SECTION 07 32 19

STONE COATED METAL MODULAR ROOF PANELS

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\*\* NOTE TO SPECIFIER \*\* Metro Roof Products; Stone coated metal modular roof panel products.
This section is based on the products of Metro Roof Products, which is located at:
3093A Industry St.
Oceanside, CA 92054
Toll Free Tel: 866-METRO-4U (638-7648)
Tel: 760-435-9842
Fax: 760-435-1162
Email: [request info (info@metroroofs.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Metro+Roof+Products&coid=43080&rep=&fax=760-435-1162&message=RE:%20Spec%20Question%20(07323met):%20%20&mf=)
Web: [www.MetroRoofs.com](http://www.MetroRoofs.com)
 [ [Click Here](http://www.arcat.com/arcatcos/cos43/arc43080.html) ] for additional information.
Metro Roof Products' ownership and management team has a wealth of experience in the manufacturing and marketing of stone coated metal roofing products.
Metro Roof Products has experienced tremendous growth since its formal factory opening in January 2000 and has become a leading manufacturer of stone-coated steel roofing products.
The Metro USA state of the art manufacturing facility is located in Oceanside California USA on four acres of land and produces a wide range of stone-coated steel roofing product profiles to suit almost any architecture.
Metro has built a strong leadership position in this industry and has a series of "firsts" to its name:
FIRST with a "Concealed fastener," direct-to-deck stone-coated SHINGLE panel - 1997
FIRST with a "Rake Channel" with an integrated "Locator-Lip" design for easy install & added weather protection - 2000
FIRST with a "Nail-on" batten-less, direct-to-deck stone-coated shake panel - 2002
FIRST with a fully integrated stone-coated roof vent "Metro SMART-Vent" panel - 2003
FIRST with the SMART-Jack pipe flashing & SMART-Sleeve pipe cover - 2004
All of which add up to "Smart Roofs for Smart People".

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Stone coated metal modular roof panels and accessories.
		2. Associated metal flashings.
	1. RELATED SECTIONS

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

* + 1. Section 06 11 00 - Wood Framing.
		2. Section 06 20 00 - Finish Carpentry.
		3. Section 07 62 00 - Sheet Metal Flashing and Trim.
		4. Section - .
		5. Section 08 60 00 - Roof Windows and Skylights.
		6. Division 15 - Mechanical: Mechanical work projecting through roof.
		7. Section - .
		8. Division 16 - Electrical: Electrical work projecting through roof.
	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 A 792/A 792M - Sheet Steel, Aluminum - Zinc alloy coated by the Hot-Dip Process, structural (physical) quality.
		2. ASTM B 117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
		3. ASTM C 920 - Specification for Electrometric Joint Sealant.
		4. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
		5. ASTM E 108 - Test for Fire Resistance of Roof Covering Material.
		6. UL1897 Tests for wind uplift resistance of roof assemblies.
		7. ICC-ES Evaluation Report - ICC-ESR-#3098.
		8. Canadian Evaluation Report - CCMC-13313-R.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Shop Drawings: Indicate metal panel and flashing profiles, joint locations, fastening locations, and installation details. Indicate panel layout with location of cut and special shapes identified.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraphs if LEED is not applicable. Refer to Metro website link - [metroroofs.com/leed.cfm](http://metroroofs.com/leed.cfm) for additional information.

