# SECTION 07 62 00 – Sheet Metal Flashing and Trim

# PART 1 – GENERAL

## 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the Conditions of the Contract and Division 01 Specification Sections apply to this section.

## 1.2 SUMMARY

A. Section Includes: Prefinished, prefabricated structural siding system with continuous interlocking joints.

B. Related Requirements:
   1. Section 05 10 00: Structural Metal Framing/Metal Deck
   2. Section 05 40 00: Cold-Formed Metal Framing.
   3. Section 05 50 00: Metal Fabrications.
   4. Section 06 10 00: Rough Carpentry
   5. Section 07 22 00: Roof Insulation
   6. Section 07 27 15: Air Barrier and Vapor Retarder
   7. Section 07 62 00: Sheet Metal Flashing and Trim
   8. Section 07 71 00: Sheet Metal Roof Accessories/Roof Specialties
   9. Section 07 92 00: Joint Sealants.

## 1.3 REFERENCES

A. Reference Standards:
   1. ASTM A653/A924: Steel Sheet, Zinc Coated (Galvanized) Class G90 by the Hot Dip Process (Prepainted G-90 is generally available in the Pacific Northwest as a standard).
   2. ASTM A792: Steel Sheet, Aluminum/Zinc (Galvanized), AZ-50 (painted), AZ-55 (unpainted) by the Hot Dip Process. (Prepainted AZ-50 is generally available in California and the Southwest as a standard).
   3. ASTM A755/A7565-18: Specification for Steel Sheet, Metallic Coted by the Hot-Dip Process for Exterior Exposed Building Products.
   4. ASTM B209 Specification for Aluminum and Aluminum Alloy Sheet and Plate
   5. CRRC-1 Method #1: Measuring Solar Reflectance of a Flat, Opaque, and Heterogeneous Surface Using a Portable Solar Reflectometer.
   6. SMACNA Architectural Sheet Metal Manual.
   7. UL-790: Standard for Fire Resistance and Roof Covering Materials.
   8. US Environmental Protection Agency: Energy Star Reflective Roof Products
   9. US Green Building Council (USGBC): Leadership in Energy and Environmental Design (LEED).
   10. Environmental Product Declaration/Health Product Declaration.
   11. National Coil Coaters Association (NCCA)
   12. NRCA- The NRCA Roofing and Waterproofing Manual
   13. AAMA Paint Standards: 620, 2603, 2604, 2605 (Aluminum Substrate) and 621-96 (Steel Substrate)
   14. NAAMM- National Association of Architectural Metal Manufacturers

## 1.4 SUBMITTALS FOR INFORMATION

A. Product Data.

B. Mill production reports certifying that the steel thicknesses are within allowable tolerances of the nominal or minimum thickness or gauge specified.

C. Shop Drawings:
   1. Indicate thickness and dimensions of parts, fastenings and anchoring methods, details and locations of joints, transitions and other provisions necessary for thermal expansion and contraction.
   2. Indicate locations of field-applied sealant.

D. Samples:
   1. Submit two samples, 12 inches long by full panel width, showing proposed metal thickness and flashing profile.
   2. Submit standard color samples of metal for Architect's selection.

E. Manufacturer Qualifications: Add manufacturer's signed letter supporting both financial capability and at least 5 projects of comparable size with architect and contractor contact information.

F. Installer Qualifications: Submit list of five completed projects, with names and contact information for architects and contractors.

G. Test Reports: Indicate compliance of products with project requirements.

H. LEED Submittals:
   1. LEED Credit SS 7.2 – Heat Island Effect – Siding/Roofing: Product data indicating Solar Reflectance Index (SRI) of siding/roofing panels.
   2. LEED Credit MR 4 – Recycled Content: Product data indicating percentage by weight of post-consumer and post-industrial recycled content for products having recycled content. Include statement indicating costs for each product having recycled content.

I. Warranty Documentation: Provide an unexecuted copy of the warranty specified for this Project, identifying the terms and conditions required of the Manufacturer, installing contractor, and the Owner.

J. Any material submitted as equal to the specified material must be accompanied by a report reviewed by a professional engineer licensed in the state in which the installation takes place. This report shall show that the submitted equal product(s) meets the Design and Performance criteria in this specification. Substitution requests submitted without licensed engineer approval will be rejected for non-conformance. The owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.

