SECTION 07 61 00

METAL ROOFING SYSTEMS

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\*\* NOTE TO SPECIFIER \*\* Superior Seam Technology (SST); metal roofing systems.  
This section is based on the licensed products of Building Research Systems, Inc. (BRS), Superior Seam Technology (SST).  
[Click Here] for additional information.  
The following is a list of Licensed Manufacturers:  
Alliance Steel Building Systems  
3333 S. Council Road  
Oklahoma City, OK 73179  
Phone: 405-745-7500  
Website: [www.allianceokc.com](http://www.allianceokc.com)   
Bigbee Steel Buildings  
2705 Avalon Ave.  
Muscle Shoals, AL 35661  
Phone: 256-383-7322  
Website: [www.bigbee.com](http://www.bigbee.com)   
CO Building Systems  
320 West 100 North  
Ephraim, UT 84627  
Phone: 1-800-262-5347  
Website: [www.cobuildings.com](http://www.cobuildings.com)   
Covenant Steel  
4528 Westgate Parkway  
Dothan, AL 36303  
Phone: 334-794-2326  
Website: [www.covenantsteel.com](http://www.covenantsteel.com)   
Inland Buildings, Division of Schulte Buildings Systems, Inc.  
2141 Second Avenue SW  
Cullman, AL 35055  
Phone: 256-775-3500  
Website: [www.inlandbuildings.com](http://www.inlandbuildings.com)   
Metal Panels Inc.  
131 South 147th East Avenue  
Tulsa, OK 74116  
Phone: 918-641-0641  
Website:[www.metalpanelsinc.com](http://www.metalpanelsinc.com)   
R and M Steel Company  
P.O. Box 580  
Caldwell, Idaho 83606  
Phone: 208-454-1800  
Website: [www.rmsteel.com](http://www.rmsteel.com)   
Primary Contact: Robert Roberts  
Reed's Metals of Brookhaven  
19 E Lincoln Drive NE  
Brookhaven, MS 39601  
Phone: 601-823-6516  
Website: [www.reedsmetals.com](http://www.reedsmetals.com)   
Reed's Metals of Florence  
24350 County Road 14  
Florence, AL 35633  
Phone: 256-764-7943  
Website: [www.reedsmetal.com](http://www.reedsmetal.com)   
SBI Metal Buildings  
114 Trooper Drive  
Hot Springs, AR 71913  
Phone: 501-262-0600  
Website: [www.sbimetalbuildings.com](http://www.sbimetalbuildings.com)   
Schulte Building Systems, Inc.  
P.O. Box 609  
Hockley, TX 77447  
Phone: 281-213-6005  
Website: [www.sbslp.com](http://www.sbslp.com)   
Standard Structures, Inc.  
811 W FM 1729  
Lubbock, TX 79403  
Phone: 806-781-3014  
Website: [www.standardstructuresinc.com](http://www.standardstructuresinc.com)   
Taylor Building Systems  
2479 County Street 2865  
Chickasha, Oklahoma 73018  
Phone: 405-222-0751  
Email: scott@taylorbuildingsystems.com  
Website: www.taylorbuildingsystems.com  
Triad Corrugated Metal, Inc.:  
208 Luck Road  
Asheboro, NC 27205  
Phone: 336-625-9727  
Website:[www.triadmetalroof.com](http://www.triadmetalroof.com)   
Whitney Steel Building Systems, LLC  
4304 NE 1st Street  
Pryor, Oklahoma 74361  
Email: scott@taylorbuildingsystems.com  
Phone: 918-825-6062  
Website: www.taylorbuildingsystems.com  
BRS saw a need to focus their developmental efforts on roofing products to replace outdated existing metal products with 21st century technology. The new technology met the latest structural and functional demands of the 21st century including:  
- Wind zone loads.  
- Uplift testing requirements.  
- New building codes, increasing the roof performance under wind and water.  
- Improved installation efficiencies.  
- Larger roofs with longer panel runs requiring greater clip movement.  
- High capacity rake and eave plate options which includes slide travel to match wind clip capability.  
- High capacity / long slide wind clip options.  
- Extended stand-off clips, above 1-1/2 inch (38 mm), for greater insulation capacity in over open framing installations and use for over through fastened panel retrofit applications.  
BRS product development resulted in the design of two unique standing seams utilizing Superior Seam Technology (SST); TripleLok and QuadLok, which outperforms the existing Double Lock & Pittsburg 360 standing seams that were developed in the 1970s and early 80s. These seams will become the industry standard that all other systems will be judged by. The TripleLok and QuadLok seams featuring patented hook joinery have been incorporated in the two roof systems BRS has introduced to the metal roofing market through licenses to manufacturers. They are also incorporated in the BRS 2 inch (51 mm) vertical rib 16 and 18 inch (406 and 457 mm) wide pan panel and the BRS 3 inch (76 mm) tall trapezoidal rib 24 inch (610 mm) wide panel.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete paragraphs below not required for project.

* + 1. Architectural Standing Seam Roofing.
       1. Vertical Rib: 2 inch (51 mm).

\*\* NOTE TO SPECIFIER \*\* Delete panel width option not required.

