# SECTION 07600 (07 62 00)

## RA FLASHING AND SHEET METAL

1. GENERAL
	1. SECTION INCLUDES
		1. Flashing, counter-flashing, roofing grounds and nailers, and fabricated sheet metal items.
	2. RELATED SECTIONS
		1. Section 01572-Construction Waste Management.
		2. Section 06100-Carpentry.
		3. Section 07920-Joint Sealers.
	3. REFERENCES
		1. ANSI-SPRI/ES-1.
		2. American Society for Testing and Materials (ASTM):
			1. A 167-Specification for Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
			2. B 32-Specification for Solder Metal.
			3. A 240-Heat-resisting Chromium and Chromium-nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
			4. D 2822-Standard Specification for Asphalt Roof Cement.
		3. Florida Building Code.
		4. Florida Building Code (FBC) High Velocity Hurricane Zones (HVHZ).
		5. (ISO) 14021 – 1999-Environmental Labels and Declarations
		6. National Roofing Contractors Association (NRCA) “Roofing and Waterproofing Manual” Detail for installation of units.
		7. Sheet Metal and Air-Conditioning Contractor’s National Association, Inc. (SMACNA): Architectural Sheet Metal Manual”, latest Edition. Details for fabrication of units, including flanges and installation to coordinate with type of roofing indicated SUBMITTALS
		8. Properly identified product data and descriptive literature before starting work.
			1. Recycled Content:
				1. Indicate recycled content; indicate percentage of pre-consumer and post-consumer recycled content per unit of product.
				2. Indicate relative dollar value of recycled content product to total dollar value of product included in project.
				3. If recycled content product is part of an assembly, indicate the percentage of recycled content product in the assembly by weight.
				4. If recycled content product is part of an assembly, indicate relative dollar value of recycled content product to total dollar value of assembly.
2. Regional Materials:
	* + - 1. Sourcing location(s): Indicate location of extraction, harvesting, and recovery; indicate distance between extraction, harvesting, and recovery and the project site.
				2. Manufacturing location(s): Indicate location of manufacturing facility; indicate distance between manufacturing facility and the project site.
				3. Product Value: Indicate dollar value of product containing local/regional materials; include materials cost only.
				4. Product Component(s) Value: Where product components are sourced or manufactured in separate locations, provide location information for each component. Indicate the percentage by weight of each component per unit of product.
		1. Shop Drawings on flashing and sheet metal work.
		2. Samples:
			1. 8 inches square samples of specified sheet materials to be exposed as finished surfaces.
			2. Samples of factory fabricated products exposed as finished work. Provide complete with specified factory finish.
	1. QUALITY ASSURANCE
		1. Regulatory Requirements: Ensure flashing and sheet metal complies with requirements of Florida Building Code, NRCA, SMACNA, and ANSI-SPRI/ES-1.
		2. Coordinate application of flashings with application of roofing, protruding material, and roof accessories to provide a complete weather tight installation under provisions of the specified warranty requirements.
		3. All work shall be performed in accordance with referenced standards.

