

PRODUCT EVALUATION REPORT	
Project No.: ACE-2024-124	Report No.: ACE-PER-1156, Rev. 0

Product Description: SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System

Product Manufacturer: Centria, 700 State Highway 121 Bypass, Suite 200, Lewisville, TX 75067

Compliance Method: Product Approval Rule 61G20-3.005(1)(d) – Product Evaluation Report by a Licensed Professional Engineer

Product Category/Sub-Category: Structural Components/Roof Deck

SCOPE: Evaluate CENTRIA’s SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System for conformance to the 8th Edition (2023) Florida Building Code excluding the High Velocity Hurricane Zone (HVHZ).

DESCRIPTION OF PRODUCT – INSTALLATION REQUIREMENTS:

See Reference 1 for a description of the product, its installation and other pertinent data related to its approved use.

CODE CONFORMANCE:

The 8th Edition (2023) Florida Building Code (FBC) requirements specific to this product have been met by testing (Reference 2) and engineering evaluation (Reference 3.a) and depicted on the manufacturer’s installation drawings (Reference 1) are the following.

- 1504.3.2 Metal panel roof system
 - Tested to ASTM E1592
- 1507.4.3 Metal Roof Panels - Material Standards
 - Galvanized steel, ASTM A653, 0.013-inch minimum thickness, G-90 zinc-coated.
- 1507.4.4 Attachment
 - Per Manufacturer’s Installations Requirements
 - See Reference 1
- Table 1604.3 Deflection Limits
 - Roof/Not Supporting Ceiling, deflection for wind loading limited to L/180.
- 1609 Wind Loads
- 2210.1 Cold-Formed Steel, General

Testing (Reference 2) is based on ASTM E1592 per the requirements of the 8th Edition (2023) FBC and AISI S100. Testing determines the Negative (Uplift) Pressure Loading in PSF. The minimum safety factor against failure used to determine the allowable wind pressure loading is 1.65.

The engineering evaluation (Reference 3.a) is based on AISI S100-07/S2-10, North American Specification for the Design of Cold-formed Steel Structural Members. The engineering evaluation determines Positive (Downwards Acting) Pressure Loading in PSF. Safety factors are as prescribed in AISI S100-07/S2-10. Deflection limitation based on L/180 which meets the L/180 required by the building code.

Testing and engineering evaluation results are summarized in tables in Appendix 2 of this report.

Appendix 1 summarizes the SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System material parameters and how to use the testing/engineering-based Wind Pressure Loading results in Appendix 2.

See Reference 3.b for Equivalency Evaluation in accordance with the 8th Edition (2023) FBC and FRC requirements for AISI S100-07/S2-10 as compared to AISI S100-16(2020) w/S2-20 and AISI S100-16, S1-18 required by the 8th Edition (2023) FBC.

LIMITATIONS AND CONDITIONS OF USE:

This product evaluation report contains or refers to specifications, technical details and installation details and/or methods that pertain to the proper use and/or installation of the product specified herein. Specific limitations and conditions of its use, including but not limited to the following, are contained in Reference 1 and are the subject of Product Approval in accordance with the State of Florida Product Approval Rule 61G20-3.

- Design Pressure Rating (psf)
- Installation substrate requirements.
- Installation anchor requirements.
- Installation restrictions.
- Product description.
- Product components.

TESTING STANDARDS: Testing standards used in Reference 2 include the following.

Testing standards used in Reference 2 include the following. See Reference 3.b for Equivalency Evaluation in accordance with the 8th Edition (2023) FBC and FRC requirements.

- 1991 Army Corps of Engineers *Standard Test and Methods for Structural Performance of SSMRS By Uniform Static Air Pressure Differences*
- ASTM E1592-95 Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
- ASTM E1592-94 Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference

REFERENCES & SUPPORTING DOCUMENTS:

- 1) Manufacturer's Installation Instructions:
 - a) SDP-175 Standing Seam Metal Roof System, Signed & Sealed by Robert J. Amoruso, P.E.
 - b) SDP-200 Standing Seam Metal Roof System, Signed & Sealed by Robert J. Amoruso, P.E.
 - c) SRS 3-1.5 Standing Seam Metal Roof System, Signed & Sealed by Robert J. Amoruso, P.E.