* + - 1. Panel Width: 16 inch (406 mm).
      2. Panel Width: 18 inch (457 mm).
    1. Trapezoidal Standing Seam Roofing.
       1. Vertical Rib: 3 inch (76 mm).
       2. Panel Width: 24 inch (610 mm).
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 07 62 00 - Sheet Metal Flashing and Trim.
    2. Section 07 71 13 - Manufactured Copings.
    3. Section 07 90 00 - Joint Protection.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
       1. ASTM E 1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
       2. ASTM E 1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
       3. ASTM E 1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
       4. ASTM E 2140 - Standard Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head.
    2. American Iron and Steel Institute (AISI):
       1. AISI/ANSI S100-16 - North American Specification for the Design of Cold-Formed Steel Structural Members (2016 Edition and 2018 Supplement).
    3. FM Global.
       1. ANSI/FM 4471 - Approval Standard for Class 1 Panels
    4. Florida Building Code, Chapter 16.
    5. Underwriters Laboratories (UL).
       1. UL 580 -Tests for Uplift Resistance of Roof Assemblies.
    6. International Accreditation Service (IAS)
       1. IAS AC 472 - Accreditation Criteria for Inspection Programs for Manufactures of Metal Building Systems, Part B.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.
     3. Verification Samples: Two representative units of each type, size, pattern, and color.
     4. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in providing standing seam roof systems with a minimum five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
       2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
       3. Retain mock-up during construction as a standard for comparison with completed work.
       4. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items, review of the installation guide and approvals.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
        1. Stack pre-finished material to prevent twisting, bending, abrasion, scratching and denting. Elevate one end of each skid to allow for moisture to run off.
        2. Prevent contact with material that may cause corrosion, discoloration, or staining.
        3. Do not expose to direct sunlight or extreme heat for material with factory applied strippable film.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  4. WARRANTY
     1. Manufacturer's Finish Warranty: Provide manufacturer's standard warranty document executed by authorized company official covering finish, including color, fade, chalking and film integrity.
        1. Warranty Period: 20 years commencing on Date of Substantial Completion.
     2. Additional Warranties: Coordinated with manufacturer.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Superior Seam Technology - SST, which is located at:13808 Santa Fe Crossing Dr.Edmond, OK 73083Tel: 405-607-8877Fax: 405-607-2828Email: [request info (crodden@brsusa.com)](https://arcat.com/rfi?action=email&company=Superior%252BSeam%252BTechnology%252B-%252BSST&message=RE%253A%2520Spec%2520Question%2520(07610brs)%253A%2520&coid=51396&spec=07610brs&rep=&fax=405-607-2828);Web: <http://www.brsusa.com/arcat>
      2. Alliance Steel Building Systems:
         1. 3333 S. Council Road
         2. Oklahoma City, OK 73179
         3. Phone: 405-745-7500
         4. Website: www.allianceokc.com
      3. Bigbee Steel Buildings:
         1. 2705 Avalon Ave.
         2. Muscle Shoals, AL 35661
         3. Phone: 256-383-7322
         4. Website: www.bigbee.com
      4. CO Building Systems:
         1. 320 West 100 North
         2. Ephraim, UT 84627
         3. Phone: 1-800-262-5347
         4. Website: www.cobuildings.com
      5. Covenant Steel:
         1. 4528 Westgate Parkway
         2. Dothan, AL 36303
         3. Phone: 334-794-2326
         4. Website: covenantsteel.com
      6. Inland Buildings, Division of Schulte Buildings Systems, Inc.:
         1. 2141 Second Avenue SW
         2. Cullman, AL 35055
         3. Phone: 256-775-3500
         4. Website: www.inlandbuildings.com
      7. Metal Panels Inc.:
         1. 131 South 147th East Avenue
         2. Tulsa, OK 74116
         3. Phone: 918-641-0641
         4. Website: [www.metalpanelsinc.com](http://www.metalpanelsinc.com)
      8. R and M Steel Company:
         1. P.O. Box 580
         2. Caldwell, Idaho 83606
         3. Phone: 208-454-1800
         4. Website: www.rmsteel.com
         5. Primary Contact: Robert Roberts
      9. Reed's Metals of Brookhaven:
         1. 19 E Lincoln Drive NE
         2. Brookhaven, MS 39601
         3. Phone: 601-823-6516
         4. Website: www.reedsmetals.com
      10. Reed's Metals of Florence:
          1. 24350 County Road 14
          2. Florence, AL 35633
          3. Phone: 256-764-7943
          4. Website: www.reedsmetal.com
      11. SBI Metal Buildings:
          1. 114 Trooper Drive
          2. Hot Springs, AR 71913
          3. Phone: 501-262-0600
          4. Website: www.sbimetalbuildings.com
      12. Schulte Building Systems, Inc.:
          1. P.O. Box 609
          2. Hockley, TX 77447
          3. Phone: 281-213-6005
          4. Website: www.sbslp.com
      13. Standard Structures, Inc.:
          1. 811 W FM 1729
          2. Lubbock, TX 79403
          3. Phone: 806-781-3014
          4. Website: www.standardstructuresinc.com
      14. Taylor Building Systems
          1. 2479 County Street 2865
          2. Chickasha, Oklahoma 73018
          3. Phone: 405-222-0751
          4. Email: scott@taylorbuildingsystems.com
          5. Website: www.taylorbuildingsystems.com
      15. Triad Corrugated Metal, Inc.:
          1. 208 Luck Road
          2. Asheboro, NC 27205
          3. Phone: 336-625-9727
          4. Website: [www.triadmetalroof.com](http://www.triadmetalroof.com)
      16. Whitney Steel Building Systems, LLC
          1. 4304 NE 1st Street
          2. Pryor, Oklahoma 74361
          3. Email: scott@taylorbuildingsystems.com
          4. Phone: 918-825-6062
          5. Website: www.taylorbuildingsystems.com

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. ARCHITECTURAL STANDING SEAM ROOFING

\*\* NOTE TO SPECIFIER \*\* Delete products not required.