PRE-INSTALLATI0N MEETING

* + 1. Shall not occur without Shop Drawings approved by the Contractor and accepted by the A/E. Shall convene a minimum of two weeks before starting work of this section.
		2. Required Attendees:
			1. Contractor.
			2. Subcontractor using materials in this section (ie: roofing, roofing equipment, doors, & windows).
			3. Roofing, roofing equipment, doors and window manufacturers.
			4. Installers of deck or substrate construction to receive roofing work.
			5. Installers of doors, windows, roof-top units and other work in and around roofing that must precede or follow roofing work (including mechanical work if any).
			6. Any other subcontractors associated with work of this section.
			7. Architect.
			8. Owner’s Project Manager.
			9. Owner’s Maintenance Foreman.
			10. Building Department Representative.
		3. The Contractor shall make arrangements for the meeting and notify the parties required to attend.
		4. Agenda shall include:
			1. Review preparation and installation procedures and coordinating and scheduling required with related work.
			2. Review roof, roof equipment, doors, and window system requirements (drawings, specifications, and other contract documents).
			3. Review Shop Drawings and associated submittals.
			4. Review manufacturer's technical materials.
			5. Review and finalize construction schedule related to work and verify availability of materials, personnel, equipment and facilities needed to make progress and avoid delays.
			6. Review required inspection, testing, certifying and material usage accounting procedures.
			7. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions, including temporary roofing.
			8. Tour representative areas of doors, windows, roofing substrates (decks), inspect and discuss condition of the substrate, roof drains, curbs, penetrations and other preparatory work performed by other trades.
	1. SPECIAL WARRANTIES
		1. By Membrane Producer: Provide a 20-year Special Warranty from the roof membrane producer covering correction of defects in the steel blocking and sheet metal component of Roof Assembly.
		2. By Steel Roof Blocking and Roofing Sheet Metal Producer and Installer: Provide a 10 year Special Warranty in which the SRB producer/installer agrees to correct defective SRB work.
			1. See 07500 for full requirements of this Special Warranty that shall accompany the Roof Assembly Special Warranty.
			2. At time of project closeout, submit this signed Special Warranty to the roof membrane producer for transmittal to Contractor, A/E, and board.
1. PRODUCTS
	1. MATERIALS
		1. All manufactured flashing and sheet metal products are to contain recycled content.
		2. Sheet Material:
			1. Type 302 or 304 stainless steel, 24 gage, complying with ASTM A 167.
			2. Flashing for Pipes, Conduits, and Round Equipment Supports: Type 304 stainless steel, 26 gage, 2B, complying with ASTM A 240.
			3. Solder: Under provisions of ASTM B 32.
			4. Fastening Devices: Ensure fasteners are compatible with metal and roofing system. Use of powder-activated fasteners is prohibited.
				1. Where use of wood is approved in writing by the Owner for re-roofing:

Attaching sheet metal to wood with concealed fastenings: Hot dip galvanized ring shank roofing nails not less than 1-1/4 inch long.

Attaching sheet metal to wood with exposed fastenings: No. 10 x 1-1/4 inch pan head stainless steel sheet metal screws. Provide neoprene sealant washers and stainless steel washers under screw heads.

* + - * 1. Attaching sheet metal to metal walkway covers: No. 10 x 1-1/4 inch pan head stainless steel sheet metal screws. Provide neoprene sealant washers and stainless steel washers under screw heads.
				2. Attaching Sheet Metal to Masonry or Concrete: No. 10 x 1-1/4 inch pan head stainless steel masonry screws. Provide neoprene sealant washers and stainless steel washers under screw heads.
			1. Roofing Cement: Plastic roofing cement complying with the requirements of ASTM D 2822 or as appropriate and as recommended by roofing manufacturer.
	1. ACCESSORIES
		1. Splash Blocks: Refer to Section 07631-Gutters and Downspouts
		2. Roof Drain Flashing: Minimum 4 pound per square foot, 36 inches x 36 inches lead flashing installed under provisions of the latest NRCA specifications.
	2. FABRICATION
		1. Fabricate flashing and sheet metal work under provisions of accepted shop drawings.
		2. Base Flashings at Metal Walkway Covers Abutting Concrete and Masonry:
			1. Fabricate using sheet stainless steel to detail indicated, in not over 10 foot sections.
			2. Provide 2-inch minimum upturned wall flange behind counter-flashing.
			3. Where flutes are parallel to abutting wall, provide horizontal roof flange extending 2 inches on nearest flattop on roof decking.
			4. Where flutes abut wall, provide 2-inch roof flange.
		3. Cants:
			1. Pre-fabricated 16 gage, galvanized, minimum 4 inch vertical height, formed at 45 degree angle to walls and parapets.
			2. Manufacturer: Subject to compliance with the specified requirements, provide products by the following manufacturer (Basis of Design – BOD):
				1. Mfr: Concrecel USA; Product: ARBS (Alternative Roof Blocking System). Provide steel roof blocking (SRB) from a fabricator licensed by the ARBS patents holder.
				2. Substitutions:

Will be considered by the A/E and Owner when submitted per requirements of Division-0, Division-1, and Section 01630-Product Substitution Procedures.

* + 1. Copings:
			1. Fabricate in approximately 10-foot sections using sheet 24-gage stainless steel to detail as indicated.
			2. Provide a continuous 16-gage stainless steel outer hold-down cleat with punched holes at 6 inches on center and face fasten at inward facing parapet components with removable fasteners as required for sheet metal.
			3. Provide 8-inch wide joint covers.
			4. Manufacturer: Subject to compliance with the specified requirements, provide products by the following manufacturer (Basis of Design – BOD):
				1. SBC Industries, North Miami, Florida. Provide steel roof blocking (SRB) from a fabricator licensed by the ARBS patents holder.
				2. Substitutions:

Will be considered by the A/E and Owner when submitted per requirements of Division-0, Division-1, and Section 01630-Product Substitution Procedures.