K. Insurance Documentation: Provide current Certificate of Insurance showing a min. of $2,000,000 liability coverage per occurrence.

## 1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Ten years' experience, minimum, in the factory fabrication of metal flashing.
   2. Manufacturer shall carry $2,000,000 liability insurance.

B. Installer Qualifications:
   1. Three years' experience, minimum, in the successful manufacture and/or application of metal flashing for roof or siding systems.
   2. Five satisfactory projects with metal flashing work of similar product(s), scope and complexity to Work of this Project.
   3. Installer must be approved by manufacturer, in writing, prior to bid. Approval document must be included with project bid.

C. Source Limitations: Obtain all components of roofing or siding flashing system (including underlayment) from a single manufacturer, including roll goods materials if required. Secondary products that are required shall be recommended and approved in writing by the flashing system manufacturer.

D. Alternate Manufacturers: The following manufacturer criteria must be submitted. Alternate systems will not be considered for approval unless each of these items has been submitted for review at least 15 (20) business days prior to bid opening:
   1. Submit each item listed in article 1.4 (A through E) for evaluation of the proposed system
   2. Tests shall have been made for identical systems within the ranges of specified performance criteria.
   3. A list of a minimum of five (5) jobs where the proposed alternate material was used under similar conditions. The reference list shall include date of project, size of project, project address, and telephone number of architect/owner contact.
   4. A written statement from a corporate officer of the manufacturing company stating that he or she has reviewed the specifications and confirms that the proposed system meets or exceeds all performance requirements listed as well as meets the flashing size, gauge, weight, fastening design, sealant design, and uplift pressures.
   5. Proof that the manufacturer has been in business for a minimum number of years equal to the warranty period required for this project.

E. Mock-Ups:
   1. Visual Mock-Up: Construct mock-up (refer to dimensions or drawings) as required to show at least two pattern repeats, and in same orientation, and tie-ins to other products.

## 1.6 PRE-INSTALLATION CONFERENCE

A. Convene a pre-installation conference approximately two (2) weeks before scheduled commencement of flashing system installation and associated work.

B. Require attendance of installer of each component of associated work, installers of deck or substrate construction to receive flashing work, Architect, Owner, flashing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, testing agencies, and governing authorities.

C. Objectives of conference to include:
   1. Review foreseeable methods and procedures related to flashing work, including set up and mobilization areas for stored material and work area.

2. Tour representative areas where flashing will be installed; inspect and discuss condition of substrate, penetrations and other preparatory work performed by others.
3. Review structural loading limitations of substrate and inspect for loss of flatness and for required attachment.
4. Review flashing system requirements (drawings, specifications and other contract documents).
5. Review required submittals both completed and yet to be completed.
6. Review and finalize construction schedule related to flashing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
7. Review required inspection, testing, certifying and material usage accounting procedures.
8. Review weather and forecasted weather conditions and procedures for coping with un favorable conditions, including possibility of temporary tarps (if not mandatory requirement).
9. Record discussion of conference including decisions and agreements (or disagreements) reached. Furnish a copy of records to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
10. Review notification procedures for inclement weather or non-working days.

D. The Owner’s Representative will designate one of the conference participants to record the proceedings and promptly distribute them to the participants for record.

E. The intent of the conference is to resolve issues affecting the installation and performance of flashing work. Do not proceed with flashing work until such issues are resolved to the satisfaction of the Owner and Engineer of Record. This shall not be construed as interference with the progress of Work on the part of the Owner or Engineer of Record.

## 1.7 DELIVERY, STORAGE, AND HANDLING

A. Storage and Handling Requirements:
1. Keep flashing and accessory items dry.
2. Protect against damage and discoloration.
3. Handle flashing with non-marring slings.
4. Support flashing to prevent permanent deformation.
5. Store flashing above ground, with one end elevated for drainage.
6. Protect flashing against standing water and condensation between adjacent surfaces.
7. If flashing becomes wet, immediately separate sheets, wipe dry with clean cloth, and keep sheets separate for air-drying.
8. Painted flashing may (depending on material or coating) be shipped with protective plastic sheeting or a strippable film coating between parts. Remove strippable film coating prior to installation. Do not allow strippable film coating to remain on flashing in extreme heat, cold, or direct sunlight or other UV source.
9. Do not allow flashing to contact treated lumber.
10. Adequately cover/protect metal flashing with tarpaulins, scrim sheeting, or similar protection during transit to prevent dirt and debris from coming in contact with the exposed finished surfaces of finished goods.
11. Protect packaged flashing and accessories from UV sources, dirt or sand, and precipitation until they are used.