* + 1. Basis of Design: Superior Seam Technology, 2 inch (51 mm) tall vertical rib, 16 inch (406 mm) wide; as designed and licensed by Building Research Systems, Incorporated. Factory precision roll-formed pan panel with side seams formed by 16 forming stations.
       1. Performance and Design Requirements: General.
          1. Yield Stress: 50.0 ksi (344.74 MPa). Calculated per AISI/ANSI S100-16 / S1-18.
          2. Allowable Gravity Loads: Calculated per AISI/ANSI S100-16 / S1-18.
          3. Allowable Wind Uplift Loads: Tested per ASTM E 1592.
          4. Air Infiltration Rate per ASTM E 1680:

Static Pressure Difference of 1.57 psf (0.075 kPa): 0.0010 cfm per sq ft (0.00030 cu m per min per sq m).

Static Pressure Difference of 6.24 psf (0.299 kPa): 0.0031 cfm per sq ft (0.00094 cu m per min per sq m).

Static Pressure Difference of 30.0 psf (1.436 kPa): 0.0058 cfm per sq ft (0.00176 cu m per min per sq m).

Static Pressure Difference of 40.0 psf (1.915 kPa): 0.0064 cfm per sq ft (0.00195 cu m per min per sq m).

* + - * 1. Water Infiltration per ASTM E 1646:

At 12 psf (0.575 kPa): No infiltration.

At 30 psf (1.436 kPa): No infiltration.

At 50 psf (2.394 kPa): No infiltration.

\*\* NOTE TO SPECIFIER \*\* Delete the performance and design requirements option not required. Either the 24 or 22 gage panel.

* + - 1. Performance and Design Requirements: 24 Gage Panel:
         1. Weight: 1.254 psf (6.12 kg per sq m).
         2. Shear Stress: 840 lbs/ft (12.26 kN/m). Calculated per AISI/ANSI S100-16 / S-18.
         3. Intermediate Bearing at 2.5 inches (64 mm): 584 lbs/ft (8.52 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         4. End Bearing at 2.5 inches (64 mm): 387 lbs/ft (5.65 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
      2. Performance and Design Requirements: 22 Gage Panel:
         1. Weight: 1.555 psf (7.592 kg per sq m).
         2. Shear Stress: 1280 lbs/ft (18.68 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         3. Intermediate Bearing at 2.5 inches (64 mm): 870 lbs/ft (12.69 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         4. End Bearing at 2.5 inches (64 mm): 571 lbs/ft (8.33 kN/m). Calculated per AISI/ANSI S100-12.
      3. Seam Height: 2 inches (51 mm).
      4. Panel Width: 16 inches (406 mm).
      5. Panel Length: As indicated on Drawings; dictated by manufacturer and shipping requirements and capabilities.

\*\* NOTE TO SPECIFIER \*\* Striated pans have been found to reduce oil canning better than minor ribs. Delete profile options not required.

* + - 1. Profile: Minor Ribs pan.
      2. Profile: Striated pan.
      3. Profile: Beaded pan.
      4. Profile: Combination Beaded + Striated.

\*\* NOTE TO SPECIFIER \*\* Delete material option not required.

* + - 1. Material: Galvalume coated steel, 24 gage.
      2. Material: Galvalume coated steel, 22 gage.

\*\* NOTE TO SPECIFIER \*\* Delete seam option not required.

* + - 1. Seam: TripleLok, formed by continuously field seaming the adjacent panel sides over each other to interlock the two panels and form a watertight seal that will resist separation.
         1. Locations: All roofing locations unless otherwise indicated.
         2. Patented High Wind Clips Utilized as required for severe wind uplift forces.

\*\* NOTE TO SPECIFIER \*\* Delete clip location options not required.

Clip Locations: Roof edge zones.

Clip Locations: Roof corners.

Clip Locations: High roofs.

Clip Locations: As indicated on Drawings.

* + - * 1. High Capacity Rake Starter and/or High capacity rake and eave plates.

\*\* NOTE TO SPECIFIER \*\* QuadLok seam is for use in areas where wind uplift forces are severe.

* + - 1. Seam: QuadLok, formed with field seaming to further tighten and form an additional strengthening bend.
         1. Locations:

\*\* NOTE TO SPECIFIER \*\* Delete clip location options not required.

Clip Locations: Roof edge zones.

Clip Locations: Roof corners.

Clip Locations: High roofs.

Clip Locations: As indicated on Drawings.

* + - * 1. High Capacity Rake Starter and/or High Capacity Rake and Eave Plates.
      1. Exterior Wind Clamps: Exterior wind clamps are excluded from use.

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + - 1. Finish: AZ50 (minimum) aluminum/zinc alloy with painted finish.
      2. Finish: AZ55 (minimum) aluminum/zinc alloy with unpainted finish.
      3. Finish: AZ55 (minimum) aluminum/zinc alloy with clearcoat finish (Acrylume).
    1. Basis of Design: Superior Seam Technology, 2 inch (51 mm) tall vertical rib, 18 inch (457 mm) wide; as designed and licensed by Building Research Systems, Incorporated. Factory precision roll-formed pan panel with side seams formed by 16 forming stations.
       1. Performance and Design Requirements: General
          1. Yield Stress: 50.0 ksi (344.74 Mpa). Calculated per AISI/ANSI S100-16 / S1-18.
          2. Allowable Gravity Loads: Calculated per AISI/ANSI S100-16 / S1-18.
          3. Allowable Wind Uplift Loads: Tested per ASTM E 1592.
          4. Air Infiltration Rate per ASTM E 1680:

Static Pressure Difference of 1.57 psf (0.075 kPa): 0.0010 cfm per sq ft (0.00030 cu m per min per sq m).

Static Pressure Difference of 6.24 psf (0.299 kPa): 0.0031 cfm per sq ft (0.00094 cu m per min per sq m).

Static Pressure Difference of 30.0 psf (1.436 kPa): 0.0058 cfm per sq ft (0.00176 cu m per min per sq m).

Static Pressure Difference of 40.0 psf (1.915 kPa): 0.0064 cfm per sq ft (0.00195 cu m per min per sq m).

* + - * 1. Water Infiltration per ASTM E 1646:

At 12 psf (0.575 kPa): No infiltration.

At 30 psf (1.436 kPa): No infiltration.

At 50 psf (2.394 kPa): No infiltration.

\*\* NOTE TO SPECIFIER \*\* Delete the performance and design requirements option not required. Either the 24 or 22 gage panel.

* + - 1. Performance and Design Requirements: 24 Gage Panel:
         1. Weight: 1.218 psf (5.95 kg per sq m).
         2. Shear Stress: 750 lbs/ft (10.95 kN/M). Calculated per AISI/ANSI S100-16 / S1-18.
         3. Intermediate Bearing at 2.5 inches (64 mm): 519 lbs/ft (5.75 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         4. End Bearing at 2.5 inches (64 mm): 344 lbs/ft (5.02 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
      2. Performance and Design Requirements: 22 Gage Panel:
         1. Weight: 1.507 psf (7.36 kg per sq m).
         2. Shear Stress: 1140 lbs/ft (16.64 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         3. Intermediate Bearing at 2.5 inches (64 mm): 773 lbs/ft (11.28 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         4. End Bearing at 2.5 inches (64 mm): 508 lbs/ft (7.41 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
      3. Seam Height: 2 inches (51 mm).
      4. Panel Width: 18 inches ( mm).
      5. Panel Length: As indicated on Drawings dictated by manufacturer and shipping requirements and capabilities.

\*\* NOTE TO SPECIFIER \*\* Striated pans have been found to reduce oil canning better than minor ribs. Delete profile options not required.

* + - 1. Profile: Flat pan.
      2. Profile: Striated pan.
      3. Profile: Beaded pan.
      4. Profile: Combination Beaded - Striated.

\*\* NOTE TO SPECIFIER \*\* Delete material option not required.

* + - 1. Material: Galvalume coated steel, 24 gage.
      2. Material: Galvalume coated steel, 22 gage.

\*\* NOTE TO SPECIFIER \*\* Delete seam option not required.

* + - 1. Seam: TripleLok, formed by continuously field seaming the adjacent panel sides over each other to interlock the two panels and form a watertight seal that will resist separation.
         1. Locations: All roofing locations unless otherwise indicated.
         2. Patented High Wind Clips Utilized as required for severe wind uplift forces.

\*\* NOTE TO SPECIFIER \*\* Delete clip location options not required.

Clip Location: Roof edge zones.

Clip Location: Roof corners.

Clip Location: High roofs.

Clip Location: As indicated on Drawings.

* + - * 1. High Capacity Rake Starter and/or High capacity rake and eave plates.

\*\* NOTE TO SPECIFIER \*\* QuadLok seam is for use in areas where wind uplift forces are severe.

* + - 1. Seam: QuadLok, formed with field seaming to further tighten and form an additional strengthening bend.
         1. Locations: All roofing locations unless otherwise indicated.
         2. Patented High Wind Clips: Utilize as required for severe wind uplift forces.

\*\* NOTE TO SPECIFIER \*\* Delete clip location options not required.

Clip Locations: Roof edge zones.

Clip Locations: Roof corners.

Clip Locations: High roofs.

Clip Locations: As indicated on Drawings.

* + - * 1. High Capacity Rake Starter and/or High Capacity Rake and Eave Plates.
      1. Exterior Wind Clamps: Exterior wind clamps are excluded from use.

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + - 1. Finish: AZ50 (minimum) aluminum/zinc alloy with painted finish.
      2. Finish: AZ55 (minimum) aluminum/zinc alloy with unpainted finish.
      3. Finish: AZ55 (minimum) aluminum/zinc alloy with clearcoat finish (Acrylume).
    1. System Components:

\*\* NOTE TO SPECIFIER \*\* Delete components not required.

