BERRIDGE

Roofs of Distinction

THE BERRIDGE TOTAL PROGRAM

Architectural Metal Products from a Single Source

- DESIGN GUIDE
- COMMON INSTALLATION DETAILS
- STANDING SEAM METAL ROOF SYSTEMS
- TILE, SHINGLES & OTHER ROOF SYSTEMS
- FASCIA, WALL & SOFFIT SYSTEMS
- EXPOSED FASTENER PANELS
- VANTAGE POINT RETROFIT SYSTEM

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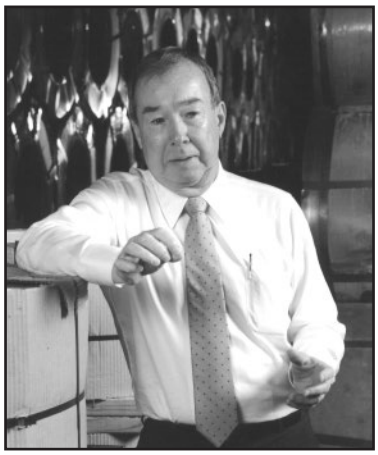
Dear Architect or Specifier:



Berridge Manufacturing is committed to providing the right product for your next design. We have been a leader and innovator in the architectural metal products industry since 1970. You can rely upon Berridge to be there when you need help.

- Our "Total Program" single-source concept makes it easier for the roofing contractor to supply and install the exact product you specify.
- Our site-forming equipment enables you to specify straight, curved, compound-curved (domes and corners) and conical roofs or rounded corners which fit perfectly and have no troublesome splices.
- We have the industry's most complete range of products. In addition to our standing seam roof systems, we offer simulated Spanish and S-Tile systems, steel shake shingles, Bermuda roof panels, 1880-style Classic & Victorian shingles and a complete selection of wall, soffit, fascia and other panel products. We have it all!
- Berridge's technical staff is ready to assist you in matters of product application, design advice and specific product assembly guidance.
- The Berridge Network of more than 300 Berridge Licensees means we are able to bid, furnish and install the products you specify.
- We support what we sell by offering a full testing and warranty program, which includes all necessary UL, FM, ASTM, COE and other ratings. Our finish and optional watertightness warranties are your assurance of lasting quality.

No other company offers Berridge's wide-range of products and services. We appreciate you specifying Berridge --- you will be glad you did!

Sincerely,

Jack A. Berridge
Chairman of the Board

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Roofs of Distinction

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SECTION 1 DESIGN GUIDE

PRODUCT SPECIFICATIONS

MANUFACTURER

Berridge Manufacturing Company
6515 Fratt Road
San Antonio, Texas 78218
Phone: (800) 669-0009 Toll Free
(210) 650-3050 Local
Fax: (210) 650-0379
PREFORMED METAL ROOFING

SECTION 07610
PREFORMED METAL ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preformed, prefinished metal roofing and flashings.
B. Miscellaneous trim, flashing, closures, drip flashing, and accessories.
C. Sealant.
D. Fastening devices.

1.02 RELATED SECTIONS

A. Section 05120: Structural Steel Framing.
B. Section 05500: Miscellaneous Metal Fabrication.
C. Section 06100: Rough Carpentry.
D. Section 07631: Flashing and Sheet Metal Gutters.
E. Section 07900: Sealants.

1.03 REFERENCES

A. American Iron & Steel Institute (AISI) Specification for the Design of Cold formed Steel Structural Members.
B. ASTM A-653-09 Steel Sheet, Zinc-Coated (Galvanized)
C. ASTM 792-86 AZ-50 Aluminum Zinc Alloy Coated Steel (Galvalume Sheet Metal
D. ASTM E-1680
E. ASTM E-1646
F. ASTM E-1592
G. Spec Data Sheet - Aluminum Zinc Alloy Coated Steel (Galvalume) Sheet Metal by Bethlehem Corp.
H. SMACNA - Architectural Sheet Metal Manual.
I. Building Materials Directory - Underwriter's Laboratories, Test Procedure 580 - UL-90.

1.04 ASSEMBLY DESCRIPTION

A. The roofing assembly includes preformed sheet metal panels, related accessories, valleys, hips, ridges, eaves, corners, rakes, miscellaneous flashing and attaching devices.

1.05 SUBMITTALS

A. Submit detailed shop drawings showing layout of panels, anchoring details, joint details, trim, flashing, and accessories. Show details of weatherproofing, terminations, and penetrations of metal work at 0'-3"= 1'-0" scale.
B. Submit a sample of each type of roof panel, complete with factory finish.
C. Submit results indicating compliance with minimum requirements of the following performance tests:
   1. Air Infiltration - ASTM E 1680
   2. Water Infiltration - ASTM E 1646
   3. Wind Uplift - UL 90
D. Submit calculations with registered engineer seal, verifying roof panel and attachment method resist wind pressures imposed on it pursuant to applicable building codes.

1.06 QUALITY ASSURANCE

A. Manufacturer: Company specializing in Architectural Sheet Metal Products with ten (10) years minimum experience.
B. No product substitutions shall be permitted without meeting specifications.
C. Substitutions shall be submitted 10 days prior to bid date and acceptance put forth in an addendum.
D. No substitutions shall be made after the bid date.

1.07 DELIVERY, STORAGE AND HANDLING

A. Upon receipt of panels and other materials, installer shall examine the shipment for damage and completeness.
B. Panels should be stored in a clean, dry place. One end should be elevated allowing moisture to run off.
C. Panels with strippable film must not be stored in the open, exposed to the sun.
D. Stack all materials to prevent damage and to allow adequate ventilation.

1.08 WARRANTY

A. Paint finish shall have a twenty-year warranty against cracking, peeling and fading (not to exceed 5 N.B.S. units).
B. Galvalume material shall have a twenty-year warranty against failure due to corrosion, rupture or perforation.
C. Roofing Installer shall furnish guarantee covering watertightness of the roofing system for the period of two (2) years from the date of substantial completion.
D. When required, Roofing Installer to furnish, Manufacturer's standard watertightness warranty; Roofing Installer to comply with Manufacturer's watertightness warranty program and submit to manufacture all required documents. Watertightness warranty program to include roofing installation inspections which Roofing Installer shall participate.

PART 2 PRODUCT

2.01 ACCEPTABLE MANUFACTURERS

A. Berridge Manufacturing Company, San Antonio, Texas.
B. Substitutions shall fully comply with specified requirements.

2.02 SHEET MATERIALS

A. Prefinished metal shall be Aluminum-Zinc Alloy Coated (AZ-50 Galvalume®) Steel Sheet, 24-Gauge or 22-Gauge*, ASTM 792-08, Grade 40, yield strength 40 ksi min.
B. Finish shall be full strength Kynar 500® or Hylar 5000™ fluoropolymer coating applied by the manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.75 ± 0.05 mil over 0.20 ± 0.05 mil prime coat, to provide a total top side dry film thickness of

0.95 ± 0.10 mil. Bottom side shall be coated with a primer (non-metallics only) and beige urethane coating with a total dry film thickness of 0.35 ± 0.05 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500® or Hylar 5000™ finish supplier.

C. Strippable film shall be applied to the top side of all prefinished metal to protect the finish during fabrication, shipping and field handling. This strippable film MUST be removed immediately before installation.
D. Unpainted metal shall be Aluminum-Zinc Alloy Coated (AZ-55 Acrylic Coated Galvalume®) Steel Sheet, 24-Gauge or 22-Gauge*, ASTM 792-08, Grade 40, yield strength 40 ksi min., with clear acrylic coating on both sides of material.
E. Field protection must be provided by the contractor at the job site so stacked or coiled material is not exposed to weather and moisture.
F. Flashing maybe factory fabricated or field fabricated. Unless otherwise specified all exposed adjacent flashing shall be of the same material and finish as panel system.

2.03 ACCESSORY MATERIALS

A. Fasteners: [Galvanized Steel] or [Stainless Steel] with washers at exposed fasteners where approved by architect.
B. Sealant: Sealant shall be an ultra low modulus, high performance, one-part, moisture curing silicone joint sealant. [Tremco Spectrum One] or [Dow 790] or [Pecora 890NST] or [Duralink] or [Titebond Metal Roof Sealant] (Do not use a clear sealant or sealants which release a solvent or acid during curing).

Sealant must be resistant to environmental conditions such as wind loading, wind driven rain, snow, sleet, acid rain, ozone, ultraviolet light and extreme temperature variations.

Features must include joint movement capabilities of +100% & -50% ASTM C-719, capable of taking expansion, compression, transverse and longitudinal movement, service temperature range -65ºF to 300ºF (-54ºC to 149ºC), Flow, sag or slump: ASTM C-639; Nil, Hardness (Shore A): ASTM C-661; 15, Tensile strength at maximum elongation: ASTM D-412; 200 psi, Tensile strength at 100% elongation: ASTM D-412; 35 psi, Tear strength, (die "C"); ASTM D-624; 40 pli, Peel strength (Aluminum, Glass, Concrete): ASTM C-794; 30 pli

C. Vinyl Weatherseal Insert.

2.04 FABRICATION

A. All exposed adjacent flashing shall be of the same material and finish as the roof panels.
B. Hem all exposed edges of flashing on underside, 1/2 inch.

2.05 PREFORMED METAL PANELS, SHINGLES, ETC.
(PICK APPROPRIATE STYLE)

A. BERRIDGE STANDING SEAM TEE-PANEL

1. Panels shall have 12 3/4" on-center seam spacing with a seam height of 1" and shall have no exposed fasteners.
2. Panels shall be [site-formed with the Berridge Model SS-14 Portable Roll Former in continuous lengths from eave to ridge] or [factory fabricated to 40' max].
3. Snap-on seams shall be 1" in height and shall contain the Berridge factory-applied Extruded Vinyl Weather Seal Insert (Patent No. 4641475) to prevent siphoning of moisture through the standing seam.
4. Concealed anchor clips shall be spaced as required to meet uplift loads (maximum of 24" on center).
5. When required, Panel assembly shall bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 296 and applicable Fire Ratings.
6. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage beyond allowable tolerances through the system when tested in accordance with ASTM E-1680 and E-1646.

B. BERRIDGE STANDING SEAM
CURVED TEE-PANEL

1. Panels shall have 12 3/4" on-center seam spacing with a seam height of 1" and shall have no exposed fasteners.
2. Panels shall be site-formed with the Berridge Model SS-14 Portable Roll Former in continuous lengths with a 4' min. radius for convex and 6' min radius for concave to conform to solid-sheathed curved substrate, and shall have no exposed fasteners (factory fabrication not available).
3. Snap-on seams shall be 1" in height and shall contain the Berridge factory-applied Extruded Vinyl Weather Seal Insert (Patent No. 4641475) to prevent siphoning of moisture through the standing seam.
4. Concealed anchor clips shall be spaced as required to meet uplift loads (maximum of 24" on center).
5. When required, Panel assembly shall bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 296 and applicable Fire Ratings.
6. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-1680 and E-1646.

C. BERRIDGE COMPOUND CURVED TEE-PANEL
(DOMES & COMPOUND CURVED CORNERS)

1. Equal panels of continuous length from top point to eave shall be hand cut by installer to fit domed or compound curved corner substrate, using template instructions from Berridge's Technical Manual and shall have no exposed fasteners. (Factory fabrication not available)
2. Panel legs of nominal 1" shall be site formed with Berridge SL-1 Portable roll former.
3. Snap-on seams of nominal 1" shall contain the Berridge factory-applied extruded vinyl weather seal insert (patent no. 4641475) to prevent siphoning of water through the standing seam.
4. Concealed anchor clips shall be spaced as required to meet wind uplift loads (maximum spacing 24" on center).
5. When required, panel assembly shall bear Underwriters Laboratories Label UL-90, pursuant to Construction No. 296, and applicable to Fire Ratings.
6. Certification shall be submitted based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E 1680 and E-1646.

D. BERRIDGE TAPERED TEE-PANEL

1. Equal panels of continuous length from top point/ridge to eave shall be hand cut by installer per base dimension of 12" to 20" established by architect based on circumference and shall have no exposed fasteners. (Factory fabrication not available)
2. Panel legs of nominal [1"] or [1½"] shall be site formed with Berridge SL-24 Portable Roll Former.
3. Snap-on seams of nominal [1"] or [1½"] shall contain the Berridge factory applied extruded vinyl weather seal insert (patent no. 4641475) to prevent siphoning of water through the standing seam.
4. Concealed anchor clips shall be spaced as required to meet uplift loads (maximum spacing 24" on center).
5. When required, panel assembly shall bear Underwriter's Laboratories Label

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UL-90, pursuant to Construction No. 296 and No. 297, and applicable Fire Ratings.
6. Certification shall be submitted based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E 1680 and E-1646.

E. BERRIDGE STANDING SEAM
HIGH SEAM TEE-PANEL

1. Panels shall have 18 1/4" on-center seam spacing with a seam height of [1"] or [1 ½"] and shall have no exposed fasteners.
2. [Panels shall be site-formed with the Berridge Model SS-1421 Portable Roll Former in continuous lengths from eave to ridge] or [factory fabricated to 40' max].
3. Snap-on seams shall be 1" in height and shall contain the Berridge factory-applied Extruded Vinyl Weather Seal Insert (Patent No. 4641475) to prevent siphoning of moisture through the standing seam.
4. Concealed anchor clips to be spaced as required to meet uplift loads (maximum of 24" on center).
5. When required, panel assembly to bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 297 and/or Fire Ratings.
6. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-1680 and E-1646.

F. BERRIDGE BATTEN SEAM SYSTEM

1. Panels and Battens shall be spaced at 16" on-center.
2. Panels shall be [site-formed with the Berridge model BP-21 Portable Roll Former in continuous lengths from ridge to eave] or [factory fabricated to 40' max].
3. Snap-On Battens shall be 2" wide and 1 3/4" in height (nominal installed height of 2"). Battens shall be factory roll-formed.
4. Attachment to structural supports with 3 1/2" long galvanized screws through the hidden Batten Clip and the top crown of the Deep Vee Panel. Maximum spacing shall be 5'-0" on center for open span structural supports. Intermediate Batten Clips attached through the top crown of the Deep Vee Panel, 20" on center maximum with #10 x 3/4" TEK screws.
5. Attachment to solid sheathing shall be with 3 1/2" long ring shank galvanized roofing nails or fasteners through the hidden Batten Clip and the top crown of the Deep Vee Panel spaced 20" on center.
6. Two Batten Clips shall be used at the eaves and on both sides of the miter at change of slope.
7. When required, panel assembly (with inner rib) shall bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 262.

G. BERRIDGE ZEE-LOCK STANDING SEAM PANEL

1. 2" high vertical legs shall be spaced at 16" on-center and shall have no exposed fasteners.
2. Panels shall be [site-formed with the Berridge Model SP-21-X Portable Roll Former in continuous lengths from ridge to eave] or [factory-formed to 40' max].
3. [Continuous Zee Rib shall be 1 3/8" wide and 2 1/8" in height. Rib shall be connected to purlin with two #12-14 x 1" self-drilling/tapping fasteners] or [Zee Clips spaced at 3'-0"].
4. Optional Vinyl Weatherseal (U.S. Patent 5134825) shall be factory-installed over Continuous Zee Rib.
5. Sidelap shall be mechanically seamed with a powered seamer.
6. When required, panel assembly to bear Underwriters Laboratories Label UL90, pursuant to [Construction No. 312 for open framing conditions, either uninsulated or with blanket insulation] or [Const. No. 335 or 335 (mod.) with rigid board insulation] or [Const. No. 403 over solid substrate] and applicable Fire Ratings.
7. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-1680 and E-1646.

H. BERRIDGE CURVED ZEE-LOCK STANDING SEAM PANEL

1. Panels shall have 16" on-center seam spacing with a seam height of 2".
2. Panels shall be [site-formed with the Berridge Model SP-21 Portable Roll Former in continuous lengths from eave to ridge] or [factory fabricated to 40' max]. Curving shall be performed with the Berridge Model ZC-21 Zee-Lock Curving machine to a minimum convex radius of 20'. Panels shall be convex radius only.
3. Seams shall be 2" in height and shall contain the Berridge factory-applied Extruded Vinyl Weather Seal Insert (Patent No. 5134825), to prevent siphoning of moisture through the standing seam.
4. Continuous Berridge Zee-Rib shall be employed to meet uplift loads. Zee-Rib shall be curved using the Berridge ZC-21 Zee-Lock Curving Machine & shall match the panel radius.
5. When required, Panel assembly shall bear Underwriter's Laboratories Label UL90, pursuant to UL Assembly Numbers 312, 335, 403 & 555 and applicable Fire Ratings.
6. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage beyond allowable tolerances through the system when tested in accordance with ASTM E 1680 and E 1646.

I. BERRIDGE ZEE-LOCK DOUBLE-LOCK
STANDING SEAM PANEL

1. 2" high vertical legs shall be spaced at 16" on-center and shall have no exposed fasteners.
2. Panels shall be [site-formed with the Berridge Model SP-21-X Portable Roll Former in continuous lengths from ridge to eave] or [factory-formed to 40' max].
3. Continuous Zee Rib shall be 1 3/8" wide and 2 1/8" in height. Rib shall be connected to purlin with two #12-14 x 1" self-drilling/tapping fasteners.
4. Vinyl Weatherseal not available. Tests to ASTM E-1646 without vinyl.
5. Sidelap to be mechanically seamed with a powered double-lock seamer.
6. When required, panel assembly to bear Underwriters Laboratories Label UL90, pursuant to [Construction Number 312 for open framing conditions, either uninsulated or with blanket insulation] or [335 or 335 (mod.) with rigid board insulation] or [403 over solid substrate] and applicable Fire Ratings. Also available: FM 1-60 & FM 1-120.
7. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-1646 and E-1680.

J. BERRIDGE CEE-LOCK STANDING SEAM PANEL

1. Panels shall have 1 ½" high vertical legs, spaced 16 ½" on center and shall have no exposed fasteners.
2. Standing seam to be of an interlocking, "snap-lock" design.
3. Panels shall be site-formed with the Berridge Model CL-21 Portable Roll Former in continuous lengths from ridge to eave or factory-formed to maximum 40'.
4. [Continuous Cee Rib to be 2 1/8" wide and 1 3/8" in height. Rib shall be connected to substrate with two #12-14 x 1" self-drilling/tapping fasteners] or [Cee-Clips at 3'-0" max.].
5. Optional Vinyl Weatherseal (U.S. Patent No. 4641475) to be inserted into the Cee-Lock panel female leg.
6. When required, Panel assembly to bear Underwriter's Laboratories Label UL90, pursuant to [Construction Number 334] or [404 over solid substrate] and applicable Fire Ratings.

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7. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-1680 and E-1646.

K. BERRIDGE "R" PANEL

1. Overall panel width shall be 38 1/4", with 36" net coverage.
2. Panels shall be factory-formed to 40' max and shall have exposed fasteners.
3. 1 1/4" high ribs shall be spaced 12" on center, with 3/4" wide by 1/4" high minor ribs spaced 4" on center between major ribs.
4. Panel-to-panel and panel-to-purlin connections shall be with No. 12-14 self-drilling tapping fasteners, 1" min. for panel-to-purlin connections, 3/4" minimum for panel-to-panel connections.
5. Compressible blanket insulation shall be maximum 4 1/2" thickness before compression.
6. For roof applications, a line of tape sealant for weathertightness shall be used at panel side laps and end laps.
7. Where required, panel assembly shall bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 161.

L. BERRIDGE "M" PANEL

1. Overall panel width shall be 38 1/4", with 36" net coverage.
2. Panels shall be factory formed to 40' max and shall have exposed fasteners.
3. 3/4" high ribs shall be spaced at 6" on center.
4. Panel-to-panel and panel-to-purlin connections shall be with No. 12-14 self drilling tapping fasteners, 1" min. for panel-to-purlin, 3/4" for panel-to-panel connections.

M. BERRIDGE DEEP-DECK PANEL

1. Overall panel width shall be 41 1/2" wide with 36" wide net coverage.
2. Panels shall be factory-formed to 40' max. & shall have exposed fasteners.
3. Upper ridges shall be 2" wide, lower ridges 1 1/2" wide and overall depth shall be 1 1/2".
4. Panel-to-panel and panel-to-purlin connections shall be N. 12-14 self-tapping fasteners, 1" min. and for panel to purlin connections, 3/4" min. for panel to panel connections.

N. BERRIDGE DOUBLE-RIB PANEL

1. Overall panel width shall be 26 3/8"; 24" nominal coverage.
2. Panels shall be factory formed to 40' max.
3. 1/2" Corrugations shall be spaced 11 1/2" (12" nominal) on center.
4. Panel-to-panel and panel-to-purlin connections to be with No. 12-14 self-drilling fasteners, 1" min. for panel-to-purlin connections, 3/4" minimum for panel-to-panel connections.
5. For roof applications, a line of tape sealant for weather tightness shall be used at panel side laps and end laps.

O. BERRIDGE SPANISH TILE SYSTEM

1. Deep Vee Panels to be used as a substrate support for the Spanish Tile shall be factory formed to 40' max. Seam spacing shall be 9" on center and shall have no exposed fasteners.
2. Prefinished interlocking barrel tiles shall be stamped, with an 8" by 16" exposure to the weather.
3. Tiles shall be attached to the top of the Deep Vee Panel with one number 8 TEK screw.
4. Eave closures shall be used at the eave with each row of Spanish Tile.
5. Attachment of the Deep Vee Panel shall be through the flat area adjacent to the overlapping rib with galvanized plated screws spaced [5'-0" on center maximum for open span structural supports] or [20" on center for solid sheathing]. Side laps of the Deep Vee Panel shall be stitched at the top of the crown with #8 TEK screws 20" on center.
6. Tiles shall be attached to the top of the crown on the Deep Vee panel with one #8 x 1/2" TEK screw.

P. BERRIDGE S-TILE PANEL

1. Panels shall have a stamped S-Tile design of non-combustible, 24-gauge steel with a Class A Fire Rating and shall have exposed fasteners.
2. Panel profile thickness shall be 1 ½" with nominal coverage width of 32 11/16".
3. Panels shall be factory formed to 40' max.
4. Each panel shall have a purlin bearing leg and water drainage channel.
5. Panels shall be of an overlapping design with a line of tape sealant applied in the seam for watertightness on roof slopes of 3:12 or less.
6. Panels shall be fastened to substrate with exposed fasteners with metal backed neoprene washers with heads to match panel color.
7. Panel-to-panel and panel-to-purlin connections shall be with #12-14 fasteners [1" minimum for panel-to-purlin connections] or [¾" minimum for panel-to-panel stitch connections].
8. Continuous inside foam closures at ridge, hip, eave and valley shall be in matching contour to the S-Tile profile.

Q. BERRIDGE DEEP VEE-PANEL

1. Deep Vee 16" wide panels shall be [site formed with the Berridge Model BP-21 Portable Roll Former in continuous lengths] or [factory formed to 40' max]. Seam spacing shall be [16" when used for Batten Seam] or [9" when used for Spanish Tile] on center with a rib height of 1 1/2". Deep Vee 9" wide panels shall be factory formed to 40' max and shall have [exposed fasteners] or [concealed fasteners with the use of batten or tile covers].
2. Attachment shall be though the flat area adjacent to the overlapping rib with #8 x 3/4" color-matched fasteners, including a combination washer of metal and neoprene.

R. BERRIDGE B-6 SOFFIT AND FACADE

1. B-6 Panels shall be factory formed to 40' max and shall have no exposed fasteners.
2. Vee-groove spacing shall be 3" on center.
3. Panel shall have 6" exposure, 5/8" rib depth, with concealed fasteners and interlocking sidelap.
4. Attachment to [metal supports with #8 x 1/2" TEKS screws] or [wood supports with 1 1/4" long galvanized ring shank roofing nails] at maximum spacing of 6'-0" on center or per local code requirement, whichever is greater.

S. BERRIDGE FLUSH SEAM PANEL

1. Panels shall be factory formed to 40' max and shall have no exposed fasteners.
2. Panels shall have flat, 3 7/8" wide, embossed texture face; 1/2" depth; interlocking male-female side lap; and utilize concealed fasteners.
3. Attachment to [metal supports with #8 x 1/2" TEKS screws] or [wood supports with 1 1/4" long galvanized ring shank roofing nails] at maximum spacing of 6'-0" on center or per local code requirement.

T. BERRIDGE VEE-PANEL

1. Panels shall have 12 3/4" exposure with 3/8" deep vee-grooves 4 1/4" o.c. with concealed fasteners and interlocking sidelap.

2. Panels shall be formed in continuous lengths for [wall] or [fascia] or [soffit] to 40' max length and shall have no exposed fasteners.
3. Attachment to metal supports [with #8 x 12" TEK screws at maximum spacing of 2'-0" on center] or [per local code], whichever is greater.
4. Optional Vented Vee-Panel shall have a Net Free Vent Area (NFVA) of 6.46 square inches per lineal foot of panel or 6.08 square inches per square foot Vee-Panel.

NOTE: Berridge Manufacturing Company does not recommend vented products in applications subject to aggressive atmospheres, marine environments or high humidity due to the corrosive nature of these environments on raw edges of steel.

U. BERRIDGE THIN-LINE PANEL

1. Panels shall have 3 5/8" exposure with concealed fasteners and interlocking sidelap with Channel Drain Interlock.
2. Panels shall be factory roll formed in continuous lengths up to 40' max and shall have no exposed fasteners.
3. Attachment to metal supports with #8 x 12" TEKS screws at maximum spacing of 2'-0" on center or per local code, whichever is greater.

V. BERRIDGE L - PANEL

1. Panels shall have 11 5/8" exposure with [smooth face] (or) [vee grooves], 1" deep, with concealed fasteners and interlocking sidelap.
2. Panels shall be factory roll formed in continuous lengths up to 40' max and shall have no exposed fasteners.
3. Attachment to metal supports with #8 x 12" TEKS screws at maximum spacing of 2'-0" on center or per local code, whichever is greater.
4. Optional Vented L-Panel shall have a Net Free Vent Area (NFVA) of 5.19 square inches per lineal foot of panel.

NOTE: Berridge Manufacturing Company does not recommend vented products in applications subject to aggressive atmospheres, marine environments or high humidity due to the corrosive nature of these environments on raw edges of steel

W. BERRIDGE [FW-1025] OR [FW-12] PANEL

1. [FW-1025] or [FW-12] provides a [10 1/4"] or [12"] coverage and a panel depth of 1 1/2". Panel is available with optional vee grooves spaced at [3.4"] or [4"] o.c., optional stucco embossing, optional striations, or optional vented profile for soffit applications.
2. Panels shall be factory formed, 40' max. length.
3. Attachment to metal supports with #10 x 1/2" TEKS screws at maximum spacing of 5' - 0" on center or per local code, whichever is greater.
4. Optional Vented [FW-1025] or [FW-12] Panel shall provide 6.82 square inches of Net Free Vent Area (NFVA) per lineal foot of panel.

NOTE: Berridge Manufacturing Company does not recommend vented products in applications subject to aggressive atmospheres, marine environments or high humidity due to the corrosive nature of these environments on raw edges of steel.

X. BERRIDGE FLAT SEAM PANEL (For application over Curved Surfaces)

1. Panels shall be factory formed to 40' max and shall have no exposed fasteners.
2. Seam spacing shall be 8" on center.
3. Attachment to curved solid sheathing with concealed 1 1/4" long galvanized ring shank roofing nails or fasteners spaced at 20" on center.

AA. BERRIDGE BERMUDA ROOF PANEL

1. Panels shall be [site-formed with the Berridge Model BP-14 Portable Roll Former in continuous lengths from rake to rake or hip to hip] or [factory formed] to 40' max length] and shall have no exposed fasteners.
2. Berridge Vinyl Weatherseal strip (Patent No. 5134825) shall be used along male panel leg.
3. Panels shall have a plank spacing and exposure to the weather of 11".
4. Attachment to solid sheathing with concealed 1 1/4" long galvanized ring shank roofing nails or fasteners and anchor clips spaced at 20" on center.
5. Where required, panel assembly shall bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 405.

BB. BERRIDGE RUSTIC SHAKE SHINGLES:

1. Rustic Shake Shingles shall have a one-inch thick shake texture with five shingle modules. Each Shingle shall have 12" by 24" exposure to the weather.
2. Shingle surface shall have a Deep-Drawn Texture which simulates shake shingle appearance.
3. Shingles shall be of Four-way, Interlocking Design, fastened to solid substrate with hidden anchor clips.
4. Shingles shall be of non-combustible 24-Gauge Steel with Class A Fire Rating.

CC. BERRIDGE VICTORIAN SHINGLES:

1. Victorian Shingles shall have a stamped scalloped design. Each Shingle shall have 9" by 12" exposure to the weather.
2. Shingles to be of overlapping, Interlocking Design, fastened to solid substrate with concealed fasteners.
3. Shingles to be of non-combustible 24-Gauge Steel with Class A Fire Rating.

DD. BERRIDGE CLASSIC SHINGLES:

1. Classic Shingles shall have a stamped sculptured design. Each Shingle shall have 9" by 12" exposure to the weather.
2. Shingles to be of overlapping, Interlocking Design, fastened to solid substrate with hidden roofing nails.
3. Shingles to be of non-combustible 24-Gauge Steel with Class A Fire Rating.

EE. BERRIDGE FLUTED FASCIA PANEL

1. Panels shall have a stamped, fluted design with 10" by 34 ½" exposure to the weather.
2. Application: Fluted Fascia Panels are recommended for vertical fascia usage or mansard facades with a slope of 12/12 or greater only.
3. Attachment shall be to solid sheathing with concealed 1 1/4" long galvanized ring shank roofing nails spaced at 20" on center.

FF. BERRIDGE "S" DECK PANEL

1. Nominal coverage width to be [32"] or [34 2/3"].
2. Panels shall be factory formed to 40' max. As an option, panels may be factory curved to a minimum radius of 5'-0" (32" width only). Curved S-Deck is 29 1/3" with double lap or 34" nominal total width.
3. 7/8" Corrugations to be spaced 2 ½" on center.
4. Panel-to-panel and panel-to-purlin connections to be with No. 12-14 self-drilling fasteners, 1" min. for panel-to-purlin connections, 3/4" minimum for panel-to-panel connections.
5. When used as a finish roof panel over open framing, compressible blanket insulation to be maximum 4 ½" thickness before compression.
6. For roof applications, a line of tape sealant for weathertightness shall be used at panel side laps and end laps.

PRODUCT SPECIFICATIONS

GG. BERRIDGE FISH SCALE SHINGLE

1. Fish Scale Shingles shall be blanked and stamped with two scale modules per shingle. The exposure to the weather shall be 8 1/2" x 11 1/2" per shingle.
2. Shingles shall be of overlapping, interlocking design, fastened to solid substrate with concealed fasteners.
3. Shingles shall be of non-combustible 24-gauge steel with Class A Fire Rating.

HH. VANTAGE POINT RETROFIT SYSTEM

NOTE: Berridge Zee-Lock panels may be used in conjunction with Berridge "Vantage Point" light-gauge open framing in a re-roof, retrofit application. Berridge Manufacturing Company will furnish extended Vantage Point Retrofit Framing System Specifications on request. Consult Berridge Technical Department for other compatible roofing panels.

I I. BERRIDGE HR-16 WALL PANEL

1. Panel coverage width shall be 16", with a panel depth of 7/8".
2. Ribs to be spaced 4" on center.
3. Panels shall be of interlocking design with integrated fastening flange for concealed fasteners.

JJ. BERRIDGE [HS-8] OR [HS-12] WALL PANELS

1. Panel coverage width shall be [8"] or [12"] exposure, with a panel depth of 7/8".
2. Standard stucco embossing
3. Panels to be of interlocking design with concealed fasteners through panel flange.
4. Panel face shall be flat with a recess at panel interlocks.
5. For design alternatives, [HS-8] or [HS-12] panels may interlock with Berridge [HS-8] or [HS-12] or [HR-16].

KK. BERRIDGE LIGHT GAUGE FRAMING COMPONENTS

1. Material: 24 and 16 Gauge Hot Dipped G-90 coating galvanized steel, Grade C ASTM 525-86.
2. Cold-rolled shapes as noted in Berridge catalog.

PART 3 EXECUTION

3.01 INSPECTION

A. Substrate:

1. Examine plywood or metal deck to ensure proper attachment to framing.
2. Inspect roof deck to verify deck is clean and smooth, free of depressions, waves or projections, level to ¼" in 20' and properly sloped to [valleys] (or) [eaves].
3. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.
4. Verify deck is dry and free of snow or ice. [Flutes in steel deck to be clean and dry] or [joints in wood deck to be solidly supported and nailed].

B. Underlayment:

1. Verify [#30 unperforated asphalt saturated roofing felt underlayment has been installed over solid plywood or OSB sheathing and fastened in place] or [ice & water shield membrane on metal deck].
2. One (1) layer of #30 asphalt roofing felt paper for roof slopes of 3:12 and up, two (2) layers for roof slopes of 1:12 - 3:12 in moderate climates (check with Berridge).
3. Ice & Water Shield underlayment to be used on all curved applications and on low (less than 1:12) slope or complex roofs per Berridge recommendation.
4. Underlayment materials approved by Berridge for a watertightness warranty include - Grace Ice & Water Shield (40 mil), Grace Ultra (30 mil), Tamko TW Underlayment (40 mil), Tamko TW Metal & Tile (75 mil), Carlisle WIP 300 HT (40 mil), Soprema Lastobond Shield HT (40 mil), Polyglass Polystick MTS (60 mil), and Mid-States Asphalt Quik-Stick HT Pro (60 mil) ***PLEASE NOTE, NO OTHER MID-STATES ASPHALT PRODUCTS WITH SIMILAR NAMES OR OTHERWISE ARE APPROVED FOR THE BERRIDGE WATERTIGHTNESS WARRANTY PROGRAM**
5. Ensure felt installed horizontally, starting at eave to ridge with a 6" minimum overlap and 18" endlaps.
6. Ensure that all nail heads and felt caps are totally flush with the substrate. Fasteners shall be galvanized roofing nails or zinc-coated fasteners with Berridge Coated Felt Caps.

3.02 INSTALLATION

A. Comply with manufacturers standard instructions and conform to standards set forth in the Architectural Sheet Metal Manual published by SMACNA, in order to achieve a watertight installation.
B. Install panels in such a manner that horizontal lines are true and level and vertical lines are plumb.
C. Install starter and edge trim before installing roof panels.
D. Remove protective strippable film prior to installation of roof panels.
E. Attach panels using manufacturer's standard clips and fasteners, spaced in accordance with approved shop drawings.
F. Install sealants for preformed roofing panels as approved on shop drawings.
G. Do not allow panels or trim to come into contact with dissimilar materials.
H. Do not allow traffic on completed roof. If required, provide cushioned walk boards.
I. Protect installed roof panels and trim from damage caused by adjacent construction until completion of installation.
J. Remove and replace any panels or components which are damaged beyond successful repair.

3.03 CLEANING

A. Clean any grease, finger marks or stains from the panels per manufacturer's recommendations.
B. Remove all scrap and construction debris from the site.

3.04 FINAL INSPECTION

A. Final inspection will be performed by a firm appointed and paid for by the owner in accordance with section 01410.

END OF SECTION

NOTE: Please reference Berridge Manufacturing Company's current Sweet's Catalog 07 61 00/BER , Sweet's BuyLine 49510 and 07 41 00/BER and Berridge's web site at www.berridge.com for standard product offering with regard to materials, gauges, finishes and colors available.

For specification assistance or product recommendations, please contact a Berridge Staff Architect at (800) 231-8127. Visit www.berridge.com for the most up-to-date information including specifications, CAD details, product information and much more.

GENERAL DESIGN INFORMATION

"OIL-CANNING" IN ARCHITECTURAL METAL PANELS

No architectural metal roofing application will be totally free of a certain degree of waviness, also sometimes referred to as "oil-canning". Generally, "oil-canning" or waviness in flat metal pans usually originate at the steel mill, but in some cases may also be induced by improper installation.

"Oil-canning" has long been observed to be an inherent condition in all sheet steel due to mill camber and leveling tolerances. All mill steel, though stretcher-leveled, has some loose spots in the coil. A coil-coater may not reject material based solely on waviness or "oil-canning"; if a coil-coater's paint line can apply a finish to the coil without skipping, then the coil may not be rejected.

The amount of waviness or "oil-canning" can vary from one coil to the next and is always more visible on a new roof, due to the high gloss of the new paint. Because of this high gloss and its resulting high degree of light reflection, any irregularity is greatly emphasized. As the finish ages and gloss decreases, this condition will diminish proportionately.

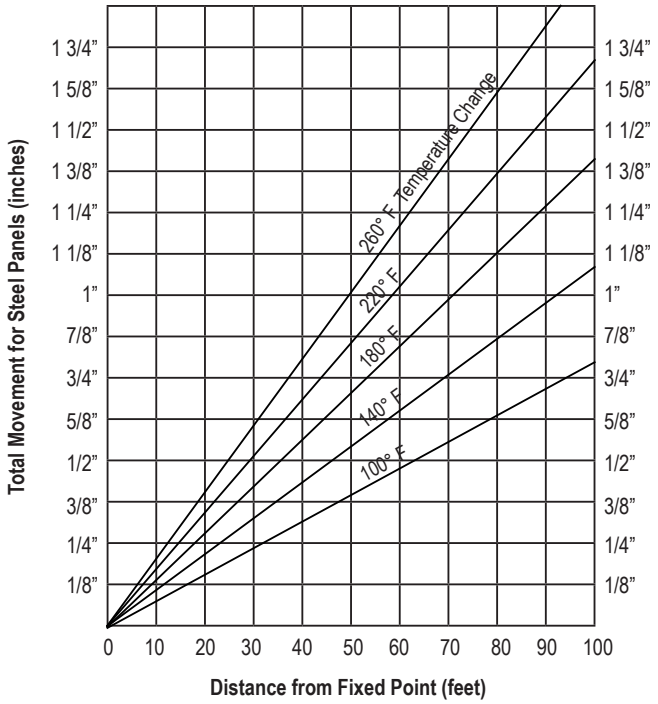
To a limited extent, waviness or "oil-canning" can be caused by improper installation techniques, including failure to provide a level substrate, failure to keep panels square and on module (thus inducing stress and distortion), inconsistent fastener pressure, improper length clips or hold-down anchor clips used with thicker blanket insulation.

In summary, a certain amount of waviness in the pan of any architectural metal panel can be expected. As the paint weathers, this waviness will cease to be noticeable. Any requirement that architectural metal products be totally free of "oil-canning" is unreasonable and is not sufficient reason for material rejection.

NOMINAL LINEAR THERMAL EXPANSION

Expansion and contraction of metal panels over 30 feet in length, due to longitudinal thermal movement must be considered in both design and installation. The chart below emphasizes the need to provide ample clearances for gutters, ridges, endwalls, etc.

Maximum temperature should be no lower than 140° F for white panels and up to 180° F for dark panels regardless of ambient maximum. Minimum should be figured well below ambient minimum to allow for radiation to night sky. In any case, a minimum of 100° F differential is recommended.



GENERAL DESIGN INFORMATION

CRITICAL / HIGH RISK ROOF AREAS WHERE SELF-ADHERING MEMBRANE UNDERLAYMENT SHOULD BE USED

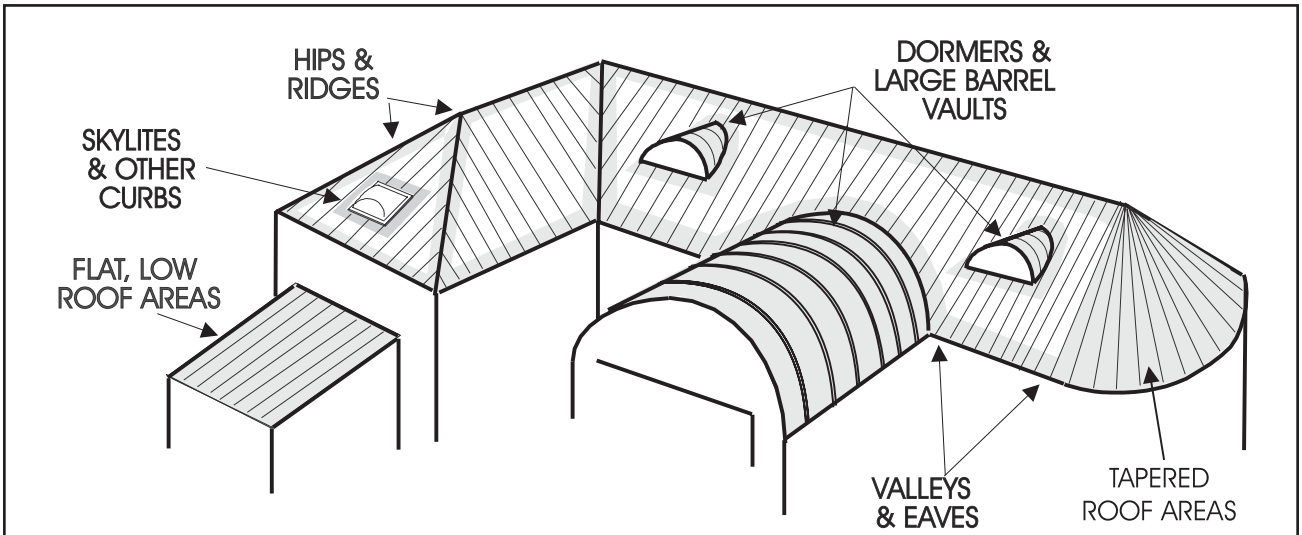


FIG. 1

CRITICAL / HIGH RISK ROOF AREA CHECK LIST:

Valley areas: Both Open-framed and Solid deck.

Barrel Vaults: entire area of barrel vaults and adjacent valleys.

Low Roof areas.

Change in roof slope areas.

Roof Penetrations of all types and sizes (area completely around penetration)

Potential icing conditions along Eaves, Ridge and Hips.

Over corrugated decks.

In critical roof areas **(Fig. 1)** such as eaves, valleys, ridges, hips, rake edges, slope changes, low slope areas, dormers or skylights, barrel vault roofs, an approved ice & water shield membrane underlayment must be installed under metal roofing, tiles, shakes and shingles as a barrier against water leakage resulting from ice dams or wind-driven rain. In exceptionally high risk roof configurations, it may be used as a complete roof underlayment for maximum protection. Approved underlayments are listed in the FAQ's page in the warranties section at www.berridge.com.

NOTES:

1. Use a minimum 40 mil. self adhesive, self sealing, self healing waterproofing, high temperature membrane designed for use under metal roofing.
2. On projects which require issuance of a Berridge Watertightness Warranty, contact the Berridge Warranty Dept prior to bid date and submit a roof plan and details to determine required placement of ice and water membrane.
3. Valleys: For valleys which occur over open framing purlins, Berridge typical details must be closely adhered to in order for a Berridge Watertightness Warranty to be issued.
4. Penetrations: Consult Berridge typical details governing roof penetrations.

LEED® INFORMATION

WHAT IS LEED®?

Leadership in Energy and Environmental Design (LEED) is an internationally recognized certification system established by the U.S. Green Building Council (USGBC) whose goal is to promote integrated, whole-building design practices and standards for green, sustainable building and community designs emphasizing energy savings, water efficiency, CO2 emissions reductions, improved indoor environmental quality, and stewardship of resources and their impacts on the environment.

LEED® 2009 for New Construction and Major Renovations is the latest version of the USGBC green building certification program and recognizes seven key areas:

Sustainable Sites (SS) - 26 Possible Points
Materials & Resources (MR) - 14 Possible Points
Water Efficiency (WE) - 10 Possible Points
Energy & Atmosphere (EA) - 35 Possible Points
Indoor Environmental Quality (IEQ) - 15 Possible Points
Innovation in Design (ID) - 6 Possible Points
Regional Priority (RP) - 4 Possible Points

Points are awarded to each category listed above depending on building performance on certain requirements and standards set forth by LEED® 2009. Points are then totaled and LEED® 2009 certification is granted based on the total point levels shown below:

LEED Certified - 40 to 49 points
LEED Silver - 50 to 59 points
LEED Gold - 60 to 79 points
LEED Platinum - 80 points and above

Summary

The use of Berridge Manufacturing metal roofing products can directly contribute up to 3 LEED® 2009 credits for Heat Island Effect and Recycled Content, but when a “whole-building design” approach is implemented, metal roofing combined with other concerted efforts, products and building systems can contribute to other LEED® 2009 credits mentioned herein as well as others credits not listed.

While every effort has been made to provide accurate information, applicants for LEED® Certification should verify compliance with a LEED® expert. For more information on LEED® 2009 certification, visit www.usgbc.org.

LEED® INFORMATION

HOW CAN USING BERRIDGE PRODUCTS CONTRIBUTE TO A LEED® CERTIFICATION ON NEW CONSTRUCTION OR MAJOR RENOVATIONS?

Sustainable Sites - Berridge Manufacturing Company cool metal roofs have Solar Reflectance Index values that meet or exceed LEED® 2009 criteria for the SS Credit 7.2 as detailed below.

SS Credit 7.2: Heat Island Effect - Roof (1 Point)

Intent - To reduce heat islands to minimize impacts on microclimates and human and wildlife habitats.

Requirement - Use roofing materials with a solar reflectance index (SRI) equal to or greater than the values shown below for a minimum of 75% of the roof surface.

For low-sloped roofs ≤ 2:12
SRI must be 78 or greater

For steep-sloped roofs > 2:12
SRI must be 29 or greater

Refer to the chart of SRI values for information on solar reflectance, thermal emmitance and Solar Reflectance Index (SRI) values for all Berridge cool metal roof colors.

Berridge SRI Values

For steep-slope roofs greater than 2:12, all Berridge colors (except Award Blue) meet or exceed LEED® 2009 requirements. For low slope roofs less than or equal to 2:12, Almond and Natural White meet or exceed LEED® 2009 requirements.

BERRIDGE COLORS	SOLAR REFLECTIVITY	EMISSIVITY	SRI
Almond	67.10	0.90	**82**
Aged Bronze	29.66	0.86	**30**
Antique Copper Cote	29.30	0.85	**29**
Award Blue	17.20	0.83	**12**
Bristol Blue	30.30	0.86	**31**
Buckskin	39.71	0.86	**43**
Burgundy	30.05	0.85	**30**
Champagne	34.95	0.85	**36**
Charcoal Grey	29.64	0.87	**30**
Colonial Red	33.03	0.85	**34**
Copper Brown	29.57	0.87	**30**
Copper-Cote	45.24	0.87	**51**
Dark Bronze	28.20	0.91	**30**
Deep Red	38.54	0.84	**41**
Forest Green	29.08	0.85	**29**
Hartford Green	28.20	0.90	**30**
Hemlock Green	30.92	0.83	**30**
Lead-Cote	32.90	0.90	**35**
Matte Black	28.70	0.91	**30**
Medium Bronze	31.39	0.85	**32**
Natural White	75.93	0.84	**93**
Parchment	51.72	0.83	**58**
Patina Green	34.42	0.86	**36**
Preweathered Galvalume	33.61	0.80	**32**
Royal Blue	29.90	0.90	**32**
Shasta White	60.00	0.84	**70**
Sierra Tan	34.81	0.84	**36**
Teal Green	28.10	0.89	**29**
Terra-Cotta	31.66	0.83	**31**
Zinc-Cote	52.45	0.87	**61**
Zinc Grey	37.88	0.84	**40**
Satin Finish Galvalume	74.00	0.14	**67**
Acrylic Coated Galvalume	67.00	0.06	**55**

LEED® INFORMATION

Materials & Resources - Berridge Manufacturing Company's metal products are made from 32.3% recycled content and are 100% recyclable at the end of their life. Reusing, recycling or salvaging Berridge metal products can help contribute to the following LEED® 2009 credits:

MR Credit 1.1: Building Reuse: Maintain 55%, 75% or 95% of Existing Walls, Floors & Roof (1-3 Points)

Intent - To extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

Requirement - Maintain the existing building structure (including structural floor and **roof decking**) and envelope (the exterior skin and framing, excluding window assemblies and non-structural roofing material). The minimum percentage building reuse for each point threshold is as follows:

Building Reuse 55% (1 Point)
Building Reuse 75% (2 Point)
Building Reuse 95% (3 Point)

Hazardous materials that are remediated as a part of the project must be excluded from the calculation of the percentage maintained. If the project includes an addition that is more than 2 times the square footage of the existing building, this credit is not applicable.

MR Credit 2: Construction Waste Management (1-2 Points)

Intent - To divert construction and demolition debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate sites.

Requirement - Recycle and/or salvage nonhazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or commingled. Excavated soil and land-clearing debris do not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout. The minimum percentage debris to be recycled or salvaged for each point threshold is as follows:

Recycled or Salvaged 50% (1 Point)
Recycled or Salvaged 75% (2 Points)

MR Credit 3: Materials Reuse (1-2 Points)

Intent - To reuse building materials and products to reduce demand for virgin materials and reduce waste, thereby lessening impacts associated with the extraction and processing of virgin resources.

Requirement - Use salvaged, refurbished or reused materials, the sum of which constitutes at least 5% or 10%, based on cost, of the total value of materials on the project. The minimum percentage materials reused for each point threshold is as follows:

Reused Materials 5% (1 Point)
Reused Materials 10% (2 Points)

MR Credit 4: Recycled Content (1-2 Points)

Intent - To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Requirement - Use materials with recycled content such that the sum of post consumer recycled content plus 1/2 of the preconsumer content constitutes at least 10% or 20%, based on cost, of the total value of the materials in the project. The minimum percentage materials recycled for each point threshold is as follows:

Recycled Content 10% (1 Point)
Recycled Content 20% (2 Points)

Berridge Recycled Steel

Post-consumer* steel recycled content	**25.5%**
Pre-consumer* steel recycled content	**6.8%**
Total	**32.3%**

*These values are based on data from the Steel Recycling Institute (November, 2009).

MR Credit 5: Regional Materials (1-2 Points)

Intent - To increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

Requirement - Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% or 20%, based on cost, of the total materials value. If only a fraction of a product or material is extracted, harvested, or recovered and manufactured locally, then only that percentage (by weight) can contribute to the regional value. The minimum percentage regional materials for each point threshold is as follows:

Regional Materials: 10% (1 Point)
Regional Materials: 20% (2 Points)

(MR Credit 5 continued on next page)

LEED® INFORMATION

Primary Steel Mills:

Processing Location: Indiana Harbor West Plant, East Chicago, IN 46312
Extraction Locations: United Taconite, Ishpeming, MI 49849
Northshore Mine, Silver Bay, MN 55614

Processing Location: Fairfield Works, Fairfield, AL 35064
Extraction Locations: Minntac, Mt. Iron, MN 55768
Keetac, Keewatin, MN 55753

Manufacturing Locations:

Painted: Berridge Manufacturing Company, San Antonio, TX 78218
Manufactured: Berridge Manufacturing Company, Seguin, TX 78155
Alternate Manufacturing Location: Location of Berridge Portable Roll Former used to site-form panels

All Berridge Manufacturing Company's architectural metal products are made from AZ-50 Galvalume steel extracted, harvested or recovered from various mines in the United States as noted above. Documentation from Berridge's steel providers is inconclusive in regards to the exact extraction locations for all raw materials and recycled content. Therefore it is not possible for Berridge to verify or document a primary extraction, harvesting or recovery location. As such, Berridge recommends verifying compliance with a LEED® expert.

Water Efficiency - Berridge Manufacturing Company cool metal roofs can be used as a surface for non-potable rainwater collection and thus can contribute LEED® 2009 criteria for water efficiency when integrated with rainwater collection systems.

WE Credit 1: Water Efficiency Landscaping (2-4 Points)

Intent - To limit or eliminate the use of potable water or other natural surface or subsurface water resources available on or near the project site for landscape irrigation.

Requirement - Reduce potable water consumption for irrigation by 50% from a calculated midsummer baseline case. Reductions must be attributed to any combination of the following items:

- Plant species, density and microclimate factor
- Irrigation efficiency
- Use of captured rainwater
- Use of recycled wastewater
- Use of water treated and conveyed by a public agency specifically for non-potable uses

Reduce by 50% (2 points)
No Potable Water Used for Irrigation (4 points)

WE Credit 2: Innovative Wastewater Technologies (2 Points)

Intent - To reduce wastewater generation and potable water demand while increasing the local aquifer recharge.

Requirement - Reduce potable water use for building sewage conveyance by 50% through the use of water-conserving fixtures (e.g., water closets, urinals) or non-potable water (e.g., **captured rainwater**, recycled graywater, on-site or municipally treated wastewater).

Indoor Environmental Quality

IEQ Credit 4.1: Low-Emitting Materials—Adhesives and Sealants (1 Point)

Berridge Manufacturing Company recommends using Tremco Spectrum I, Dow Corning 790 or Pecora 890NST sealants with Berridge architectural metal products. When Berridge metal products are used for indoor product applications, the aforementioned sealants meet or exceed LEED® 2009 criteria for IEQ Credits as indicated below.

Intent - To reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

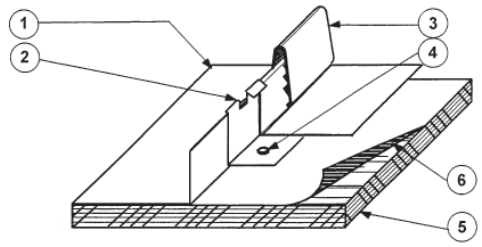
Requirement - All adhesives and sealants used on the interior of the building (i.e., inside of the weatherproofing system and applied on-site) must comply with South Coast Air Quality Management District (SCAQMD) Rule #1168 stating VOC contents of indoor sealants must be less than the maximum limit of 250 grams/liter.

Tremco Spectrum I contains 0 g/L of VOC
Dow Corning 790 contains 50 g/L of VOC
Pecora 890NST contains 98 g/L of VOC

UL 580 CLASS 90 RATED PRODUCT ASSEMBLIES

U.L. CONSTRUCTION NO. 296

BERRIDGE TEE-PANEL OVER SOLID PLYWOOD SHEATHING. JOISTS MAX. 2'-0" SPACING



1. **BERRIDGE TEE- PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 12 ¾" wide and rib height of 5/8".Total seam height with snap-on seam cover in place is nominal 1". Panels to be continuous length. End laps to be overlapped min. 6". A line of sealant may be used at panel end & side laps.
2. **PANEL CLIP:** One piece clip, ¾" high x 1 ½" wide x 1 5/8" long, No. 24 MSG min 40,000 psi coated steel. Clips spaced max 24" O.C., located at panel sides.
3. **SNAP-ON SEAM COVERS:** Seams covering panel ribs to be 3/8" wide by 7/8" high with vinyl insert (U.S. Patent No. 4,641,475) formed from No. 24 MSG min. 40,000 psi coated steel.
4. **FASTENERS (SCREWS):** No. 10 x 1" long pancake head wood screw with No. 2 Philips drive. One screw per clip. Fasteners used to attach plywood substructure to wood trusses or joist to be deformed shank nails. When light gauge steel joists are used, screws to be No. 12 x 1 5/8" with Philips drive head. Screws to be spaced 6" O.C. at plywood ends and 12" O.C. at interior joints.
5. **SUBSTRUCTURE (PLYWOOD):** Nominal 5/8" thick, exposure sheathing span C-D, 40/20 plywood. Butt joints sealed with tape and/or caulked.
6. **FELT PAPER:** Two ply, No. 30 lb. per 100 sq. ft.
7. **JOISTS:** Spaced 2' O.C. May be one of the following:
   A. Nom 2x6 wood joists No. 2 or better
   B. Nom 2x4 wood when used on top chord of wood truss, No2 or better
   C. Light ga. structural steel with the member against wood to be min 22 MSG coated steel

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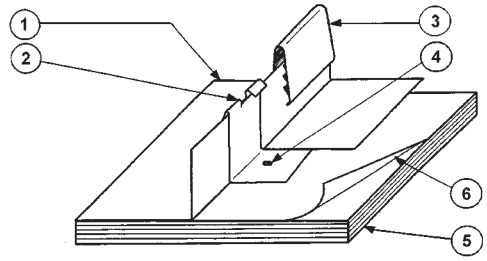
U.L. CONSTRUCTION NO. 297

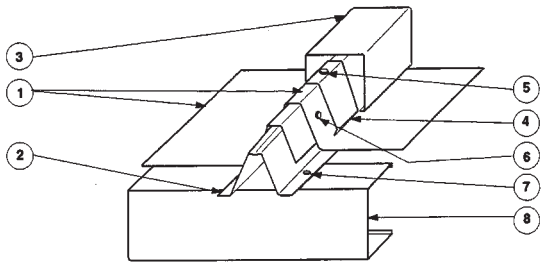
BERRIDGE HIGH SEAM TEE-PANEL OVER SOLID PLYWOOD SHEATHING, JOISTS MAX. 2'-0" SPACING



1. **BERRIDGE HIGH SEAM TEE-PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 18 ¼" wide and rib height 1 3/8".Total seam height with snap-on seam cover in place is nominal 1-½". Panels to be continuous length. End laps to be overlapped min. 6". A line of sealant may be used at panel end & side laps.
2. **PANEL CLIP:** One piece clip, 1 3/8" high x 1 ½" (nominal) wide x 1 5/8" long, No. 24 MSG min 40,000 psi coated steel. Clips spaced max 24" O.C., located at panel sides.

U.L. CONSTRUCTION NO. 262

BERRIDGE BATTEN SEAM SYSTEM OVER OPEN PURLINS, MAX. 5'-0" SPACING



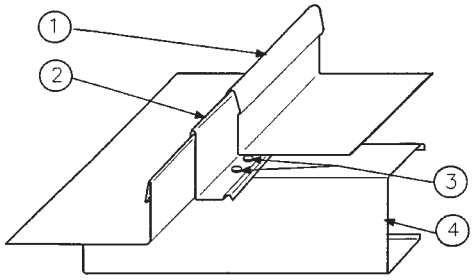
1. **BERRIDGE DEEP VEE PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 16" wide, 1 ½" high panel continuous over 2 or more spans without endlaps.
2. **BERRIDGE CONTINUOUS INNER RIB:** One-piece assembly fabricated from 24 MSG (Min. yield strength 40,000 PSI) coated steel. Inner Rib located at each panel side joint, continuous and equal to length of Berridge Deep Vee Panels
3. **SNAP-ON BATTEN:** Located at each panel side lap. Fabricated from .024 thick coated steel, formed to snap over batten clips
4. **BATTEN CLIP:** Located at each panel rib and spaced 20" on center, fabricated from 24 MSG coated steel in lock-forming configuration.
5. **FASTENERS (SCREWS):** For attaching Batten Clip (Item 3) to Deep Vee Panel; use No. 10 by 1" 20" on center.
6. **FASTENERS (SCREWS):** For attaching Deep Vee Panel to Continuous Inner Rib; use No. 10 by 1" alternating 12" on center full length of rib.
7. **FASTENERS (SCREWS):** For attaching Continuous Inner Rib to Purlin ; use No. 10 by 1" pancake head. Use 2 at each Purlin
8. **PURLINS:** No. 16 MSG (Min. yield strength 50,000 PSI), 5' Maximum spacing.

UL 580 CLASS 90 RATED PRODUCT ASSEMBLIES

1. **BERRIDGE CEE-LOCK PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 16½" wide, 1½" high panel continuous over 2 or more spans without endlaps.
2. **BERRIDGE CONTINUOUS CEE-RIB:** One-piece 1-½" high assembly fabricated from 24 MSG (Min. yield strength 40,000 PSI) coated steel. Cee-Rib located at each panel side joint, continuous and equal to length of Berridge Cee-Lock Panels. (Item 1). Vinyl Weatherseal Insert (U.S. Patent 4641475) optional. (Item 1).
3. **FASTENERS (SCREWS):** For attaching Cee-Rib (Item 2) to purlins; use No. 10 Pancake Head steel screws. Two fasteners at each purlin location.
4. **PURLINS:** No. 16 MSG (Min. yield strength 50,000 PSI), 4' Maximum spacing.
5. **LATERAL BRACING:** (Not Shown) Refer to General Information, Roof Deck Construction Building Material Directory for items not evaluated.

U.L. CONSTRUCTION NO. 334

BERRIDGE CEE-LOCK PANEL W/ CONTINUOUS CEE-RIB OVER OPEN PURLINS (NO INSULATION), MAX. 4'-0" SPACING (CONSULT BMC FOR APPROVED APPLICATIONS)



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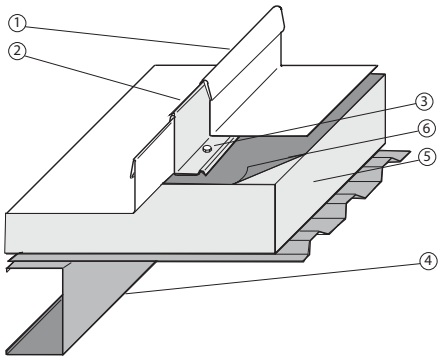
5. **INSULATION:** 4" 2 pcf density 20 psf compressive strength rigid closed cell polyisocyanurate core fiberglass faced insulation.
6. **LINER:** Type "F" 22 Ga. 33,000 psi yield corrugated steel liner.
7. **FELT PAPER**: 2 Ply, No. 30 lb. per 100 s.f.
8. **LATERAL BRACING:** (Not Shown) Refer to General Information, Roof Deck Construction Building Material Directory for items not evaluated.

U.L. CONSTRUCTION NO. 381

BERRIDGE CEE-LOCK PANEL W/CONTINUOUS CEE-RIB OVER RIGID INSULATION BOARD (MAX. 4") & 22-GA. F-DECK STRUCTURAL SHEATHING & OPEN PURLINS, MAX. 4'-0" SPACING



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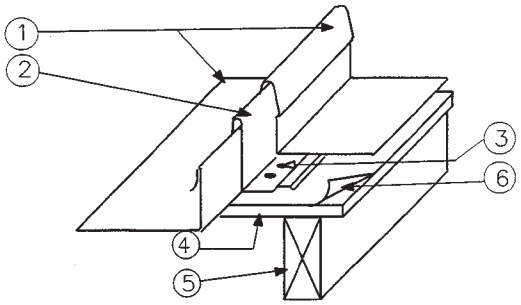
4. **DECK:** 5/8" APA 40/20 Plywood.
5. **JOISTS:** 2" x 4" at 2'-0" O.C. max. w/#12 x 2" pan head wood screw at 12" O.C. at plywood to joist connection and at plywood ends.
6. **FELT PAPER:** 1 layer #30 Roofing Felt, laid horizontally, eave to ridge.

U.L. CONSTRUCTION NO. 404

BERRIDGE CEE-LOCK PANEL W/INDIVIDUAL CEE-CLIPS OVER 5/8" PLYWOOD DECK SOLID WOOD SHEATHING

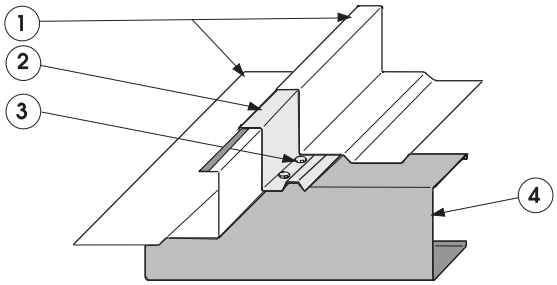


BERRIDGE MANUFACTURING COMPANY
6515 Fratt Road, San Antonio, TX 78218 | 800-669-0009 | Fax 210-650-0379

UL 580 CLASS 90 RATED PRODUCT ASSEMBLIES

U.L. CONSTRUCTION NO. 312

UNINSULATED BERRIDGE ZEE-LOCK OVER OPEN PURLINS - MAX. 5'-0" SPACING

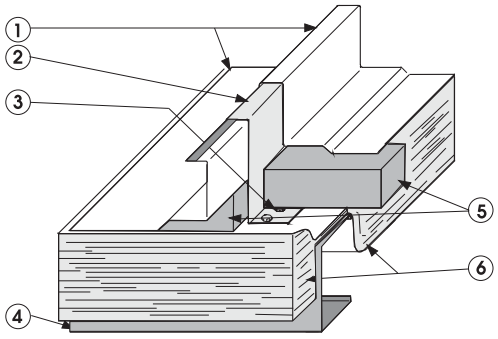


1. **BERRIDGE ZEE-LOCK PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 16" wide, 2" high panel continuous over 2 or more spans without endlaps. An Optional Extruded Vinyl Weatherseal (U.S. Patent 5134825) may be used at panel side joints. Adjacent panels are seamed together along side joints using an electric seamer tool.
2. **BERRIDGE CONTINUOUS ZEE-RIB:** One-piece assembly fabricated from 24 MSG (Min. yield strength 40,000 PSI) coated steel. Zee-Rib located at each panel side joint, continuous and equal to length of Berridge Zee-Lock Panels. (Item 1).
3. **FASTENERS (SCREWS):** For attaching Zee-Rib (Item 2) to purlins; use No. 12 x 1" Self-Drilling, Self-Tapping steel screws. Two fasteners at each purlin location.
4. **PURLINS:** No. 16 MSG (Min. yield strength 50,000 PSI), 5' Maximum spacing.

