VAIL *Metal Shingles*

Application Instructions

Custom-Bilt Metals • 13940 Magnolia Ave. Chino, CA 91710

VAIL *Metal Shingles*

Application Instructions

When installing or walking on VAIL Metal Shingles:

1. OSHA fall protection guidelines for sloped roofing should be followed at all times.
2. Check local building codes before installing.
3. Heat can be generated in any metal roof system. If using a self-adhered membrane as an underlayment, consult manufacturer's guidelines or specifications to ensure that the membrane is designed for use under high-temperature conditions.

Applicable Standards and Codes

1. See ICBO /ICC ES Evaluation Report 5318 for allowable values and/or conditions of use concerning materials presented in this document.
2. Metro Dade County Product Control Acceptance No. 07-0521.05
3. Class A fire-rated system may be achieved by installing under the roof panels a minimum 1/2"-thick (12.7mm) water-resistant core gypsum sheathing complying with ASTM C 79, 1/4"-thick (6.4 mm) Dens-Deck overlayment board manufactured by Georgia Pacific, or "Versashield" non-asphalt fiberglass-based roll roofing manufactured by Elk Corporation, installed over the plywood sheathing. The gypsum and Dens-Deck materials are to be attached to the roof deck with eight 1-1/2"-long (38mm) nails per 4' x 8' sheet. Length of the nails used to attach the roof panels must be increased by the thickness of the barrier boards.

Product Specifications

Panel Length	34" long
Panel Width	12" wide
Exposure Area Per Panel	32.5" X 11.25"
Coverage	39 panels per l00 sq. ft.
Weight Per Square	Copper 136.5 lb. 26 ga. Steel 106.7 Ib.
Hip and Ridge	Length 12" exposure Width 5-1/2" per side
Product Material	Copper 16 oz. (0.021") solid copper Steel 26-gauge (0.019") Galvalume
Product Coating	Steel Kynar 500
Installation Clips	3 per panel, 117 per square; hip and ridge also requires clips: 2 per 12" piece
NOTE: *High Wind and / or Miami-Dade Co. requirements are 3 clips per steel panel, 4 clips per copper panel*	
Trim Flashings	Trim flashings come in 10' lengths except hip / ridge trim is in 1' pieces.
Flat Stock	Copper 36" x 120" Steel 48" x 120" (most colors)

Tools Recommended

- Right, left, center tin snips
- Safety harness and ropes, Pop-rivet tool
- Hammer, Flat bar, Hand-held Hemming Tool
- Drill / Screw Gun

General Application

Deck Preparation

Always check that the roof deck is straight and true and that fascias are level to the deck. When installing field panels, check that the roof line is square to the ridge; marking horizontal chalk lines every 4' will help in adjusting for roof decks that are not square. By lowering a row (not more than 1/16"), you can make minor adjustments in the field panels to square up uneven roof sections.

Underlayments

The sheathing is to be covered with a minimum of one layer of Type 30 or two layers of Type 15 asphalt-saturated felt. When using two layers of Type 15 asphalt-saturated felt apply a 19" starter strip of underlayment over metal drip edge at eaves. Use a 36" wide roll of underlayment lapped over the 19" starter strip and remaining courses, overlap per underlayment manufacturer. In valley areas, install a minimum of one layer of Type 30, 36" felt prior to installing valley metal.

All underlayments are to be fastened to the roof deck with minimum 7/8"-long, corrosion-resistant roofing nails having 1" diameter plastic caps spaced at 12" on center on overlaps and in the field.

Severe Climate

At all eaves, two layers of Type 15 felt are to be applied shingle-fashion, solid-cemented together with approved cementing material between the plies, extending from the eave up the roof to a point 36" inside the exterior wall line of the building. In a non-rated roofing system, severe climate underlayment (such as self-adhering rubberized membrane) recognized in a current ICBO / ICC ES or NES evaluation report may be used as an alternative to the two layers of Type 15 felt at the eaves.

For installations in regions of the country where snow and ice exist, potential hazards associated with falling snow and ice should be addressed areas above walkways and driveways, etc., need the most attention. Snow-retention devices, snow clips, etc, should be installed per specification from an architect or engineer. Always consult local building codes.

Roof Slope and Sheathing Requirements

Minimum roof slope is 3:12. Vail shingles must be installed over code complying, minimum 15/32" wood-based structural sheathing.

Eave Drip Edge

Drip edge is to be applied to all eaves prior to installing the roofing felt and screwed at 12" on center (see Fig. 1)
Lap underlayments on top of eave trim.

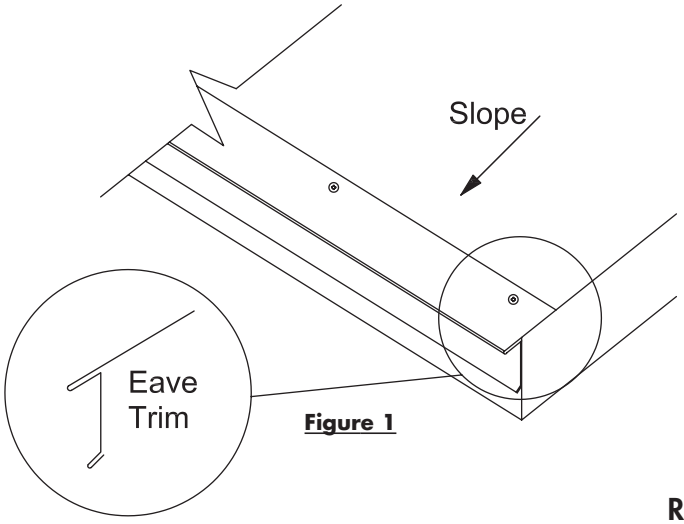


Figure 1

Notch and bend Eave Drip edge corner about an inch so that the Rake edge can be inserted snugly at the corner (see Fig. 2)

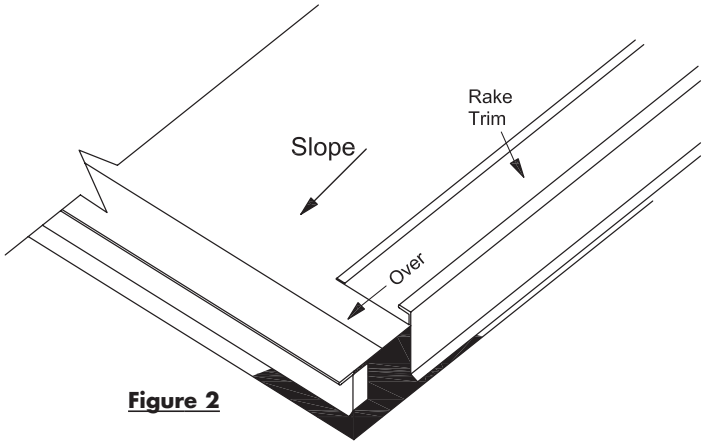


Figure 2

Rake Edge

Rake edge is to be installed over the roofing felt and screwed 12" on center (see Fig. 3).
Apply sealant over all screw heads.

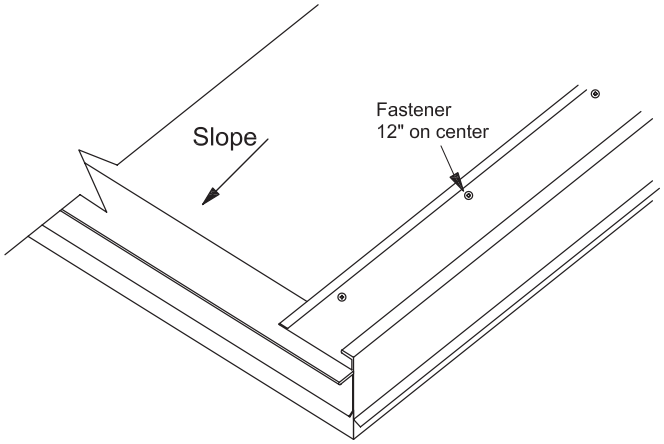


Figure 3

When installing a rake edge at the apex of a ridge, you will need to cut the inner area of the first piece to match the vertical plane at the ridge apex. Be sure to leave a tab at all lap areas. Then bend the top edge of the second piece over the ridge, laying it flush with the notched first piece. Points A and B should match (see Fig. 4).

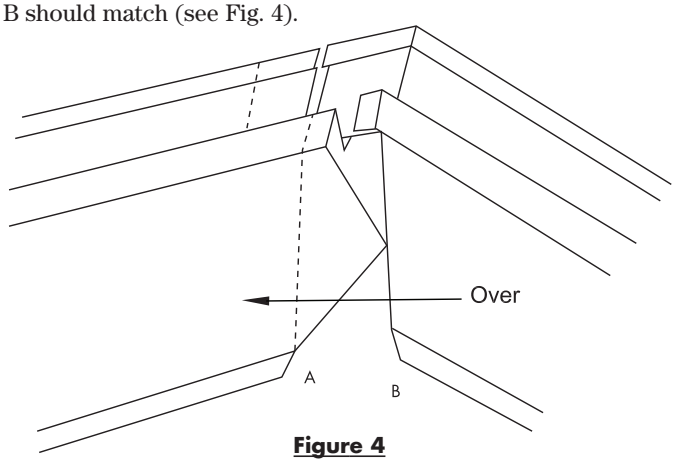


Figure 4

When connecting upper and lower sections of rake edge, cut off approximately 2" of outer drip edge at an angle, square off the exposed top surface on the lower section. Leave the main water channel intact and install under the upper uncut section. Add a sealant where the two top exposed metals meet (see Fig. 5).

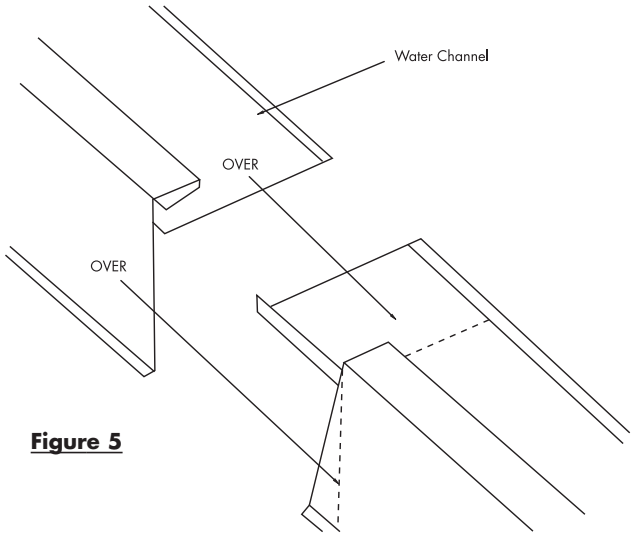


Figure 5

Sidewall Flashings

Sidewall flashing, (see fig. 6), should be applied prior to any other roof-related work, such as installing siding or counter flashing. This will minimize foot traffic once the roof panels are installed.

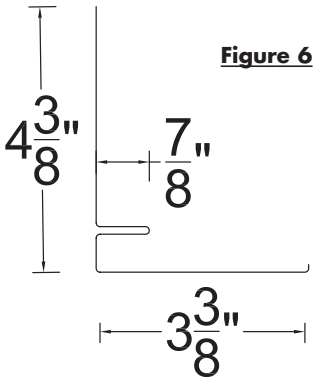
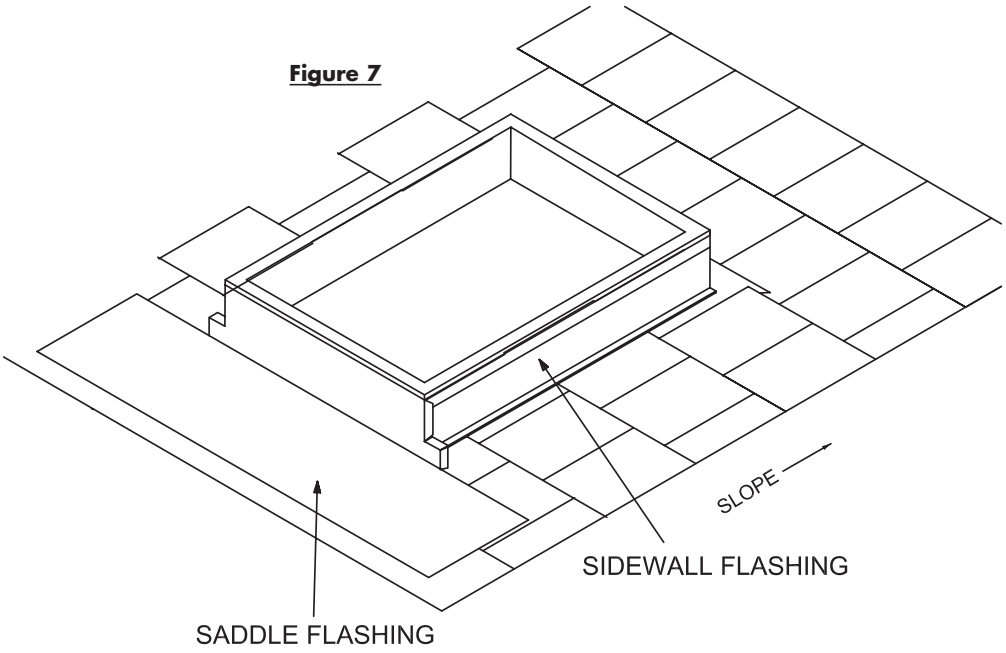