* + - 1. Fixed Clip - Zero Clearance: FC11200.
         1. Height: 2 inches (51 mm).
         2. Length: 4-5/16inches (109.5 mm).
         3. UL 90.
      2. Fixed Clip - Low: FC11203.
         1. Height: 2-1/2 inches (63.5 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL 90.
      3. Fixed Clip - High: FC11213.
         1. Height: 3-1/2 inches (88.9 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL 90.
      4. Movable Clip - Low Stand-Off, Short Base: MC1203.
         1. Height: 2-1/2 inches (63.5 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL90 and FM.
         4. Slide Travel Capacity: 1.325 inches (34 mm) each direction.
      5. Movable Clip - High Stand-Off, Short Base: MC1213.
         1. Height: 3-1/2 inches (88.9 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL90 and FM.
         4. Slide Travel Capacity: 1.325 inches (34 mm) each direction.
      6. Movable Clip - Low Stand-Off, Long Base: MPS1203.
         1. Height: 2-1/2 inches (63.5 mm).
         2. Purlin Stabilizing.
         3. UL90.
         4. Slide Travel Capacity: 1.625 inches (41 mm) each direction.
      7. Movable Clip - High Stand-Off, Long Base: MPS1213.
         1. Height: 3-1/2 inches (88.9 mm).
         2. Purlin Stabilizing.
         3. UL90.
         4. Slide Travel Capacity: 1.625 inches (41 mm) each direction.
      8. Movable Clip - 2 Inch Extended Standoff, Long Base: MPS-1220.
         1. Height: 4 inches (101.6 mm).
         2. Purlin Stabilizing.
         3. UL 90.
         4. Slide Travel Capacity: 1.625 inches (41 mm) each direction.
      9. High Wind Movable Clips Low Stand-Off, 12 inch (305 mm) Long Tab: MPW-1203-12.
         1. Height: 2-1/2 inches (63.5 mm).
         2. Purlin Stabilizing.
         3. UL90.
         4. Long Slide Travel Capacity: 3.90 inches (99 mm) each direction.
      10. High Wind Movable Clips High Stand-Off, 12 inch (305 mm) Long Tab: MPW-1213-12.
          1. Height: 3-1/2 inches (88.9 mm).
          2. Purlin Stabilizing.
          3. UL90.
          4. Long Slide Travel Capacity: 3.90 inches (99 mm) each direction.
      11. End Dam: 16 inch (406 mm) wide, Galvanized: FED216.
          1. Height: 2-1/16 inches (52 mm).
          2. Material Thickness: 24 gage.
      12. End Dam: 16 inch (406 mm) wide, Painted - Powder Coated: FED216C.
          1. Height: 2-1/16 inches (52 mm).
          2. Material Thickness: 24 gage.
      13. End Dam: 18 inch (457 mm) wide, Galvanized: FED218.
          1. Height: 2-1/16 inches (52 mm).
          2. Material Thickness: 24 gage.
      14. End Dam: 18 inch (457 mm) wide, Painted - Powder Coated: FED218C.
          1. Height: 2-1/16 inches (52 mm).
          2. Material Thickness: 24 gage.
      15. End Lap Back-Up Channel for 48 inch (1219 mm) Wide Insulation: BP148.
          1. Material Thickness: 16 gage. Galvanized.
          2. Factory punched and swagged.
      16. End Lap Back-Up Channel (for 72 inch (1829 mm) Wide Insulation: BP172.
          1. Material Thickness: 16 gage. Galvanized.
          2. Factory punched and swagged.
      17. End Lap Cinch Strap for 16 inch (406 mm) Panel: CS116.
          1. Width: 1-1/4 inches (32 mm).
          2. Length: 15-3/4 inches (400 mm).
          3. Factory punched holes.
      18. End Lap Cinch Strap for 18 inch (457 mm) Panel: CS118.
          1. Width: 1-1/4 inches (32 mm).
          2. Length: 17-3/4 inches (451 mm).
          3. Factory punched holes.
      19. High Capacity Eave Plate, 1/2 inch (13 mm) Stand-Off: EP-005.
          1. Height: 1/2 inch (13 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
      20. High Capacity Eave Plate, 1-1/2 inch (38 mm) Stand-Off: EP-015.
          1. Height: 1-1/2 inches (38 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
      21. High Capacity Eave Plate, 2 inch (51 mm) Stand-Off: EP-020.
          1. Height: 2 inches (51 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
      22. High Capacity Rake Plate, 1/2 inch (13 mm) Stand-Off: RP-005.
          1. Height: 1/2 inch (13 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      23. High Capacity Rake Plate, 1-1/2 inch (38 mm) Stand-Off: RP-015.
          1. Height: 1-1/2 inches (38 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      24. High Capacity Rake Plate, 2 inch (51 mm) Stand-Off: RP-020.
          1. Height: 2 inches (51 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      25. High Capacity Rake Starter Plate : SP-020.
          1. Height: 2 inches (51 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg and 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 0 inch (0 mm).
          5. Slide Travel Capacity: 3.60 inches (91mm) each direction.
      26. High Capacity Rake Starter Plate : SP-025.
          1. Height: 2-1/2 inches (63.5 mm).
          2. Length: 10 feet. (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg & 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 1/2 inch (13 mm).
          5. Slide Travel Capacity: 3.60 inches (91mm) in each direction.
      27. High Capacity Rake Starter Plate : SP-035.
          1. Height: 3-1/2 inches (89 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg & 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 1-1/2 inches (38 mm).
          5. Slide Travel Capacity: 3.60 inches (91mm) in each direction.
      28. High Capacity Rake Starter Plate : SP-040.
          1. Height: 4 inches (102 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg & 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 2 inches (51 mm).
          5. Slide Travel Capacity: 3.60 inches(91mm) each direction.
      29. Back-up Plate for 16 inch (406 mm) Wide Panel: BP-216.
          1. Width: 6-1/2 inches (165 mm).
          2. Length: 15-1/2 inches (394 mm).
      30. Back-up Plate for 18 inch (457 mm) Wide Panel: BP-218.
          1. Width: 6-1/2 inches (165 mm).
          2. Length: 17-1/2 inches (444.5 mm).

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. TRAPEZOIDAL STANDING SEAM ROOFING
     1. Basis of Design: Superior Seam Technology, 3 inch (76 mm) Trapezoidal x 24 inch (610 mm) Wide; as designed and licensed by Building Research Systems, Incorporated. Metal panels joined together by patented factory-forming interlocking seam that is easily assembled and seamed in the field.
        1. Performance and Design Requirements: General.
           1. Yield Stress: 50.0 ksi (344.74 MPa). Calculated per AISI/ANSI S100-16 / S1-18.
           2. Allowable Gravity Loads: Calculated per AISI/ANSI S100-16 / S1-18.
           3. Allowable Wind Uplift Loads: Tested per ASTM E 1592.
           4. Air Infiltration Rate per ASTM E 1680:

Static Pressure Difference of 1.57 psf (0.075 kPa): 0.0007 cfm per sq ft (0.00021 cu m per min per sq m).