* + 1. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
			1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
			2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
		2. Verification Samples: For each finish product specified, two samples, representing actual product, color, and patterns.
		3. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Minimum five years documented experience producing roofing panels of the type specified.
		2. Installer Qualifications: Manufacturer certified installer specializing in performing the work of this section.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project 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: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
			1. Finish areas designated by Architect.
			2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
			3. Refinish mock-up area as required to produce acceptable work.
		2. Pre-Installation Meeting:
			1. Convene at job site seven calendar days prior to scheduled beginning of construction activities of this section to review requirements of this section.
			2. Require attendance by representatives of the following:
				1. Installer of this section.
				2. Other trades directly affecting, or affected by, construction activities of this section.
			3. Notify Architect four calendar days in advance of scheduled meeting date.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Store products in manufacturer's unopened packaging with labels intact until ready for installation.
		2. Store products in accordance with the manufacturer's instructions.
			1. Store products on pallets off the ground and sufficiently high to allow air circulation beneath each bottom stack and prevent rising water from entering pallet or stacks. Elevate one end of the pallets to ensure drainage.
			2. Prevent rain from entering pallet stacks by covering with a tarpaulin, making provision for air circulation between draped edges of tarpaulin and ground.
			3. Prolonged storage of panels in a stack or pallet outside is not recommended and could result in white rust or watermarks on the materials.
		3. Secure stored materials and unfinished work against damage by wind.
	2. SEQUENCING
		1. Ensure that locating information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
		2. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
	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 absolute limits.
	4. WARRANTY
		1. Provide the manufacturer's 25 year limited appearance warranty and a 50 year fully transferable, limited warranty for defects and the following.
			1. 120-mph Wind Warranty
			2. Hail Impact Warranty
			3. 25 year limited appearance warranty
	5. EXTRA MATERIALS
		1. See Section 01 60 00 - Product Requirements.
		2. Provide an additional 1 percent of installed roof tiles, but not less than one full square, for Owner's use in roof maintenance.
		3. Furnish extra materials packaged with protective covering for storage and identified with labels clearly describing contents.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Metro Roof Products, which is located at: 3093A Industry St.; Oceanside, CA 92054; Toll Free Tel: 866-METRO-4U (638-7648); Tel: 760-435-9842; Fax: 760-435-1162; Email: [request info (info@metroroofs.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Metro+Roof+Products&coid=43080&rep=&fax=760-435-1162&message=RE:%20Spec%20Question%20(07323met):%20%20&mf=); Web: [www.MetroRoofs.com](http://www.MetroRoofs.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.
	1. MATERIALS - GENERAL
		1. Coated Steel: ASTM A 792 Grade 33 with an AZ 50 class, hot-dipped aluminum-zinc alloy coating and a thickness of 0.017 inch (0.43 mm). Exposed surface is covered by pressed colored stone granules embedded in an acrylic resin base coating, followed with a clear acrylic glaze. Weight of coated steel is 1.3 psf (6.3kg m2).
		2. Panel Performance:
			1. Fire Rating: Class A (Non-combustible roof covering).
			2. Wind Rating: High Velocity Hurricane Zone (HVHZ) Florida State Approval #FL6710-R4 (Non-HVHZ) Miami-Dade NOA-#11-0808.08 (HVHZ).
			3. ICC-ESR-#3098.
			4. CCMC-13313-R.
			5. Hail Impact: UL 2218 Class-4 rated.
			6. Color as selected by the Architect from manufacturer's standard colors.

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs for the products required and delete those not required.

* 1. PANELS AND ACCESSORlES

\*\* NOTE TO SPECIFIER \*\* Select the one of the following four paragraphs for the panel required. Delete the paragraphs not required.

* + 1. Metro423532532TILE423532532HJHarry Johnson4235325321194769440ARCAT accommodates patient references, trademark and copywrite symbols (If Applicable) at the top of the first page of the specification and in the "Notes to Specifier" paragraphs (shown in pink) throughout the specification. They are not used in the body of the spec. This is because the specification is the Architects "working document" and as such not a mandatory requirement. This helps to avoid inconsistencies throughout the individual sections of the total specification. Panels: Provides a low-profile scalloped appearance with 8 individual curved pan pressed sections 16 inches deep by 52 inches long (406 mm by 1320 mm) with an installed exposure of 14-1/2 inches by 50 inches (368 mm by 1270 mm). Leading edge of each panel is turned down 1 inch (25 mm), and the back edge is bent up and horizontally back 1-1/2 inches (38 mm) to create an overlapping weather edge. Side laps are 2 inches (51 mm).
		2. MetroSHAKE Panels: Provides a wood grained shake appearance, 16 inches deep by 52 inches long (406 mm by 1320 mm) with an installed exposure of 14-1/2 inches by 50 inches (368 mm by 1270 mm). Leading edge of each panel is turned down 1 inch (25 mm), and the back edge is bent up and horizontally back 1-1/2 inches (38 mm) to create an overlapping weather edge. Side laps are 2 inches (51 mm).
		3. MetroROMAN Panels: Provides a high profile curved tiles appearance, 16 inches deep by 51 inches long (406 mm by 1219 mm) with an installed exposure of 14-1/2 inches by 49-1/2 inches (368 mm by 1257 mm). Leading edge of each panel is turned down 1 inch (25 mm), and the back edge is bent up and horizontally back 1-1/2 inches (38 mm) to create an overlapping weather edge. Side laps are 2 inches (51 mm).
		4. MetroSHINGLE Panels: Consists of a panel with raised and lowered sections forming a shingle appearance. Front and rear edges are formed to a ' C' configuration, so that the panels interlock when overlapped. Panel is 10-1/2 inches by 52 inches (267 mm by 1321 mm) with an installed exposure of 9-1/2 inches by 50 inches (241 mm by 1270 mm). Side laps are 2 inches (51 mm).
		5. Metro COTTAGE-Shingle Panels: Consists of a panel with 2 courses with raised and lowered sections forming a heavy shingle appearance. Panel is 16 inches by 51 inches (407 mm by 1296 mm) with an installed exposure of 14 inches by 47-1/2 inches (356 mm by 1207 mm). Side laps are 3-1/2 inches (89 mm) top course section right side-lap and 2-1/2 inches (64 mm) bottom course section right side-lap.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs for the panel installation method. Delete the paragraph not required. Metro panels are installed either on ' battens' or 'Direct-to-Deck - batten-less', the batten-less application provides the greatest uplift performance due to the increased fasteners across the back flange of each panel.