(ALTERNATE ASSEMBLY)

U.L. CONSTRUCTION NO. 312

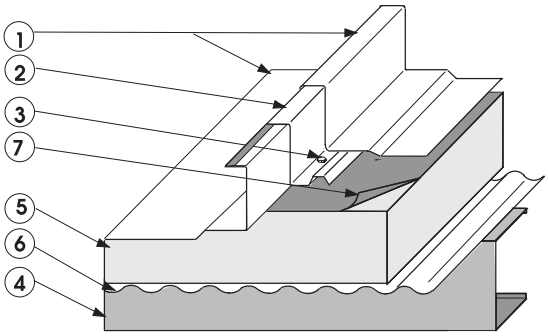
BERRIDGE ZEE-LOCK WITH 6" BLANKET INSULATION & 1" THERMAL BLOCK OVER OPEN PURLINS - MAX. 5'-0" SPACING



1. **BERRIDGE ZEE-LOCK PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 16" wide, 2" high panel continuous over 2 or more spans without endlaps. An Optional Extruded Vinyl Weatherseal (U.S. Patent 5134825) may be used at panel side joints. Adjacent panels are seamed together along side joints using an electric seamer tool.
2. **BERRIDGE 3" CONTINUOUS ZEE-RIB** - (Panels clips) - One piece assembly, 3 in high, fabricated from 24 MSG coated steel. Clip located at each panel rib side lap with clip being continuous and equal to length of metal roof deck panels. To be used in conjunction with optional thermal spacer only.
3. **FASTENERS (SCREWS):** For attaching Zee-Rib (Item 2) to purlins; use No. 12 x 1" Self-Drilling, Self-Tapping steel screws. Two fasteners at each purlin location.
4. **PURLINS:** No. 16 MSG (Min. yield strength 50,000 PSI), 5' Maximum spacing.
5. **THERMAL BLOCKS:** (Optional) 3" by 16" by 1" Polystyrene Foam blocks placed along purlin lines.
6. **INSULATION:** (Optional) 6" Vinyl Faced compressible insulation (Item 6).
7. **LATERAL BRACING:** (Not Shown) Refer to General Information, Roof Deck Construction Building Material Directory for items not evaluated.

U.L. CONSTRUCTION NO. 335

BERRIDGE ZEE-LOCK PANEL WITH RIGID INSULATION BOARD (4" MAX.) ON 24 GA. LINER ON PURLINS (5'-0" O.C. MAX. SPACING)



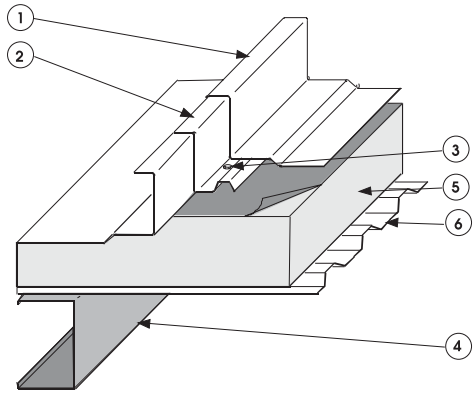
5. **INSULATION:** 4" Rigid Insulation Board.
6. **BERRIDGE S-DECK:** No. 24 MSG (Min yield strength 40,000 PSI) Steel, Corrugated Liner.
7. **FELT PAPER:** Two ply, #30 lb. per 100 sq. ft.
8. **LATERAL BRACING**: (Not Shown) Refer to General Information, Roof Deck Construction Building Material Directory for items not evaluated.

UL 580 CLASS 90 RATED PRODUCT ASSEMBLIES

1. **BERRIDGE ZEE-LOCK PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 16" wide, 2" high panel (without endlaps). An Optional Extruded Vinyl Weatherseal (U.S. Patent 5134825) may be used at panel side joints. Adjacent panels are seamed together along side joints using an electric seamer tool.
2. **BERRIDGE CONTINUOUS ZEE-RIB:** One-piece assembly fabricated from 24 MSG (Min. yield strength 40,000 PSI) coated steel. Zee-Rib located at each panel side joint, continuous and equal to length of Berridge Zee-Lock Panels. (Item 1).
3. **FASTENERS (SCREWS):** For attaching Zee-Rib (Item 2) to liner; use No. 12 6" long Self-Drilling, Self-Tapping steel screws. One fastener at 24" O.C. max.
4. **PURLINS:** No. 16 MSG (Min. yield strength 50,000 PSI), 4'-0" spacing.
5. **INSULATION:** 4" 2 pcf density 20 psf compressive strength rigid closed cell poly-isocyanurate core fiberglass faced insulation.
6. **F-DECK LINER:** No. 22 MSG (Min. yield strength 33,000 PSI) Steel, Corrugated liner.
7. **FELT PAPER:** Two ply, # 30 lb. per 100 sq. ft.
8. **LATERAL BRACING:** (Not Shown) Refer to General Information, Roof Deck Construction Building Material Directory for items not evaluated.

U.L. CONSTRUCTION NO. 335 (MODIFIED)

BERRIDGE ZEE-LOCK PANEL WITH RIGID INSULATION BOARD (4" MAX.) & 22-GA. LINER (ZEE-RIB FASTENED TO LINER)



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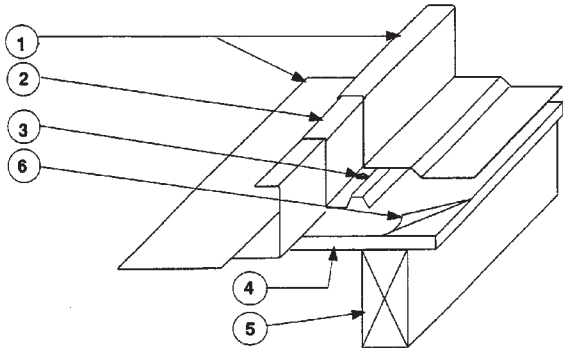
4. **DECK:** 5/8" APA 40/20 Plywood.
5. **JOISTS:** 2" x 4" at 2'-0" O.C. max w/#12 x 2" pan head wood screws at 12" O.C. max at plywood to joist connection and at plywood ends.
6. **FELT PAPER:** 1 layer #30 Roofing Felt, laid horizontally, eave to ridge.

U.L. CONSTRUCTION NO. 403

BERRIDGE ZEE-LOCK PANEL ON 5/8" PLYWOOD WITH INDIVIDUAL CLIPS



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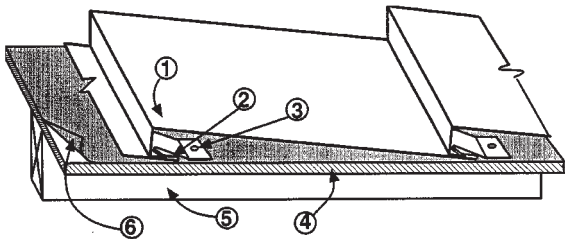
1. **BERRIDGE BERMUDA PANEL:** 24 Ga. (Min. yield 40,000 PSI) coated steel, 11" w x 1" high.
2. **BERMUDA PANEL CLIPS:** One piece, fabricated from 24 Ga. (Min yield 40,000 PSI) coated steel. Located at panel lap, 2' - 0" max. spacing.
3. **FASTENERS:** Use one (1) No. 10 Pancake head "TEKS" screw steel screw per clip location.
4. **DECK:** 5/8" APA 40/20 Plywood.
5. **JOISTS**: 2" x 4" at 2'-0" O.C. max w/#12 x 2" pan head wood screws at 12" O.C. max at plywood to joist connection and at plywood ends.
6. **FELT PAPER**: 1 layer #30 Roofing Felt, laid horizontally, eave to ridge.

U.L. CONSTRUCTION NO. 405

BERRIDGE BERMUDA ROOF PANEL OVER SOLD WOOD SHEATHING

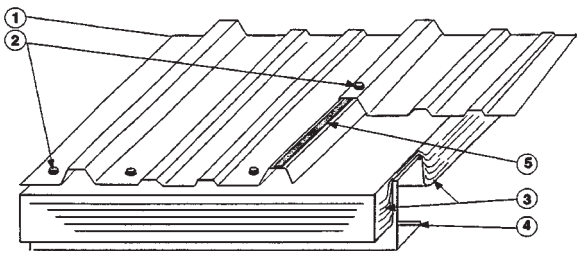


BERRIDGE MANUFACTURING COMPANY
6515 Fratt Road, San Antonio, TX 78218 | 800-669-0009 | Fax 210-650-0379

UL 580 CLASS 90 RATED PRODUCT ASSEMBLIES

U.L. CONSTRUCTION NO. 161

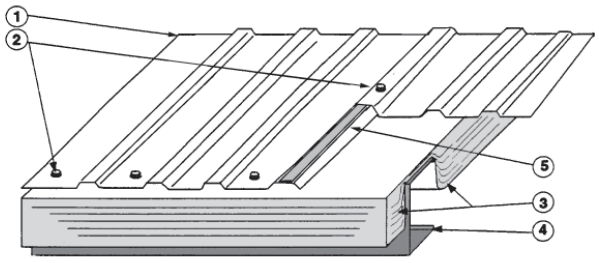
BERRIDGE "R" PANEL WITH MAX. 4½" BLANKET INSULATION OVER OPEN PURLINS (5' O.C. MAX. SPACING)



1. **BERRIDGE "R" PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 36" wide, 1¼" high rib panel continuous over 2 or more spans. Endlaps to occur over purlins overlapped with a min. of 4" with lap centered over purlin web. A line of tape sealant (Item 5) may be used at panel side and end laps.
2. **FASTENERS (SCREWS):** For panel-to-panel and panel-to-purlin connections to be No. 12 14 by 1" self-drilling, self-tapping, hex head, plated steel screws with a 5/8" O.D. formed steel washer and neoprene sealing washer.
3. **INSULATION (OPTIONAL):** 4½" Max. thickness (before compression) Vinyl Faced compressible insulation (Item 6).
4. **PURLINS:** No. 16 MSG (Min. yield strength 50,000 PSI), 5' Maximum spacing.
5. **TAPE SEALANT:** Used along panel side laps and endlaps for watertightness.
6. **LATERAL BRACING:** (Not Shown) Refer to General Information, Roof Deck Construction Building Material Directory for items not evaluated.

U.L. CONSTRUCTION NO. 39

BERRIDGE "M" PANEL WITH MAX. 4" BLANKET INSULATION OVER OPEN PURLINS (5' O.C. MAX. SPACING)



1. **BERRIDGE "M" PANEL:** No. 24 MSG (Min. yield strength 40,000 PSI) thickness coated steel, 36" wide, 3/4" high rib panel continuous over 2 or more spans. Endlaps to occur over purlins overlapped with a min. of 6" with lap centered over purlin web. A line of tape sealant (Item 5) may be used at panel side and end laps.
2. **FASTENERS (SCREWS):** For panel-to-panel and panel-to-purlin connections to be No. 12 - 14 by 1" self-drilling, self-tapping, hex head, plated steel screws with a 5/8" O.D. formed steel washer and neoprene sealing washer. Spacing: ; panel/purlin: 6" o.c.
3. **INSULATION (OPTIONAL):** 4" Max. thickness (before compression) Vinyl Faced compressible insulation (Item 6).
4. **PURLINS:** No. 16 MSG (Min. yield strength 50,000 PSI), 5' Maximum spacing.
5. **TAPE SEALANT:** Used along panel side laps and endlaps for watertightness.
6. **LATERAL BRACING:** (Not Shown) Refer to General Information, Roof Deck Construction Building Material Directory for items not evaluated.

UL, ASTM & FM TESTING SUMMARY CHART

STANDING SEAM ROOF PANELS	UL 90	UL 580	UL 790	UL 263	UL 2218	ASTM E 1592	ASTM E 330	ASTM E 2140	ASTM E 1646	ASTM E 1680	ASTM E 331	ASTM E 283	FM 4471	FL PROD APP	MIAMI DADE
Tee Panel	●	●	●	●	●				●	●	●	●		●	
High Seam Tee Panel	●	●	●	●	●				●	●	●	●		●	
Cee-Lock Panel	●	●	●	●	●	●			●	●	●	●		●	●
Zee-Lock Panel (Single Lock)	●	●	●	●	●	●		●	●	●	●	●		●	●
Zee-Lock Panel (Double Lock)	●	●	●	●	●	●		●	●	●	●	●	●	●	●
OTHER ROOF SYSTEMS	**UL 90**	**UL 580**	**UL 790**	**UL 263**	**UL 2218**	**ASTM E 1592**	**ASTM E 330**	**ASTM E 2140**	**ASTM E 1646**	**ASTM E 1680**	**ASTM E 331**	**ASTM E 283**	**FM 4471**	**FL PROD APP**	**MIAMI DADE**
Bermuda Roof Panel	●	●	●		●									●	
Spanish Tile Roof System		●	●		●									●	
S-Tile Roof Panel		●	●		●									●	
Batten Seam Roof System	●	●	●	●	●									●	
Victorian & Classic Shingles		●												●	●
Rustic Shake Shingle		●												●	
Curved Flat Seam Panel							●							●	
"R" Panel	●	●	●		●									●	
"M" Panel	●	●	●		●									●	
Deep Deck Panel	●	●	●		●	●			●	●				●	
S-Deck			●		●	●								●	
Double Rib Panel	●	●	●		●									●	
FASCIA, WALL & SOFFIT PANELS	**UL 90**	**UL 580**	**UL 790**	**UL 263**	**UL 2218**	**ASTM E 1592**	**ASTM E 330**	**ASTM E 2140**	**ASTM E 1646**	**ASTM E 1680**	**ASTM E 331**	**ASTM E 283**	**FM 4471**	**FL PROD APP**	**MIAMI DADE**
Flush Seam Panel							●					●		●	
L-Panel						●								●	●
HR-16 Panel						●					●	●		●	●
HS Wall Panels						●					●	●		●	
FW-1025 & FW-12 Panel						●					●	●		●	●
Thin Line Panel							●							●	
B-6 Panel							●							●	
Fluted Fascia Panel							●							●	

For actual test results, technical questions or job-specific engineering, please contact Berridge Technical Department at (800) 669-0009. Berridge updates and adds testing on a continual basis. Check with Berridge Technical Department for the latest testing updates.

FLORIDA PRODUCT APPROVALS & MIAMI DADE NOA'S

Berridge Manufacturing Company is committed to supporting its customers with required testing and approvals to comply with the Florida Building Code. Please note that in addition to providing copies of Berridge testing and/or approvals, that additional requirements such as building calculations may also be required by state and local code authorities.

For the latest information on Florida Building Approval of Berridge roofing material, please consult the Florida Building Code website at: *www.floridabuilding.org* and click on Product Approval to search products by manufacturer name.

For your convenience PDF files of Florida Building Code testing documentation (UL and various Florida Testing services) for Berridge roofing, siding and soffit products can also be found at *www.berridge.com* in the Technical Bulletins section.

FLORIDA PRODUCT APPROVAL LISTED

STANDING SEAM METAL ROOFING PRODUCTS

Tee-Panel	Cee-Lock Panel	Curved Zee-Lock Panel
High Seam Tee-Panel	Zee-Lock Panel	Zee-Lock Double Lock Panel

OTHER ROOF PRODUCTS

Spanish Tile	S-Tile	M-Panel
Victorian Shingles	Rustic Shake Shingles	R-Panel
Classic Shingles	Bermuda Panel	Double Rib Panel
S-Deck	Deep-Deck	

WALL PANELS

Flush Seam Panel	Fluted Fascia Panel	L-Panel
Thin Line Panel	FW-12 Panel	R-Panel
Flat Seam Panel	HR-16 Wall Panel	M-Panel
B-6 Panel	HS-8 & HS-12 Wall Panels	S-Deck

SOFFIT PANELS

FW-12 Panel	L-Panel	S-Deck

MIAMI DADE APPROVED PRODUCTS

STANDING SEAM METAL ROOFING PRODUCTS

Cee-Lock	Zee-Lock Double Lock	Curved Zee-Lock Double Lock
Zee-Lock		

OTHER ROOF PRODUCTS

Victorian Shingles	Classic Shingles

WALL & SOFFIT PANELS

HR-16 Wall Panel	FW-12 Panel	L-Panel

PAINT FINISH WARRANTY REQUEST FORM

All requests for warranties must be in writing and must include the following information on the job for which warranty is requested:

PLEASE TYPE OR PRINT CLEARLY!!!

Work Order No., Invoice No. & Invoice Date:	**Color(s)**	**Berridge Product or System**	**No. of Squares:**

***Required** **BERRIDGE CUSTOMER**

Company: _____

Address: _____

City, State & Zip: _____

***Required** **BUILDING OWNER**

Company: _____

Address: _____

City, State & Zip: _____

***Required** **JOB NAME & PHYSICAL ADDRESS**

Company: _____

Address: _____

City, State & Zip: _____

***Required** **PROJECT ARCHITECT**

Company: _____

Address: _____

City, State & Zip: _____

The policy of Berridge Manufacturing Company is to send the Original Warranty to the Berridge Customer to whom the material was originally sold (as shown above). If the Original Warranty is to be mailed to someone other than the customer Berridge sold to, please supply Berridge with that information.

OTHER PARTY TO SEND WARRANTY TO

Company: _____

Address: _____

City, State & Zip: _____

IMPORTANT!

No Warranty of ANY kind will be issued until the Berridge Manufacturing Company invoice pertaining to the material work order for the pertinent job is completed and paid in full. No warranty will be issued unless requested by the customer in writing within one year of invoice date.

Please mail or fax completed Warranty Request Form to:

BERRIDGE MANUFACTURING COMPANY
6515 Fratt Road, San Antonio, TX 78218 | 800-669-0009 | Fax 210-650-0379

Kynar 500® or Hylar 5000™ Limited Warranty

MATERIAL DESCRIPTION:

JOB NAME:

SOLD TO:

INVOICE NUMBER(S):

OWNER:

EFFECTIVE DATE:

DATE OF ISSUE:

Berridge Manufacturing Company warrants that Kynar 500® or Hylar 5000™ 70% full-strength Fluoropolymer finish will perform for twenty (20) years from date of installation as an effective surfacing material within the scope of the conditions and limitations defined in this warranty document:

EFFECTIVE SURFACING MATERIAL IS DEFINED TO MEAN:

1. Freedom from cracking, chipping or peeling due to the deterioration of the finish for a period of twenty (20) years from date of purchase, exclusive of mechanical damage or other abnormal contingencies. (See Para 2).
2. Freedom from any color changes in excess of 5 NBS Units (Using the NBS unit of color notation as measured on the MEECO Colormaster: ASTM-D-2244) for a period of twenty (20) years from date of purchase.
3. Freedom from chalking in excess of Number 8 Rating (ASTM-D-659-80) for a period of twenty (20) years from date of installation.

TERMS AND CONDITIONS OF WARRANTY:

1. Berridge shall not have any obligation under this Warranty until all invoices for installation, supplies and services have been paid in full to Berridge and to the Roofer.
2. **BERRIDGE HAS NO OBLIGATION NOR RESPONSIBILITY FOR DAMAGE TO FINISH OR MATERIALS CAUSED BY THE FOLLOWING CONDITIONS:**
   - A. Materials installed in corrosive or aggressive environments including, but not limited to, areas subject to marine conditions, salt water, salt water spray, chemicals, or harmful gases with the exception of normal air pollution.
   - B. Acts of God, falling objects, fire or external forces.
   - C. Abnormal or harmful gases, fumes or chemicals other than general air pollution.
   - D. Physical damage after installation, intentional or unintentional, whether caused by abuse, misuse, negligence, vandalism, or excessive foot traffic on roof area.
   - E. Any act or acts which damages finish after installation of materials on project.
   - F. Physical damage caused during the forming process due to machinery or roll forming process used.
   - G Slopes of the roof or sections with a pitch of less than one in twenty-four or otherwise as to allow puddling or staining.
   - H. Deterioration of finish or materials due to improper storage prior to or during installation process.
   - I. Deterioration of the finish or substrate caused by standing water or condensation.
   - J. Discoloration or damage to panel finish caused by failure to remove factory-applied protective strippable plastic film.
3. **CUSTOMER MUST NOTIFY BERRIDGE MANUFACTURING COMPANY IN WRITING WITHIN THIRTY (30) DAYS FROM DISCOVERY OF THE CONDITION WHICH IS THE BASIS OF ANY CLAIM AND ALLOW AN INSPECTION OF THE MATERIALS DURING NORMAL BUSINESS HOURS.**
4. **BERRIDGE MANUFACTURING COMPANY'S OBLIGATION WITH RESPECT TO THIS WARRANTY IS LIMITED AS FOLLOWS:**
   - A. In the event of a valid claim, Berridge Manufacturing Company shall, at its option: a.) assume the reasonable costs to restore the finish on the materials; b.) furnish replacement materials; or c.) refund the original purchase price paid to Berridge for the materials less five percent (5%) for each year which has lapsed since the date of purchase of the materials.
   - B. Berridge Manufacturing Company's maximum liability for any claim under this Limited Warranty will be the lesser of the three amounts calculated pursuant to a, b, or c of paragraph 4A above.
   - C. It will be at the sole discretion of Berridge Manufacturing Company to determine which action will be taken with respect to any claim under this Limited Warranty.
   - D. In no event shall Berridge Manufacturing Company's liability exceed the lesser of the cost of replacing or restoring the defective panels.
   - E. The warranty on any repaired or replaced product shall be for the remainder of the warranty period applicable to the original purchase.
   - F. **EXCEPT AS SET FORTH HEREIN, BERRIDGE MANUFACTURING COMPANY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND HEREBY EXPRESSLY DENIES THE SAME.**
5. This warranty is tendered for the sole benefit of the original owner of the project named herein and is not transferable or assignable.
6. Berridge's only liability and responsibility is to the terms and conditions of this Warranty. This Warranty supersedes and is in lieu of any and all other warranties (whether express or implied) that are either in addition to or in conflict with the term(s) and condition(s) stated herein.
7. In the event a court of competent jurisdiction rules that any portion of this Limited Warranty is unenforceable, the remainder of this Limited Warranty shall be construed and enforced as if the stricken portion was not a part hereof originally.

BERRIDGE MANUFACTURING COMPANY | 6515 Fratt Road, San Antonio, TX 78218 | P: (210) 650-3050 | F: (210) 650-0379

WATERTIGHTNESS WARRANTY PROGRAM

BERRIDGE MANUFACTURING COMPANY WATERTIGHTNESS WARRANTY PROCEDURES & REQUIREMENTS

The actual process of approving a proposed project for issuance of a Berridge Watertightness Warranty begins in advance of purchasing and installing material. The roofer/installer must submit architectural plans and specifications to Berridge for a ruling as to the feasibility of engaging in the process of a watertightness warranty. Because Berridge may require additions and or changes to the roof design, the submittal of plans and specs must be made prior to bidding the project.

A letter of acceptance of the roof design will be sent to the roofer/installer. This letter will state the accepted roof assembly (if the roof design is accepted) and include any general required additions to the roof plans. Along with the letter of acceptance, Berridge will send a copy of the application form for a Berridge Watertightness Warranty (see "Shop Drawings Guidelines", "Pre-installation Inspection Guide" and "Post-installation Inspection Guide" in this section).

The application form (see sample on page 33) for a Berridge Watertightness Warranty will be the roofer/installer's formal request for Berridge to commence in the processing of a watertightness warranty file for said project. The information requested for in the application form is to aid Berridge to carry out efficiently all steps of the warranty program. It is important that all information requested in the application form be provided immediately including the required attachments. Failure to submit required information and attachments (as requested in application form) will cause a delay in the issuing of the warranty or possibly cause Berridge not to issue the warranty.

The review of the architectural drawings is for feasibility of specified Berridge panel system. A review of shop drawings for the project is also required. The shop drawing submittal must include the following and will be reviewed for such: name and location of the project, installation instructions for the general handling and installation of panels, flashing, underlayment and fasteners (Berridge has produced such instructions for its roof systems and with a degree of modification can be tailored to meet the requirements of individual projects). For felting details, Berridge's typical felting details with a degree of modification can be used. A roof plan with all roof slopes and detail section cuts called out is required. Every flashing detail must show the relationship between the roof panel, panel clips, flashings, fasteners, underlayment, caulking and the building. See the "Shop drawings Guidelines" in this section for a detailed outline of shop drawing requirements.

Please note, a copy of the Berridge-approved shop drawings must be on the project site. ***The roof installation must be as per the set of Berridge-approved shop drawings.*** Failure to install the roof per Berridge-approved shop drawings may be grounds for not issuing the warranty.

During the field inspections, the decking and or purlin structure, felting underlayment, panel installation, flashings, caulking, valleys, penetrations and all areas of the roof which will be covered by the roof panels will be inspected. This inspection will be for compliance to the Berridge approved shop drawings and general construction practices. See the "Pre-Installation Inspection Guide" and "Post Installation Inspection Guide" in this section for a detailed outline of inspections. A field report will be written and sent to the roofer/installers. This report will cover all areas of the roof which were inspected and any required modifications to the installation to bring it in compliance with the Berridge-approved shop drawings.

The process of issuing the warranty will begin when the roof installation is complete and in compliance with the Berridge approved shop drawings. This process will include a review of the items covered in this letter, a review of payment for materials, equipment and services and the issuing of the Watertightness Warranty for signatures.

Three copies of the Watertightness Warranty will then be sent for signature, typewritten name, title and date of signature to be provided by the Roofing Contractor and Owner where indicated on the back side of all three (3) copies of this warranty; after which, all three (3) copies are to be returned to Berridge Manufacturing for final approval and acceptance. After Berridge's approval and acceptance of the warranty, two (2) copies will be returned to the Roofing Contractor for their distribution.

This letter and following exhibits are to aid you in understanding Berridge's approach to watertightness warranties.

WATERTIGHTNESS WARRANTY PROGRAM

BERRIDGE WATERTIGHTNESS WARRANTY PROCESS

PROCEDURAL FLOWCHART

PRE-BID REQUIREMENTS

Installer to review specifications for finish, material, & watertight warranty requirements & determine the specified warranty terms. 1	Installer to review architectural plans & specifications for panel design basis & determine which BMC product is applicable. Installer should consult BMC Sales or Staff Architect for assistance with product selection or substitutions. 2	Installer to contact BMC Sales to discuss this project, warranty & credit requirements, time lines, & appropriate Berridge products & accessories required to satisfy specifications. Consult Berridge Staff Engineers with technical questions or testing information. 3	If credit terms have not been established or are not up-to-date with BMC, Installer should contact BMC Credit Department to establish/update credit terms. 4	Installer to submit WTW application immediately to continue wty program, basic project information incl. architectural drawings (roof plans, elevations, etc.), & project specifications to WTW Department for preliminary review of the warrantability of the proposed roof design. (Allow 1-3 weeks for review) 5	BMC to issue an acceptance letter if roof design is approved. BMC may opt to reject issuing a warranty on some complex roof designs. 6	After reviewing the scope of project, warranty requirements, design basis, suggested BMC products, & after receiving project acceptance letter, Installer should prepare a materials list & submit to BMC Sales for initial price quote. Installer should notify BMC sales person that project requires a WTW. 7

POST-BID REQUIREMENTS

Installer to submit bid and required submittals to general contractor and await the awarding of the project. 8	If awarded the project, installer to submit the following to BMC at the earliest opportunity: • Shop Drawings (2 sets) • Installer 2YR Warranty If not on file, submit: • Job Reference List • Foreman Resumes • Current Financials 9	Installer to submit updated PO for material. BMC to process & issue a confirmation for material, warranty, & inspection fees. Installer to return signed wty conformation of order and payment for wty immediately to assure timely inspections. 10	1st review of submittals and shop drawings. Will advise if modifications are required. 2nd/Final review to follow until approved. 11	Berridge to send out approved, stamped shop drawings. To avoid costly delays and additional expenditures, please adhere to the approved shop drawings. Consult your inspector or local sales rep with application questions. 12	Installer to schedule pre-installation inspection with Warranty Inspector. Contact inspector directly to schedule. 13	After Berridge's Warranty Inspector conducts the pre-installation inspection, an inspection report will be given to the installer. Any deviations from the approved details will need to be addressed and/or corrected if necessary. Installer MUST submit correction photos. 14

POST-BID REQUIREMENTS

Installer to schedule post-installation inspection with Warranty Inspector. Contact inspector directly to schedule. 15	BMC's Warranty Inspector to conduct post-installation inspection. Inspection report will be given to the installer. Any deviations from the approved details will need to be corrected. Installer MUST submit correction photos. 16	If additional inspections are required, installer should coordinate scheduling with the Warranty Inspector. Correction photos may be accepted in lieu of additional inspections. Coordinate with Warranty Inspector. 17	Upon final review and approval, Berridge will issue the warranty directly to the installer. 18

WATERTIGHT WARRANTY CONTACTS

Technical, Submittals, Procedures, Inspectors, & Training:

BMC Houston - WTW Department
Phone: (800) 231-8127
Local: (713) 223-4971
Fax: (713) 236-9422
Email: BMCWatertightDept@Berridge.com

Pricing, Sales, or Credit Inquiries:

BMC San Antonio - Sales Department
Phone: (800) 669-0009
Local: (210) 650-3050
Fax: (210) 650-0379
Email: Sales@Berridge.com

FREQUENTLY ASKED QUESTIONS

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1	**Q:** *What do I need to do to get a watertightness warranty from Berridge?* **A:** Review the steps on the previous page.
2	**Q:** *What needs to be submitted to Berridge for watertightness warranty projects?* **A:** Roofer/Contractor needs to submit the following items pertaining to the roof: Architectural Plans, Specifications, a completed watertightness warranty application form, 2 sets of shop drawings, installer standard 2-year roof warranty, and a job reference list with a minimum of 10 projects. The credit department requires current financial statements for watertightness warranty approval. Submit current financial statement at the earliest opportunity as not to delay watertightness warranty approval.
3	**Q:** *What is Berridge looking for in a shop drawing submittal from the roofer/contractor?* **A:** Berridge must have a roof plan of the project with each detail called out on the roof plan along with each of the details pertaining to the roof plan. The shop drawings may be hand drawn or done in AutoCAD. A shop drawing checklist stating requirements is available online under Warranties > Frequently Asked Questions.
4	**Q:** *How is the review of the roofer/contractor shop drawings performed?* **A:** All submitted shop drawings are reviewed based on the Berridge's Typical Installation Details found at www.berridge.com
5	**Q:** *What details are warrantable by Berridge for a watertightness warranty?* **A:** Berridge will warrant any of the Typical Installation Details posted on our website.
6	**Q:** *What if I have a detail not listed in the Berridge Typical Installation Details?* **A:** The roofer/contractor must submit the detail in question to Berridge for approval; after which, Berridge will respond in writing to the roofer/contractor with a decision.
7	**Q:** *Does Berridge offer manufacturer's shop drawings?* **A:** Yes, Berridge does offer manufacturer's shop drawings. This service is provided for a fee. This fee is based on the complexity of the project. Contact the WTW Dept for more information.
8	**Q:** *Where can I obtain a Berridge watertightness warranty application form?* **A:** You can find the warranty application online under Warranties > Watertightness Warranty Application.
9	**Q:** *Does Berridge perform watertightness warranty inspections?* **A:** Yes, typically two watertightness warranty inspections are performed on each watertightness warranty project. An inspection checklist stating requirements is available on the Berridge website.
10	**Q:** *How do I set up a watertightness warranty inspection?* **A:** Upon approval of the project for a watertightness warranty, contact information for the inspector will be provided. The inspector will need to be contacted at least two weeks in advance of the requested inspection date.
11	**Q:** *Does Berridge have a roofer/contractor certification program?* **A:** Yes, Berridge provides a Roof Training Seminar. Cost is $350/attendee. Visit www.berridge.com for more information.
12	**Q:** *What warranty durations are offered by Berridge?* **A:** 2YR, 5YR, 10YR, 15YR, and 20YR. Full System (20YR-NDL) and Single Source Warranties are also available.
13	**Q:** *What does a Berridge watertightness warranty cover?* **A:** Berridge watertightness warranties cover the materials provided by Berridge and the installation of those materials.
14	**Q:** *What roof panel systems are warranted?* **A:** Tee-Panel, Curved Tee-Panel, High Seam Tee-Panel, Cee-Lock, Zee-Lock, Curved Zee-Lock, Double Lock Zee-Lock, Batten Seam Panel, and Spanish Tile systems.
15	**Q:** *What wall panel systems are warranted?* **A:** Berridge FW-12 (with the addition of a continuous bead of caulk in the female leg) and Berridge HR-16 can be warranted provided the panels are installed over solid sheathing with an ice & water shield product applied.
16	**Q:** *Is the vinyl weatherseal required for a watertightness warranty?* **A:** Yes, Berridge Vinyl Weatherseal is required.
17	**Q:** *What panel systems require Berridge Vinyl Weatherseal?* **A:** Tee-Panel, Curved Tee-Panel, Cee-Lock, Zee-Lock, and Curved Zee-Lock panel systems require the Vinyl Weatherseal. Note, the Berridge Double Lock Zee-Lock and Zee-Lock with Batten are NOT available with Vinyl Weatherseal.

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Q: *What panel systems require the use of the continuous rib?*
A: Cee-Lock, Zee-Lock, and Double Lock Zee-Lock panel systems require the use of the continuous rib.

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Q: *What underlayment materials are approved by Berridge for a watertightness warranty?*
A: Underlayment materials approved by Berridge for a watertightness warranty include – Tamko Tile & Metal Underlayment (75 mil), Tamko TW Underlayment(40 mil), Carlisle WIP 300 HT (40 mil), Mid-States Asphalt Quik-Stick HT Pro (60 mil), Soprema Lastobond Shield HT (40 mil), Grace Ice & Watershield (40 mil), Grace Ultra (30 mil), Polyglass Polystick MTS (60 mil), and 30# felt with Berridge felt caps. Note that any underlayment not listed above will require prior approval in writing from Berridge before use.

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Q: *What is the minimum slope to use 30# felt?*
A: 3:12 is the minimum slope that 30# felt can be used. A 3:12 or less roof slope will require 2 layers of 30# felt, or 1 layer of an ice & water shield product. Underlayment details are provided at www.berridge.com.

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Q: *When is an ice & watershield product required?*
A: Ice & water shield is required at all curved and tapered roof applications, and should be used at all critical areas such as hips, skylights, valleys, ridges, dormers, rake edges (gables), eaves, low slope areas, and slope changes or tie-ins. An ice & water shield product may be substituted for the 2 layers of 30# felt on slopes 3:12 or less.

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Q: *Can I put ice & water shield over 30# felt?*
A: No, ice & water shield should be applied to the roof deck first, and then 30# felt may be applied if needed.

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Q: *What sealants are approved by Berridge for a watertightness warranty?*
A: Tremco Spectrem 1, Pecora 890 NST, DOW 790, Duralink, and Titebond Metal Roof Sealant. Any sealant not listed will require prior approval in writing from Berridge before use.

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Q: *How long will it take to get an alternate product, i.e. underlayment or sealant, approved for a watertightness warranty?*
A: Berridge will need to test the products' abilities for use with our metal roofing products. Usually the testing duration will take up to and/or beyond the exposure limits of the product.

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Q: *What is the minimum slope requirement for a Berridge watertightness warranty?*
A: Minimum slope requirement is 3:12. Consult Berridge on roof slopes less than 3:12.

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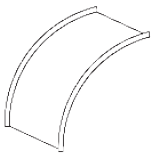
Q: *What are the minimum radii of Berridge curved roof panels?*

A:

Panel System	Convex		Concave	
Curved Tee-Panel	Min. 4'		Min. 6'	
Curved High Seam Tee-Panel (1" Legs)	Min. 5'		Min. 8'	
Curved High Seam Tee-Panel (1-1/2" Legs)	Min. 8'		NA	
Curved Zee-Lock (Single Lock)	Min. 20'		NA	
Curved Zee-Lock (Double Lock)	Consult BMC		NA	

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Q: *What roof applications are not warrantable applications for the Berridge Watertightness Warranty Program?*
A: Custom sheet metal roof applications such as domes, tapered panels or roof designs with potential for drainage problems are not warrantable applications for the Berridge Watertightness Warranty Program.

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Q: *Why are 2 clips required at the eave or at the end of any Tee-Panel or Curved Tee-Panel Snap-On Seam?*
A: The 2 Tee-Clips aid in the holding capacity of the Snap-On Seam at the ends to prevent the seam from riding up over years of thermal movement in the panel system.

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Q: *Are 2 Tee-Clips required at a Snap-On Seam splice?*
A: Yes, 2 Tee-Clips are required on both sides of the Snap-On seam splice, 2 clips above and 2 below the seam splice.

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Q: *Why are 2 clips required at the end of the panel for the Cee-Lock panel?*
A: The 2 clips aid in the holding capacity of the panel at the ends to prevent the panel from riding up over years of thermal movement in the panel system.

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Q: *What clip spacing do I need to use for the Berridge Tee-Panel or Cee-Lock panel systems?*
A: Clip spacing is job specific. Wind uplift requirements set forth in the project specifications will be the determining factor for the clip spacing on each project. Contact the Berridge Engineering Department at (800) 669-0009 for more information.

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Q: *Does Berridge offer engineering services?*
A: Yes, Berridge does perform engineering services. This service is provided for a fee. Contact the Berridge Engineering Department at (800) 669-0009 for more information.

WATERTIGHTNESS WARRANTY APPLICATION FORM

☐ 2-Year ☐ 5-Year ☐ 10-Year ☐ 20-Year ☐ Other

PROJECTED ROOFING START DATE: _____
(STARTING DATE OF DRY-IN)

PROJECTED COMPLETION DATE: _____
(ROOFING 100% COMPLETE)

BUILDING OWNER

BUILDING OWNER: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

BUILDING NAME: _____

BUILDING ADDRESS: _____

CITY/STATE/ZIP: _____

ARCHITECT

COMPANY NAME: _____

CONTACT: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

PHONE: _____

FAX: _____

ROOFING INSTALLER

COMPANY NAME: _____

CONTACT: _____

ADDRESS: _____

CITY: _____

STATE/ZIP: _____

PHONE: _____ FAX: _____

EMAIL: _____

GENERAL CONTRACTOR

COMPANY NAME: _____

CONTACT: _____

ADDRESS: _____

CITY: _____

STATE/ZIP: _____

PHONE: _____

FAX: _____

JOB DATA

NUMBER OF ROOFING SQUARES: _____ PANEL TYPE: _____ COLOR: _____

SUBSTRATE: _____ UPLIFT RATING: _____

ATTACHMENTS & OTHER REQUIREMENTS FOR THIS APPLICATION

REQUIRED FOR ALL WATERTIGHTNESS WARRANTY PROJECTS

☐ A SET OF ARCHITECTURAL SPECIFICATIONS AND PLANS SHOWING ROOF PLAN, ALL ELEVATIONS, ROOFING DETAILS ETC. MUST BE SUBMITTED PRIOR TO BID DATE FOR ACCEPTANCE OF PROJECT.

☐ TWO (2) SETS OF SHOP DRAWINGS, PREPARED IN ACCORDANCE WITH BERRIDGE REVIEW OF ARCHITECTURAL PLANS, BERRIDGE STANDARD DETAILS, AND SHOP DRAWING CHECKLIST

☐ NAME OF FOREMAN FOR THIS PROJECT. RESUME OF EXPERIENCE WILL BE REQUIRED IF NOT ON FILE AT BERRIDGE MFG CO.

_____
(Name of Foreman for this Project)

MAY BE REQUESTED IF NOT ON FILE AT BERRIDGE OR IF REQUIRES UPDATING

☐ INSTALLER STANDARD 2-YEAR ROOF WARRANTY

☐ JOB REFERENCE LIST (10 MINIMUM)

☐ CURRENT FINANCIAL STATEMENT

☐ CURRENT D&B REPORT

You will be sent an order confirmation billing you for the warranty fee. Consult your sales representative for pricing.

RETURN APPLICATION TO:

Berridge Mfg Co
1720 Maury Street
Houston, TX 77026

Phone: (800) 231-8127
Fax: (713) 236-9422
BMCWatertightDept@Berridge.com

20-YEAR WATERTIGHTNESS WARRANTY SAMPLE

BERRIDGE MANUFACTURING COMPANY
20-YEAR WATERTIGHTNESS
LIMITED WARRANTY

Building Owner: _____ Berridge Work Order Number: _____

Building /Job Name: _____ Date Roof Completed: _____

Building Location: _____ Berridge Material Furnished (sqft): _____

Berridge Manufacturing Company (hereinafter referred to as "Berridge") and the Roofing Contractor/Installer whose signature appears below (hereinafter referred to as "Roofer") severally warrant [Roofer only for any matter arising during the first two years after completion of installation of the subject roof on the above referenced Building and Berridge only for any matter first arising after the second anniversary of successful completion of installation of the subject roof but arising not later than the twentieth anniversary of such completion] to the above-named Building Owner (hereinafter referred to as "Owner") that subject to each and every term(s), condition(s), limitation(s), allocation(s) of warranty, and responsibility(ies) stated herein, Roofer's workmanship on the above-named building will be adequate to prevent leaks for 20 years commencing with the date of completion of installation of the Roofing System. This warranty will be fully satisfied by repair of the Roof, and any such repairs shall carry a warranty against leaks only for any then remaining balance of the original 20-year warranty period.

BERRIDGE'S AND ROOFER'S AGGREGATE TOTAL CUMULATIVE LIABILITY UNDER THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY IS LIMITED TO THE DOLLAR AMOUNT OF THE OWNER'S ORIGINAL PAYMENT MADE TO THEM FOR MATERIALS FURNISHED BY BERRIDGE ONLY AND FOR THE INSTALLATION OF THOSE MATERIALS ONLY. NEITHER BERRIDGE NOR ROOFER MAKES ANY OTHER WARRANTY WHATEVER, EXPRESS OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE WHICH EXCEED OR DIFFER FROM THE WARRANTIES HEREIN EXPRESSED ARE DISCLAIMED BY EACH AND ALL OF SAID PARTIES AND EXCLUDED FROM THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY. BERRIDGE DOES NOT IN ANY WAY WARRANT THE MERCHANTABILITY OF THE GOODS SOLD HEREBY. NO WARRANTIES EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

IN NO EVENT SHALL ANY ONE OR MORE OF BERRIDGE AND ROOFER HAVE ANY LIABILITY FOR ANY COMMERCIAL LOSS, CLAIMS FOR LABOR, OR CONSEQUENTIAL DAMAGES OF ANY OTHER TYPE. WHETHER OWNER'S CLAIM BE BASED IN CONTRACT, TORT, WARRANTY, STRICT LIABILITY, OR OTHERWISE, IT IS EXPRESSLY AGREED THAT OWNER'S REMEDIES EXPRESSED IN THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY ARE OWNER'S EXCLUSIVE REMEDIES.

TERMS, CONDITIONS, LIMITATIONS

1. Owner shall provide Berridge and Roofer with written notice within thirty (30) days of the discovery of any leak(s) in the Roof. Failure of the Owner to do so shall automatically relieve both Berridge and Roofer of any and all responsibility and/or liability under this 20-year Watertightness Limited Warranty.
2. In the event a roof repair is necessary during the first two-year period or any extension thereof, the Roofer's responsibility [which shall be in lieu of any and all Berridge liability during such period and any such extension(s)] shall be extended for a two-year period from the date of the last such repair. In any such case, Berridge will be responsible only for the balance remaining after the end of such period and any and all extension(s) of the original twenty (20)-year period from the date of completion of installation of the subject Roofing System.
3. If upon Berridge's inspection, Berridge determines that the leak(s) in the Roof are caused by defects in Berridge materials or in the workmanship of the Roofer, Roof repair obligations shall then arise in accordance herewith, but Owner's remedies and Berridge's liability shall in any event be limited to repair of the Roof, subject to the cost limitations set forth above. Otherwise, neither Berridge nor Roofer shall have any liability. The Roofer's two-year liability (which is in lieu of any and all Berridge liability for such period) shall be extended an additional two years from date of last repair, should such repairs be necessary during the first two years of the Roofer's liability or during any extension thereof.
4. Neither Berridge nor Roofer shall have any liability or responsibility under or in connection with either this 20-Year Watertightness Limited Warranty or the Roof, if any one or more of the following shall occur:

(a) Deterioration caused by marine (salt water) atmosphere or by regular spray of either salt or fresh water.
(b) Corrosion caused by heavy fallout or exposure to corrosive chemicals, ash or fumes from any chemical plant, foundry, plating works, kiln, fertilizer manufacturing, paper plant, and the like.
(c) Deterioration caused by any corrosive substance or any condensate of any harmful substance contained, generated or released inside the building.
(d) Damage caused by worker(s) on the roof.
(e) Any other cause beyond Berridge's control.
(f) Damage to the Roof caused by natural disasters, including, but not limited to, lightning, or any strong gale, hurricane, tornado, or earthquake.
(g) Failure by any contractor or subcontractor to follow Berridge's recommended installation instructions for the layout, design and installation of the Roof.

1/3/05

20-YEAR WATERTIGHTNESS WARRANTY SAMPLE

(h) If, after installation of the Roof by Roofer, there are any alterations, such as, but not limited to, structures, fixtures, or utilities being placed upon or attached to the roof without prior written authorization from Berridge, or

(i) If there is any failure by the Owner or lessee or other occupant or user to use reasonable care in maintaining the Roof, or

(j) If Owner fails to comply with every term and/or condition stated in this 20-Year Watertightness Limited Warranty, or

(k) If any panels or other parts are installed in a manner that does not permit drainage of water from all surfaces.

(l) Berridge shall not have any liability or responsibility with leakage caused by ridge vents.

(m) Berridge shall not have any liability or responsibility with failure of gutters and gutter accessories.

(n) Failure of roofing installation and the materials supplied by Berridge for the flashings and metal roofing due to reaction of dissimilar metals will not be the responsibility of Berridge and Berridge will not be held liable for any claims due to failures caused by dissimilar metals.

5. Berridge shall not have any liability or responsibility under or in connection with either this 20-Year Watertightness Limited Warranty or the Roof in the event of a failure by any contractor or subcontractor to use approved installation details for roof curbs, roof jacks, sealants, mastics, subframing, and flashing furnished by Berridge, [or to substitute therefor only products approved in writing in advance by Berridge as equal (if provided by the contractor or subcontractor)].

6. During the term of this Warranty, Berridge, its Sales Representatives and employees, shall have free access to the roof during regular business hours.

7. Berridge shall not have any obligation under this 20-Year Watertightness Limited Warranty until (a) Shop drawings outlining the application of roofing materials are submitted to Berridge by the Roofer and accepted in writing by Berridge. Such drawings must show the exact number, size and location of all roof penetrations and rooftop equipment and (b) Photographs of the roof installation showing the items described in subparagraph (a) above as well as any items required in Berridge field inspection reports are submitted to Berridge by the Roofer.

8. This Warranty is not valid until a fully executed original has been returned to Berridge

9. Berridge shall not have any obligation under this 20-Year Watertightness Limited Warranty until all invoices for installation, supplies and services have been paid in full to each of Berridge and Roofer and each material supplier.

10. Neither Berridge nor Roofer shall be responsible for any consequential damages or loss to the building, its contents or other materials.

11. Neither Berridge nor Roofer's failure at any time to enforce any of the terms or conditions stated herein shall be construed to be a waiver of such provision or of the right to exercise any right in the future.

12. This 20-Year Watertightness Limited Warranty supersedes and is in lieu of any and all other warranties (whether express or implied) that are either in addition to or in conflict with the term(s) and condition(s) stated herein. **ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE WHICH EXCEED OR DIFFER FROM THE WARRANTIES HEREIN EXPRESSED ARE DISCLAIMED BY EACH AND ALL OF SAID PARTIES AND EXCLUDED FROM THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY.**

13. If the subject roof is covered by products of more than one roofing products manufacturer, this 20-Year Watertightness Limited Warranty applies only to those portions of such roof which are covered solely by Berridge manufactured products.

14. Notwithstanding any other provision of this 20-Year Watertightness Limited Warranty, Berridge shall not have any liability or responsibility at any time for or as a consequence of any condensation or underside corrosion which is or was caused at any time in part or wholly by any condensation resulting from either or both of the following: (a) The use of an inadequate vapor barrier where the insulation is installed immediately beneath the roof panels. An adequate vapor barrier is defined as one which has a perm rating of .05 or less with sealed joints and perimeter.(b) Inadequate ventilation of the attic space between a roof panel and insulation, when insulation is installed directly on top of an existing roof.

15. Roofing installation must be supervised by an authorized Berridge Installer or an individual that has been factory trained in the installation of Berridge roofing products.

16. Berridge roof panels must be made of a material supplied by Berridge or approved by Berridge.

WARRANTY RESPONSIBILITY:

1st through 2nd Year, plus any applicable extension period(s) as described hereinabove: — ROOFER

The thereafter remaining balance of the first 20 years from date of completion of installation of the subject Roof. — BERRIDGE MFG. CO.

This 20-Year Watertightness Limited Warranty is tendered for the sole benefit of the original purchaser as named below and is not transferable or assignable. It becomes valid only when signed by each of Roofer, Owner and Berridge.

EXCEPT ONLY AS EXPRESSLY PROVIDED HEREIN, BERRIDGE MAKES NO REPRESENTATION(S) OR WARRANTY(IES) OF MERCHANTABILITY AND WARRANTY(IES) OF FITNESS FOR ANY PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED, WITH RESPECT TO THE GOODS AND/OR SERVICES COVERED HEREBY. NOR DOES BERRIDGE MAKE ANY WARRANTY OR ASSUME ANY OBLIGATION WITH RESPECT TO THE VALIDITY OF ANY PATENT(S), DESIGN(S), COPYRIGHT(S), OR TRADEMARK(S) WHICH MAY COVER ANY OF SUCH GOODS. THE CONDITIONS OF LIABILITY, RIGHTS, OBLIGATIONS AND REMEDIES OF THE PARTIES RELATING TO CLAIMS ARISING FROM ANY DEFECTIVE GOODS AND/OR WORKMANSHIP SHALL BE GOVERNED EXCLUSIVELY BY THE TERMS HEREOF. THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY MAY NOT BE CHANGED ORALLY.

This 20-Year Watertightness Limited Warranty shall be governed by and construed and enforced in accordance with the laws of the State of Texas. Berridge, Roofer and Owner specifically agree that any legal action brought relating to this Warranty will be brought and tried in the United States District Court For the Southern District of Texas, Houston Division, or, in absence of federal jurisdiction, in a District Court of Harris County, Texas, in Houston, Texas.

Roofing Contractor/Installer:

_____
Company Name

_____
Signature

_____ _____ _____
Typewritten Name Title Date

Owner:

_____
Company Name

_____
Signature

_____ _____ _____
Typewritten Name Title Date

_____ _____
Berridge Manufacturing Company Date

1/3/05

SHOP DRAWING GUIDELINES

Please use this checklist as a guide to help prepare shop drawings:

☐ Name and location of project and name of roofing installer printed on every page

INSTALLATION INSTRUCTIONS

☐ Written instructions for the general handling and installation of panels, flashing, underlayment and fasteners (Berridge has produced such instructions for its roofing systems and with a degree of modification can be tailored to meet the requirements of individual projects)

UNDERLAYMENT

☐ Underlayment details showing type of underlayment, method of installation and how underlayment is installed in relationship to flashings, decking, blocking, etc. (Berridge has produced such details for its roofing systems and with a degree of modification can be tailored to meet the requirements of individual projects)

ROOF PLAN

☐ Roof plan shows all roof slopes

☐ Berridge panel system(s) called out on roof plan

☐ Roof plan shows all roof penetrations (plumbing stacks etc.)

☐ Detail section cuts called out for every detail

PANEL(S) OVERVIEW

☐ Section of panel with dimensions of panel, seams, type of clip or continuous rib and type of vinyl weatherseal

DETAILS

Each detail shall show and have explanatory notes on the following:

☐ Panel system

☐ Type of clip or continuous rib (2 clips are required at eave and valley)

☐ Vinyl weatherseal

☐ Substructure, open framing purlins, solid sheathing

☐ Underlayment type called out and locations shown

☐ Additional layers of underlayment required at eave, valley, gable, etc. refer to Berridge typical details

☐ Flashings and counter flashings

☐ Flashing laps called out to a minimum of 4", 12" for valleys

☐ Laps caulked w/ Tremco Spectrem One caulking.

☐ Spacing of fasteners at flashings

☐ Any field work such as cutting or forming of panels or flashings

☐ All components required to produce a functional and aesthetically pleasing roof system

The panel and underlayment requirements will be determined during the Berridge Manufacturing Co. review of the Architectural drawings. Please refer to these requirements during your production of shop drawings. Submit (2) sets of shop drawings along with an Application Form for a Berridge Watertightness Warranty for review and approval.

Shop drawings must show the relationship between the roof panel, panel clips/rib, flashings, fasteners, underlayment, caulking, penetrations the building, and all areas of the roof.

PRE-INSTALLATION INSPECTION GUIDE

Please use this checklist as a guide for inspection preparations:

First "pre-installation" inspection, substructure, underlayment, trim/flashing installation, etc. During the inspection, a foreman or project manager from the roofing installer is to accompany the Berridge inspector at the job site, access is to be provided by the roofing installer to all roof surfaces and or all buildings.

- ☐ Berridge Manufacturing Co. approved shop drawings are on the job site

SUBSTRUCTURE

- ☐ Sheathing and/or purlins in plane
- ☐ Sheathing end joints meet at joist
- ☐ Sheathing meets (no gaps) at hips, ridges, valleys eave, etc.
- ☐ Sheathing and/or purlins in same plane w/ fascia, rake, eave, etc.
- ☐ Insure solid sheathing is used under all valleys

UNDERLAYMENT

- ☐ Review Berridge-approved shop drawings for correct types of underlayments to be used
- ☐ Sweep deck clean prior to installation of underlayment
- ☐ Use galvanized or coated fasteners (never common steel)
- ☐ Use Berridge galvanized cap washers to prevent tear thru
- ☐ Install underlayment at valleys first
- ☐ Install underlayment parallel to eave, starting at eave
- ☐ Additional layers of underlayment required at eave, valley, gable, etc. Refer to Berridge approved shop drawings
- ☐ Underlayment is in good condition; tears, holes, dried out, wrinkling, etc. has been repaired or replaced

TRIM & FLASHING

- ☐ Review Berridge approved shop drawings for correct trim and flashings to be used
- ☐ Strippable plastic film has been removed
- ☐ End joints staggered where one flashing is installed over another
- ☐ Flashings lapped a minimum 4", valley 12"
- ☐ Laps caulked w/ Tremco Spectrem One caulking per Berridge approved shop drawings
- ☐ Caulking used only at locations shown in Berridge approved shop drawings.
- ☐ Extra underlayment used at eave, valley, gable, etc.

ROOF PENETRATIONS

- ☐ Insure proper flashings and solid sheathing is used per Berridge approved shop drawings

CLEAN-UP

- ☐ Clean all debris, especially metal shavings or drillings from valleys, gutters and entire roof daily. Use touch-up paint on scratches. Replace any damaged panels or flashings

First inspection to be performed upon completion of underlayment and flashing installation. Second inspection to be performed upon conclusion of roof panel installation. During the field inspections the decking and or purlin structure, underlayment, panel installation, flashings, caulking, valleys, penetrations and all areas of the roof will be inspected. This inspection will be for compliance to the Berridge approved shop drawings.

POST-INSTALLATION INSPECTION GUIDE

Please use this checklist as a guide for inspection preparations:

Second "post-installation" inspection, trim/flashing installation, panel/seams, etc. During the inspection, a foreman or project manager from the roofing installer is to accompany the Berridge inspector at the job site, access is to be provided by the roofing installer to all roof surfaces and or all buildings.

- ☐ Berridge Manufacturing Co. approved shop drawings are on the job site

SUBSTRUCTURE

- ☐ Sheathing and or purlins in plane
- ☐ Sheathing end joints meet at joist
- ☐ Sheathing meets (no gaps) at hips, ridges, valleys eave, etc.
- ☐ Sheathing and or purlins in same plane w/ fascia, rake, eave, etc.

UNDERLAYMENT

- ☐ Review Berridge approved shop drawings for correct types of underlayments to be used

TRIM & FLASHING

- ☐ Review Berridge approved shop drawings for correct trim and flashings to be used

PANEL & SEAMS

- ☐ Strippable plastic film has been removed from panel and seams
- ☐ Each panel is to be kept tight against the leg of the adjoining panel
- ☐ Panel legs are straight, without any bends, crimps, creases, etc. prior to seam installation
- ☐ Use proper panel clip or continuous rib
- ☐ Inspect vinyl in seam or on continuous rib, make sure vinyl is properly seated in seam or attached to continuous rib
- ☐ Install seams and/or machine seams as panels are installed

EAVE / VALLEY

- ☐ Panel pan must be restrained review Berridge approved shop drawings for proper method
- ☐ 2 panel clips must be used at end of panel at eave and or valley if continuous rib not used
- ☐ Insure solid sheathing is used under all valleys

HIP / RIDGE

- ☐ Inspect Zee closure for proper and complete caulking along vertical leg to panel seam and between bottom of Zee and panel pan
- ☐ Insure Zee closure in securely fastened to substructure below panels
- ☐ Pop rivet hip or ridge flashing to Zee closure per Berridge approved shop drawings

ROOF PENETRATIONS

- ☐ Insure proper flashings and solid sheathing is used per Berridge approved shop drawings

CLEAN-UP

- ☐ Clean all debris, especially metal shavings or drillings from valleys, gutters and entire roof daily. Use touch-up paint on scratches. Replace any damaged panels or flashings

First inspection to be performed upon completion of underlayment and flashing installation. Second inspection to be performed upon conclusion of roof panel installation. During the field inspections the decking and or purlin structure, underlayment, panel installation, flashings, caulking, valleys, penetrations and all areas of the roof will be inspected. This inspection will be for compliance to the Berridge approved shop drawings.

BERRIDGE

Roofs of Distinction

SECTION 2
COMMON DETAILS

- **COMMON DETAILS**
- **UNDERLAYMENT DETAILS**

For the most up-to-date information visit *www.berridge.com*

SECTION 2 COMMON INSTALLATION DETAILS

COMMON DETAILS

UNDERLAYMENT DETAILS

NOTE:

The details contained in this manual are merely recommendations as to how Berridge Manufacturing Company materials should be installed. They may require adaptations or modifications for a specific project, as conditions vary in both building design and local climatic conditions.

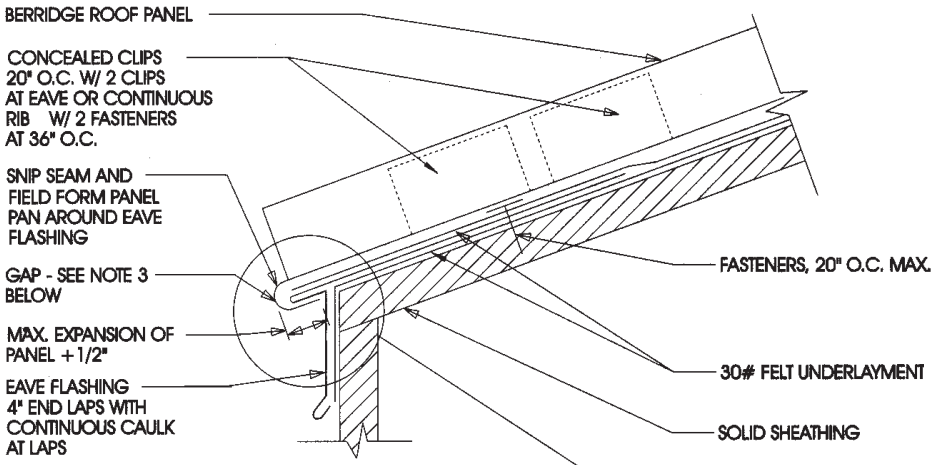
Berridge Manufacturing Company shall be held harmless from any and all claims arising from lack of watertightness as a result of following these recommended details. Ensuring watertightness on any given project is the function of the installer. The architect, general contractor or installer must accept the responsibility to adapt these details to meet particular building requirements and assure adequate watertightness.

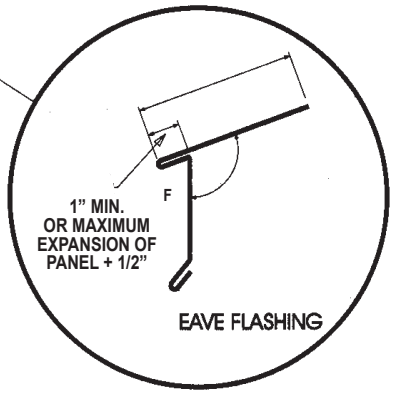
The installer can virtually assure watertightness if these details have been properly adapted, adequate laps have been provided, correct type of underlayment and sealant used, all joints adequately caulked and professional workmanship employed.

Should a watertightness warranty be required on a specific project, please refer to the procedures outlined in the "Design Guide" section of this manual. These procedures must be adhered to in order for Berridge to issue any type of watertightness warranty.

COMMON DETAILS

EAVE DETAIL





1 AS ROOFING PANELS ARE INSTALLED CUT THE PANEL LEG AND FIELD FORM THE PANEL PAN AROUND THE EAVE FLASHING, LENGTH OF PANEL PAN TURN UNDER TO ACCOMMODATE PANEL EXPANSION AND CONTRACTION, REFERENCE PANEL TYPICAL DETAILS ON BERRIDGE WEB SITE.

2 THE GAP BETWEEN EAVE FLASHING AND PANEL (SEE DETAIL ABOVE) CAN BE INCREASED TO ALLOW FOR LINEAR EXPANSION AND CONTRACTION OF PANELS. NOTE 1/2" OF PANEL PAN MUST BE ENGAGED WITH EAVE FLASHING WHEN PANEL HAS EXPANDED TO ITS MAXIMUM LENGTH. REFER TO LINEAR EXPANSION CHART.

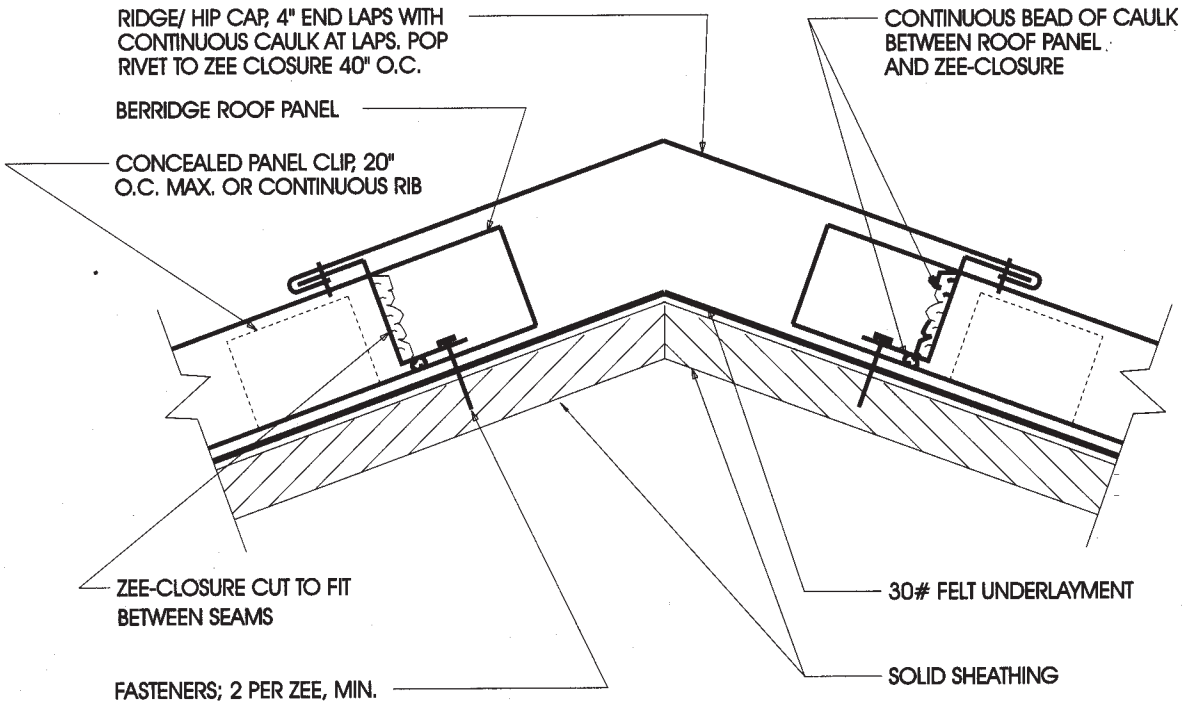
3 GAP BETWEEN EAVE FLASHING AND PANEL MUST BE ADJUSTED TO SUIT TEMPERATURE DURING INSTALLATION.

