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APPROVAL REPORT

APPROVAL TESTING OF SCHULTE VS-216 AND TS-324 STANDING SEAM PANEL ROOF SYSTEMS AS CLASS 1 PANEL ROOFS

Prepared for:

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Project ID: 3044116
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I INTRODUCTION

1.1 Schulte Building Systems submitted their Schulte VS-216 and TS-324 Standing Seam Panel Roof Systems to determine if they would meet the Approval requirements of the **Standard** listed below.

1.2 Combustibility from Above the Roof Deck and Hail Damage Resistance Testing was completed under Project I.D. 3026450 dated October 18, 2006. Simulated Wind Uplift Pressure Testing and Foot Traffic Resistance Testing was previously completed under Project I.D. 1D7A7.AM, 3007524, 3004100, 3008065, 3009917 and 3026157 and released to Schulte Building Systems for the purposes of this report. See FM Approvals Reports 1D7A7.AM dated December 31, 1998, 3007524 dated October 26, 2000, 3004100 dated May 9, 2000, 3008065 dated November 8, 2000, 3009917 dated August 20, 2001 and 3026157 dated March 6, 2007 for further details. The panels, accessory items, manufacturing processes and production information have been shown to be equal to those items tested under the previously completed projects.

1.3 This Report may be reproduced only in its entirety and without modification.

1.4 **Standard:**

Title	Class Number	Date
Approval Standard for Class 1 Panel Roofs	4471	March 2010

1.5 The tests showed that the Schulte VS-216 and TS-324 Standing Seam Panel Roof Systems, as tested, meet the Approval requirements of the **Standard** listed above for Class1 Panel Roofs.

1.6 **Listings:** The results of the review and testing show that the Schulte VS-216 and TS-324 Standing Seam Panel Roof Systems meet the Approval criteria of FM Approvals when installed as specified in the **CONCLUSIONS** of this report. The products will be listed in RoofNav.

II DESCRIPTION

2.1 Schulte VS-216 roof panels are roll-formed minimum 24 gauge (0.025 in, 0.64 mm) thick base metal thickness) AZ50 Galvalume or G90 Galvanized steel panels joined together by an interlocking seam and secured to the structure with interlocking floating clips. The panels are either coated with an aluminum-zinc alloy (galvalume) or coated with a zinc (galvanized) coating. The panels are produced from ASTM A792 Grade 50 steel having a minimum yield strength of 50 ksi (345 N/mm^2). The panels are 16 in. (405 mm) wide with seams 2 in. (51 mm) high, and are available in flat pan, striated pan or beaded pan options and manufactured to various lengths. One side of the panel has a 0.10 in. (2.5mm) high rib plus a 1.9 in. (48 mm) high seam, forming a 2.0 in. (50 mm) overall panel height.

The other side of the panel has a 0.10 in. (2.5mm) high rib plus a 1.96 in. (50 mm) high seam, forming a 2 1/16 in. (52 mm) overall panel height. The higher seam fits over the lower seam, and the adjacent panels are interlocked with an electric roof seaming apparatus. The finished seam includes the panel clips.

2.2 Schulte TS-324 Standing Seam Roof panels are roll-formed 24 ga. (min 0.025 in., 0.64 mm) AZ50 Galvalume or G90 Galvanized steel panels joined together by an interlocking seam and secured to the structure with interlocking floating clips. The panels are produced from ASTM A792 Grade 50 steel having a min yield strength of 50 ksi (345 N/mm^2). The panels are 24 in. (610 mm) wide, with seams 3 in. (76 mm) high. The panels are coated with an aluminum-zinc alloy (Galvalume) coating. The Galvalume coating designation is AZ50, equivalent to a theoretical coating thickness of 0.0016 in. (0.04 mm) total for both sides. One side of the panel has a 2 in. (51 mm) high rib plus a 1.0 in. (25 mm) high seam, forming a 3.0 in. (76 mm) overall panel height. The other side of the panel has a matching profile, forming a 3-1/16 in. (77 mm) overall panel height. The panel profile has three striations and each striation consists of a 0.084 in. (2 mm) rise over 3-1/4 in. (83 mm). The higher seam fits over the lower seam. And the adjacent panels are interlocked with a electric roof seaming apparatus which provides a Triple-Lok or Quad-Lok sidelap seam. The finished seam includes the interlocking floating clips.

