

**Section 07 61 13.01
Structural Standing Seam Sheet Metal Roofing**

****** The Design Professional shall include the following PSFA requirements as noted and complete this section, edited as necessary with information for the specific project. Refer to the latest version of the "State of New Mexico Public School Facilities Authority Roofing Program Handbook" at www.nmpsfa.org. ******

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions, general project requirements and Division 01 Specification Sections, apply to this Section.
- B. Documents specifically related to this section include:

****** Include additional sections as necessary. ******

- 1. Section [00 4113] [00 4166] - Bid Form: **Roofing production rates required by Contract.**
- 2. Section 01 3100 – Project Management and Coordination: Coordination of roofing work with Owner; roofing sequence inclusion in Project Schedule.
- 3. Section 01 4100 – Quality Requirements: **Roofing observation services** and reports; Contractor's responsibilities.
- 4. Section [] -

1.2 SCOPE OF WORK

******Summarize scope of work involving existing system components to remain or be removed, if re-roofing project. ******

- A. Furnish and install a weather and watertight structural standing seam sheet metal roof complete, in-place, per the Contract Documents.
- B. The latest Manufacturer specifications and installation techniques are to be followed. When the Contract Documents and Manufacturer's requirements are in variance with each other, the most stringent requirements of the two shall typically apply at no additional cost to Owner or resulting change in Contract.

1.3 CODE COMPLIANCE

******Designer shall complete the following code compliance information for all projects. Wind uplift pressures shall be calculated per the Building Code and include a factor of safety of 2. ******

- A. The completed roof system shall meet the following requirements:
 - 1. Building Code: _____
 - 2. Energy Code: _____
 - 3. External Fire Rating: UL Class A external fire rating.

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- B. The completed roof system shall meet the following design wind load pressures calculated in accordance with the applicable building code:
 - 1. Field: _____ psf
 - 2. Perimeters: _____ psf
 - 3. Corners: _____ psf
- C. Perimeter and corner areas shall be calculated based upon the applicable building code requirements.

1.4 QUALIFICATIONS

- A. Manufacturer Qualifications
 - 1. The Manufacturer of the roofing system shall have not less than five (5) years of experience in the production of the specified system.
- B. Installer Qualifications
 - 1. The installer of the roofing shall have been engaged in the business of installing the specified roofing system for not less than five (5) years and shall be certified by the roofing system Manufacturer in the layout and application of this system. The installer shall have successfully installed the specified system as follows:
 - a. At least once, and;
 - b. At least five (5) years prior to Bid on this Project.
 - 2. The crew shall be composed of experienced and skilled workers in this work.

1.5 QUALITY ASSURANCE

- A. Standards: Comply with latest edition of standards specified in this section and as referenced below:
 - 1. The *NRCA Roofing and Waterproofing Manual* – National Roofing Contractors Association.
 - 2. Roofing Manufacturer's current published specifications, application instructions, and technical bulletins.
 - 3. *Annual Book of ASTM Standards*, Latest Revision – ASTM International.
- B. Qualifications of Installers: Use adequate number of skilled workers who are thoroughly trained and experienced in the necessary crafts, and who are completely familiar with the specified requirements and methods needed for proper performance of the work in this section. In acceptance or rejection of the work, the Owner will make no allowance for lack of skill on the part of the workers.

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- C. Roofing Inspections: Make all required notifications and secure all required inspections by the Manufacturer of the approved materials to facilitate issuance of the specified roof warranty.
- D. Roofing Consultant and Observer: The Owner shall provide the services of a Roofing Consultant Roofing Observer for the purposes of quality assurance in the design and installation of the roofing system. See Subparagraph 1.1-B and other portions of this section for related Contractor's requirements.
- E. U.L. Listing: Provide materials bearing Underwriters Laboratories (U.L.) marking on bundle, package, or container, indicating that materials have been produced under U.L.'s classification and follow-up service.
- F. The Roofing Contractor shall not subcontract the installation of the roof system covered under this specification to an individual or a firm that is not a full-time employee of the Roofing Contractor's company.

1.6 REFERENCES

- A. References: Materials used in this section shall be listed in the latest edition of the following:
 - 1. *Roofing materials and Systems Directory and Fire Resistance Directory* – Underwriters Laboratories Inc.