4 IF SOLID SHEATHING (BY OTHERS) IS USED, SHEATHING MUST BE 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

5 ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

COMMON DETAILS

RIDGE/HIP DETAILS

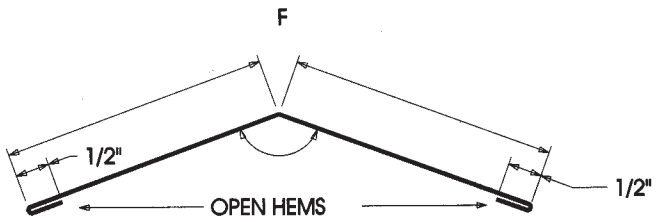


1 FIELD CUT ZEE-CLOSURE TO FIT BETWEEN PANEL SEAMS.

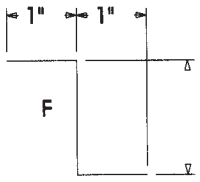
2 IF SOLID SHEATHING (BY OTHERS) IS USED,SHEATHING MUST BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

3 ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT

F= FINISH SIDE



RIDGE/HIP CAP



ZEE CLOSURE

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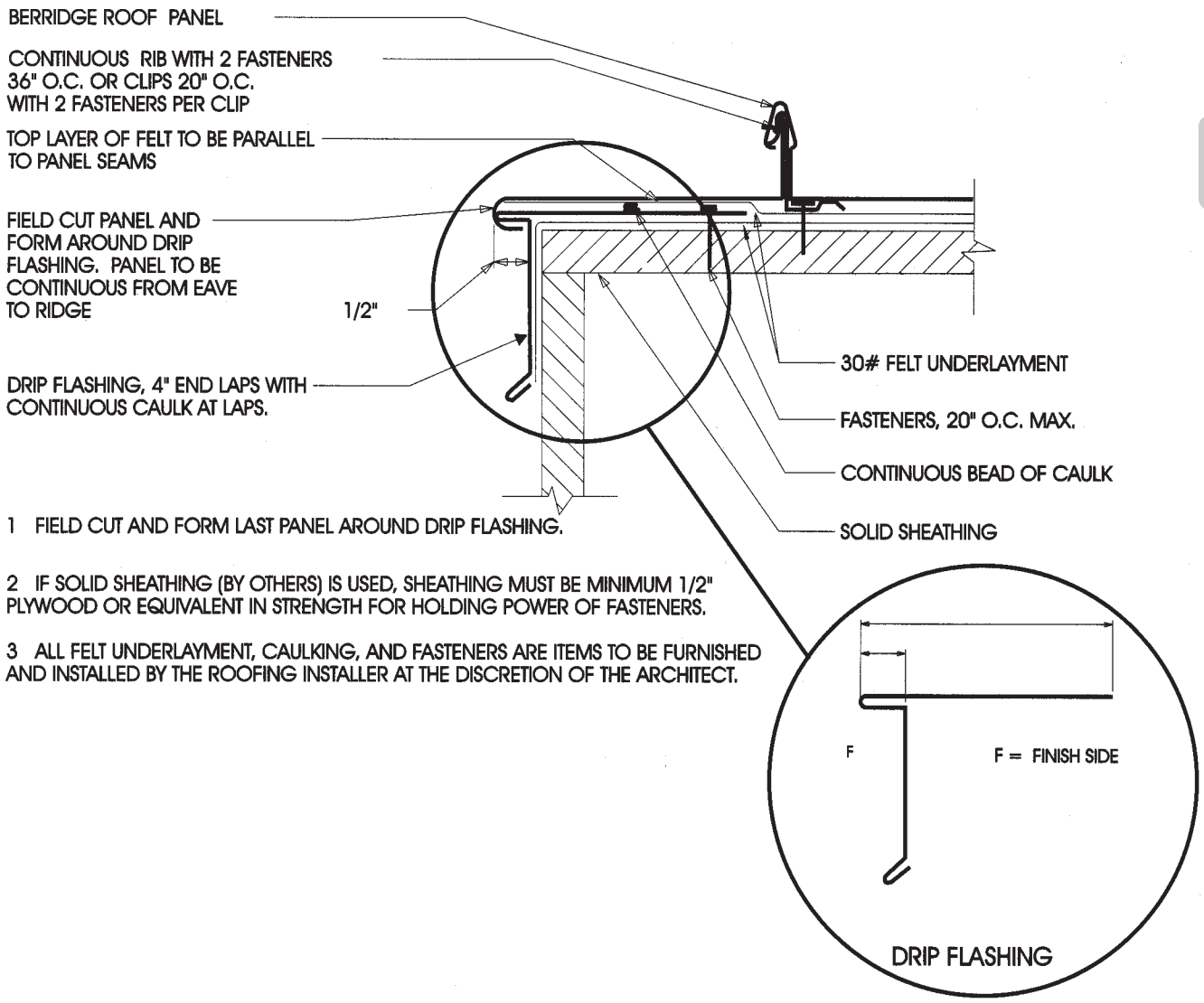
6515 Fratt Road, San Antonio, TX 78218 | 800-669-0009 | Fax 210-650-0379

COMMON DETAILS

GABLE DETAIL



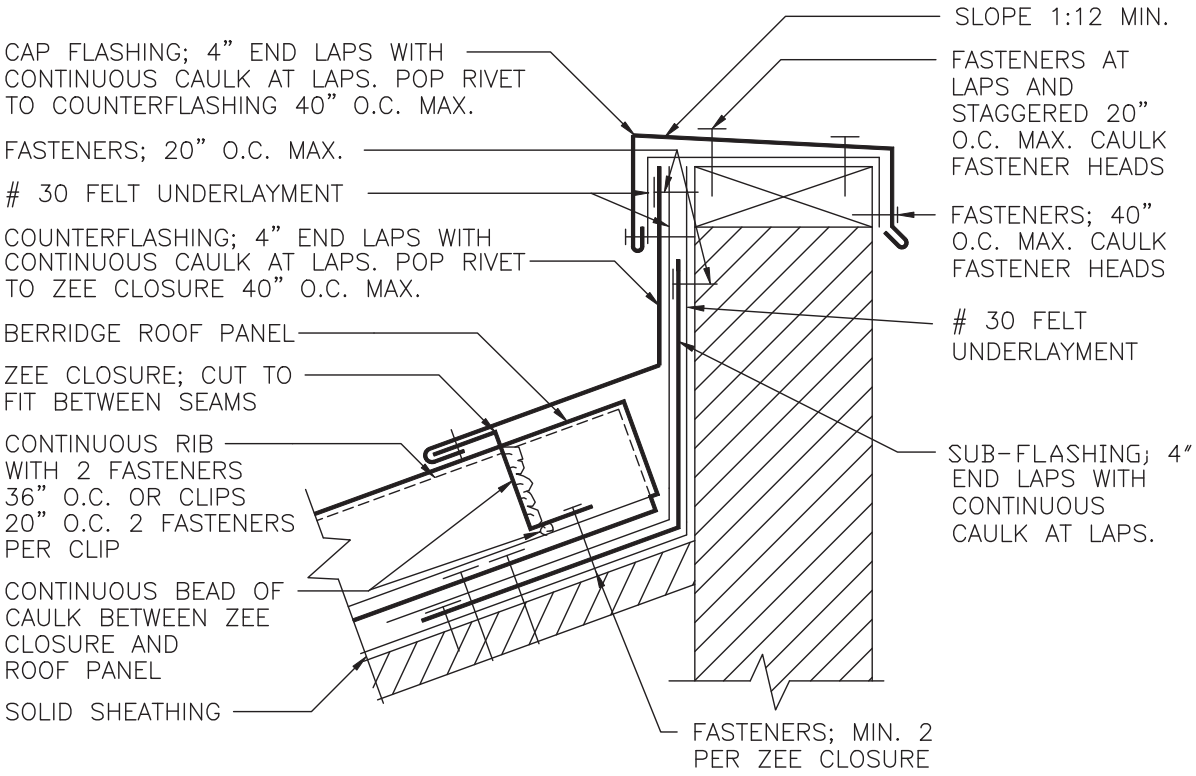
1 FIELD CUT AND FORM LAST PANEL AROUND DRIP FLASHING.

2 IF SOLID SHEATHING (BY OTHERS) IS USED, SHEATHING MUST BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

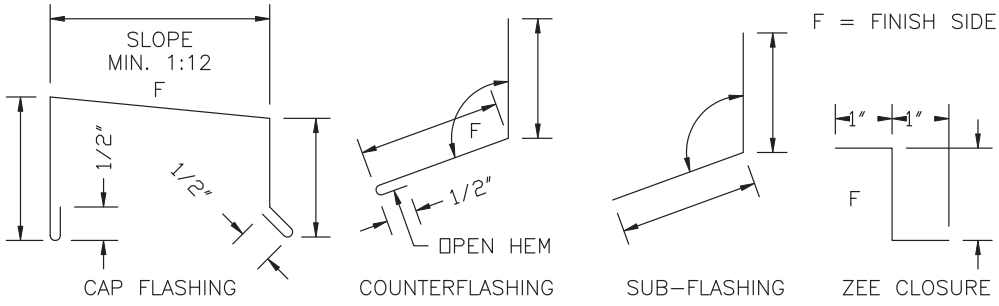
3 ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

COMMON DETAILS

PARAPET WALL DETAIL



1. FIELD CUT ZEE CLOSURE TO FIT BETWEEN PANEL SEAMS.
2. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
3. ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



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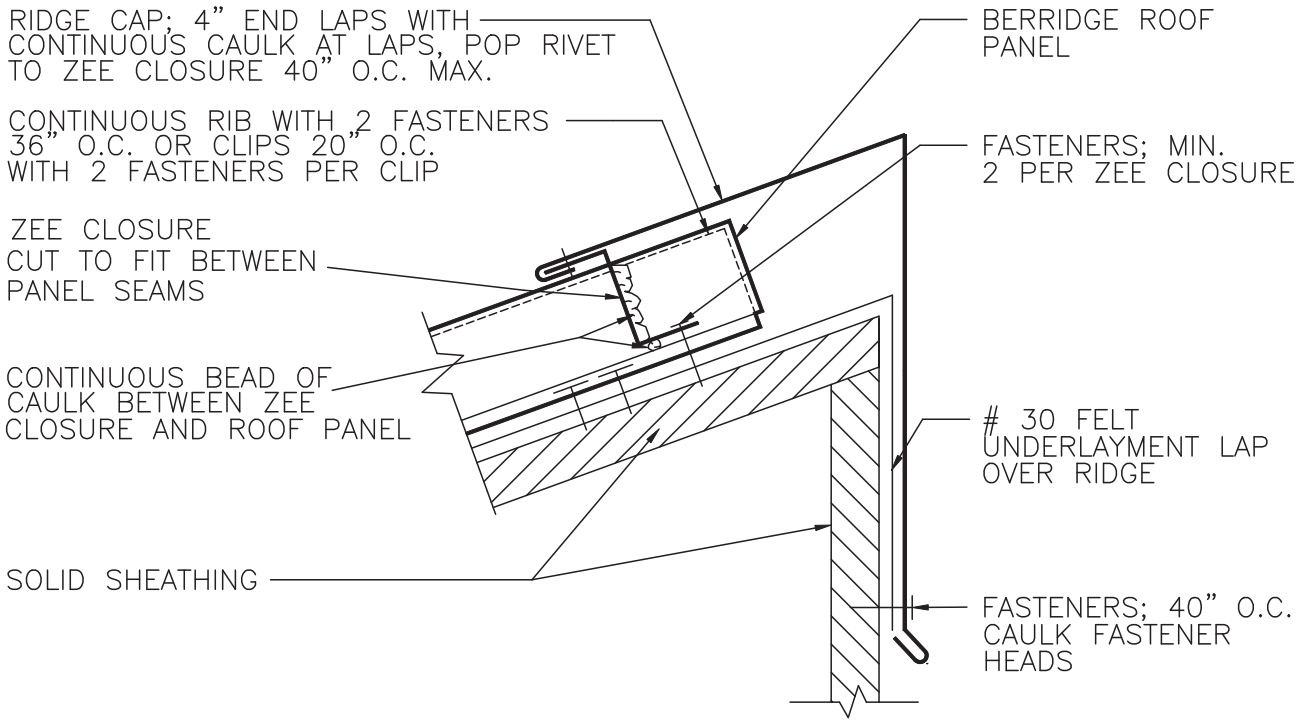
COMMON DETAILS

SHED ROOF RIDGE DETAIL

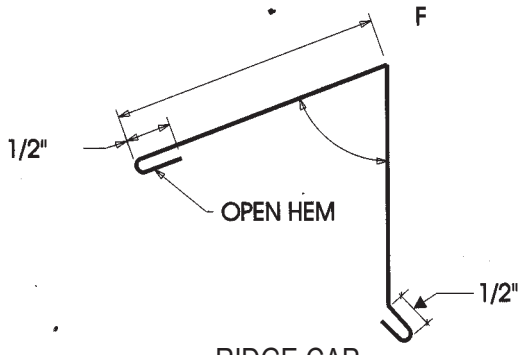


1 FIELD CUT ZEE-CLOSURE TO FIT BETWEEN PANEL SEAMS.

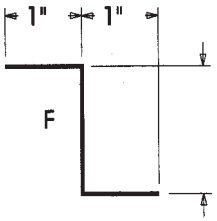
2 SOLID SHEATHING (BY OTHERS) MUST BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

3 ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT

F= FINISH SIDE



RIDGE CAP

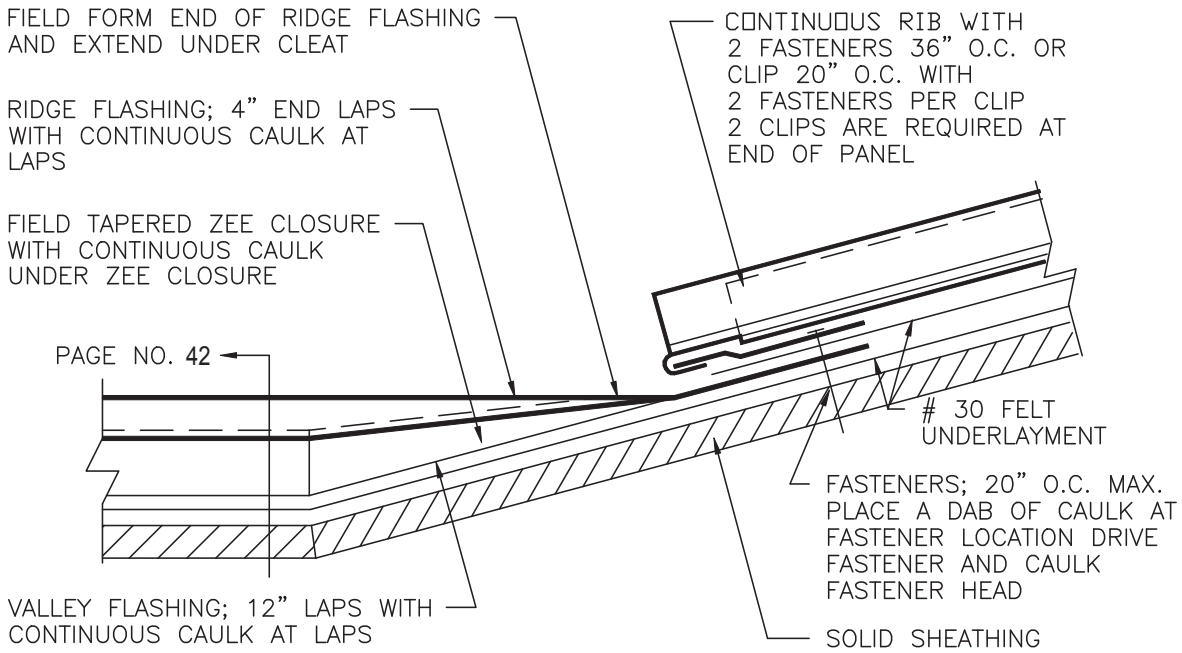


ZEE CLOSURE

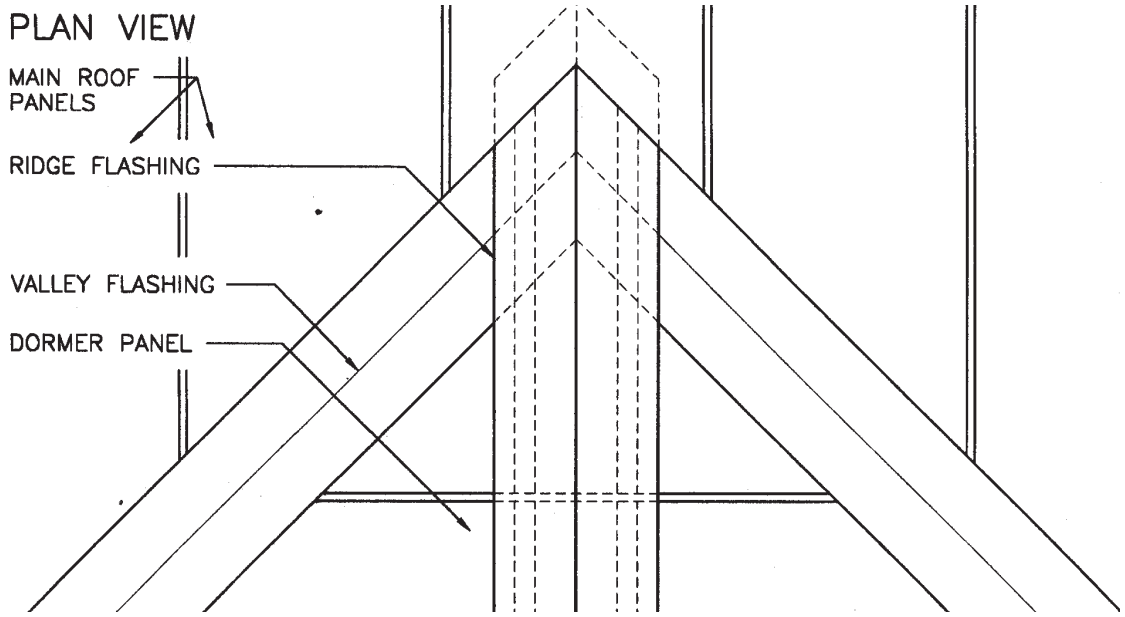
COMMON DETAILS

RIDGE TERMINATION AT DORMER VALLEY

SECTION VIEW



PLAN VIEW



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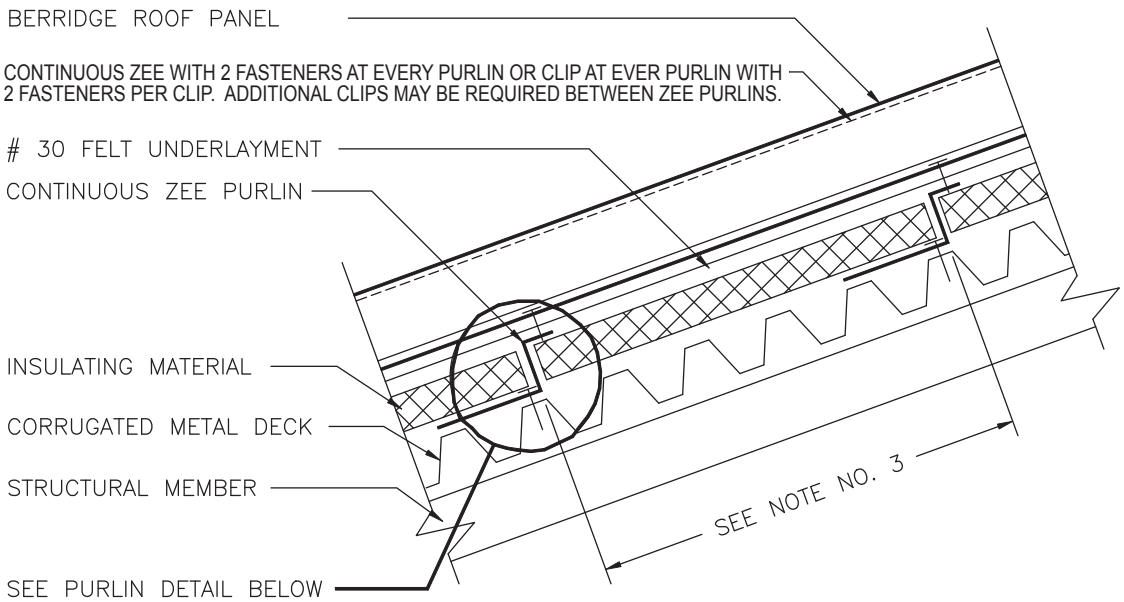
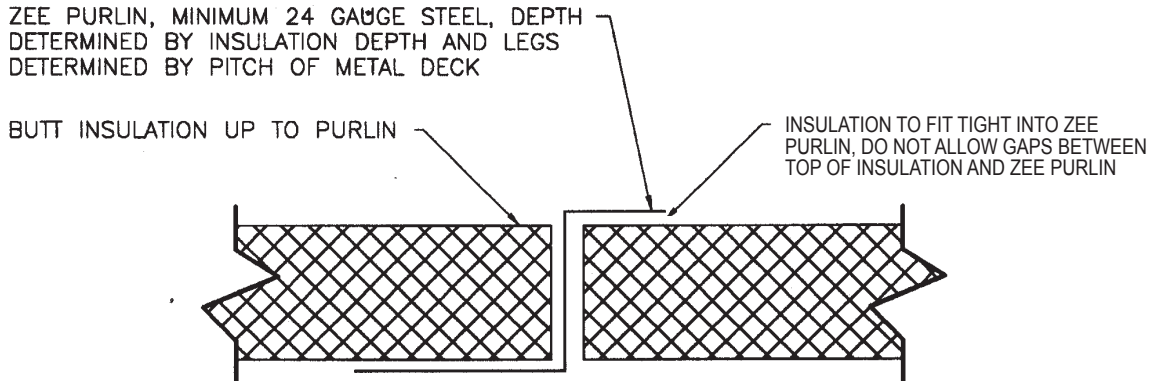
COMMON DETAILS

INSULATED DECK DETAIL



NOTES:

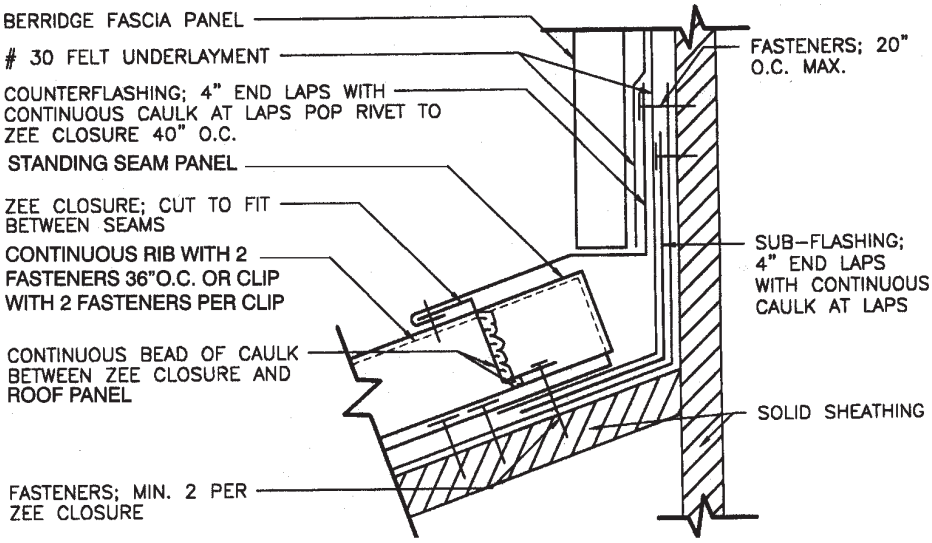
1. ALL FELT UNDERLAYMENT, STRUCTURAL MEMBERS, CORRUGATED DECK, AND INSULATING MATERIAL, ARE ITEMS TO BE FURNISHED AND INSTALLED BY OTHERS AT THE DISCRETION OF THE ARCHITECT.
2. CONTINUOUS WOOD BLOCKING (BY OTHERS) MAY BE USED IN LIEU OF ZEE PURLINS. BLOCKING MUST BE SAME DEPTH AS INSULATION.
3. PURLIN SPACING AND FASTENER TYPE WILL BE DEPENDENT ON GOVERNING CODE AND SPECIFICATION REQUIREMENTS.



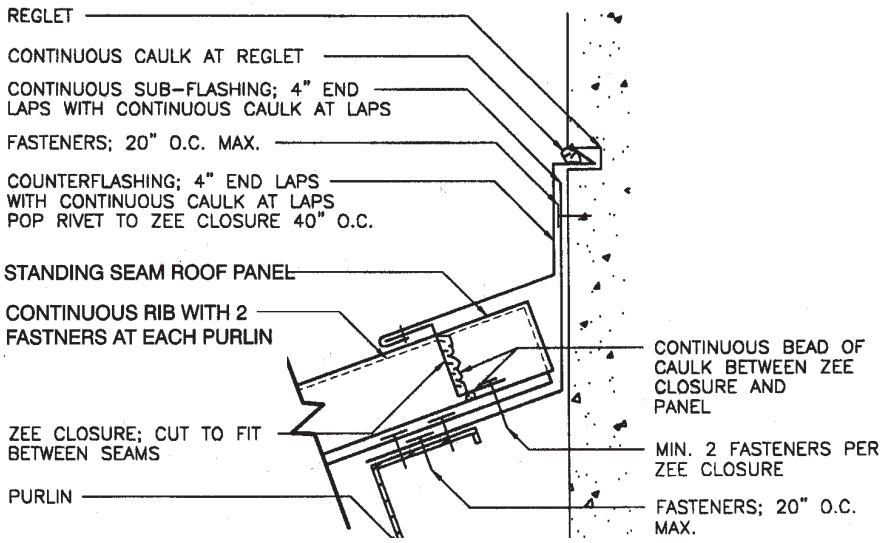
COMMON DETAILS

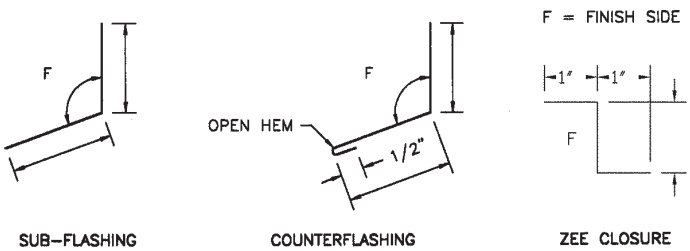
HEAD WALL DETAILS

HEAD WALL WITH FASCIA PANEL - SOLID SUBSTRATE



HEAD WALL WITH REGLET FLASHING - OPEN FRAMING



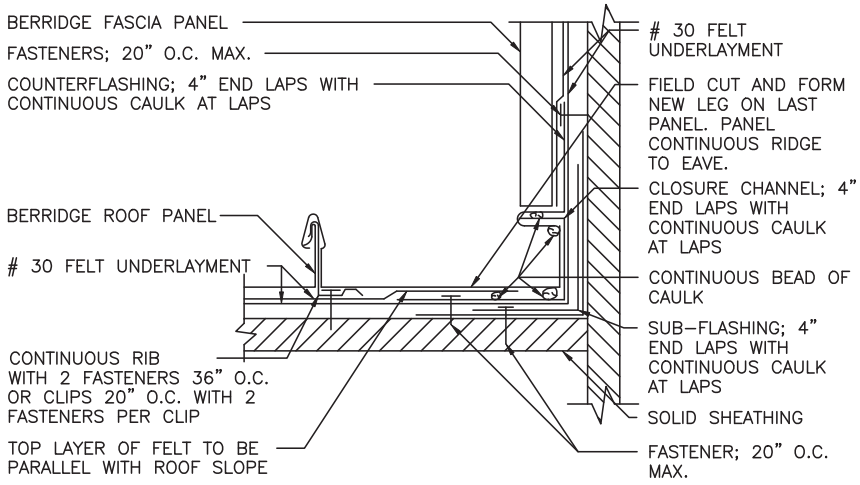


SUB-FLASHING COUNTERFLASHING ZEE CLOSURE

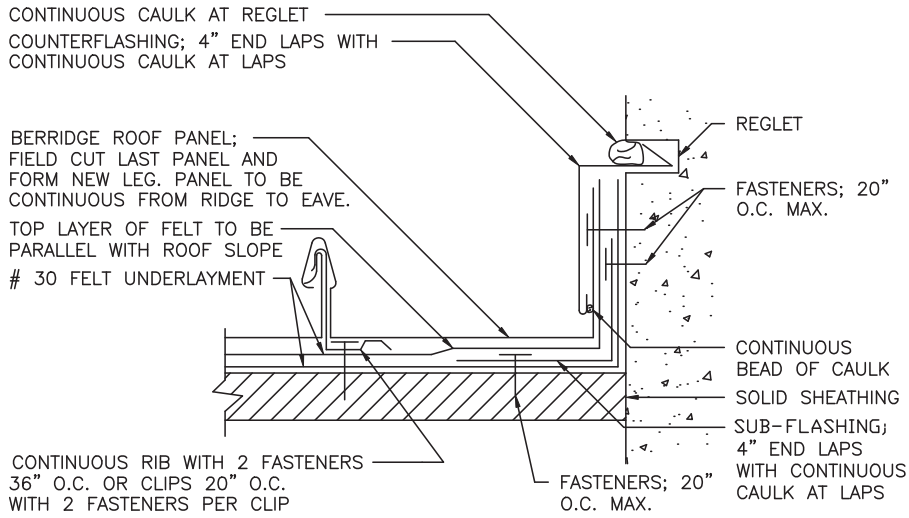
COMMON DETAILS

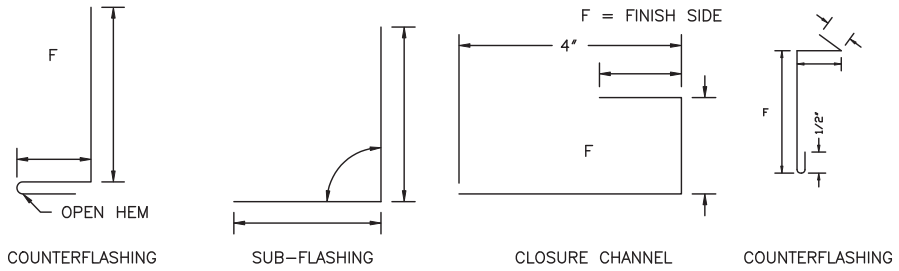
RAKE WALL DETAILS

RAKE WALL WITH FASCIA PANEL - SOLID SUBSTRATE



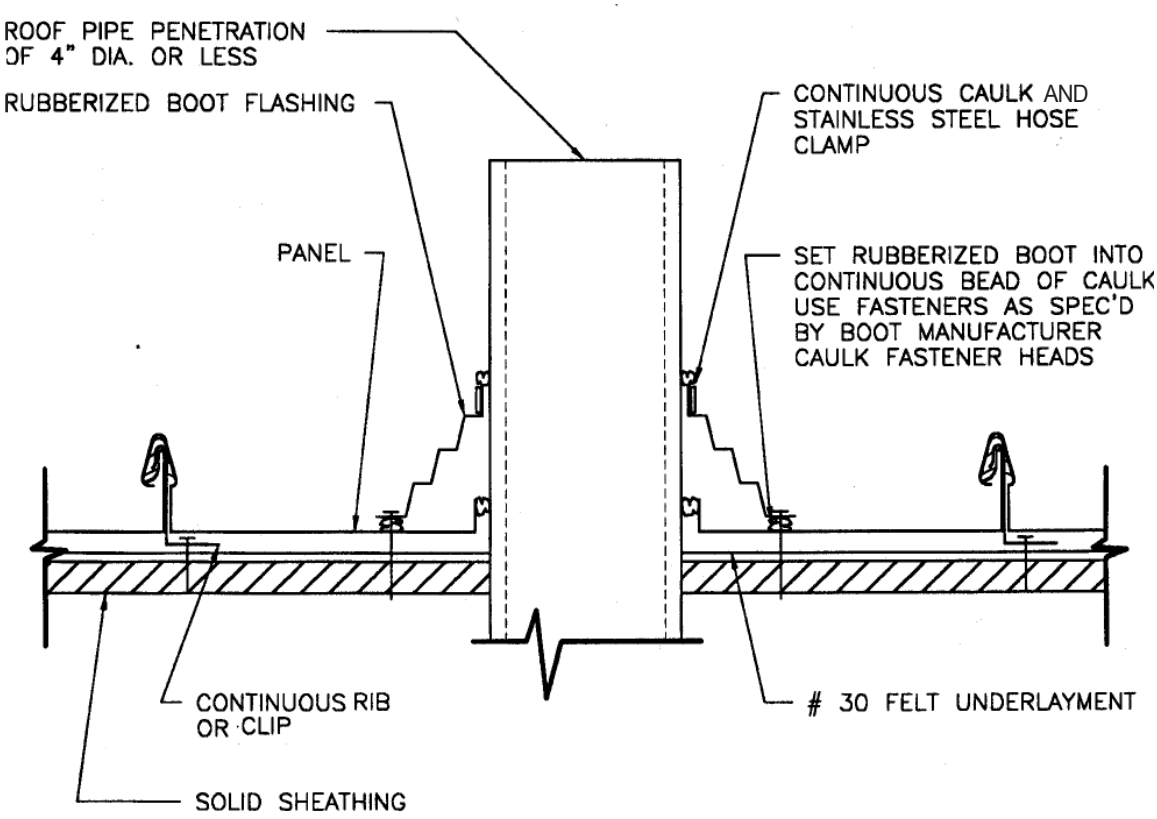
RAKE WALL WITH REGLET FLASHING - SOLID SUBSTRATE





COMMON DETAILS

ROUND PENETRATIONS DETAIL



NOTE: PIPE PENETRATION TO BE IN PAN OF PANEL ONLY

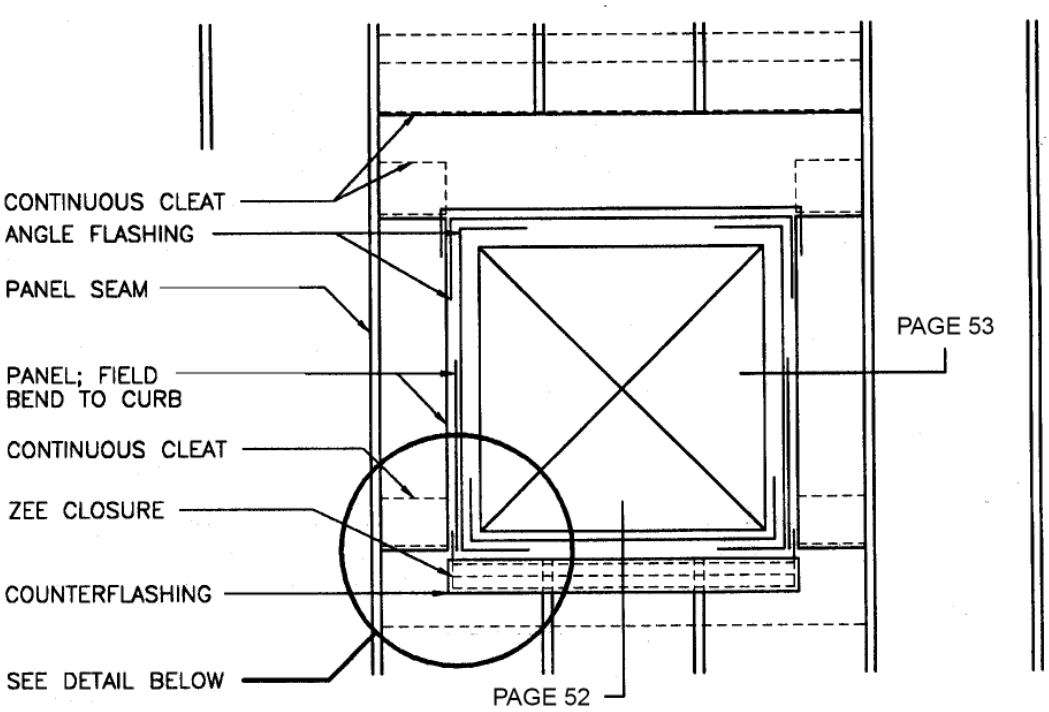
NOTE: FIELD CUT HOLE IN PANEL 1" LESS THAN DIA. OF STACK. BACK CUT HOLE AND BEND PANEL UP AROUND STACK. CAULK CONTINUOUS.

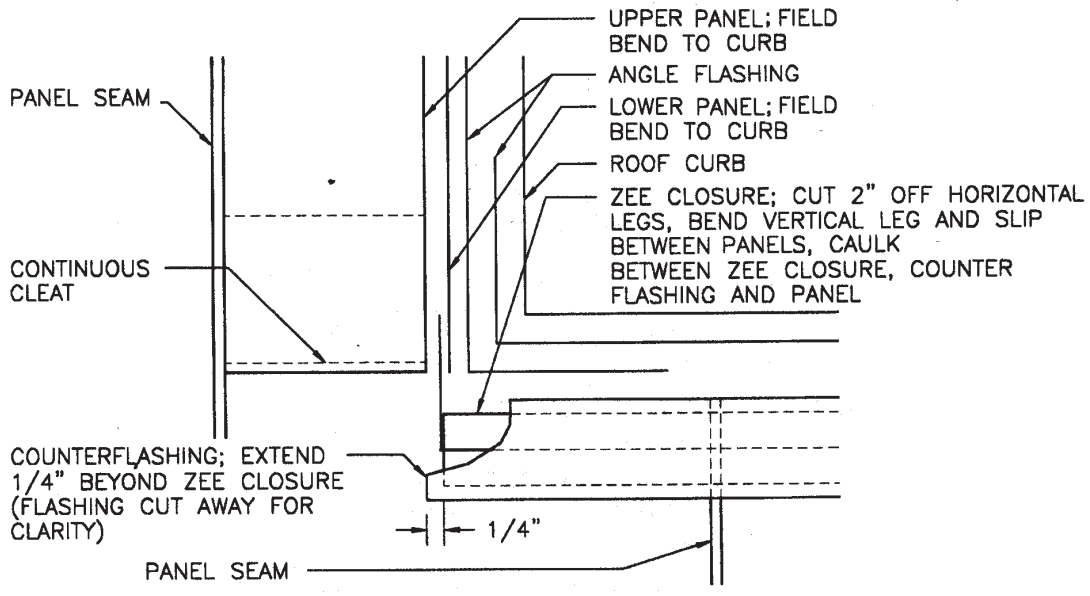
NOTE: IF PANELS ARE 30' OR LONGER, CUT HOLE TO ALLOW FOR THERMAL MOVEMENT.

NOTE: IF PIPE IS METAL, IT MUST BE PAINTED TO PREVENT RUST RUN-OFF FROM STAINING PANELS.

COMMON DETAILS

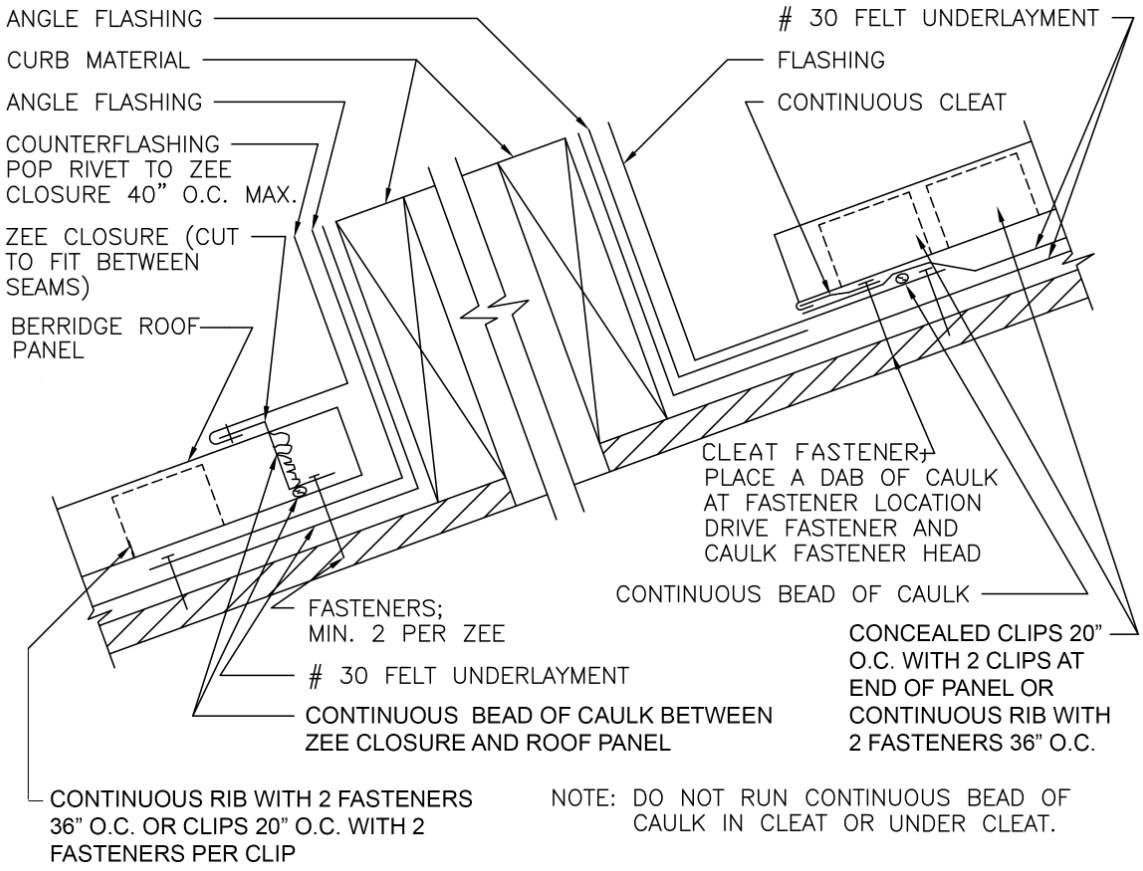
SQUARE PENETRATIONS: PLAN VIEW





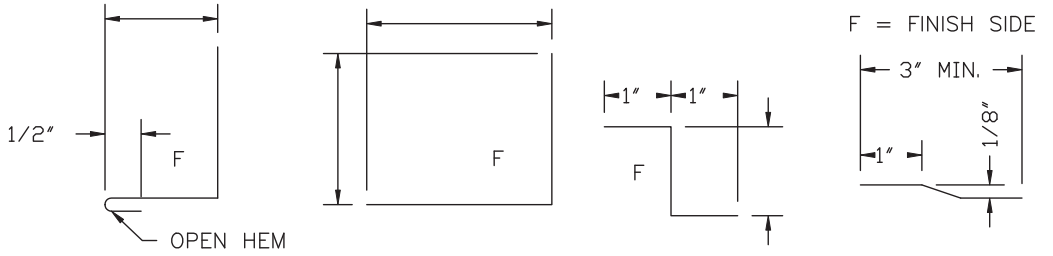
COMMON DETAILS

SQUARE PENETRATIONS: SECTION VIEW



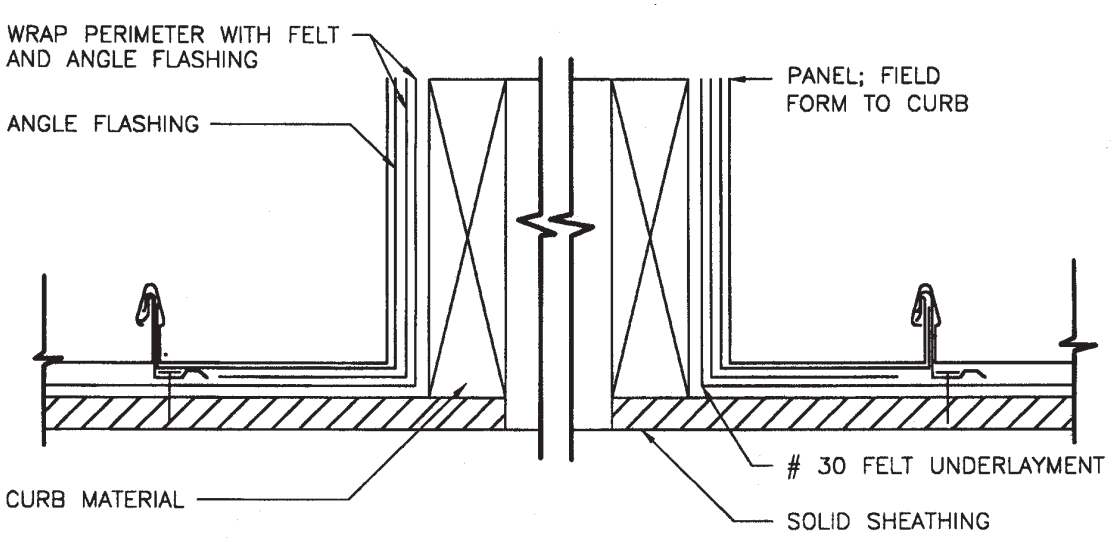
NOTES:

1. SOLID SHEATHING IS REQUIRED AT THIS CONDITION WHEN THE PANEL IS USED OVER OPEN FRAMING
2. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS. (METAL CORRUGATED SHEATHING MAY BE USED IN LIEU OF PLYWOOD).
3. ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



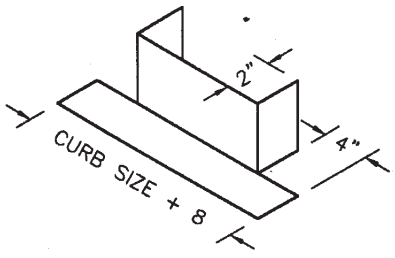
COMMON DETAILS

SQUARE PENETRATIONS: SECTION VIEW

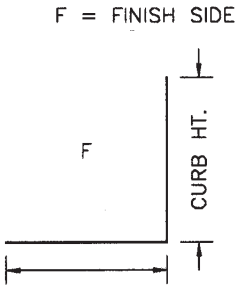


NOTES:

1. SOLID SHEATHING IS REQUIRED AT THIS CONDITION WHEN THE PANEL IS USED OVER OPEN FRAMING
2. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS. (METAL CORRUGATED SHEATHING, MIN. 24 GA. MAY BE USED IN LIEU OF PLYWOOD).
3. ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



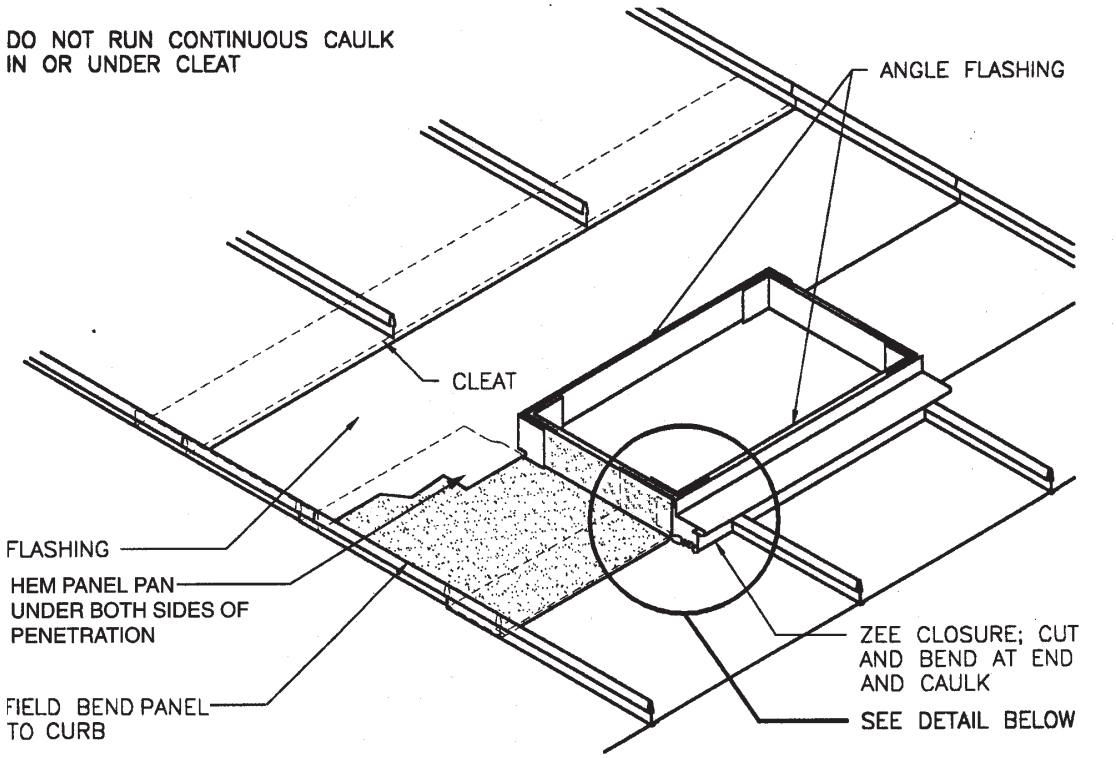
WRAP FLASHING

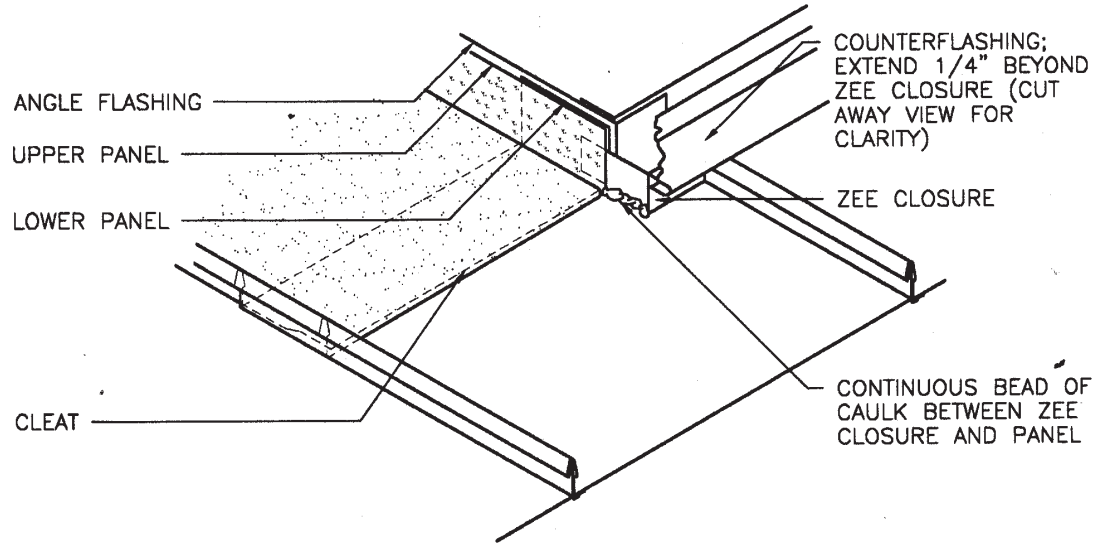


ANGLE FLASHING

COMMON DETAILS

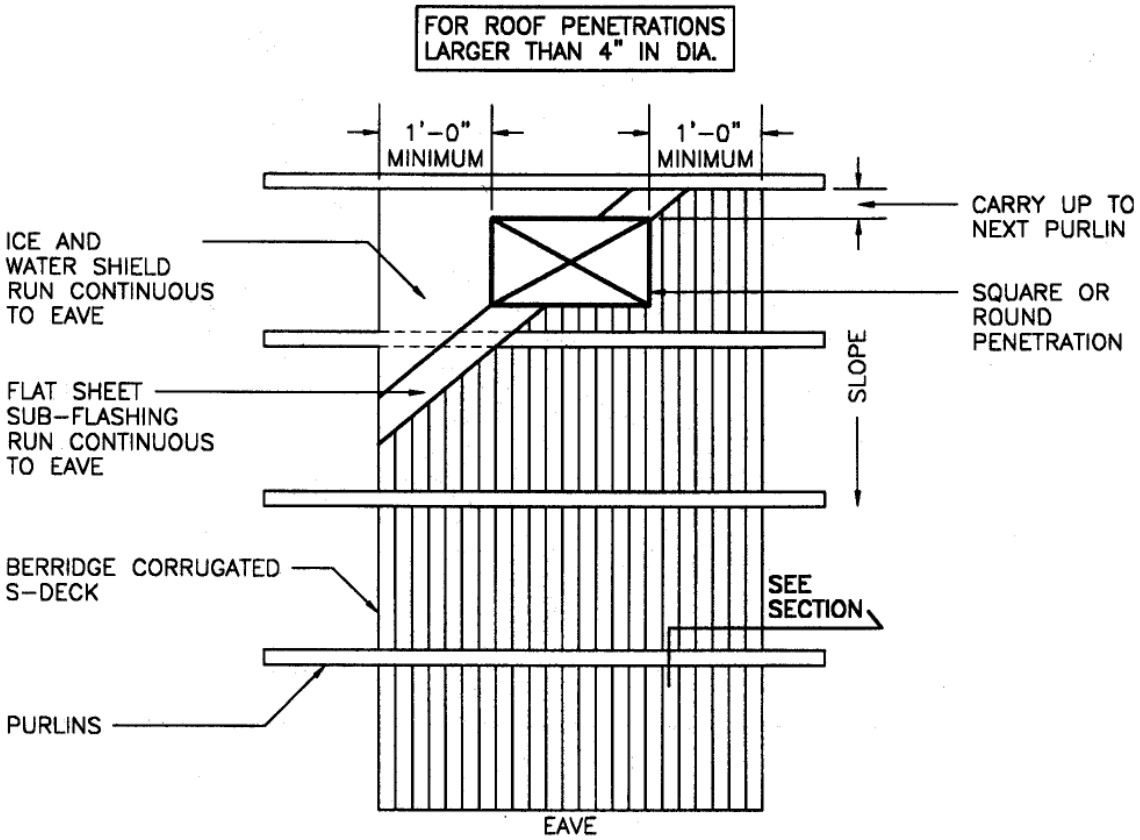
SQUARE PENETRATIONS: ISOMETRIC VIEW



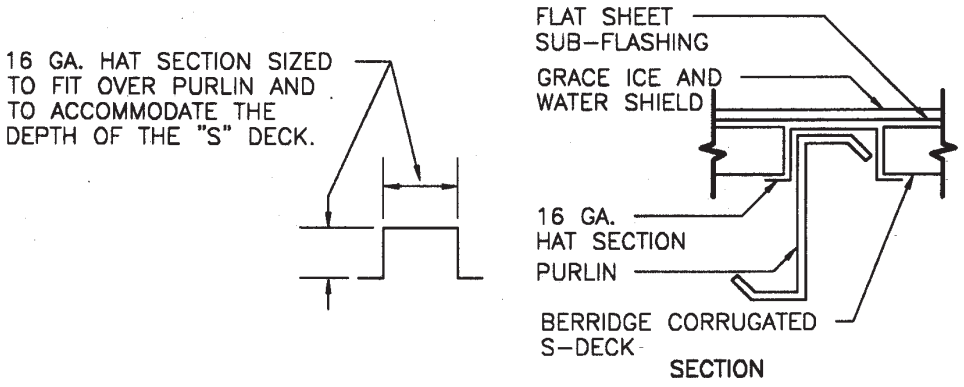


COMMON DETAILS

DETAILS FOR PENETRATIONS LARGER THAN 4" OPEN FRAMING

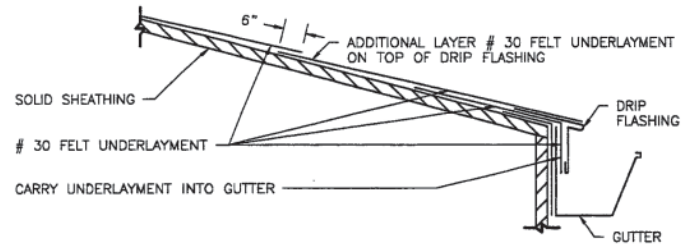


A 40-MIL MINIMUM THICKNESS, SELF-ADHERING MEMBRANE IS REQUIRED. REFER TO SPECIFICATIONS PAGE 11 FOR LIST OF APPROVED PRODUCTS.

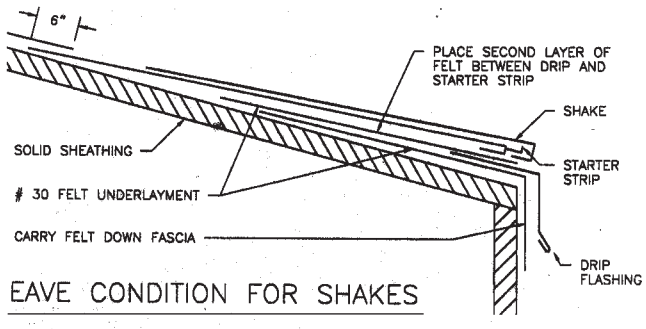


UNDERLAYMENT DETAILS

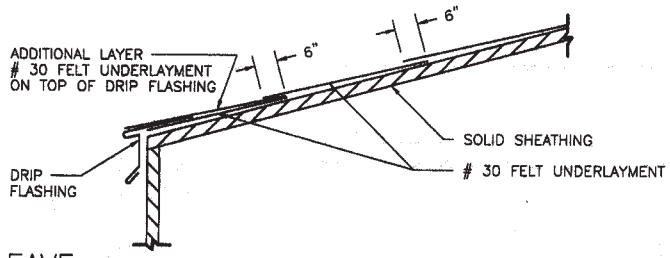
EAVE UNDERLAYMENT DETAILS



EAVE WITH GUTTER



EAVE CONDITION FOR SHAKES



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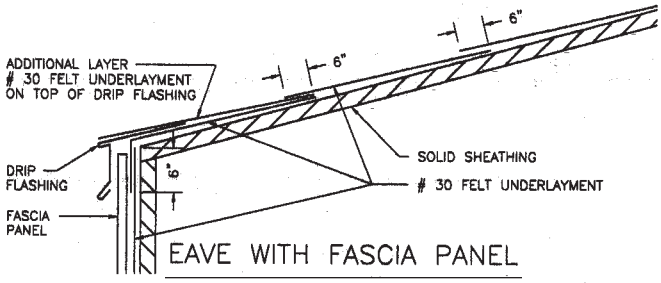
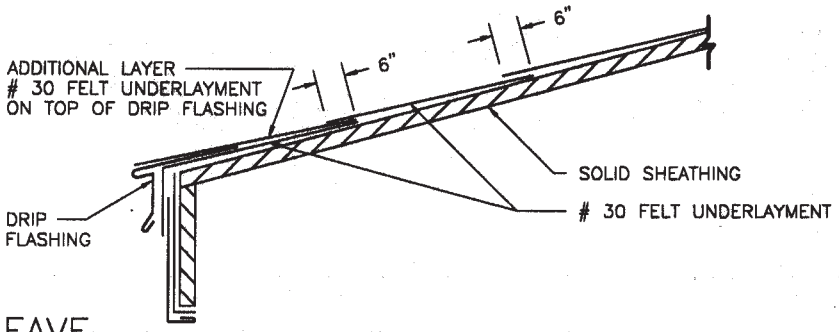


EAVE WITH FASCIA PANEL



EAVE

NOTE:

In place of #30 felt underlayment, a 40 mil minimum thickness, self-adhering membrane may be used. Refer to product specifications page 11 for list of approved products.

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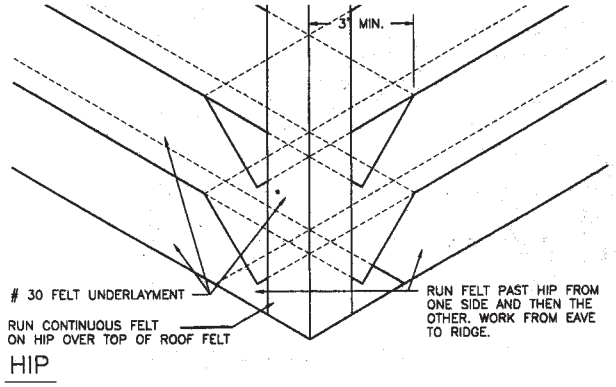
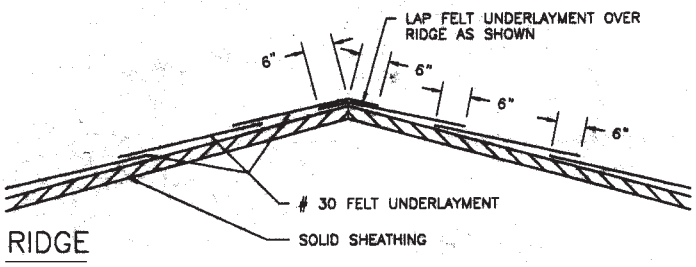
UNDERLAYMENT DETAILS

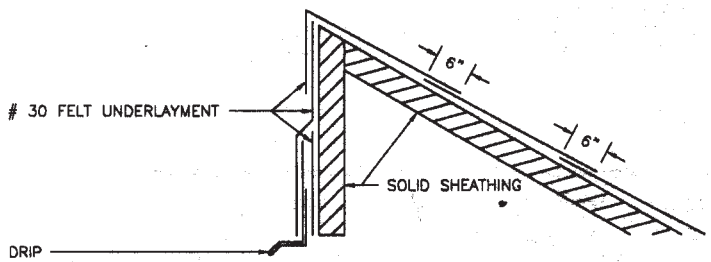
HIP & RIDGE UNDERLAYMENT DETAILS



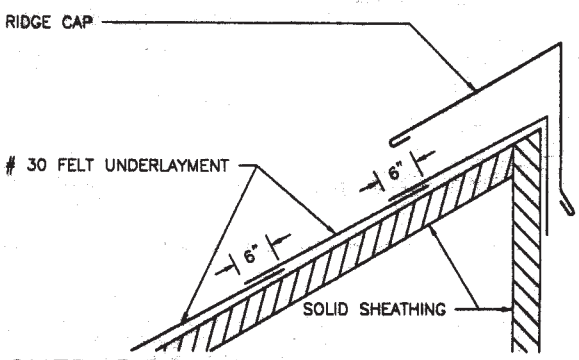
HIP



RIDGE



SHED RIDGE WITH WALL PANEL



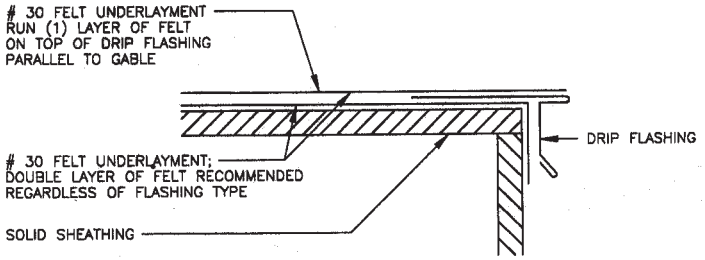
SHED RIDGE

NOTE:

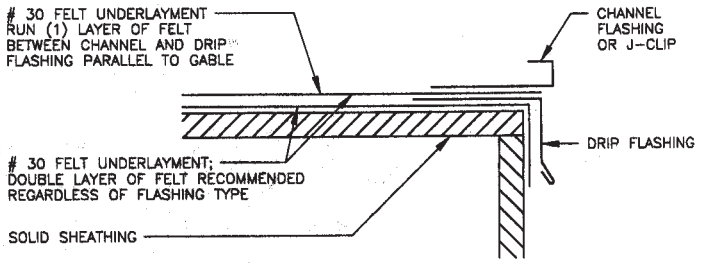
In place of #30 felt underlayment, a 40 mil minimum thickness, self-adhering membrane may be used. Refer to product specifications page 11 for list of approved products.

UNDERLAYMENT DETAILS

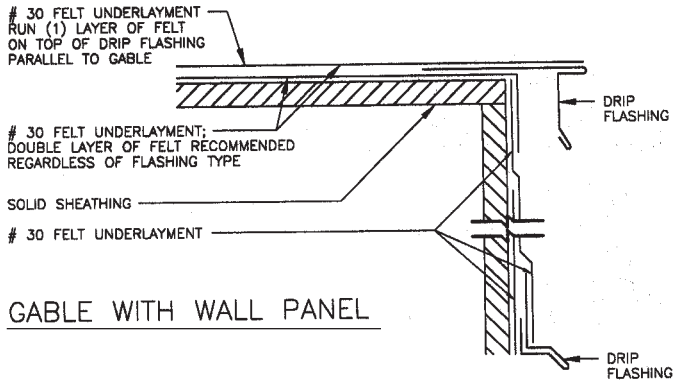
GABLE UNDERLAYMENT DETAILS



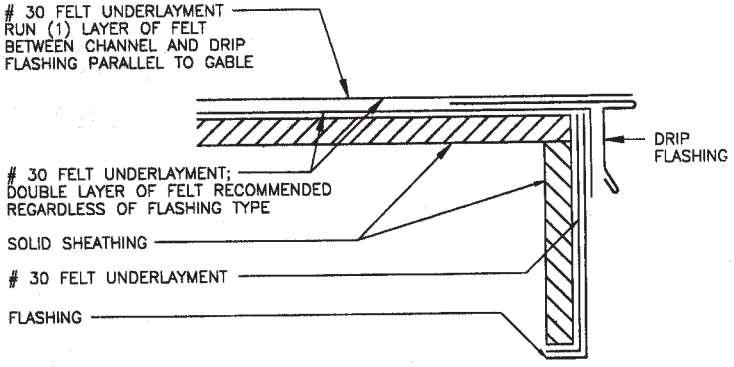
GABLE



GABLE FOR SHAKES



GABLE WITH WALL PANEL



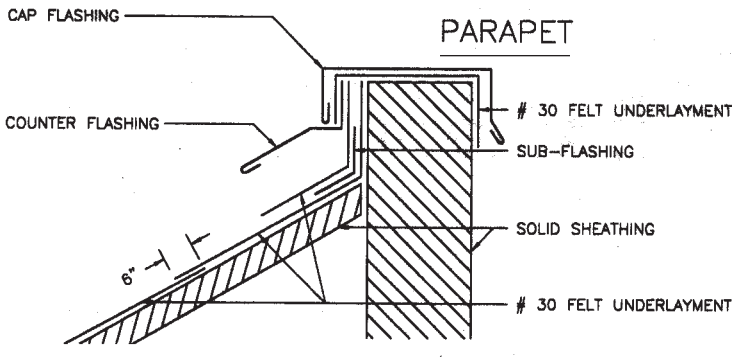
GABLE WITH FASCIA FLASHING

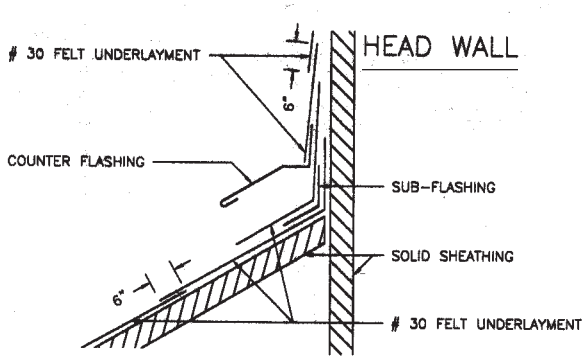
NOTE:

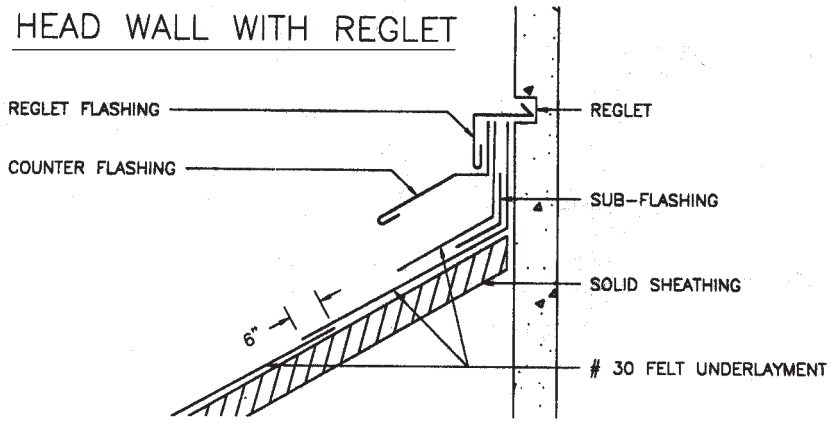
In place of #30 felt underlayment, a 40 mil minimum thickness, self-adhering membrane may be used. Refer to product specifications page 11 for list of approved products.

UNDERLAYMENT DETAILS

PARAPET & HEAD WALL UNDERLAYMENT DETAILS





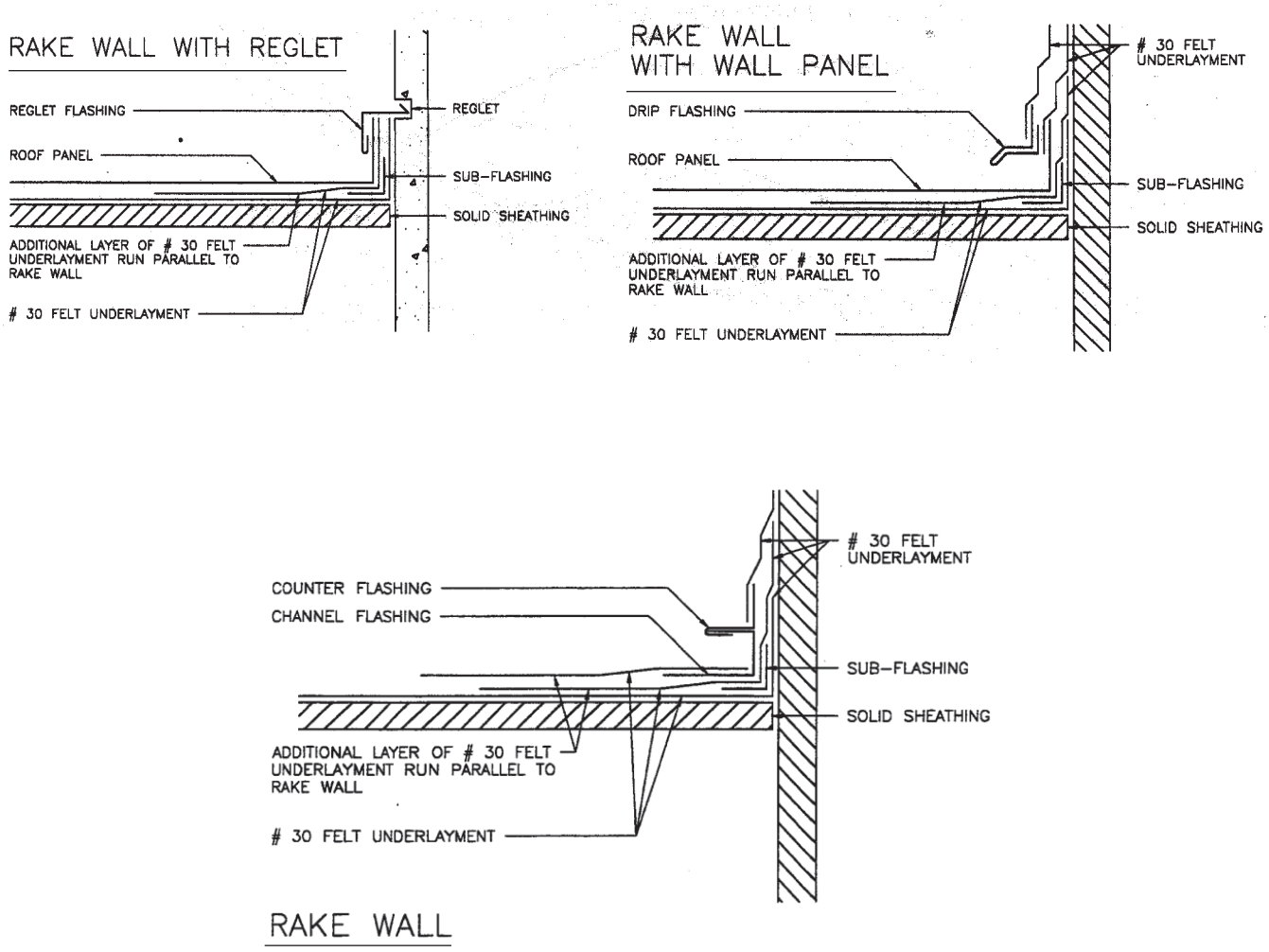


NOTE:

In place of #30 felt underlayment, a 40 mil minimum thickness, self-adhering membrane may be used. Refer to product specifications page 11 for list of approved products.

UNDERLAYMENT DETAILS

RAKE WALL UNDERLAYMENT DETAILS

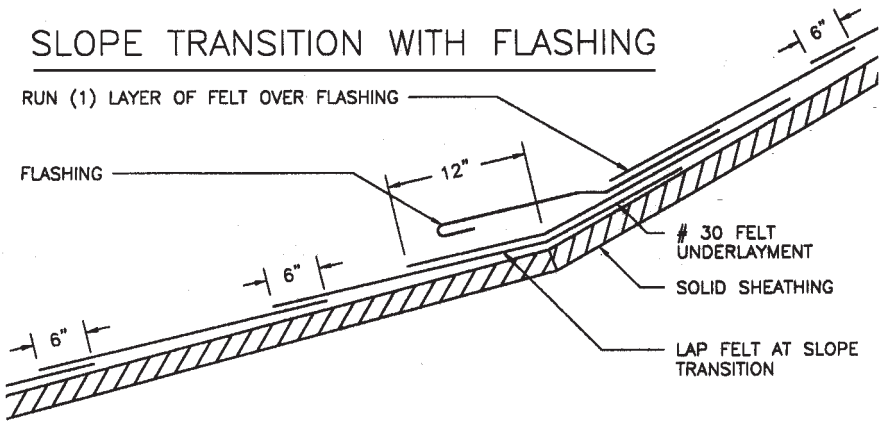


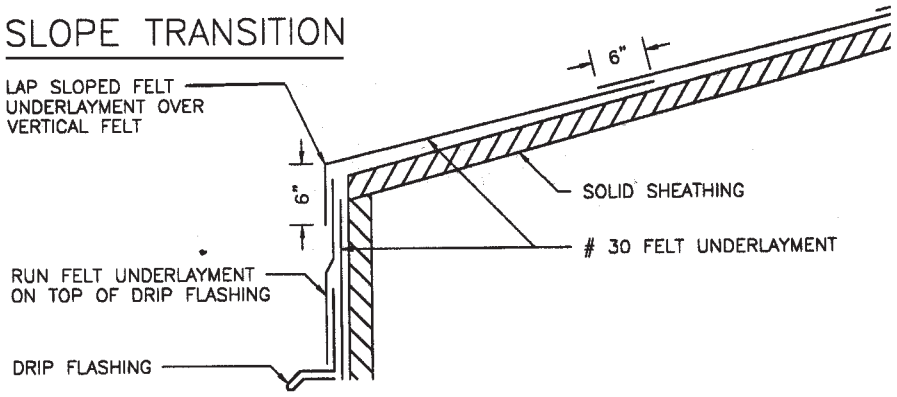
NOTE:

In place of #30 felt underlayment, a 40 mil minimum thickness, self-adhering membrane may be used. Refer to product specifications page 11 for list of approved products.

UNDERLAYMENT DETAILS

SLOPE TRANSITION UNDERLAYMENT DETAILS



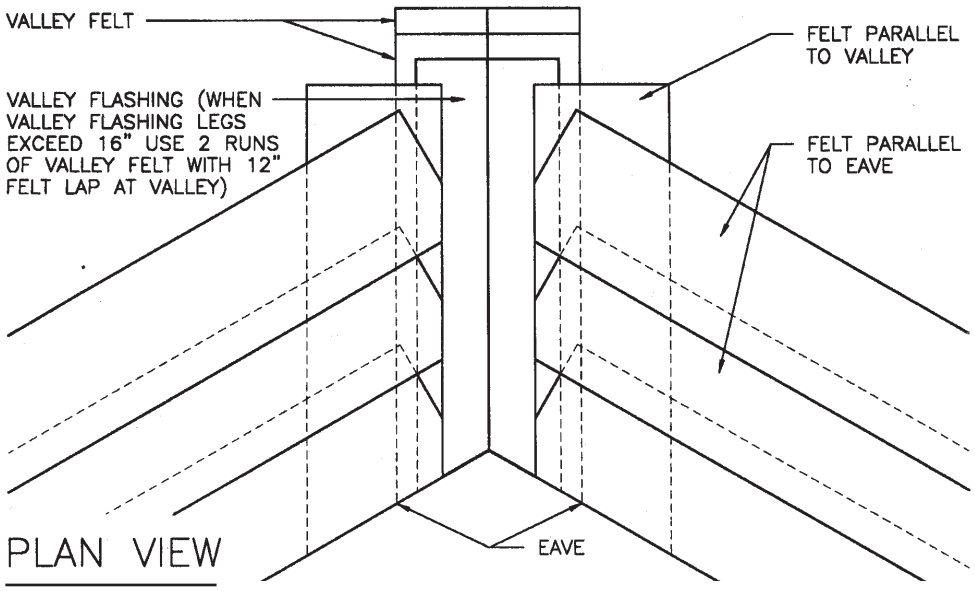


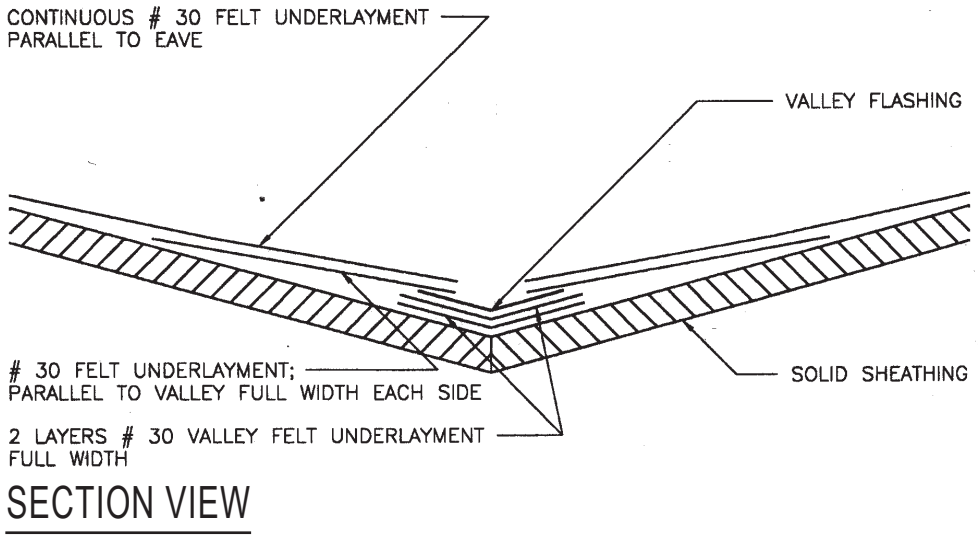
NOTE:

In place of #30 felt underlayment, a 40 mil minimum thickness, self-adhering membrane may be used. Refer to product specifications page 11 for list of approved products.

UNDERLAYMENT DETAILS

VALLEY UNDERLAYMENT DETAILS





NOTE:

In place of #30 felt underlayment, a 40 mil minimum thickness, self-adhering membrane may be used. Refer to product specifications page 11 for list of approved products.

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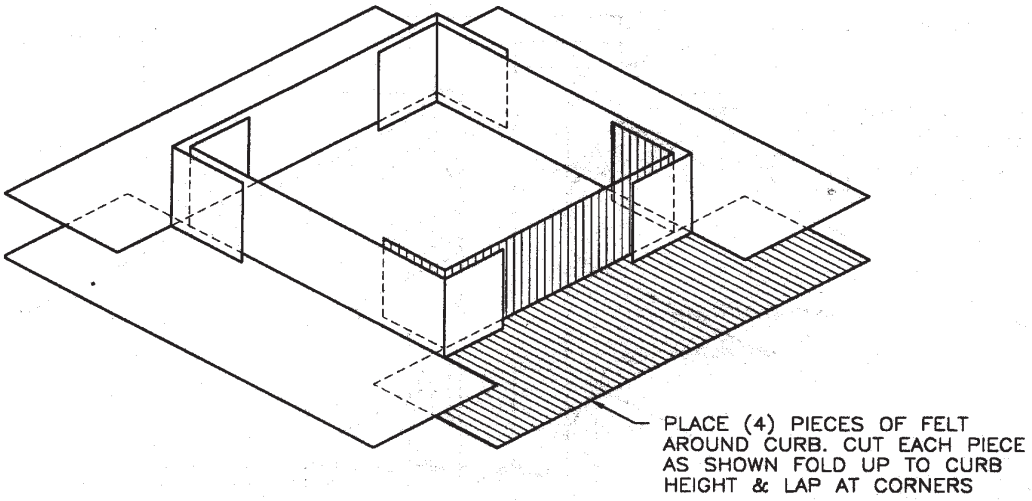
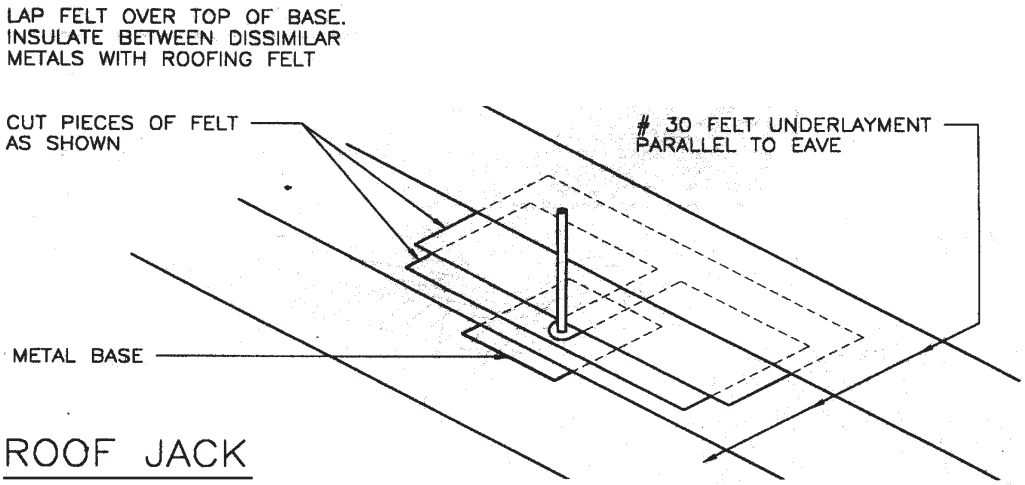
UNDERLAYMENT DETAILS

ROOF PENETRATION UNDERLAYMENT DETAILS



ROOF PENETRATION



ROOF JACK

NOTE:

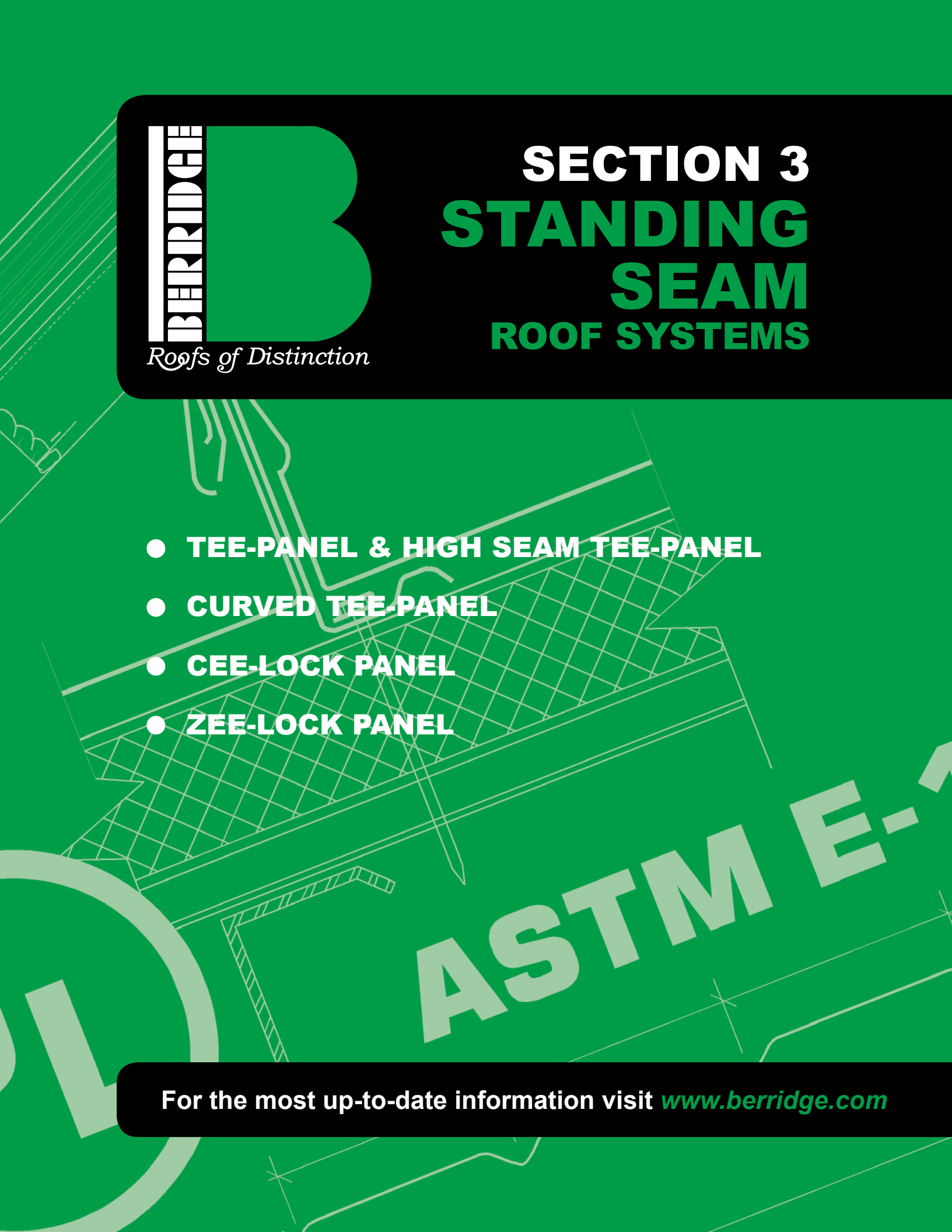
In place of #30 felt underlayment, a 40 mil minimum thickness, self-adhering membrane may be used. Refer to product specifications page 11 for list of approved products.

BERRIDGE

Roofs of Distinction

SECTION 3
STANDING SEAM
ROOF SYSTEMS

- TEE-PANEL & HIGH SEAM TEE-PANEL
- CURVED TEE-PANEL
- CEE-LOCK PANEL
- ZEE-LOCK PANEL



For the most up-to-date information visit *www.berridge.com*

SECTION 3 STANDING SEAM ROOF SYSTEMS

TEE-PANEL & HIGH SEAM TEE-PANEL

Note: Please review Common Details Section 2 for eave, ridge, hip, gable, parapet, etc. details. Consult Design Guide Section 1 for additional information on UL Fire Assemblies. You may also visit www.berridge.com for complete information.

CURVED TEE-PANEL

CEE-LOCK PANEL

Note: Please review Common Details Section 2 for eave, ridge, hip, gable, parapet, etc. details. Consult Design Guide Section 1 for additional information on UL Fire Assemblies. You may also visit www.berridge.com for complete information.

SECTION 3 STANDING SEAM ROOF SYSTEMS

ZEE-LOCK PANEL

Note: Please review Common Details Section 2 for eave, ridge, hip, gable, parapet, etc. details. Consult Design Guide Section 1 for additional information on UL Fire Assemblies. You may also visit www.berridge.com for complete information.

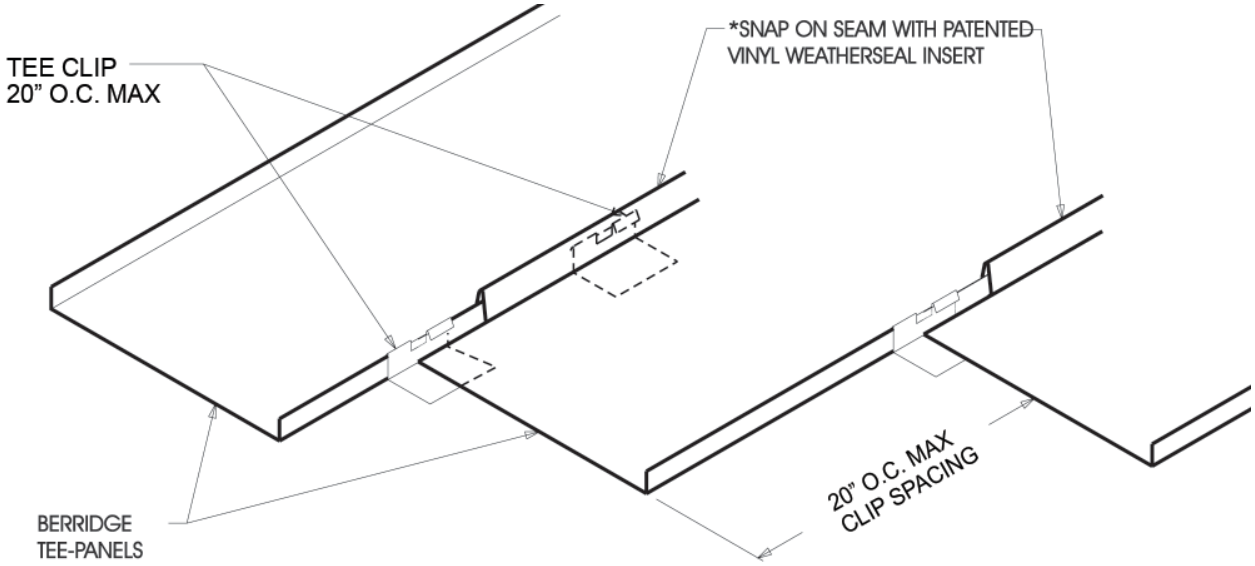
The details contained in this manual are merely recommendations as to how Berridge Manufacturing Company materials should be installed. They may require adaptations or modifications for a specific project, as conditions vary in both building design and local climatic conditions.

Berridge Manufacturing Company shall be held harmless from any and all claims arising from lack of watertightness as a result of following these recommended details. Ensuring watertightness on any given project is the function of the installer. The architect, general contractor or installer must accept the responsibility to adapt these details to meet particular building requirements and assure adequate watertightness.

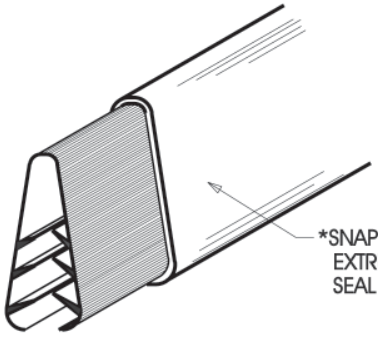
The installer can virtually assure watertightness if these details have been properly adapted, adequate laps have been provided, correct type of underlayment and sealant used, all joints adequately caulked and professional workmanship employed.

Should a watertightness warranty be required on a specific project, please refer to the procedures outlined in the “Design Guide” section of this manual. These procedures must be adhered to in order for Berridge to issue any type of watertightness warranty.

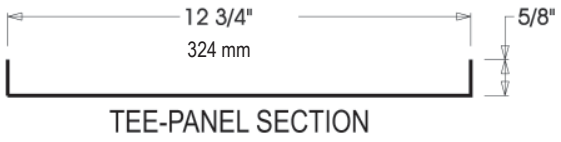
TEE-PANEL OVERVIEW



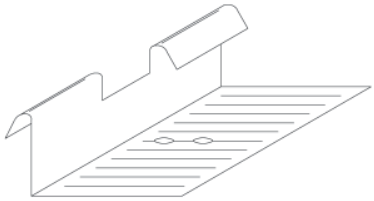
*SNAP ON SEAM IS COVERED UNDER U.S. PATENT NO. 4,641,475.



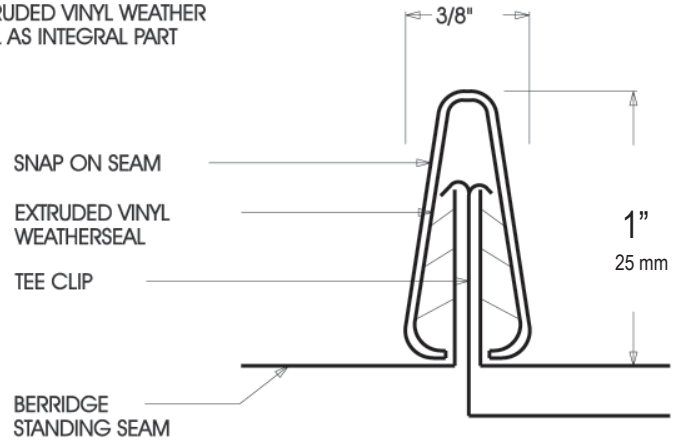
SNAP-ON SEAM



TEE-PANEL SECTION

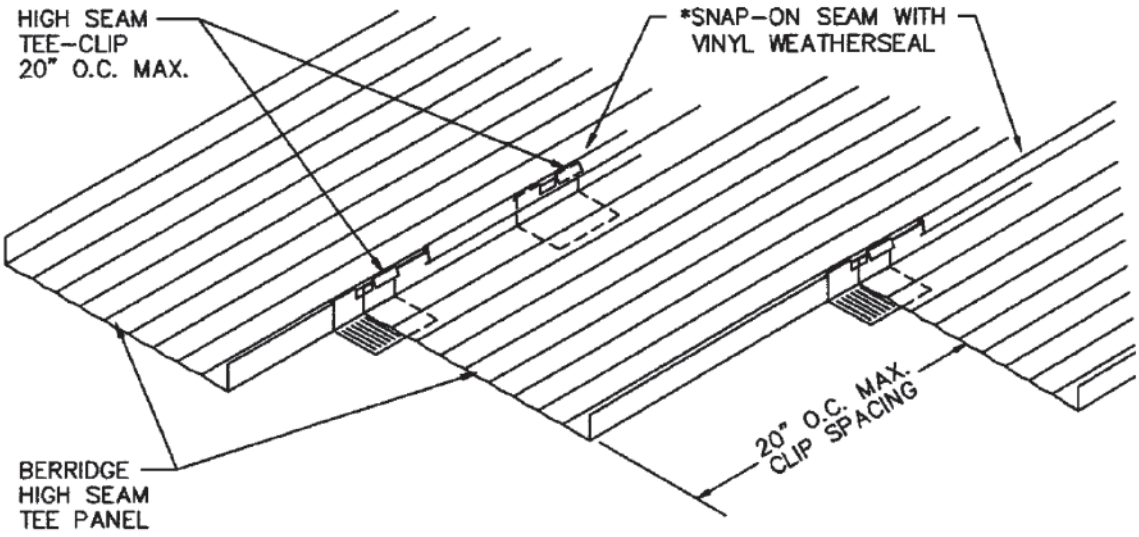


TEE CLIP

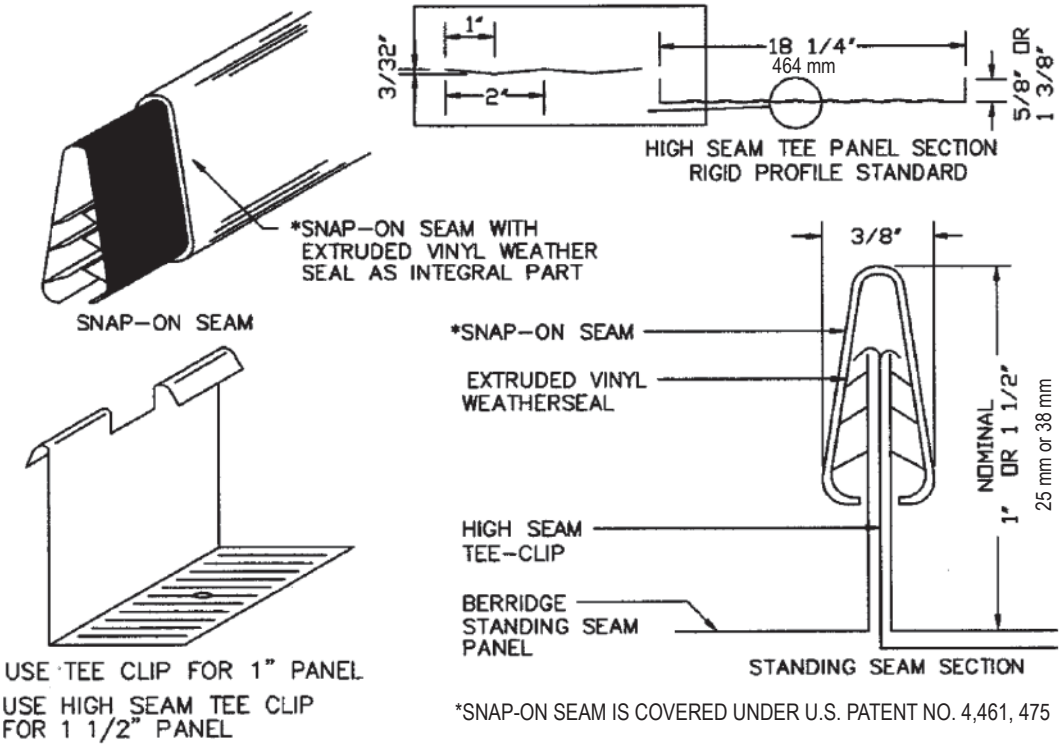


TEE-PANEL
STANDING SEAM
SECTION

HIGH SEAM TEE-PANEL OVERVIEW



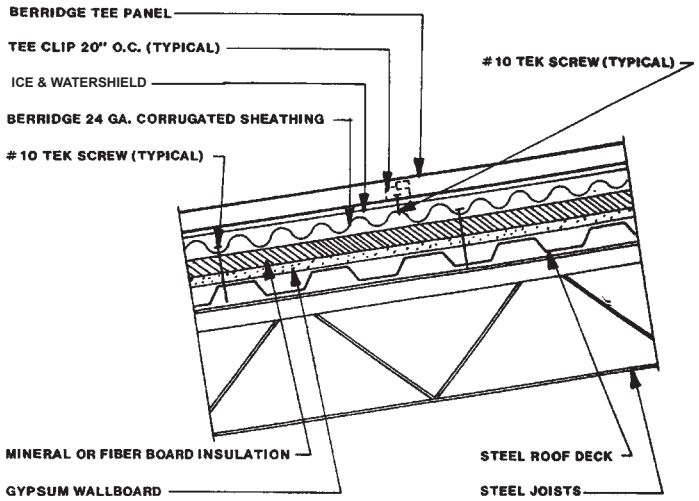
*SNAP-ON SEAM IS COVERED UNDER U.S. PATENT NO. 4,461, 475



*SNAP-ON SEAM IS COVERED UNDER U.S. PATENT NO. 4,461, 475

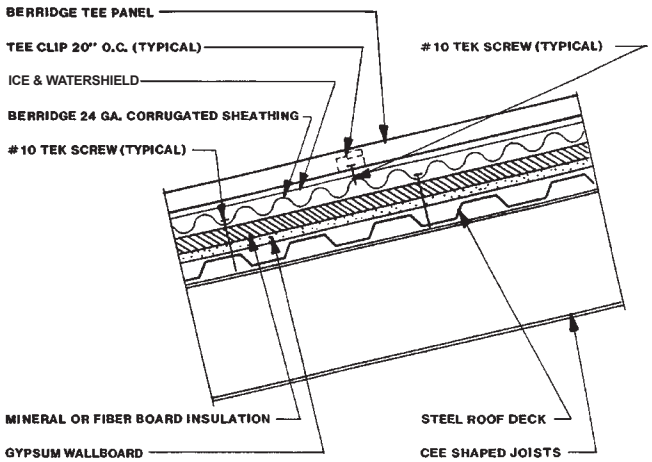
TEE-PANEL & HIGH SEAM TEE-PANEL

U.L. FIRE RESISTANCE ROOF ASSEMBLIES



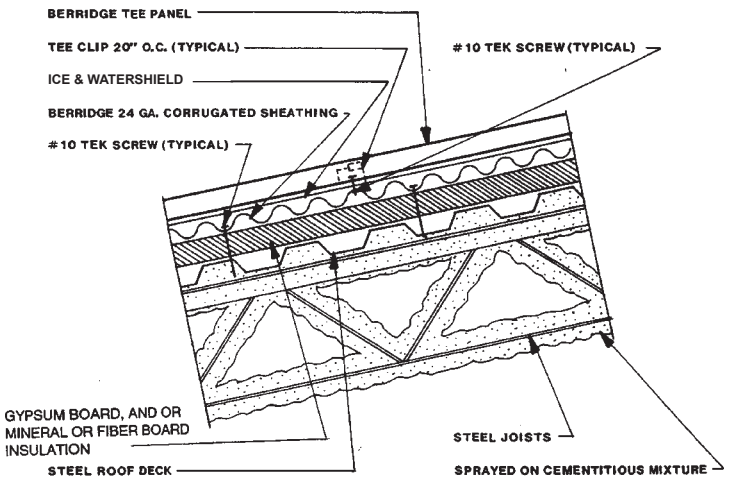
STEEL ROOF DECK W/ STEEL JOISTS

THIS ASSEMBLY QUALIFIES FOR U.L. DESIGN NO. P224, P225, P230, P237, P508, P510 AND P227 USING CELLULAR GLASS BLOCK IN LIEU OF MINERAL INSULATION BOARD.



STEEL ROOF DECK W/ CEE-SHAPED JOISTS

THIS ASSEMBLY QUALIFIES FOR U.L. DESIGN NO. P512



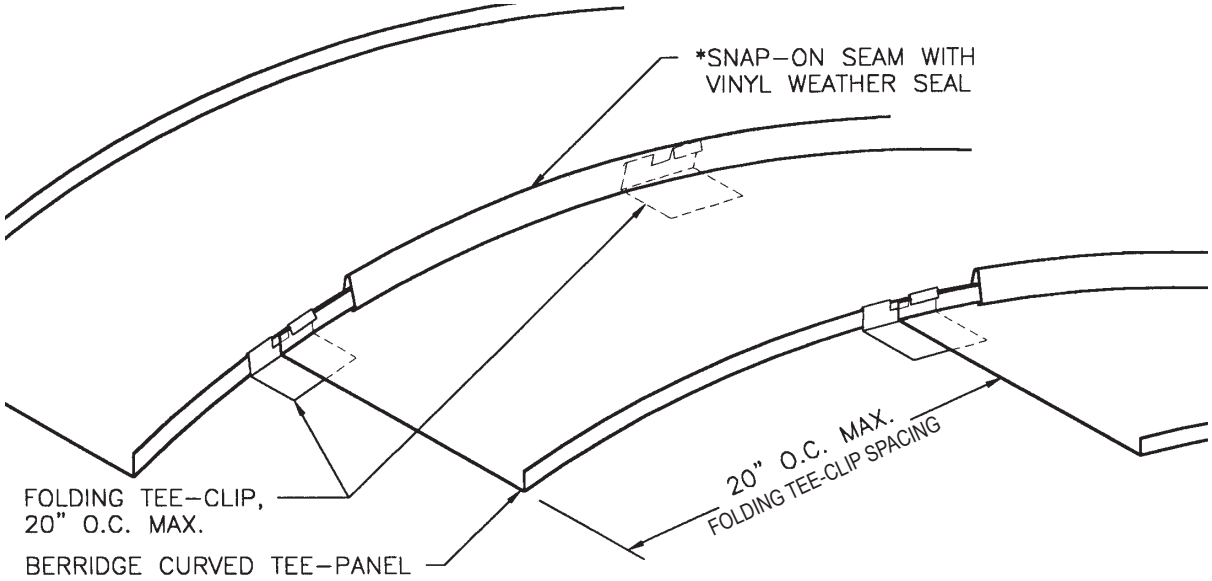
STEEL JOISTS W/ SPRAYED-ON CEMENTITIOUS MIX:

THIS ASSEMBLY QUALIFIES FOR U.L. DESIGN NO. P701, P711, P713, P715, P717, P814, P803, P819 AND P821 USING SPRAYED-ON FIBER IN LIEU OF CEMENTITIOUS MIXTURE

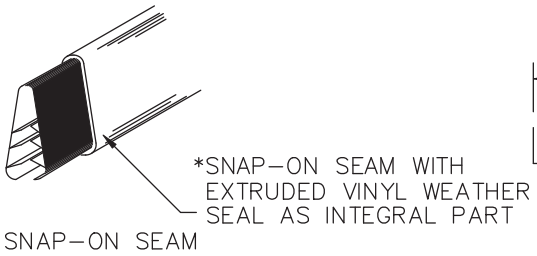
GENERAL NOTES:

1. IN ORDER TO QUALIFY FOR A FIRE-RESISTANT RATING, THE ROOF SYSTEM CANNOT MAKE A PENETRATION IN THE INSULATION SYSTEM. THE TEE PANEL, IN ORDER TO MAKE A POSITIVE ATTACHMENT, MUST BE ATTACHED TO A CORRUGATED SUBSTRATE (IF THE INSULATION SYSTEM HAS NO NAILABLE SURFACE). THE CORRUGATED SUBSTRATE IS TO BE MOUNTED DIRECTLY TO THE INSULATION SYSTEM WITH FASTENERS FASTENED THROUGH INTO THE STRUCTURAL STEEL DECK.
2. ADDITIONAL INFORMATION REGARDING THESE ASSEMBLIES IS AVAILABLE IN THE U.L. FIRE RESISTANCE DIRECTORY.

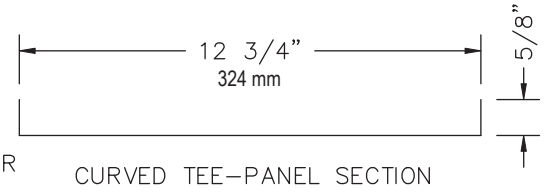
CURVED TEE-PANEL OVERVIEW



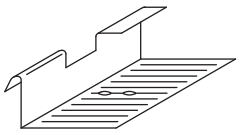
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.



SNAP–ON SEAM

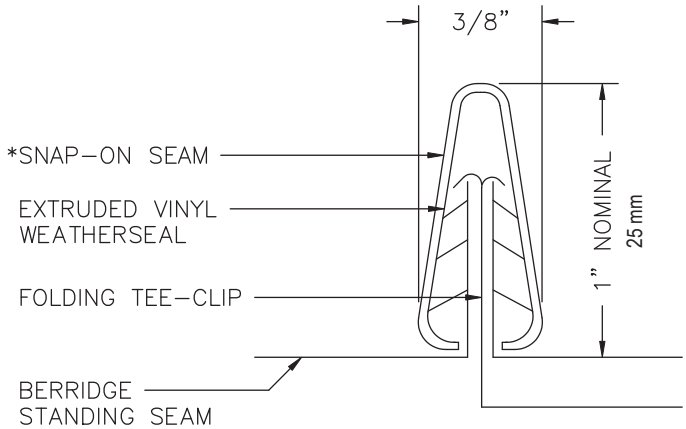


CURVED TEE–PANEL SECTION



FOLDING TEE–CLIP

AFTER FOLDING TEE CLIP AND EACH CURVED TEE PANEL IS INSTALLED, FIELD BEND THE HORIZONTAL TAB OF THE FOLDING TEE CLIP SO THAT IT IS APPROXIMATELY 3/32" FROM THE CLIP LEG. DO NOT BEND TAB TIGHT AGAINST PANEL LEG AS VINYL INSERT IN SEAM WILL THEN NOT GRIP THE EDGE OF THE TAB.

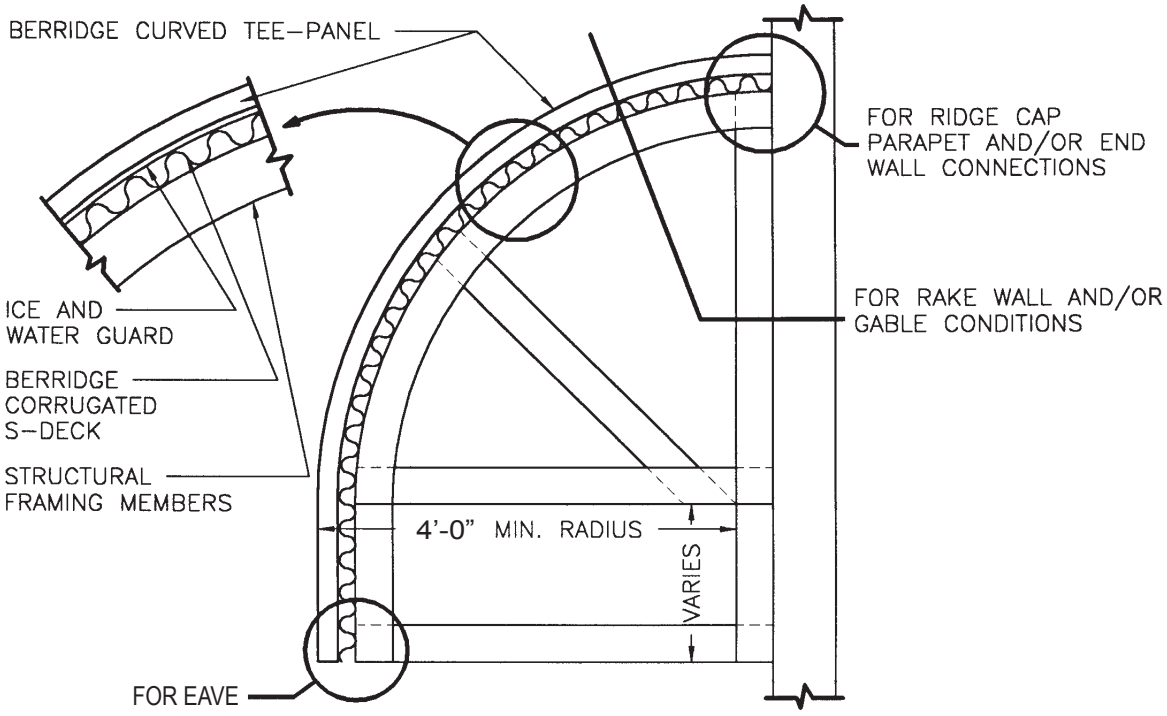


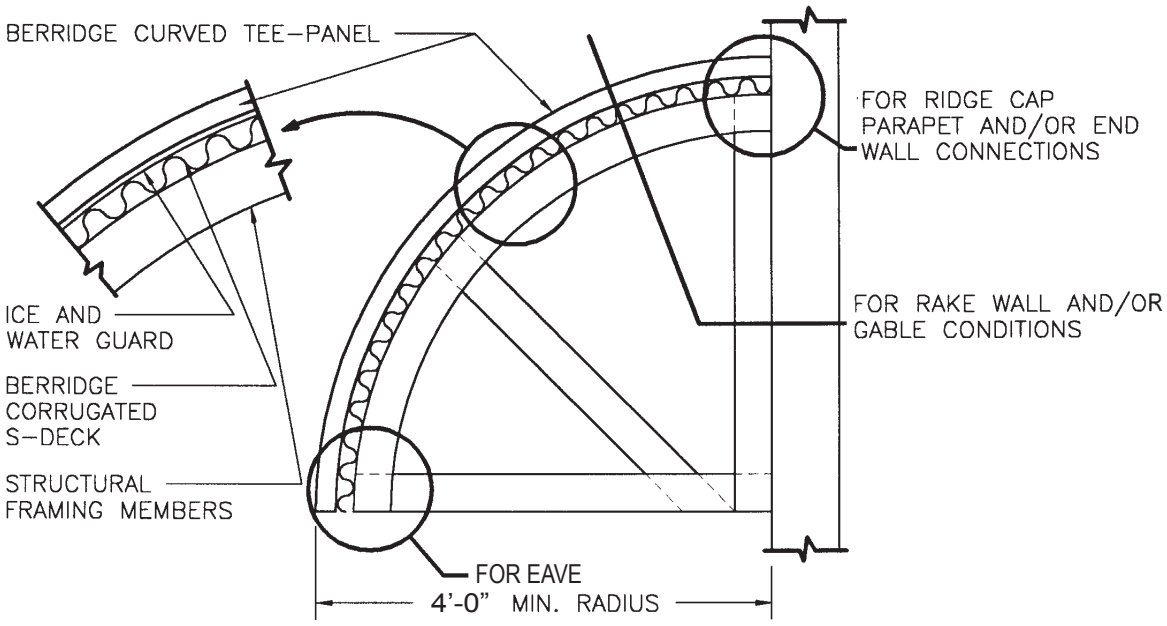
STANDING SEAM SECTION

NOTE:
Underlayment required for Curved Tee-Panel, use a 40 mil minimum thickness, self-adhering membrane. Refer to product specifications page 11 for list of approved products.

CURVED TEE-PANEL

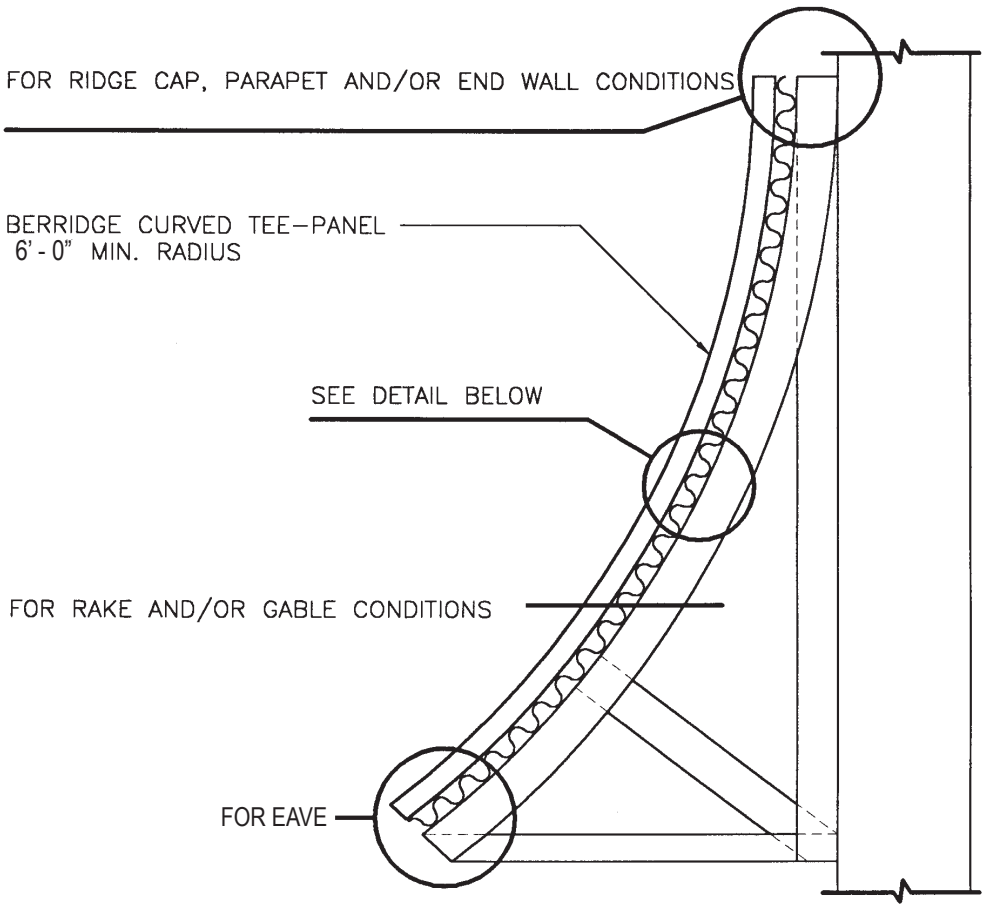
CONVEX CANOPY SECTION DETAILS

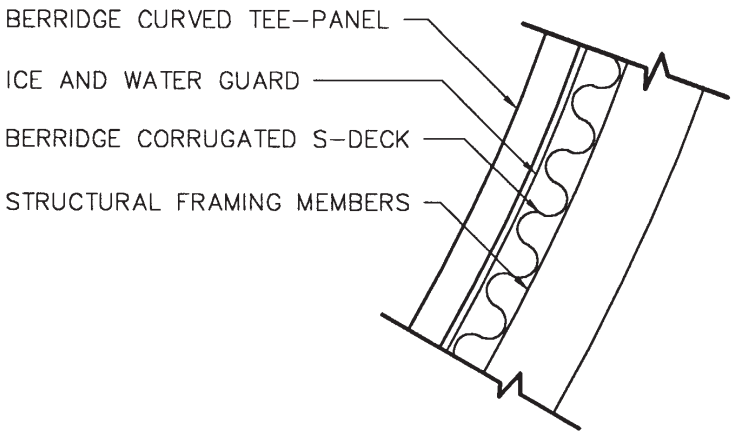




CURVED TEE-PANEL

CONCAVE CANOPY SECTION DETAILS





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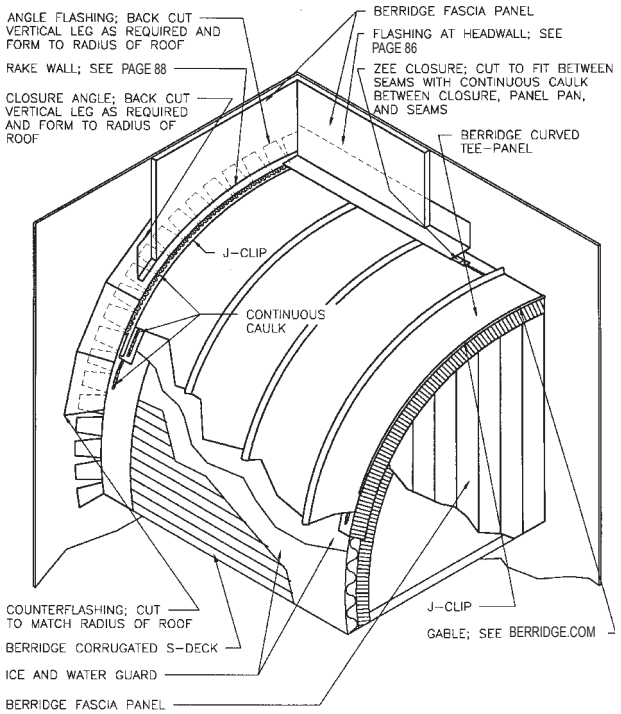
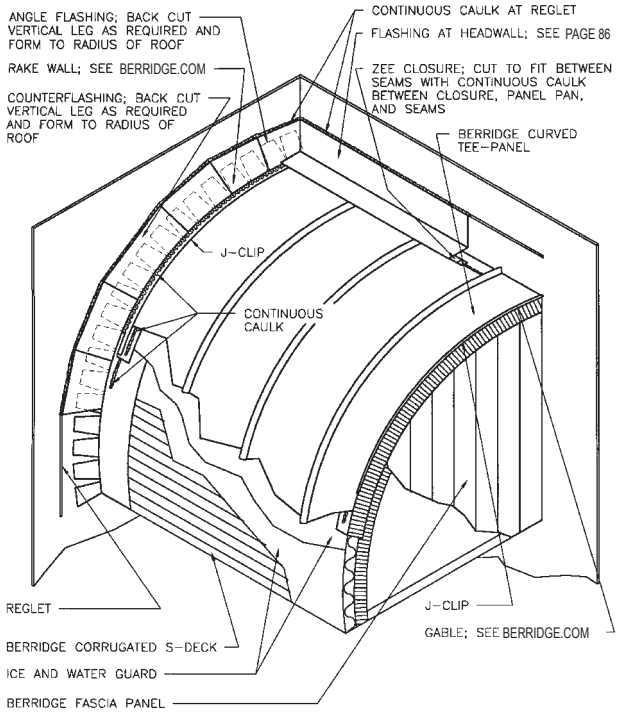
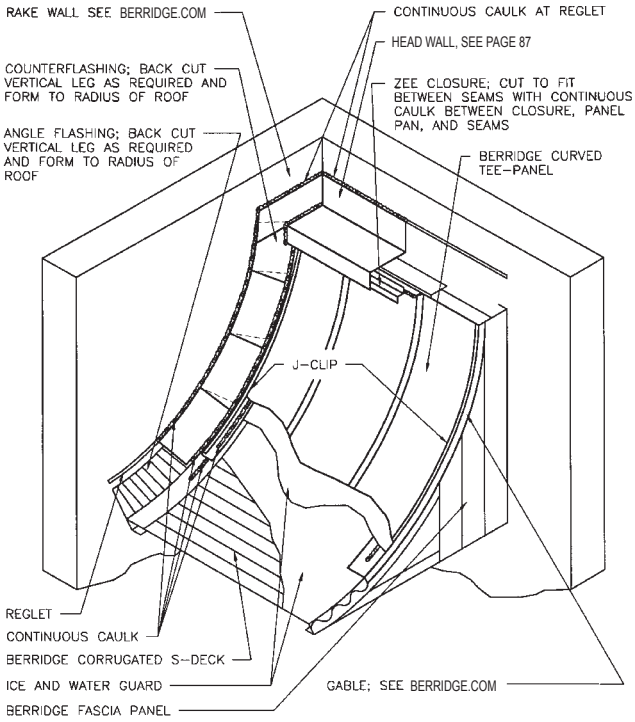
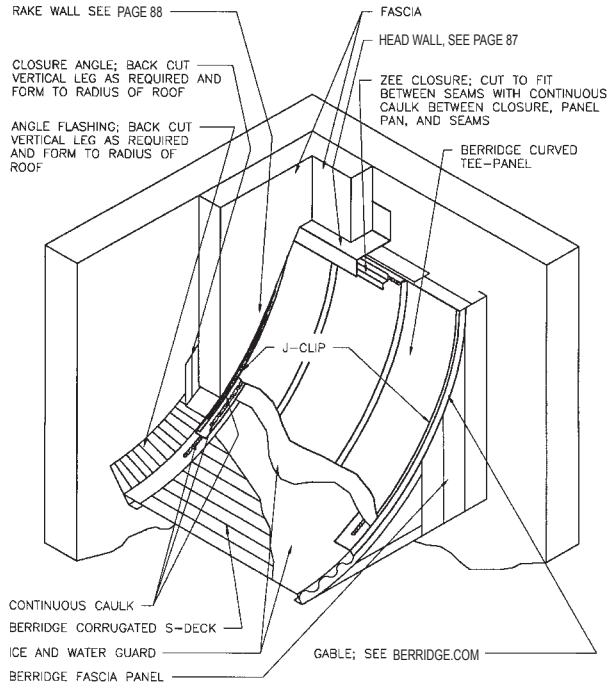
CURVED TEE-PANEL

CONVEX & CONCAVE CANOPY ISOMETRIC DETAILS









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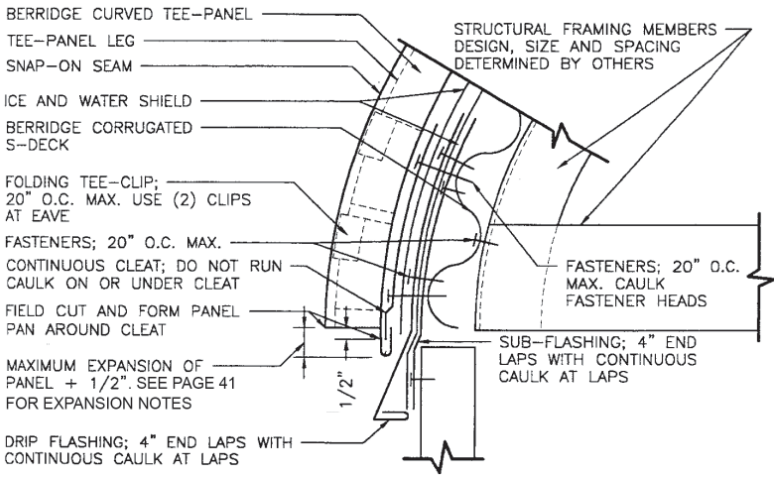
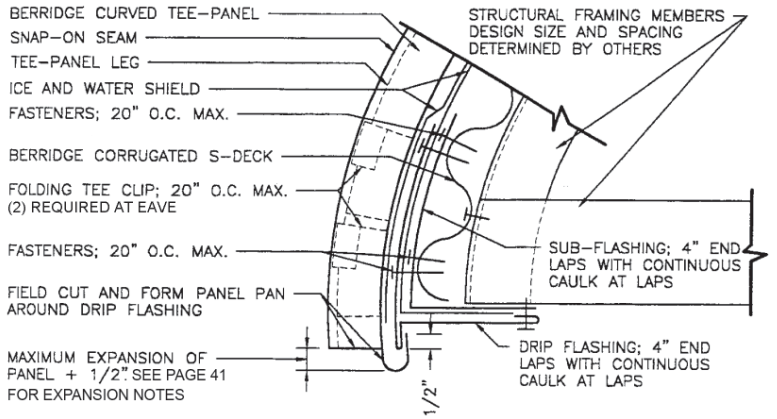
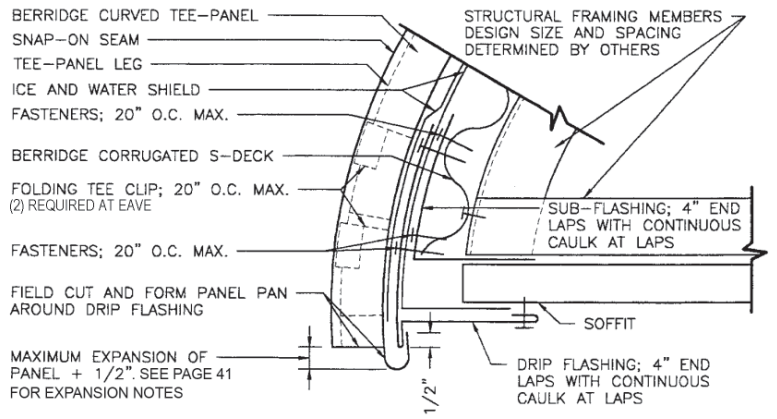
CURVED TEE-PANEL

CONVEX EAVE SECTION DETAILS







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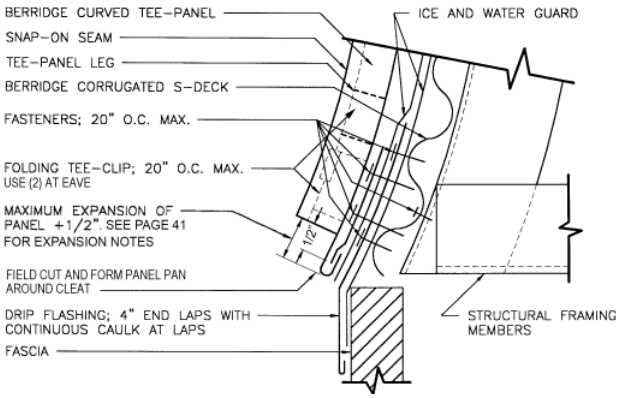
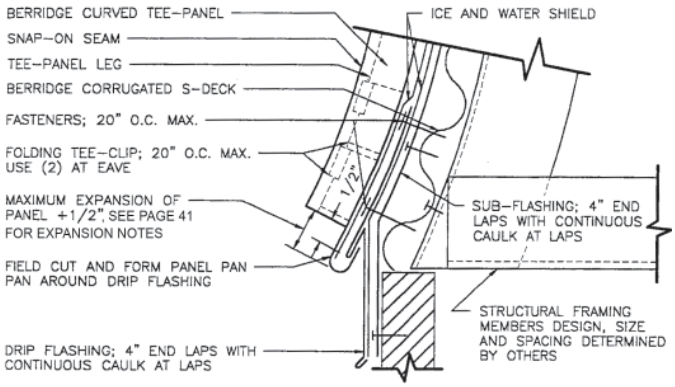
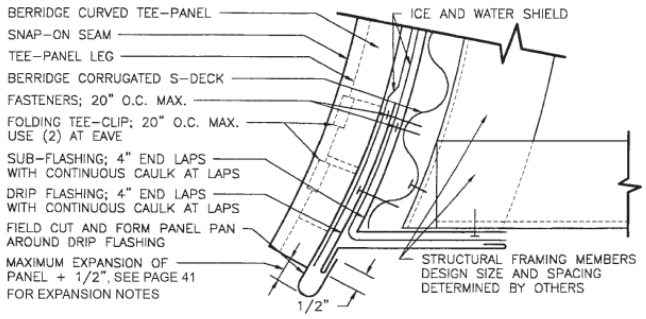
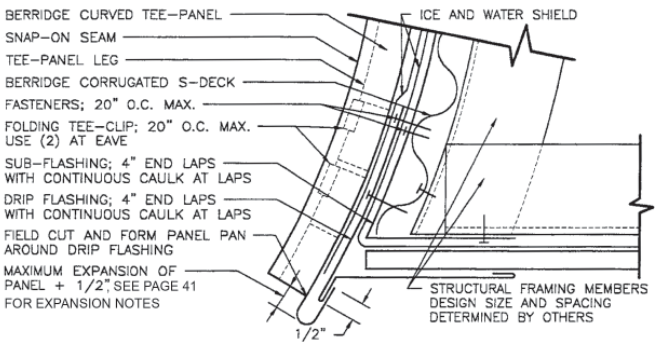
CURVED TEE-PANEL

CONCAVE EAVE SECTION DETAILS









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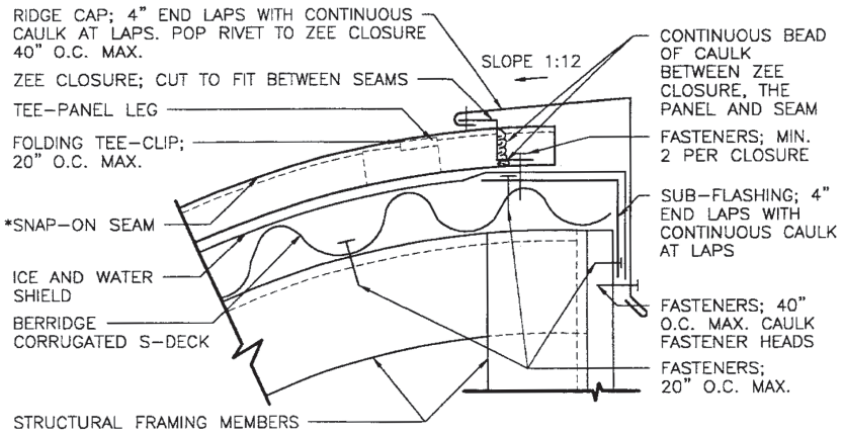
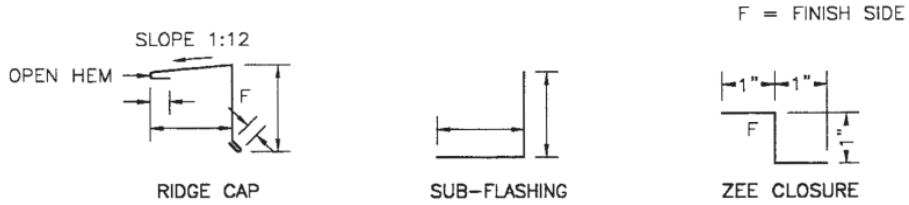
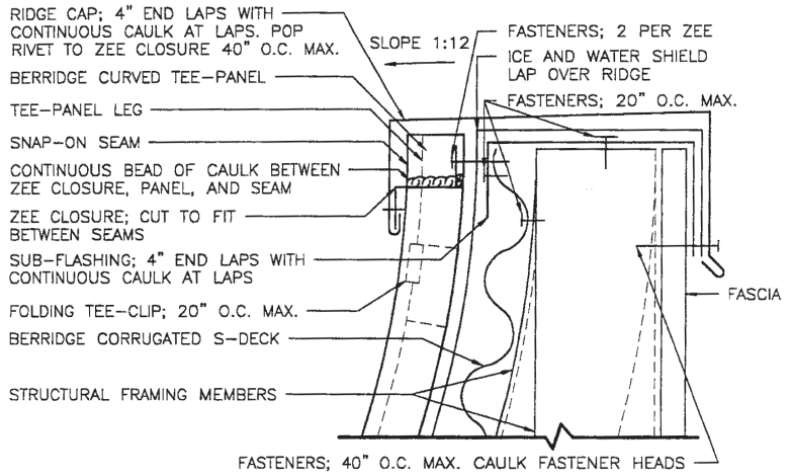
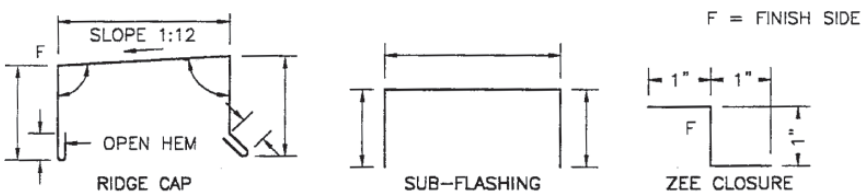
CURVED TEE-PANEL

RIDGE CAP DETAILS: CONVEX & CONCAVE









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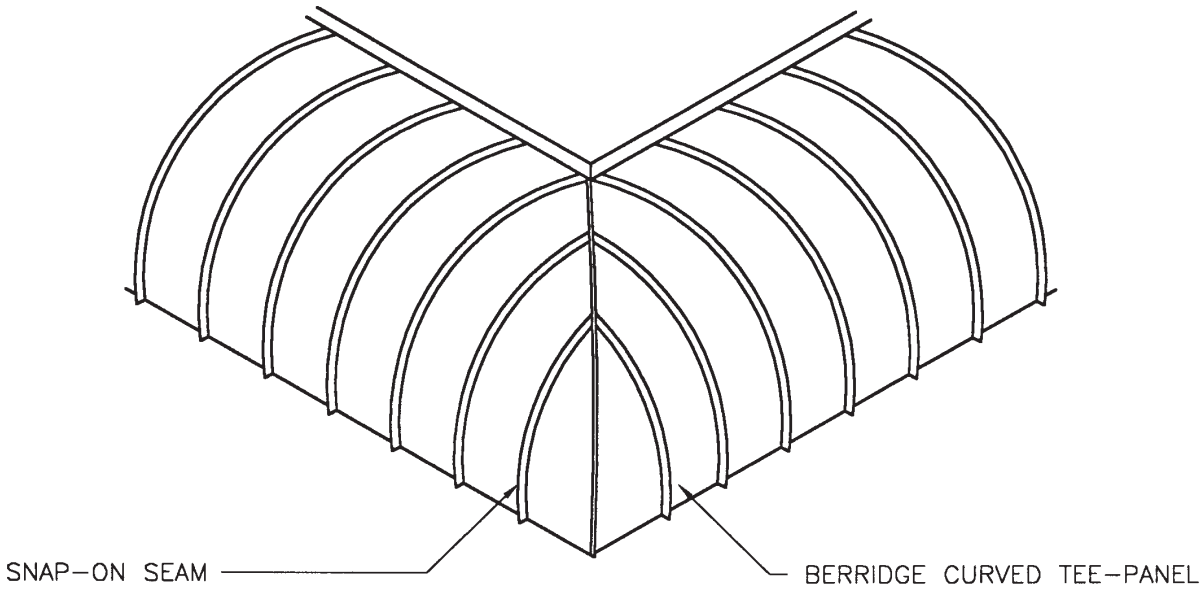
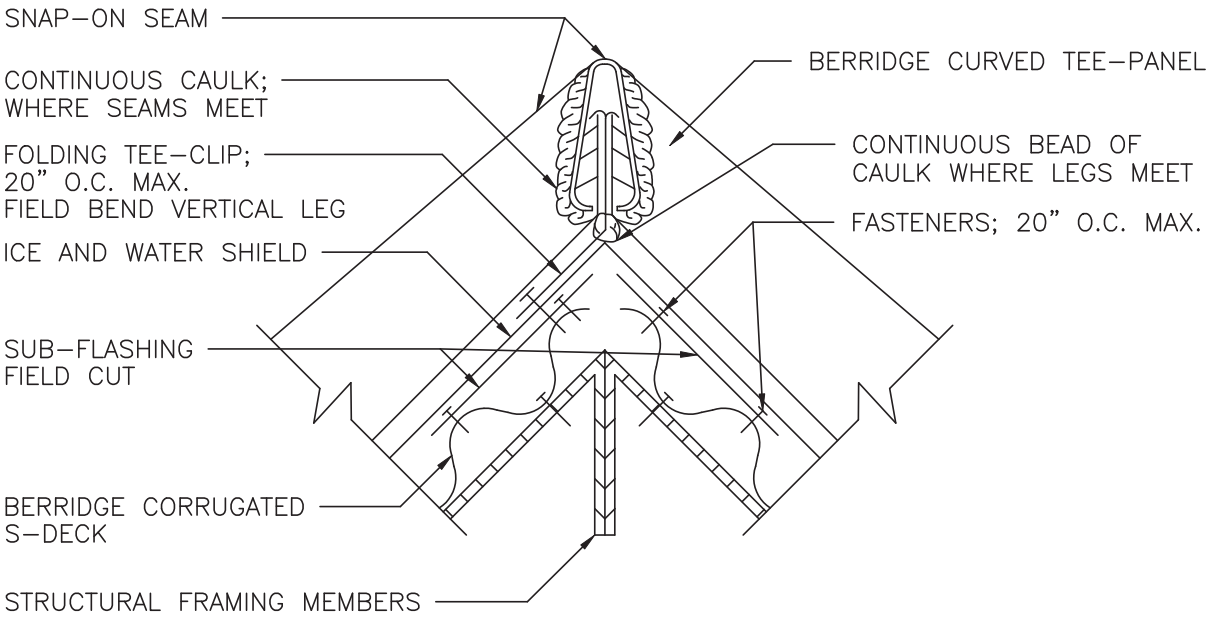
CURVED TEE-PANEL

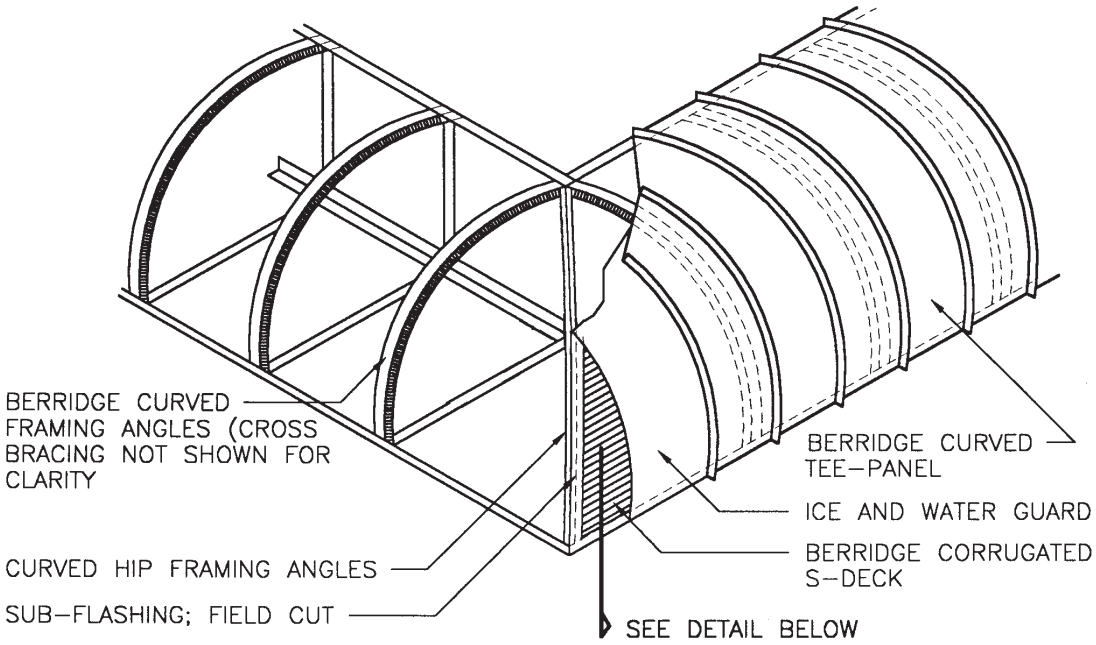
CONVEX HIP DETAIL

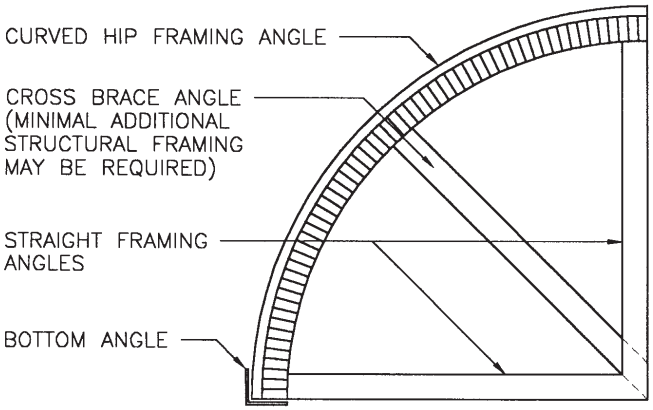




CURVED TEE-PANEL

CONVEX HIP DETAIL - ISOMETRIC & SECTION





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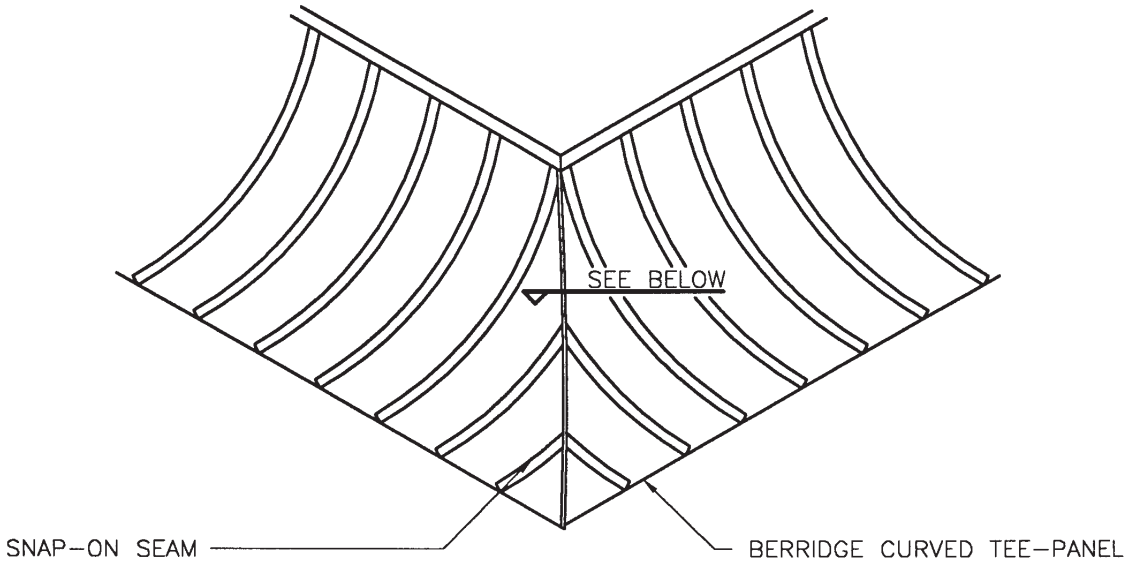
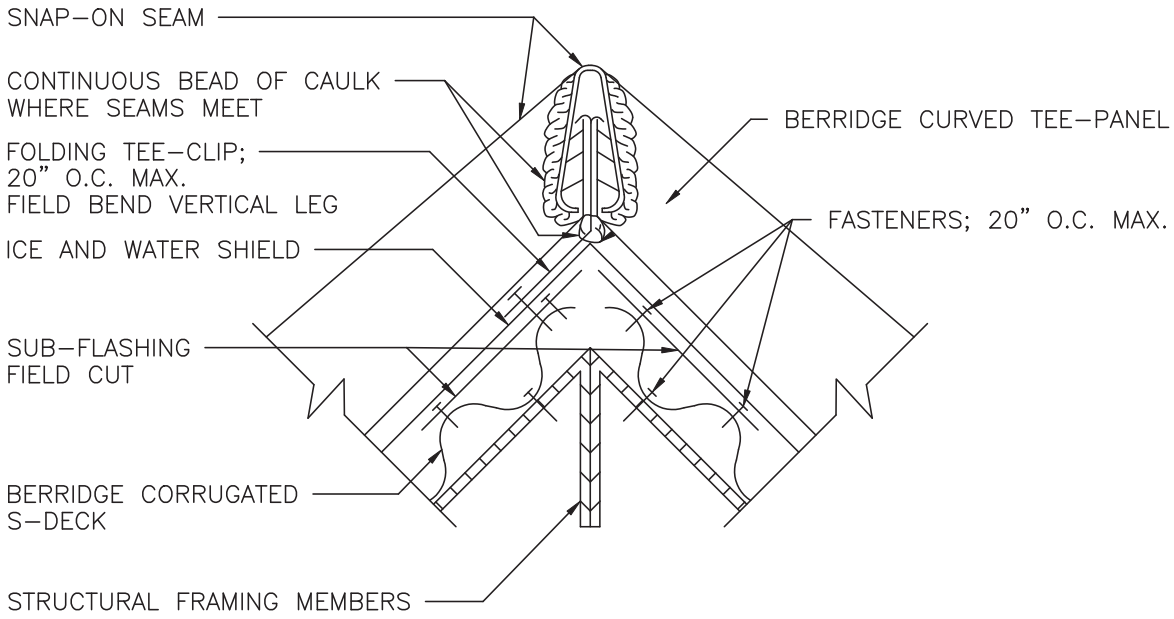
CURVED TEE-PANEL

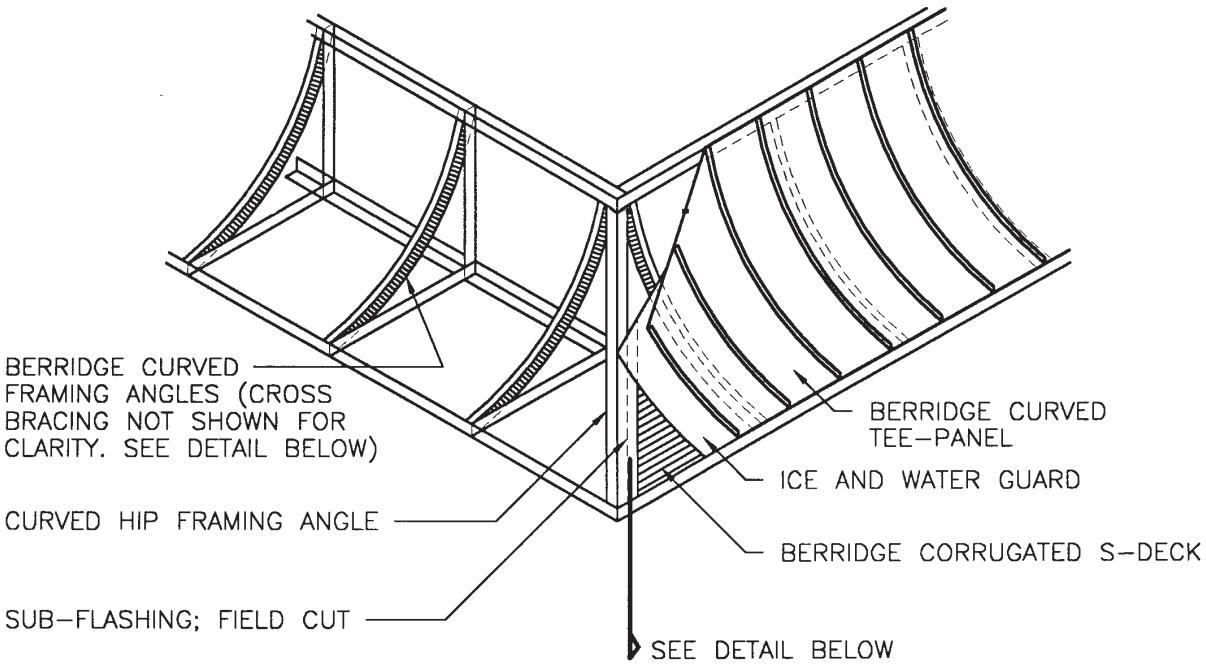
CONCAVE HIP DETAIL - ISOMETRIC & SECTION

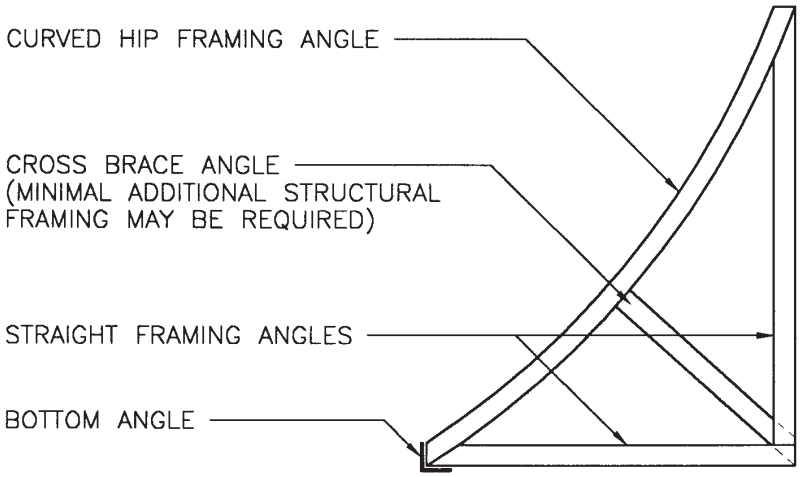




CURVED TEE-PANEL

CONCAVE HIP DETAIL - ISOMETRIC & SECTION





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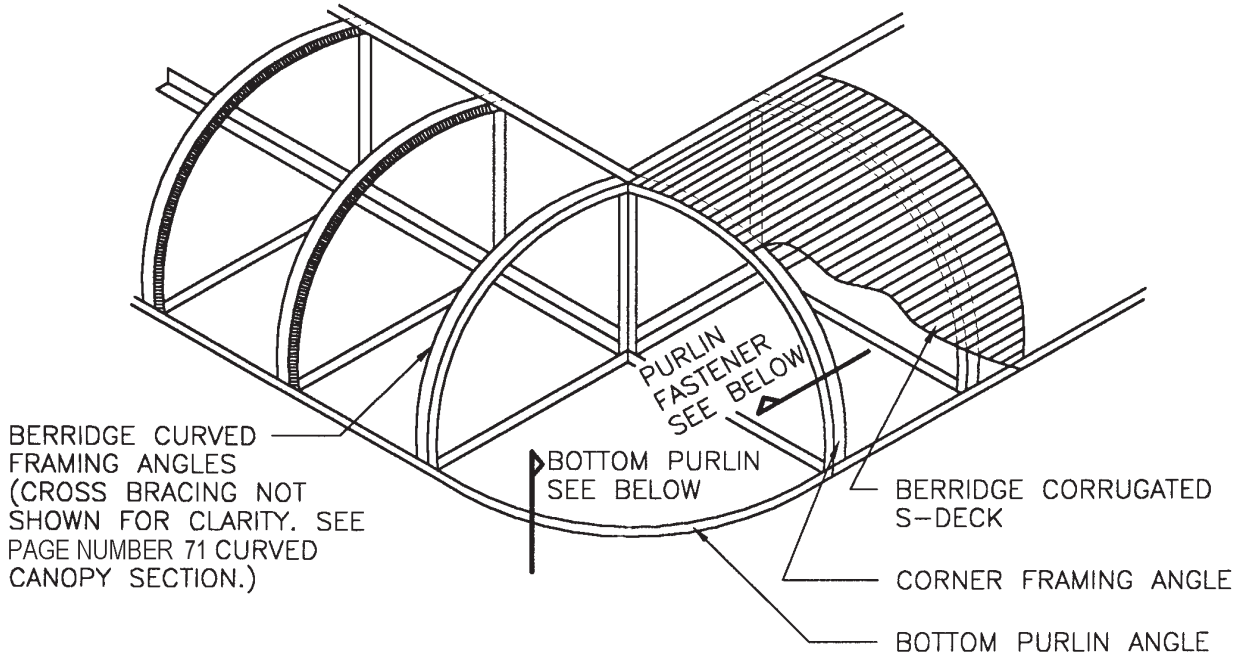
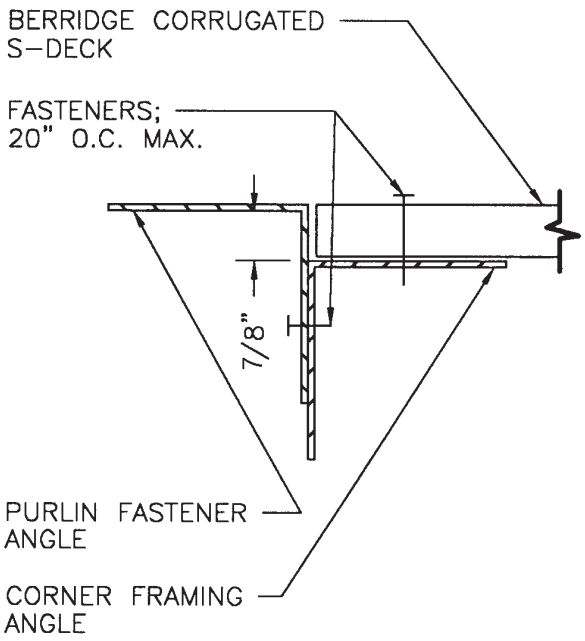
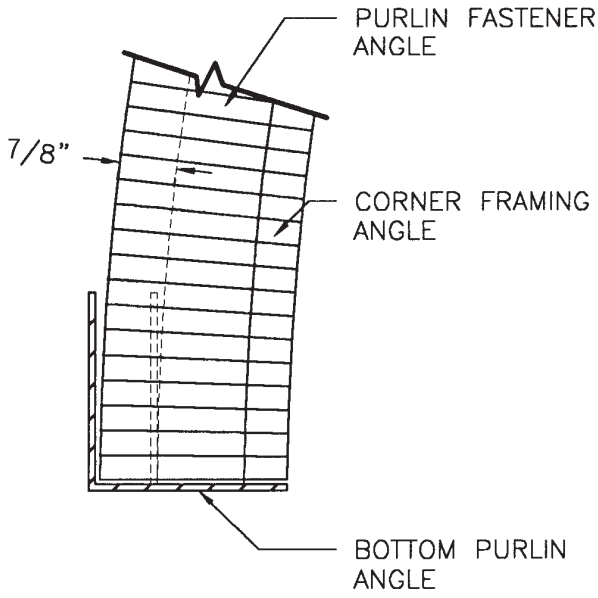
CURVED TEE-PANEL

COMPOUND CURVED FRAMING & ISOMETRIC DETAILS





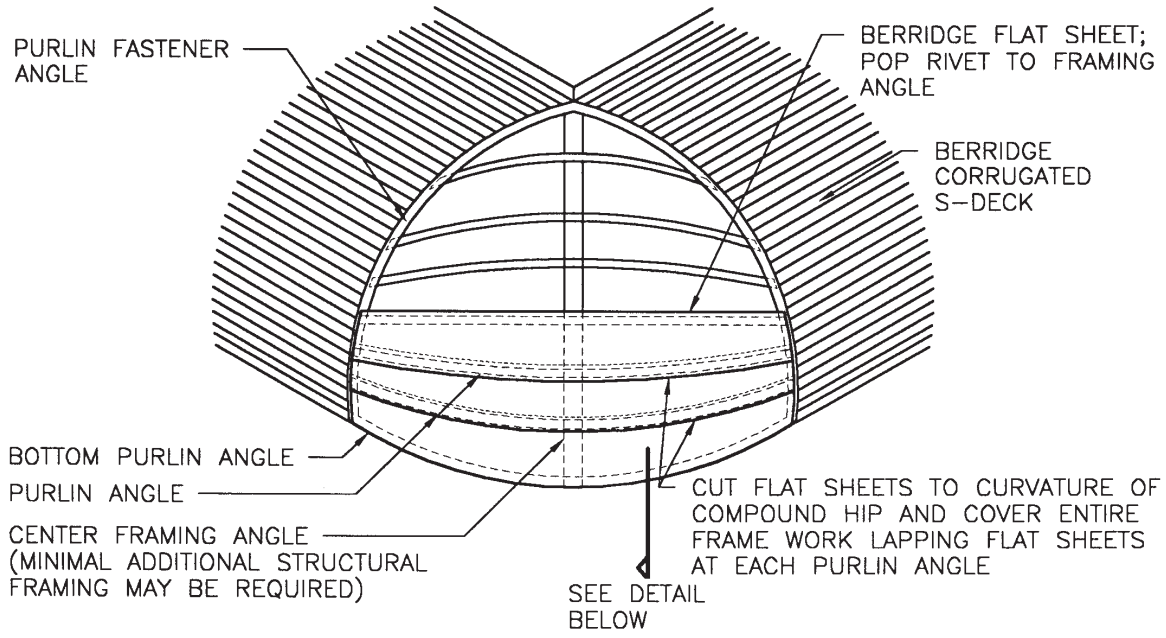
PURLIN FASTENER

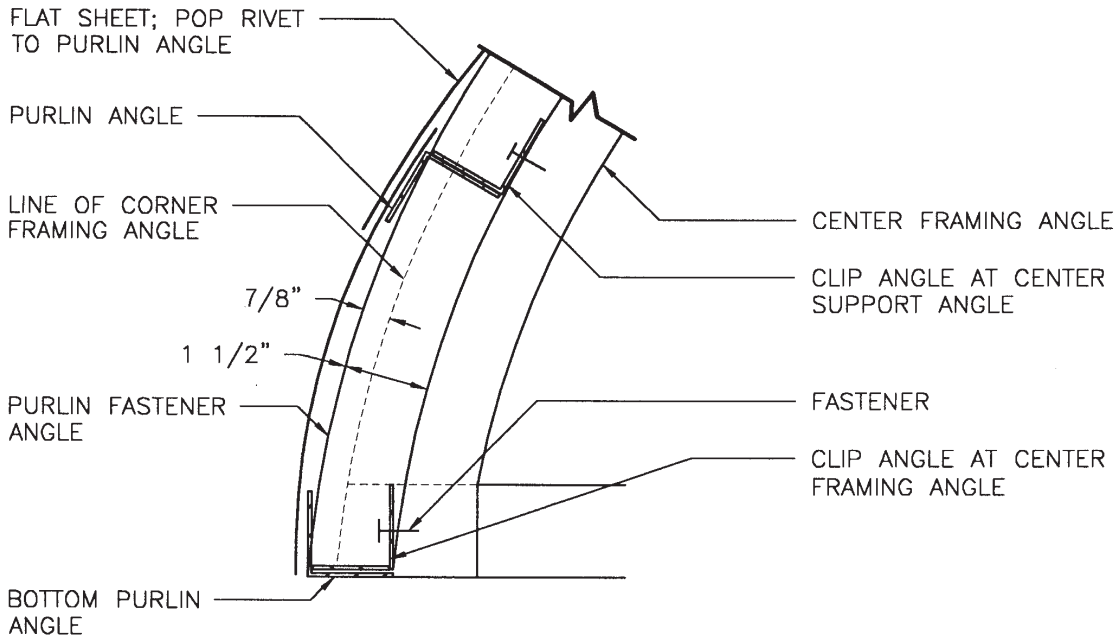


BOTTOM PURLIN

COMPOUND CURVED TEE-PANEL

COMPOUND CURVED FRAMING & ISOMETRIC DETAILS

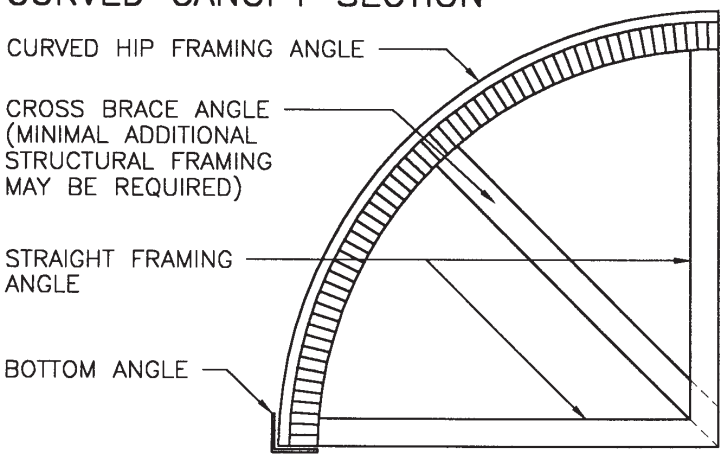




CURVED TEE-PANEL

SECTION DETAILS: CURVED & COMPOUND CURVED CANOPY

CURVED CANOPY SECTION



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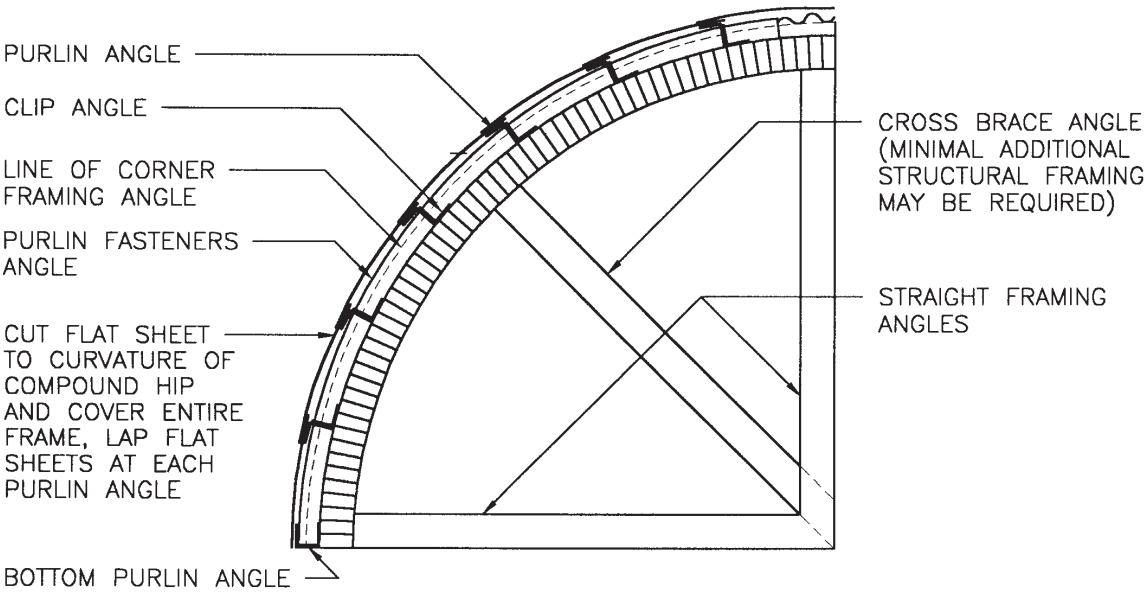
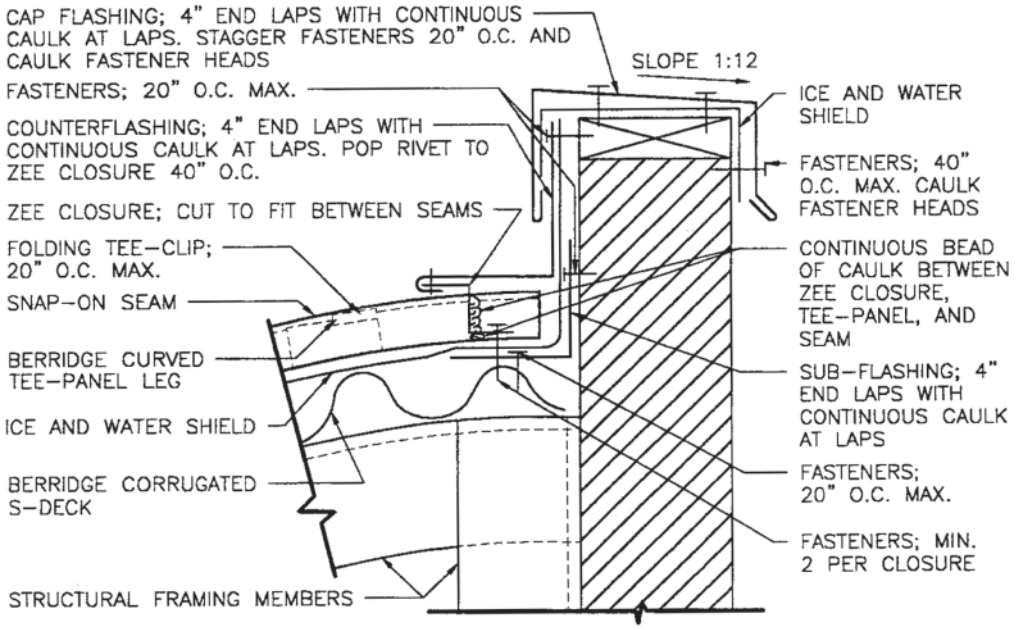
COMPOUND CURVED SECTION

SECTION AT CENTER FRAMING ANGLE



CURVED TEE-PANEL

CONVEX PARAPET DETAILS



1. FIELD CUT ZEE CLOSURE TO FIT BETWEEN SEAMS.
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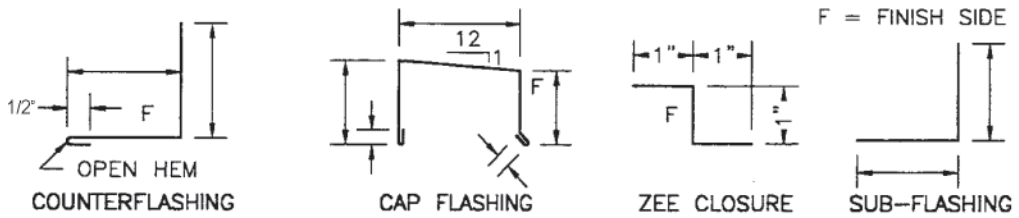

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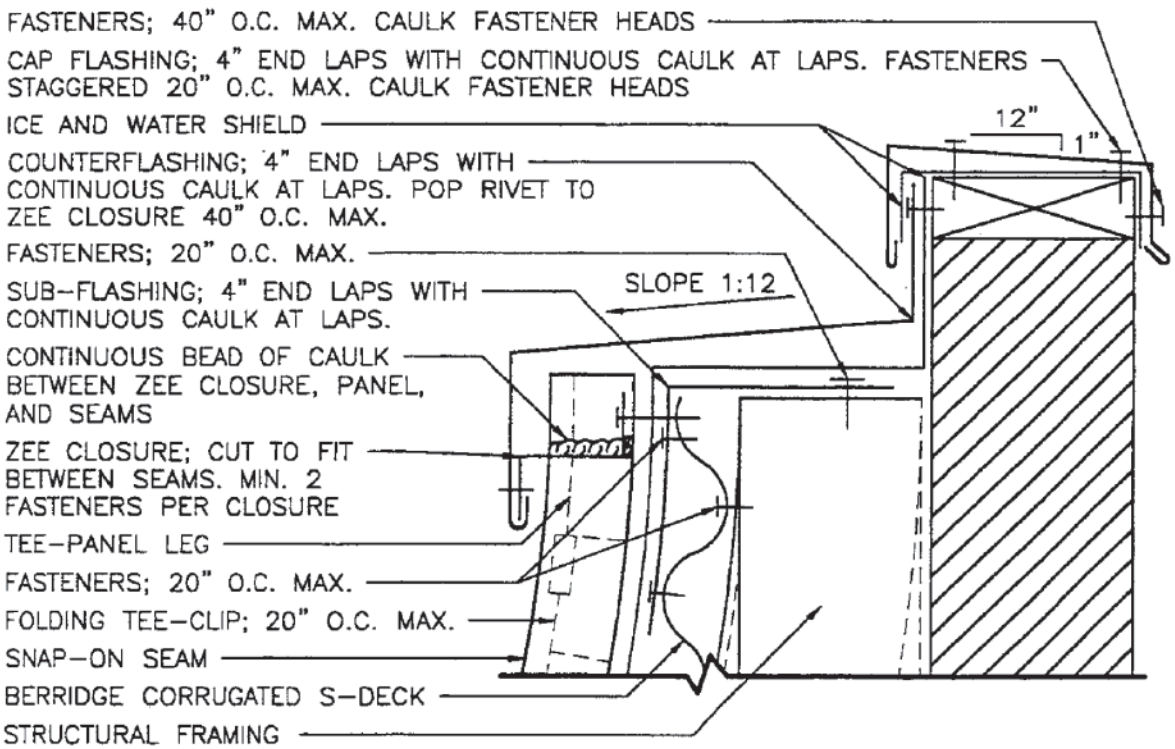
CURVED TEE-PANEL

CONCAVE PARAPET DETAILS



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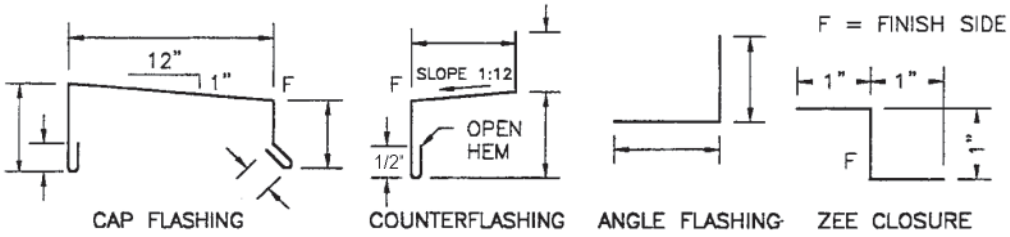

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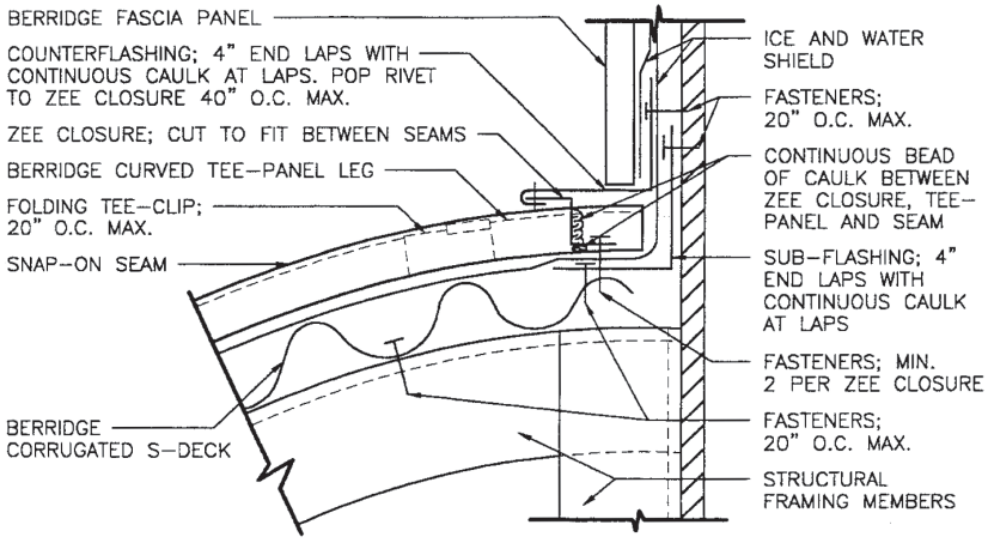
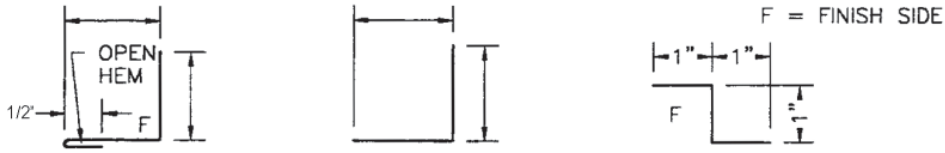
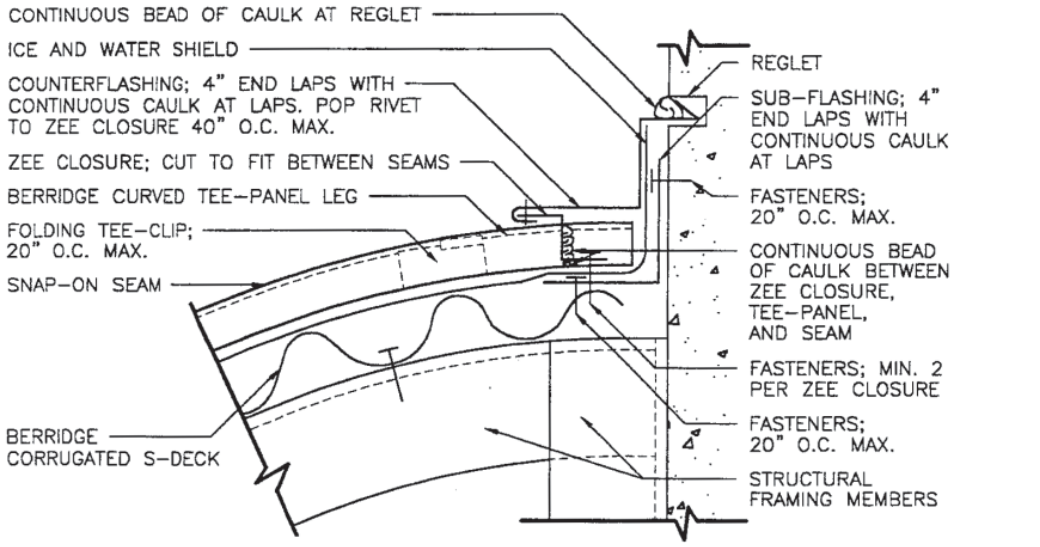
CURVED TEE-PANEL

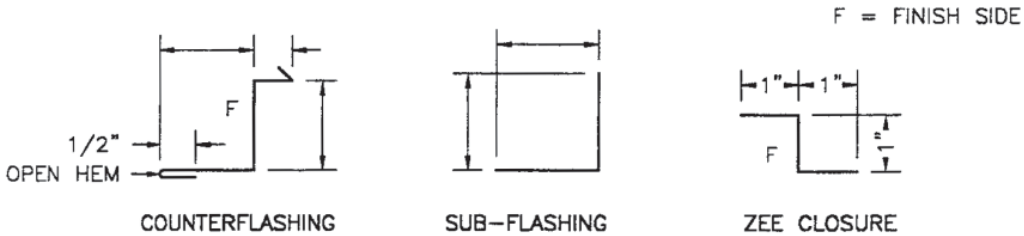
CONVEX HEAD WALL DETAILS





COUNTERFLASHING SUB-FLASHING ZEE CLOSURE





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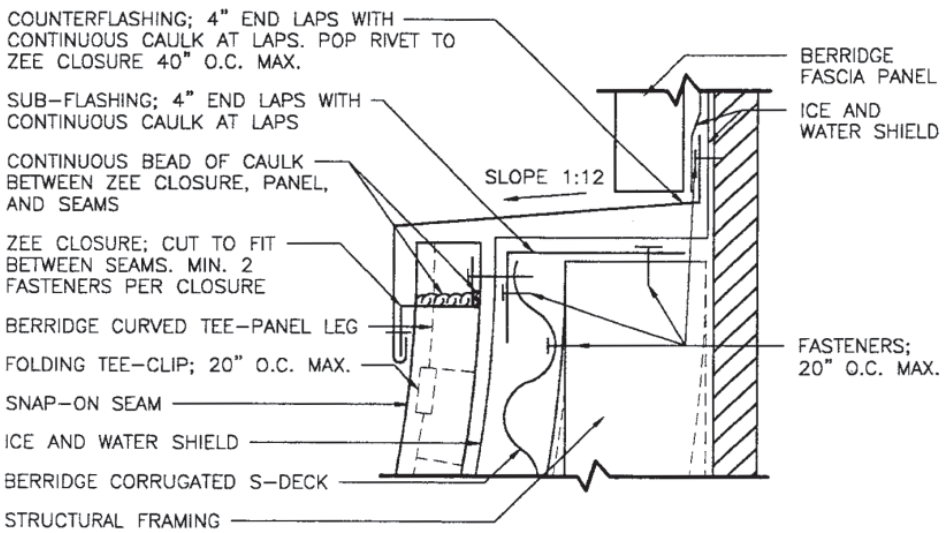
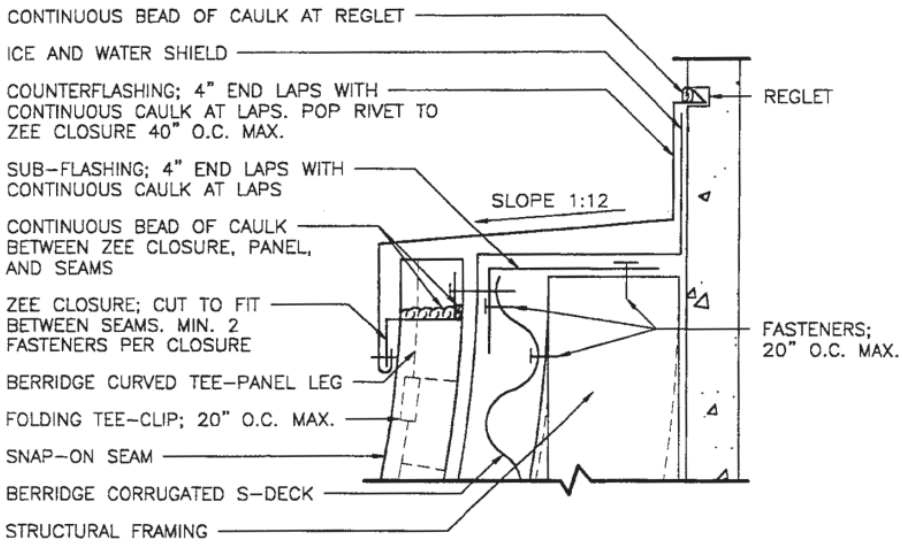
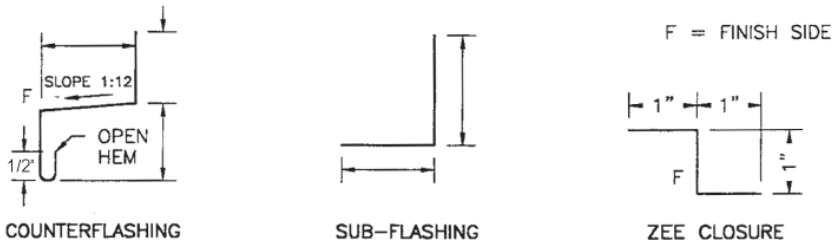
CONCAVE HEAD WALL DETAILS







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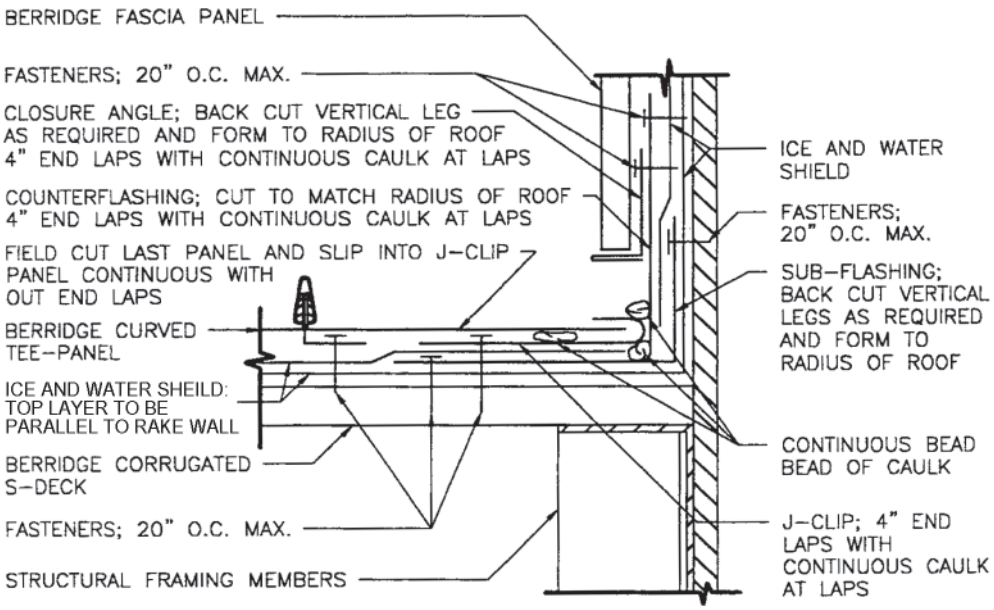
CURVED TEE-PANEL

CONVEX RAKE WALL DETAILS



1. FIELD CUT LAST PANEL AND SLIP INTO J-CLIP.
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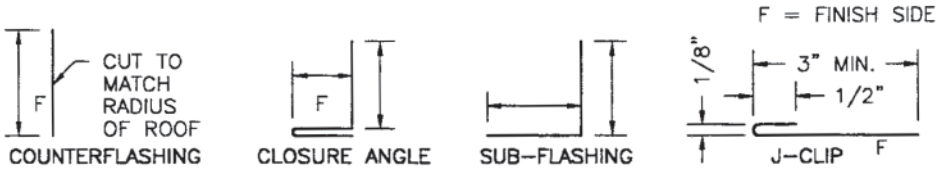

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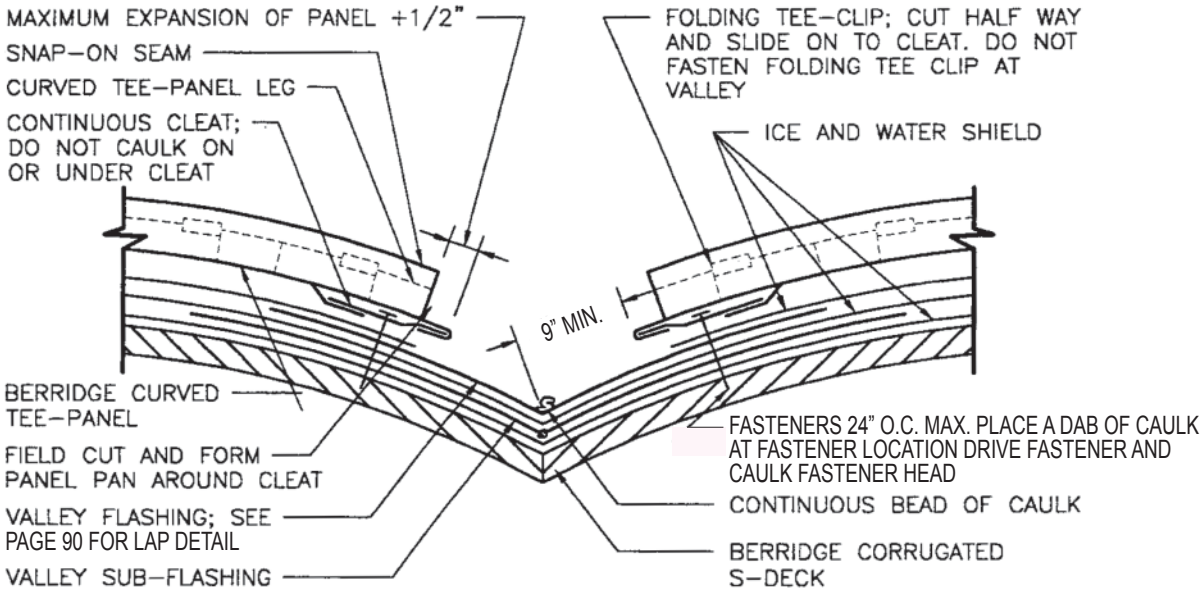
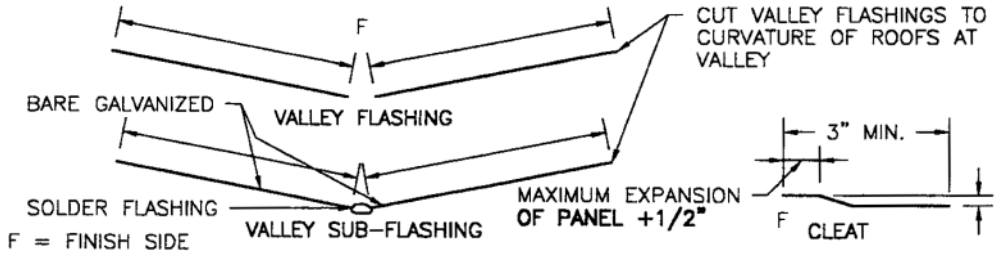
CURVED TEE-PANEL

CONVEX VALLEY FLASHING DETAILS

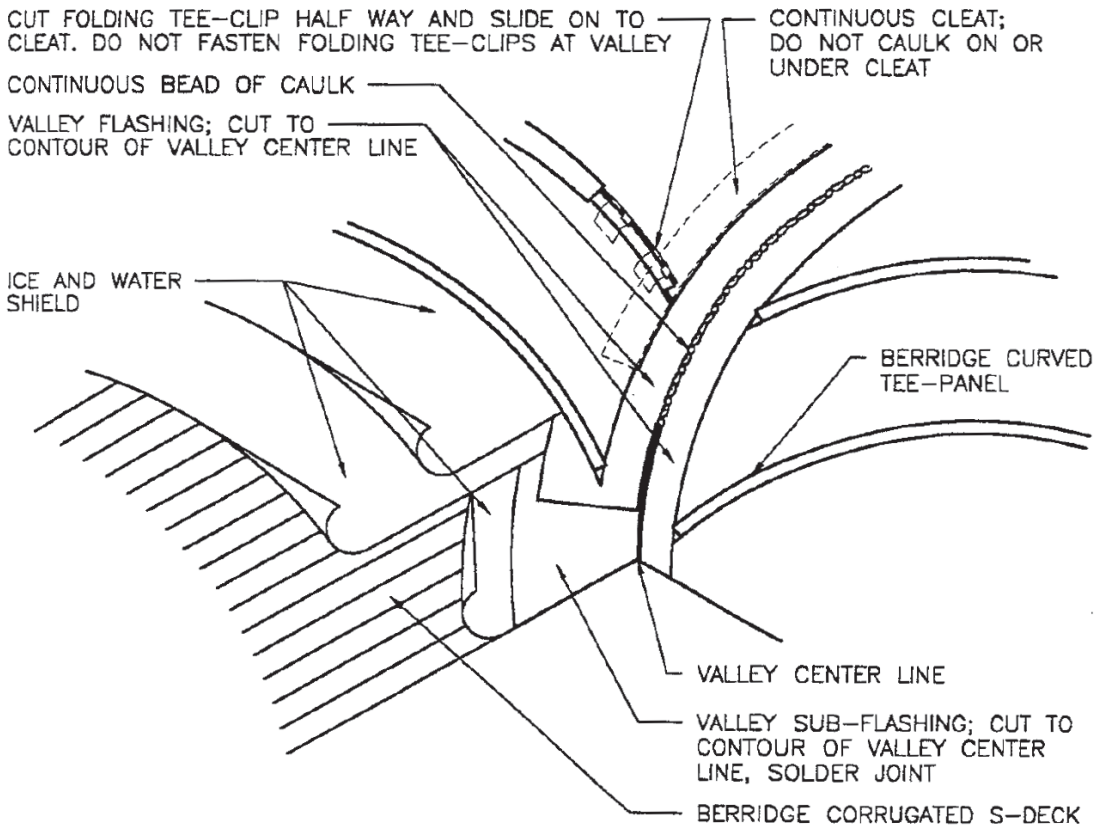


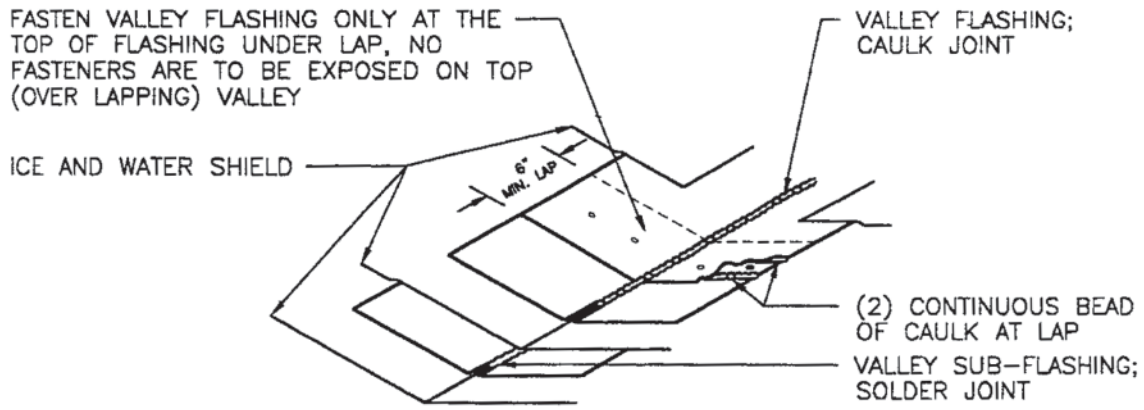
1. THE "GAP" BETWEEN CLEAT AND PANEL (SEE DETAIL ABOVE) CAN BE INCREASED TO ALLOW FOR LINEAR EXPANSION AND CONTRACTION OF PANELS. NOTE 1/2" OF PANEL PAN MUST BE ENGAGED WITH CLEAT WHEN PANEL HAS EXPANDED TO ITS MAXIMUM LENGTH. SEE PAGE 41 FOR EXPANSION NOTES.
2. GAP BETWEEN CLEAT AND PANEL MUST BE ADJUSTED TO SUIT TEMPERATURE DURING INSTALLATION.
3. SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).
4. BERRIDGE 16 GAUGE 1 1/2" x 2" CURVED OR STRAIGHT ANGLE FRAMING IS SHOWN. HEAVIER GAUGE FRAMING MEMBERS MAY BE REQUIRED DEPENDING ON SIZE OF APPLICATION AN LOAD REQUIREMENTS.
5. ALL UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



CURVED TEE-PANEL

CONVEX VALLEY FLASHING ISOMETRIC DETAILS

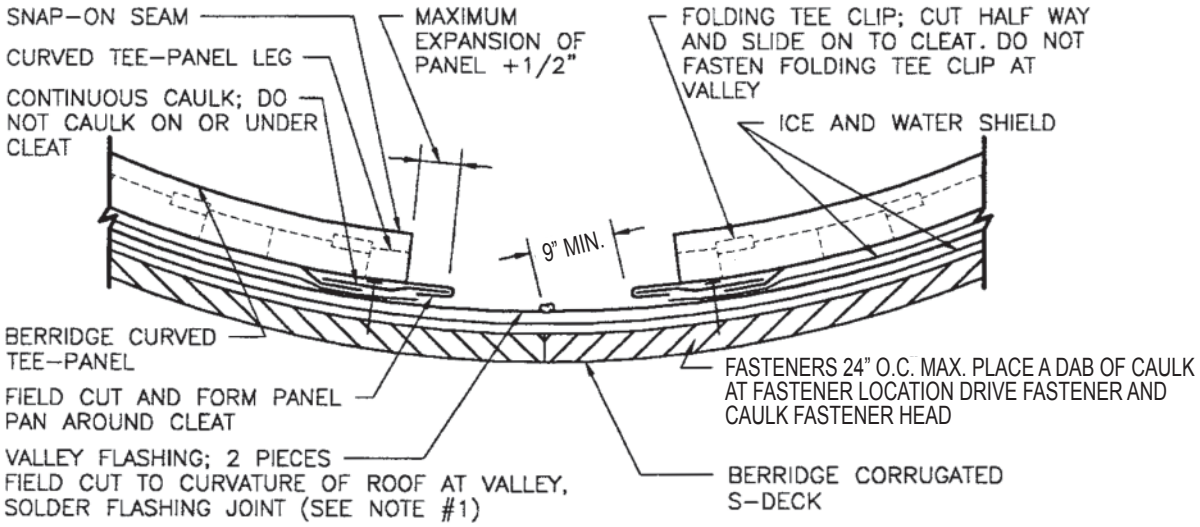




NOTE: DO NOT LAP VALLEY FLASHING AND VALLEY SUB–FLASHING AT SAME LOCATION

CURVED TEE-PANEL

VALLEY FLASHING: CONVEX & CONCAVE



1. VALLEY FLASHING TO BE 24 GAUGE BARE HOT DIPPED GALVANIZED FLAT SHEET METAL. FIELD PAINT PER THE FOLLOWING INSTRUCTION, STEP 1 CLEAN ALL OIL, GREASE AND HAND PRINTS OFF OF SURFACES TO BE PAINTED WITH SOLVENTS, STEP 2 PRIME COAT, .2 MIL OF ZINC CHROMATE PRIMER (YELLOW), STEP 3 TOP COAT, .8 MIL AIR DRY KYNAR 500 TO MATCH CURVED TEE PANEL FINISH.
2. THE "GAP" BETWEEN CLEAT AND PANEL (SEE DETAIL ABOVE) CAN BE INCREASED TO ALLOW FOR LINEAR EXPANSION AND CONTRACTION OF PANELS. NOTE 1/2" OF PANEL PAN MUST BE ENGAGED WITH CLEAT WHEN PANEL HAS EXPANDED TO ITS MAXIMUM LENGTH. SEE PAGE 41 FOR EXPANSION NOTES.
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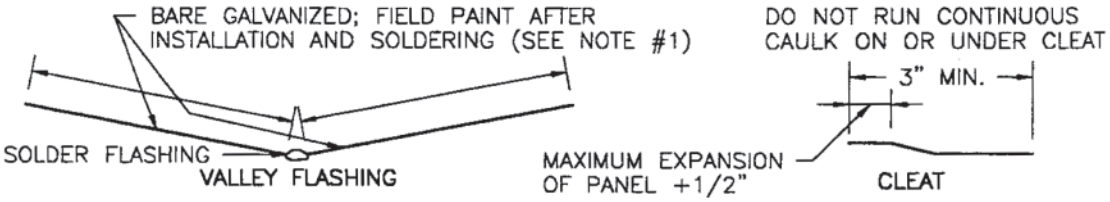
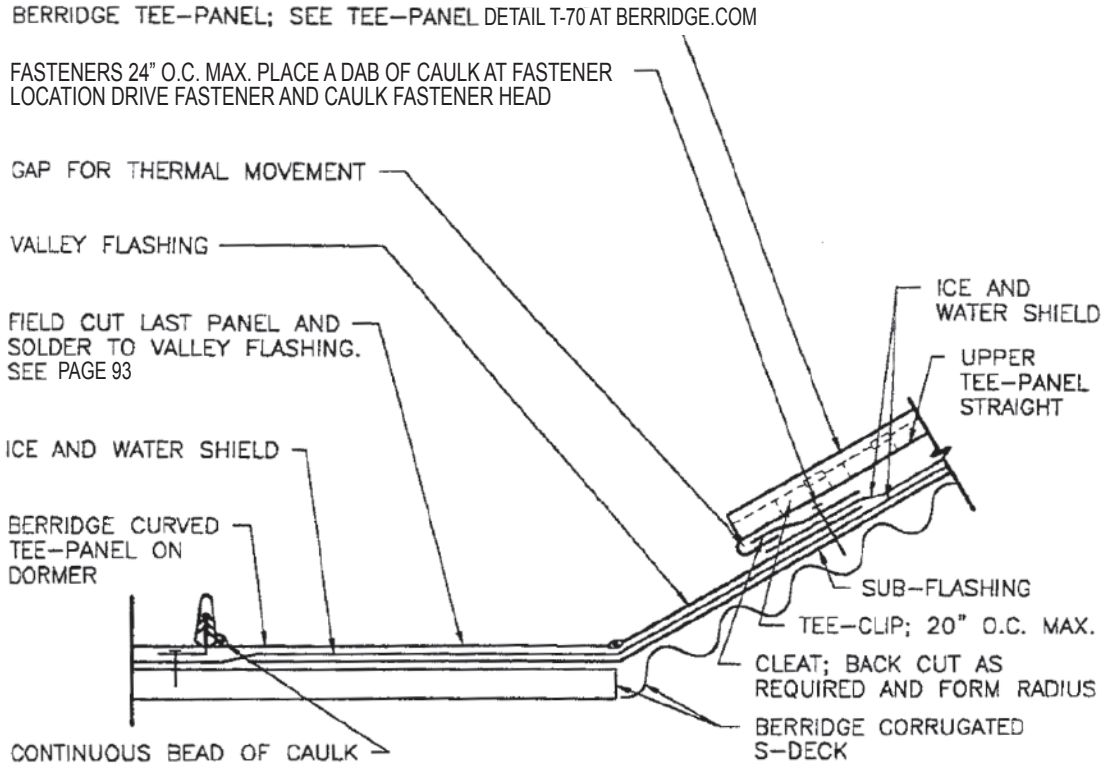


CURVED TEE-PANEL

VAULTED DORMER VALLEY



1. SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).
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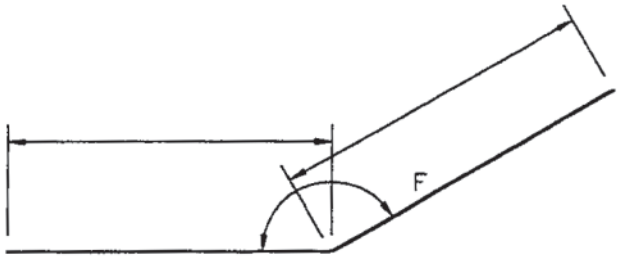
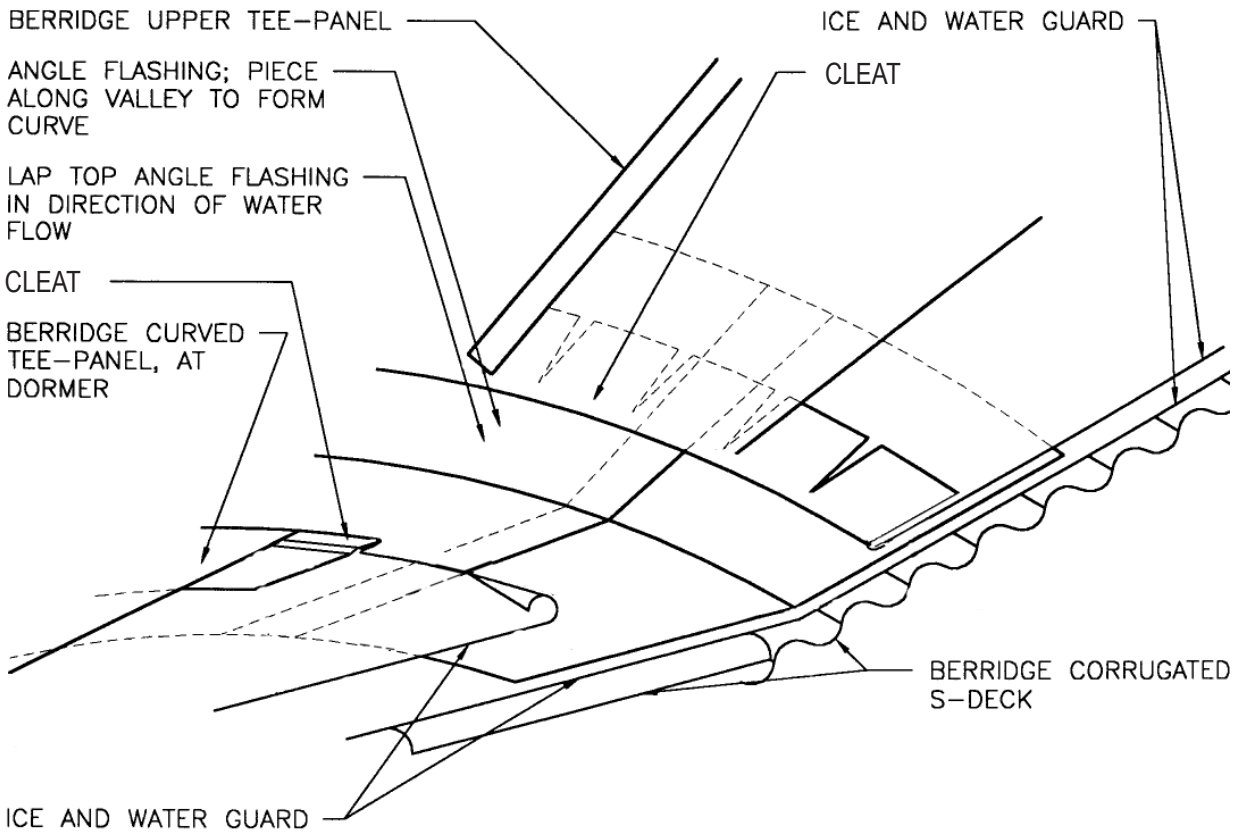


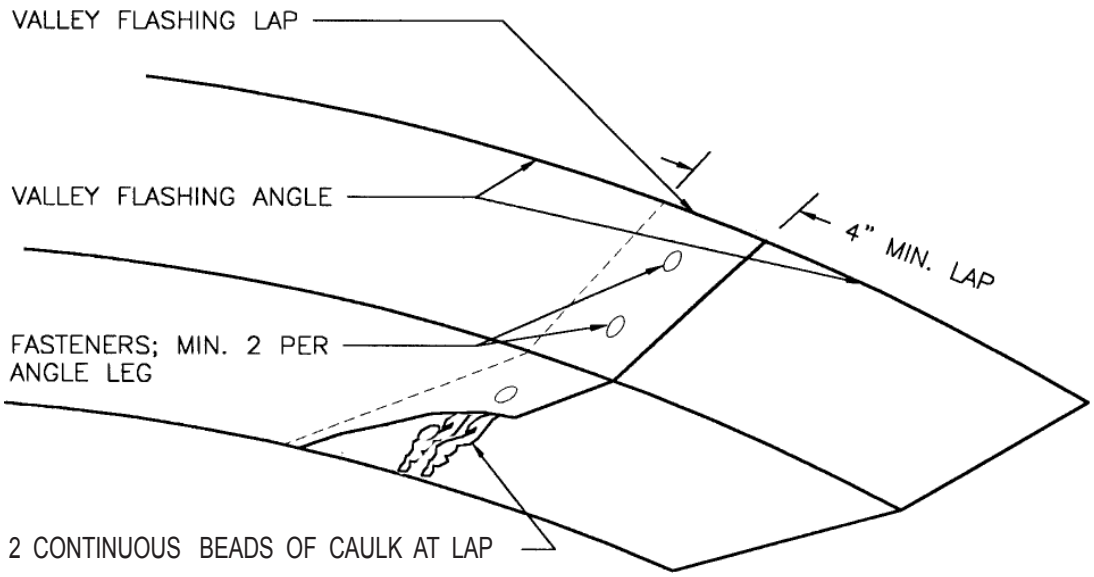
ANGLE FLASHING

F = FINISH SIDE

CURVED TEE-PANEL

VAULTED DORMER VALLEY ISOMETRIC DETAIL





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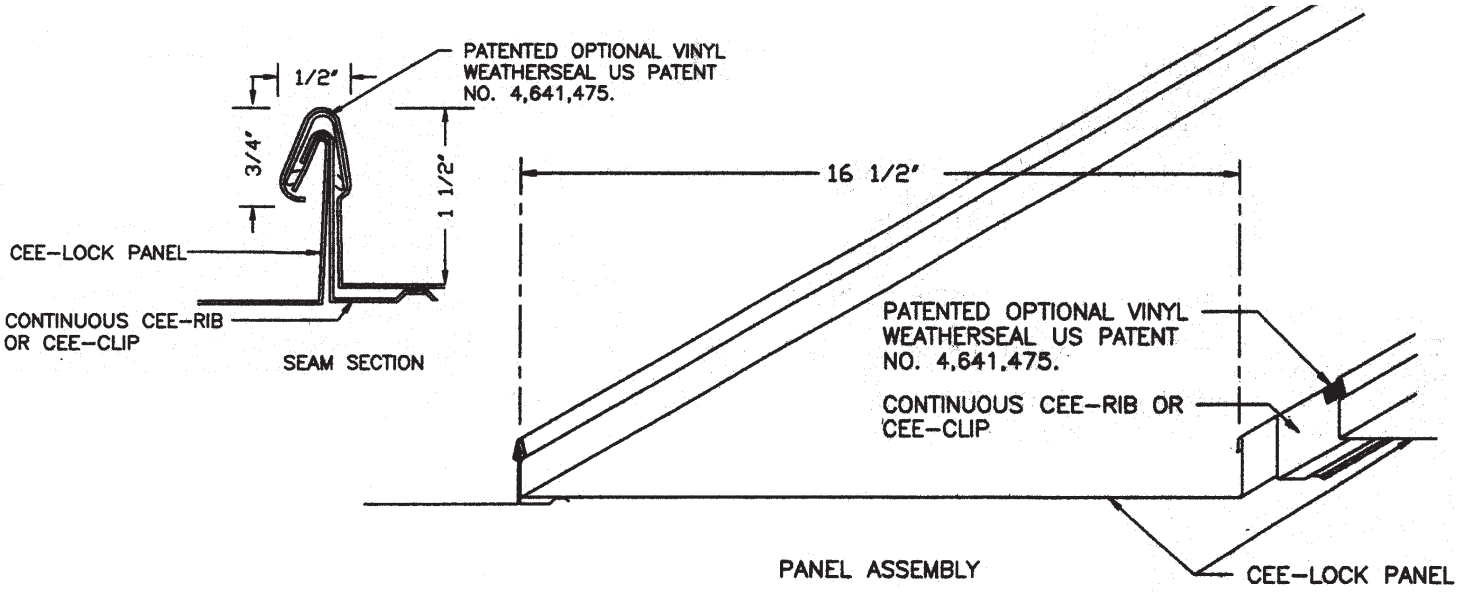
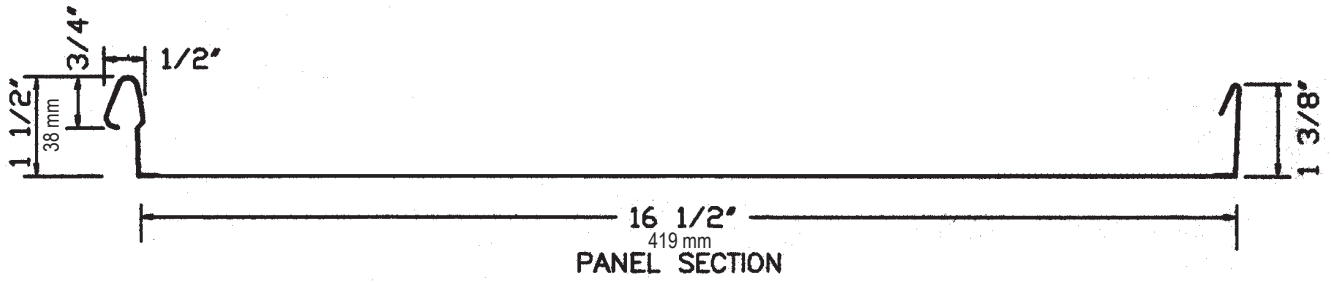
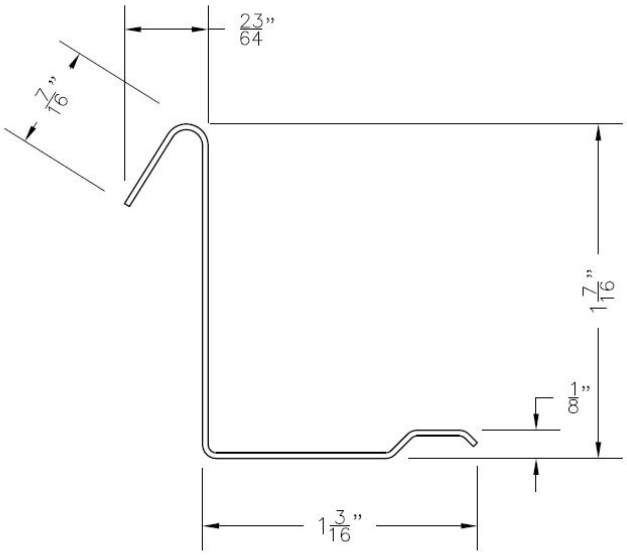
CEE-LOCK PANEL

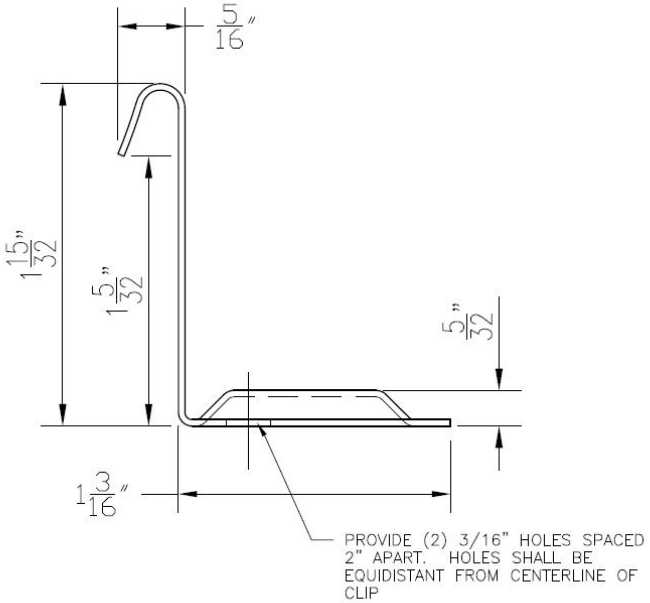
CEE-LOCK PANEL OVERVIEW







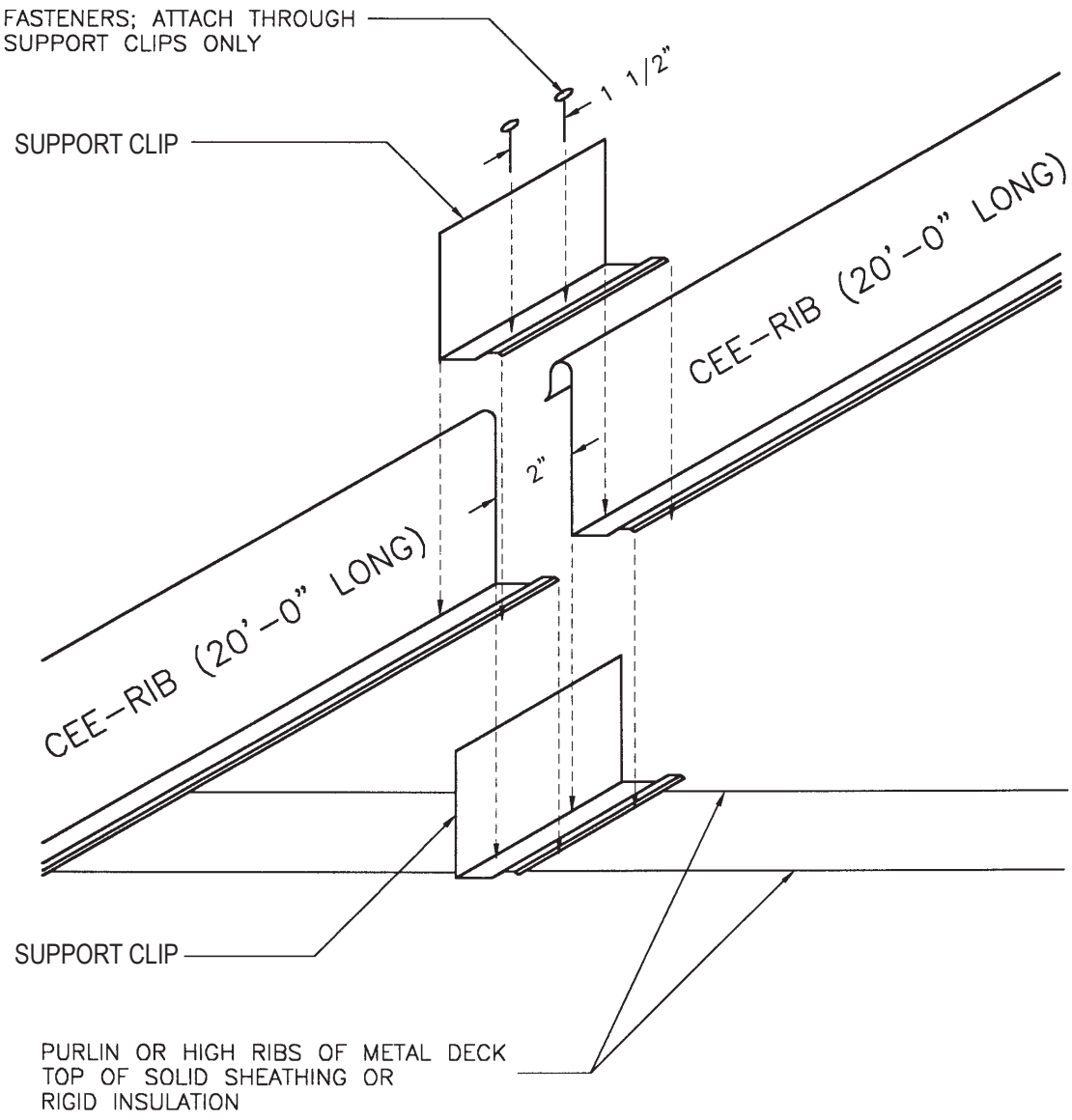
CONTINUOUS CEE-RIB



CEE-CLIP

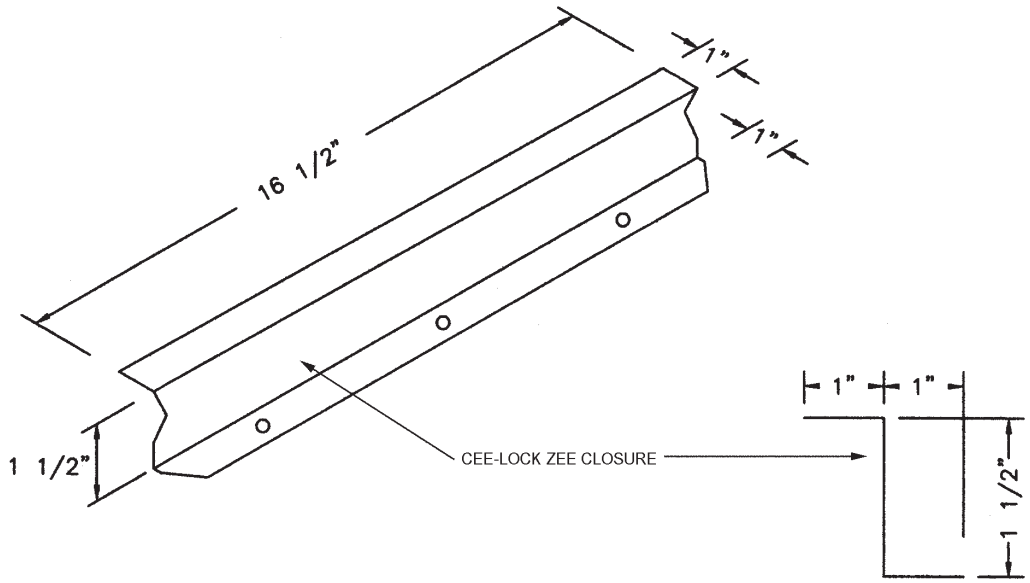
CEE-LOCK PANEL

CEE-RIB EXPANSION JOINT

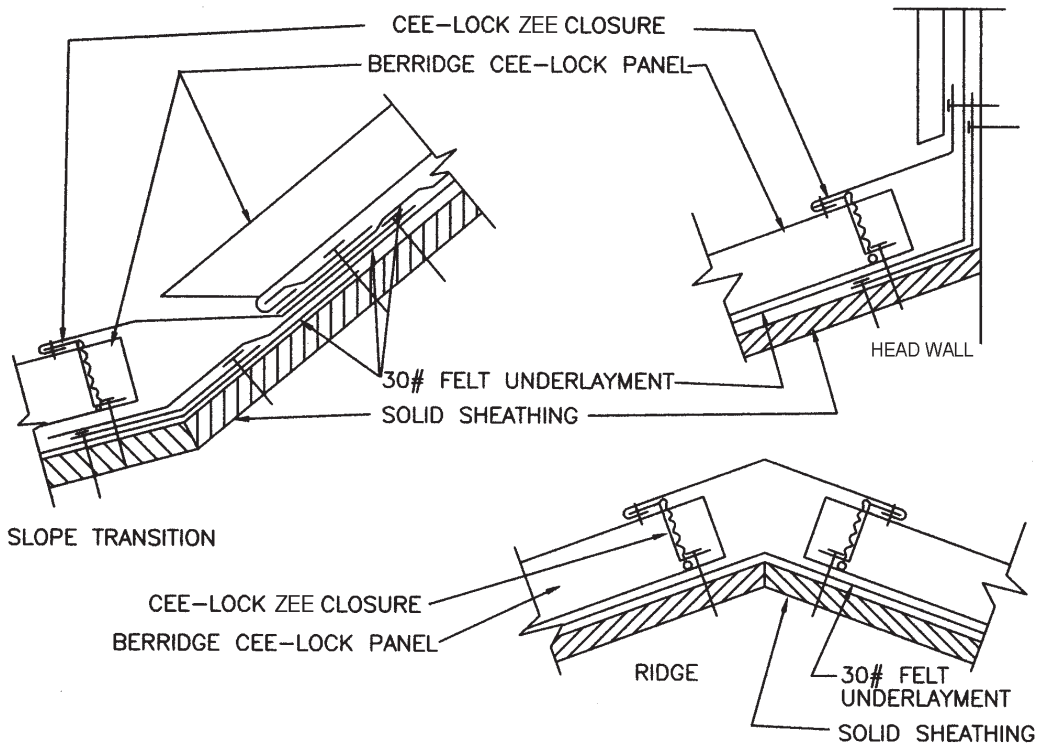


CEE-LOCK PANEL

DIE-FORMED ZEE-CLOSURE



ZEE CLOSURE IS DIE FORMED TO FIT PERPENDICULARLY BETWEEN PANEL SEAMS.



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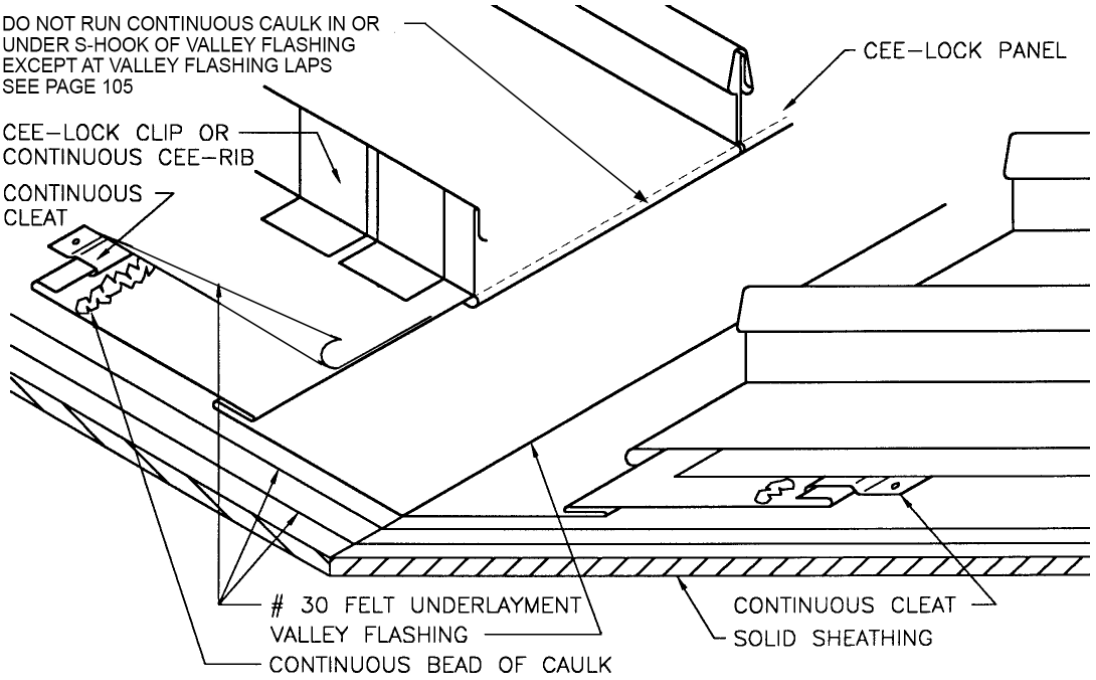
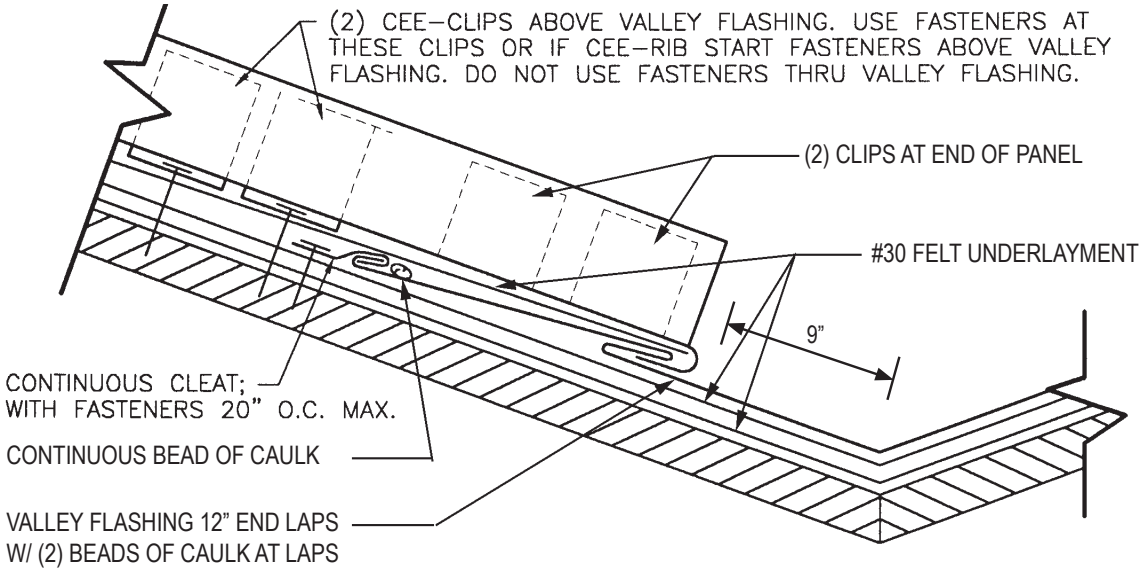
CEE-LOCK PANEL

VALLEY ISOMETRIC DETAIL

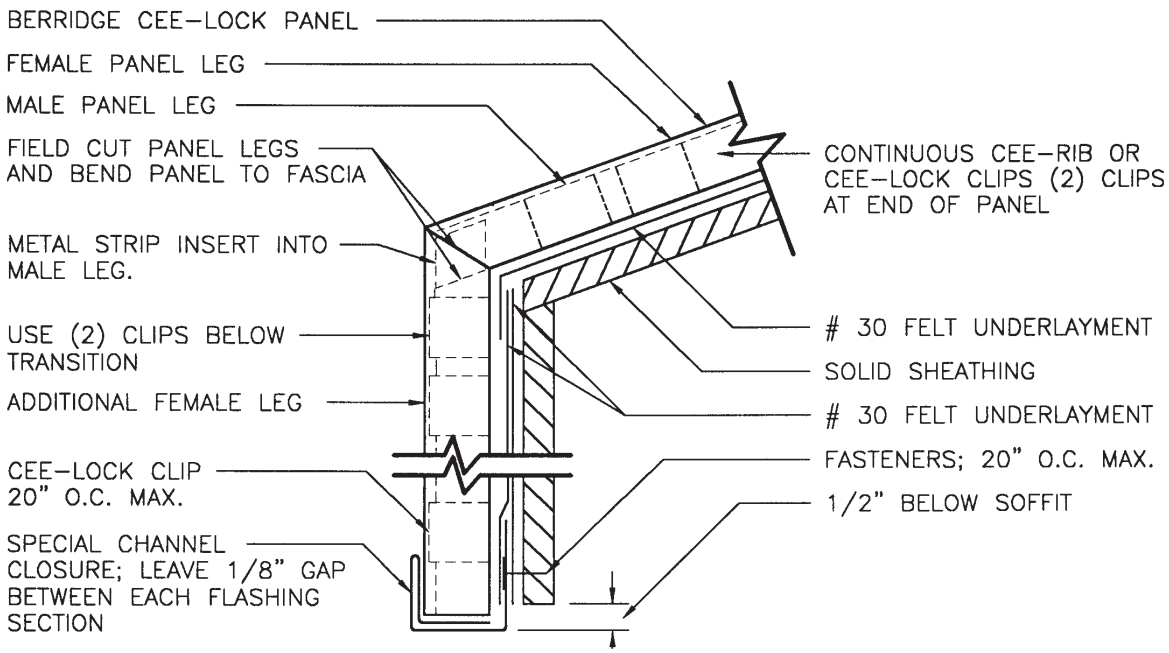




VALLEY FLASHING MINIMUM STRETCH OUT IS 42"

CEE-LOCK PANEL

ROOF-TO-FASCIA PANEL TURNDOWN DETAIL

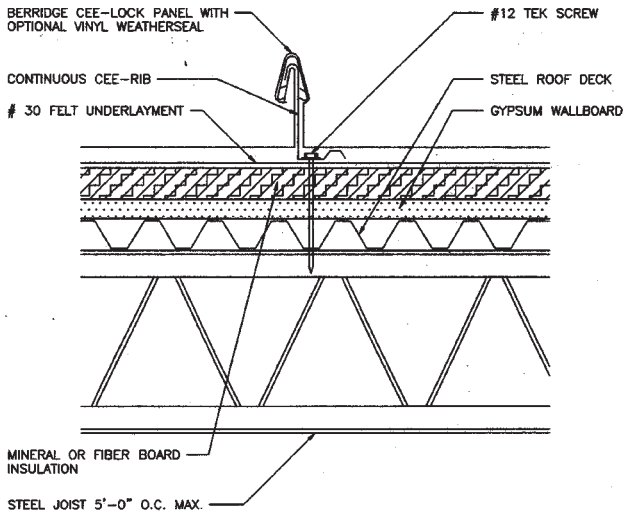


SEE BERRIDGE WEB SITE DETAILS CL-63 AND CL-64 FOR ADDITIONAL INFORMATION

1. FIELD CUT LEGS AND BEND PANEL AS REQUIRED FOR CHANGE IN SLOPE FROM ROOF TO FASCIA.
2. ONLY ONE SLOPE TRANSITION PER PANEL IS RECOMMENDED.
3. IF SOLID SHEATHING (BY OTHERS) IS USED, SHEATHING MUST BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
4. ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

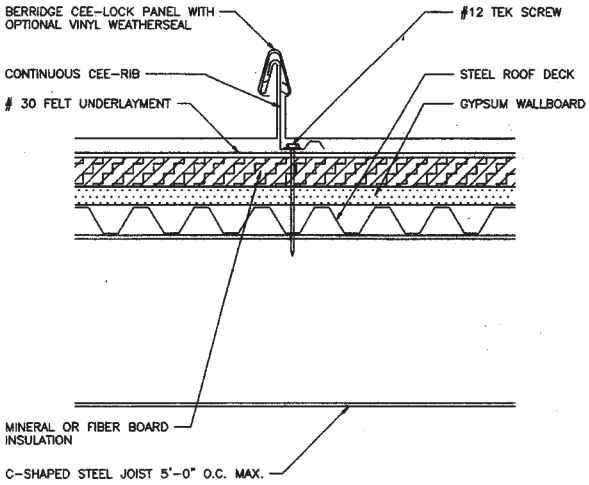
CEE-LOCK PANEL

U.L. FIRE RESISTANCE ROOF ASSEMBLIES



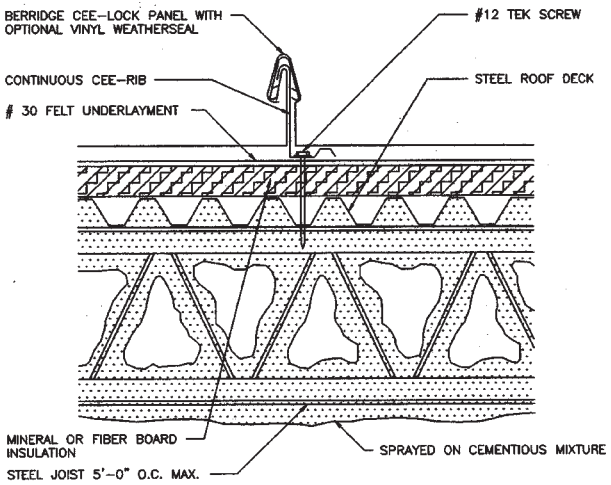
OPEN WEB STEEL JOISTS

QUALIFIES FOR UL DESIGN NUMBERS P224, P225, P230, P237, P508, P510 AND P227 USING CELLULAR GLASS BLOCK IN LIEU OF MINERAL INSULATION BOARD.



C-SHAPED STEEL JOISTS

QUALIFIES FOR UL DESIGN NUMBER P512



OPEN WEB STEEL JOIST WITH CEMENTITIOUS THERMAL BARRIER

QUALIFIES FOR UL DESIGN NO. P701, P711, P713, P715, P717, P803, P814, P815, P819 AND P821 USING SPRAYED-ON FIBER IN LIEU OF CEMENTITIOUS MIXTURE.

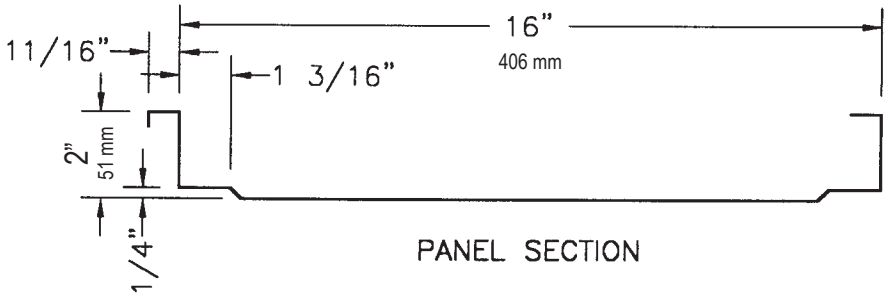
GENERAL NOTES:

1. IN ORDER TO QUALIFY FOR A FIRE-RESISTANT RATING, THE ROOF SYSTEM CANNOT MAKE A PENETRATION IN THE INSULATION SYSTEM. THE CEE-LOCK PANEL, IN ORDER TO MAKE A POSITIVE ATTACHMENT, MUST BE ATTACHED TO THE STEEL DECK. (IF THE INSULATION SYSTEM HAS NO NAILABLE SURFACE).

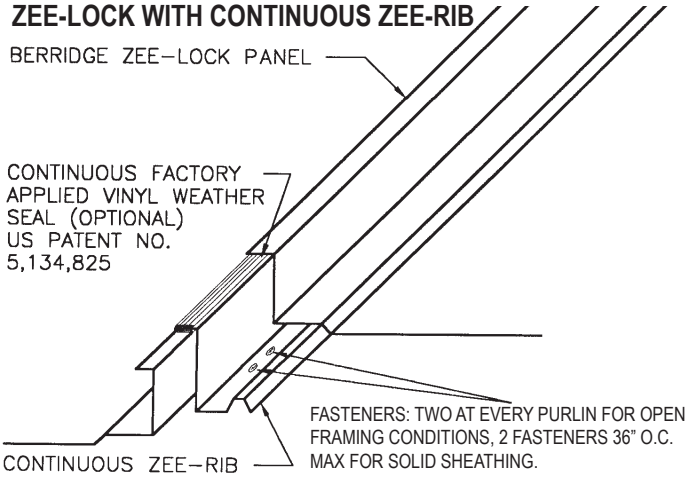
2. ADDITIONAL INFORMATION REGARDING THIS ASSEMBLY IS AVAILABLE IN THE UL FIRE RESISTANCE DIRECTORY.

ZEE-LOCK PANEL

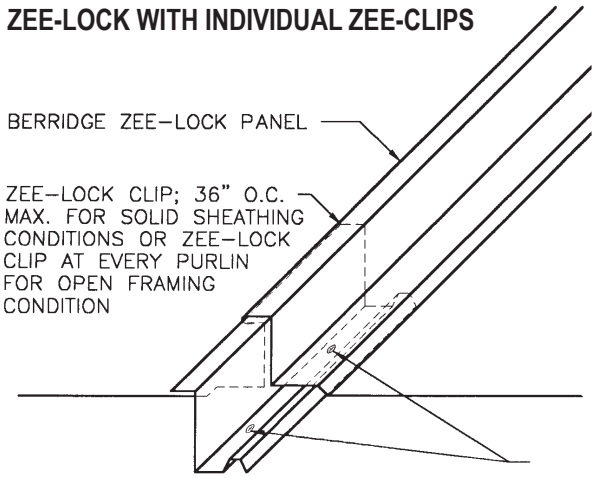
ZEE-LOCK PANEL OVERVIEW

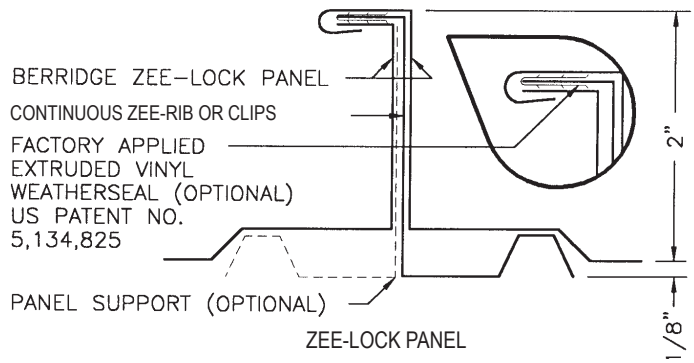


ZEE-LOCK WITH CONTINUOUS ZEE-RIB

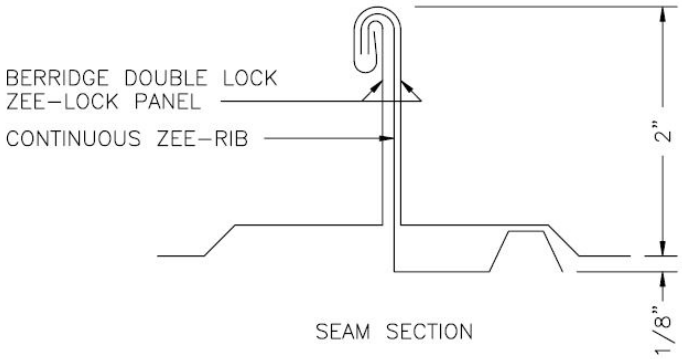


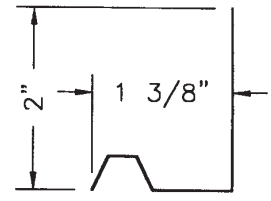
ZEE-LOCK WITH INDIVIDUAL ZEE-CLIPS

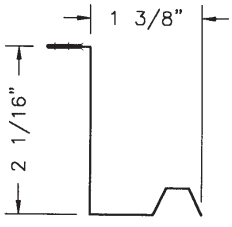




CURVED ZEE-LOCK PANEL MIN. RAIDIUS 20'-0" VINYL WEATHERSEAL REQUIRED







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ZEE-LOCK PANEL

STRUCTURAL PROPERTIES

ZEE-LOCK WITH CONTINUOUS ZEE-RIB

SECTION PROPERTIES BASED ON 24 GAUGE 40 K.S.I.			
ZEE-LOCK PANEL WITH CONTINUOUS 24-GAUGE ZEE-RIB	dI_x (In^4/ft)	M_A (Ft-lbs/Ft)	V_A (Lbs)
POSITIVE BENDING	0.1525	184.65	990
NEGATIVE BENDING	0.1030	161.33	990

PROPERTIES ARE EFFECTIVE AND ARE FOOT OF PANEL COVERAGE. BASED ON **1986 AISI COLD FORM STEEL DESIGN MANUAL, MARCH 1987**, AND RATIONAL ANALYSIS. DESIGN THICKNESS = 0.0215 IN.

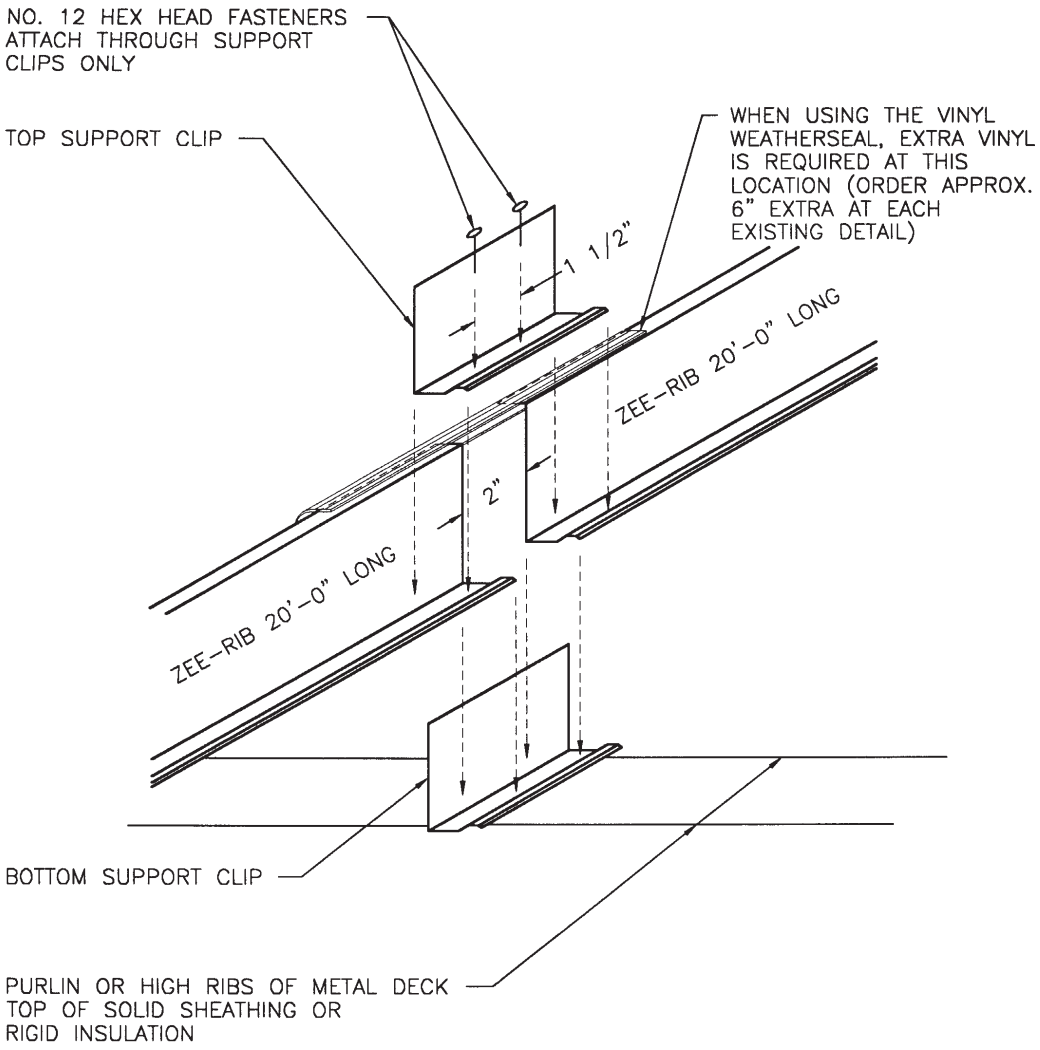
RECOMMENDED LOAD IN POUNDS PER SQUARE FOOT (PANEL WEIGHT = 1.3 PSF)						
SPAN (FEET)	NET VERTICAL LIVE LOAD			NET VERTICAL WIND UPLIFT		
	1-SPAN	2-SPAN	3-SPAN	1-SPAN	2-SPAN	3-SPAN
2'-0"	50	70	70	90	90	90
2'-6"	45	70	70	90	90	90
3'-0"	40	70	70	90	90	90
3'-6"	35	70	70	90	90	90
4'-0"	30	60	70	85	80*	80*
4'-6"	25	50	55	65	70*	70*
5'-0"	20	40	45	55	60	65*
6'-0"		25	35		40	50
7'-0"		20	25		30	35

NOTES:

1. ALL LOADS MEET L/240 DEFLECTION CRITERIA UNLESS OTHERWISE NOTED.
2. WIND LOAD ALLOWABLES INCREASED BY 33 PERCENT.
3. *DENOTES LOADS CONTROLLED BY STANDARD UL-90 CONNECTION
4. CONTACT BERRIDGE TECHNICAL DEPARTMENT FOR ASTM E-1592 AND UL580 TEST RESULTS.

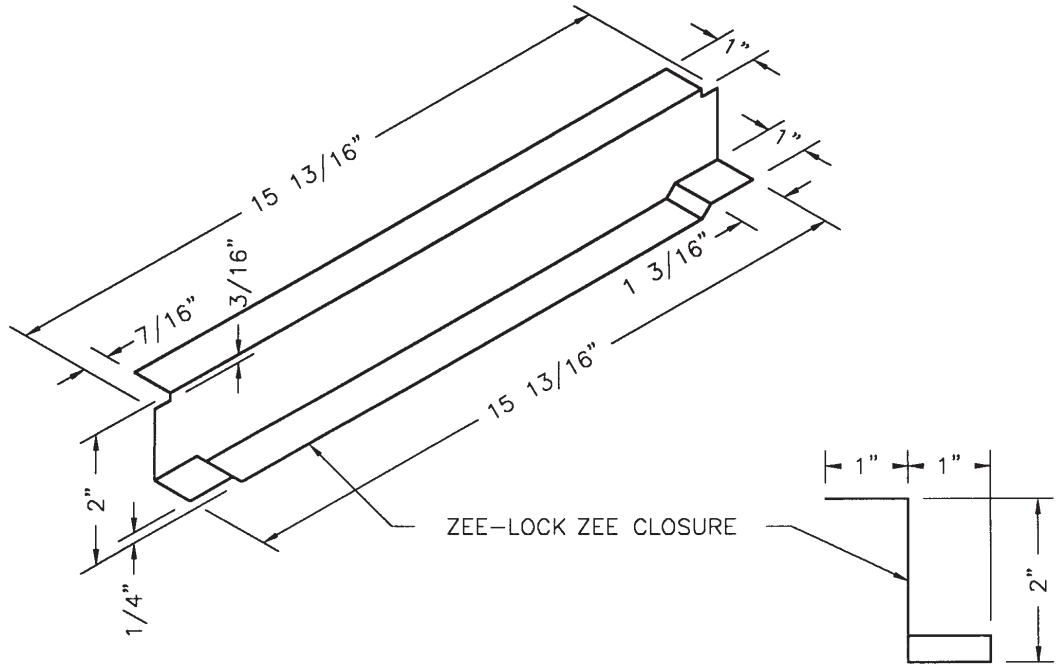
ZEE-LOCK PANEL

EXPANSION JOINT DETAIL

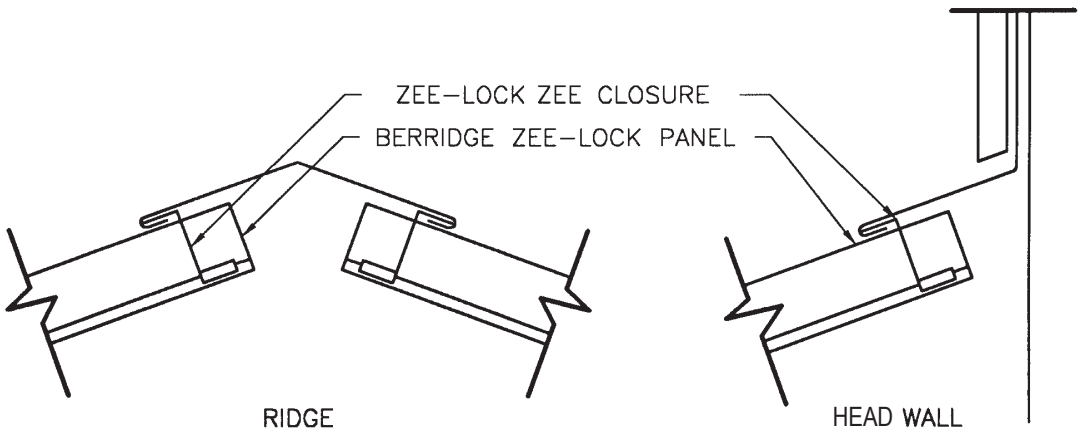


ZEE-LOCK PANEL

DIE-FORMED ZEE-CLOSURE

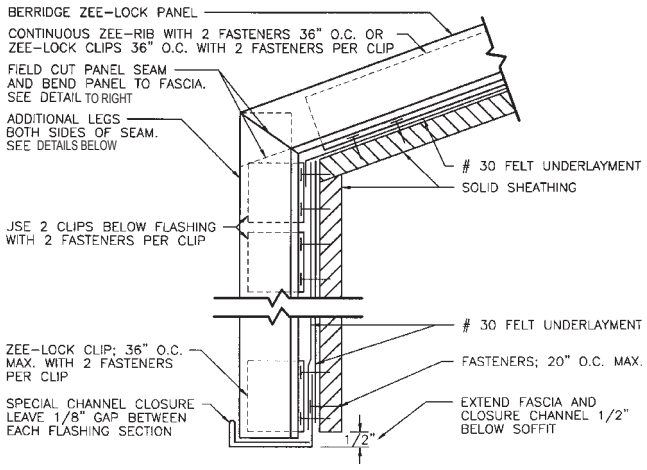


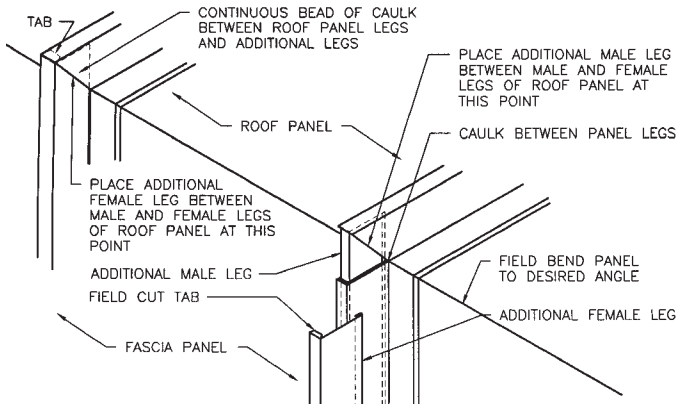
ZEE CLOSURE IS DIE FORMED TO FIT PERPENDICULARLY BETWEEN PANEL SEAMS.

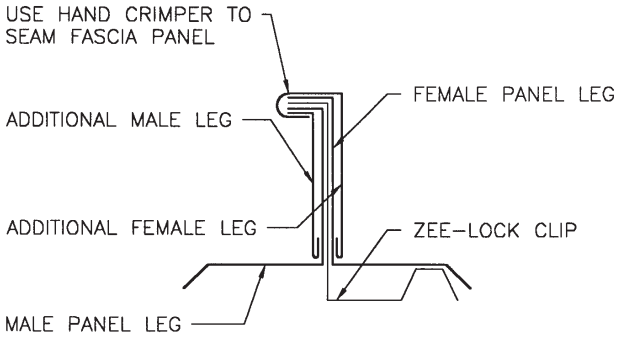


ZEE-LOCK PANEL

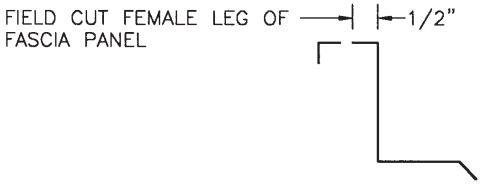
ROOF-TO-FASCIA PANEL TURNDOWN DETAIL

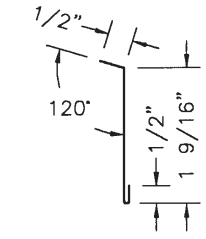




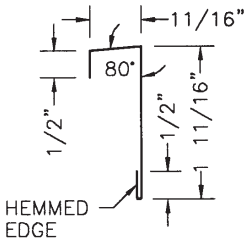


SEAM SECTION AT FASCIA





ADDITIONAL MALE LEG

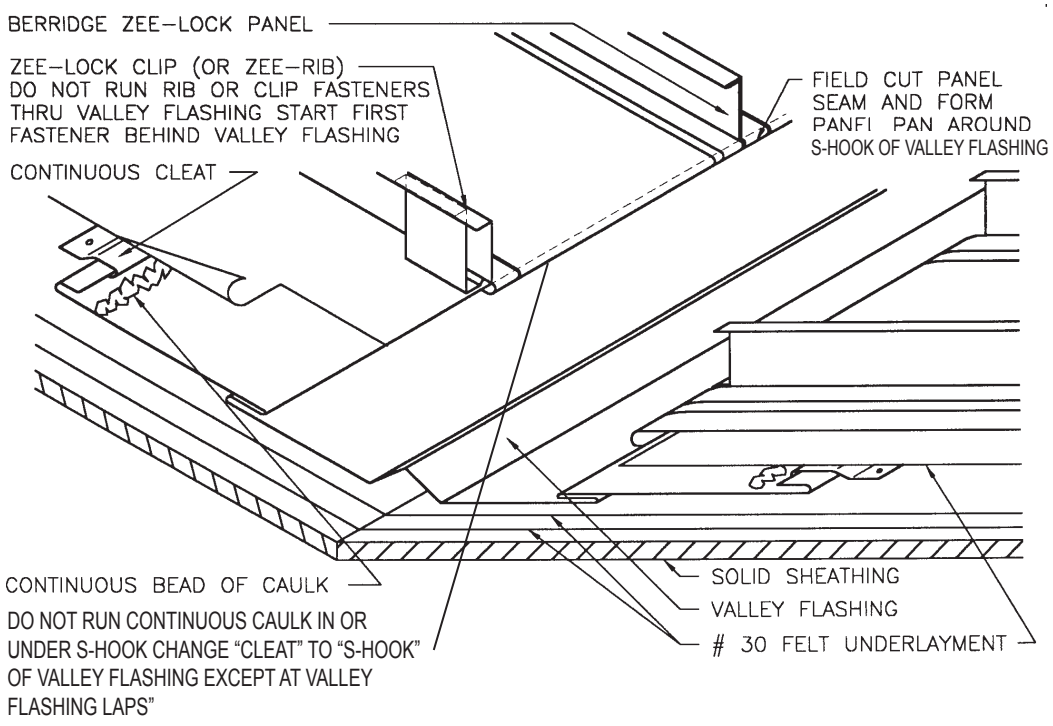


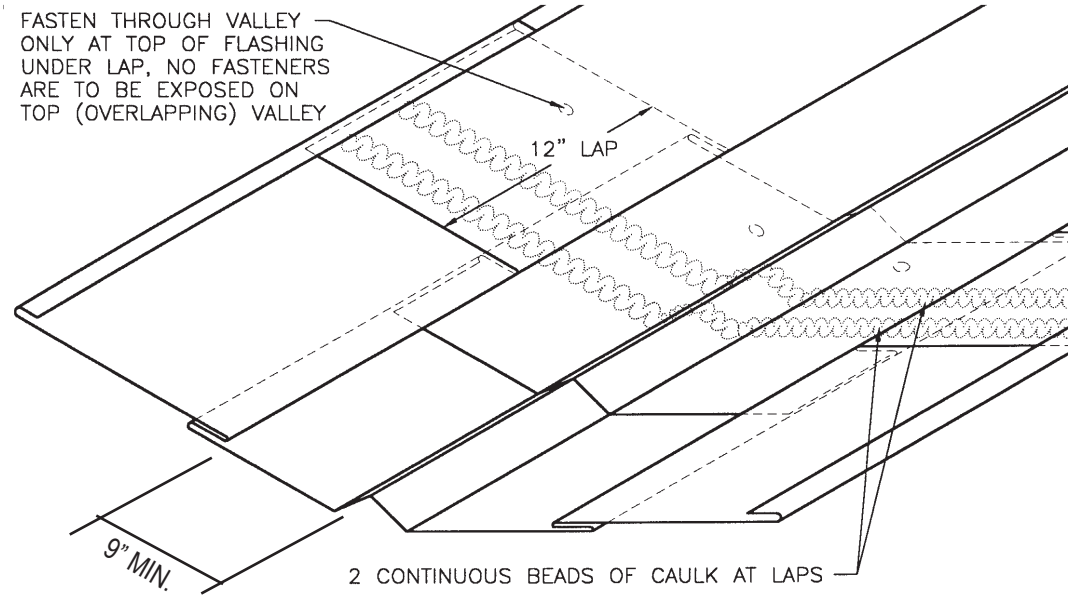
ADDITIONAL FEMALE LEG

1. FIELD CUT SEAM AND BREAK PANEL TO DESIRED ANGLE OF ROOF TO FASCIA.
2. PLACE PANELS ON ROOF, USE THE CONTINUOUS ZEE-RIB OR ZEE-LOCK CLIP ON ROOF. USE ONLY ZEE-LOCK CLIPS ON FASCIA.
3. ONLY ONE SLOPE TRANSITION PER PANEL IS RECOMMENDED. MAXIMUM FASCIA SPAN FOR OPEN FRAMING IS 3'-0".
4. USE HAND SEAM CRIMPER ON ROOF PANELS AS REQUIRED TO KEEP PANELS IN PLACE.
5. CAULK JOINT BETWEEN PANELS LEGS.
6. INSTALL ADDITIONAL MALE AND FEMALE LEGS AS SHOWN ABOVE ON "SEAM SECTION AT FASCIA" DETAIL. (THE ADDITIONAL LEGS MAY BE FIELD FABRICATED OR PURCHASED FROM THE FACTORY).
7. USE HAND SEAM CRIMPER TO SEAM PANEL ON FASCIA THEN MACHINE SEAM ROOF PANELS.
8. CAULK BETWEEN ROOF PANEL LEGS AND ADDITIONAL LEGS. SEE DETAIL ABOVE.

ZEE-LOCK PANEL

ISOMETRIC VALLEY DETAILS

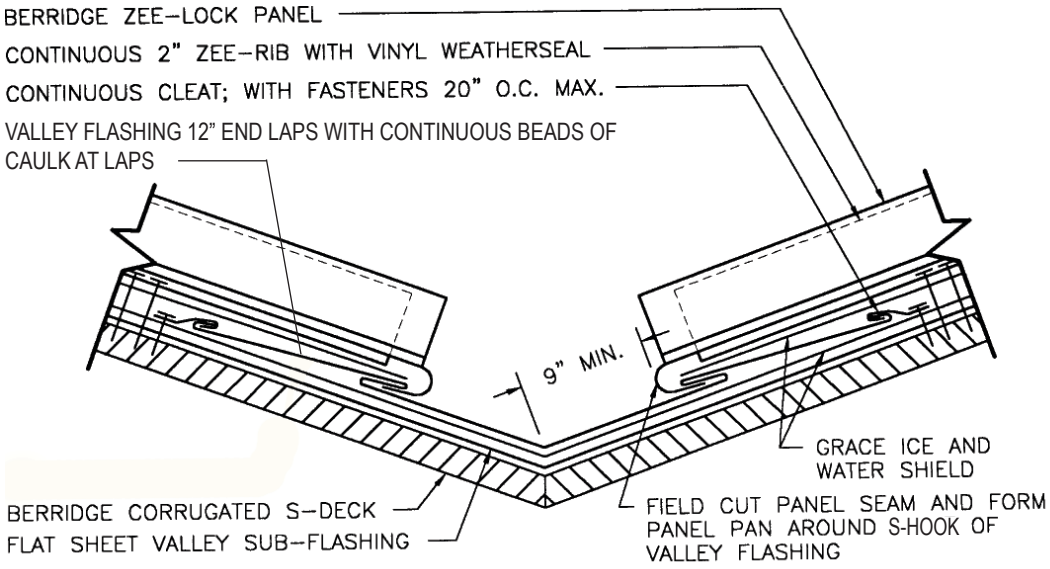




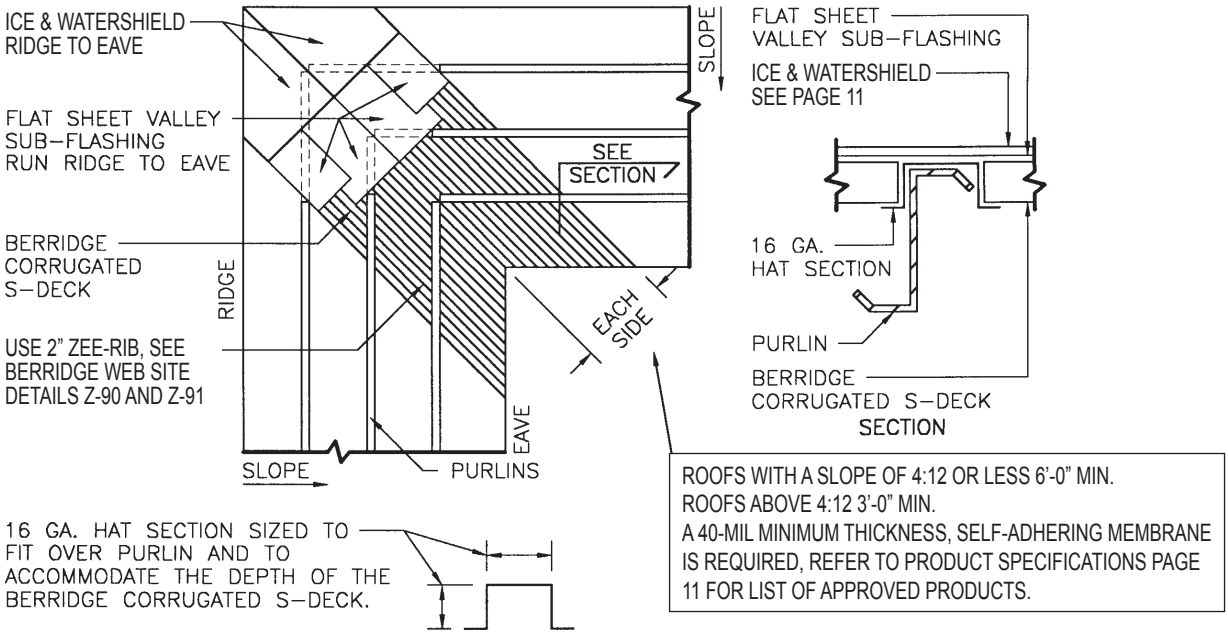
VALLEY FLASHING MINIMUM STRETCH OUT IS 42"

ZEE-LOCK PANEL

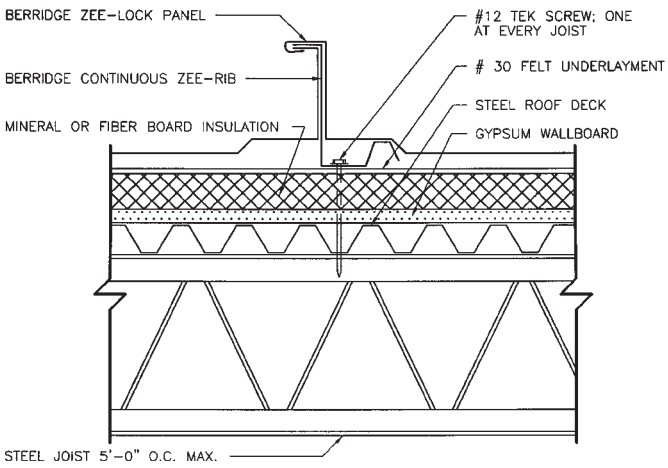
OPEN FRAMING VALLEY DETAILS (2" ZEE-RIB)



VALLEY FLASHING MINIMUM STRETCH OUT IS 42"

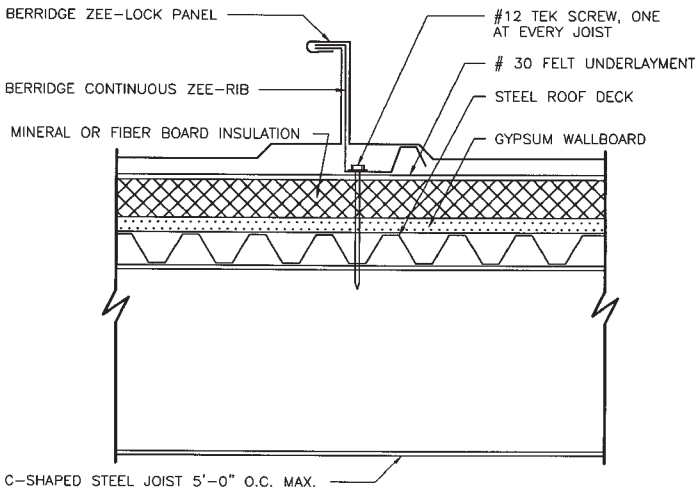


U.L. FIRE RESISTANCE ROOF ASSEMBLIES



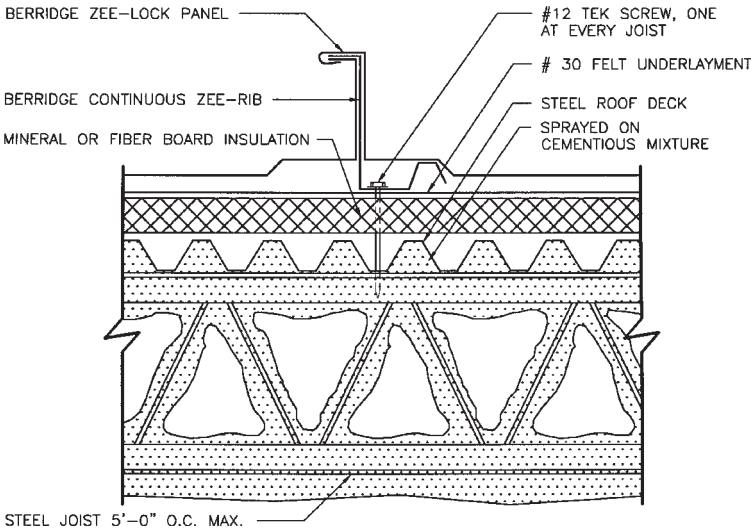
OPEN WEB STEEL JOISTS

QUALIFIES FOR UL DESIGN NO.S P224, P225, P230, P237, P508, P510 AND P227 USING CELLULAR GLASS BLOCK IN LIEU OF MINERAL INSULATION BOARD.



C-SHAPED STEEL JOISTS

QUALIFIES FOR UL DESIGN NO. P512



OPEN WEB STEEL JOIST WITH CEMENTITIOUS THERMAL BARRIER

QUALIFIES FOR UL DESIGN NUMBERS P701, P711, AND P803 USING SPRAYED ON FIBER IN LIEU OF CEMENTITIOUS MIXTURE.

GENERAL NOTES:

1. IN ORDER TO QUALIFY FOR A FIRE-RESISTANT RATING, THE ROOF SYSTEM CANNOT MAKE A PENETRATION IN THE INSULATION SYSTEM. THE ZEE-LOCK PANEL, IN ORDER TO MAKE A POSITIVE ATTACHMENT, MUST BE ATTACHED TO THE STEEL DECK. (IF THE INSULATION SYSTEM HAS NO NAILABLE SURFACE).

2. ADDITIONAL INFORMATION REGARDING THIS ASSEMBLY IS AVAILABLE IN THE UL FIRE RESISTANCE DIRECTORY.

BERRIDGE

Roofs of Distinction

SECTION 4
TILE & SHINGLES
& OTHER ROOF SYSTEMS

- BATTEN SEAM PANEL
- BERMUDA PANEL
- SPANISH TILE
- S-TILE
- VICTORIAN & CLASSIC SHINGLES
- RUSTIC SHAKE SHINGLES
- CURVED FLAT SEAM

SECTION 4 TILE, SHINGLES & OTHER ROOF SYSTEMS

BATTEN SEAM PANEL

Note: Please review Common Details Section 2 for eave, ridge, hip, gable, parapet, etc. details. Consult Design Guide Section 1 for additional information on UL Fire Assemblies. You may also visit www.berridge.com for complete information.

BERMUDA PANEL

Note: Please consult Design Guide Section 1 for additional information on UL Fire Assemblies. You may also visit www.berridge.com for complete information.

SPANISH TILE

Note: Please consult Design Guide Section 1 for additional information on UL Fire Assemblies. You may also visit www.berridge.com for complete information.

SECTION 4 TILE, SHINGLES & OTHER ROOF SYSTEMS

S-TILE

VICTORIAN & CLASSIC SHINGLES

RUSTIC SHAKE SHINGLES

CURVED FLAT SEAM

SECTION 4 TILE, SHINGLES & OTHER ROOF SYSTEMS

The details contained in this manual are merely recommendations as to how Berridge Manufacturing Company materials should be installed. They may require adaptations or modifications for a specific project, as conditions vary in both building design and local climatic conditions.

Berridge Manufacturing Company shall be held harmless from any and all claims arising from lack of watertightness as a result of following these recommended details. Ensuring watertightness on any given project is the function of the installer. The architect, general contractor or installer must accept the responsibility to adapt these details to meet particular building requirements and assure adequate watertightness.

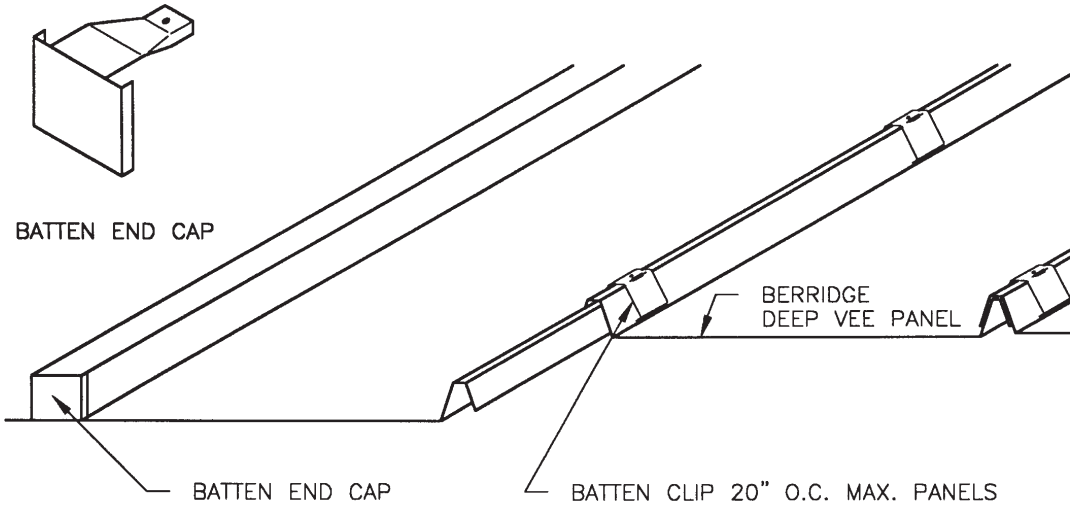
The installer can virtually assure watertightness if these details have been properly adapted, adequate laps have been provided, correct type of underlayment and sealant used, all joints adequately caulked and professional workmanship employed.

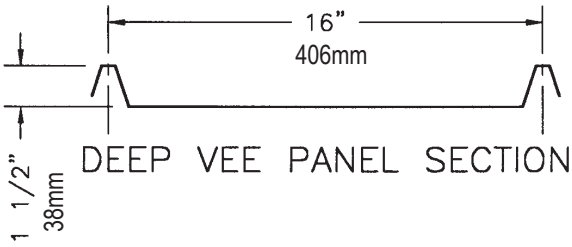
Should a watertightness warranty be required on a specific project, please refer to the procedures outlined in the “Design Guide” section of this manual. These procedures must be adhered to in order for Berridge to issue any type of watertightness warranty.

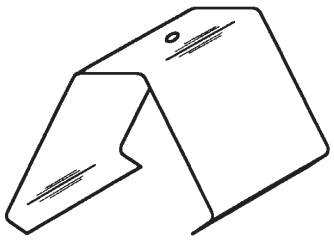
NOTES

BATTEN SEAM PANEL

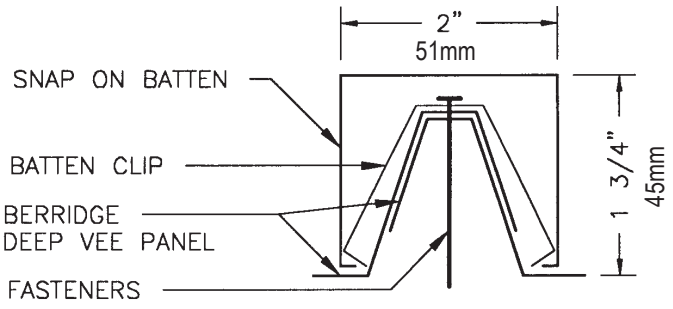
BATTEN SEAM PANEL OVERVIEW







BATTEN CLIP



BATTEN SEAM SYSTEM

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BATTEN SEAM PANEL

SECTION PROPERTIES & LOAD TABLES

SECTION PROPERTIES BASED ON 24 GAUGE 40 KSI			
BATTEN SEAM PANEL	dI_x (in^4/ft)	M_A (Ft-lbs/Ft)	V_A (Lbs)
POSITIVE BENDING	0.0752	130.4	660
NEGATIVE BENDING	0.0405	81.0	660

Properties are effective and are Per Foot of panel coverage. Based on 1986 AISI COLDFORM STEEL DESIGN MANUAL, March 1987, and Rational Analysis. Design Thickness = 0.0215 in.

RECOMMENDED LOAD IN POUNDS PER SQUARE FOOT (Panel Weight = 1.3 PSF)						
SPAN (FT)	NET VERTICAL LIVE LOAD			NET VERTICAL WIND UPLIFT		
	1-SPAN	2-SPAN	3-SPAN	1-SPAN	2-SPAN	3-SPAN
2'-0"	40	70	70	90	90 [3]	90 [3]
2'-6"	35	70	70	90	90 [3]	90 [3]
3'-0"	30	70	70	90	90 [3]	90 [3]
3'-6"	25	50	60	60 [d]	90 [3]	90 [3]
4'-0"	20	35	45	40 [d]	80 [3]	80 [3]
4'-6"		30	35		65 [3]	65 [3]
5'-0"		25	30		50 [3]	55 [3]
6'-0"						
7'-0"						

SECTION PROPERTIES BASED ON 24 GAUGE 40 KSI			
BATTEN SEAM PANEL WITH CONTINUOUS 24 GA. INNER RIB	dI_x (in^4/ft)	M_A (Ft-lbs/Ft)	V_A (Lbs)
POSITIVE BENDING	0.0752	130.4	660
NEGATIVE BENDING	0.0405	81.0	660

Properties are effective and are Per Foot of panel coverage. Based on 1986 AISI COLDFORM STEEL DESIGN MANUAL, March 1987, and Rational Analysis. Design Thickness = 0.0215 in.

RECOMMENDED LOAD IN POUNDS PER SQUARE FOOT (Panel Weight = 1.4 PSF)						
SPAN (FT)	NET VERTICAL LIVE LOAD			NET VERTICAL WIND UPLIFT		
	1-SPAN	2-SPAN	3-SPAN	1-SPAN	2-SPAN	3-SPAN
2'-0"	45	70	70	90	90	90
2'-6"	40	70	70	90	90	90
3'-0"	35	70	70	90	90	90
3'-6"	30	70	70	90	90	90
4'-0"	25	60	70	60	80	90
4'-6"	20	50	55	40	70	80 [d]
5'-0"		40	45		60	60 [d]
6'-0"						
7'-0"						

1. ALL LOADS MEET L/240 DEFLECTION CRITERIA
2. WIND LOAD ALLOWABLE STRESSES INCREASED BY 33%.
3. ALL LOADS MEET 200 LBS POINT LOAD WITHOUT STRUCTURAL FAILURE; HOWEVER, FOOT TRAFFIC ON PANELS DURING OR AFTER INSTALLATION WILL CAUSE ABNORMAL OIL CANNING WHICH MAY LEAD TO AESTHETIC FAILURE.

BATTEN SEAM PANEL

APPLICATION NOTES

A. **SOLID SHEATHING:** If solid sheathing is used, Berridge recommends a minimum thickness of 1/2" to provide sufficient holding power for the fasteners. Contact Berridge for use of any other type of solid sheathing.

B. **OPEN FRAMING:** The Berridge 16" wide Batten Seam System is a structural panel and may be used over open framing. The structural properties and allowable load tables should be used to determine the maximum span the panels can be applied on and meet applicable codes. Refer to Berridge Common Typical Details for the use of solid sheathing at valley and roof penetration areas when panels are applied over open framing.

C. **UL 90 RATING:** When the Berridge 16" wide Batten Seam is used with the Continuous Inner Rib, the structural properties and allowable load table should be used to determine the maximum span the panels can be applied on and meet UL90 rating requirements.

D. **FELT UNDERLAYMENT:** A single layer of #30 felt underlayment with a six inch (6") lap must be applied over solid sheathing as shown in Berridge's Felting Details. The use of additional layers of #30 felt underlayment is recommended on low sloped roofs, at all valley conditions, at roof penetrations and certain other flashing conditions as depicted in Berridge Typical Details. When the panels are applied over open framing, consult the Berridge Typical Felting Details for valley and roof penetration areas.

E. **STRIPPABLE FILM:** A strippable plastic film is applied over most Berridge prefinished products, coil and flat sheets. This film provides protection of the finish during fabrication and transit and must be removed prior to installing all panels and flashings. Caution should be exercised in storing materials prior to installation. If exposed to excessive heat or moisture, the plastic film may become permanently adhered and/or discolor the finish.

F. **"OIL-CANNING":** A certain amount of "oil-canning" (waviness) is inherent in flat sheet metal surfaces. Berridge strives to limit oil-canning by providing the customer with the highest quality stretcher-leveled steel available and utilizing heavier 24 GA metal rather than the 26 GA steel or light gauge aluminum as offered by many competitors. The latest technology is also incorporated in the Berridge high precision coil handling and roll forming equipment to minimize the stress on metals during production. The cause of abnormal oil-canning can many times be traced to uneven substrate sheathing, improper roofing felt application, and in the case of open-framed conditions, the top plane of the purlins being uneven, or deflection of the panels caused by foot traffic during and/or after panel installation. Architectural panels applied over open framing require extreme care to avoid deforming the panels. It is recommended that all foot traffic be avoided.

G. **FASTENERS AND BATTEN CLIP SPACING:** The batten clips are to be installed as shown in Berridge's Typical Installation details and never to exceed more than 20" on center spacing. Use minimum 3-1/2" long galvanized ring shank nails to attach clips to solid wood sheathing. When attaching clips to metal use a minimum #10 - 16x3" Self drilling screw.

NOTE: If local codes or other regulations dictate specific wind uplift requirements, consult Berridge, as it may be necessary to use a different clip spacing or fastener.

H. **MINIMUM SLOPE:** The Berridge Batten Seam System is recommended for slopes of 2:12 and greater. A double layer of #30 felt underlayment is recommended for all applications where the roof slope is 3:12 or less.

I. **SLOPE TRANSITION:** Continuous single panel runs with roof to fascia slope changes can easily be made with the Berridge Batten Seam System.

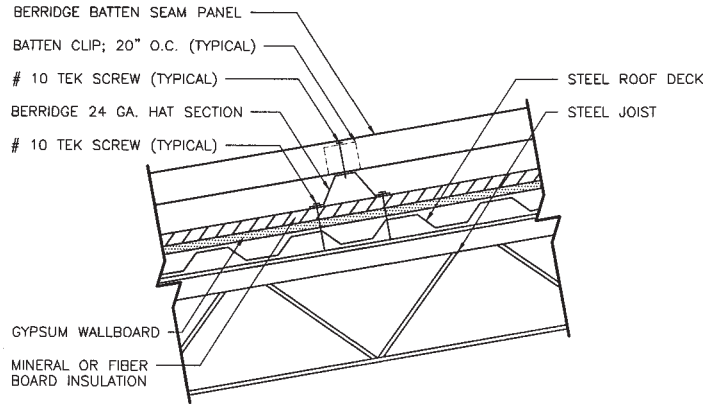
J. **GALVALUME:** It is recommended when using Plain Galvalume to avoid contact of Galvalume sheet with either lead or copper and exposure of Galvalume sheet to water runoff from copper.

K. **ORDERING INFORMATION:** Berridge Manufacturing Company will provide square cuts only on all Batten Seam Panels. All quantities and dimensions are the responsibility of the purchaser.

NOTE: If Berridge is to supply flashings, the purchaser must provide all degree of angles. All flashings provided will be in 10'-0" lengths only.

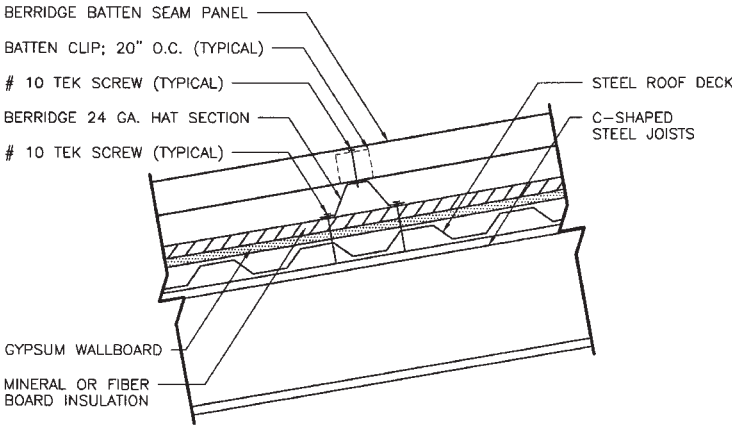
BATTEN SEAM PANEL

UL FIRE RESISTANCE ROOF ASSEMBLIES



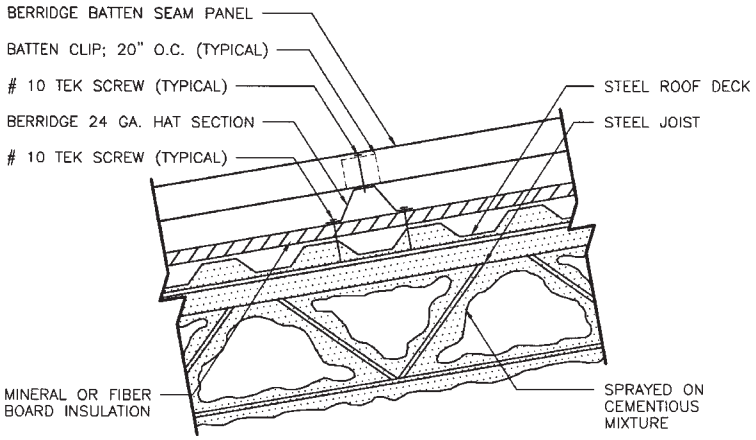
STEEL ROOF DECK OVER STEEL JOIST

THIS ASSEMBLY QUALIFIES FOR THE FOLLOWING UL FIRE RESISTANT ROOF ASSEMBLIES: UL DESIGN NO. P224, P225, P230, P237, P508, P510 AND P227 USING CELLULAR GLASS BLOCK IN LIEU OF MINERAL INSULATION BOARD.



STEEL ROOF DECK OVER STEEL C-SHAPED JOISTS

THIS ASSEMBLY QUALIFIES FOR THE FOLLOWING UL FIRE RESISTANT ROOF ASSEMBLY: UL DESIGN NO. P512.



STEEL ROOF DECK OVER STEEL JOIST WITH SPRAYED-ON CEMENTITIOUS MIXTURE

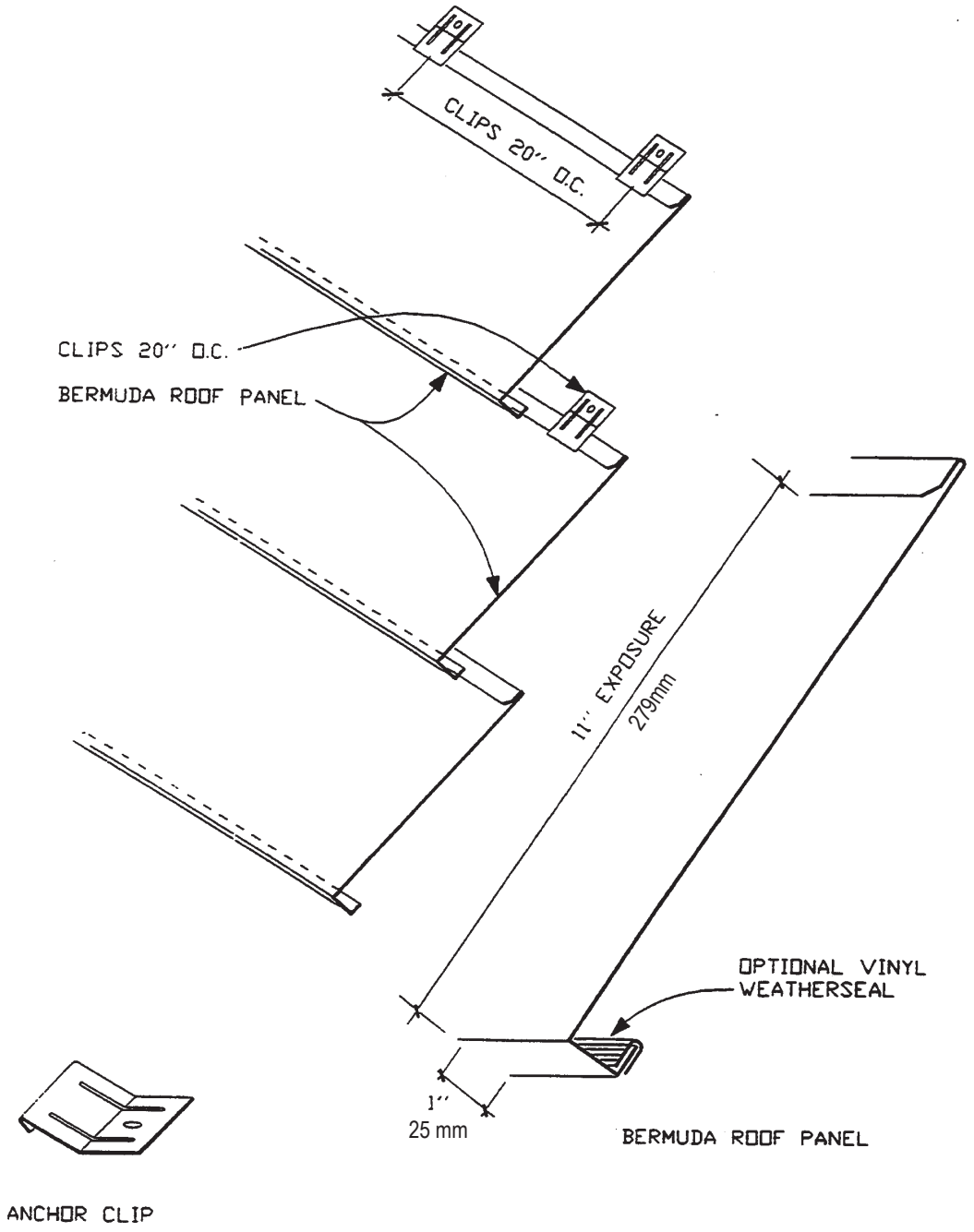
THIS ASSEMBLY QUALIFIES FOR THE FOLLOWING UL FIRE RESISTANT ROOF ASSEMBLIES: UL DESIGN NO. P701, P711 AND P803 USING SPRAYED-ON FIBER IN LIEU OF CEMENTITIOUS MIXTURE.

GENERAL NOTES:

1. IN ORDER TO QUALIFY FOR A FIRE-RESISTANT RATING, THE ROOF SYSTEM CANNOT MAKE A PENETRATION IN THE INSULATION SYSTEM OTHER THAN THOSE MADE BY FASTENERS. THE BATTEN SEAM SYSTEM, A STRUCTURAL PANEL, IS TO SPAN OVER HAT SECTIONS (IF THE INSULATION HAS NO NAILABLE SURFACE). THE HAT SECTIONS ARE TO BE MOUNTED DIRECTLY TO THE INSULATION SYSTEM WITH FASTENERS FASTENED THROUGH INTO THE STRUCTURAL STEEL DECK.
2. ADDITIONAL INFORMATION REGARDING THESE ASSEMBLIES IS AVAILABLE IN THE UL FIRE RESISTANCE DIRECTORY.

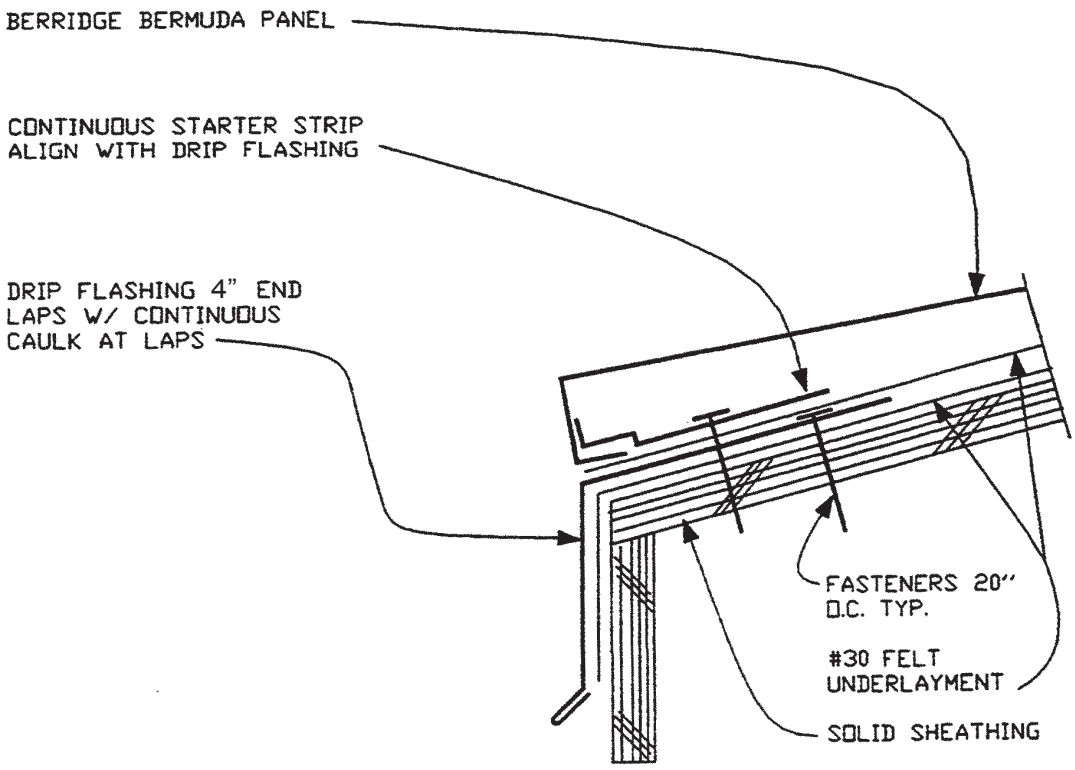
BERMUDA PANEL

BERMUDA PANEL OVERVIEW



BERMUDA PANEL

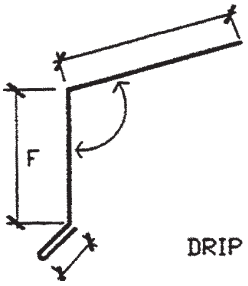
EAVE DETAIL



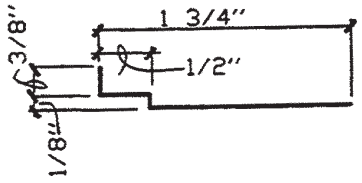
1. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

2. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



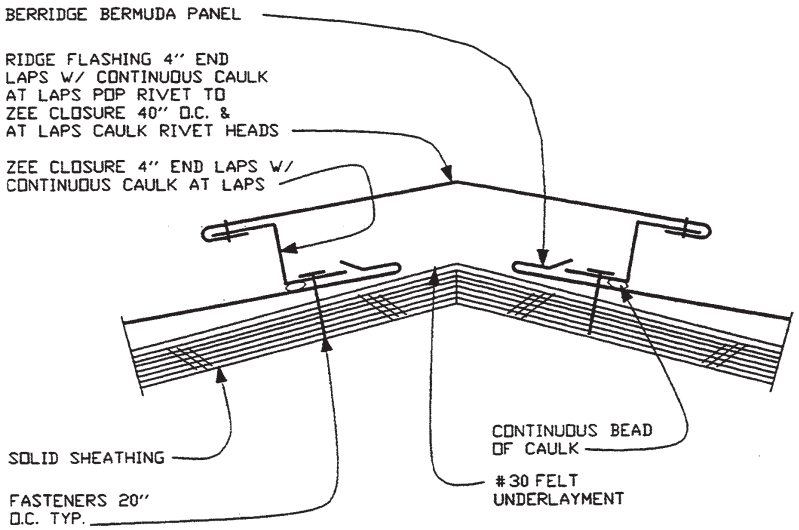
DRIP FLASHING

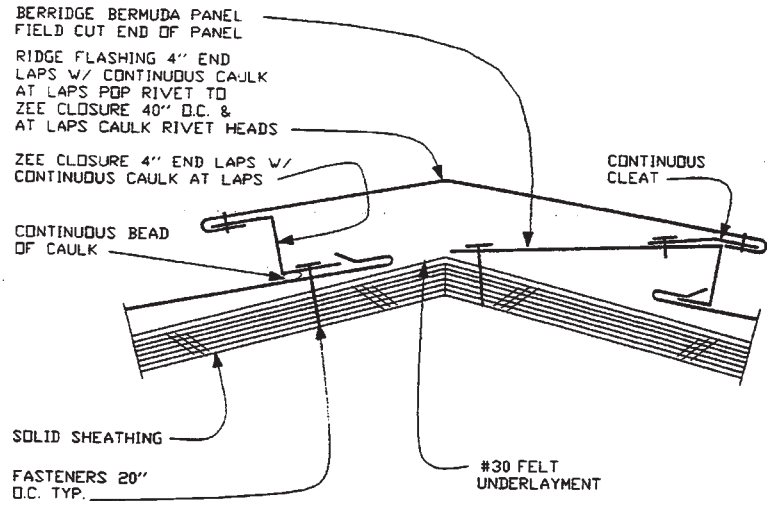


STARTER STRIP

BERMUDA PANEL

RIDGE DETAILS





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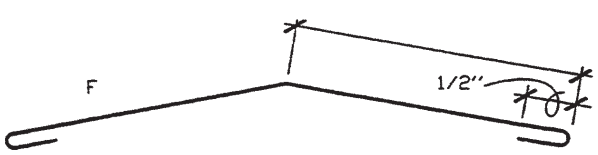
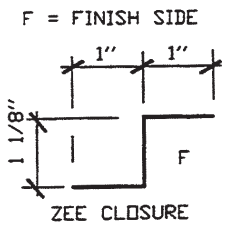
2. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



RIDGE FLASHING



ZEE CLOSURE

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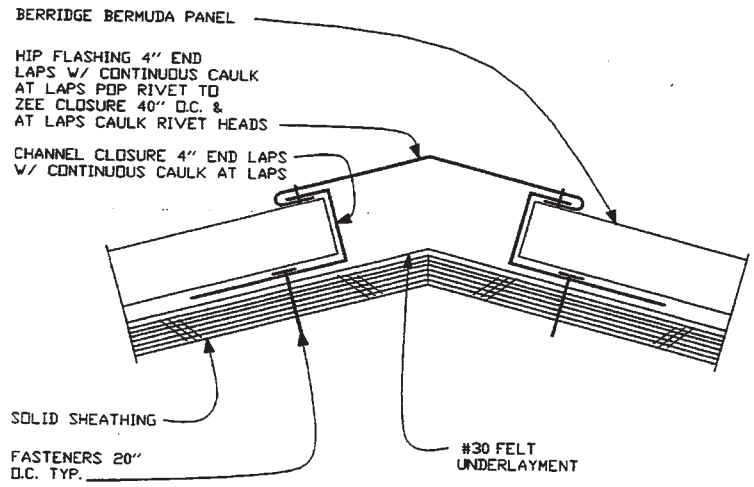
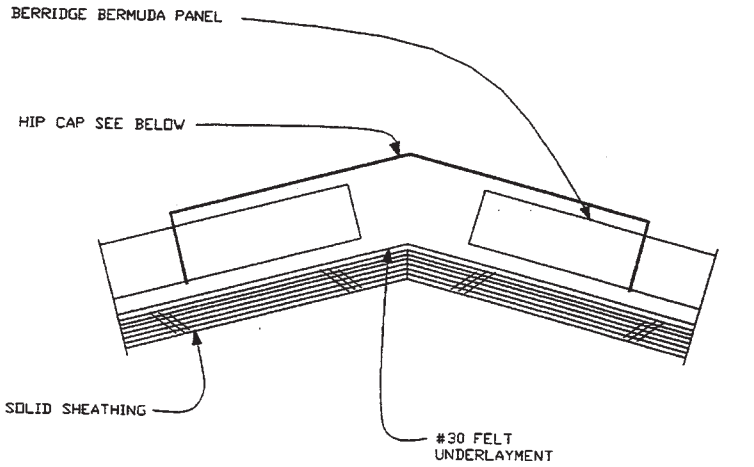
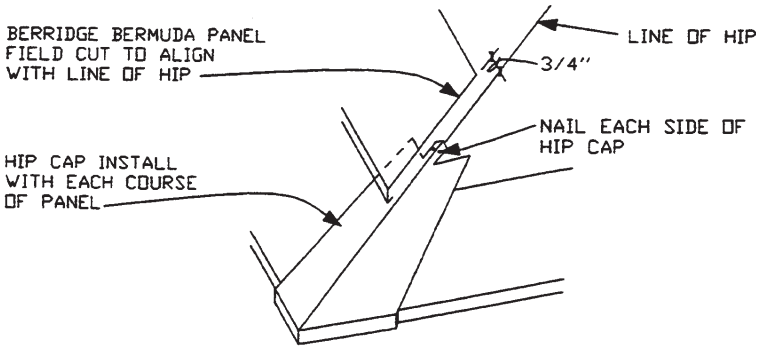
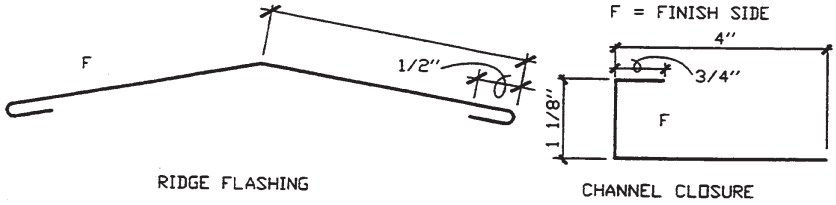
BERMUDA PANEL

HIP DETAILS









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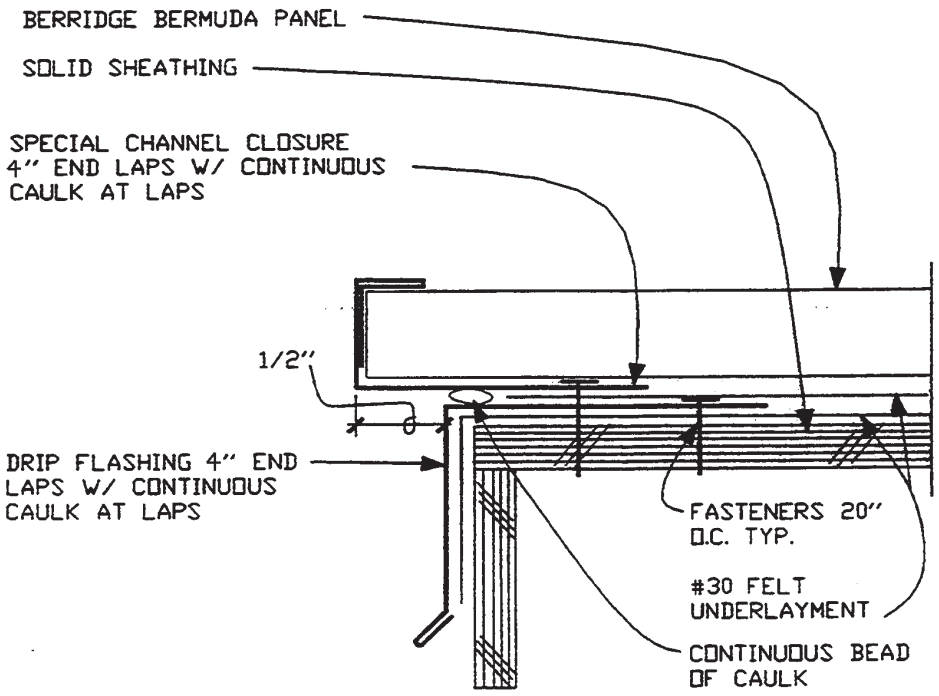
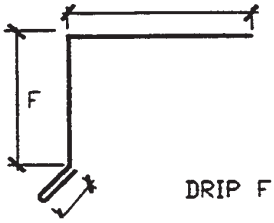
BERMUDA PANEL

GABLE DETAILS

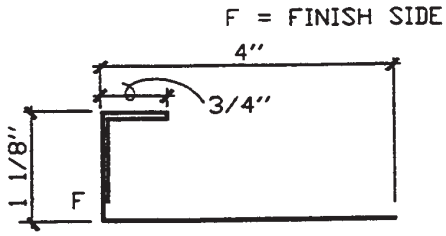


1. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

2. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



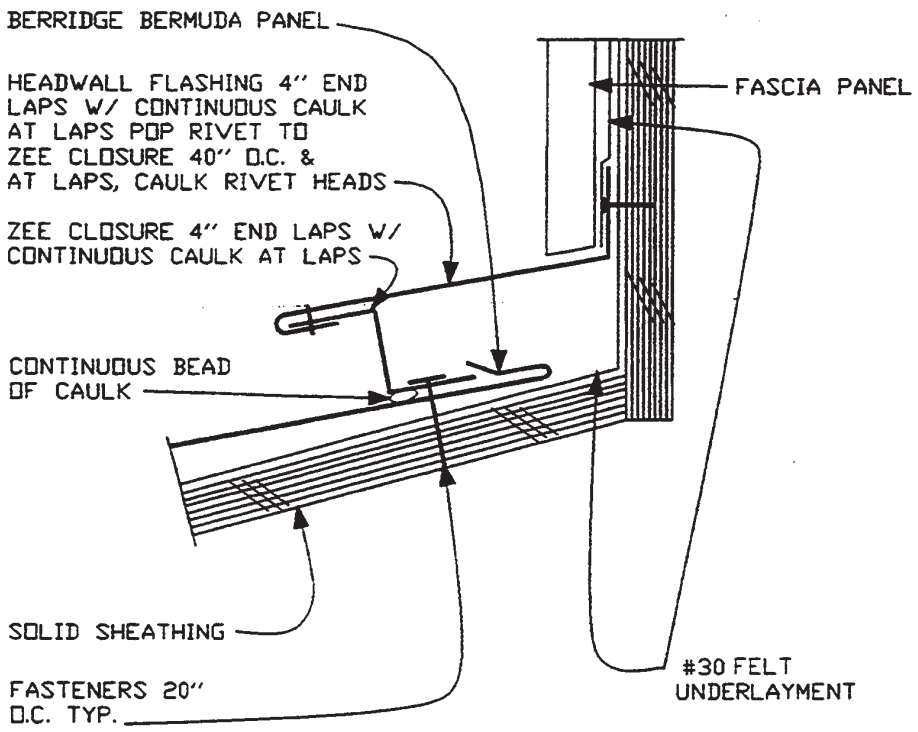
DRIP FLASHING



SPECIAL CHANNEL CLOSURE

BERMUDA PANEL

HEAD WALL DETAIL



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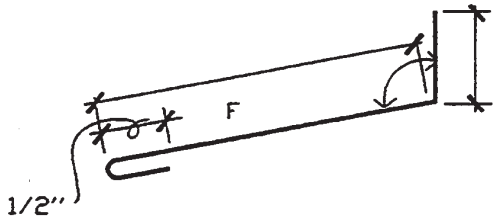
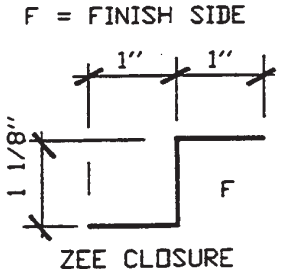


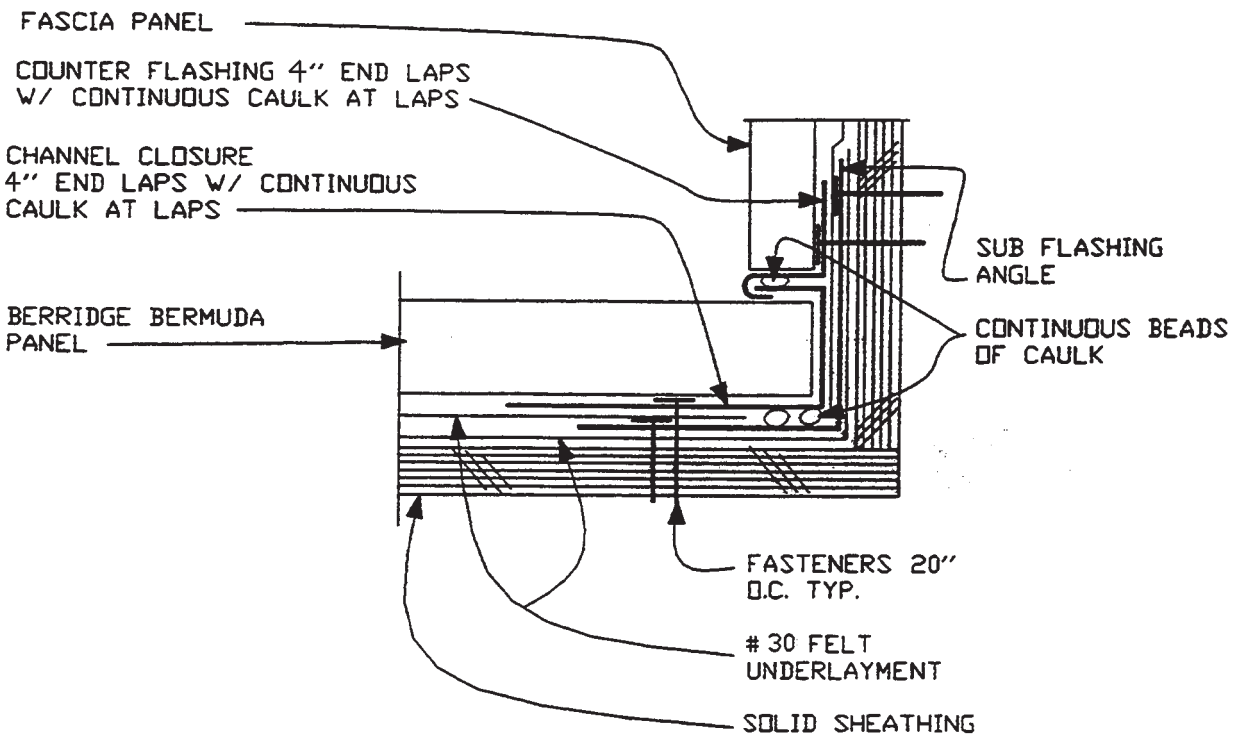
HEADWALL FLASHING



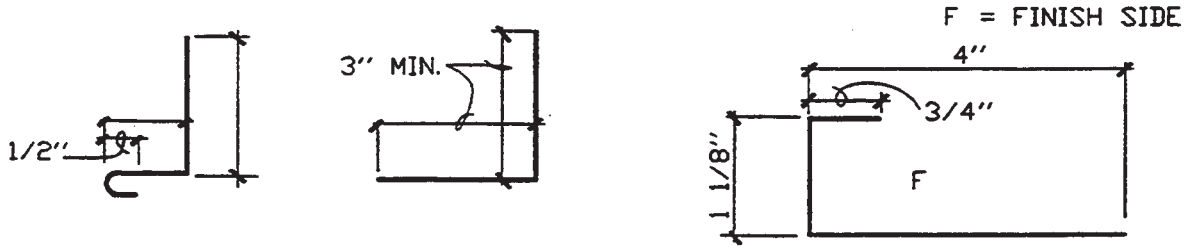
ZEE CLOSURE

BERMUDA PANEL

RAKE WALL DETAIL



1. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
2. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



COUNTER FLASHING SUB FLASHING ANGLE CHANNEL CLOSURE

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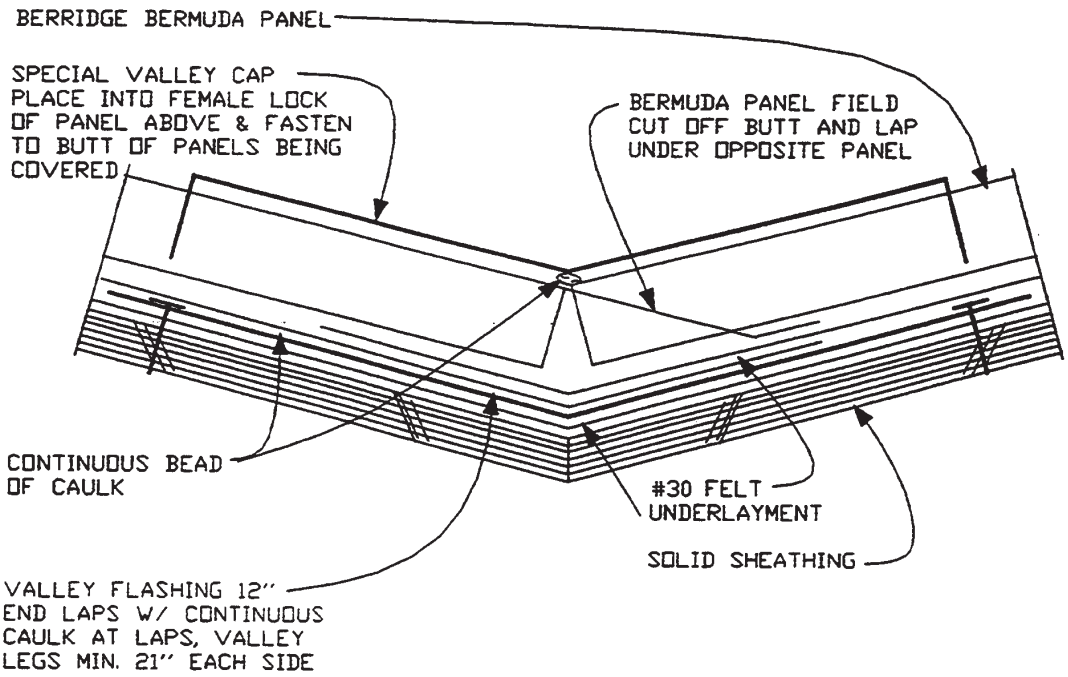
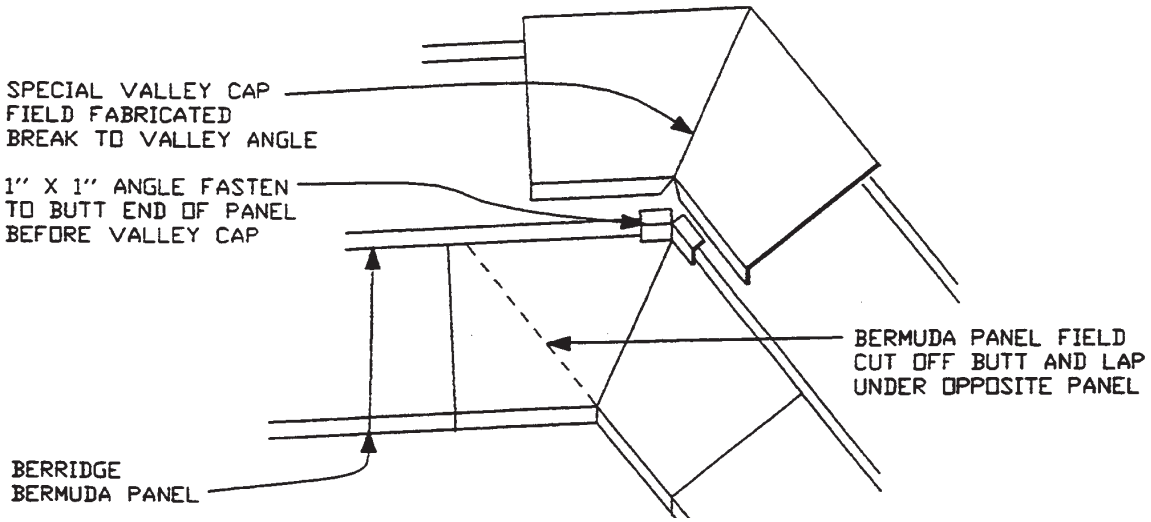
BERMUDA PANEL

VALLEY DETAILS



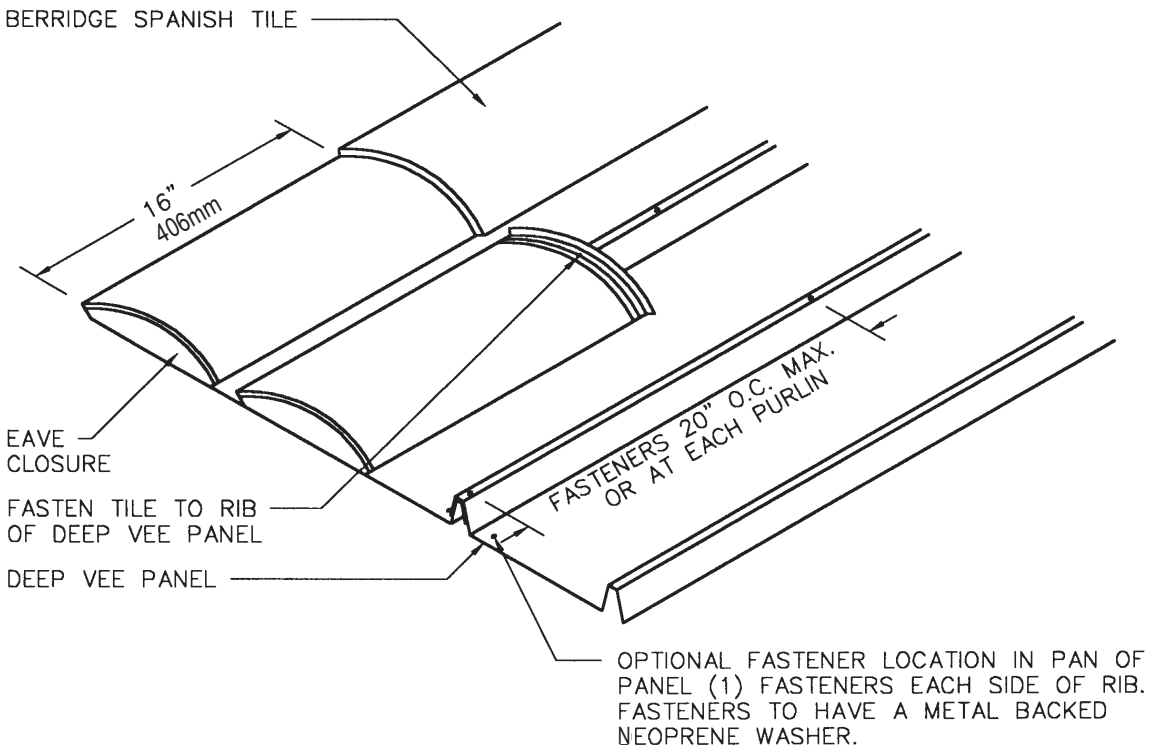
1. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

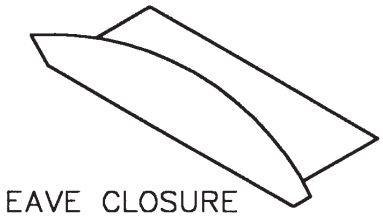
2. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

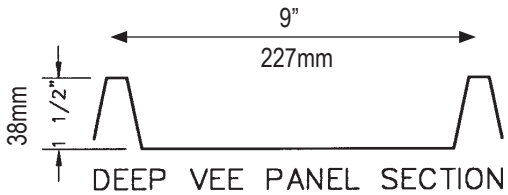


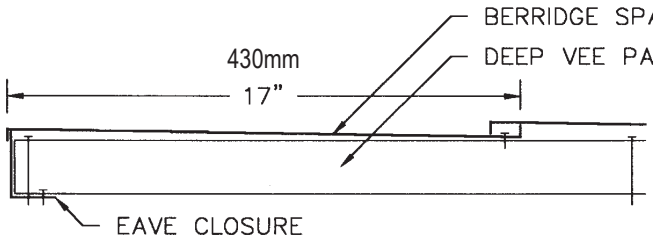
SPANISH TILE

SPANISH TILE OVERVIEW

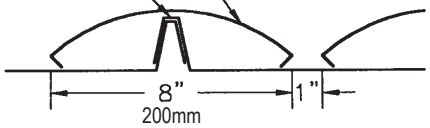








PANEL ASSEMBLY SECTION



SPANISH TILE SECTION

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SPANISH TILE

SECTION PROPERTIES & LOAD TABLE

SECTION PROPERTIES BASED ON 24 GAUGE 40 KSI			
SPANISH TILE	dI_x (In^4/ft)	M_A (Ft–lbs/Ft)	V_A (Lbs)
POSITIVE BENDING	0.1097	217.7	1100
NEGATIVE BENDING	0.0703	142.9	1100

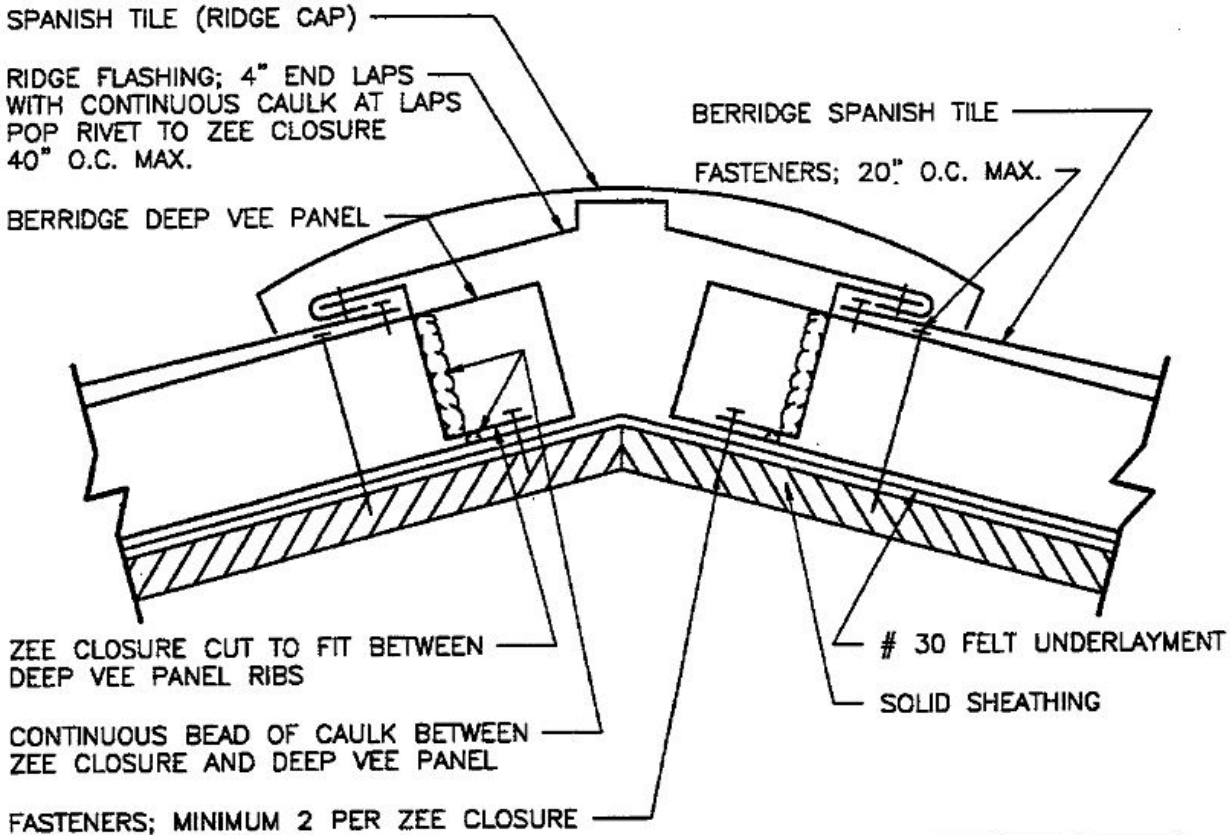
Properties are effective and are Per Foot of panel coverage. Based on 1986 AISI COLDFORM STEEL DESIGN MANUAL, March 1987, and Rational Analysis. Design Thickness = 0.0215 In.

RECOMMENDED LOAD IN POUNDS PER SQUARE FOOT (Panel Weight = 1.3 PSF)						
SPAN (FT)	NET VERTICAL LIVE LOAD			NET VERTICAL WIND UPLIFT		
	1–SPAN	2–SPAN	3–SPAN	1–SPAN	2–SPAN	3–SPAN
2'–0"	70	70	70	90	90	90
2'–6"	70	70	70	90	90	90
3'–0"	70	70	70	90	90	90
3'–6"	70	70	70	90	90	90
4'–0"	65	65	70	70	90	90
4'–6"		50	60		90	90
5'–0"		40	50		70	70
6'–0"						
7'–0"						

1. ALL LOADS MEET L/240 DEFLECTION CRITERIA
2. WIND LOAD ALLOWABLE STRESSES INCREASED BY 33%.

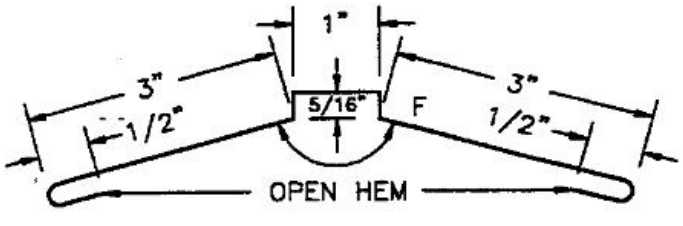
SPANISH TILE

RIDGE/HIP DETAIL

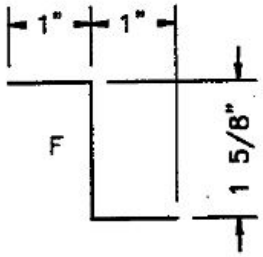


1. FIELD CUT ZEE CLOSURE TO FIT BETWEEN PANEL RIBS.
2. IF SOLID SHEATHING (BY OTHERS) IS USED SHEATHING MUST BE MIN. 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



RIDGE FLASHING



ZEE CLOSURE

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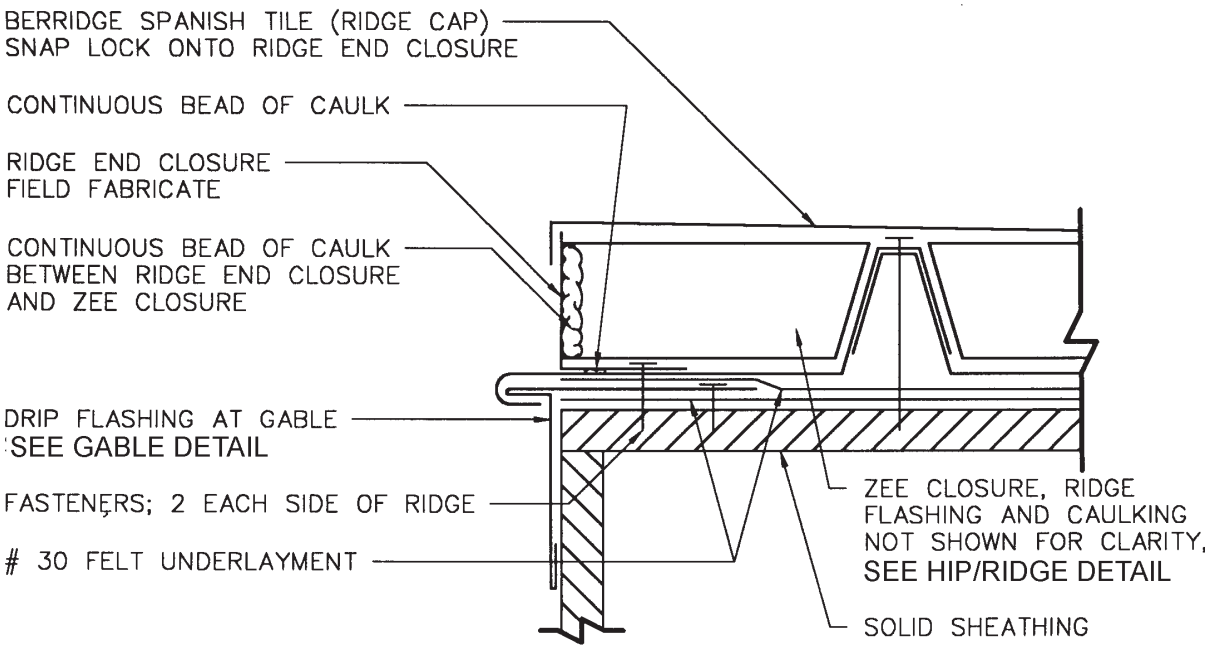
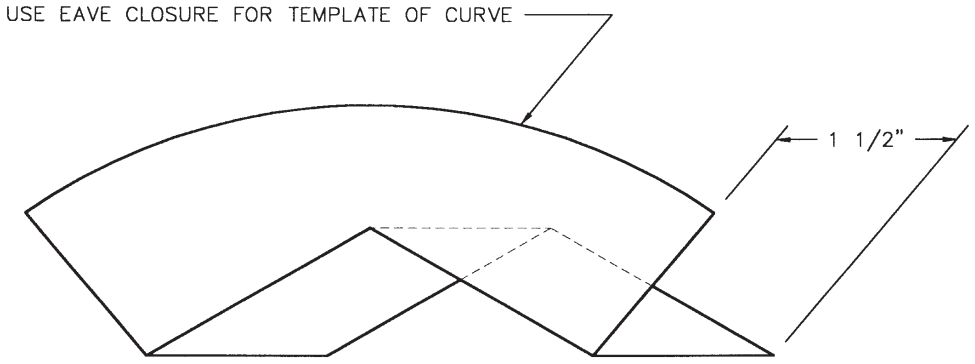
SPANISH TILE

GABLE AT RIDGE DETAIL



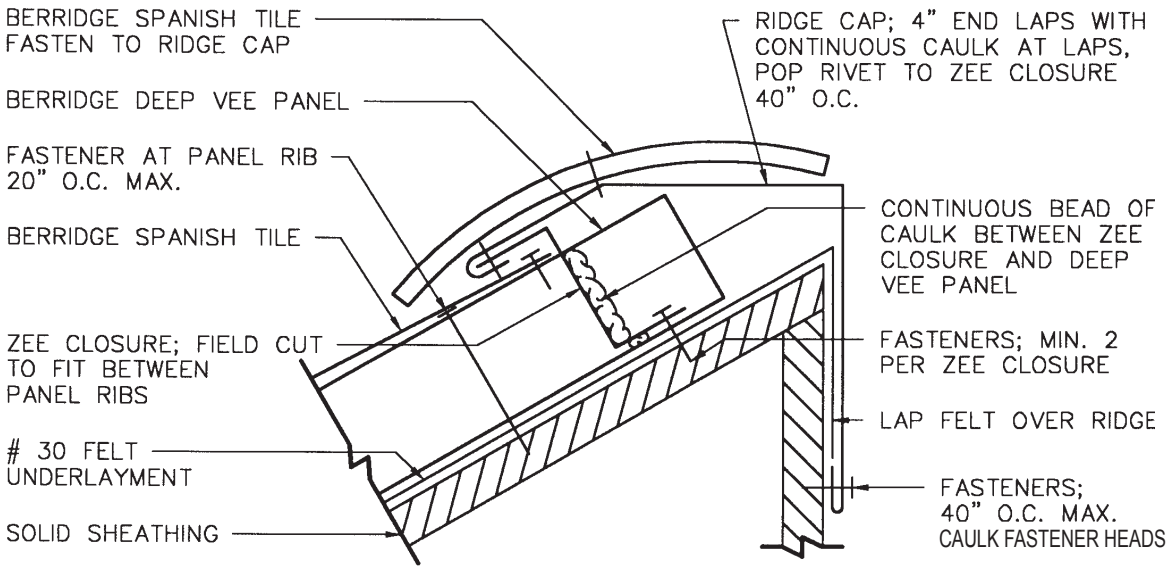
1. FIELD FABRICATE RIDGE END CLOSURE SEE BELOW.
2. IF SOLID SHEATHING (BY OTHERS) IS USED SHEATHING MUST BE A MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



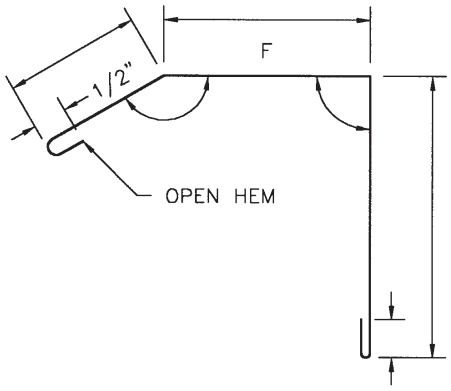
FIELD FABRICATED RIDGE END CLOSURE

SPANISH TILE

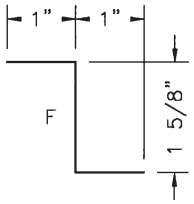
SHED ROOF RIDGE DETAIL



1. FIELD CUT ZEE CLOSURE TO FIT BETWEEN RIBS OF DEEP VEE PANEL.
2. IF SOLID SHEATHING (BY OTHERS) IS USED SHEATHING MUST BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



RIDGE CAP



ZEE CLOSURE

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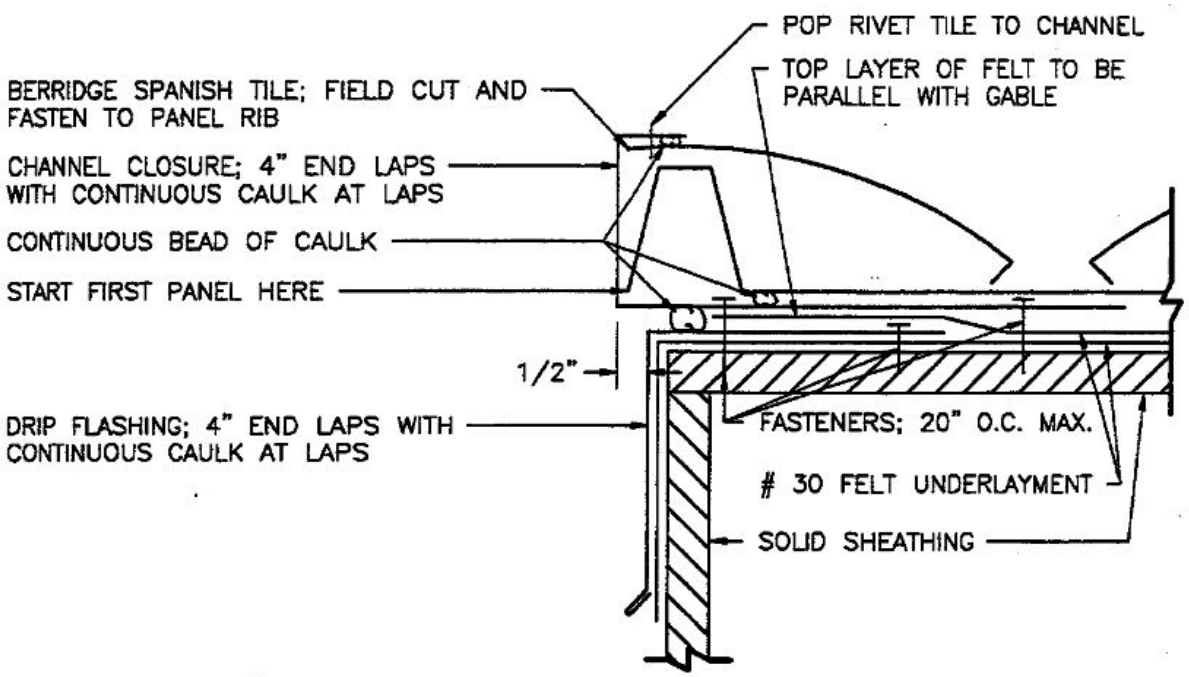
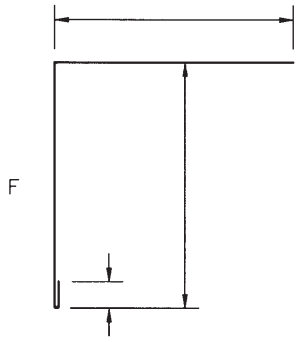
SPANISH TILE

GABLE DETAIL

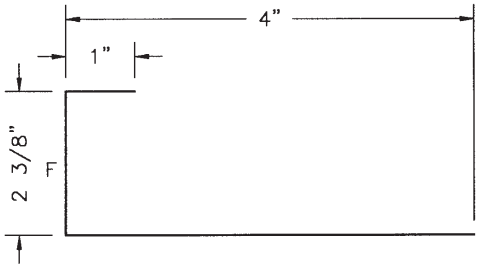


1. FIELD CUT SPANISH TILE AS REQUIRED.
2. IF SOLID SHEATHING (BY OTHERS) IS USED SHEATHING MUST BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



DRIP FLASHING



CHANNEL CLOSURE

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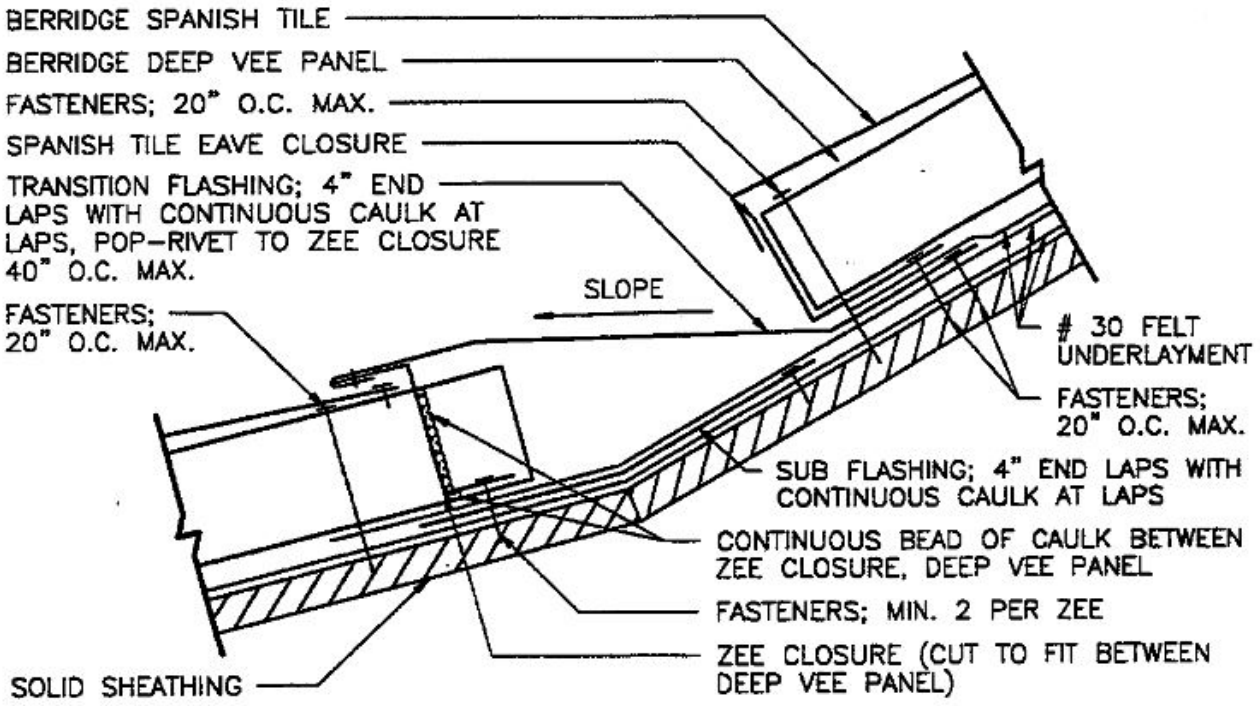
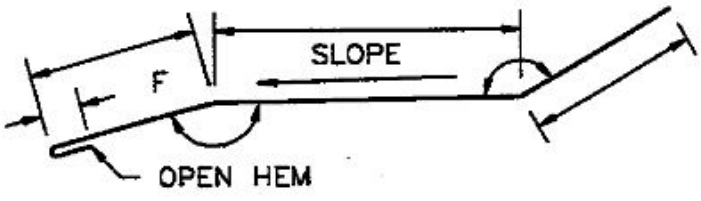
SPANISH TILE

SLOPE TRANSITION DETAIL

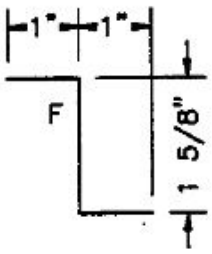


1. FIELD CUT ZEE CLOSURE TO FIT BETWEEN PANEL RIBS.
2. IF SOLID SHEATHING (BY OTHERS) IS USED, SHEATHING MUST BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



