of 25 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E84.

3.1 Design: Building design wind pressures shall be determined in accordance with IBC Section 1609 or IRC Table R301.2(2) using an effective wind area of 10 ft^2 (1 m^2) and modified for height and exposure in accordance with Table R301.2(3), as applicable. The allowable negative wind pressures for the Royal Brand Vinyl Siding, Exterior Portfolio Brand Vinyl Siding, and Royal Brand Insulated Vinyl Siding and Exterior Portfolio Brand Insulated Vinyl Siding are shown in Tables 1, 2, and 3 of this report, respectively. The allowable negative wind pressure for the model of siding selected shall exceed the components and cladding design wind pressures for the building on which it is used. The tabulated allowable pressures for the siding are applicable where the siding is applied over sheathing in accordance with IBC Section 2304.6 and substrates capable of independently resisting the full design wind pressures, both positive and negative, and fastened as described in the tables in this report.

The allowable pressures tabulated in this report do not apply to vinyl siding installed over foam plastic sheathing as described in 2015, 2012, and 2009 IRC Sections R703.11.2.1 and R703.11.2.2. For wind speeds not exceeding 115 mph under the 2015 IRC or 90 mph under the 2012 and 2009 IRC, Exposure B, the siding may be installed prescriptively using the fasteners described in Section 3.2.1.1 of this report. For wind speeds exceeding these prescriptive limits, the allowable wind pressures for the siding shall be reduced in accordance with 2015, 2012, or 2009 IRC Section R703.11.2.2, depending on the presence of $^1/_2$-inch-thick (12.7 mm) gypsum wallboard installed on the inside of the wall.

3.2 Installation: Installation of Royal Building Products Vinyl Siding and Insulated Vinyl Siding shall be in accordance with the manufacturer's published installation

instructions, the applicable code, and this report. The installation instructions and this report shall be available for quality control purposes during installation. The siding shall be installed in accordance with IBC Section 1405.14 (2006 IBC Section 1405.13) or IRC Section R703.11 and 2015 IRC Table R703.3(1) (2012, 2009, or 2006 IRC Table R703.4), as applicable, and ASTM D4756 using the fastening specifications in Tables 1, 2, or 3 of this report, and this section, as applicable.

The siding shall be installed over an approved water resistive barrier on walls flashed to prevent moisture intrusion and redirect it to the exterior. The siding joints shall overlap in accordance with the installation instructions to provide weather protection for the exterior walls. Protection against condensation in the wall assembly shall be provided in accordance with the applicable code. The siding shall be installed to allow movement of the siding panels due to temperature changes per ASTM D4756. The panels shall be fastened using corrosion-resistant fasteners at the maximum on-center spacing given in Tables 1, 2 or 3 of this report, as applicable, to minimum 0.42-specific-gravity wood substrate or equivalent.

3.2.1 Installation of unbacked vinyl siding over foam plastic sheathing:

3.2.1.1 Installation for wind speeds not exceeding 115 mph (2015 IRC) or 90 mph (2012 and 2009 IRC) Exposure B: Under the IRC where the wind speeds do not exceed 115 mph (2015 IRC) or 90 mph (2012 and 2009 IRC) Exposure B, Royal Building Products Vinyl Siding may be installed over foam plastic sheathing in accordance with 2015, 2012, or 2009 IRC Section R703.11.2.1. One-half-inch-thick (12.7 mm) gypsum wallboard shall be installed on the inside of the wall, and minimum 0.120-inch-shank-diameter (3.05 mm) nails with minimum 0.313-inch-diameter (7.95 mm) heads shall be spaced at maximum 16-inches on center (406 mm) and penetrate minimum $1^1/_4$ inches (31.8 mm) into wood substrate.

3.2.1.2 Installation for wind speeds exceeding 115 mph (2015 IRC) or 90 mph (2012 and 2009 IRC) Exposure B: For wind conditions exceeding 115 mph (2015 IRC) or 90 mph (2012 and 2009 IRC) Exposure B, Royal Building Products Vinyl Siding may be installed over foam plastic sheathing in accordance with 2015, 2012, or 2009 IRC Section R703.11.2.2. Fastening shall remain as specified in Tables 1 and 2 for the model of siding selected, however, the allowable wind pressures for the siding shall be reduced in accordance with 2015, 2012, or 2009 IRC Section R703.11.2.2, depending on the presence of $^1/_2$-inch-thick (12.7 mm) gypsum wallboard installed on the inside of the wall.

4.0 PRODUCT DESCRIPTION

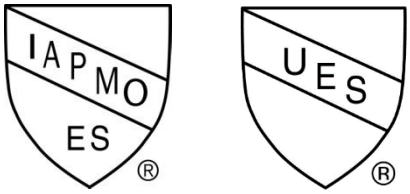
Royal Building Products Vinyl Siding is siding meeting ASTM D3679 as required by IBC Section 1404.9 and IRC Section R703.11. The Vinyl Siding is made of polyvinyl chloride (PVC).

Royal Building Products Insulated Vinyl Siding is foam backed siding meeting ASTM D7793 as required by 2015 IRC Section R703.13. The Vinyl Siding is made of polyvinyl chloride (PVC) with a foam plastic backer.

The siding is available in various profiles for both horizontal and vertical installation and for use as soffit. The siding Brands, Product Families and Styles are described in Tables 1, 2, and 3 of this report. Various accessories such as flashing, corner moldings, and window trim are available for use with the siding products.

5.0 IDENTIFICATION

A label is affixed to the packaging and includes the Royal Building Products name or trademark, the manufacturer's address, and the product model number. The packaging for the unbacked vinyl siding includes the words "Conforms to ASTM D3679"; the packaging for the insulated vinyl siding includes the words "Conforms to ASTM D7793". The label also includes the Evaluation Report Number (ER-432) and the IAPMO Uniform ES Mark of Conformity. Either Mark of Conformity may be used as shown below:



or

IAPMO UES ER-432

6.0 SUBSTANTIATING DATA

6.1 Reports of testing in accordance with ASTM D3679 and ASTM D7793 as required by ICC-ES Acceptance Criteria for Vinyl Siding (AC37), dated February 2014.

6.2 Reports of testing in accordance with Section 3.3 of ICC-ES AC37, dated February 2014 to determine an alternative pressure equalization factor for the insulated vinyl siding.

6.3 Reports of Surface Burning Characteristics testing in accordance with ASTM E84.

6.4 Reports of fire-resistance testing in accordance with ASTM E119.

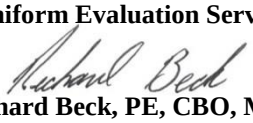
6.5 Reports of ignitability testing in accordance with NFPA 268.

6.6 The manufacturer's quality control documentation.

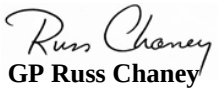
7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research carried out by IAPMO Uniform Evaluation Service on Royal Building Products Vinyl Siding and Insulated Vinyl Siding manufactured in Woodbridge, Ontario, Canada and Columbus, Ohio to assess conformance to the codes shown in Section 1.0 of this report, and serves as documentation of the product certification.

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 or email us at info@uniform-es.org

TABLE 1 – ROYAL BRAND VINYL SIDING

Product Family	Product Code	Product Style	Orientation	Exposure (in)	Thickness (in)	Installation Method[1]	Allowable Negative Wind Load (psf) IBC/IRC
Woodland	RWD45	Double 4.5" Traditional	Horizontal	9	0.046	Standard	102
	RWD45D	Double 4.5" Designer	Horizontal	9	0.046	Standard	111
	RWBB	Board and Batten	Vertical	7	0.046	Standard	83
Estate	ESTD4	Double 4" Traditional	Horizontal	8	0.044	Standard	77
	ESTD45D	Double 4.5" Designer	Horizontal	9	0.044	Standard	77
	ESTD5D	Double 5" Designer	Horizontal	10	0.044	Standard	56
	RCCOL6	Single 6" Beaded	Horizontal	6.5	0.044	Standard	69
Residential	RED4	Double 4" Traditional	Horizontal	8	0.042	Standard	65
	RED45	Double 4.5" Traditional	Horizontal	9	0.042	Standard	89
	RED45D	Double 4.5" Designer	Horizontal	9	0.042	Standard	89
	RET3D	Triple 3" Traditional	Horizontal	9	0.042	Standard	89
Crest	RCD4	Double 4" Traditional	Horizontal	8	0.040	Standard	81
	RCD4D	Double 4" Designer	Horizontal	8	0.040	Standard	81
	RCD45D	Double 4.5" Designer	Horizontal	9	0.040	Standard	74
	RCD5	Double 5" Traditional	Horizontal	10	0.040	Standard	65
	RCD5D2	Double 5" Designer	Horizontal	10	0.040	Standard	65
	RCD4V10	Vertical Double 4"	Vertical	8	0.040	Standard	56
	RC8	Single 8" Traditional	Horizontal	8	0.040	Standard	65
Soffit as Siding	RSD5VSBF	Vertical Double 5"	Vertical	10	0.042	Standard	40
Genesis (Crest)	GEND45	Double 4.5" Traditional	Horizontal	9	0.040	Standard	74
	GEND45D	Double 4.5" Designer	Horizontal	9	0.040	Standard	74
	GENT3	Triple 3" Traditional	Horizontal	9	0.040	Standard	74

S.I. Units: 1 inch = 25.4 mm, 1 psf = 47.9 Pa

1. For horizontal siding- Standard fastening shall be minimum 0.120-inch diameter, smooth-shank roofing nails with 0.438-inch diameter heads. The fasteners shall be minimum 1 1/2 inches in length and penetrate minimum 1 1/4 inches into wood substrate at maximum 16 inches on-center.
For vertical siding- Standard fastening shall be minimum 0.120-inch diameter, smooth-shank roofing nails with 0.438-inch diameter heads. The fasteners shall penetrate minimum 1/2-inch into wood substrate at maximum 12 inches on-center.

TABLE 2 - EXTERIOR PORTFOLIO BRAND VINYL SIDING

Product Family	Product Code	Product Style	Orientation	Exposure (in)	Thickness (in)	Installation Method[1, 2]	Allowable Negative Wind Load (psf) IBC/IRC
Premium Point 360	D4PPTM	Double 4" Traditional	Horizontal	8	0.046	Standard	126
			Horizontal			1.5" Ring Nail with Washer	246
	D45PPTM	Double 4.5" Dutchlap	Horizontal	9	0.046	Standard	124
			Horizontal			1.5" Ring Nail with Washer	159
	S55PPBB	Board and Batten	Vertical	7	0.046	Standard	83
Market Square	D4STD	Double 4" Traditional	Horizontal	8	0.044	Standard	74
			Horizontal			1.5" Ring Nail with Washer	117
	D45DLSTD	Double 4.5" Dutchlap	Horizontal	9	0.044	Standard	68
			Horizontal			1.5" Ring Nail with Washer	154
	D5STD	Double 5" Traditional	Horizontal	10	0.044	Standard	62
			Horizontal			1.5" Ring Nail with Washer	117
Carolia Sands	S65B	Single 6" Beaded	Horizontal	6.5	0.044	Standard	96
			Horizontal			1.5" Ring Nail with Washer	123
Parkview	D4CEDAR	Double 4" Traditional	Horizontal	8	0.042	Standard	68
			Horizontal			1.5" Ring Nail with Washer	77
	D4DCG	Double 4" Dutchlap	Horizontal	8	0.042	Standard	68
			Horizontal			1.5" Ring Nail with Washer	77
	D5CEDAR	Double 5" Traditional	Horizontal	10	0.042	Standard	68
			Horizontal			1.5" Ring Nail with Washer	77
	D5DCG	Double 5" Dutchlap	Horizontal	10	0.042	Standard	68
			Horizontal			1.5" Ring Nail with Washer	77
Elm Grove	D4EG	Double 4"	Horizontal	8	0.040	Standard	93
			Horizontal			7/16" x 1.5" Staple	111
	D4DLEG	Double 4" Dutchlap	Horizontal	8	0.040	Standard	93
			Horizontal			7/16" x 1.5" Staple	111
	D5DLEG	Double 5" Dutchlap	Horizontal	10	0.040	Standard	93
			Horizontal			7/16" x 1.5" Staple	111
American Dream Edge	D4	Double 4" Traditional	Horizontal	8	0.040	Standard	83
	D4DL	Double 4" Dutchlap	Horizontal	8	0.040	Standard	83
			Horizontal			1.5" Ring Nail with Washer	124
	D5DL	Double 5" Dutchlap	Horizontal	10	0.040	Standard	68
			Horizontal			1.5" Ring Nail with Washer	71
	D4DLRO	Double 4" Dutchlap	Horizontal	8	0.038	Standard	93
			Horizontal			7/16" x 1.5" Staple	111
	D5DLRO	Double 5" Dutchlap	Horizontal	10	0.038	Standard	93
			Horizontal			7/16" x 1.5" Staple	111
Soffit as Siding	T4SS	Vertical Triple 4"	Vertical	12	0.040	Standard	40
	PPSS	Vertical Triple 3 1/3"	Vertical	10	0.044	Standard	49
	D5SA	Double 5"	Vertical	10	0.038	Standard	56

S.I. Units: 1 inch = 25.4 mm, 1 psf = 47.9 Pa

1. For horizontal siding- Standard fastening shall be minimum 0.120-inch diameter, smooth-shank roofing nails with 0.438-inch diameter heads. The fasteners shall be minimum 1 1/2 inches in length and penetrate minimum 1 1/4 inches into wood substrate at maximum 16 inches on-center.
For vertical siding- Standard fastening shall be minimum 0.120-inch diameter, smooth-shank roofing nails with 0.438-inch diameter heads. The fasteners shall penetrate minimum 1/2-inch into wood substrate at maximum 12 inches on-center.
2. Where the installation method above is not listed as "Standard", minimum fastener depth and maximum fastener spacing shall remain as described in Standard fastening, but using the fastener specified in lieu of the smooth-shank roofing nails.
   a. The 1.5" Ring Nail with Washer is a 1 1/2" long, 1/8 inch shank diameter, 3/8" head diameter, ring-shank roofing nail with a 1/8 inch by 3/4 inch diameter fender washer.
   b. The 7/16" x 1.5" Staple is minimum 16 gauge staple.

TABLE 3 – INSULATED VINYL SIDING

Brand	Product Family	Product Code	Product Style	Orientation	Exposure (in)	Thickness (in)	Installation Method[1, 2]	Allowable Negative Wind Load (psf) IBC/IRC	R Value
Royal	Haven	HAVD6	Double 6" Traditional	Horizontal	12	1.125	Standard	67	2.21
		HAVD45D	Double 4.5" Designer	Horizontal	9	1.125	Standard	79	2.74
		HAVBB10	Double 10" Board & Batten	Vertical	20	1.125	Standard	35	2.08
		TMD7IP	Double 7" Traditional- Wire	Horizontal	14	1.125	Standard	56	2.42
				Horizontal			7/16" x 1.5" Staple	56	
Exterior Portfolio	CraneBoard	TMT6IP	Triple 6" Traditional-Molded	Horizontal	18	1.125	Standard	53	2.21
		TMT616I	Triple 6" Traditional-Wire Cut	Horizontal	18			44	
		TMD7IP	Double 7" Traditional- Molded	Horizontal	14	1.125	Standard	68	2.41
				Horizontal				68	
		D10BBIP	Double 10" Board & Batten	Vertical	20	1.125	Standard	35	2.14
		TMQ4IP	Quad 4" Traditional	Horizontal	16	1.125	Standard	56	2.57
				Horizontal			2" ring shank with washer	66	
		TMQ45IP	Quad 4.5" Dutchlap	Horizontal	18	1.125	Standard	56	2.74
				Horizontal			2" ring shank with washer	66	

S.I. Units: 1 inch = 25.4 mm, 1 psf = 47.9 Pa

1. For horizontal siding- Standard fastening shall be minimum 0.120-inch diameter, smooth-shank roofing nails with 0.438-inch diameter heads. The fasteners shall be
For vertical siding- Standard fastening shall be minimum 0.120-inch diameter, smooth-shank roofing nails with 0.438-inch diameter heads. The fasteners shall be
2. Where the installation method above is not listed as "Standard", minimum fastener depth and maximum fastener spacing shall remain as described in Standard
   a. The 2" Ring Nail with Washer is a 1/8 inch shank diameter, 3/8" head diameter, ring-shank roofing nail with a 1/8 inch
   b. The 7/16" x 1.5" Staple is minimum 16 gauge staple.

FLORIDA SUPPLEMENT

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VINYL SIDING AND INSULATED VINYL SIDING

CSI Section:
07 46 33 Plastic Siding

1.0 RECOGNITION

Royal Building Products Vinyl Siding and Insulated Vinyl Siding described in IAPMO UES Evaluation Report ER-432 are satisfactory alternatives to the cladding systems prescribed in the following codes:

- 2017 and 2014 Florida Building Code, Building (FBC, Building)
- 2017 and 2014 Florida Building Code, Residential (FBC, Residential)

2.0 LIMITATIONS

Use of the Royal Building Products siding recognized in this report supplement is subject to the following limitations:

2.1 Installation shall be in accordance with ER-432, the manufacturer's published installation instructions, and Section 1405 of the FBC, Building or Section R703 of the FBC, Residential, as applicable. Flashing shall comply with Section 1405.4 of the FBC, Building.

2.2 For buildings built in accordance with the FBC, Residential, design wind loads for cladding shall be determined in accordance with Tables R301.2(2) and R301.2(3), as required by Section R301.2.1 of the FBC, Residential; when required, conversion between V_{ult} (Ultimate Design Wind Speed) and V_{asd} (Nominal Design Wind Speed) shall be in accordance with R301.2.1.3 of the FBC, Residential. For buildings built in accordance with the FBC, Building, design wind loads for cladding shall be determined in accordance with Section 1609.1.1 of the FBC, Building; when required, conversion between V_{ult} and V_{asd} shall be in accordance with 1609.3.1 of the FBC, Building. Allowable design pressures determined in accordance with the FBC shall not exceed those in Tables 1, 2 or 3 of ER-432, as applicable.

2.3 Use of the Royal Building Products Vinyl Siding and Insulated Vinyl Siding for compliance with the high-velocity hurricane zone provisions of the FBC, Building and FBC, Residential has not been evaluated and is outside the scope of this evaluation report.

2.4 For products falling under Florida Rule 61G20-3.008, verification is required that the report holder's quality assurance program is audited by a quality assurance entity, approved by the Florida Building Commission (or the building official when the report holder does not possess an approval by the Commission), to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org