1.7 SUBMITTALS

- A. General: Comply with the provisions of the General Conditions of the Contract and Division 01 specification sections. Submittal schedule shall allow ample time for processing and approval prior to Pre-Roofing Coordination Meeting and start of roof system installation work.
- B. Product Data:
 - 1. Most recent copy of Manufacturer's literature applicable to products and specifications to be used.
 - 2. Complete material list of all items proposed to be furnished and installed under this section.
 - 3. Letter from Manufacturer stating that the roofing contractor is approved for installation of the specified roofing system.
 - 4. Manufacturer's recommended methods of installation.
 - a. When approved by the Design Professional, the Manufacturer's recommended methods of installation, unless superseded by more stringent requirements in the Contract Documents, will become the basis for inspecting, and acceptance or rejection of the actual installation procedures used in this Work.
- C. Detail showing the proposed temporary water cutoff detail.
- D. Fire Resistance Information: Provide documentation that roofing system, insulation, and component materials that have been tested for application and

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slopes indicated and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure over deck specified herein.

- E. Wind Uplift Information: Provide documentation that mechanically fastened roofing system, and component materials suitable for the structural deck, and that have been tested as a complete system for application and slopes indicated. Provide information on fastening for uplift resistance to meet the applicable Building Code.
- F. Sheet metal and flashing shop drawings as required by Section 07 6200.

1.8 QUALITY ASSURANCE BY ROOF SYSTEM MANUFACTURER

****** Design Professional shall edit, considering level of need, practicality and cost ******

- A. Membrane Manufacturer's technical representative, who shall be a full time employee of the membrane Manufacturer's technical service, shall provide on-site training and quality assurance in conjunction with beginning of membrane installation. The Manufacturer's technical representative shall then visit the site to provide quality assurance and follow-up training a minimum of every two (2) weeks thereafter.
- B. During each visit, the Manufacturer's technical representative shall check all work installed since the last visit, mark all defects for repair, and provide a written site visitation report listing any deficient work requiring correction by the Contractor. All reports and other correspondence associated with the site visit shall be provided to the Contractor, Owner's Roofing Consultant and Design Professional within three (3) business days of the visit.
- C. The Manufacturer's technical representative shall coordinate all site visits with the Contractor, Owner's Roofing Consultant and Design Professional a minimum of three (3) business days in-advance.
- D. After the roof installation is Substantially Complete, the Manufacturer shall inspect the work and inform (by written report) the Design Professional, Contractor, Owner's Roofing Consultant and the Installer of defective/incomplete work to be remedied. Those areas indicated shall be corrected to the full satisfaction of the Design Professional, Owner, and Manufacturer. The Manufacturer shall submit written acceptance of the project to the Design Professional prior to Final Completion for issuance of the weathertightness warranty.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to job site in their original unopened containers. Package labels shall indicate material name, production date, and/or product code. Slit Manufacturer-supplied plastic and cover with weatherproof tarps that are securely anchored so as to resist blow off.
- B. Store materials in dry, raised, protected areas in an upright position. Control temperature of storage areas in accordance with Manufacturer's instructions. Protect materials from exposed to the elements. Do not exceed allowable live load of storage area.
- C. Use all necessary means to protect the materials in this section before, during, and after installation, and to protect the work and materials of all other trades.

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- D. In the event of damage to roofing and related work or building components, immediately make all necessary repairs and replacements subject to the approval of and at no additional cost to the Owner.
- E. Wet, damaged, or defective materials which are intended for incorporation into the new roofing system shall be marked to indicate rejection, and removed from the site the same day as discovered.

******* Include next item if re-roofing project. *******

- F. Securely store and protect materials designated for removal and re-installation as part of the re-roofing work.

1.10 SCHEDULING

- A. Work is to be performed on a daily basis with each section completed before progressing to the next day's work, unless specifically directed otherwise by the Design Professional.
- B. Substantial Completion of roofing work will be defined as the contractually required and weathertight installation of all specified roof preparation, insulation, field membrane, flashings, counterflashings, sheet metal, fasteners and caulking.
- C. All flashings shall be installed concurrently with the roofing membrane as the job progresses. No temporary flashings shall be allowed without the prior written approval of the Design Professional. If any water is allowed to enter under the newly completed roofing due to incomplete flashings, seams and or night seals, the affected area shall be removed and replaced at the Contractor's expense.
- D. Once roofing is started, the roofing application must be Substantially Complete within the time period required by the Contract. All punch list items must be complete prior to Final Completion.