* + 1. Curb to Duct Flashing and Counter Flashing:
			1. Fabricate from stainless steel to fit duct curbs and ducts projecting from curbs.
			2. Provide 4-inch vertical flange to cover top edge of bituminous base flashings. Form flange bottom towards curb, with 1/4 inch bottom edge bent 1/4 inch out and hemmed.
			3. At top of curbs bend metal 90 degrees and extend horizontally over to duct, then bend upward and extend vertically not less than 3 inches from top edge of flashing out 3/8 inch to receive sealant.
			4. Provide for field soldered lap joints at corners and 1-inch lap joints at horizontal miter splices.

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***NOTE TO SPECIFIER: Make selection in the following paragraph.***

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* + 1. Door Hoods: All unprotected exterior doors shall be furnished with door hoods.
			1. Size: \_\_\_\_h. by \_\_\_\_w. (as determined by Project Consultant)
			2. Fabricate using sheet stainless steel with closed ends to detail dimensions indicated.
			3. Lock seam top and side joints.
			4. Form 1-1/2 inch minimum continuous wall flanges at sides and top.
			5. Shop punch wall flanges for fastenings.
			6. Form 1-1/2 inch minimum horizontal inward stiffener flanges with hemmed edges at top bottom of hood.
			7. Lap bottom hood lips at corners, solder and secure with 2 stainless steel rivets each.
		2. Edge Drips:
			1. Fabricate using sheet 24 gage stainless steel drip edge to detail indicated, in not over 10 foot sections.
			2. Provide a continuous 16-gage galvanized continuous cleat with punched holes spaced as necessary. If cleat extends 6 inches or more below top fastener, provide second row of punched holes spaced as necessary.
			3. Provide 4 inch roof flange, and extend bottom drip not less than 1 inch below bottom of roof sheathing, with kick to dispel water 3/4 inch from finish wall.
			4. Manufacturer: Subject to compliance with the specified requirements, provide products by the following manufacturer (Basis of Design – BOD):
				1. Mfr: Concrecel USA; Product: ARBS (Alternative Roof Blocking System). Provide steel roof blocking (SRB) from a fabricator licensed by the ARBS patents holder.
				2. Substitutions:

Will be considered by the A/E and Owner when submitted per requirements of Division-0, Division-1, and Section 01630-Product Substitution Procedures.

* + 1. Pipes, Conduits, Wires, and Round Equipment Supports Penetrating Roofing or Resting on Roofing:
			1. Type 304 stainless steel, 26 gage, complying with ASTM A 240.
			2. Form tubular stainless steel sleeves sized to shape of penetration, not less than 8 inches above finished roofing with 4 inch wide base flange welded to water-tight to sleeve.
			3. Shop punch flanges.
			4. Seal flashing and cover with protective umbrella.
			5. Pre-manufactured roof penetration seals.
			6. Manufacturer: Subject to compliance with the specified requirements, provide products by the following manufacturer (Basis of Design – BOD):
				1. SBC Industries, North Miami, Florida. Provide steel roof blocking (SRB) from a fabricator licensed by the ARBS patents holder.
				2. Substitutions:

Will be considered by the A/E and Owner when submitted per requirements of Division-0, Division-1, and Section 01630-Product Substitution Procedures.

* + 1. Sanitary Vent Stack Flashings:
			1. 4 pound per square foot lead flashing.
			2. Form tubular lead flashing sleeve not less than 8 inches high with a diameter 1/2 inch larger than the vent stack.
			3. Provide a 4-inch wide flange soldered water-tight.
			4. Provide vandal-proof vent covers.
		2. Scuppers:
			1. Fabricate using stainless steel to profiles and details shown.
			2. Lock seam corners, solder water-tight and hem outer exposed edges.
			3. Provide 4-inch wide minimum flanges formed to fit cants, decks and vertical wall surface.
			4. Shop punch flanges for fastenings at 6 inches on center.
		3. Stucco Stop with Counter-flashing (2-piece):
			1. Fabricate in approximately 10-foot sections using sheet stainless steel to detail as indicated.
			2. Provide receiver with 1-1/2 inch wall flange, 3/4-inch sloping stucco stop, and 3/4-inch flange bend downward with 1/2-inch hem.
			3. Shop punch wall flange for fastening.
			4. Provide shop fabricated soldered corner splices extending 4 inches each way.
			5. Provide counterflashing with 1-1/2 inch 45 degree top flange with 1/4-inch kick back at top and a 4-inch bottom flange formed inward 3/4 inch towards wall with a hemmed 1/2-inch kick at bottom.
			6. Provide 1-1/2 inch x 4-inch storm cleats.
			7. Manufacturer: Subject to compliance with the specified requirements, provide products by the following manufacturer (Basis of Design – BOD):
				1. SBC Industries, North Miami, Florida. Provide steel roof blocking (SRB) from a fabricator licensed by the ARBS patents holder.
				2. Substitutions:

Will be considered by the A/E and Owner when submitted per requirements of Division-0, Division-1, and Section 01630-Product Substitution Procedures.

* + 1. Stucco Stop with Counter-flashing (1-piece for re-roofing):
			1. Fabricate in approximately 10-foot sections using sheet stainless steel to detail as indicated.
			2. Provide counterflashing with 1/2 inch 45 degree leg for sealant with 1-1/2 inch wall flange with a 4-inch bottom flange formed inward 3/4 inch towards wall with a hemmed 1/2-inch kick at bottom.
			3. Shop punch wall flange for fastening.
			4. Provide shop fabricated soldered corner splices extending 4 inches each way.
			5. Manufacturer: Subject to compliance with the specified requirements, provide products by the following manufacturer (Basis of Design – BOD):
				1. SBC Industries, North Miami, Florida. Provide steel roof blocking (SRB) from a fabricator licensed by the ARBS patents holder.
				2. Substitutions:

Will be considered by the A/E and Owner when submitted per requirements of Division-0, Division-1, and Section 01630-Product Substitution Procedures.

* + 1. Surface Mounted Flashing (1-piece):
			1. Fabricate in approximately 10-foot sections using sheet stainless steel to detail as indicated.
			2. Provide flashing with 1-1/2 inch wall flange with 1/4-inch kick at top to receive sealant, a 1/2 inch 135 degree sloping top flange and a 4-inch bottom flange formed inward 3/4 inch towards wall with a hemmed 1/2-inch kick at bottom.
			3. Shop punch wall flange for fastening to meet wind loads per FBC.
			4. Provide shop fabricated corner splices extending 4 inches.
			5. Manufacturer: Subject to compliance with the specified requirements, provide products by the following manufacturers (Basis of Design – BOD):
				1. SBC Industries, North Miami, Florida. Provide steel roof blocking (SRB) from a fabricator licensed by the ARBS patents holder.
				2. Substitutions:

Will be considered by the A/E and Owner when submitted per requirements of Division-0, Division-1, and Section 01630-Product Substitution Procedures.