B. Installer's responsibilities:
   1. Stack pre-finished materials to prevent twisting, bending, abrasion and denting and elevate one end to facilitate moisture run-off.
   2. Unload flashing or sheet stock with equipment that will adequately support them to prevent damage. Verify equipment is sufficient to lift the weight of flashing/sheets while still in crating. Certified riggers may be required.
   3. Protect moisture-sensitive and water-based materials from the weather.
   4. Inspect materials upon delivery. Reject and remove physically damaged or marred material from project site.

## 1.8 PROJECT CONDITIONS

A. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage and protection requirements for flashing system.
   1. Protection:
      a) Protect installed flashing from subsequent construction operations. Comply with Manufacturer's recommendations.

B. Ascertain that work of other trades penetrating the flashing substrate is made watertight and approved prior to installation of new metal flashing system.

## 1.9 DESIGN AND PERFORMANCE CRITERIA

A. Thermal Expansion and Contraction.
   1. The completed metal flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.
   2. The design temperature differential shall be not less than [120] °F and based on historical high and low temperatures in the area of the installation.
   3. Interface between flashing and fastener shall provide for adequate thermal movement in each direction along the longitudinal direction.

## 1.10 WARRANTY

A. Manufacturer's Finish Warranty: Manufacturer's standard (20, 30, 35, 40, or inquire for other options)-year performance warranty, stating the following:
   1. Architectural fluorocarbon finish: Polyvinylidene Fluoride (PVDF- Kynar 500® or Duranar®).
      a) Will be free of fading or color change in excess of 5 Hunter delta-E units as determined by ASTM D2244-02.
      b) Will not chalk in excess of numerical rating of 8 when measured in accordance with standard procedures specified in ASTM D4214-98 method D659.
      c) Will not peel, crack, chip, or delaminate.

B. Installer's Warranty: Warrant flashings, sealants, fasteners and accessories against defective materials and/or workmanship, covering repairs required to maintain flashing system watertight and weatherproof with normal usage for two years following Project Substantial Completion date.
   1. Furnish written warranty, signed by installer.

# PART 2 – PRODUCTS

## 2.1 SYSTEM DESCRIPTION

A. Products: Provide the following:
   1. Taylor Metal Products' Sheet Metal Flashing and Trim Products

B. Substitution Limitations: (Substitutions will not be considered), (Substitutions will be considered in accordance with Section 01 25 00 "Substitution Procedures".)

C. Performance Criteria
   1. Thermal Movements: Accommodate thermal movement without buckling, joint opening, overstressing components, failure of connections, or other detrimental effects, through the following temperature changes:
      a) 120 degrees F, ambient.
      b) 180 degrees F, material surface.

D. Sustainability Characteristics:

Taylor Metal Products panels, in their standard sheet steel, contain approximately 25.5 percent post-consumer recycled content and 6.8 percent pre-consumer recycled content, for a total 28.9 percent recycled content as calculated for this LEED 5.0 credit. Higher percentages are available if specified.

   1. Recycled Content: (28.9), (50), or (75) percent post-consumer recycled content (calculated according to LEED Credit MR 5).
   2. Energy Performance:
      a) Provide Energy Star® qualified product for slope indicated in Drawings.
      b) Solar reflective index (SRI): Not less than (29)<*Insert requirement*> per ASTM E1980.
      c) Reflectance and Emissivity:
         i. Solar Reflectance: Not less than (0.25)<*Insert requirement*> per ASTM test methods C1549 or E1918, or CRRC-1 Method #1.
         ii. Thermal Emissivity: Not less than (0.75)<*Insert requirement*> per ASTM C1371.
   3. Shipping Distance: Provide flashing or sheet goods manufactured at the following factory: (if locally manufactured materials are a project requirement, select factory closer to Project site)
      a) Salem, Oregon 97301
      b) Auburn, Washington 98001
      c) Sacramento, California 95834
      d) Riverside, California 92509
      e) Spokane, Washington 99202
   4. Environmental Product Declaration: (EPD- Riverside, CA.-#7fdc28ba-4ª91-4221-a906-0d4f6d7007a8 and Salem, OR.- #F73eab7a-e72c-4c53-9602-3e6c14444ef8) and Health Product Declaration. Manufacturer documentation verification required.