2.3 Schulte VS-216 Panel Clips consist of a 16 gauge (min 0.0586 in., 1.49 mm) steel base with interlocking 22 gauge (min 0.0277 in., 0.70 mm) steel tab. The base and tab are produced from ASTM A446 Grade D, G-90 galvanized steel having a min yield strength of 50 ksi (345 N/mm^2). The base is 2 in. (51 mm) wide and the tab is 4-1/4 in. (108 mm) wide. The tab has two notches that keeps the base centered until the clip is secured.

2.4 Schulte TS-324 MPS Floating Panel Clips consist of a steel base with an interlocking steel tab. The base is produced from 0.037 in. +/- 0.003 (0.9 mm +/- 0.07) G-90 galvanized steel having a min yield strength of 60 ksi (415 N/mm2). The base has 0.06in (1.5 mm) high bearing dimples and a min yield strength of 50 ksi (345 N/mm2). The thickness of the clip tab is 0.037 in. +/- 0.003 (0.9 mm +/- 0.07). The clip tab has a centering stop to maintain its centering location with the base and is 4-5/16 in. (110 mm) long.

2.5 Schulte TS-324 Perimeter Clip is an 8 in. (203 mm) long version of the standard Panel Clip as described above. The tab portion of the clip that engages the panel is 8 in. (203 mm) long while the base remains the same as the standard panel clip.

2.6 Atlas Bolt & Screw Co. ¼ -14 x 1-1/4 Hex Washer Head (HWH) Long Pilot TCP3 self-drilling fasteners are ¼ in. (6.4 mm) diameter screws with 14 threads per inch and TCP3 points. The fasteners are made from type 1022 carbon steel and coated with a Zinc electroplate and Oxyseal coating. They are used to fasten the clips to the purlins (steel supporting members) and are 1-1/4 to 4 in. (32 to 100 mm) long.

2.7 Atlas Bolt & Screw Co. #12-24 x 1 ¼ Hex Washer Head (HWH) TCP4 self-drilling fasteners are #12 (0.20 in [5.1 mm]) diameter screw with 24 threads per inch and TCP4 points The fasteners are made from type 1022 carbon steel coated with a Zinc electroplate and Oxyseal coating. They are used to fasten the clips to the bar joists (steel supporting members).

2.8 Optional insulations include FM Approved insulations as specified in the **CONCLUSIONS** of this report. For constructions that utilize rigid insulations, bearing plates are required.

2.9 Bearing plates are 4.0 x 5.0 in. (101 x 125 mm) plates, 22 gauge (0.034 in.; 0.86 mm) thick with pre-punched holes for the fasteners.

III EXAMINATION AND TESTS

3.1 No testing was conducted as a result of this program. All testing was previously completed and released to Schulte Building Systems for the purpose of this report.

3.1.1 Combustibility from Above the Roof Deck and Hail Damage Resistance Testing was completed under Project I.D. 3026450 dated October 18, 2006. Simulated Wind Uplift Pressure Testing and Foot Traffic Resistance Testing was previously completed under Project I.D. 1D7A7.AM, 3007524, 3004100, 3008065, 3009917 and 3026157 and released to Schulte Building Systems for the purposes of this report. See FM Approvals Reports 1D7A7.AM dated December 31, 1998, 3007524 dated October 26, 2000, 3004100 dated May 9, 2000, 3008065 dated November 8, 2000, 3009917 dated August 20, 2001 and 3026157 dated March 6, 2007 for further details. The panels, accessory items, manufacturing processes and production information have been shown to be equal to those items tested under the previously completed projects.

3.1.2 All data is on file at FM Approvals under Project I.D. 3044116 along with other documents and correspondence applicable to this program.

IV MARKING

4.1 The manufacturer shall mark each individual roof panel (or each pallet of bundle of panels), each package of clips, and each package of screws with at least one label containing, at a minimum, the manufacturer's name and product trade name. In addition, each package or container must be marked with the Approval mark of FM Approval.

4.2 Markings denoting Approval by FM Approvals shall by applied by the manufacturer only within and on the premises of manufacturing locations that are under the FM Approvals Facilities and Procedures Audit program.

4.3 The manufacturer agrees that use of the FM Approvals name or Approval Mark is subject to the conditions and limitations of the Approval by FM Approvals. Such conditions and limitations must be included in all references to Approval by FM Approvals.