Figure 6

Chimney and Skylights

Chimney and skylight flashing installations vary. The use of a combination of endwall, sidewall, saddle and continuous cleats may be required. (see Fig. 7) If a cricket or diverter is being used, valley flashings may also be required. More detailed instructions later in this manual.

Figure 7



Continuous Cleat

For areas where shorter courses of panels, pitch changes or endwalls occur, the use of a continuous cleat will be required. Install the continuous cleat by first applying a bead of caulking or butyl tape, then screw the cleat into place with a minimum of one screw per 12" (see Fig. 8).

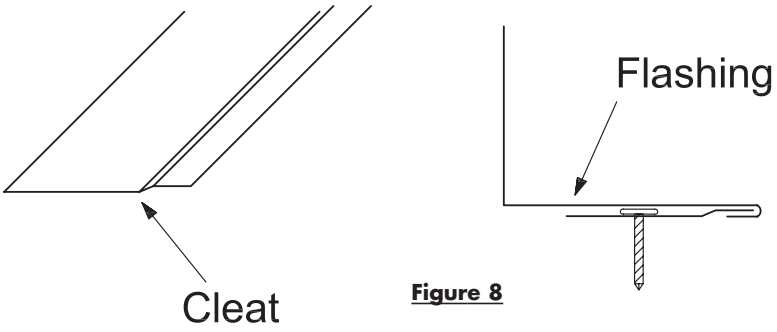


Figure 8

Valleys

The typical condition for the Vail metal shingle at a valley, consist of the shingle being hemmed and engaged onto a cleat in the valley. This can be achieved in two different ways.

1. The standard “W” valley can have a continuous offset cleat installed onto a row of butyl tape and fastened in place. (see fig. 9)
2. The “W” valley can be fabricated with a “S” lock cleat built into the valley (see fig. 10)

Figure 9

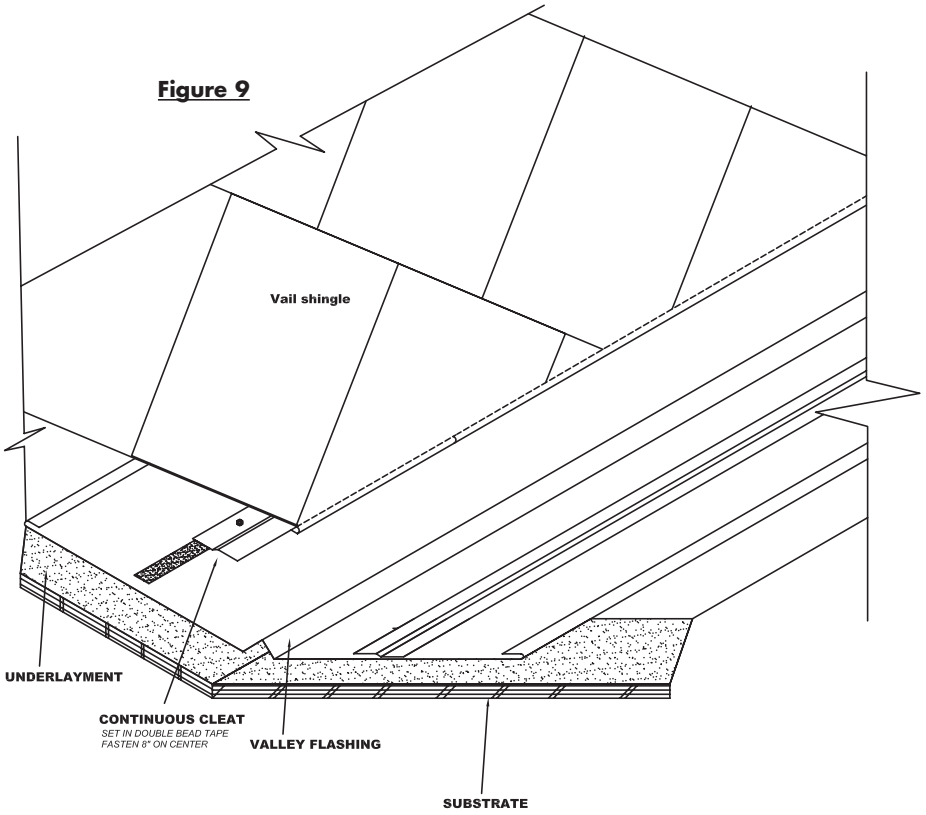
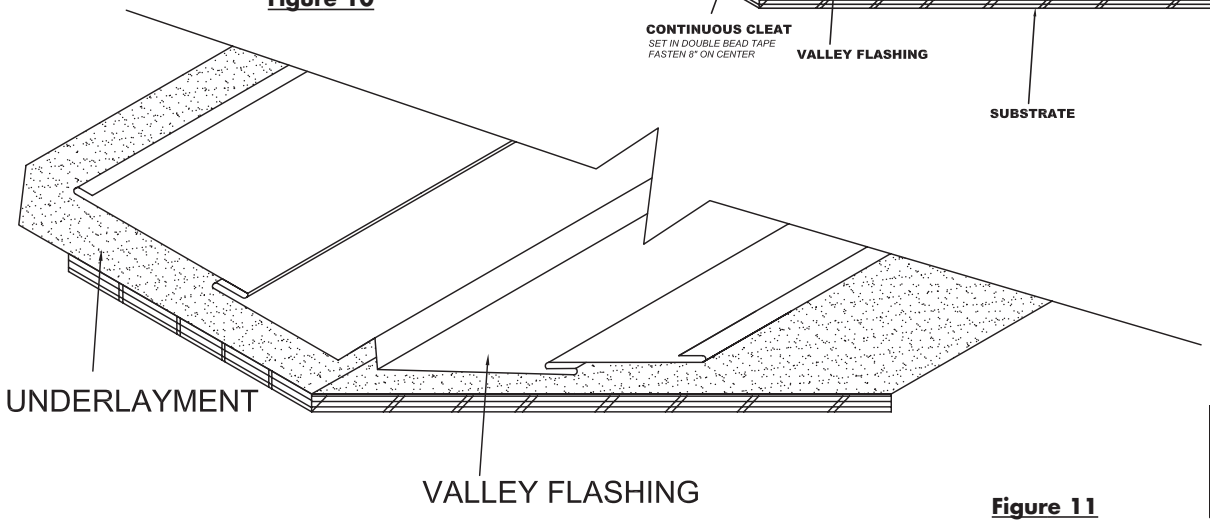


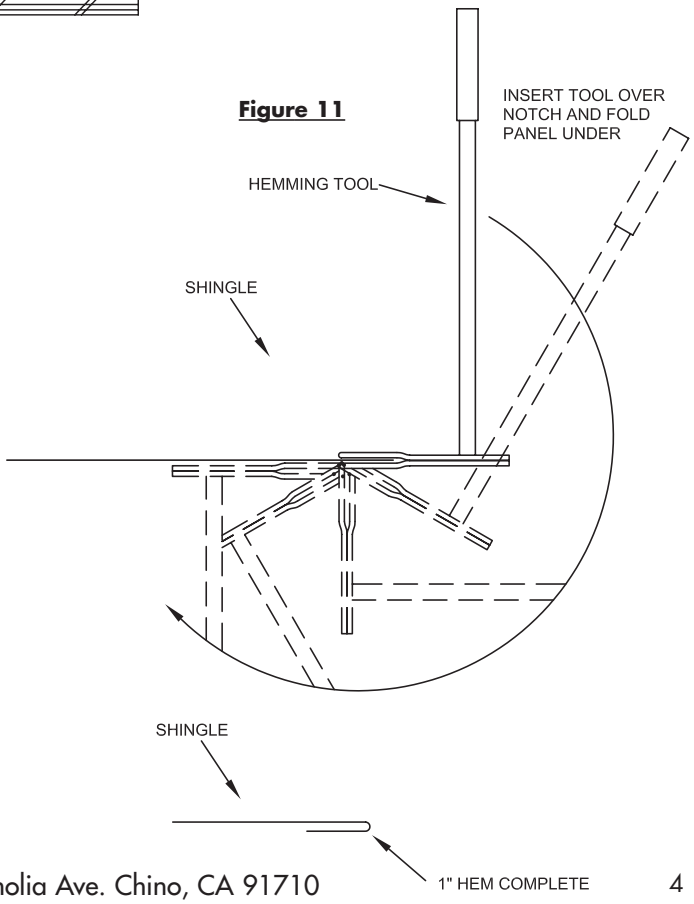
Figure 10



Center the valley flashing and attach to the roof deck using clips on both sides of the valley spaced at 18” apart. When installing valley metals where two valleys meet at an apex, use the adjacent ridge line as a reference, scribe a matching line on the first valley metal and cut allowing enough material to be lapped by the opposing valley. Cut the opposing valley panel in a miter pattern, as to align with the valley previously installed. The notched edges should match the straight line you have already cut on the other valley panel. Now install continuous cleat in butyl tape 6” from the center of the valley. Screw cleat through the butyl, 12” on center.

To install the shingles at the valley, use the edge line of the cleat as a guide, scribe a line on the shingle parallel to the cleat. This line will be the hem line for the shingle. Add one inch to the outside of this line and cut along this line. Now use a hemming tool (see Fig. 11) to turn a one inch hem onto the shingle. The shingle can now be installed, be sure to engage the hook on the lower shingle and the valley cleat. (see fig. 9)

Figure 11



Field Panels

The shingles are installed from right to left, bottom to top. The seam lines on the shingles are staggered from one course to another. To do this you will need to cut starter pieces. The first course requires no cut, the following three courses will be cut from the right side leading edge. The fifth course will be a full shingle and repeat. The cut pattern is shown in Figure 12 and will create a symmetrical effect on the roof. Save the cut pieces for use in finishing the left-hand side of the roof.

Start with a full panel, making sure the bottom cleat of the first row of panels interlocks with the drip edge. Applying slight pressure, insert the lower right-hand corner into the rake edge flashing. Insert the panel firmly, as it has a built-in guide that will determine how far you can insert the panel. After making sure that the bottom cleat has fully locked with the drip edge, apply three clips per shingle (four clips for copper shingles), and screw into place with a #10 X 1 screw (the screw should be of sufficient length to penetrate 3/4" into the sheathing thickness or through the sheathing, whichever is less).

NOTE: *Miami-Dade Co. requirements are 3 clips per steel panel, 4 clips per copper panel.* If installing VAIL Majestic Copper, be sure to use stainless screws, copper clips and copper flashings only. Do not apply clip over doubled area of the panel (see fig.13). Proceed to install remaining starter pieces in the same fashion. Be sure the bottom cleat fully locks with the upper cleat of the panel below.

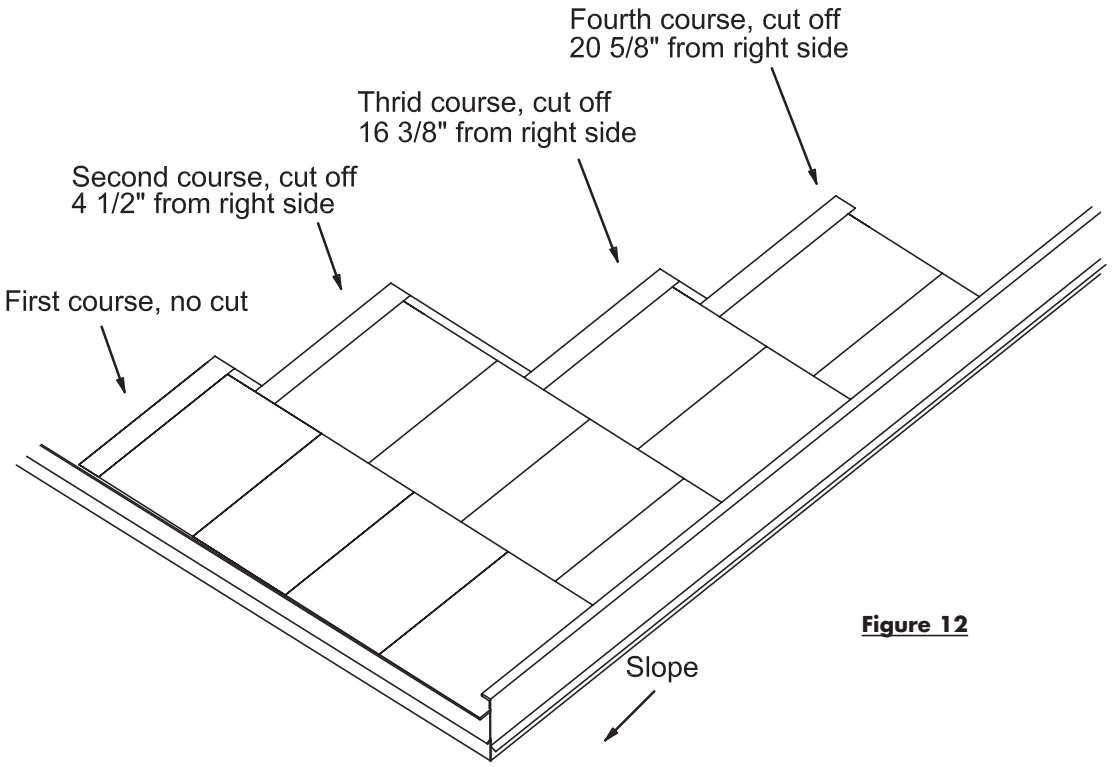


Figure 12

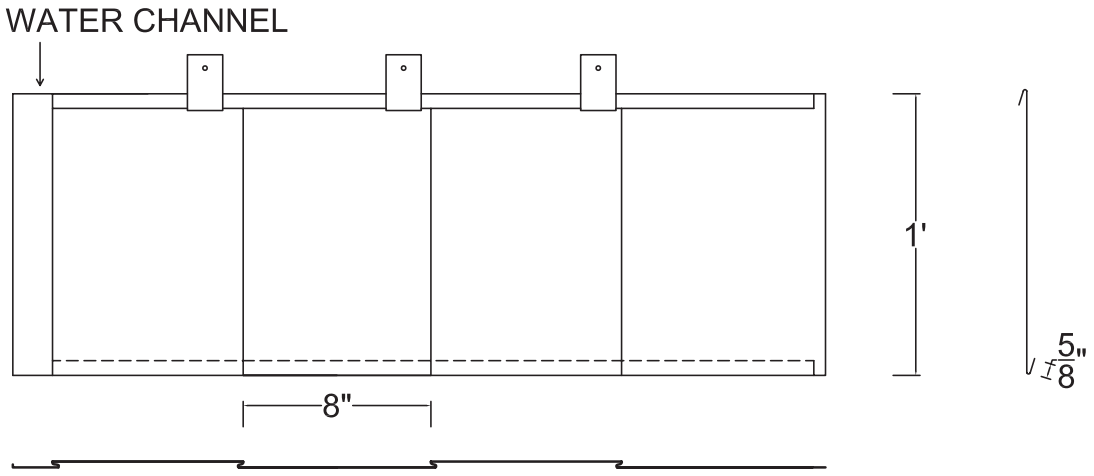


Figure 13

NOTE: *requirements are 3 clips per steel shingle, 4 clips per Copper and Aluminum shingle*

Pipes and Vents

When a roof has a pipe penetration, install pipe flashing as you would in a shingle-type application. Cut a hole in the panel slightly larger than the pipe and slip the panel over the pipe. Place the flashing over the pipe and on top of the panel and fasten into place. Add a bead of high-grade urethane or butyl sealant to the panel prior to installing the flashing (see Fig. 14).

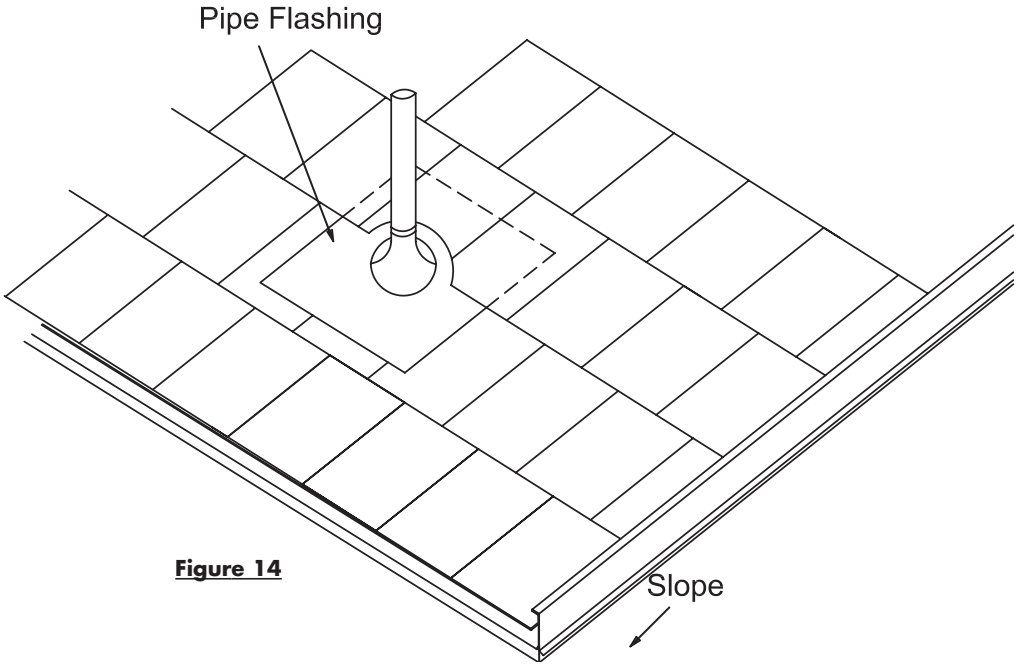


Figure 14

Endwall or Pitch Change Flashing

When panels terminate at an endwall or pitch change, cut and install panels to within 1/2" of the wall. If the full panel can't be attached with the clips provided, it is necessary to screw the panel with a minimum of three screws spaced evenly within 1" of the top of the panel. Install a continuous cleat the necessary distance to provide an interlock for the headwall flashing piece. The headwall sheet is then screwed into place as to show no exposed fasteners (see Fig. 15).

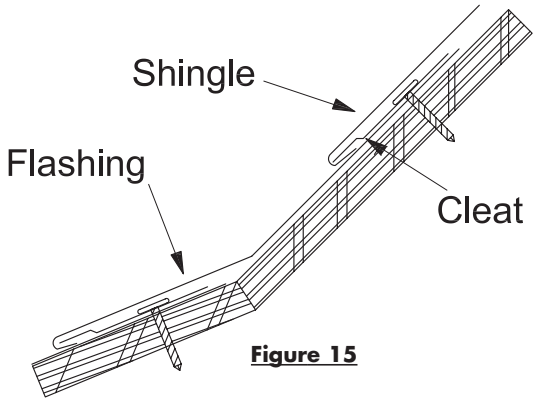


Figure 15

Ridge Caps

At both hip and ridge locations, panels will be cut back from the ridge lines a maximum of 2". Install a 6" wide strip of high temperature self-adhering roofing underlayment over the ridge shingles. The first ridge piece, may be installed by securing with rivets (two on each side) at the outer rake edge or with a ridge cleat (see Fig. 16). The first ridge piece is engaged onto the cleat and secured at the rear with one clip on either side of the ridge. Clips interlock with the built-in cleat on each ridge piece. Each additional ridge piece then interlocks with the previously installed ridge piece and is attached with two clips. The last piece installed is to be fastened with two rivets on either side of the ridge. The coverage width for each side of the ridge piece is 5-1/2".

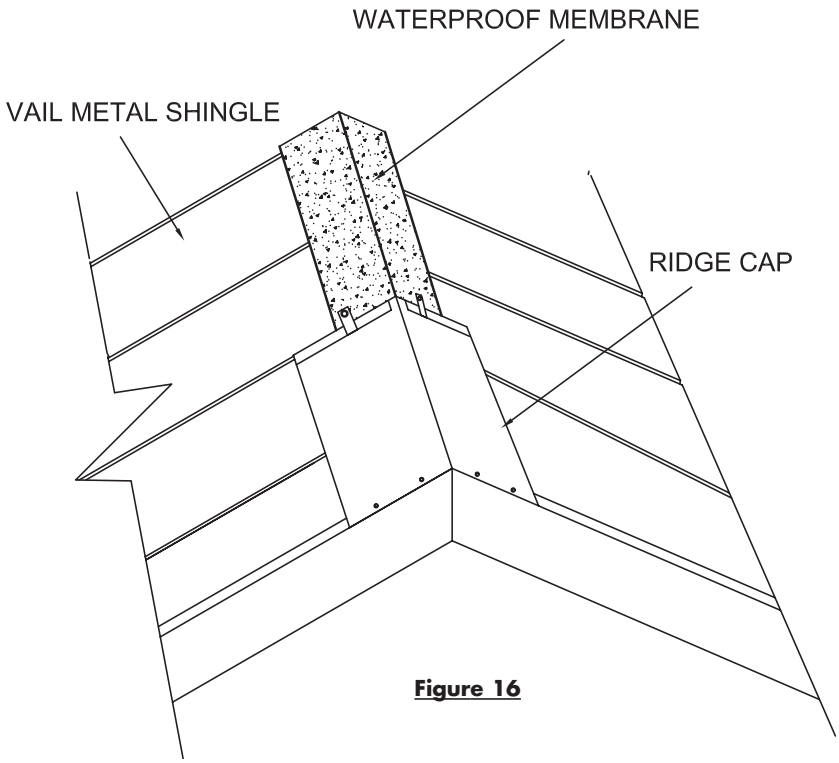


Figure 16

Hip Caps

Put first hip cap in place, approximately 3/4" past hip's lowest point. Scribe a line on the hip piece to match the eave lines on both sides. Cut away the excess 3/4" below the scribed line. Fold the bottom metal back under to form a modified hem that will interlock over the field pieces and the eave drip edge. Secure in place with two clips at the top of the hip cap (see Fig. 17).