Static Pressure Difference of 6.24 psf (0.299 kPa): 0.0018 cfm per sq ft (0.00055 cu m per min per sq m).

Static Pressure Difference of 30.0 psf (1.436 kPa): 0.0042 cfm per sq ft (0.00128 cu m per min per sq m).

Static Pressure Difference of 40.0 psf (1.915 kPa): 0.0046 cfm per sq ft (0.00140 cu m per min per sq m).

* + - * 1. Water Infiltration per ASTM E 1646:

At 12 psf (0.575 kPa): No infiltration.

At 30 psf (1.436 kPa): No infiltration.

At 50 psf (2.394 kPa): No infiltration.

\*\* NOTE TO SPECIFIER \*\* Delete the performance and design requirements option not required. Either the 24 or 22 gage panel.

* + - 1. Performance and Design Requirements: 24 Gage Panel:
         1. Weight: 1.133 psf (5.532 kg per sq m).
         2. Shear Stress: 970 lbs/ft (14.6 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         3. Intermediate Bearing at 2.5 inches (64 mm): 613 lbs/ft (8.95 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         4. End Bearing at 2.5 inches (64 mm): 393 lbs/ft (5.74 kN/m).Calculated per AISI/ANSI S100-16 / S1-18.
      2. Performance and Design Requirements for 22 Gage Panel:
         1. Weight: 1.406 psf (6.865 kg per sq m).
         2. Shear Stress: 1406 lbs/ft (20.52 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         3. Intermediate Bearing at 2.5 inches (64 mm): 907 lbs/ft (13.24 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
         4. End Bearing at 2.5 inches (64 mm): 577 lbs/ft (8.42 kN/m). Calculated per AISI/ANSI S100-16 / S1-18.
      3. Seam Height, Nominal: 3 inches (76 mm).
      4. Panel Width, Nominal: 24 inches (610 mm).
      5. Panel Length: As indicated on Drawings; dictated by manufacturer and shipping requirements and capabilities.

\*\* NOTE TO SPECIFIER \*\* Striated pans have been found to reduce oil canning better than minor ribs. Delete profile options not required.

* + - 1. Profile: Striated pan.
      2. Profile: Minor Ribs.
      3. Profile: Combination Minor Ribs - Striated.

\*\* NOTE TO SPECIFIER \*\* Select material thickness required. Delete thickness not required.

* + - 1. Material: Galvalume coated steel, 24 gage.
      2. Material: Galvalume coated steel, 22 gage.

\*\* NOTE TO SPECIFIER \*\* Delete seam options not required. Seam types listed in order of uplift capacity (RollLok- least capacity to QuadLok - greatest capacity).

* + - 1. Seam: RollLok, formed with a hand seamer to crimp the seam at clip locations only.

\*\* NOTE TO SPECIFIER \*\* Delete locations option not required.

* + - * 1. Locations: All roofing locations unless otherwise indicated.
        2. Locations: Zone Seaming to TripleLok or QuadLok.

\*\* NOTE TO SPECIFIER \*\* Select zone(s) required. Delete zone(s) not required.

Roof edge zones.

Roof Corner zones.

As indicated on Drawings.

Determined by Roof Manufacturer/Designer.

* + - * 1. High Capacity Rake Starter and/or High capacity rake and eave plates.
      1. Seam: TripleLok, formed by use of an electrically powered seamer that forms a seam that will resist higher uplift loads.
         1. Locations: All roofing locations unless otherwise indicated.
         2. Patented High Wind Clips Utilized as required for severe wind uplift forces.

\*\* NOTE TO SPECIFIER \*\* Select zone(s) required. Delete zone(s) not required.

Roof edge zones.

Roof corner zones.

High roofs.

As indicated on Drawings.

Determined by Roof Manufacturer/Designer.

* + - * 1. High Capacity Rake Starter and/or High capacity rake and eave plates.
        2. Locations: Zone seaming to QuadLok.

Roof edge zones.

Roof corner zones.

As indicated on drawings.

Determined by Roof Manufacturer/Designer.

\*\* NOTE TO SPECIFIER \*\* QuadLok seam is for use in areas where wind uplift forces are severe.

* + - 1. Seam: QuadLok, formed with field seaming to further tighten and form an additional strengthening bend.
         1. Locations: All roofing locations unless otherwise indicated.
         2. Patented High Wind Clips: Utilize as required for severe wind uplift forces.

\*\* NOTE TO SPECIFIER \*\* Select zone(s) required. Delete zone(s) not required.

Roof edge zones.

Roof corner zones.

High roofs.

As indicated on Drawings.

Determined by Roof Manufacturer/Designer.

* + - * 1. High Capacity Rake Starter and/or High Capacity Rake and Eave Plates.
      1. Width Expansion Joint: No stepped width expansion joints to 450 ft (137.16 m) roof plane. Design roof system by utilizing Wind Clips and High Capacity Rake Plates.
      2. Exterior Wind Clamps: Exterior wind clamps are excluded from use.

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + - 1. Finish: AZ50 (minimum) aluminum/zinc alloy with painted finish.
      2. Finish: AZ55 (minimum) aluminum/zinc alloy with unpainted finish.
      3. Finish: AZ55 (minimum) aluminum/zinc alloy with clearcoat finish (Acrylume).

\*\* NOTE TO SPECIFIER \*\* Retro-fit Data. Delete retrofit if not required.