1.11 WARRANTY

- A. The Roofing Contractor shall warrant all materials and workmanship for a period of two years from the date of acceptance of the completed work by the Owner. The Roofing Contractor shall make good any defects in materials or workmanship that may develop during the two-year period by repairing or replacing such defects at his own expense without cost to the Owner. Roofing Contractor shall use the form entitled "Roofing Contractor's Warranty" provided in this section.
- B. The Contractor shall make all necessary notices for warranty purpose to the primary roofing Manufacturer, to secure timely inspections and issuance of the warranty.
- C. Upon Final Completion and prior to final payment, Contractor shall pay all required fees, secure all required inspections, and complete all items necessary to secure and deliver to the Design Professional the following items:
 - 1. Copies of all Manufacturer's punch lists and documentation of completion.

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2. Primary Roofing Manufacturer's 20-year no dollar limit (NDL) labor and material, total systems warranty on the form provided in this section. The total system warranty shall include the following:
 - a. Roof panels
 - b. Roof trim
 - c. Roof insulation
 - d. Roof system fasteners, termination bars, clips, and other miscellaneous accessories supplied by the roofing Manufacturer
- D. Primary Roofing Manufacturer's Warranty shall cover building code required design wind speed.
- E. Primary Roofing Manufacturer's warranty shall cover defects in materials and workmanship and shall become effective at the completion of the work. This warranty shall not include any buy-out clauses and shall not be prorated.
- F. All warranties shall contain written provision(s) stating that they will be fully transferable at any time during the specified warranty period.
- G. Submit all items to the Design Professional within ten days of receipt from the Manufacturer or within ten days of the final inspection.

1.12 ROOFING DATA FORMS

- A. Roofing data forms shall be submitted at Project Closeout by Contractor. See Sections 01 7800 and 01 7801 for requirements.

PART 2 – PRODUCTS

2.1 GENERAL

- A. All materials used on this project shall be compatible with the existing conditions and with each other.
- B. No product shall contain any asbestos or asbestos-related products.

2.2 ACCEPTABLE MANUFACTURERS

****** Include all manufacturers which have obtained final acceptance for listing on the project as required by the New Mexico Public School Facilities Authority Roofing Program Handbook. ******

- A. Products manufactured or accepted by:
 - 1.
 - 2.
 - 3.

2.3 MATERIALS

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- A. Hot-Rolled Structural Shapes: ASTM A 36 or A 529.
- B. Tubing or Pipe: ASTM A 500, Grade B; ASTM A 501; or ASTM A 53.
- C. Members Fabricated from Plate or Bar Stock: 50,000 psi minimum yield strength; ASTM A 529, A 570, A 572, or A 607.
- D. Members Fabricated by Cold Forming: ASTM A 607 or A 570, Grade 50.
- E. Galvanized Steel Sheet: ASTM A 446 with G90 coating; "Class" to suit building Manufacturer's standards.

2.4 STRUCTURAL FRAMING COMPONENTS

- A. Secondary Framing: Purlins, eaves struts, end wall beams, flange and sag bracing; minimum 16-gauge roll formed sections. Shop painted.
- B. Base channel, sill angle, end wall structural members (except columns and beams), purlin spacers; minimum 14-gauge cold-formed steel, galvanized.
- C. Bolts: ASTM A 307 or A 325 as necessary for design loads and connection details. Provide zinc-plated or cadmium-plated units when in direct contact with panels.
- D. Shop Painting: Clean surfaces to be primed of loose mill scale, rust, dirt, oil, grease, and other matter precluding paint bond. Follow procedures of SSPC-SP3 for power tool cleaning, SSPC-SP7 for brush-off blast cleaning, and SSPC-SP1 for solvent cleaning.
- E. Structural Steel Primer: Prime structural steel secondary framing members with Manufacturer's standard rust-inhibitive primer having rust-inhibitive pigment, such as zinc chromate iron-oxide alkyd (TT-P-636 or TT-P-664).
- F. Galvanized Prime: After phosphoric acid pretreatment, prime galvanized members with zinc oxide primer (FS TT-P641).