* + 1. Window Head Flashings:
			1. Fabricate using sheet stainless steel to detail and dimension indicated.
			2. Hem bottom drop edge.
			3. Shop punch wall flange for fastenings.
1. EXECUTION
	1. EXAMINATION
		1. Do not proceed with the work of this section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.
	2. INSTALLATION
		1. Lap, rivet, lock, or seal joints, as field conditions require.
		2. Provide necessary reinforcement, miscellaneous fittings, and accessories.
		3. Apply flashing and sheet metal work including miscellaneous fittings and accessories to even, smooth, sound, thoroughly clean and dry surfaces that are free from defects that might affect application. Prime metal flanges that receive bitumen under provisions of FBC and manufacturer’s requirements.
		4. Perform soldering work slowly, with properly heated coppers to thoroughly heat seam material and sweat solder through full width of seam that shows no less than 1 inch of evenly flowed solder. Solder under provisions of ASTM B 32.
			1. Start soldering immediately after application of flux.
			2. Solder flat locked seam.
		5. Isolate dissimilar metals with accepted isolation paint or other accepted materials.
			1. Do not place in contact with nor in positions where drainage across such paint or other materials will occur.
		6. Make flashing and sheet metal work water and weather tight, with lines, arises and angles sharp and true and plane surfaces free from waves and buckles.
		7. Provide sufficient fasteners and related hardware to ensure a complete and weather tight system.
		8. Base Flashings at Aluminum Walkway Covers Abutting Concrete and Masonry:
			1. Set flashing tight against wall and with roof flange set on aluminum deck in bed of sealant.
			2. Secure roof flanges to metal deck with No. 10 x 1/2 inch stainless steel sheet metal screws at 6 inches on center maximum. Provide sealant washers and stainless steel washers under screw heads.
		9. Cants Strips: Install at transitions of roof membrane with flat vertical surfaces.
		10. Copings:
			1. Secure outer hold-down cleat to woodblock at 6 inches on center with ring shank roofing nails.
			2. Install coping over cleat. Allow 1/8-inch space between each coping section.
			3. Secure inside face of coping with removable grommet type fasteners.
			4. Provide 1 inch to 1-foot slope at coping to inner parapet wall.
			5. Install joint covers in full bed of sealant.
		11. Door Hoods:
			1. Set hoods level over doors where required with wall flanges bedded in full bed of sealant.
			2. Secure hood wall flanges to wall with No. 10 x 3/4 inch stainless steel screws at 6 inches on center.
			3. Provide sealant washers and stainless steel washers under screw heads.
		12. Curb to Duct Flashing and Counterflashing:
			1. Install flashings after ducts through curbs are in place and after bituminous base flashings are completed.
			2. Place flashings in place on curbs and solder corners and corner miter laps water-tight.
			3. Secure counter-flashings to vertical edge of curb nailers with No. 10 stainless steel sheet metal screws through sealant washers at not over 12 inches on center.
			4. Secure vertical upturned duct flashing to duct with No. 10 stainless steel sheet metal screws through sealants washers at not over 6 inches on center.
			5. Seal joint between flashings and ducts with sealant as specified in Section 07920.
		13. Edge Drips:
			1. Install a continuous 20-gage stainless steel cleat.
			2. Set 24 gage stainless steel edge drip roof flanges in full bed of roofing cement over completed roofing.
			3. Lap splices 4 inches minimum and seal top horizontal surface laps with cold bitumen.
			4. Stagger nails at flange to roof deck at 4 inches on center.
			5. Cover roof flanges with 2-ply felt stripping set in full bed of roofing cement.
			6. Locate drip bottom not less than 3/4 inch away from finished vertical surfaces.
		14. Roof Drains:
			1. Prime roof drain flanges before applying roof felts.
			2. Set lead in full bed of cold bitumen over intermediate plies or cap sheet.
			3. Strip lead cover with 2 layers of roofing felts in solid coats of hot bitumen.
		15. Roof penetration materials at all pipes, conduits and round equipment supports.
			1. After preliminary examination install conical sealant cover with sealant.
		16. Sanitary Vent Stack Flashings:
			1. Install under provisions of the latest NRCA specifications.
		17. Scuppers:
			1. Set scuppers in full bed of roofing cement over completed base flashing and roof membrane.
			2. Secure to masonry walls and concrete decks with stainless sheet metal screws in lead shields at 6 inches on center.
			3. Secure to wood nailers with stainless steel sheet metal screws at 6 inches on center.
		18. Stucco Stop with Counterflashing (2-piece):
			1. Set receiver on masonry and concrete walls where indicated.
			2. Lap spices 4 inches minimum and seal laps with sealant.
			3. Secure to wall with No. 10 x 1-1/4 inch minimum Tap-Con screws 12 inches on center maximum.
			4. Check for membrane/bitumen seal on top of felt flashing before counterflashing installation.
			5. Attach storm cleats at 30 inches on center and with 1 cleat at each joint.
			6. Insert counterflashing into receiver, and secure tightly with storm cleats.
		19. Surface Mounted Flashing (1-piece):
			1. Set on masonry and concrete walls over base flashing where indicated.
			2. Lap splices 4 inches minimum and seal laps with sealant.
			3. Secure to wall with No. 10 x 1-1/4 inch Tap-Con pan head screws at 12 inches on center maximum. Provide neoprene sealant washers and stainless steel washers.
			4. Where corrugated metal wall occurs, place premolded neoprene filler strip on wall immediately above top of metal base flashing.
				1. Set filler strip in sealant and seal abutting edges of filler strip with sealant.
				2. Place counterflashing over filler strip set in sealant and secure flashing to metal wall through filler strip with No. 10 x appropriate length stainless steel sheet metal screws at 6 inches on center maximum and centered on wall flutes.
				3. Provide sealant washers and stainless steel washers under screw heads.
			5. Check for membrane/bitumen seal on top of felt flashing before flashing installation.
		20. Window Head Flashings:
			1. Set wall flange in full bed of sealant over windows.
			2. Secure to prefinished wall panels with No. 10 x 3/4 inch pan head stainless steel sheet metal screws at 10 inches on center.
			3. Provide sealant washers and stainless steel washers under screw heads.

END OF SECTION