* + - 1. Retrofit Over Existing Through Fastened Roof System:
         1. Utilize appropriate height stand-off movable clip to clear existing panel rib height (see extended height clips; MPS-607, MPS-608; MPS-609).

Clip placement per manufacturer recommendations.

High capacity rake and eave plates required.

Additional fiberglass blanket for added R/U value and sound attenuation.

Optional vapor barrier may be required per retrofit requirements and field assessment.

* + 1. System Components:

\*\* NOTE TO SPECIFIER \*\* Delete components not required.

* + - 1. Fixed Clip - Low Stand-Off: FC602.
         1. Height: 4-5/16 inches (109.5 mm).
         2. Length: 3-1/4 inches (82.5 mm).
         3. UL 90.
      2. Fixed Clip - High Stand-Off: FC603.
         1. Height: 4-1/2 inches (114 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL 90.
      3. Fixed Clip - 2 Inch Extended Stand-Off: FC607.
         1. Height: 5 inches (114 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL 90.
      4. Fixed Clip - 2-1/2 Inch Extended Stand-Off: FC608.
         1. Height: 5-1/2 inches (140 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL 90.
      5. Fixed Clip - 3 Inch Extended Stand-Off: FC609
         1. Height: 6 inches (152 mm).
         2. Length: 4-5/16 inches (109.5 mm)
         3. UL 90.
      6. Movable Clip - Low Stand-Off, Short Base: MPS602-3.
         1. Height: 3-1/2 inches (89 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL90.
         4. Slide Travel Capacity: 1.325 inches (34 mm) each direction.
      7. Movable Clip - High Stand-Off, Short Base: MPS603-3.
         1. Height: 4-1/2 inches (114 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL90.
         4. Slide Travel Capacity: 1.325 inches (34 mm) each direction.
      8. Movable Clip - Low Stand-Off, Long Base: MPS602.
         1. Height: 3-1/2 inches (89 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL90 and FM.
         4. Slide Travel Capacity: 1.625 inches (41 mm) each direction.
      9. Movable Clip - High Stand-Off, Long Base: MPS603.
         1. Height: 4-1/2 inches (114 mm).
         2. Length: 4-5/16 inches (109.5 mm).
         3. UL90 and FM.
         4. Slide Travel Capacity: 1.625 inches (41mm) each direction.
      10. Movable Clip - 2 Inch Extended Stand-Off, Long Base: MPS607.
          1. Height: 5 inches (127 mm).
          2. Length: 4-5/16 inches (109.5 mm).
          3. UL90.
          4. Slide Travel Capacity: 1.625 inches (41mm) each direction.
      11. Movable Clip - 2-1/2 Inch Extended Stand-Off, Long Base: MPS608.
          1. Height: 5-1/2 inches (140 mm).
          2. Length: 4-5/16 inches (109.5 mm).
          3. UL90.
          4. Slide Travel Capacity: 1.625 inches (41mm) each direction.
      12. Movable Clip - 3 Inch Extended Stand-Off, Long Base: MPS609.
          1. Height: 6 inches (152 mm).
          2. Length: 4-5/16 inches (109.5 mm).
          3. UL90.
          4. Slide Travel Capacity: 1.625 inches (41mm) each direction.
      13. High Wind Movable Clip - Low Stand-Off, Long Base: BA602-8.
          1. Height: 3-1/2 inches (89 mm).
          2. Length: 8 inches (203 mm).
          3. UL90 and FM.
          4. Long Slide Travel Capacity: 2.375 inches (60 mm) each direction.
      14. High Wind Movable Clip - High Stand-Off, Long Base: BA603-8.
          1. Height: 4-1/2 inches (114 mm).
          2. Length: 8 inches (203 mm).
          3. UL90 and FM.
          4. Long Slide Travel Capacity: 2.375 inches (60 mm) each direction.
      15. High Wind Movable Clip - Low Stand-Off, Long Base: BA602-12.
          1. Height: 3-1/2 inches (89 mm).
          2. Length: 12 inches (305 mm).
          3. UL90.
          4. Long Slide Travel Capacity: 3.90 inches (99 mm) each direction.
      16. High Wind Movable Clip - High Stand-Off, Long Base: BA603-12.
          1. Height: 4-1/2 inches (114 mm).
          2. Length: 12 inches (305 mm).
          3. UL90.
          4. Long Slide Travel Capacity: 3.90 inches (99 mm) each direction.
      17. High Wind Movable Clip - Low Stand-Off, Long Base: BA602-16.
          1. Height: 3-1/2 inches (89 mm).
          2. Length: 16 inches (406 mm).
          3. UL90.
          4. Long Slide Travel Capacity: 5.5 inches (140 mm) each direction.
      18. High Wind Movable Clip - High Stand-Off, Long Base: BA603-16.
          1. Height: 4-1/2 inches (114 mm).
          2. Length: 16 inches (406 mm).
          3. UL90.
          4. Long Slide Travel Capacity: 5.5 inches (140 mm) each direction.
      19. Cinch Strap - Stainless Steel, 24 inch (610 mm) Wide Panel: CS324.
          1. Width: 1-1/4 inches (32 mm).
          2. Length: 20.25 inches (514 mm).
      20. End Dam - 24 inch wide, Galvanized: ED324.
          1. Height: 3 inches (76 mm).
          2. Length: 24 inches (610 mm).
      21. End Dam - 24 inch wide, Painted - Powder Coated: ED324C.
          1. Height: 3 inches (76 mm).
          2. Length: 24 inches (610 mm).
      22. Corrugation Closure - 24 Gage, Galvanized: CC324.
          1. Height: 2 inches (51 mm).
          2. Width: 5-1/16 inches (129 mm).
      23. Corrugation Closure - 24 Gage, Painted - Powder Coated: CC324C.
          1. Height: 2 inches (51 mm).
          2. Width: 5-1/16 inches (129 mm).
      24. Corrugation Closure - 18 Gage, Galvanized: CC324-18.
          1. Height: 2 inches (51 mm).
          2. Width: 5-1/16 inches (129 mm).
      25. Corrugation Closure - 18 Gage, Painted - Powder Coated: CC324-18C.
          1. Height: 2 inches (51 mm).
          2. Width: 5-1/16 inches (129 mm).
      26. Gutter Bracket, Southern Region - Galvanized: CC601.
          1. Width: 3.35 inches (85 mm).
          2. Length: 11.29 inches (287 mm).
          3. Style: Gutter top lip flush with top of corrugation.
      27. Gutter Bracket, Northern Region - Galvanized: CC602.
          1. Width: 3.35 inches (85 mm).
          2. Length: 11.97 inches (305 mm).
          3. Style: Gutter top lip flush with pan of panel.
      28. Back-up Plate, 24 inch (610 mm) Wide Panel - Galvanized: BP324.
          1. Width: 4-3/4 inches (121 mm).
          2. Length: 18-3/4 inches (476 mm).
      29. Second Generation Back-up Plate, 24 inch (610 mm) Wide Panel - Galvanized: BP2-324.
          1. Width: 6-1/2 inches (165 mm).
          2. Length: 18-3/4 inches (476 mm).
      30. High Capacity Eave Plate - 1/2 inch (13 mm) Stand-Off: EP-005.
          1. Height: 1/2 inch (13 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
      31. High Capacity Eave Plate - 1-1/2 inch (38 mm) Stand-Off: EP-015.
          1. Height: 1-1/2 inches (38 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
      32. High Capacity Eave Plate - 2 inch (51 mm) Stand-Off: EP-020.
          1. Height: 2 inches (51 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
      33. High Capacity Eave Plate - 2-1/2 inch (64 mm)Stand-Off: EP-025.
          1. Height: 2-1/2 inches (64 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
      34. High Capacity Eave Plate - 3 inch (76 mm) Stand-Off: EP-030.
          1. Height: 3 inches (76 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      35. High Capacity Rake Plate - 1/2 inch (13 mm) Stand-Off: RP-005.
          1. Height: 1/2 inch (13 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      36. High Capacity Rake Plate - 1-1/2 inch (38 mm) Stand-Off: RP-015.
          1. Height: 1-1/2 inches (38 mm).
          2. Length: 10 feet. (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.90 Inches (91 mm) each direction.
      37. High Capacity Rake Plate - 2 inch (51 mm) Stand-Off: RP-020.
          1. Height: 2 inches (51 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      38. High Capacity Rake Plate - 2-1/2 inch (64 mm) Stand-Off: RP-025.
          1. Height: 2-1/2 inches (64 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      39. High Capacity Rake Plate - 3 inch (76 mm) Stand-Off: RP-030.
          1. Height: 3 inches (76 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm).
          4. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      40. High Capacity Rake Starter Plate: SP-035.
          1. Height: 3-1/2 inches (89 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg and 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 1/2 inch (13 mm).
          5. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      41. High Capacity Rake Starter Plate : RP-045.
          1. Height: 4-1/2 inches (114 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg and 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 1-1/2 inches (38 mm).
          5. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      42. High Capacity Rake Starter Plate : SP-050.
          1. Height: 5 inches (127 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg and 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 2 inches (51 mm).
          5. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      43. High Capacity Rake Starter Plate: SP-055.
          1. Height: 5-1/2 inches (140 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg and 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 2-1/2 inches (63.5 mm).
          5. Slide Travel Capacity: 3.60 inches (91 mm) each direction.
      44. High Capacity Rake Starter Plate: SP-060.
          1. Height: 6 inches (152 mm).
          2. Length: 10 feet (3048 mm).
          3. Legs: 2 inches (51 mm) Bottom Leg and 3/4 inch (19 mm) Top Leg.
          4. Stand-off: 3 inches (76 mm)Slide Travel Capacity: 3.60 inches (91mm) each direction.