2) Tests to ASTM E1592

- a) SDP-172, Farabaugh Engineering and Testing, Inc. (FET)
 - i) FET T202-00, 24 GA / 18" Wide, 5' Spans, ASTM E1592-95
 - ii) FET T203-00, 22 GA / 18" Wide, 5' Spans, ASTM E1592-95
 - iii) FET T205-00, 24 GA / 12" Wide, 5' Spans, ASTM E1592-95
 - iv) FET T204-00, 22 GA / 12" Wide, 5' Spans, ASTM E1592-95
 - v) FET T212-00, 24 GA / 18" Wide, 2' Spans, ASTM E1592-95
 - vi) FET T208-00, 22 GA / 12" Wide, 2' Spans, ASTM E1592-95
- b) SDP-200, ENCON Consultants, Inc. (ENCON)
 - i) ENCON C456-6, 24 GA / 18" Wide, Various Spans, ASTM E1592-94
 - ii) ENCON C456-7, 22 GA / 18" Wide, Various Spans, ASTM E1592-94
 - iii) ENCON C456, 24 GA / 16" Wide, Various Spans, ASTM E1592-94
 - iv) ENCON C456-9, 22 GA / 16" Wide, Various Spans, ASTM E1592-94
- c) SRS 3-1.5 w/o Deflection Limiters, Smith-Steelite (SS SCOE) or Farabaugh Engineering and Testing, Inc. (FET) {* 1991 Army Corps of Engineers *Standard Test and Methods for Structural Performance of SSMRS By Uniform Static Air Pressure Differences*}
 - i) SS SCOE 26 SRS3-1.5-24 GA / 18" Wide, 2.5' Span, ASTM E1592 equivalent *
 - ii) SS SCOE 18 SRS3-1.5-22 GA / 18" Wide, 2.5' Span, ASTM E1592 equivalent *
 - iii) SS SCOE 25 SRS3-1.5-24 GA / 18" Wide, 5' Span, ASTM E1592 equivalent *
 - iv) SS SCOE 14 SRS3-1.5-22 GA / 18" Wide, 5' Span, ASTM E1592 equivalent *
 - v) FET T196-00, 20 GA / 12" Wide, 3' Spans, ASTM E1592-95
 - vi) FET T194-00, 20 GA / 12" Wide, 2' Spans, ASTM E1592-95
- d) SRS 3-1.5 w/Deflection Limiters, Smith-Steelite (SS SCOE) or Farabaugh Engineering and Testing, Inc. (FET) {* 1991 Army Corps of Engineers *Standard Test and Methods for Structural Performance of SSMRS By Uniform Static Air Pressure Differences*}
 - i) SS SCOE 32, 24 GA / 18" Wide, 2.5' Spans, ASTM E1592 equivalent *
 - ii) SS SCOE 27, 22 GA / 18" Wide, 2.5' Spans, ASTM E1592 equivalent *
 - iii) SS SCOE 28, 22 GA / 18" Wide, 5' Spans, ASTM E1592 equivalent *
 - iv) SS SCOE 31, 24 GA / 18" Wide, 5' Spans, ASTM E1592 equivalent *
 - v) FET T211-00, 20 GA / 12" Wide, 3' Spans, ASTM E1592-95
 - vi) FET T217-00, 20 GA / 12" Wide, 2' Spans, ASTM E1592-95

3) Reports and Calculations

- a) Report No. ACE-PER-1156, Appendix 2, Panel Span Analysis for Centria SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System to AISI S100-07/S2-10, Signed & Sealed by Robert J. Amoruso, P.E.
- b) Report No. ACE-EER-1156, Equivalency Evaluation for Centria SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System to the 8th Edition (2023) FBC & 8th Edition (2023) FRC, Signed & Sealed by Robert J. Amoruso, P.E.