If project is subject to Federal Buy American or BABA provisions, retain paragraph below. Taylor Metal Products comply with this requirement.

E. Manufacturing Characteristics: Provide panels complying with provisions of Buy American

Act 41 U.S. C 10a - 10d or Build America Buy America (BABA).

## 2.2 FLASHING, TRIM, AND SHEET STOCK

A. Products: Sheets, Sheet Metal Flashing and Trim
   1. Manufacturer
      a) Taylor Metal Products: 4566 Ridge Drive NE, Salem OR: 800-574-1388: www.Taylormetal.com
   2. Basis of Design- Taylor Metal Products' Sheets, Sheet Metal Flashing and Trim:
      a) Material: Steel
         24 Gauge ( or 22 ga. Standard): minimum thickness of
         .0236" (.0285"). Grade 50 minimum yield and 65 tensile strength (lesser grades are not allowed). (20 ga. and 18 ga. steel- special order)
      b) Thickness and yield strength as required for performance indicated: ASTM A653: Steel Sheet, Zinc Coated (Galvanized) Class G90 (or aluminum-zinc alloy coating conforming to ASTM A792, Class AZ50) by the Hot Dip Process. For projects with multiple profiles of varied combinations of profiles, rib patterns and finishes, show on drawings.
      c) Sheet/Flashing Finish: Choose one or more of the following exterior finishes.
         i. Polyvinylidene Fluoride (PVDF), full 70 percent (Kynar 500® or Duranar®) consisting of a baked-on nominal 0.25 mil corrosion resistant primer and a baked-on 0.70-0.80 mil finish coat with a specular gloss of 5 to 30 when tested in accordance with ASTM D523 at 60 degrees and 85 degrees (matte - low gloss).
         ii. Marine Guard™ (Marine or Corrosive environments) consisting of a high-build, corrosion resistant primer, finish coat, and clear top coat (minimums apply).
      d) Color: Choose from full range of manufacturer's standard colors, metallics, and custom colors (Custom colors are available on orders of 3,000 lineal feet or more. Consult TMP representative for other requirements).
      e) ZINCALUME® Plus/Galvalume® Plus protective coating for unpainted aluminum-zinc alloy coating.
      f) Sheet/Flashing Color: (As scheduled), (As selected from manufacturer's full range), *<insert color>*.

Factory Injected Seam Sealant is not available for flashing profiles.

   3. Joint Sealant: Field applied, high-grade sealant placed within the confines of the flashing lap or seam joint.
   4. Exposed Sealant Joints: Manually applied, high-grade UV resistant sealant. The sealant must be paintable and remain flexible when cured to allow thermal movement. Polyether and Polyurethane sealants are acceptable. Use silicone-based sealants for high temperature applications (silicone sealants are generally not paintable).

## 2.3 FASTENERS

Fastener selection to be determined based upon building framing, substrate and attachment requirements. See Taylor Metal Products' installation guidelines for fastener types at www.taylormetal.com.

A. Fasteners: As recommended by manufacturer for performance indicated (size, lengths, concealed or exposed fasteners)

### 2.4 ACCESSORIES

A. Trims and Flashings: Material, metal thickness, and finish to match panels. Profiles indicated in drawings.
   1. Provide manufacturer's standard accessories and other items essential to completeness of metal panel/flashing installation.

B. Penetration Flashings: As recommended by panel manufacturer; designed to provide sufficient movement to prevent creation of points of fixity at penetrations.

C. Sealant for Field Application: (high grade curing or non-curing butyl, Polyether, Silicone, and curing urethane sealant as recommended by panel manufacturer. Do not use sealant containing asphalt). (See section "07 92 00" Joint Sealants.)