V REMARKS

The securement of the roof system must be enhanced at the building corners and perimeter as outlined in FM Global Property Loss Prevention Data Sheet 1-31.

VI FACILITIES AND PROCEDURES AUDITS

The Schulte Building Systems manufacturing locations in Hockley, TX, Ashland, OH and Logansport, IN are subject to periodic audit inspections to determine that the quality and uniformity of the materials have been maintained and will provide the same level of performance as originally Approved. The facilities and quality control procedures in place have been found to be satisfactory to manufacture product identical to that examined and tested as described in this report.

VII MANUFACTURER'S RESPONSIBILITIES

7.1 To assure compliance with his procedures in the field, the manufacturer shall supply to the roofer such necessary instruction or assistance required to produce the desired performance achieved in the tests.

7.2 The manufacturer shall notify FM Approvals of any planned change in the Approved product, prior to general sale or distribution, using Form 797, Approved Product Revision Report.

VIII DOCUMENTATION

The following documents describe the VS-216 and TS-324 Standing Seam Metal Roof Systems and are filed under Project I.D. 3044116.

Document	Issue or Revision	Description
Facilities and Procedures Audit Manual	Most Recent	Schulte Building Systems at Schulte Building Systems, Hockley, TX
Facilities and Procedures Audit Manual	Most Recent	Schulte Building Systems at Atlas Bolt and Screw, Ashland, OH
Facilities and Procedures Audit Manual	Most Recent	Schulte Building Systems at Logan Stampings, Logansport, IN

IX CONCLUSIONS

9.1 The results indicate that the Schulte VS-216 and TS-324 Standing Seam Metal Roof Panel Systems meets the FM Approvals Standard 4471 requirements when used in the manner as stated below:

9.2 Constructions 9.2.1, 9.2.2 and 9.2.3 are listed from Project I.D. 3007254. Approvals are extended to include FM Approved polyisocyanurate roof insulation as shown in constructions 9.2.4, 9.2.5 and 9.2.6, based on Project I.D. 3009917. Constructions 9.2.7 thru 9.2.20 are listed from Project I.D. 3009917 and 3026157. Constructions 9.2.21 and 9.2.22 are listed from Project I.D. 1D7A7.AM.

9.2.1 Minimum 0.059 in. (1.50 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.5 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide panels, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 2– Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self-drilling fasteners at each standing seam. Adjacent panels are seamed together along the side laps with an electric seaming tool with a TripleLok Seam. Meets Class 1-60.

9.2.2 Minimum 0.059 in. (1.50 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 4 ft (1.2 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide panels, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each

steel supporting member with one Schulte TS-324 MPS Floating Clip and 2– Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self-drilling fasteners at each standing seam. Adjacent panels are seamed together along the side laps with an electric seaming tool with a TripleLok Seam. Meets Class 1-90.

9.2.3 Minimum 0.059 in. [1.50 mm] steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm2) installed max 2.5 ft (0.76 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324standing seam roof panels, 24 in. (610 mm) wide panels, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip 2– Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self-drilling fasteners at each standing seam. Adjacent panels are seamed together along the side laps with an electric seaming tool (QuadLock™ seam). Meets Class 1-105.

9.2.4 Minimum 0.059 in. (1.50 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.5 m) on center. Minimum 22 ga FM Approved steel (min 33 ksi [228 MPa]) deck secured to the structural steel as indicated in the listing for the steel deck for Class 60 windstorm classification. Optional 1 to 4 in. (25 to 100 mm) FM Approved polyisocyanurate roof insulation loose laid over deck. Bearing plates are required for rigid insulation boards. Schulte TS-324standing seam roof panels, 24 in. (610 mm) wide panels, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and t 2– Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self-drilling fasteners at each standing seam. Adjacent panels are seamed together along the side laps with an electric seaming tool with a TripleLok Seam. Meets Class 1-60.

9.2.5 Minimum 0.059 in. (1.50 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 4 ft (1.2 m) on center. Minimum 22 ga FM Approved steel (min 33 ksi [228 MPa]) deck secured to the structural steel as indicated in the listing for the steel deck for Class 90 windstorm classification. Optional 1 to 4 in. (25 to 100 mm) FM Approved polyisocyanurate roof insulation loose laid over deck. Bearing plates are required for rigid insulation boards. Schulte TS-324standing seam roof panels, 24 in. (610 mm) wide panels, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 2– Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self-drilling fasteners at each standing seam. Adjacent panels are seamed together along the side laps with an electric seaming tool with a TripleLok Seam. Meets Class 1-90.