4) 8th Edition (2023) Florida Building Code (FBC), Building Volume

- a) 1504.3.2 Metal panel roof system
 - i) Tested to ASTM E1592
- b) 1507.4.3 Metal Roof Panels - Material Standards
 - i) Galvanized steel, ASTM A653, G-90 zinc-coated.
- c) 1507.4.4 Attachment

- d) Table 1604.3 Deflection Limits
 - i) Roof/Not Supporting Ceiling, deflection for wind loading limited to L/180.
 - e) 1609 Wind Loads
 - f) 2210.1 Cold-Formed Steel, General
- 5) Standards used in engineering evaluation.
- a) AISI S100-07/S2-10, North American Specification for the Design of Cold-formed Steel Structural Members
 - i) Testing for Negative Uplift Wind Loading shall be in accordance with ASTM E1592 using a minimum safety factor against failure of 1.65.
 - ii) Engineering evaluation for Positive (Downwards Acting Gravity and/or Wind Loading) in accordance with AISI S100.

APPENDICES:

- Appendix 1: SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System, Configuration, Material Properties and Fastener Requirements including Load/Span Table usage notes, 1 page
- Appendix 2: SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System, Load/Span Tables for Negative (Uplift) and Positive (Downwards Acting) Wind Pressure Loading in PSF, 4 pages

Certificate of Independence per Product Approval Rule 61G20-3.009

Robert J. Amoruso, P.E., does not have, nor will he acquire, any financial interest in the company manufacturing or distributing product(s) covered by this Product Evaluation Report.

Robert J. Amoruso, P.E., does not have, nor will he acquire any financial interest in any other entity involved in the approval process or testing of the product(s) covered by this Product Evaluation Report.



Digitally
signed by
Robert J
Amoruso
Date:
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Evaluated by:
Robert J. Amoruso, P.E.
FL P.E. License No. 49752

APPENDIX 1

SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System Configuration and Fastener Requirements including Load/Span Table Usage

- Panel Material with Minimum Yield Strength = 50 ksi
 - ASTM A 653/A 653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - G90 Galvanized base material, optional Galvalume.
- Panel Configuration – See Load/Span Tables (Appendix 2) for specific applicable combinations
 - Three Styles
 - SDP-175 with a Rib Height of 1-3/4" with integral snap-together seam at the rib.
 - SDP-200 with a Rib Height of 2" with mechanically seamed joint at the rib.
 - SRS 3-1.5 with a Rib Height of 3" with a continuous batten at the rib.
 - Widths
 - 12"
 - 16"
 - 18"
 - Thicknesses
 - 24 gage (0.024")
 - 22 gage (0.030")
 - 20 gage (0.036")
- Panel Installation Fasteners (minimum)
 - SDP-175
 - (2) # 10 self-drilling fasteners per clip
 - 16 GA minimum girt/purlin
 - SDP-200
 - ¼" diameter self-drilling fasteners per clip
 - 16 GA minimum girt/purlin
 - SRS 3-1.5
 - ¼" diameter self-drilling fasteners per clip
 - 14 GA minimum girt/purlin
 - Installation Clips and Deflection Limiters (for SRS 3-1.5 where required by Load/Span Table in Appendix 2) are required at each support purlin and each rib at the purlin spacing (span) shown in Appendix 2.
- Load/Span Table usage
 - Results tabulated in the following Appendix.
 - Appendix 2: SDP-175, SDP-200 and SRS 3-1.5 Standing Seam Metal Roof System Load/Span Tables for Negative (Uplift) Wind Pressure Loading in PSF, 4 pages
 - See Appendix 2 for notes specific to each table's usage.
 - Additional Notes:
 - SRS 3-1.5 Load/Span Tables provided with and without deflection limiters.
 - SDP-175 and SDP-200 Load/Span Tables are without deflection limiters.

SDP 175 Standing Seam Metal Roof Panels

SDP 175 SMS Roof Panel Wind Pressure Load/Span Table								
Panel Width (in)	Panel Gage	Allowable Negative (Uplift) Pressure Load (psf)						
		Span Length (ft)						
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
18	24	* 29.2	27.6	26.0	24.4	22.9	21.3	* 19.7
	22	* 45.3	43.7	42.2	40.6	39.1	37.5	* 36
16	24	36.5	35.0	33.4	31.8	30.2	28.6	27.0
	22	60.8	58.9	56.9	54.9	53.0	51.0	49.1
12	24	* 51.3	49.7	48.1	46.5	44.9	43.3	* 41.8
	22	* 91.9	89.1	86.3	83.5	80.8	78.0	* 75.2

Notes:

1. Loads are based on three or more equal spans.
2. (*) Actual tested results per ASTM E1592. All others are interpolated.
3. Loads are listed in psf and are based on 50,000 psi yield strength.
4. Above values include a 1.65 Safety Factor against panel failure. No increase for wind is permitted.