### 2.5 FABRICATION

A. Fabrication, General:
   1. Unless otherwise shown on the drawings or specified herein, fabricate flashing in the most practical lengths to reduce waste and number of joints. 10 ft. is standard with options from 4 ft. to 20' 10".
   2. Flashing materials shall be factory correctively leveled.

B. Fabrication Tolerances:
   1. Flat metal surfaces will display waviness commonly referred to as "oil canning". This is caused by steel mill tolerances and is a characteristic, not a defect, of flashing manufactured from light gauge metal. Flashing materials are factory correctively leveled to minimize the occurrence of "oil canning", twisting, or buckling. As such, "oil canning" will not be accepted as cause for rejection.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

A. Verification of Conditions: With Installer present.
   1. Examine conditions and substrates on which metal flashing are to be installed. Structural support or substrate shall be flat and plumb to avoid fashing stresses and distortion.
   2. Prior to starting work, correct defects.

B. Field Measurements:
   1. Coordinate field measurements and fabrication schedule with construction progress.
   2. Field measure prior to fabrication. Show recorded dimensions on shop drawings, including locations of shop-fabricated openings.
   3. If field measurements differ from drawing dimensions, notify Architect prior to fabrication.

C. (Framing) (Substrate) Tolerances: Deviations from flat plane shall not exceed the following.
   1. 1/4 inch in 20 feet.

2. 1/2 inch across building elevation.
3. 1/8 inch in 5 feet.

## 3.2 PREPARATION

A. (Secondary Framing) (Substrate and Underlayment): Install according to approved shop drawings and metal flashing manufacturer's recommendations.

## 3.3 INSTALLATION

A. Flashing and Trim: Comply with manufacturer's instructions for assembly, installation and erection for weathertight installation.
   1. Install according to approved shop drawings.
   2. Install flashing in accordance with manufacturer's instructions and recommendations. Anchor securely in place using clips and fasteners spaced in accordance with manufacturer's recommendations.
   3. Comply with methods and recommendations of SMACNA Architectural Sheet Metal Manual for flashing configurations required.
   4. Discrepancies between job site conditions and shop drawings shall be brought to the attention of the Architect for resolution.
   5. Cutting and Fitting:
      a) Cut flashing neat, square, and true with shearing action cutters. Torch or power saw cutting is prohibited.
      b) Openings 6 inches and larger: Shop fabricate and reinforce to maintain original load capacity.
      c) Openings less than 6 inches: Field cutting is acceptable.
   6. Dissimilar Metals or Materials:
      a) Where flashing or trim may come in contact with dissimilar metals or treated lumber, fabricate transition to facilitate drainage and minimize possibility of galvanic action. Galvanic action can cause flashing and trim to fail prematurely.
      b) At points of contact with dissimilar metal or treated lumber, coat flashing and trim with protective paint or separate materials with a weatherproof underlayment.
      c) Direct contact or run-off from CCA, ACQ, CA, or other treated lumber (outdoor wood) or fire retardant impregnated or treated wood shakes or siding can cause flashing and trim to fail prematurely. Avoid contact with these materials.

B. Accessories: Install trims, flashings, and roofing/siding specialties according to Drawings and manufacturer's recommended details.

C. Sealant Installation: Apply according to approved shop drawings and SMACNA Architectural Sheet Metal Manual recommendations.
   1. Provide weatherproof installation.

D. Installation Tolerances: (Match dimensional tolerances of framing or substrate.)
   1. Flatness: <*Insert requirement*.

## 3.4 CLEANING

A. Repairs:
   1. Touch up paint is not required for flashing with scratches that do not expose base metal.

2. PVDF (air dryable) touch up paint pens are recommended for minor scratches showing the substrate. Use minimal paint to fill scratch.
3. Flashing with finish damage exposing metal or with substrate damage shall be replaced.

B. Cleaning and Waste Management: (See Division 01 Section "Construction Waste Management and Disposal" for recycling requirements.)
1. At completion of each day's work and at work completion, wipe flashing clean. Do not allow fasteners, cuttings, filings, or scraps to accumulate on installed or stored flashing.
2. Clean exposed surfaces of work promptly after completion of installation.

### 3.5 PROTECTION

A. Protect Work as required to ensure that flashing will be without damage at Final Completion.

## END OF SECTION