9.2.6 Minimum 0.059 in. [1.50 mm] steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm2) installed max 2.5 ft (0.76 m) on center. Minimum 22 ga FM Approved steel (min 33 ksi [228 MPa]) deck secured to the structural steel as indicated in the listing for the steel deck for Class 105 windstorm classification. Optional 1 to 4 in. (25 to 100 mm) FM Approved polyisocyanurate roof insulation loose laid over deck. Bearing plates are required for rigid insulation boards. Schulte TS-324standing seam roof panels, 24 in. (610 mm) wide panels, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 2– Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self drilling fasteners at each standing seam. Adjacent panels are seamed together along the side laps with an electric seaming tool (QuadLock™ seam). Meets Class 1-105.

9.2.7 Steel supporting members (bar joists) with 1/8 to 1/2 in. (3.2×13 mm) thick top cord thickness, Grade 50 steel having a min yield strength of 50 ksi (345 N/mm^2) are maximum 5 ft (1.5 m) on center. Same roof insulation, roof panels, clips and steel deck as described in 9.2.1 or 9.2.3 above secured to each supporting member, through insulation and steel deck, if present, with 2 –Atlas Bolt & Screw Co. #12-24x1-1/4 Hex Washer Head (HWH) TCP4 self-drilling fasteners per clip. Adjacent panels are seamed together along the side laps with an electric seaming tool with a TripleLok Seam. Meets Class 1-60.

9.2.8 Steel supporting members (bar joists) with 1/8 to 1/2 in. (3.2×13 mm) thick top cord thickness, Grade 50 steel having a min yield strength of 50 ksi (345 N/mm^2) are maximum 4 ft (1.2 m) on center. Same roof insulation, roof panels, clips and steel deck as described in 9.2.2 or 9.2.4 above secured to each supporting member, through insulation and steel deck, if present, with 2 –Atlas Bolt & Screw Co. #12-24x1-1/4 Hex Washer Head (HWH) TCP4 self-drilling fasteners per clip. Adjacent panels are seamed together along the side laps with an electric seaming tool with a TripleLok Seam. Meets Class 1-90.

9.2.9 Minimum 0.059 in. (1.50 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.52 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324standing seam roof panels, 24 in. (610 mm) wide, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 3-Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with a TripleLok Seam. Meets Class 1-90.

9.2.10 Minimum 0.059 in. (1.50 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.52 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 3-Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a QuadLok Seam. Meets Class 1-105.

9.2.11 Minimum 0.059 in. (1.50 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.52 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324standing seam roof panels, 24 in. (610 mm) wide, min 22 ga. (0.030 in. [0.76 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 3-Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a TripleLok Seam. Meets Class 1-120.

9.2.12 Minimum 0.071 in. (1.80 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.52 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation

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9.2.13 Minimum 0.071 in. (1.80 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 2.5 ft (0.76 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324standing seam roof panels, 24 in. (610 mm) wide, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 Perimeter Clip and 3-Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a QuadLok Seam. Meets Class 1-165.

9.2.14 Minimum 0.071 in. (1.80 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 2.5 ft (0.76 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide, min 22 ga. (0.030 in. [0.76 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 Perimeter Clip and 3-Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a QuadLok Seam. Meets Class 1-180.

9.2.15 Minimum 0.125 in. (3.175 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.52 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 2 –Atlas Bolt & Screw Co. #12-24x1-1/4 Hex Washer Head (HWH) TCP4 self-drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a TripleLok Seam. Meets Class 1-90.

9.2.16 Minimum 0.125 in. (3.175 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.52 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 2 –Atlas Bolt & Screw Co. #12-24x1-1/4 Hex Washer Head (HWH) TCP4 self-drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a QuadLok Seam. Meets Class 1-105.

9.2.17 Minimum 0.125 in. (3.175 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.52 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide, min 22 ga. (0.030 in. [0.76 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 MPS Floating Clip and 2 –Atlas Bolt & Screw Co. #12-24x1-1/4 Hex Washer Head (HWH) TCP4 self-drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a TripleLok Seam. Meets Class 1-120.

9.2.18 Minimum 0.125 in. (3.175 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 5 ft (1.52 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 Perimeter Clip and 2 –Atlas Bolt & Screw Co. #12-24x1-1/4 Hex Washer Head (HWH) TCP4 self-drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a QuadLok Seam. Meets Class 1-120.

9.2.19 Minimum 0.125 in. (3.175 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 2.5 ft (0.76 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide, min 24 ga. (0.0232 in. [0.59 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 Perimeter Clip and 2 –Atlas Bolt & Screw Co. #12-24x1-1/4 Hex Washer Head (HWH) TCP4 self-drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a QuadLok Seam. Meets Class 1-165.

9.2.20 Minimum 0.125 in. (3.175 mm) steel supporting members, Gr. 50 steel having a min yield strength of 50 ksi (345 N/mm^2) installed maximum 2.5 ft (0.76 m) on center. Optional Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation (facer side down) may be loose laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte TS-324 standing seam roof panels, 24 in. (610 mm) wide, min 22 ga. (0.030 in. [0.76 mm] thick base metal thickness) AZ50 Galvalume steel produced from Gr. 50 steel having a yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members and secured to each steel supporting member with one Schulte TS-324 Perimeter Clip and 2 –Atlas Bolt & Screw Co. #12-24x1-1/4 Hex Washer Head (HWH) TCP4 self-drilling fasteners at each standing seam. Adjacent panels are crimped at each clip using a manual crimping tool. Then all seams are seamed together with an electric seaming tool with a QuadLok Seam. Meets Class 1-180.

9.2.21 Minimum 16 gauge (0.060 in.; 1.5 mm) base metal thickness steel supporting members having a minimum yield strength of 50 ksi (345 N/mm^2) installed max 5 ft (1.5 m) o.c. Optional max 3 in. (75 mm) thick Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation board (facer side down) may be loose-laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte VS-216 Standing seam roof panels, max 16 in. (405 mm) wide, min. 24 gauge (0.024 in., [0.6 mm] thick base metal thickness), AZ50 coated steel produced from Gr. 50 steel having a minimum yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members are secured with Schulte VS- 216

Panel Clips. The clips are secured to each supporting member with 2– Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self drilling fasteners per clip. Adjacent panels are seamed together with a TripleLok side lap seam. The TripleLok seam is produced with an electric seaming tool. Meets Class 1-90.

9.2.22 Minimum 16 gauge (0.060 in.; 1.5 mm) base metal thickness steel supporting members having a minimum yield strength of 50 ksi (345 N/mm^2) installed max 2.5 ft (0.76 m) o.c. Optional max 3 in. (75 mm) thick Thermax Insulation Board, Thermax Metal Building Board, Thermax Plus Liner Board or FM Approved faced glass fiber insulation board (facer side down) may be loose-laid over steel supporting members. Bearing plates are required for rigid insulation boards. Schulte VS-216 Standing Seam roof panels, max 16 in. (405 mm) wide, min. 22 gauge (0.027 in. [0.7 mm] base metal thickness), AZ50 coated steel produced from Gr. 50 steel having a minimum yield strength of 50 ksi (345 N/mm^2) installed perpendicular to steel supporting members are secured with Schulte VS-216 Panel Clips. The clips are secured to each supporting member with 2– Atlas Bolt & Screw Co. ¼-14 Hex Washer Head (HWH) TCP3 self drilling fasteners per clip. Adjacent panels are seamed together with a TripleLok side lap seam. The TripleLok seam is produced with an electric seaming tool. Meets Class 1-165.

9.3 Schulte Building Systems VS-216 and TS-324 Standing Seam Metal Roof Panel Systems meet Class 1-SH hail damage requirements.

9.4 Schulte Building Systems VS-216 and TS-324 Standing Seam Metal Roof Panel Systems meet Class 1A Fire Classification when installed at a maximum roof slope of 5 in 12 (42%)

9.5 Since a duly signed Master Agreement is on file for this customer, Approval is effective as of the date of this report.

9.6 Continued Approval will depend upon satisfactory field experience and periodic Facilities and Procedures Audits.

TESTING SUPERVISED BY: **None**

PROJECT DATA RECORD: **Project I.D. 3044116**

ORIGINAL TEST DATA: **PDR for Project I.D. 1D7A7.AM, 3004100, 3007524, 3008065, 3009917, 3026157 & 3026450**

REPORT BY: **REPORT REVIEWED BY:**

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