2.5 ROOFING

- A. General: Provide roofing roll formed to profile indicated and specified. Provide flashings, closures, fillers, metal expansion joints, ridge covers, roof panel mounting clips, gable and eave trim, gutters, and other sheet metal accessories factory formed and finished. Material and finish shall be as specified.
 - 1. Allowances for Thermal Expansion: Metal roof system shall be designed, fabricated, and installed to allow relative movement between roof panels and purlins, gables and ridges, due to thermal expansion and contraction, without causing damage to the system or permanent deformation to any of the system components. Roof panel end laps shall allow panels to expand and contract without damage to end lap seams. Roof panel end laps must be staggered to insure a continuous unbroken panel through each seam.
- B. Roof Panels: 24-gauge x 2'0" maximum width, roll formed, Galvalume (aluminum-zinc alloy coated steel) sheet coated on both sides with a layer of

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aluminum-zinc alloy by continuous hot dip method (approximately 55% aluminum, 45% zinc). Triple spot minimum 0.55 oz. per square foot as determined by ASTM A 792. Length of panels shall be maximum possible to minimize end laps. Panels shall have two major corrugations nominally 2" high not including seam, 24" o.c., and minor corrugations spaced 12" o.c. maximum between and parallel to major corrugations.

1. Roof Panel Side Laps: Panels shall be designed to provide full double lock (180°) seam side laps when installed. Partial double lock seams, lapped seams, or friction fit seams will not be acceptable. Factory-applied sealant shall be provided in female portion of seam.
- C. Prefinished Panels: Clean galvanized steel with an alkaline compound, then treat with a zinc phosphate conversion coating and seal with a chromic acid rinse. Apply to exterior surfaces of pretreated steel a 90% fluoropolymer coating (Kynar 500/Hylar 5000) system supplied to provide a total dry film thickness of .09 mils minimum. Color will be as selected by Design Professional from Manufacturer's standards.
- D. Standing Seam Roof Panel Mounting Clip: Galvanized steel clip with stainless steel sliding clip tab. Galvanized clip shall be prepunched or predrilled for mounting to roof purlins. Sliding clip tab shall be designed to lock into and become an integral part of roof panel double lock seam. Provisions shall be incorporated into mounting clip assembly to keep sliding clip tab centered on mounting clip during installation of roof panels.
- E. Sheet Panel Fasteners: Manufacturer's standard system of self-tapping screws, bolts, and nuts; self-locking rivets; self-locking bolts; end-welded studs; and other suitable fasteners designed to withstand design loads. Self-drilling fasteners are not acceptable.
 1. Provide metal-backed neoprene/EPDM washers under heads of fasteners bearing on weather side of panels.
 2. Use stainless steel fasteners for exterior application and galvanized or cadmium-plated fasteners for interior application. Lock rivets where required shall be aluminum or stainless steel.
 3. Locate and space fasteners for true vertical and horizontal alignment. Use proper type fastening tools to obtain controlled, uniform compression for positive seal without rupture of neoprene washer.
 4. All exposed fasteners shall be color matched to match the panels.
- F. Flexible Closure Strips: Closed-cell, expanded cellular rubber, self-extinguishing, cut or premolded to match corrugation configuration of roofing and siding sheets. Provide where indicated and necessary to ensure weathertight construction.
- G. Sealing Tape: 99% solids, pressure sensitive grey polyisobutylene compound tape with release paper backing. Not less than 1/2" wide and 1/8" thick, nonsag, nontoxic, nonstaining, and permanently elastic.
- H. Joint Sealant: One part elastomeric; polyurethane or polysulfide as recommended by building Manufacturer. Color to match roof panels.

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- I. **Manufactured Pipe Boot:** Pipe flashing boot shall be one-piece construction of EPDM with flexible metal reinforcing ring bonded to flange on base of boot. Size of boot shall be appropriate for size of penetrations where the operating temperature of the penetration is between -25° F to 250° F.
- J. **Equipment Mounting Curb:** Shall be sized to fit equipment, welded watertight construction that is integral with panel, with water diverter or cricket on up-slope side of curb. Curb shall be designed to support load of equipment. Provide structural support for curb to transfer load to building's structural system. Profile of curb panel shall match that of specified metal panel roof system. Finish of curb shall match roof panels. Curb shall be manufactured by panel Manufacturer or supplier approved by panel Manufacturer.