SDP 175 SMS Roof Panel Gravity and/or Wind Pressure Load/Span Table								
Panel Width (in)	Panel Gage	Allowable Positive (Downwards) Pressure Load (psf)						
		Span Length (ft)						
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
18	24	150	150	106	77.9	59.6	47.1	38.2
	22	150	150	137	100.7	77.1	60.9	49.3
16	24	150	150	118.9	87.4	66.9	52.8	42.8
	22	150	150	150	114	87.2	68.9	55.8
12	24	150	150	150	114	87.2	68.9	55.8
	22	150	150	150	150	114.9	90.8	73.5

Notes:

1. Loads are based on three or more equal spans
2. Allowable loads are calculated and tabulated showing the lower of bending stress or deflection at L/180. No increase for wind is permitted.
3. Loads are listed in psf and are based on 50,000 psi yield strength.
4. Avoid foot traffic on panels over open purlins. Use planking or walkways to support temporary construction or maintenance loads.

SDP 200 Standing Seam Metal Roof Panels

SDP 200 SMS Roof Panel Wind Pressure Load/Span Table							
Panel Width (in)	Panel Gage	Allowable Negative (Uplift) Pressure Load (psf)					
		Span Length (ft)					
		2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
18	24	* 81.9	75.1	67.6	60.0	52.5	* 44.1
	22	* 94.5	88.2	81.9	75.6	69.3	* 63
16	24	* 78.8	73.1	66.9	60.6	54.4	* 47.3
	22	* 104	96.4	88.9	81.3	73.8	* 66.2

Notes:

1. Loads are based on three or more equal spans.
2. (*) Actual tested results per ASTM E1592. All others are interpolated.
3. Loads are listed in psf and are based on 50,000 psi yield strength.
4. Above values include a 1.65 Safety Factor against panel failure. No increase for wind is permitted.

SDP 200 SMS Roof Panel Gravity and/or Wind Pressure Load/Span Table							
Panel Width (in)	Panel Gage	Allowable Positive (Downwards) Pressure Load (psf)					
		Span Length (ft)					
		2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
18	24	150.0	150.0	150.0	138.3	109.3	88.5
	22	150.0	150.0	150.0	150.0	136.9	110.9
16	24	150.0	150.0	150.0	150.0	123.0	99.6
	22	150.0	150.0	150.0	150.0	150.0	124.7

Notes:

1. Loads are based on three or more equal spans
2. Allowable loads are calculated and tabulated showing the lower of bending stress or deflection at L/180. No increase for wind is permitted.
3. Loads are listed in psf and are based on 50,000 psi yield strength.
4. Avoid foot traffic on panels over open purlins. Use planking or walkways to support temporary construction or maintenance loads.

SRS 3-1.5 Standing Seam Metal Roof Panels

SRS 3-1.5 SMS Roof Panel Wind Pressure Load/Span Table								
Panel Width (in)	Panel Gage	Allowable Negative (Uplift) Pressure Load (psf)						
		Span Length (ft)						
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
18	24	---	* 63	58.6	54.2	49.8	45.4	* 41
	22	---	* 91.5	84.1	76.7	69.3	61.9	* 54.5
	20	---	91.5	84.1	76.7	69.3	61.9	54.5
16	24	---	63.0	58.6	54.2	49.8	45.4	41.0
	22	---	91.5	84.1	76.7	69.3	61.9	54.5
	20	---	91.5	84.1	76.7	69.3	61.9	54.5
12	24	---	63.0	58.6	54.2	49.8	45.4	41.0
	22	---	91.5	84.1	76.7	69.3	61.9	54.5
	20	* 174.7	167.3	* 160	76.7	69.3	61.9	54.5

Notes:

1. Loads are based on three or more equal spans.
2. (*) Actual tested results per ASTM E1592. All others are interpolated.
3. Loads are listed in psf and are based on 50,000 psi yield strength.
4. Above values include a 1.65 Safety Factor against panel failure. No increase for wind is permitted.