1. EXECUTION
   1. EXAMINATION
      1. Verify that substrates are acceptable for roofing installation in accordance with manufacturer's instructions.
      2. Do not begin installation until substrates have been properly constructed and prepared.
      3. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions and approved submittals and in proper relationship with adjacent construction.
      2. Coordinate metal roofing with other work, including but not limited to drainage, flashing and trim, deck substrates, parapets, copings, walls, and other adjoining work.
      3. Install metal roofing panels to profiles, patterns, and drainage indicated, and as necessary to achieve specified performance and a leak-free Installation. Allow for structural and thermal movement.
      4. Separate dissimilar metals using bituminous coating to prevent galvanic action.
      5. Use fasteners recommended by panel manufacturer.
      6. Exclude use of battery-operated impact drivers for roof fastener installation.
      7. Provide uniform, neat seams; provide sealant-type joint where indicated and form joints to conceal sealant.
      8. Roof Accessories: To be approved by roof system supplier maintaining roof warranties.
         1. Includes the following Roof Accessories as Applicable to the Project: Include but are not limited to the following.
            1. Roof curbs.
            2. Skylights.
            3. Walkways.
            4. Vents.
            5. Hatches.
            6. Snow retention Devices.
      9. Mechanical roof seamer and hand crimpers to be approved by roof system supplier.
      10. All exposed fasteners shall be color matched to the roof/trim color.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturer's recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION