LEGACY REPORT

ER-5626

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Legacy report on the 1997 *Uniform Building Code*™

DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07310—Shingles

METROTILE COATED STEEL ROOFING PANELS

METRO ROOF PRODUCTS
3093 "A" INDUSTRY STREET
OCEANSIDE, CALIFORNIA 92054

1.0 SUBJECT

Metrotile Coated Steel Roofing Panels.

2.0 DESCRIPTION

2.1 General:

The roofing panels are formed from sheet steel complying with ASTM A 792-94, Grade 33, with an AZ50 class, hot-dipped aluminum-zinc alloy coating. The base-metal thickness is 0.015 inch (38 mm). Both sides of the roofing panels are treated with a corrosion-inhibiting coating. On the exposed surface, colored stone granules are embedded in an acrylic resin base coat. This surface is finished with a clear acrylic overglaze. The installed weight of the steel roofing panels is approximately 1.3 psf (6.3 kg/m^2). Various accessory elements, such as trims, are provided for ridges, gables and rakes. The products and their installations are illustrated in Figure 1.

2.2 Material:

2.2.1 Shake and Tile Panels: The overall size of the Shake and Tile panels is $16^1/_2$ inches by $52^3/_4$ inches (419 mm by 1340 mm), with an installed exposure of $14^1/_2$ inches by 50 inches (368 mm by 1257 mm). The Tile panel has curved pan modules forming a series of tiles; the Shake panel has impressions forming irregular shake pieces. The leading edges of the Shake and Tile panels are bent down approximately 1 inch (25 mm), and the top back edge of each panel is bent upward vertically 1 inch (25 mm) and horizontally back $1^1/_2$ inches (38 mm) for weather protection and nailing. Side panel laps are 2 inches (51 mm).

2.2.2 Shingle Panel: The Shingle panel consists of raised and lowered sections forming a series of shingles. The front and rear edges of the panels are formed into a "C" configuration, so that the panels interlock when overlapped. The overall size of the Shingle panel is $10^1/_2$ inches by $52^1/_2$ inches (267 mm by 1334 mm), with an installed exposure of $9^1/_2$ inches by 51 inches (241 mm by 1295 mm). Shingle panel side laps are 2 inches (51 mm).

2.2.3 Battens: Battens shall be 1-by-2 standard-grade Douglas fir-larch or better.

2.3 Roof Slopes:

The panels shall be installed on roofs with solid or spaced sheathing and a minimum slope of $2^1/_2$:12 (21% slope). For roof slopes less than $2^1/_2$:12 (21% slope), the panels are considered decorative and must be installed over a roof-covering system complying with the 1997 *Uniform Building Code*™ (UBC), subject to building official approval.

2.4 Underlayment:

Underlayment shall be two layers of Type 15, one layer of Type 30 organic-fiber felt or one layer of ELK Corporation's Versashield. Type 15, Type 30 and Versashield underlayments must be listed with an agency accredited by International Accreditation Service. For use in areas subject to wind-driven snow, ice build-up, or wind-driven dust or sand, both of the following are required:

1. Solid sheathing, with two layers of Type 15 felt or one layer of Type 30 felt, for the field of the roof.
2. Solid sheathing with two layers of Type 15 felt applied shingle-fashion, solidly cemented together with approved cementing material between the plies, and extending from the eave up the roof to a point 36 inches (914 mm) inside the exterior wall line of the building.

2.5 New Roofing Installation:

2.5.1 General: Metrotile panels shall be installed on solid or spaced sheathing. Panels are secured at hips or ridges after they are mitered to match the framing lines. Panels are cut and formed into valleys. Valleys receive minimum No. 28 gage corrosion-resistant metal flashing extending at least 8 inches (203 mm) from the centerline each way. A splash diverter rib, not less than $^3/_4$ inch (19.1 mm) high at the flow line, is formed into the flashing. Valley flashing end laps are a minimum of 4 inches (102 mm). The metal valley flashing must have one layer of minimum Type 15 felt underlayment, 36 inches wide (914 mm), directly under the full flashing length, in addition to the underlayment noted in Section 2.4. Panels may be cut with a guillotine, hand snips, or a circular saw with metal-cutting blades. A portable brake press or hand-bending tool is used to bend the panel for hips, ridges, and valleys. Trim pieces shall be overlapped and nailed along the ridges, gable rakes, and hip boards with $1^3/_4$-inch-long (44 mm) corrosion-resistant roofing nails. Openings in the roof shall be flashed with standard roof jacks and flashings as required by Sections 1402.2 and 1508.3 of the UBC. Care must be taken to adequately weatherproof and support flashings with additional blocking or roof framing as necessary.

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2.5.2 Shingle Panel Installation: Fascia/starter metal is installed at the eave with corrosion-resistant, 0.125-inch-diameter (3.2 mm) ring shank roofing nails with a $^3/_8$-inch-(9.5 mm) head, $1^3/_8$ inches (35 mm) long or of sufficient length to penetrate the decking at least $^3/_4$ inch (19.1 mm) or through the sheathing thickness, whichever is less. The roofing nails are spaced 12 inches (205 mm), maximum, on center. Full panels are placed and fastened starting at the eave, with the front of the panel interlocking with the starter stripping. The rear of the panels is fastened to the decking at each lap and intermediate third points with a minimum of four corrosion-resistant, 0.125-inch-diameter (3.2 mm) ring shank roofing nails with a $^3/_8$-inch-diameter (9.5 mm) head, $1^3/_8$ inches (35 mm) long or of sufficient length to penetrate the sheathing at least $^3/_4$ inch (19.1 mm) or through the sheathing thickness, whichever is less. The front downturn of the shingle panel interlocks with the channel formed at the rear of an overlapped panel.

2.5.3 Tile or Shake Panel Installation: To attach the first course of Tile or Shake panels at the eave, wood battens are fastened to the supportive members at 24 inches on center (610 mm), maximum, with minimum 16d corrosion-resistant common wire nails of sufficient length to penetrate the framing at least 1 inch (25 mm).

Panels placed at the first course are attached through the front downturn to the starter batten at each lap and at intermediate third points with a minimum of four ring shank roofing nails. The rear section of Tile or Shake panels is attached at the first and subsequent courses to the decking at each lap and at intermediate third points with a minimum of four ring shank roofing nails. After the first course of panels, subsequent courses of panels are also attached through the front downturn of the panels to the decking at each lap and at intermediate third points with a minimum of four ring shank roofing nails. The nails must be minimum 0.125-inch-diameter (3.2 mm) ring shank roofing nails having a $^1/_4$-inch-diameter (6.4 mm) head and a sufficient length [minimum $1^3/_8$ inches (35 mm)] to penetrate through the sheathing at least $^3/_4$ inch (19.1 mm) or through the sheathing thickness, whichever is less.

2.6 Reroofing Applications:

With the old roof covering removed, all conditions noted in Sections 2.1 through 2.5 apply. The panels may be installed over existing spaced sheathing provided the space between panels is filled as necessary to provide a fastening base. The fill lumber must be of the same thickness as the existing spaced sheathing. The panels may also be installed over existing asphalt shingle roofs and built-up roofs, provided the roof slope complies with Section 2.3. The panels are attached through the existing roof covering to the sheathing as described in Section 2.5, with fasteners of sufficient length to penetrate the sheathing at least $^3/_4$ inch (19.1 mm) or through the sheathing thickness, whichever is less. New flashing is installed over and around all existing flashing, vents, valleys and chimneys in accordance with this report and the code. Over existing built-up roof coverings, all loose gravel and debris must be swept off. Blisters in the plies must be cut and nailed flat. The steel panel roofing system must cover raised perimeters, such as gravel stops. The system may be installed over integral gutters, provided there is a fascia board, nailed to the rafters, and installed outside the gutter.

2.7 Fire Classification:

Metrotile steel roofing panels installed in accordance with Section 2.5 of this report are recognized as noncombustible roof coverings in accordance with Section 1504.2 of the UBC. Noncombustible roof coverings as defined in Section 1504.2 are permitted in Section 1503 of the UBC to be applied in lieu of a Class A fire-retardant roofing assembly, when installation is in accordance with the manufacturer's requirements and this report.

Metrotile steel roofing panels installed in accordance with Section 2.6 of this report over existing Class A asphalt shingles or Class A built-up roofing are classified as Class A roof assemblies in accordance with Section 1504.1 of the UBC.

2.8 Wind Uplift:

Metrotile panels, installed in accordance with this report, are acceptable on any portion of a roof, on structures having a maximum height of 40 feet (12 192 mm), in areas identified as Exposure B as set forth in Table 16-G of the UBC and having a maximum basic wind speed of 80 miles per hour (129 km/h).

Metrotile panels used on solid or spaced sheathing, installed in accordance with this report, can be accepted in areas subject to a maximum basic wind speed of 90 miles per hour (145 km/h) on structures a maximum of 40 feet (12 192 mm) in height in Exposure C areas. At areas of discontinuity, twice the number of nails as described in Section 2.5 of this report are applied and spaced evenly across Metrotile panels. Special inspection in accordance with Section 2.9 is required.

2.9 Special Inspection:

When required by Section 2.8, special inspection in accordance with Section 1701 of the UBC must be provided. The special inspector must observe the installation, and must record the product description, name, dimension and steel thickness; fastener type, diameter and length; and the sheathing dimensions; and must verify the compliance of the components and panel installation with this report.

2.10 Identification:

A tag bearing the name and address of Metrotile Manufacturing, the product name, and the evaluation report number (ER-5626) is affixed to each pallet.

3.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166), dated November 2001.

4.0 FINDINGS

That the Metrotile coated steel roofing panels described in this report comply with the 1997 *Uniform Building Code*™, subject to the following conditions:

4.1 They are manufactured, identified and installed in accordance with this report and the manufacturer's instructions.

4.2 Installation is by installers approved by the manufacturer.

4.3 Wind uplift resistance complies with Section 2.8 of this report.

4.4 When required by Section 2.8, special inspection in accordance with Section 2.9 must be provided.

This report is subject to re-examination in one year.

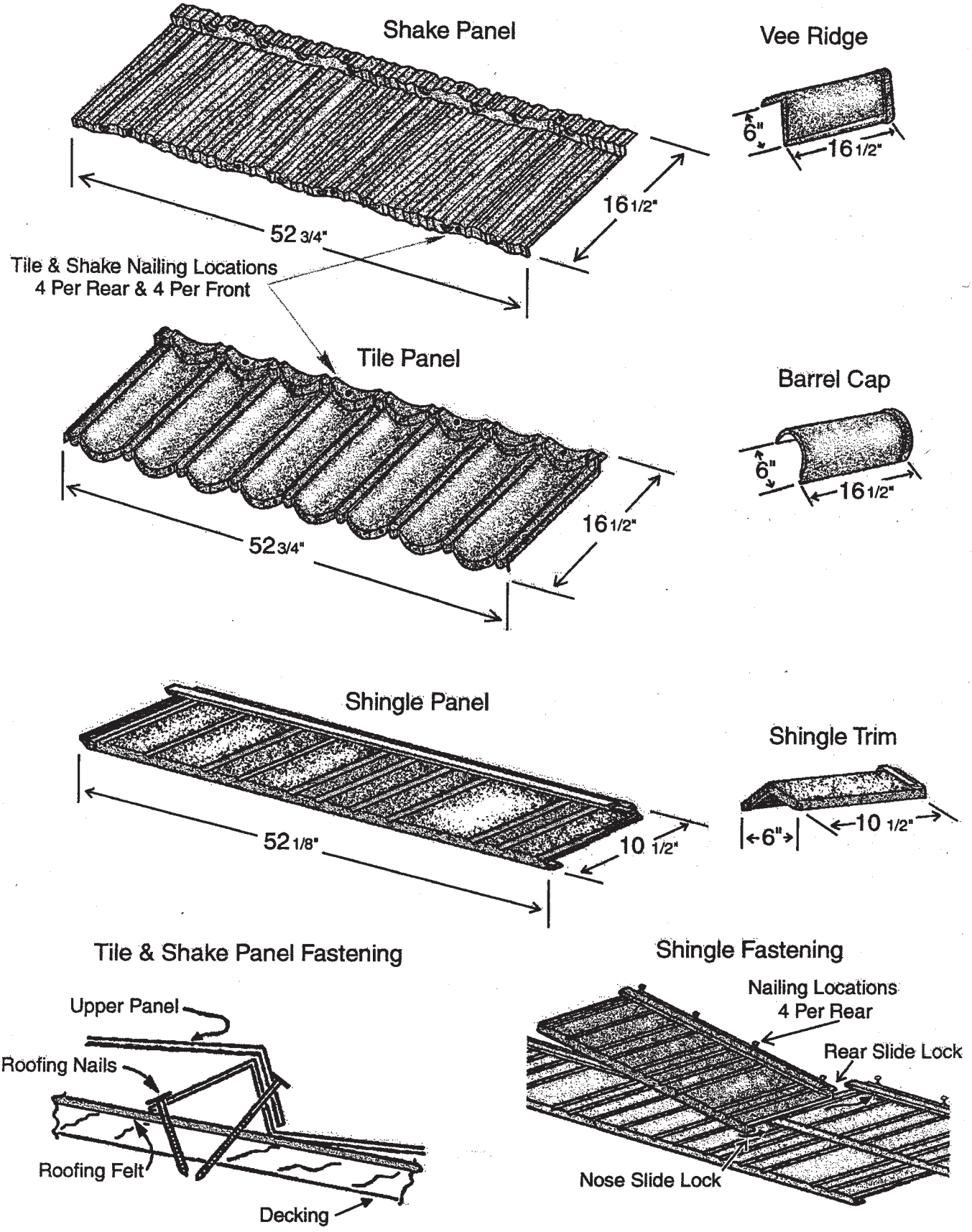
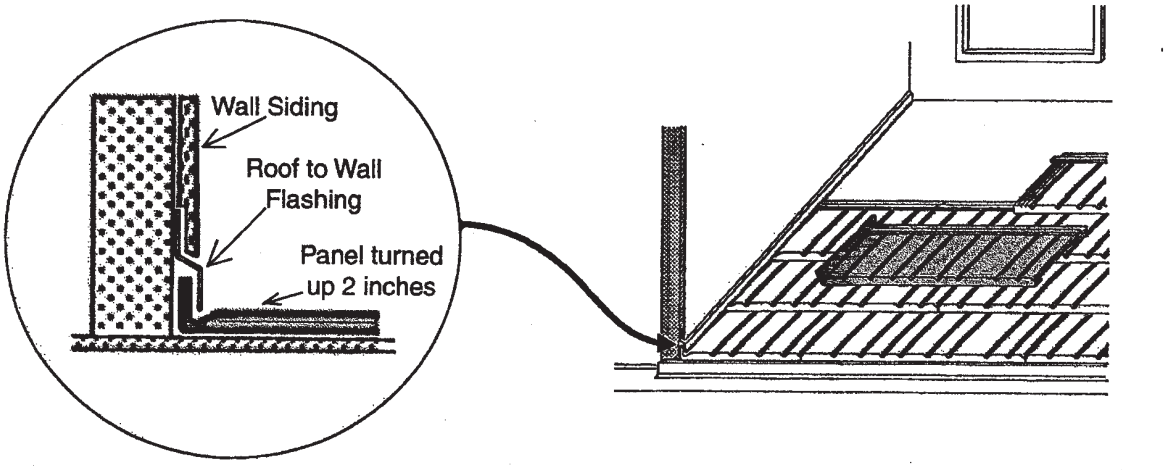
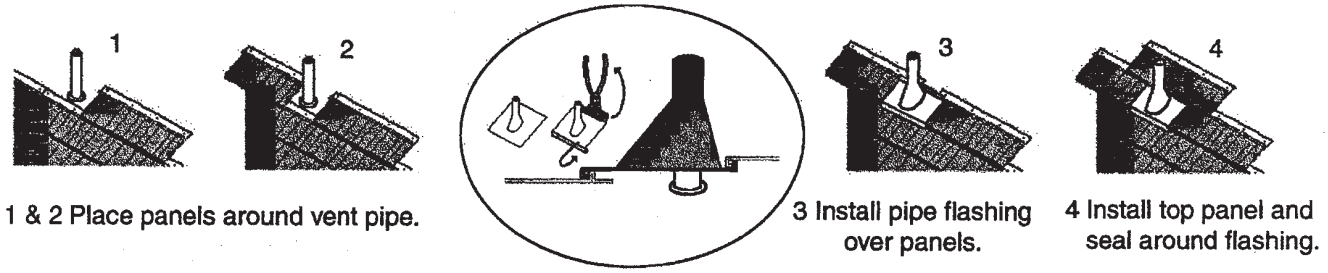

Shake Panel
Vee Ridge
6"
16 1/2"
16 1/2"
52 3/4"
Tile & Shake Nailing Locations
4 Per Rear & 4 Per Front
Tile Panel
Barrel Cap
6"
16 1/2"
16 1/2"
52 3/4"
Shingle Panel
Shingle Trim
52 1/8"
10 1/2"
6"
10 1/2"
Tile & Shake Panel Fastening
Upper Panel
Roofing Nails
Roofing Felt
Decking
Shingle Fastening
Nailing Locations
4 Per Rear
Rear Slide Lock
Nose Slide Lock

FIGURE 1

Roof to Sidewall



Vent Detail



1 & 2 Place panels around vent pipe.

3 Install pipe flashing over panels.

4 Install top panel and seal around flashing.

Hip & Ridge Detail

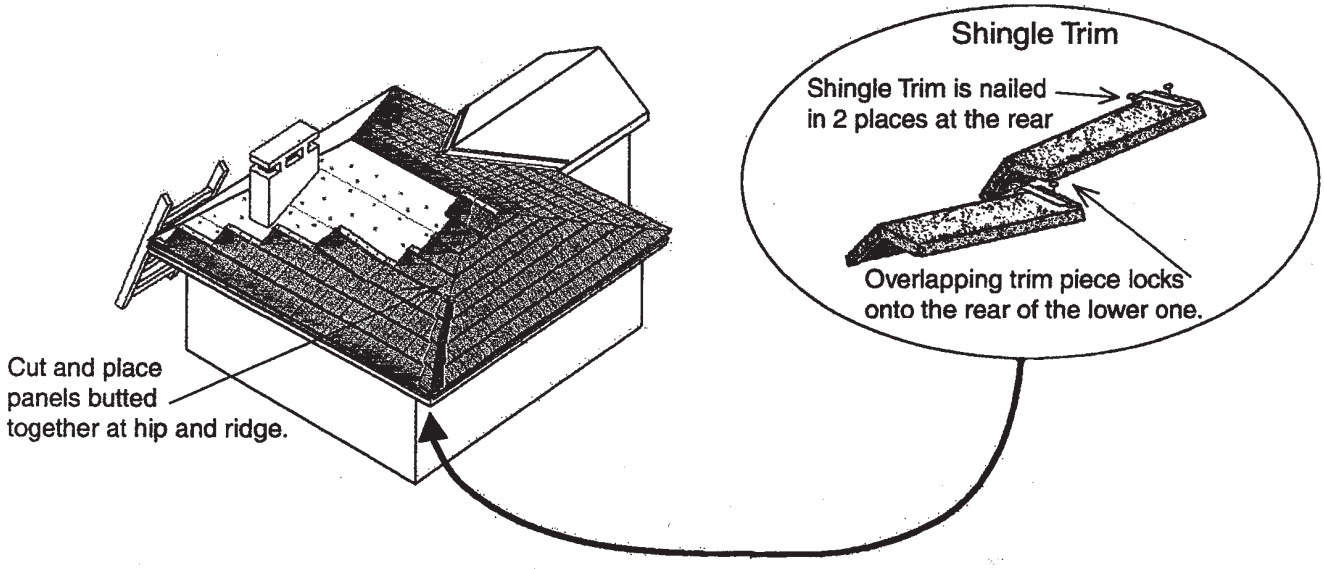


FIGURE 1—(Continued)

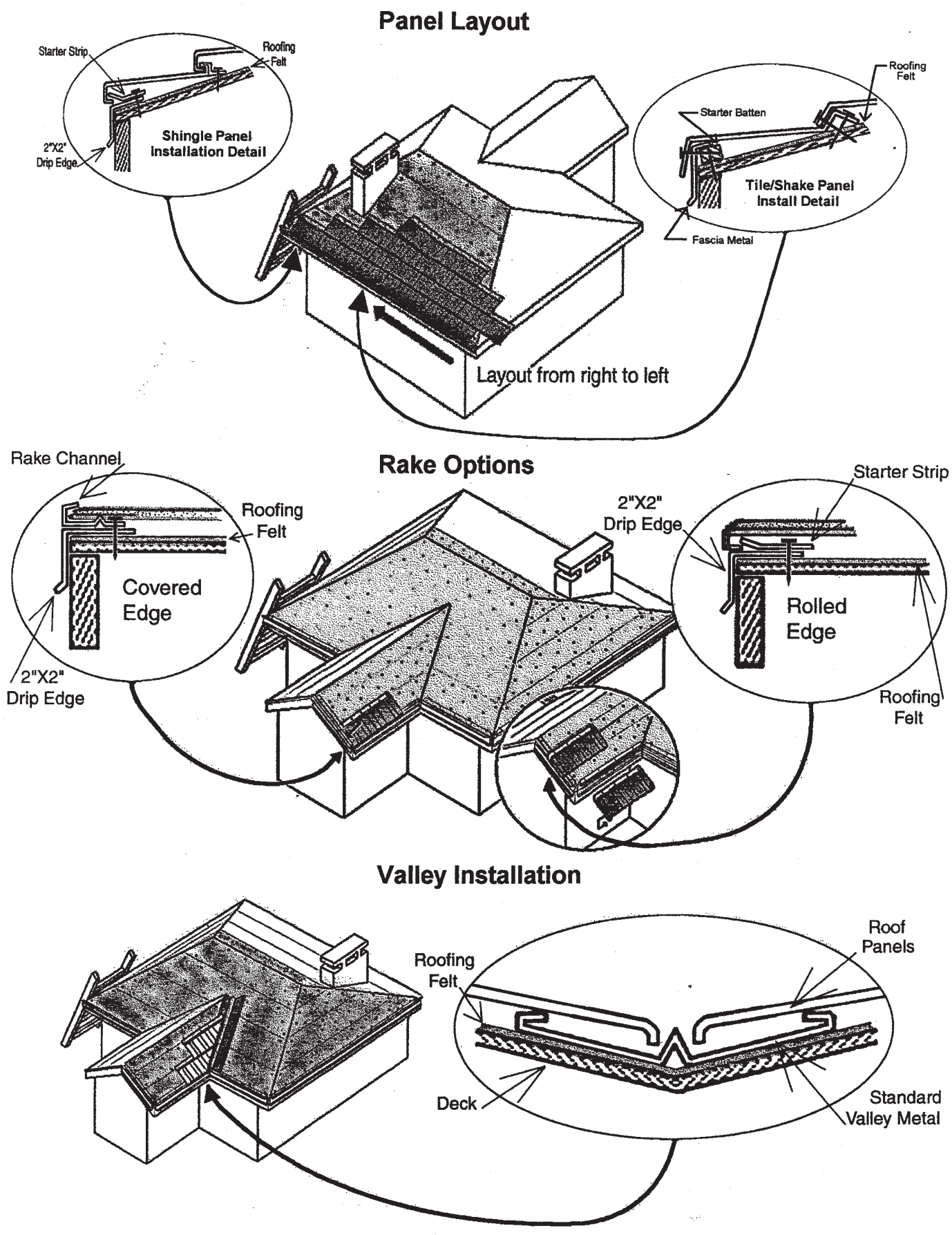


FIGURE 1—(Continued)