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The Subcommittee on Evaluation has reviewed the data submitted for compliance with the *Standard Building Code*®, the International One and Two Family Dwelling Code and the Florida Building Code 2001 - Building and submits to the Building Official or other authority having jurisdiction the following report. The Subcommittee on Evaluation, and ICC-ES and its staff are not responsible for any errors or omissions to any documents, calculations, drawings, specifications, tests or summaries prepared and submitted by the design professional or preparer of record that are listed in the Substantiating Data Section of this report. Portions of this report were previously included in SBCCI ES Evaluation Reports #94116, #94116A and #94116B.

REPORT NO.: 94116C

EXPIRES: See the current EVALUATION REPORT INDEX

CATEGORY: EXTERIOR FINISHES

SUBMITTED BY:

CEDAR VALLEY SHINGLE SYSTEMS
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1. PRODUCT TRADE NAME

Cedar Valley Shingle Siding and Mansard Panels:

- 1.1 Sidewall Shingle Panels
- 1.2 Decorator Shingle Panels
- 1.3 Mansard Panels

2. SCOPE OF EVALUATION

- 2.1 Wood Veneer
- 2.2 Wind Resistance - transverse loads

3. USES

Cedar Valley Shingle Siding and Mansard panels are used as exterior wall veneer on buildings of Type VI construction under the *Standard Building Code*®.

4. DESCRIPTION

4.1 Sidewall Shingle Panels

Panels are pre-assembled using vertical or mixed grain Western

Red Cedar tapered shingles secured to 5/16 inch (7.94 mm) Exposure 1 plywood sheathing over fiberglass felt. The shingles are attached using glue and galvanized staples. The panels are manufactured in three, four, or five courses with 7-1/8, 5.3, and 4.25 inch (180.98, 134.62, 107.95 mm) exposures. The panels are 96 inches by 21-3/8 inches (2438.40 mm by 542.93 mm) with a net surface coverage of 14.25 sq. ft. (1.28 m²). The panel ends have an overlapping joint which provides a minimum layer of fiberglass felt and shingle over all vertical sheathing seams. The shingles are supplied with either regular-sawn or rough-sawn surface and either a straight or staggered butt line.

4.2 Decorator Shingle Siding Panels

The panels are pre-assembled using vertical grain Western Red Cedar tapered shingles secured to 5/16 inch (7.94 mm) Exposure 1 Plywood sheathing over fiberglass felt. The shingles are secured with glue and galvanized staples. The panels are manufactured in three and four course panels with 7-1/8 and 5.3 inch (180.98, 134.62 mm) exposures. The panels are 96 inches by 21-3/8 inches (2438.40 mm by 542.93 mm) with a net surface coverage of 14.25 sq. ft. (1.28 m²). The panel ends have an overlapping joint which provides a minimum layer of fiberglass felt and shingle over all vertical sheathing seams. The shingles are supplied with either regular-sawn or rough-sawn surface and are supplied with butts in 10 different patterns; round, fish-scale, arrow, hexagon, octagon, diagonal, square, sawtooth, half-cove, full-cove.

4.3 Mansard Panels

The panels are pre-assembled using No. 1 Grade Western Red Cedar shakes secured to 5/16 inch (7.94 mm) Exposure 1 plywood sheathing over fiberglass felt. The shakes are secured with glue and galvanized staples. The panels are manufactured in a single course with an 14 inch (355.60 mm) exposure. The panels are 96 inches by 14 inches (2438.40 mm by 355.60 mm) with a net coverage of 9.33 sq.ft. (0.87 m²).

4.4 Materials

Fasteners: 8d common wire and 8d ring shank corrosion resistant nails.

Shingles and Shakes: Vertical and mixed grain shingles and No. 1 Grade Western Red Cedar tapered shakes or Barn Shakes.

Plywood: Exposure 1, CDX glue plywood, 5/16 (7.94 mm) inch thick.

Staples: No. 18 gauge 1/2 inch (12.70 mm) long, 1/4 inch (6.35 mm) crown galvanized steel staples and stainless steel staples.

Asphalt Paper: Asphalt-impregnated fiber-glass sheet, 30/30/30.

Construction Glue: APA specification AFG01, exterior grade.

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Corners: Flush mounting and add-on pre-assembled corner units are available to match panel texture and exposure.

4.5 Quality Assurance

The shingles and shakes are inspected and graded and quality assurance for the panels is provided by the **California Lumber Inspection Service**.

5. INSTALLATION

5.1 General

Cedar Valley Shingle Siding and Mansard Panels are installed in accordance with the manufacturer's published installation instructions and this report.

Studs or mansard rafters shall not exceed 24 inches (609.60 mm) on center. A weather resistive barrier complying with 2303.3 of the *Standard Building Code* shall be installed over the studs. All panel vertical joints shall be positioned over framing members. Stud walls must be braced in accordance with 2308.2 of the *Standard Building Code*. All window, door, or other openings shall be flashed in accordance with the Code. Flashing shall be provided at intersections of different materials and all points subject to the entrance of water. The panels shall be installed so as to maintain a minimum 6 inches (152.40 mm) of clearance between the panels and the earth on the exterior of the building. Flush cut joints shall be sealed with caulk.

The manufacturer's published installation instructions and this report shall be strictly adhered to and a copy of these instructions shall be available at all times on the job site during installation.

The instructions within this report govern if there are any conflicts between the manufacturer's instructions and this report.

5.2 Wind Resistant Assemblies - Transverse Wind Loads

5.2.1 Sidewall Shingle and Decorator Shingle Siding Panels, Maximum Allowable Wind Load 20 psf: Panels are nailed into each framing member 3/4 inches (19.05 mm) from the butt of the shingle with 8d corrosion resistant nails. The nails shall penetrate studs a minimum of 1/2 inch (12.7 mm). Panels are attached to wood studs, minimum 2 x4 and G = 0.36, spaced a maximum of 24 inches on center.

5.2.2 Sidewall Shingle and Decorator Shingle Siding Panels, Maximum Allowable Wind Load 80 psf: Panels are nailed with 8d ring shank (maze) galvanized nails, shingle to stud (0.102 inch shank diameter, 0.238 inch head diameter, 2-1/2 inches long). Nails are spaced 6 inches on center along studs and 8 inches on center along the sill and top plates. Where shingle strips overlap, one 8d nail is installed 1 inch from the top of the overlapped section and one nail is installed 1 inch from the bottom of the overlapping section. Stud framing is minimum 2 x 4, Western Woods G = 0.36, S-Dry, Stud Grade, spaced a maximum of 16 inches on center.

5.2.3 Mansard Panels, Maximum Allowable Wind Load 30 psf: Panels are nails with 2- maze 8d ring shank siding nails per stud. The panels are also fastened to top and bottom plates using 8d ring shank siding nails spaced 8 inches on center. Stud framing is minimum 2 x 4, Western Woods G = 0.36, S-Dry, Stud Grade, spaced a maximum of 16 inches on center.

5.2.4 Multi and Single-Course Panels Installed on wood Studs spaced 16 Inches On Center, Table 1: Panels are nailed top and bottom on each stud using either exposed or blind nailing. In blind nailing the lower row of nails is installed at an upward 45 degree angle under the lower end of the second shingle course in a manner that allows them to not be visible after installation of all shingle panels. Table 1 is based on ASCE 7-98 using three second gust wind velocities to convert to fastest mile use the table shown below:

EQUIVALENT BASIC WIND SPEEDS											
3 Sec. Gust	85	90	100	105	110	120	125	130	140	145	150
Fastest Mile	70	75	80	85	90	100	105	110	120	125	130