* + 1. Panel Batten 1 by 4 inches (25 by 100 mm): Single horizontally positioned (parallel to the fascia - ridge) ' Panel Battens' at 14-1/2 inches (368 mm) o/c from the front face of one batten to the front face of the next.
		2. Counter Batten 1 by 4 inches (25 by 100 mm) and Panel Batten 2 by 2 inches (50 by 50 mm): Counter-Battens are placed directly above each rafter and spaced 24 inches (600 mm) o.c. in the same direction and vertically between fascia and ridge with Panel Battens fastened on top of Counter-Battens at 14-1/2 inches (368 mm) o.c.
		3. Direct-to-Deck - batten-less installation install perimeter flashing metals (Drip edge, V-Bat Riser, Gutter-Riser or Ventilated Riser, Rake Channels or Trim Caps on rakes). Install full panels across roof sections with laps, interlock and fasteners specified per profile by the manufacturer.
		4. Hips, Ridges and Rakes: Trim to match panel specified and of the same color and surface finish as Metro panels.
		5. Flashing Stone-Coated: V-Bat Riser Flashing, Fascia Flashing, Head-Wall Flashing, Z-Bar Flashing, Tile-Rake Metal Flashing and Valley Cover Flashing of same profile, color and surface finish matching roof panels.
		6. Flashing - Painted: Provide as necessary for specific job various shaped metal flashing sections for transition areas with construction and Stone-Coated steel roof.
		7. Nails: Corrosion resistant full round headed flathead, Ring Shank nails, 8d, 2-3/8 inch long by 0.131-inch diameter as approved by manufacturer with minimum 1,000 hours salt spray resistance to ASTM B 117.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for use with Metro SHAKE®, Metro TILE® and Metro COTTAGE-Shingle™ panels. Delete if not applicable.

* + 1. Screws: Manufacturer's #-10 by 2 inch (51 mm) long corrosion resistant steel, 1/4 inch (6.36 mm) hex head screws. Screws colored coat to match panel color. Capable of resisting a minimum 1,000 hours salt spray in accordance with ASTM B 117.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph for use with Metro ROMAN® Panels. Delete if not applicable.

* + 1. Screws: Manufacturer's #-10 by 2-1/2 inch (64 mm) long corrosion resistant steel, 1/4 inch (6.36 mm) hex head screws. Screws colored coat to match panel color. Capable of resisting a minimum 1,000 hours salt spray in accordance with ASTM B 117.

\*\* NOTE TO SPECIFIER \*\* Select the following paragraphs for use with Metro SHINGLE® Panels. Delete if not applicable.

* + 1. Panel Fasteners: 1-1/4 inch (32 mm) ring shank nails with a 3/8 inch (8 mm) diameter head) or screws 1 inch (25 mm) long corrosion resistant steel, 1/4 inch (6.36 mm) hex head screws. Capable of resisting a minimum 1,000 hours salt spray in accordance with ASTM B 117.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraphs as required for the project and delete those not required.

* + 1. Valley and other Flashings: Aluminum zinc alloy coated sheet ASTM-A792/A792M or G-90 Galvanized. Do not use copper and lead flashings due to metal incompatibility.
		2. Asphalt Saturated Organic Felt: No. 30 or 43# Asphalt Saturated felt to meet requirements of ASTM D 226 Type 1.
		3. Sealant: In accordance with ASTM C 920-86.
		4. Pipe Jack Flashings: Metro SMART-Jack 3-in-1 to fit pipes from 1-1/4 inch to 3 inch or 3-in-4 to fit pipes from 3 inches to 4 inches. Metro SMART-Jack rubber gasket pipe jacks stone coated to match the Metro panel finish. Fabricated of soft aluminum. Do not use copper and lead pipe flashings due to metal incompatibility.
		5. Pipe Sleeve Covers: Metro SMART-Sleeves for pipes from 3/4 inch (19 mm) to 4 inch (100 mm) diameter and are designed for use with Metro SMART-Jack pipe flashing and are stone coated to match the Metro panel finish.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly prepared.
		2. Verify roof structure for correct framing prior to placing battens and Metro roof panels.
		3. Verify roof penetrations and plumbing vent stacks are in place and flash to roof surface.
		4. Verify that work requiring roof access by other trades is completed prior to starting roofing panel installation. Limit roof access by other trades after completion of roofing.
		5. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Coordinate with installation of gutters, vents, skylights and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and securely fastened.
		3. 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.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following paragraphs for batten installation or direct to deck sheathing installation as required. Delete the paragraph not required.

* + 1. Batten Installation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following batten paragraphs as required and delete the ones not required. Metro panels are installed either on ' battens' or direct to deck ' batten-less'. Battens are single horizontally positioned (parallel to the fascia - ridge) ' Panel Battens', or ' Counter-Battens' placed directly above each rafter in the same direction (vertically between fascia and ridge) with the ' Panel Battens' then fastened on top of the ' Counter-Battens'.

* + - 1. Install 2 inch by 2 inch (51 mm by 51 mm) panel battens across roof frame at 14-1/2 inches (368 mm) from the front face of one batten to the next. Stagger ends.
			2. Install 1 inch by 4 inch (25 mm by 100 mm) panel battens across roof frame at 14-1/2 inches (368 mm) from the front face of one batten to the next. Stagger ends.
			3. Install 1 inch by 4 inch (25 mm by 100 mm) counter battens spaced at 24-inch centers vertically over roof framing member. Stagger ends. Install 2 inch by 2 inch (51 mm by 51 mm) battens across counter-battens at 14-1/2 inches (368 mm) from the front face of one batten to the next. Stagger ends.
			4. Nail all battens in place with 16d common nails as per manufacturer's instruction.
			5. Install additional battens to support and provide fastening points for flashings and trim.
			6. Install Metro Stone-Coated Fascia Metal across bottom batten at the fascia.
			7. Fasten panels in place with screws or nails as specified per manufacturer's instruction.
		1. Sheathing Direct to Deck Batten-Less Installation:
			1. Apply one layer of asphalt saturated roofing felts over sheathing surface lapping joints to slope a minimum of 6 inches.
			2. Install Drip-Edge (or Metro FL-Fascia Stone-Coated) metal around roof perimeter, with end laps of a minimum of 4 inches, fastened per code.
			3. Install Metro Stone-Coated metal V-Bat Riser Metal on top of the drip edge metal making sure the Metro ' Locator-Lip' detail is fitted together tightly. Fasten per code. Stagger end joints.
			4. Fasten in place with screws or nails as specified per manufacturer's instruction.
		2. Valley Installation:
			1. Valleys shall be installed with minimum 6-inches overlap in the direction of flow.
			2. Fasten in place at minimum 24-inches centers through outer flange section of valley flashing. Or use hold tabs. Fasteners shall be either sealed or have a rubber washer head to prevent leaking.

\*\* NOTE TO SPECIFIER \*\* Use of a Metro SMART-Valley flashing and Valley Cover piece eliminates the need to bend the cut valley panels.

* + - 1. Metro Roof Products roof panels shall be cut and accurately bent down into valley creating an open or closed valley. Panels on opposing sides of valley shall form a straight and even line over the valley.
			2. Install new valley flashing on all re-roofing applications.
			3. Do not use copper and lead pipe flashings due to metal incompatibility.
		1. Metro Panel Installation: Install Metro panels with alternating courses staggered and side-laps per manufacturers instructions.

\*\* NOTE TO SPECIFIER \*\* Select the one of the following three paragraphs for panel type and batten installation or sheathing installation as required. Delete the paragraphs not required. For High Velocity Hurricane Zones (HVHZ) refer to Metro's HVHZ information on its website or contact the manufacturer for additional information.

* + - 1. Install Metro panels (batten-less) using 4 fasteners across the nose and 4 fasteners across the back horizontal flange per panel.
			2. Install Metro panels (batten) using 4 fasteners across the nose of each panel.
			3. Install Metro SHINGLE panels using 4 fasteners across the back fastening flange per panel
		1. Metro Trim Installation:
			1. Place flashing and trim over locations as specified for their use by the manufacturer.
			2. Fold exposed ends of ridges and hips neatly and cap with similar roof material.
			3. Seal folds with sealant as required by manufacturer and secure with additional approved fasteners.
	1. PROTECTION
		1. Protect installed products until completion of project.
		2. Stage work progress to avoid foot traffic over completed sections of roofing.
		3. Where practical provide protection of installed materials from potential damage through work from other trades.
		4. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION