



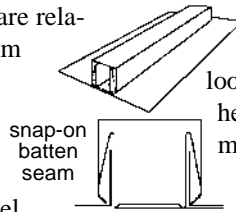
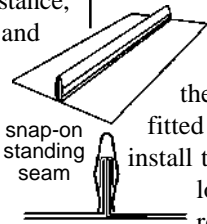
Jim Dulley

Thank you for your interest in writing to me about new types of residential metal roofing. Metal roofing offers many advantages - long life, fire resistance, energy efficiency and a long-lasting attractive appearance. Its only drawback is its higher initial cost, but considering its long life, the total life cycle costs are reasonable.

Many major companies and local contractors make metal roofing and install it on your house. I have reviewed many of them and I have included information on the ones that I feel are the best quality and most attractive. I particularly prefer the aluminum and copper roofs because of their efficiency and high recycled material content.

The most common roofing materials are aluminum, copper and steel. Aluminum and steel roofing is finished with paint. I prefer durable Kynar or Hylar. There are many different names for the base steel material (galvalume, galvanized, etc.) which means that it has a zinc coating to stop rust. Copper and aluminum naturally form a protective oxide coating to inhibit corrosion.

All types of metal roofing are relatively lightweight with aluminum being the lightest. The weights listed in the buyer's guide are per square (100 square feet). Standing and batten seam roofing only lists the panel width because it can be any length. The seam runs up from the gutter to the ridge and each piece is cut and fitted at your house. There is no need to install the heaviest gauge metal roofing (a lower gauge number is thicker). Your roofing contractor can advise you what thickness is best for your specific house.



a signature of expensive houses today. If you prefer a more conventional look, check under the "profiles and styles" heading. Many of the companies offer metal roofs that accurately simulate cedar wood shake, tile and standard shingle roofs. Classic Product's aluminum shakes are difficult to distinguish from real cedar shakes. Their large panels are also easy to install for lower labor costs.

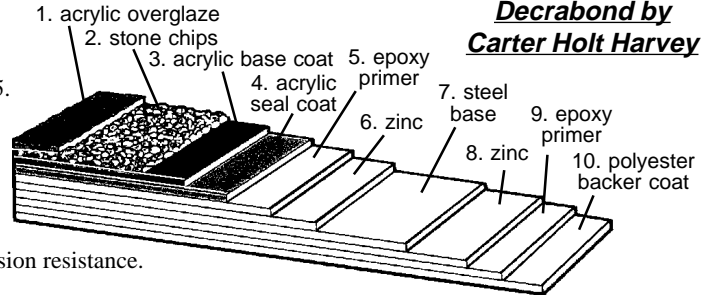
Atas, Carter Holt Harvey, Gerard and Galvemet have the best granular coatings on steel to simulate expensive tile roofs. These are also available in large panels for quick installation. Zappone and Reinke make very attractive copper shingles. They oxidize to an elegant natural green patina.

Jim

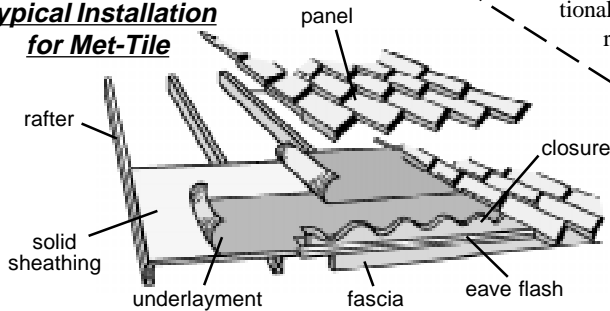
For a new contemporary house, a colorful standing or batten seam roof looks great. It definitely looks like a metal roof which is

1. **Acrylic overglaze** — Clear 100% acrylic resin coating in a semi-gloss finish containing additives toxic to biological growths such as algae and lichen.
2. **Natural stone chips** — Provide excellent surface coverage, protection, wide range of attractive colors.
3. **Acrylic base coat** — Opaque acrylic resin base coat is applied to ensure adhesion of the stone chips.
4. **Acrylic seal coat** — For enhanced corrosion resistance and adhesion.
5. **Epoxy primer** — An impervious epoxy primer with a corrosion inhibiting compound
6. **Zinc** — The 26 gauge steel base is hot-dipped galvanized then treated with a zinc phosphate conversion coating to clean the galvanized surface, improve adhesion and maximize corrosion resistance.
7. **Steel base** — 26 gauge
8. **Zinc** — See #6.
9. **Epoxy primer** — See #5.
10. **Polyester backer coat** — Provides an additional moisture barrier and enhances corrosion resistance.

Decrabond by Carter Holt Harvey

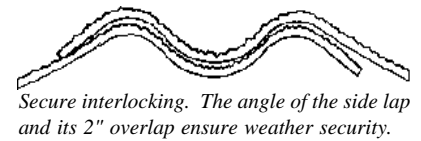


Typical Installation for Met-Tile

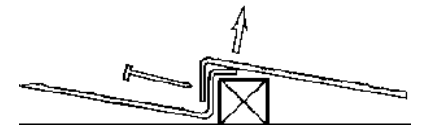
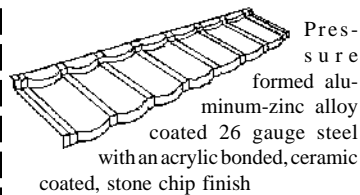


Sheet-Metal Gauges in Approximate Decimals of an Inch			
Sheet-Metal Gauge	Standard Gauge of Steel	Galvanized Sheet Gauge	Zinc Gauge
20	0.0359	0.0396	0.070
21	0.0329	0.0366	0.080
22	0.0299	0.0336	0.090
23	0.0269	0.0306	0.100
24	0.0239	0.0276	0.125
25	0.0209	0.0247	—
26	0.0179	0.0217	—
27	0.0164	0.0202	—
28	0.0149	0.0187	—
29	0.0135	0.0172	—
30	0.0120	0.0157	—

- Overall length — 4'4"
- Length of cover — 4'1 1/2"
- Width of cover — 1'2 1/2"
- Coverage — 49 1/2" x 14 1/2"
- Weight per tile — 7 lb.
- 20 tiles per square



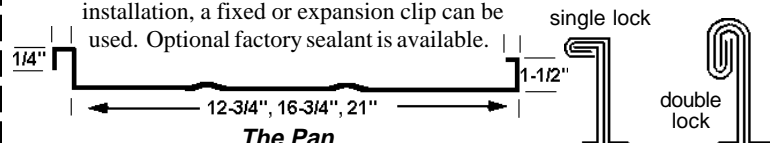
Secure interlocking. The angle of the side lap and its 2" overlap ensure weather security.



Nails are horizontally fastened. With the wind uplift perpendicular to the roof and the fastening, the nails must fail in shear rather than by pull-out.

Field-Lock Seam by Atas

The Field-Lock Seam has the ability to be either a simple crimped standing seam or a double fold interlocking field applied seam. The panel is available in 12 3/4", 16 3/4" or 21" wide panels with stiffening ribs. The leg is 1 1/2" high. It is available in 24 gauge steel and .032 aluminum. It has a Kynar 500 or Hylar 5000 finish in 26 standard colors. Depending on installation, a fixed or expansion clip can be used. Optional factory sealant is available.



The Pan

Recommended Manufacturers of Residential Metal Roofing**ATAS INTERNATIONAL, INC.**, 6612 Snowdrift Rd., Allentown, PA 18106 - (610) 395-8445

material - aluminum • copper • galvanized steel • zinc
profiles/styles - standing seam • batten seam • step seam • tile • shingle • shake
dimensions - panel width - 11", 12", 12³/₄", 15", 16", 16³/₄", 19¹/₄", 21" • tile panel - 13'10" x 21", 14" x 42" • shake panel - 10" x 60" • shingle panel - 16" x 36" or 60" • stone panel - 46" x 16" • diamond-shaped tile - 16" x 6"
 ** weight - aluminum - 65 to 100 lb. • steel - 80 lb. • stone panel - 140 lb. • copper - 80 lb.
thickness - aluminum - .032, .040, .050 • copper - 16 oz., 20 oz. • galvanized steel - 28 ga., 26 ga., 22 ga. • zinc - .020
coating - Kynar 500 • Hylar 5000 • Ceram-A-Star 950 • steel coated with stone granules and a clear polymer
colors - Kynar or Hylar — classic bronze, medium bronze, dove gray, forest green, patina green, teal, concord cream, sandstone, rawhide, regal blue, boysenberry, redwood, mission red, chocolate brown, bright red, slate blue, bone white, siam blue, black, ascot white, rocky gray, slate gray, hartford green, coppertone, antique patina, anodized clear (silver), dark bronze • Granutite crushed stone roof panels — onyx, pearl, sapphire, carnelian, emerald, jasper • Ceram-A-Star — rustic red, steel blue, nickel gray, pewter gray, colonial green, coppertone, cedar red, blue spruce, driftwood, hickory
features - The texture is available as a smooth or embossed finish on the standing, batten or step seam. The "Castle Top" is a diamond shaped flat metal tile that is easy to install. It has an expanded polystyrene back board that gives it strength, also serves as an insulator and aids in noise reduction.

BERRIDGE MFG. CO., 1720 Maury St., Houston, TX 77026 - (800) 231-8127 (713) 223-4971

material - galvanized steel • galvalume
profiles/styles - standing seam • batten seam • tile • wood shake • flat seam
dimensions - panel width - 8", 9", 12³/₄", 16", 16¹/₂", 18¹/₄", 32¹¹/₁₆" • wood shake shingles - 10" x 60" and 12" x 24", Victorian or classic shingles - 9" x 12"
weight - 120 to 140 lb. thickness - 24 ga.
coating - Kynar 500 • Hylar 5000
colors - buckskin, parchment, aged bronze, medium bronze, dark bronze, copper brown, shasta white, forest green, patina green, hemlock green, hartford green, teal green, sierra tan, charcoal gray, bristol blue, royal blue, burgundy, terra-cotta, colonial red, deep red • metallic colors with fluoropolymer finish — copper-cote, champagne (warm metallic hue), lead-cote (soft pewter), preweathered galvalume (dark zinc appearance), satin finish galvalume
features - The Spanish tile system is composed of prefinished, interlocking barrel tiles installed over a Deep Vee structural panel system. There are curved or tapered metal standing seam panels available.

BHP STEEL BLDG PRODUCTS, 2110 Enterprise Blvd., W. Sacramento, CA 95691 - (800) 726-2727 (916) 372-6851

material - Zinalume steel (aluminum-zinc coating with silicon)
profiles/styles - standing seam • corrugated
dimensions - panel width — 12", 16", 18", 24", 36" weight - 51 to 130 lbs.
thickness - 30 ga., 29 ga., 26 ga., 24 ga., 22 ga. coating - silicone modified polyester • Kynar 500
colors - bare Zinalume, chestnut brown, classic brown, colonial red, denali green, desert beige, forest green, ivory, jade green, light stone, old town gray, old zinc gray, rustic red, slate gray, surf white, tahoe blue, terrace green, weathered copper, winter white
features - "Skyline Roofing" has a concealed fastener design so nothing detracts from the home's architecture. Trim packages are available that include trim pieces that can be ordered by number.

CARTER HOLT HARVEY ROOFING, 827 Ave. H East #211, Arlington, TX 76011 - (800) 258-9740 (817) 695-1090

material - zinc/aluminum alloy-coated steel profiles/styles - tile • wood shake
dimensions - tile - 52¹/₄" x 16¹/₂" • shake - 53" x 15"
weight - 150 lb. thickness - 26 ga.
coating - ceramic-coated stone chips sealed with polymer
colors - artie blue, garnet, ember, sea green, terracotta, coffee brown, charcoal, weathered timber, teak, silver gray, shadowwood
features - There is a 50-year limited warranty — will remain leak proof, will resist hail damage and will not blow off in any wind up to 120 miles per hour. The tiles are securely interlocked with the tiles below and to each side. Each tile is horizontally fastened

CLASSIC PRODUCTS, PO Box 701, Piqua, OH 45356 - (800) 543-8938 (937) 773-9840

material - aluminum profiles/styles - wood shakes
dimensions - 12" x 24" weight - 45 lb.
thickness - .019 coating - Kynar 500 fluorocarbon
colors - chocolate brown, antique brown, mocha brown, sierra brown, charcoal gray, hazy gray, cedar red, pavilion green
features - The "Rustic Shingle" has a four-way interlock and nail clip system that eliminates stress and wear by allowing for natural expansion and contraction caused by temperature changes. Has a non-prorated lifetime warranty, a 50-year transferable warranty and a fade-resistance warranty.

CONKLIN METAL IND., PO Box 1858, Atlanta, GA 30301 - (404) 688-4510

material - galvanized steel • paintgrip • copper • terne • terne coated stainless
profiles/styles - diamond pattern shingle dimensions - 10" x 14"
weight - steel - 103 lb. • paintgrip - 103 lb. • copper - 132 lb. • terne - 70 lb. • terne coated stainless - 96 lb.
thickness - steel - 28 ga. • paintgrip - 30 ga. • copper - 16 oz. • terne - .015 • terne coated stainless - .015
colors - natural shiny finish, light grey finish, bright copper which weathers to a dark patina
features - The shingles are stamped with a special designed side lock which permits them to be quickly and easily applied. There is no soldering required. It provides contact, under tension, at three points; it covers nail heads; it allows for contraction and expansion and it is watertight. The deep cross crimps prevent any water from being blown under end laps.

* Galvalume is a durable (aluminum plus zinc) rust-resistant base coat treatment for steel sheet

** Weight specification is for 100 square feet of roof coverage (commonly referred to as per "square").

COPPER SALES, INC., 1001 Lund Blvd., Anoka, MN 55303 - (800) 426-7737 (612) 576-9595

material - aluminum • copper • stainless steel profiles/styles - standing seam • batten seam • corrugated
dimensions - panel width - 9¹/₂" to 29¹/₂"
weight - steel - 70 to 200 lb. • aluminum - 35 to 50 lb. • copper - 46 to 150 lb.
thickness - steel - 22, 24, 26 ga. • aluminum - .025 to .250 • copper - 12 to 48 oz.
coating - Kynar 500 • Hylar 5000 • baked on enamel
colors - slate gray, stone white, bone white, almond, sandstone, sierra tan, teal, regal blue, sky blue, sherwood green, hartford green, hemlock green, patina green, dark ivy, branydwine, regal red, colonial red, terra cotta, dark bronze, extra dark bronze, mansard brown, medium roman brown, matte black, classic copper, silver metallic
features - There are four embossed patterns to choose from — stucco finish, leathergrain, fluted or grid pattern.

DELCOA INDUSTRIES, INC., 1950 Northwest 18th St., Pompano Beach, FL 33069 - (305) 968-3100

material - aluminum • copper • galvanized steel • galvalume
profiles/styles - standing seam • batten seam
dimensions - panel width - 8" to 28" weight - steel, galvalume & copper - 100 lb. • aluminum - 50 lb.
thickness - steel - 26 to 22 ga. • aluminum - .032 • copper - 16 & 20 oz.
coating - Kynar 500 • Hylar 5000
colors - hemlock green, patina green, forest green, turquoise, zinc gray, charcoal gray, coppertone, dark bronze, deep red, burgundy, terra cotta, buckskin, royal blue, bristol blue, shasta white, parchment
features - There is an attractive snap-on standing (narrow) and batten (wide) seam covers that are excellent for residential applications. Contemporary radius panels are ideal for porches and other overhang areas. These give a unique somewhat oriental look

FOLLANSBEE STEEL, PO Box 610, Follansbee, WV 26037 - (800) 624-6906 (304) 527-1260

material - Viromet is copper-bearing carbon steel coated with zinc/tin alloy •terne •terne coated stainless steel
profiles/styles - standing seam • batten seam dimensions - 20", 24", 28" and 36" x 96" and 120"
weight - 70 to 100 lb. thickness - 30 ga., 28 ga., 26 ga.
coating - linseed oil paints • "Rapridri" — water-based paint, will dry in approximately two hours
colors - black, beige, aluminum metallic, red, gray, white, green, slate, bronze, patina, brown, Charleston green
features - The zinc/tin alloy is environmentally-sensitive and has excellent corrosion resistance in coastal areas. It does not need to be painted and will weather to a gray color, darker in coastal areas.

GALVAMET INC., 2267 via Burton St., Anaheim, CA 92806 - (888) 425-8638

material - galvanized steel profiles/styles - tile
dimensions - 13¹/₂" x 40"
weight - 180 lb. thickness - 24 ga.
coating - silica granules (stone) bonded to steel, clear UV resistant overglaze • Kynar 500 • Hylar 500
colors - black, laguna green, slate gray, terra cotta, chocolate brown, mission clay, sierra brown, red
features - Each tile securely interlocks with the tiles above, below and at each side. The "Galvafastener" is a stainless steel, self drilling, self tapping screw. It will not rust and it is pre-painted.

GERARD ROOFING TECH., 955 Columbia St., Brea, CA 92821 - (800) 237-6637 (714) 529-0407

material - galvanized steel • galvalume profiles/styles - tile • wood shake
dimensions - shake - 44³/₄" x 15¹/₂" • tile - 45³/₄" x 15¹/₂"
weight - 140 lb. thickness - 26 ga.
coating - acrylic, stone granules bonded to steel finish
colors - dover white, terra cotta, granite, Spanish red, driftwood, chestnut, charcoal, monte carlo (brown shade), mahogany, midnight blue, Barcelona (reddish shade), adobe, cedar
features - This roofing can be installed directly over an old wood or asphalt shingle. There is a lifetime warranty for USA residents, including 20-year limited protection for hail, wind and surface coating.

MET-TILE INC., PO Box 4268, Ontario, CA 91761 - (909) 947-0311

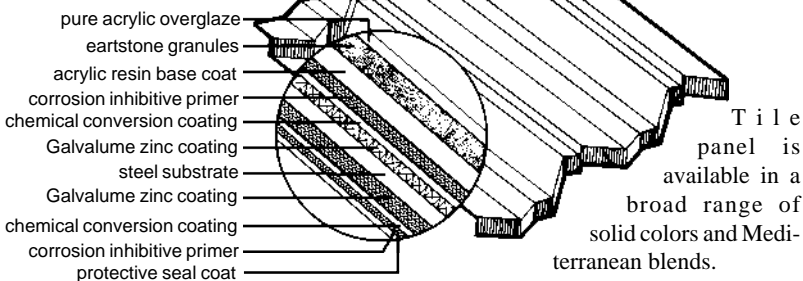
material - galvanized steel • galvalume profiles/styles - tile
dimensions - panel - 36" wide, 2' to 20' long, in 1' increments
weight - 125 lb. thickness - 26 ga.
coating - Aqualure® 2000 coating with textured, stucco-like finish
colors - ranchwood brown, gallery blue, coral blue, meadow green, slate grey, morocco red, cotillion white, mission clay
features - The roof has the appearance of tile and has a 20-year warranty against chipping, splitting, flaking, cracking or peeling of the finish under normal circumstances. The Aqualure® 2000 coating is an environmentally friendly coating that uses ceramic pigments in a water-based Galvalure primer. It is a green product that has a very low VOC, volatile organic compounds, content.

METAL SALES MFG. CORP., 7800 State Road 60, Sellersburg, IN 47172 - (812) 246-0819

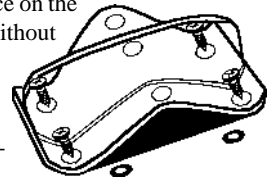
material - galvanized steel • galvalume profiles/styles - standing seam • batten seam • tile
dimensions - panel - 12" to 24" wide • tile - 3' to 20' length x 39.4" width,
weight - 140 lb. thickness - 29 ga., 26 ga., 24 ga., 22 ga.
coating - Kynar 500 • MS Colorfast 25
colors - Kynar — aged copper, patriot red, taupe, teal, burnished slate, dark bronze, ash gray, redwood, linen white, zinc gray, khaki, riveria sand, Spanish clay, tudor brown, ocean blue, slate gray, white, regal red, classic green • Colorfast — patina green, ash gray, forest green, light stone, Hawaiian blue, mocha tan, ocean blue, goldenrod, charcoal, red, polar white, burnished slate
features - The "Pro-Panel II" has a unique siphon groove on the side of the panel that interlocks with the side of the next panel to form a weathertight seal. This design allows free-flow water runoff while the non-leak drain channels out any water.

METAL WORKS, 1005 Beaver Creek Rd., Moon Township, PA 15108 - (800) 320-0101 (412) 299-7320material - galvanized steel with zinc coatingdimensions - 12⁵/₈" x 39³/₄"thickness - 30 ga.colors - meadow green, timber brown, sierra slate, sequoia red, river rock grayfeatures - There is a non-prorated lifetime transferable warranty. The "Aston Wood" shingle is made from as much as 50% recycled material and are 100% recyclable.profiles/styles - wood shake, slate and copper shinglesweight - 64 lb.coating - Kynar 500 • Hylar 5000**REINKE SHAKES INC.**, 210 S. 4th St., Hebron, NE 68370 - (402) 365-7521material - aluminum • copperprofiles/styles - wood shakedimensions - 10" x 12³/₈" • 3-tab shingles - 12⁵/₈" x 5⁷/₈"weight - aluminum - 46 lb. • aluminum 3-tab - 37 lb. • copper 3-tab - 98 lb.thickness - copper - 12 oz. • aluminum .019coating - Kynar on aluminumcolors - natural aluminum, rust red, light gray, slate gray, umber brown, white, roman gold, copperfeatures - The shingles have a 50-year limited transferable warranty. They have a ribbed design. The shingles with 3-tab covers were made to be placed over existing roofs eliminating the need for tearing off and disposing of old shingles. They are stucco embossed and have a semigloss finish, except the solid copper.**STEEL TILE CO.**, RR 1, Thornton, Ontario, Canada L0L 2N0 - (705) 436-1723material - galvanized steel • galvalumeprofiles/styles - standing seam • tile • slate/shakedimensions - panel width - 3'6" wide up to 40' longweight - 100 lb.thickness - 28 ga., 26 ga.coating - PVC Barriercoat • Kynar 500 • silicon polyester paintcolors - PVC (Barriercoat) — tile red, black, red brown, dark brown, charcoal, light gray, gulf green, forest green • Kynar — tile red, slate blue, arctic whitefeatures - There is a water channel that leads any water out from under the seam. This is great for severe weather conditions (snow loads and spring thaws) where water might get under the seam. Also available is "Snowlok" — holds snow and ice on the roof and lets them melt gradually, without sliding onto the ground.**WESTERN METAL BLDG. PRODUCTS**, PO Box 1290, Woodland, CA 95776 - (800) 759-6019material - galvanized steel • zincalumeprofiles/styles - standing seam • batten seamdimensions - panel width - 15", 18", with custom lengthsweight - 150 lb.thickness - 24 ga.coating - polyester Poly-Coat 3100 • polyester Dura-Coat 3200 • Kynar 500colors - Poly-Coat — alpine white, desert tan, sandy beige, autumn gold, rustic red, antique bronze, moca brown, spring green, forest green • Dura-Coat — tahoe blue, stormy blue, country blue, classic gray, moca brown, forest green • Kynar — caymen blue, stormy blue, medium bronze, kelly green, marine green, colonial redfeatures - The roofing panels are anchored by clips and the interlocking seam gives a hidden fastener appearance. A stucco-embossed or textured finish is available.**ZAPPONE MFG.**, N. 2928 Pittsburg, Spokane, WA 99207 - (509) 483-6408material - copper • aluminumprofiles/styles - individual shinglesdimensions - 15" x 9¹/₈"weight - copper - 100 lb. • aluminum - 42 lb.thickness - copper - .0159 • aluminum .020coating - Kynar 500colors - copper — natural copper weathers to blue-green or gray-green patina • aluminum — ebony black, sierra brown, slate gray, dove gray, forest green, tile red, winter whitefeatures - The copper shingle is 85% recycled and the aluminum shingle is 100% recycled materials. A copper accent bay window roof kits are available for various size bay windows.**Cross-Section of a Gerard Roofing Panel**

- Actual size — 45³/₄" x 15¹/₂"
- Actual exposure — 43³/₄" x 14¹/₂"
- Actual weight — 5.83 lbs each tile
- Tile coverage — 22.6 tile panels per square (approx. 100 sq. ft.)
- Tile Weight — approx. 140 lbs. per sq.

**Snowlok by Steel Tile Co.**

The Snowlok holds snow and ice on the roof and lets them melt gradually, without sliding onto the ground. This makes steel roofing safer and more suitable for busy locations like doorways. Also saves eaves troughing from being torn off or damaged.



It is made of durable Lexan making and strong and flexible. It won't break under heavy snow loading conditions. Since it is clear it is almost invisible when installed on any colored roof.