2.6 THERMAL INSULATION

- A. **Insulation:** Not less than 0.5 lb. per cubic foot density, thickness as indicated, glass fiber blanket with U.L. flamespread classification of 25 or less. Two-inch wide, continuous, vapor-tight edge tabs.
 - 1. Vapor barrier per rating shall be .02 to 0.1 vinyl-aluminum foil laminate or aluminum foil kraft paper laminate.
- B. **Location**
 - 1. Provide fiberglass blankets with integral vapor barrier over entire existing roof area. Insulation shall be installed over purlins from eaves to eaves with edges abutting, double rolled and side tabs stapled together. Install in continuous, unbroken lengths to extent possible. End seams, where they occur, shall be staggered, stapled and taped. Thickness shall be as required to provide a minimum additional "R" value of 16 based upon ASTM C 236.

2.7 OTHER MATERIALS

- A. All other materials not specifically described but required for a complete and proper installation of the work in this section shall be as selected by the Contractor, approved by the Manufacturer, and subject to the approval of the Owner.
- B. Wood Nailer – Division 06

PART 3 - EXECUTION

3.1 INSPECTION

- A. The Contractor shall be responsible for verifying existence of suitable substrate to accept the roofing system.
- B. Installer of roofing system shall examine substrate and conditions under which roofing work is to be performed and shall notify the Design Professional and Owner's Representative immediately of unsatisfactory conditions. Do not proceed with roofing work until unsatisfactory conditions have been corrected in a manner acceptable to Design Professional, installer and Manufacturer.

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- C. Pre-roofing coordination meeting: Before roofing work may begin, the Design Professional shall conduct a pre-roofing coordination meeting with mandatory attendance required for the Owner's Representative, Owner's Roofing Consultant, primary roofing Manufacturer's technical representative, General Contractor, the Roofing Contractor, roofing foreman, and all other subcontractors who have any components of their work on or penetrating the roof. The participants shall:
1. As much as is possible by visual inspection and by the cutting of core samples, inspect surfaces and site conditions required to be ready to receive work. Contractor shall verify acceptability of substrate for application of new roofing system before commencement of installation.
 2. Examine roof openings, curbs, pipes, sleeves, ducts, and vents through roof, cant strips, wood nailing strips and reglets in place. Observe if curbs and penetrations have been laid out and installed with adequate vertical and horizontal clearance as required by the Manufacturer to provide the specified warranty.
 3. Observe if the condition of surface to receive roof insulation is firm, clean, smooth, and dry.
 4. Review the Contractor's schedule for roofing work so that all parties can coordinate essential tasks within the time restraints and as required by the roofing production rates of the contract.
 5. Review the responsibilities of all parties in regard to communication and coordination during the roofing portion of the Work, especially in that which pertains to the involvement of the Owner's Roofing Consultant and Observer. See Section 00 7200 - General Conditions of the Contract and Division 01.
 6. Review status of all submittals necessary to be approved prior to the start of the roofing work.
 7. Review plans for roofing equipment and materials staging and roofing schedule in coordination with school schedule and traffic patterns.

3.2 DESCRIPTION

- A. Preparation and Surface Conditions

******Design Professional shall modify and supplement the following text to address conditions related to re-roofing projects, if applicable.******

1. Before roof application is started, remove trash, debris, grease, oil, water, moisture, and contaminants that may affect bond of bitumen to substrate.
2. Prepare all surfaces according to applicable specification sections.
3. Protect adjacent areas from damage with tarps or other durable materials.
4. Surfaces scheduled to receive roofing are to be free of any standing water, frost, snow, or loose debris.