**TABLE 1
ALLOWABLE WIND SPEED MPH
ASCE 7-98 3 SECOND GUST**

PANEL TYPE	FASTENERS AND FRAMING	ALLOWABLE PRESSURE (PSF)	END ZONE AREA (SQ FT)	MAXIMUM WINDSPEED (MPH)		
				HEIGHT (FT)	EXP B	EXP C
Multi-Course Panels	Exposed Nailing, Top and Bottom of Panel to Each Stud Stormguard S-227A, 13 Ga, 2-1/4 inch long 7/32 inch heads, 2X4 Doug. Fir-L, S-Dry Stud Grade spaced 16 inches on center	45.7	20	15	142.5	129.3
				20	142.5	125.6
				25	142.5	122.9
				30	142.5	120.4
				35	139.5	118.6
				40	136.7	116.9
Multi-course Panels	Exposed Nailing, Top and Bottom of Panel to Each Stud Stormguard S-227A, 13 Ga, 2-1/4 inch long 7/32 inch heads, 2X4 Doug. Fir-L, S-Dry Stud Grade spaced 16 inches on center	45.7	10	15	137.9	125.1
				20	137.9	121.6
				25	137.9	119.0
				30	137.9	116.5
				35	135.0	114.8
				40	132.3	113.1
Multi-Course Panels	Blind Nailing, Top and Bottom of Panel to Each Stud Stormguard S-227A, 13 Ga, 2-1/4 inch long 7/32 inch heads, 2X4 Doug. Fir-L, S-Dry Stud Grade spaced 16 inches on center	41.6	20	15	135.8	123.3
				20	135.8	119.8
				25	135.8	117.2
				30	135.8	114.8
				35	133.0	113.1
				40	130.4	111.4
Multi-Course Panels	Blind Nailing, Top and Bottom of Panel to Each Stud Stormguard S-227A, 13 Ga, 2-1/4 inch long 7/32 inch heads, 2X4 Doug. Fir-L, S-Dry Stud Grade spaced 16 inches on center	41.6	10	15	131.5	119.3
				20	131.5	115.9
				25	131.5	113.5
				30	131.5	111.1
				35	128.7	109.5
				40	126.2	107.9
Single-Course Panels	Exposed Nailing, Top and Bottom of Panel to Each Stud Stormguard S-227A, 13 Ga, 2-1/4 inch long 7/32 inch heads, 2X4 Doug. Fir-L, S-Dry Stud Grade spaced 16 inches on center	83.2	20	15	192.1	174.3
				20	192.1	169.4
				25	192.1	165.8
				30	192.1	162.4
				35	188.1	159.9
				40	184.4	157.6
Single-Course Panels	Exposed Nailing, Top and Bottom of Panel to Each Stud Stormguard S-227A, 13 Ga, 2-1/4 inch long 7/32 inch heads, 2X4 Doug. Fir-L, S-Dry Stud Grade spaced 16 inches on center	83.2	10	15	185.9	168.7
				20	185.9	164.0
				25	185.9	160.5
				30	185.9	157.1
				35	182.1	154.8
				40	178.4	152.5
Single-Course Panels	Blind Nailing, Top and Bottom of Panel to Each Stud Stormguard S-227A, 13 Ga, 2-1/4 inch long w/7/32 inch heads, 2X4 Doug. Fir-L, S-Dry Stud Grade spaced 16 inches on center	87.3	20	15	196.9	178.6
				20	196.9	173.6
				25	196.9	169.9
				30	196.9	166.4
				35	192.8	163.9
				40	188.9	161.5
Single-Course Panels	Blind Nailing, Top and Bottom of Panel to Each Stud Stormguard S-227A, 13 Ga, 2-1/4 inch long w/7/32 inch heads, 2X4 Doug. Fir-L, S-Dry Stud Grade spaced 16 inches on center	87.3	10	15	190.5	172.9
				20	190.5	168.0
				25	190.5	164.4
				30	190.5	161.0
				35	186.6	158.6
				40	182.8	156.3

6. SUBSTANTIATING DATA

- 6.1 Manufacturer's descriptive literature, specifications, and installation instructions.
- 6.2 Test report on transverse wind load, impact load, and concentrated load testing under ASTM E 72, Ramtech Laboratories, Inc., Laboratory Number 6861-83, February 8, 1984, Ronald A. Macey.
- 6.3 Test report on static pressure transverse load test under ASTM E 330, Construction Research Laboratory, Inc., Test No. 4323, May 9, 1985, A. A. Sakhnovsky.
- 6.4 Engineering analysis of transverse wind load tests, Inspection Concepts, April 6, 1994, and February 25, 1999, signed and sealed by Ronald I. Ogawa, P.E.
- 6.5 Test reports on wind driven rain, dynamic water infiltration, and static pressure resistance, Construction Research Laboratory, Inc., Test Nos. 2736A and 2736B, October 13, 1978; Test No. 2736E, September 13, 1978; Test No. 2030, November 11, 1972; signed by A.A. Sakhnovsky and Richard Sembello.
- 6.6 Quality Control Manual, Cedar Valley Multi Course Siding and Mansard Panel Wall Systems, prepared by Cedar Valley Shingle Systems, July, 1998, Revision 0, signed by Scott T. Marshall Cedar Valley Shingle Systems. Third party inspection by California Lumber Inspection Service, signed by Lorin Edlund, 6/2/99.
- 6.7 Test report on wind loads under ASTM E 330, Ramtech Laboratories, Inc., Lab No. 10286-95/1334, March 1995, signed by Steve Berggren, David R. Macey, Ronald A. Macey, P.E., and signed and sealed by Ronald I. Ogawa, P.E.
- 6.8 Test report on transverse wind load under ASTM E 330, Celotex Corporation Testing Services, MTS Job No. 520252, April 20, 1999, signed by Scott T. Ryan and W. A. Jackson.
- 6.9 Test reports, transverse wind load testing under ASTM E 330, Cerny & Ivey Engineers, Inc., signed by Phillip B. Plyler and signed and sealed by Robert N. Kenney, P.E.:
- 6.9.1 Report 22270-1, October 8, 2002, Multi-Course Panels with Exposed Fasteners.
- 6.9.2 Report 22270-2, October 8, 2002, Multi-course Panels with Blind Fasteners.
- 6.9.3 Report 22270-3, October 8, 2002, Hatteras Single-Course with Exposed Fasteners.
- 6.9.4 Report 22270-4, October 8, 2002, Hatteras Single Course with Blind Fasteners.
- 6.10 Test report, water penetration under ASTM E 331, Cerny & Ivey Engineers, Inc., Report 22270-5, November 1, 2002, signed by Phillip B. Plyler and signed and sealed by Robert N. Kenney, P.E.
- 6.11 Engineering calculations, allowable wind speed determined from load testing, Cerny & Ivey Engineers, Inc., signed and sealed by Robert N. Kenney, P.E., 11-27-02.

7. CODE REFERENCES

Standard Building Code© - 1999 Edition

Section 103.7	Alternate Materials and Methods
Section 1403.1	Veneered Walls - General
Section 1403.6	Wood - Veneer
Section 1606	Wind Loads
Chapter 17	Structural Tests and Inspections
Section 2303.3	Moisture Protection - Wood
Section 2308.2	Bracing of Exterior Stud Walls

International One and Two Family Dwelling Code -
1998 Edition

Section 108	Alternate Materials and Systems
Section 301	Design Criteria
Section 602.10	Wall Bracing
Section 703	Exterior Covering
Section 703.2	Weather Resistant Sheathing Paper
Table 703.4	Weather Resistant Siding Attachment and Minimum Thickness

Florida Building Code 2001 - Building

Section 103.7	Alternate Materials and Methods
Section 1403.1	Veneered Walls - General
Section 1403.6	Wood - Veneer
Section 1606	Wind Loads
Chapter 17	Structural Test and Inspections
Section 2303.3	Moisture Protection - Wood
Section 2308.2	Bracing of Exterior Stud Walls

8. COMMITTEE FINDINGS

The Subcommittee on Evaluation in review of the data submitted finds that, in their opinion, the Cedar Valley Shingle Siding and Mansard Panels as described in this report conform with or are suitable alternates to that specified in the *Standard Building Code*©, the International One and Two Family Dwelling Code, and the Florida Building Code 2001 - Building or Supplements thereto.

9. LIMITATIONS

- 9.1 This Legacy Evaluation Report and the installation instructions, when required by the code official, shall be submitted at the time of permit application.
- 9.2 All materials shall be installed and finished according to this report and the manufacturer's application instructions.
- 9.3 The panels shall only be installed on buildings of Type VI construction under the *Standard Building Code*©.
- 9.4 The panels shall not be used to resist shear or gravity loads. The panels shall not be taken to add to the structural strength of any wall system.
- 9.5 The panels shall not be used as exterior stud wall bracing. Wall bracing must be provided in accordance with Section 2308.2 of the *Standard Building Code*©.
- 9.6 The panels may be installed on noncombustible unprotected exterior walls under the following conditions:
- Shall face a street or permanently open space of 30 feet (9 m) or more, and
 - The panels are limited to maximum two stories in height, measured from grade, and
 - The panels are attached to or furred from a noncombustible backing of the fire resistance required by the *Code*.
- 9.7 The panels may be applied to the exterior of combustible, fire-resistive walls with a horizontal separation of greater than 5 feet (1.5 m), when approved by the local building official.
- 9.8 The design transverse wind load pressures determined under Section 1606 of the *Standard Building Code*© shall not exceed the allowable capacities shown for the assemblies listed in 5.2 of this report.

- 9.9 The panels installed as mansards shall not be installed on slopes less than 60° from the horizontal. Water from the main roof shall not flow over the mansard.
- 9.10 The panels have not been evaluated for use in High Velocity Hurricane Zones (Broward and Dade Counties) as covered in the Florida Building Code 2001 - Building.

10. IDENTIFICATION

Each package of Cedar Valley Shingle Siding and Mansard Panels covered by this report shall be labeled with the manufacturer's name and/or trademark, the SBCCI Public Safety Testing and Evaluation Services Inc. Seal or initials (SBCCI PST & ESI), and the number of this report for field identification.

11. PERIOD OF ISSUANCE

SEE THE CURRENT EVALUATION REPORT INDEX FOR STATUS OF THIS LEGACY EVALUATION REPORT.

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