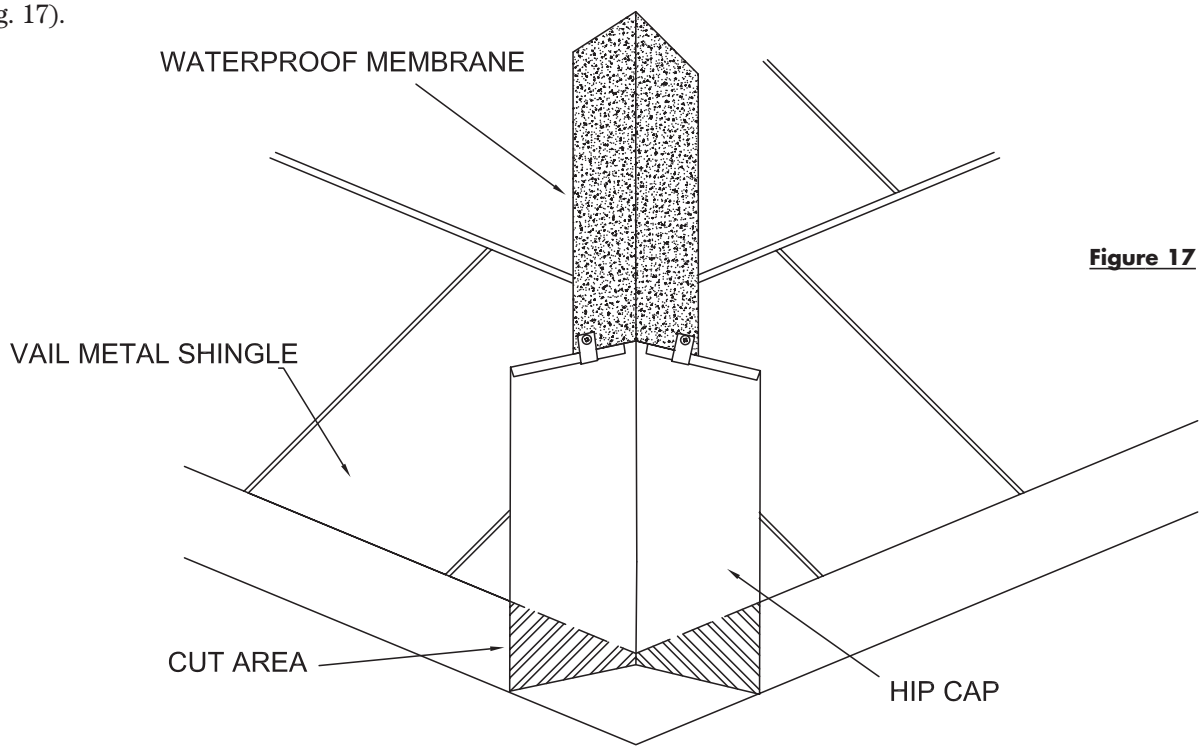


Figure 17

Peak Flashings

Install peak flashings similar to endwall or pitch break flashing. Install a continuous cleat at the proper location to allow the peak flashing to lock onto the front edge. (see Fig. 18)

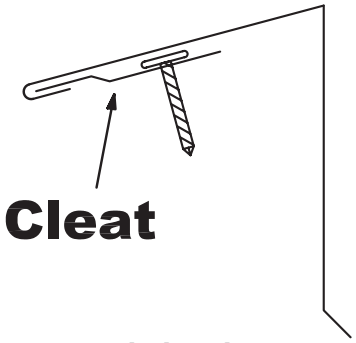


Figure 18

Typical Fireplace Installation for VAIL Metal Shingle

Install shingles up to the fireplace to within one inch, cut as needed (see Fig. 19). Endwall metal is to be installed at the front of the chimney, over the field panels, using continuous cleat to hold front edge of flashing. Wrap both corners of the endwall metal around the fireplace (see Fig. 20).

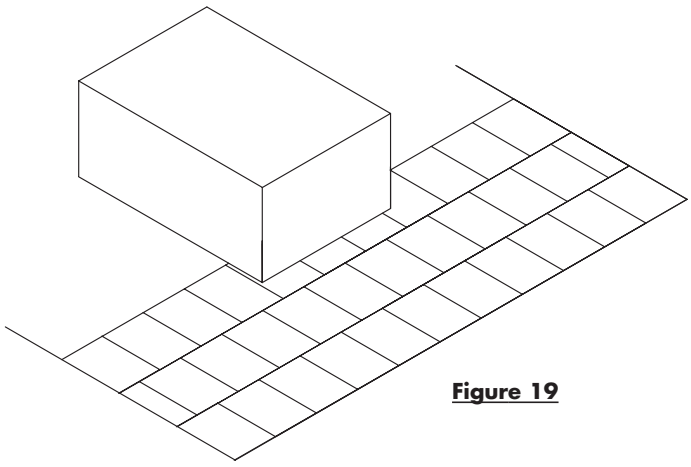


Figure 19

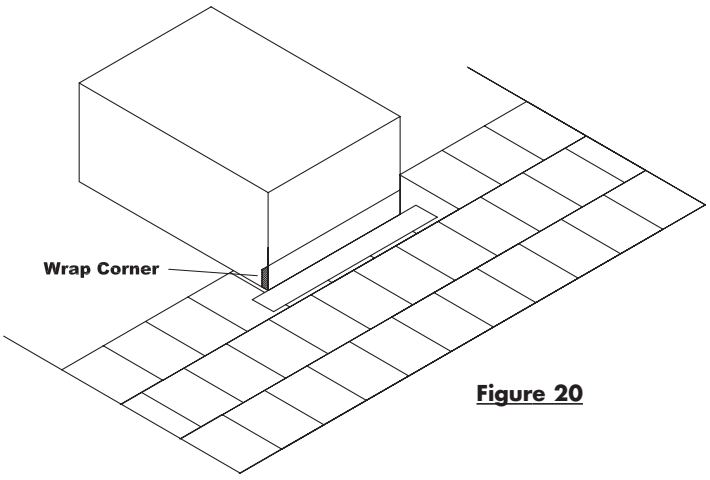


Figure 20

Sidewall metal is to be installed on both sides of the chimney and over the installed field panels at the bottom of the chimney. Wrap the top leading edge. Extend the sidewall pan a minimum 6" past the back of the chimney (see Fig. 21). Proceed to install the field panels into the sidewall metal receiver (see Fig. 22).

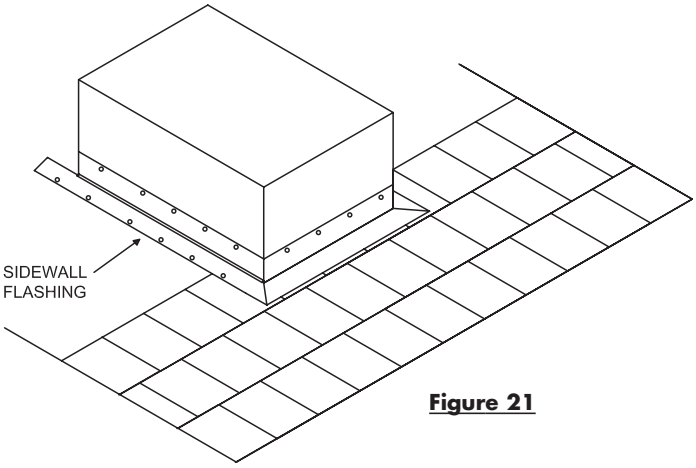


Figure 21

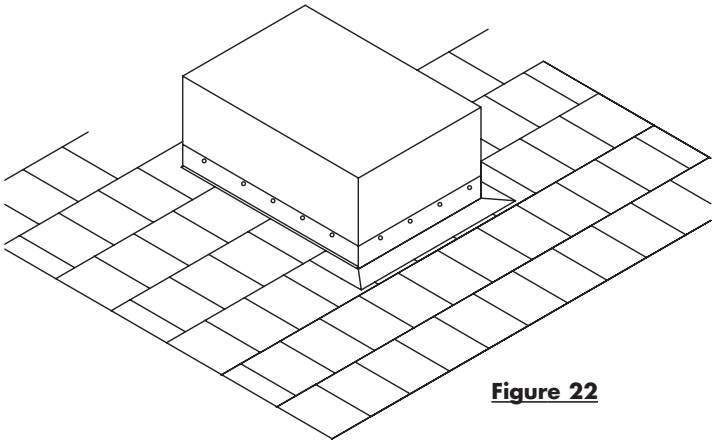
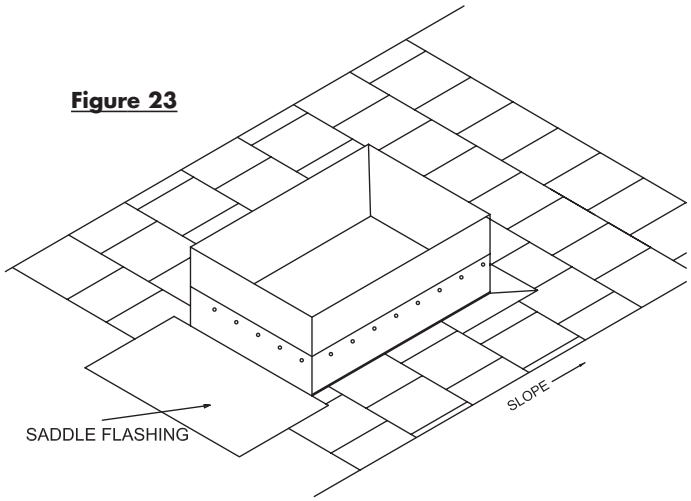


Figure 22

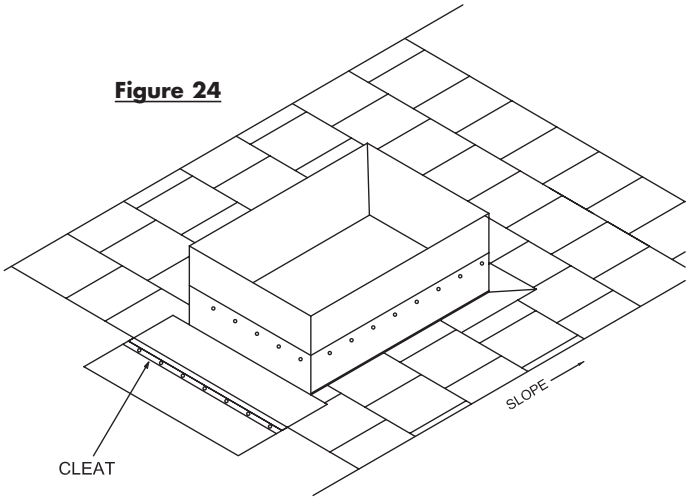
Using flat metal stock, create a metal-formed saddle for the top roof edge of the chimney. Install over the sidewall metal and shingles, seal with a high-grade sealant where the two metals lap over each other. Extend the saddle approximately 3" over the sidewall metal (see Fig. 23).

Figure 23



Install a length of continuous cleat on the saddle flashing. Align the front edge of the cleat with the hook edge of the shingles adjacent to it. Place a bead of sealant between the cleat and the saddle and fasten into place. (see Fig. 24) Continue to lay shingles as before.

Figure 24



Steep-Pitched Roofs

Standard roof jacks and toe boards can be installed as a means of safety and for the ease of installation.

- Make a cut at the top of the field panel hem, approximately 3-1/2" long. Fold back toward the roof.
- Install the roof jack, with padding on the bottom portion, to protect the roof.
- Continue to install the roof system over the installed toe-board jack.
- When the installation is completed, remove the toe-board and slide the toe-board jack out of its position and seal the slot with a high-grade sealant. Fig. 29

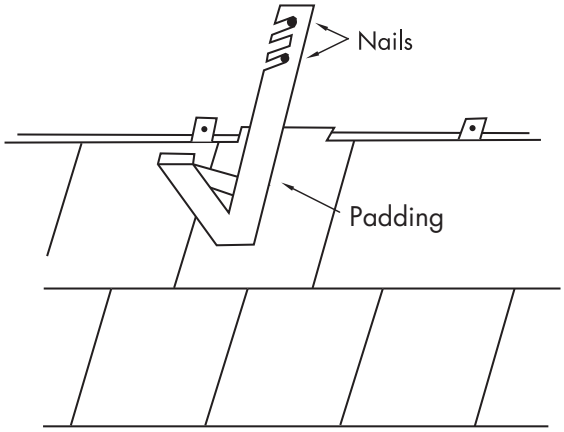


Figure 25

Packaging

Panels	13 panels per box; 3 boxes per square
Hip and Ridge	10 pieces per bundle
Trim Flashings	Based on order
Installation Clips	1000 per box; 1 box installs approximately 8 squares

We hope this manual is helpful to you with the installation of Vail Metal Shingle. This manual is intended to provide the basic procedures for installing the Vail roofing system. You may experience some specific conditions not addressed in this manual. If you have any questions or need assistance call your local representative.

Custom-Bilt Metals assumes no responsibility for any problems which may arise from improper installation. Custom-Bilt Metals assumes no responsibility for any personal injury or property damage that may occur with this products use.

All information, description, and dimensions in this manual are current at the time of printing. As always Custom-Bilt Metals, in an effort to improve our product line, reserves the right to make changes with products, details or designs, as necessary without notice and incurring no obligation. Please contact your local C.B.M. Sales Representative for the most current information, or visit our web site at **www.custombiltmetals.com**

Custom-Bilt Metals
13950 Magnolia Ave.
Chino, CA 91710
800-886-2458

Custom-Bilt Metals
7850 S. 196th
Kent, WA. 98032
(253) 872-7330

Custom-Bilt Metals
7433 N. Leadbetter Rd.
Portland, OR 97203
800-228-3143

Custom-Bilt Metals
4625 W. McDowell Rd #110
Phoenix, AZ 85035
800-737-9030

Custom-Bilt Metals
1347 Shore St.
West Sacramento, CA 95691
800-675-5111

Custom-Bilt Metals
5 Sand Island Access Rd.
Honolulu, HI 96819
808-845-1806

Custom-Bilt Metals
300 Jefferson Hwy
Building 11, Suite 1101
New Orleans, LA 70123
800-627-8040

Custom-Bilt Metals
North 812 Madelia
Spokane, WA 99202
800-249-7372