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5. Substrate is to be smooth, properly sloped, free of sharp projections, and free of obvious depressions.
 6. All roof openings, curbs, pipes, sleeves, ducts, and vents through roof shall be solidly set, and cant strips, wood nailing strips and reglets in place before roofing work begins. Verify that all nailers, curbs and penetrations have been laid out and securely installed with adequate vertical and horizontal clearance as required by the Manufacturer to provide the specified warranty.
 7. Do not start roof application until defects have been corrected.
- B. Installation – General
1. Perform all related work specified elsewhere necessary for the installation of the specified panel system.
 2. Ensure that fasteners do not penetrate conduit or other miscellaneous items located on the underside of the roof deck.
 3. Do not apply roofing materials when water in any form (i.e. rain, dew, ice, frost, snow, etc.) is present.
 4. Do not apply roofing during inclement weather or when ambient conditions will not allow proper application. Consult Manufacturer's technical specifications on cold weather application.
 5. Phased roofing system installation shall not be permitted.

3.3 WOOD NAILER INSTALLATION

- A. Nailers are to be installed as per detail drawings.
- B. Discard units of material with defects that might impair quality of work and units that are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- C. Set nailers to required levels and lines with members plumb and true.
- D. Top of perimeter nailers shall be uniformly flush with the top of insulation.
- E. Nailers shall be installed with 1/4" gap between ends of adjoining pieces.
- F. Nailers shall be fastened in accordance with the following schedule:
 1. Fasteners in 6" or wider (nominal) lumber shall be installed in two (2) rows, staggered one-third of nailer width. Listed spacings indicate distance between fasteners in adjacent rows.
 2. Two (2) fasteners shall be installed within 3" of each nailer end.
 3. Corner fastener spacing shall extend 8' maximum from all outside building corners.

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4. Where two or more nailers are installed, each nailer shall be fastened independently.
5. Over all deck types, the bottom nailer shall be fastened using the specified fasteners and 5/8" diameter washers. Countersink washers and fasteners level with top of wood using spade bit or similar method. Fasten subsequent nailers, where specified, using the specified screws without washers.
6. Nailer Attachment Schedule (unless noted otherwise on the drawings)

| Attachment Substrate | Perimeter Fastener Spacing (maximum) | Corner Fastener Spacing (maximum) |
|------------------------------------|--------------------------------------|-----------------------------------|
| Structural Concrete | 12" o.c. | 6" o.c. |
| CMU (fastener into solid material) | 12" o.c. | 6" o.c. |
| Steel Deck | 12" o.c. | 6" o.c. |
| Wood | 12" o.c. | 6" o.c. |

3.4 ERECTION

- A. Purlins and Girts: Provide rake or gable purlins with tight fitting closure channels and fascia. Secure purlins to structural framing.
- B. Framed Openings: Provide shapes of proper design and size to reinforce opening and to carry loads and vibrations imposed, including equipment furnished under mechanical or electrical work. Securely attach to building structural frame.

3.5 ROOFING

*******Design Professional shall modify and supplement the following text to address conditions related to re-roofing projects, if applicable.*******

- A. General: Arrange and nest panel side lap joints so that prevailing winds blow over, not into lapped joints. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line. Protect factory finishes from damage. Samples submitted will be used as basis for evaluating quality of work performed.
- B. Provide weather seal under ridge cap; flash and seal roof panels at eaves and rake with EPDM or other closures to exclude weather.
- C. Roof Sheets: Secure roof panels to structurals by means of a sliding clip fastened to the structurals and securely locked into panel seam. Sliding clip shall be centered in mounting clip.
 1. Panel seams shall be full double lock field formed using Manufacturer's standard forming machine. Cracking or splitting of metal or cracking, peeling, blistering or other damage to panel coating is not acceptable. Panels shall be securely fastened to eaves structural and sealed watertight.

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2. Panel end splices shall consist of notched roof panels fastened together and sealed weathertight. End splices shall be staggered across field of roof so that in no event end lap seams occur together in adjacent panels. End lap seams shall be tight and flat. Fish mouth between fasteners is not acceptable.
- D. Sheet Metal Accessories: Install gutters, roof curbs, ventilators, louvers, and other sheet metal accessories in accordance with Manufacturer's recommendations for positive anchorage to building and weathertight mounting.
- E. Thermal Insulation: Install in accordance with Manufacturer's published directions, performed concurrently with installation of roof panels. Install blankets straight and true in one-piece lengths with both sets of tabs sealed to provide a complete vapor barrier. Install retainer strips at each longitudinal joint straight and taut, nesting with roof rib to hold insulation in place.
- F. Dissimilar Materials: Where aluminum surfaces come in contact with ferrous metal or other incompatible materials, keep aluminum surfaces from direct contact by application to the other materials as follows:
 1. One coat of zinc chromate primer, FS TT-P-645, followed by two coats of aluminum paint, SSPC-Paint 101.
 2. In lieu of two coats of aluminum paint, apply one coat of high build bituminous paint, SSPC-Paint 12, applied to a thickness of 1/16" over zinc chromate primer.
 3. Backpaint aluminum surface where impractical to paint other surface.

3.6 TEMPORARY WATER CUTOFFS

- A. Temporary water cutoffs are to be constructed at the end of each working day to protect the insulation, roofing, building, and building interior from damage due to wind, snow, and rain.
- B. Temporary water cutoffs are to be detailed by the Contractor and approved by the Manufacturer and the Design Professional.
- C. All temporary water cutoffs shall be removed at the commencement of work the next working day.

3.7 FIELD QUALITY CONTROL

- A. Water Test
 1. After completion of the roof and prior to the installation of the cap sheet, a water test, shall be coordinated with the Owner and conducted by the Contractor in the presence of Design Professional, Owner's Roofing Observer, and Owner's Representative. The water test shall include the following procedures:
 - a. At the direction of the Design Professional, apply simulated rain over all roof areas for at least 15 minutes per area, or as otherwise directed.

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- b. In addition to the simulated rain, direct water to all walls, windows, units, penetrations, etc. that occur adjacent to, or within each roof area, using a continuous, unforced hose stream.
- c. Plug all roof drains and scuppers in each drainage area and allow each drain/scupper sump to be filled to a depth of 3-4 inches. Allow to stand for a minimum of 2 hours.
- d. Perform any necessary corrections to defects noted (including the ensuring of positive drainage around all curbs, roof openings and crickets to roof drains or scuppers) during or after the water test procedures. Perform additional testing as necessary to further define sources of any noted leakage.
- e. Contractor shall provide and/or arrange for necessary equipment, supplies, water, etc. as needed to perform these tests. Provide a water truck with an appropriate hose, if necessary.

3.8 PROTECTION

- A. Protect building surfaces, rooftop mounted equipment, piping, conduit, etc., against damage from roofing work. Where traffic must continue over finished roof membrane, protect surfaces.

3.9 CLEANUP

- A. Remove bituminous markings from finished surfaces.
- B. In areas where finished surfaces are soiled by work of this Section, consult Manufacturer of surfaces for cleaning advice and conform to their instructions.
- C. Remove excess materials, trash, debris, equipment, and parts from the work.
- D. Repair or replace defaced or disfigured finishes caused by work of this section.

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ROOFING CONTRACTOR'S WARRANTY

Trade: _____

Manufacturer and System Installed: _____

Contractor: _____

Contract Number and Date: _____

Project and Location: _____

Area of Roof Installation: _____

Date of Acceptance
(Effective Warranty Date): _____

1. Contractor warrants to Owner that the roofing system identified above have been installed in accordance with the specifications of the contract referenced above, and the specifications of the Manufacturers of all materials used in performance of the work.
2. Contractor warrants to Owner that Contractor for a period of two (2) years commencing with the date of Owner's acceptance of the installation, will make good any deficiencies that develop as a direct result of workmanship defects, by repairing or replacing such defects. All corrective work shall utilize materials and installation procedures in strict accordance with the specifications. The Contractor will respond within 24 hours and repair within 5 business days, any leaks or defects in the roofing assembly.
3. Contractor warrants to Owner that Contractor for a period of two (2) years commencing with the date of Owner's acceptance of the installation, will maintain all sheet metal flashing in a watertight condition without cost to the Owner.
4. Contractor's liability hereunder shall be limited to the repair or necessary replacement of any defective component of the work without cost to Owner and shall not include incidental or consequential damages.

CONTRACTOR

By: _____
(Officer)

Title: _____

Company: _____

Date Executed: _____

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Roofing System Manufacturer's 20 Year Warranty

Manufacturer's Warranty Number:

Effective Date:

Expiration Date:

Manufacturer Name:

Telephone #:

Fax #:

E-Mail:

Address:

School District:

School:

Project:

Project Address:

Total Warranty - Square Footage:

Roof Specification-System Name:

Insulation Type(s):

Roofing Contractor:

Address:

Designer of Record:

Telephone #:

Fax#:

E-Mail:

Address:

Telephone No.:

Fax #:

Other Information:

WARRANTY

- 1 The Manufacturer warrants to the School District named above, that, subject to the provisions of this document, the Manufacturer will, within 3 business days, at its own expense, make or cause to be made all repairs necessary to maintain the roofing system in a watertight condition during the warranty period stated above which commences on the date of Substantial Completion. System warranty includes:
 - A. Roof membrane
 - B. Roof membrane adhesion
 - C. Roof membrane flashings (except metal or components not furnished by the Manufacturer as part of its advertised system)
 - D. Roof insulation
 - E. Roof insulation attachment / adhesion
 - F. Roof system fasteners, termination bars, and other miscellaneous accessories supplied by the roofing Manufacturer
 - G. Roof related sheet metal (edge metal, copings, counterflashing) supplied by the Manufacturer.
 - H. Metal component strip-in-plies.
 - I. Roof system attachment / adhesion to the building code defined design wind speed.
- 2 OWNER'S RESPONSIBILITY: The Owner will notify the Manufacturer if repairs covered by the Warranty are required. The notice will be by, Telephone, Fax, E-mail, or Mail, to the Manufacturer's office listed above within 30 days of discovery of leaks or other defects in the roofing system. The Owner will provide the Manufacturer free access to the building during regular business hours over the life of the Warranty. The Owner acknowledges that the Manufacturer has provided its Roofing Maintenance Manual, including instructions necessary for the Owner to inspect and maintain the roofing system during the warranty period.
- 3 EXCLUSIONS: The following are excluded from this Warranty:
 - A. Roof maintenance for corrections of conditions other than leaks.
 - B. Damage to any part of the building (other than the roofing system) or to its contents (consequential damages).
 - C. Damage resulting from repairs made to the roofing system without the Manufacturer's prior authorization.
 - D. Damage resulting from any one of the following:
 1. Settlement, expansion, contraction, cracking, warping, deflection or movement of roof deck, walls, coping structural members or building foundation.
 2. Natural disasters (i.e., windstorm (in excess of wind speed defined in 1. I. above), hail, flood, hurricane, cyclone, lightning, tornado or earthquake).
 3. Changes in building usage; new installations on, through or adjacent to the roofing system made after the effective date of this Warranty, unless the Manufacturer has given prior written approval of such changes in building usage or new installations.
 4. Accidents, vandalism or other uncontrollable events.
 5. Lack of positive drainage (standing water) for asphalt built-up systems.
 6. Chemical attacks on the membrane from sources unknown or not present at time of roofing installation.
 7. Falling objects, misuse or abuse of the roofing system, traffic, recreational activities or storage of material on the roofing system.
 8. Infiltration or condensation of moisture in, through or around walls, copings, building structure or underlying or surrounding areas.
 9. Movement or deterioration of metal components adjacent to the roof (except where such components are a part of the Manufacturer's advertised roofing system).
 10. Failure of materials supplied by others (except where such materials are a part of the specified roofing system certified by the Manufacturer prior to bidding the roofing work).
 11. Tests or test cuts not authorized by the Manufacturer.
 12. Failure of the Owner to provide maintenance in accord with the Roofing Maintenance Manual.
 13. Failure of the Owner to notify the Manufacturer of leaks or other defects within 30 days of discovery.

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4. The Parties agree that any controversy or claims relating to this Warranty shall be first submitted to mediation under the Construction Industry Arbitration and Mediation Rules of the American Arbitration Association (Regular Track Procedures) or to such other mediation arrangement as the parties mutually agree. Participation in mediation as set forth above shall be a condition precedent to institution of any legal, equitable or arbitration proceedings regarding a controversy or claim relation to this warranty.
 5. This is the sole roof system Manufacturer's 20-year warranty, any implied warranty of merchantability and fitness for a particular purpose are excluded.
-

In Witness Whereof: Manufacturer and Owner have caused this Warranty to be duly executed on the dates below.

MANUFACTURER:
a State of Corporation with principle office at:

OWNER:

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

- End of Section -