SRS 3-1.5 SMS Roof Panel Gravity and/or Wind Pressure Load/Span Table								
Panel Width (in)	Panel Gage	Allowable Positive (Downwards) Pressure Load (psf)						
		Span Length (ft)						
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
18	24	150.0	150.0	150.0	111.8	85.6	67.6	54.8
	22	150.0	150.0	150.0	142.0	108.7	85.9	69.6
	20	150.0	150.0	150.0	150.0	131.8	104.1	84.4
16	24	150.0	150.0	150.0	111.8	85.6	67.6	54.8
	22	150.0	150.0	150.0	142.0	108.7	85.9	69.6
	20	150.0	150.0	150.0	150.0	131.8	104.1	84.4
12	24	150.0	150.0	150.0	150.0	134.1	106.0	85.8
	22	150.0	150.0	150.0	150.0	150.0	135.2	109.5
	20	150.0	150.0	150.0	150.0	150.0	150.0	133.2

Notes:

1. Loads are based on three or more equal spans
2. Allowable loads are calculated and tabulated showing the lower of bending stress or deflection at L/180. No increase for wind is permitted.
3. Loads are listed in psf and are based on 50,000 psi yield strength.
4. Avoid foot traffic on panels over open purlins. Use planking or walkways to support temporary construction or maintenance loads.

SRS 3-1.5 Standing Seam Metal Roof Panels With Deflection Limiters

SRS 3-1.5 SMS Roof Panel Wind Pressure Load/Span Table								
Panel Width (in)	Panel Gage	Allowable Negative (Uplift) Pressure Load (psf)						
		Span Length (ft)						
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
18	24	---	* 148.5	139.6	130.8	121.9	113.1	* 104.2
	22	---	* 141.8	134.9	128.0	121.1	114.2	* 107.3
	20	---	141.8	134.9	128.0	121.1	114.2	107.3
16	24	---	148.5	139.6	130.8	121.9	113.1	104.2
	22	---	141.8	134.9	128.0	121.1	114.2	107.3
	20	---	141.8	134.9	128.0	121.1	114.2	107.3
12	24	---	148.5	139.6	130.8	121.9	113.1	104.2
	22	---	141.8	134.9	128.0	121.1	114.2	107.3
	20	* 295.2	291	* 286	128.0	121.1	114.2	107.3

Notes:

1. Loads are based on three or more equal spans.
2. (*) Actual tested results per ASTM E1592. All others are interpolated.
3. Loads are listed in psf and are based on 50,000 psi yield strength.
4. Above values include a 1.65 Safety Factor against panel failure. No increase for wind is permitted.

SRS 3-1.5 SMS Roof Panel Gravity and/or Wind Pressure Load/Span Table								
Panel Width (in)	Panel Gage	Allowable Positive (Downwards) Pressure Load (psf)						
		Span Length (ft)						
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
18	24	150.0	150.0	150.0	111.8	85.6	67.6	54.8
	22	150.0	150.0	150.0	142.0	108.7	85.9	69.6
	20	150.0	150.0	150.0	150.0	131.8	104.1	84.4
16	24	150.0	150.0	150.0	111.8	85.6	67.6	54.8
	22	150.0	150.0	150.0	142.0	108.7	85.9	69.6
	20	150.0	150.0	150.0	150.0	131.8	104.1	84.4
12	24	150.0	150.0	150.0	150.0	134.1	106.0	85.8
	22	150.0	150.0	150.0	150.0	150.0	135.2	109.5
	20	150.0	150.0	150.0	150.0	150.0	150.0	133.2

Notes:

1. Loads are based on three or more equal spans
2. Allowable loads are calculated and tabulated showing the lower of bending stress or deflection at L/180. No increase for wind is permitted.
3. Loads are listed in psf and are based on 50,000 psi yield strength.
4. Avoid foot traffic on panels over open purlins. Use planking or walkways to support temporary construction or maintenance loads.