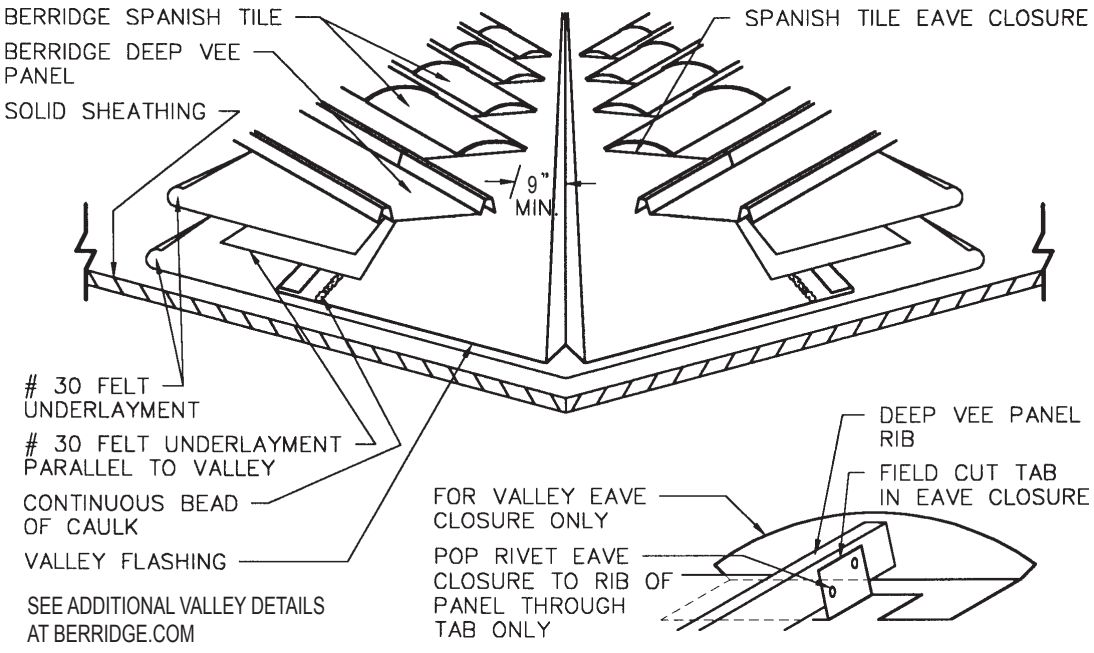
TRANSITION FLASHING

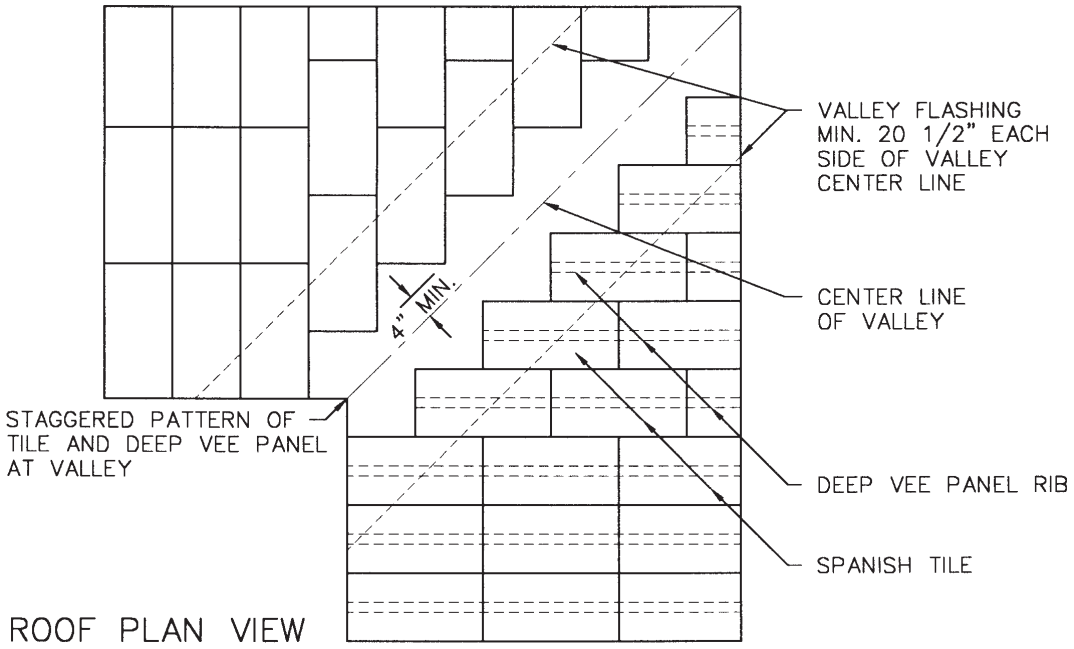


ZEE CLOSURE

SPANISH TILE

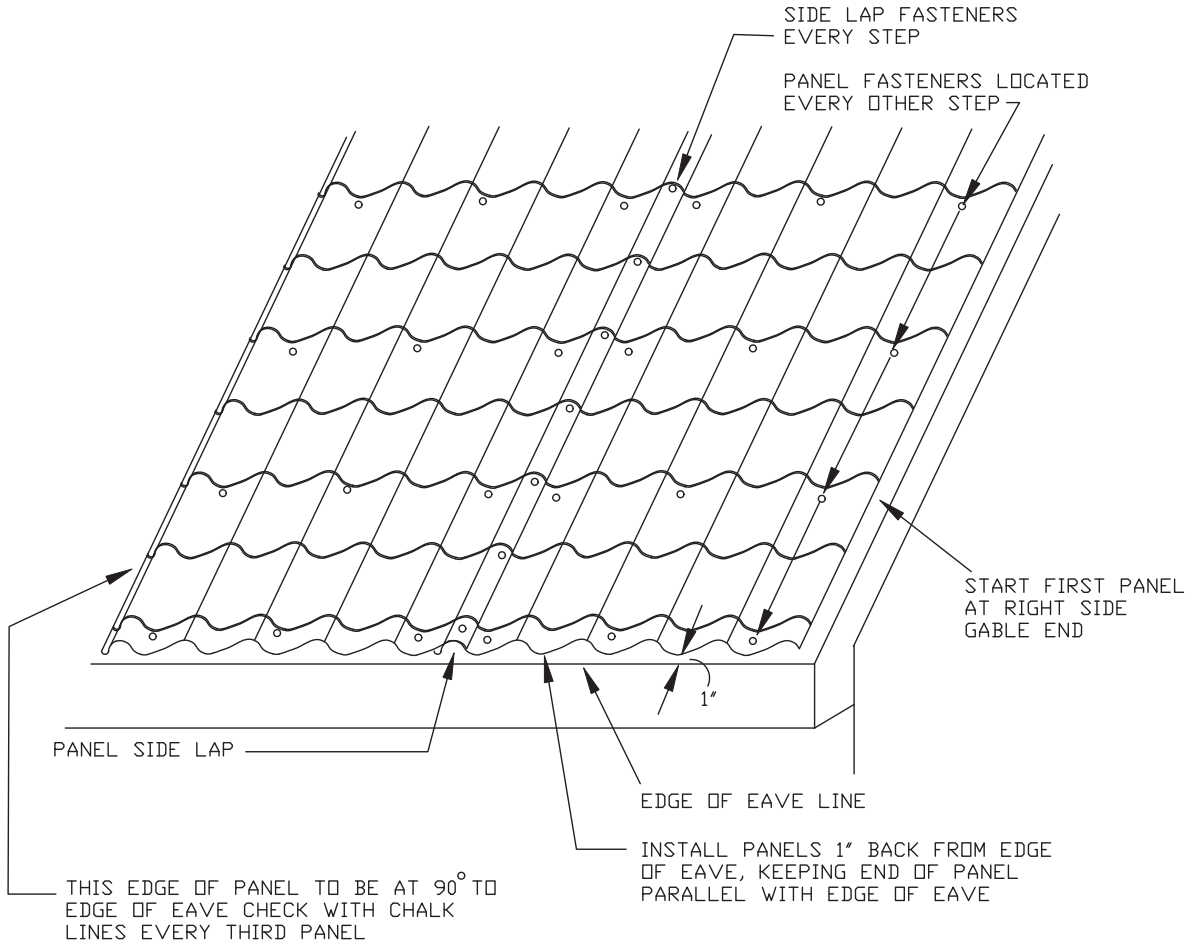
VALLEY ISOMETRIC DETAIL

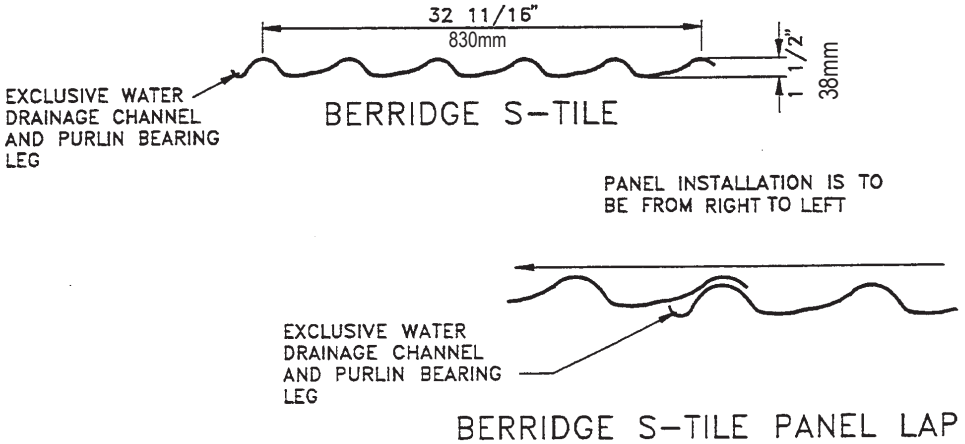




S-TILE

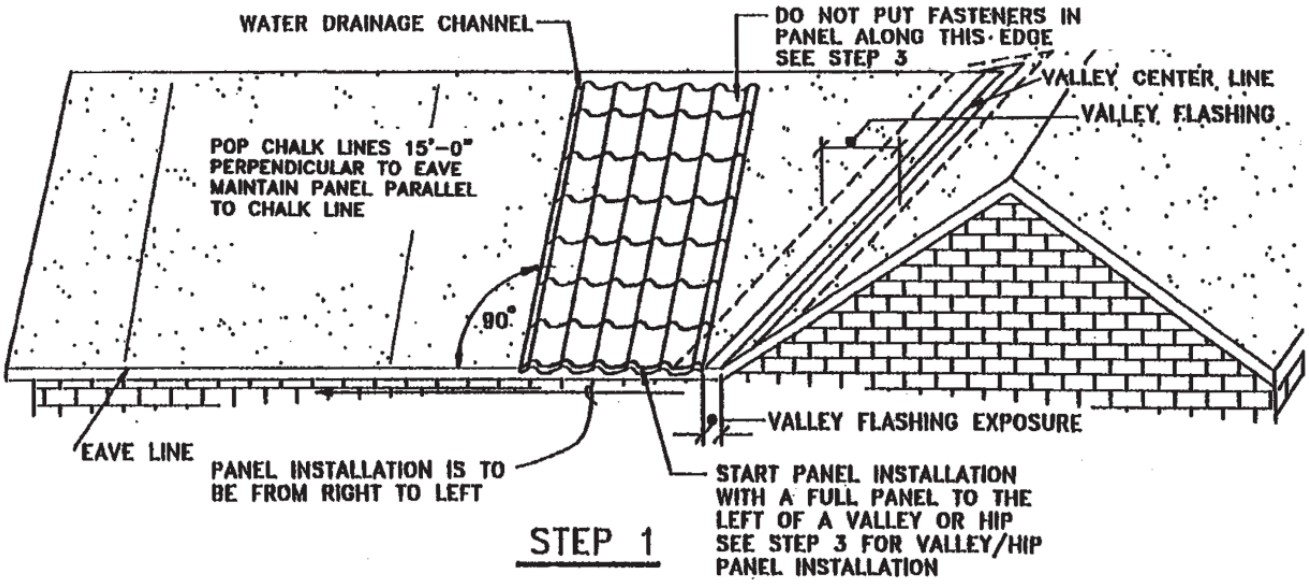
S-TILE OVERVIEW

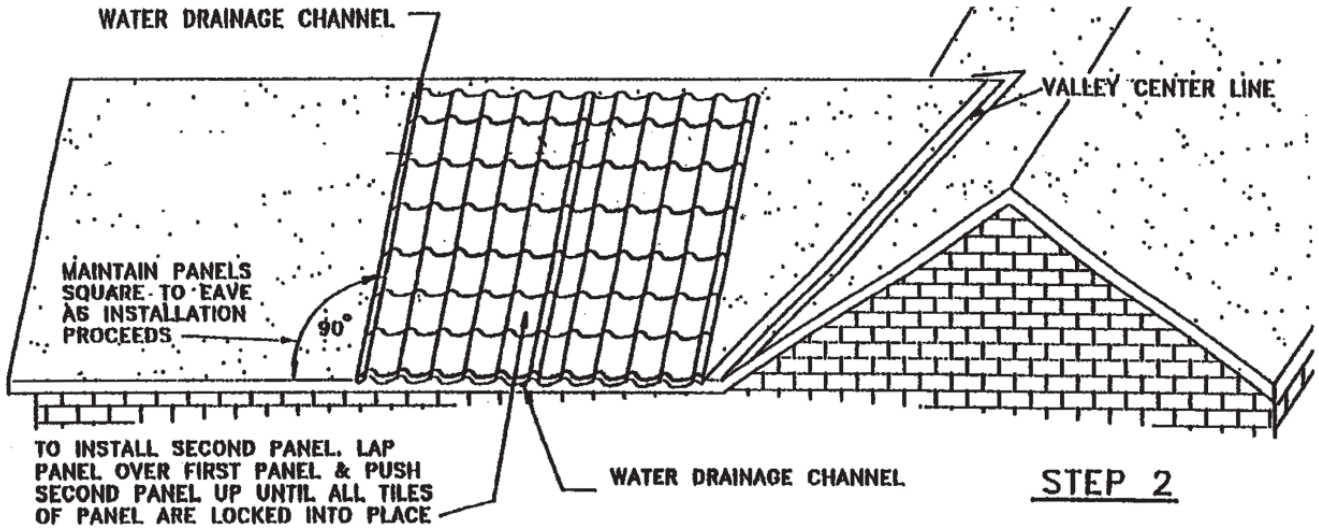




S-TILE

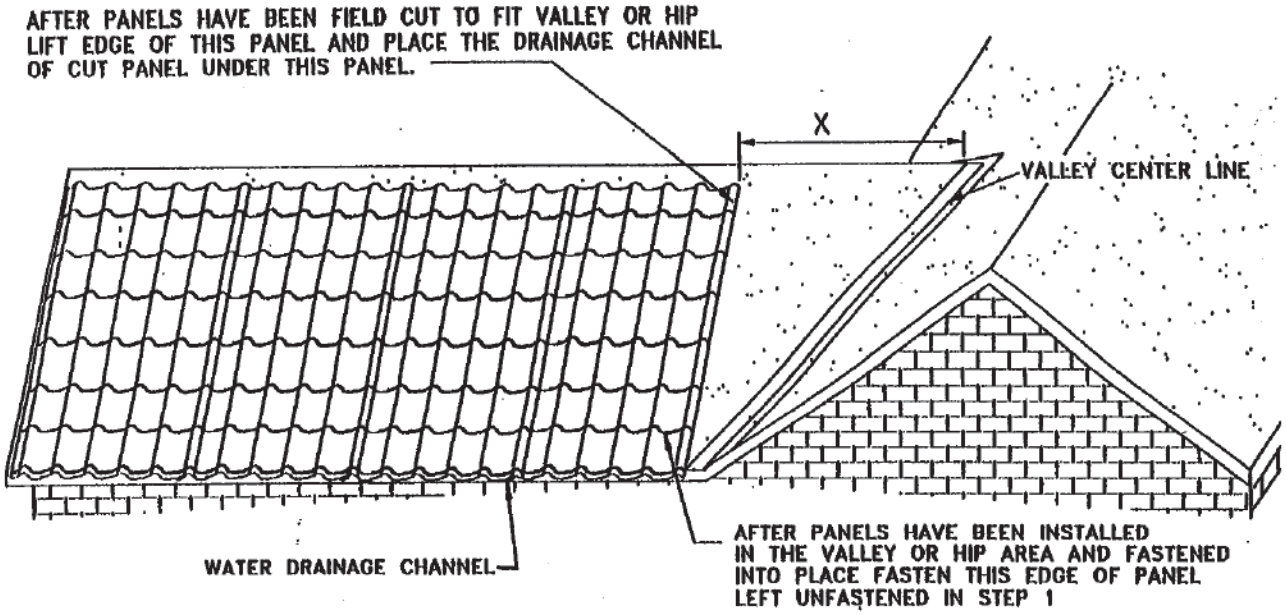
INSTALLATION OVERVIEW DETAILS

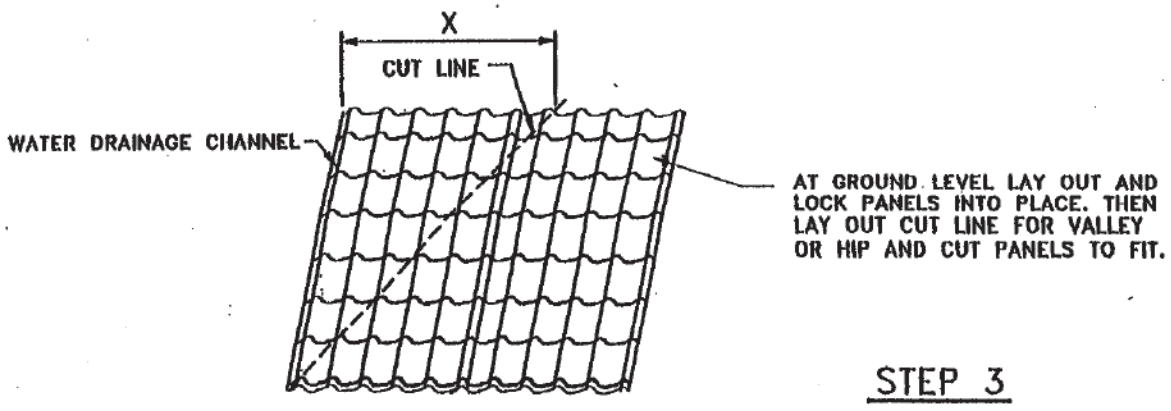




S-TILE

INSTALLATION OVERVIEW DETAILS

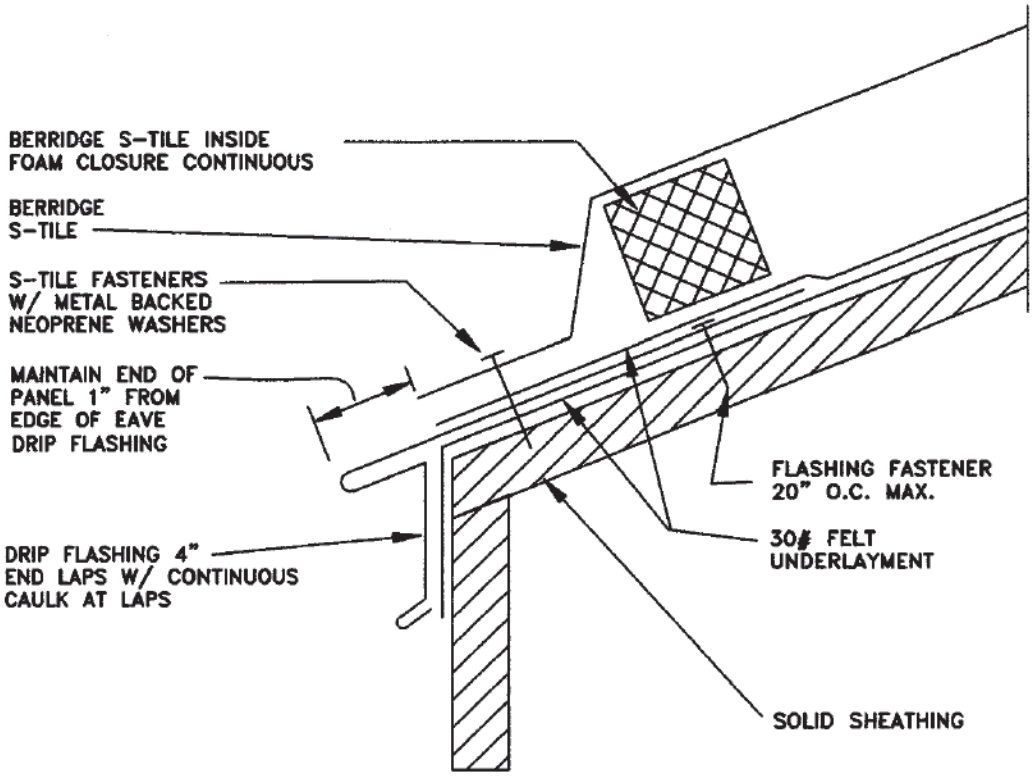




STEP 3

S-TILE

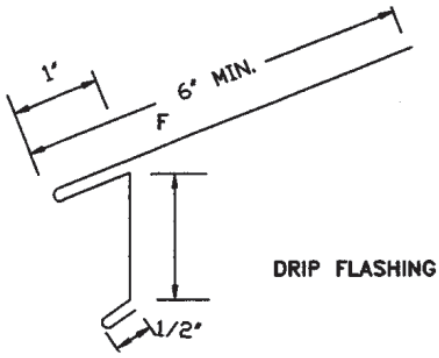
EAVE DETAIL



1. SEE PAGE 132 FOR LAY OUT OF S-TILE FASTENERS.

2. SOLID SHEATHING TO BE MIN. 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

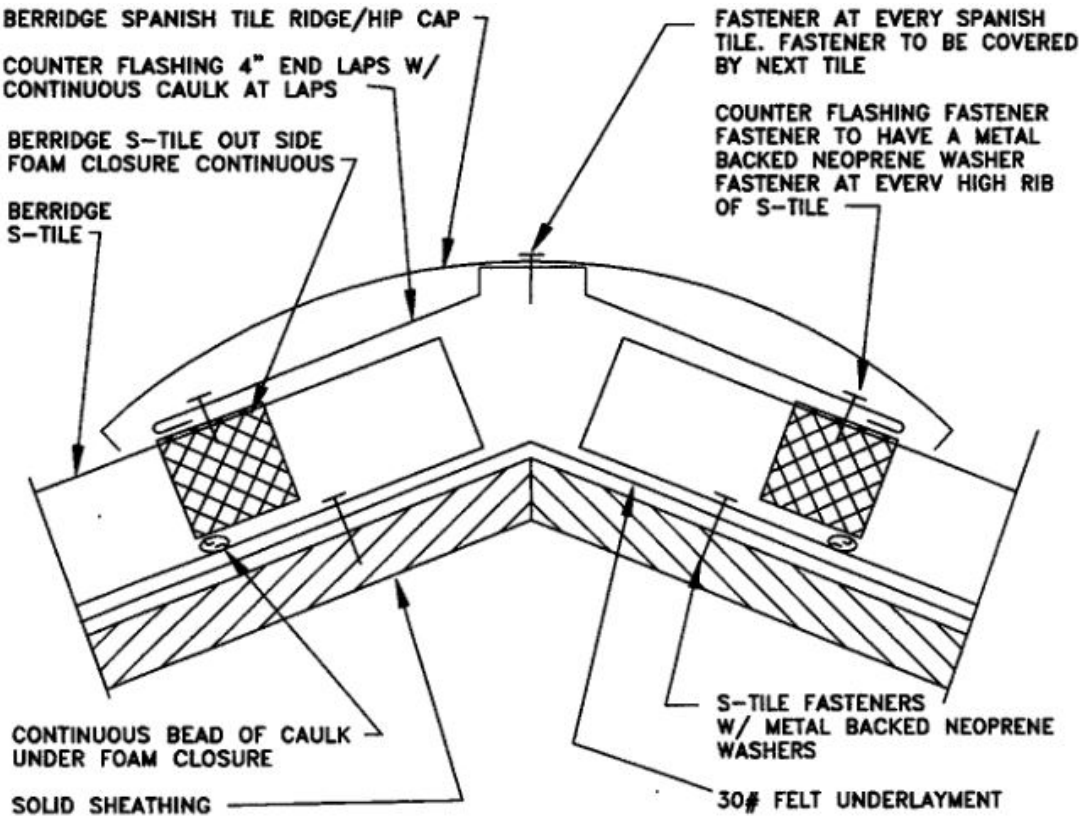
3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



F = FINISH SIDE

S-TILE

RIDGE/HIP DETAIL

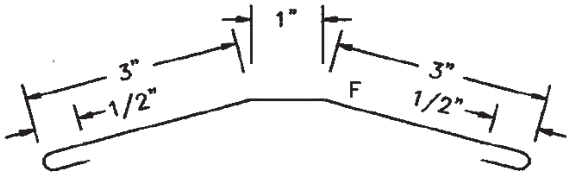


1. SEE PAGE 132 FOR LAY OUT OF S-TILE FASTENERS.

2. AT THE HIP OUT SIDE 45° LEFT HAND AND RIGHT HAND FOAM CLOSURES WILL BE REQUIRED.

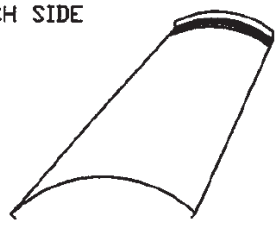
3. SOLID SHEATHING TO BE MIN. 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

4. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



RIDGE FLASHING

F = FINISH SIDE



BERRIDGE SPANISH TILE RIDGE/HIP CAP

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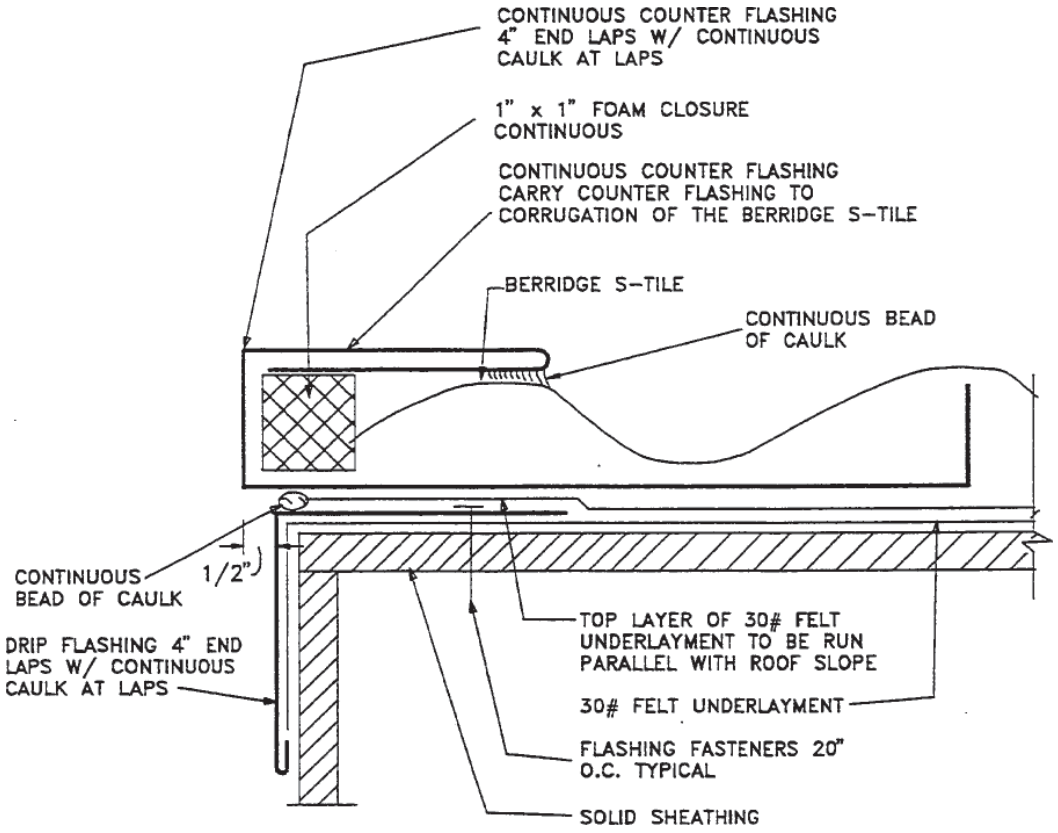
S-TILE

GABLE DETAIL



1.SEE PAGE 132 FOR LAY OUT OF S-TILE FASTENERS.

2.SOLID SHEATHING TO BE MIN. 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

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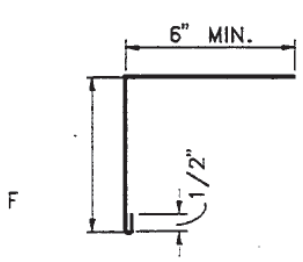
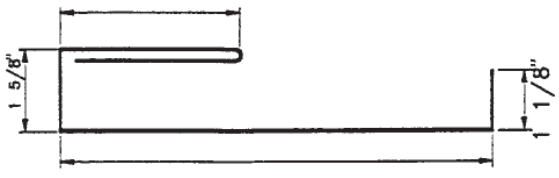


DRIP FLASHING

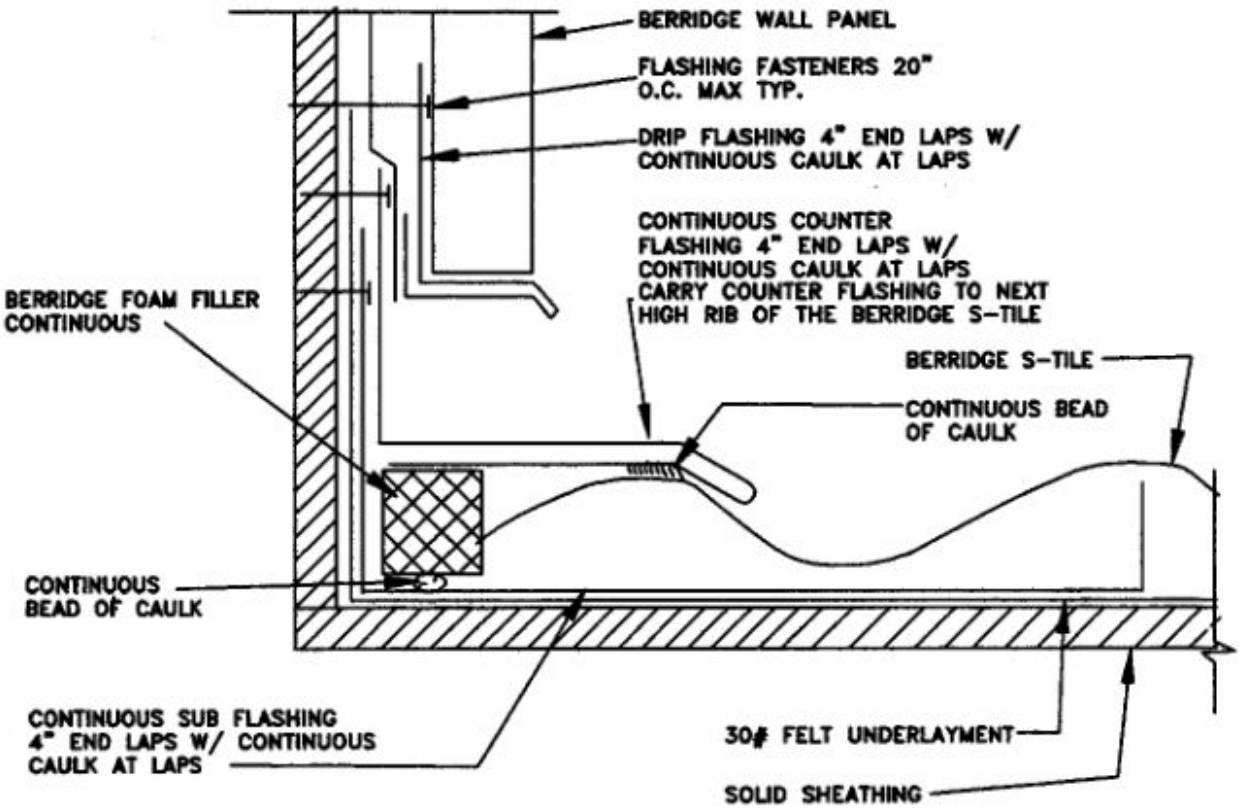
F = FINISH SIDE



COUNTER FLASHING

S-TILE

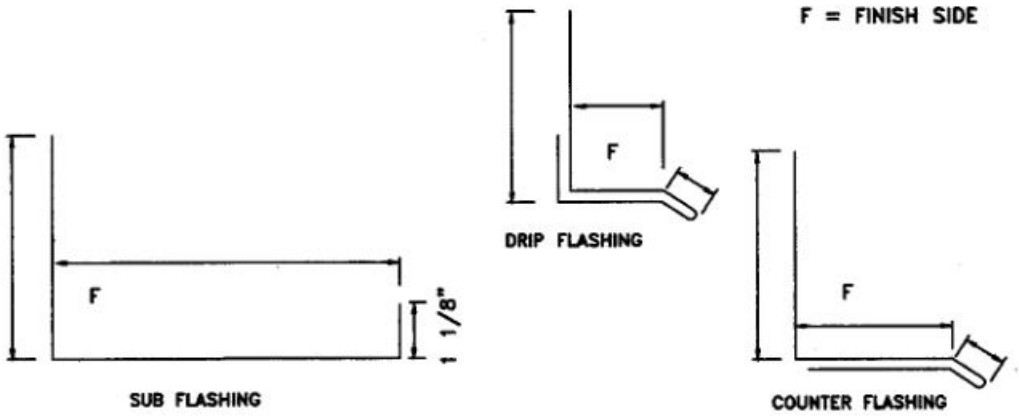
RAKE WALL DETAIL



1. SEE PAGE 132 FOR LAY OUT OF S-TILE FASTENERS.

2. SOLID SHEATHING TO BE MIN. 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



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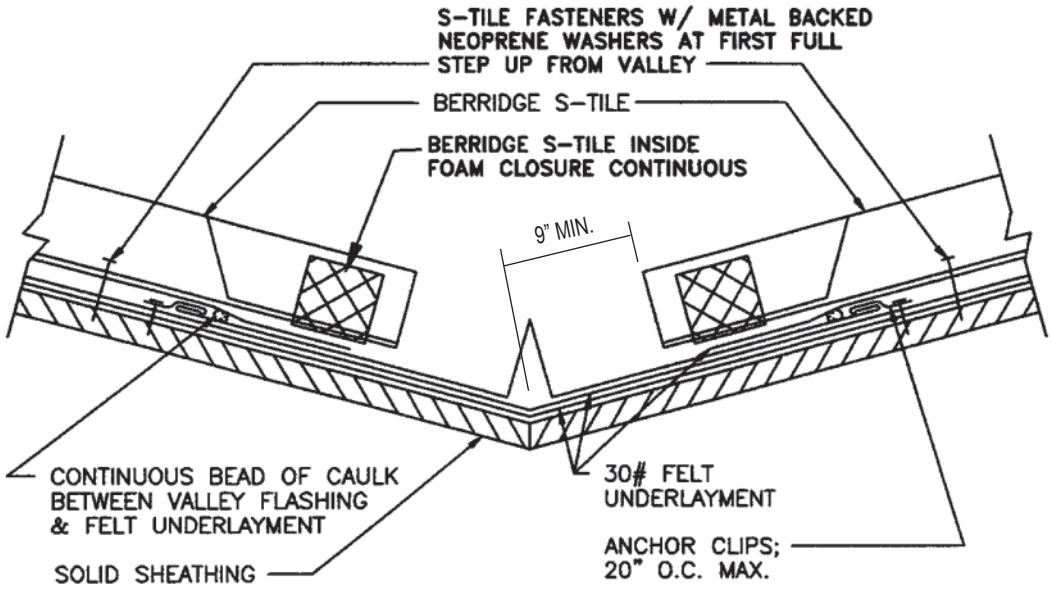
S-TILE

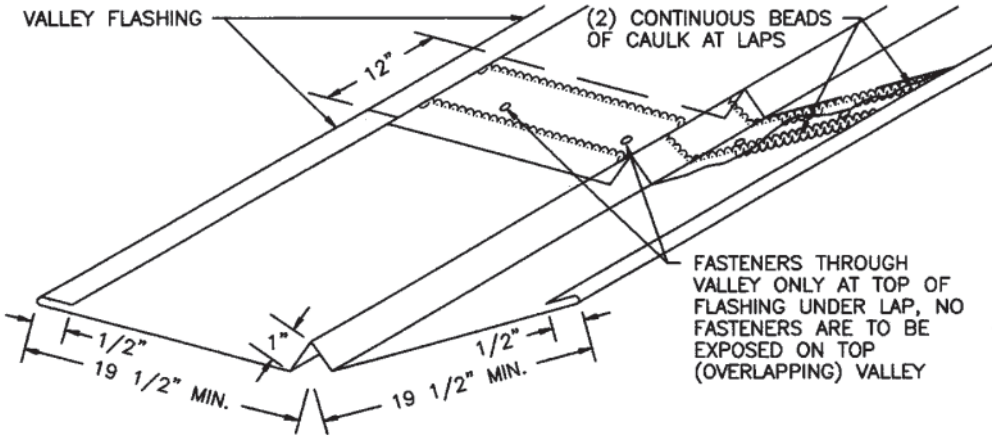
VALLEY DETAIL



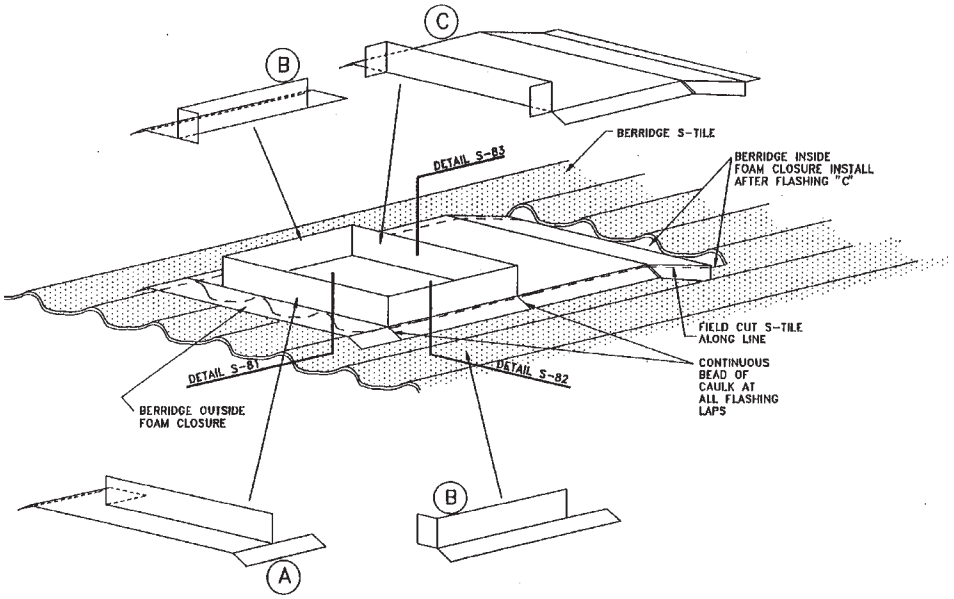
1. SEE PAGE 132 FOR LAY OUT OF S-TILE FASTENERS.

2. SOLID SHEATHING TO BE MIN. 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

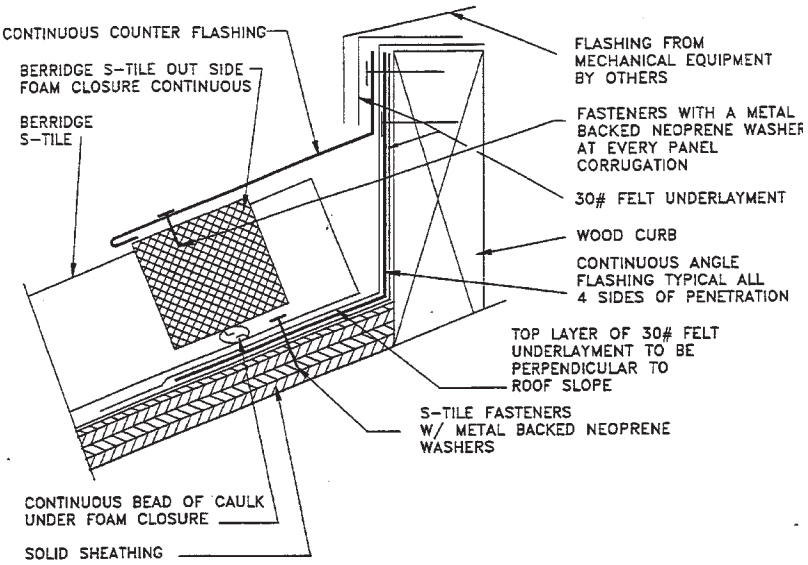


ROOF PENETRATION DETAILS



FIELD CUT PANEL ALONG DOTTED LINE & INSTALL PANEL. INSTALL FLASHING "A" FIRST ALONG WITH FOAM CLOSURE. INSTALL FLASHING "B" SECOND, CAULK ALL FLASHING LAPS. INSTALL FLASHING "C" LAST, THIS FLASHING IS TO BE SLIPED UNDER THE S-TILE & FELT AS SHOWN IN DETAIL S-83 BEFORE THE FOAM CLOSURE OR FASTENERS ARE INSTALLED. SEE ALSO DETAILS S-81 & S-82 FOR FELTING AND SUBFLASHING.

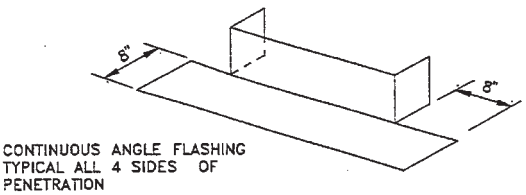
DETAIL S-81



1. SEE PAGE 132 FOR LAY OUT OF S-TILE FASTENERS.

2. SOLID SHEATHING TO BE MIN. 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.

3. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

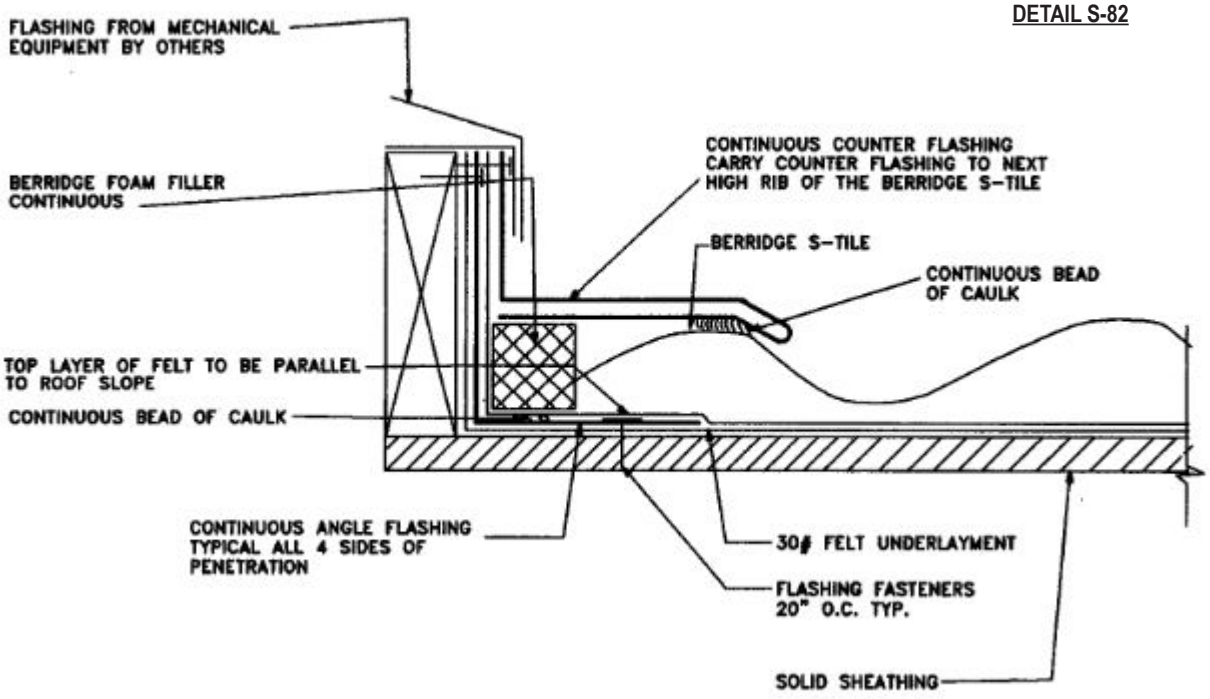


CONTINUOUS ANGLE FLASHING TYPICAL ALL 4 SIDES OF PENETRATION

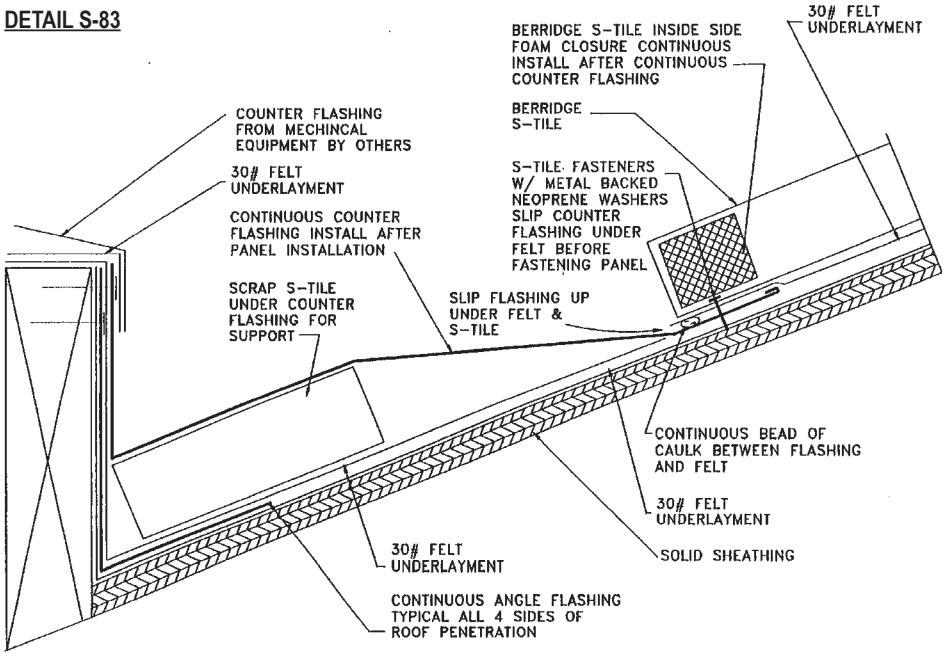
S-TILE

ROOF PENETRATION DETAILS

DETAIL S-82

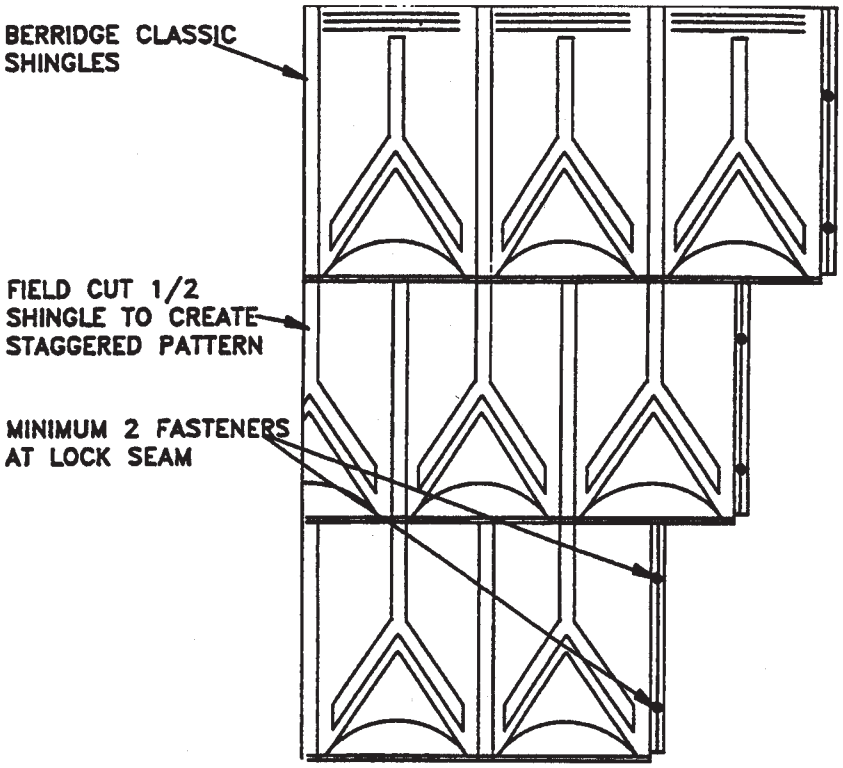


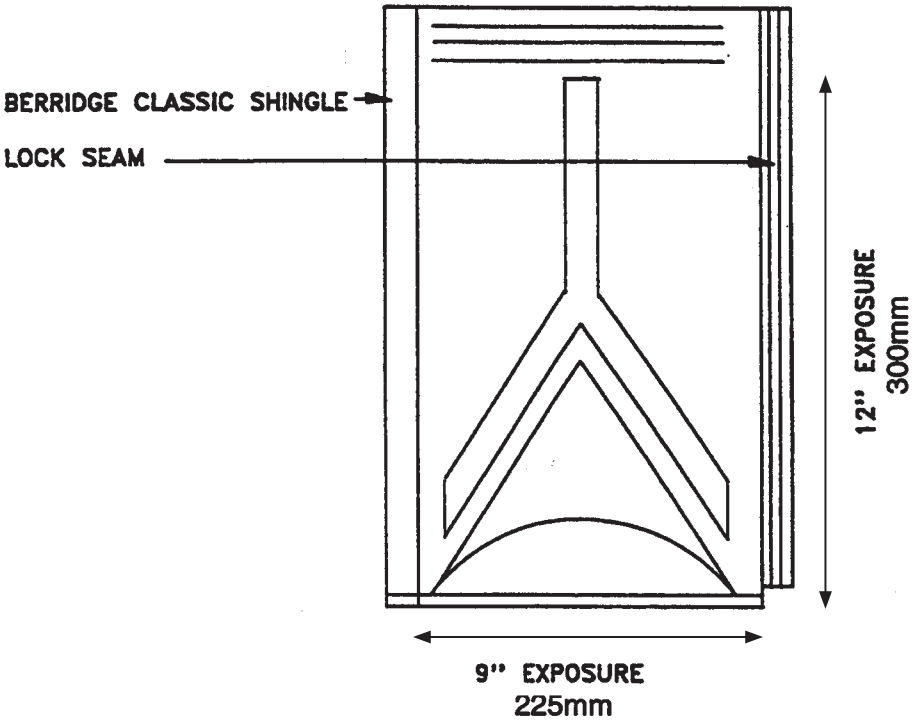
DETAIL S-83



VICTORIAN & CLASSIC SHINGLES

CLASSIC SHINGLE OVERVIEW





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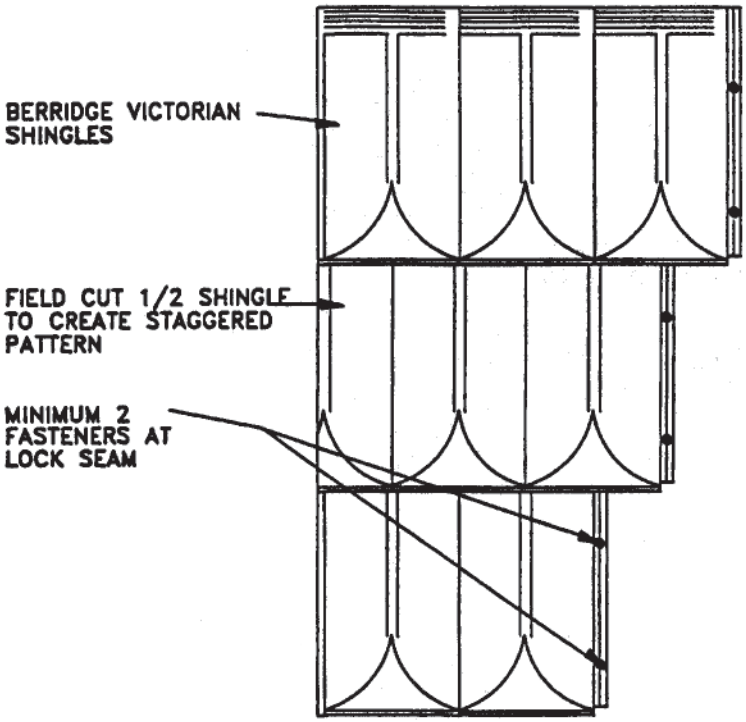
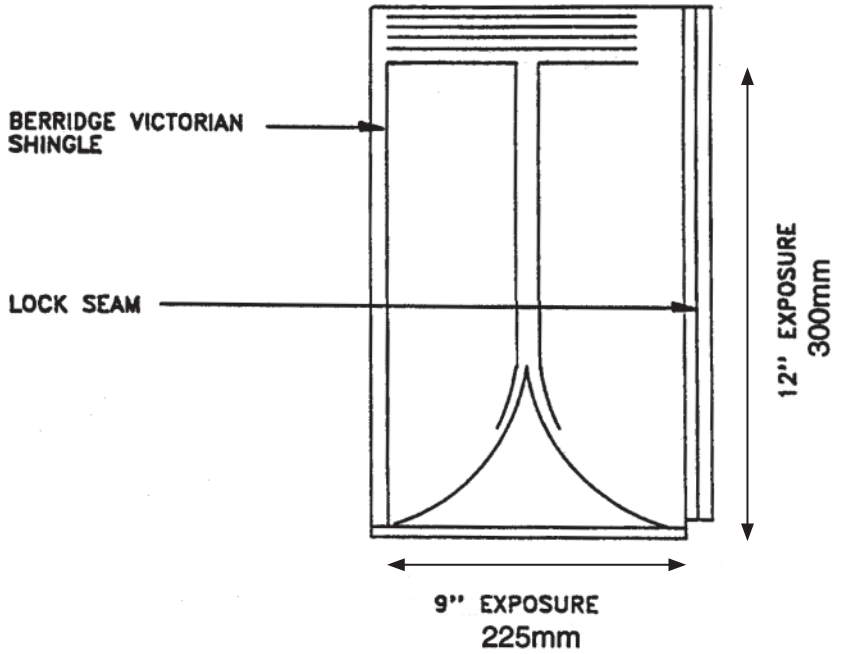
VICTORIAN & CLASSIC SHINGLES

VICTORIAN SHINGLE OVERVIEW

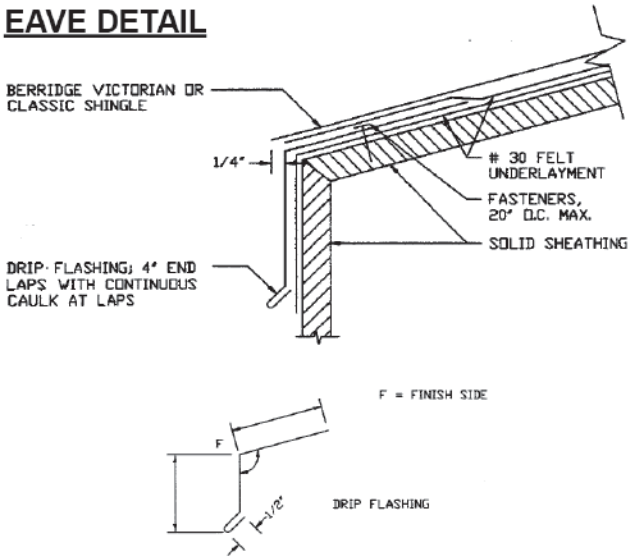




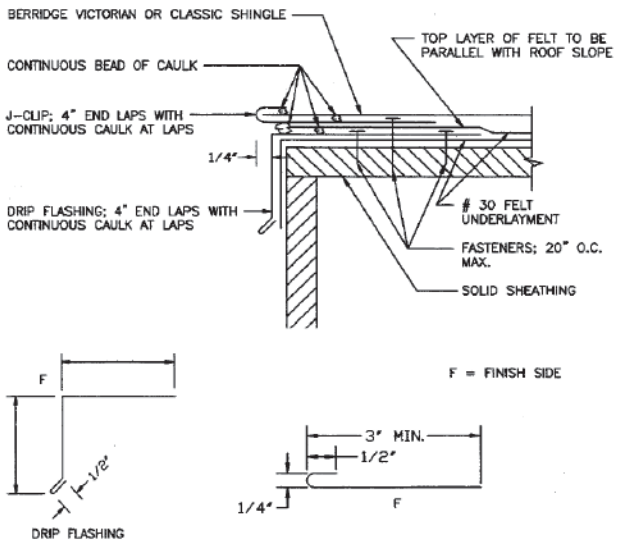
VICTORIAN & CLASSIC SHINGLES

EAVE, GABLE, RIDGE/HIP & VALLEY DETAILS

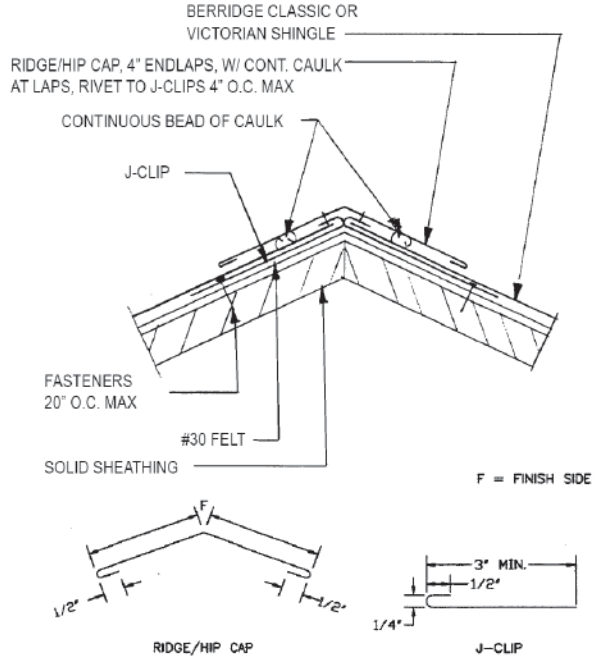
EAVE DETAIL



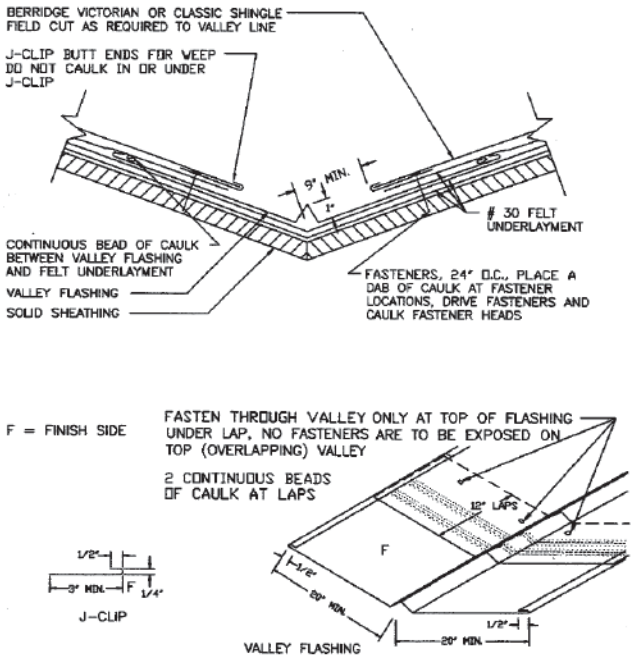
GABLE DETAIL



RIDGE/HIP DETAIL



VALLEY DETAIL



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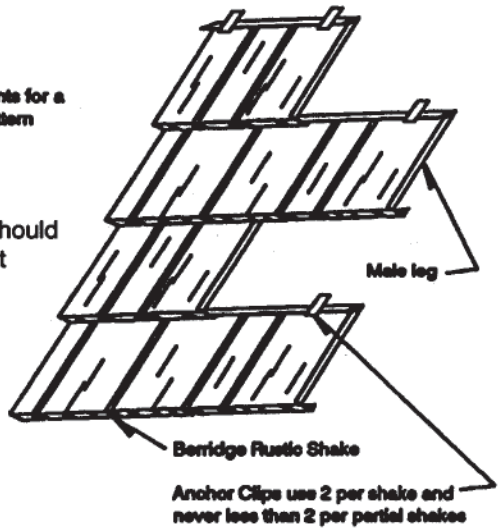
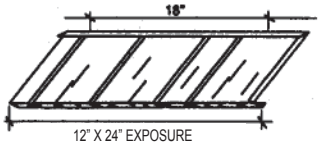
RUSTIC SHAKE SHINGLES

RUSTIC SHAKE SHINGLE OVERVIEW



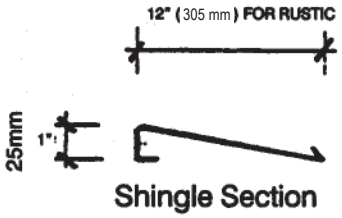
Note: Arrangement of shingles should be random in order to insure that shingle endlaps are staggered thus providing the most aesthetically pleasing roof installation

Anchor Clip spacing



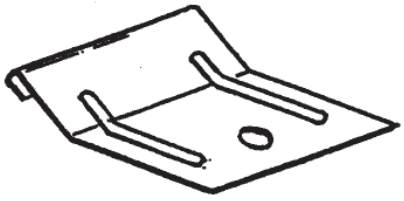
12" X 24" EXPOSURE
305 mm x 610 mm

RUSTIC SHAKE

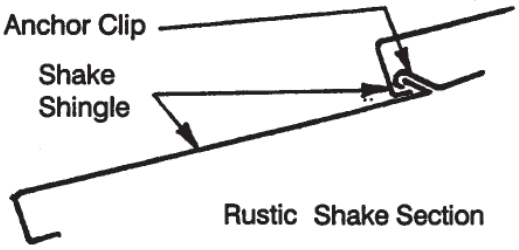


Shingle Section

Use (2) anchor clips per 24" Rustic Shake Shingle, and never less than (2) anchor clips per partial shingle.



Anchor Clip



Rustic Shake Section

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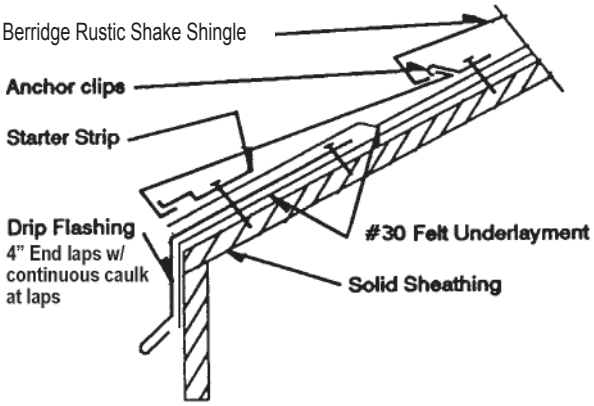
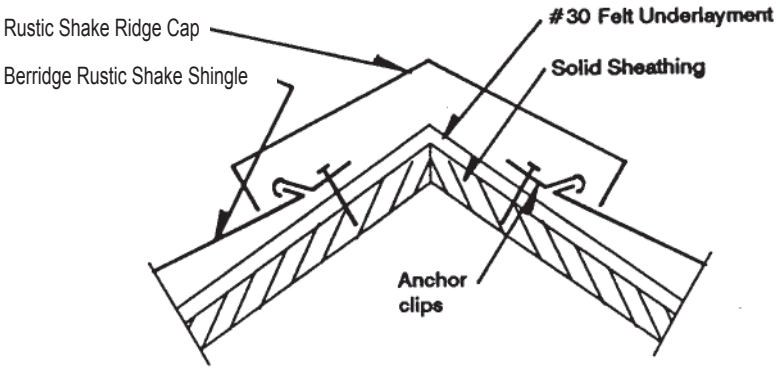
RUSTIC SHAKE SHINGLES

EAVE, RIDGE/HIP, GABLE & VALLEY DETAILS

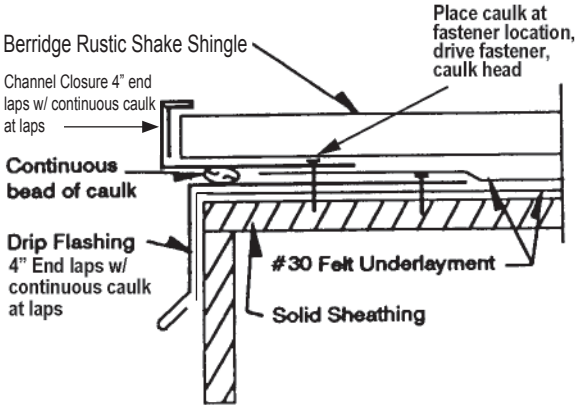
EAVE



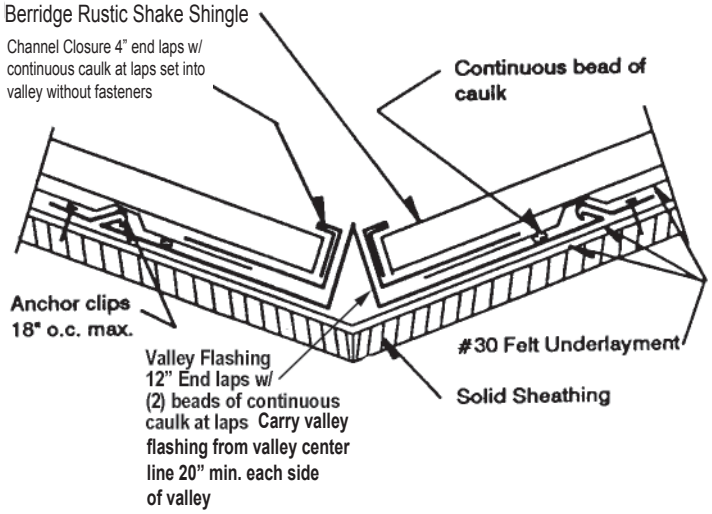
RIDGE



GABLE



VALLEY



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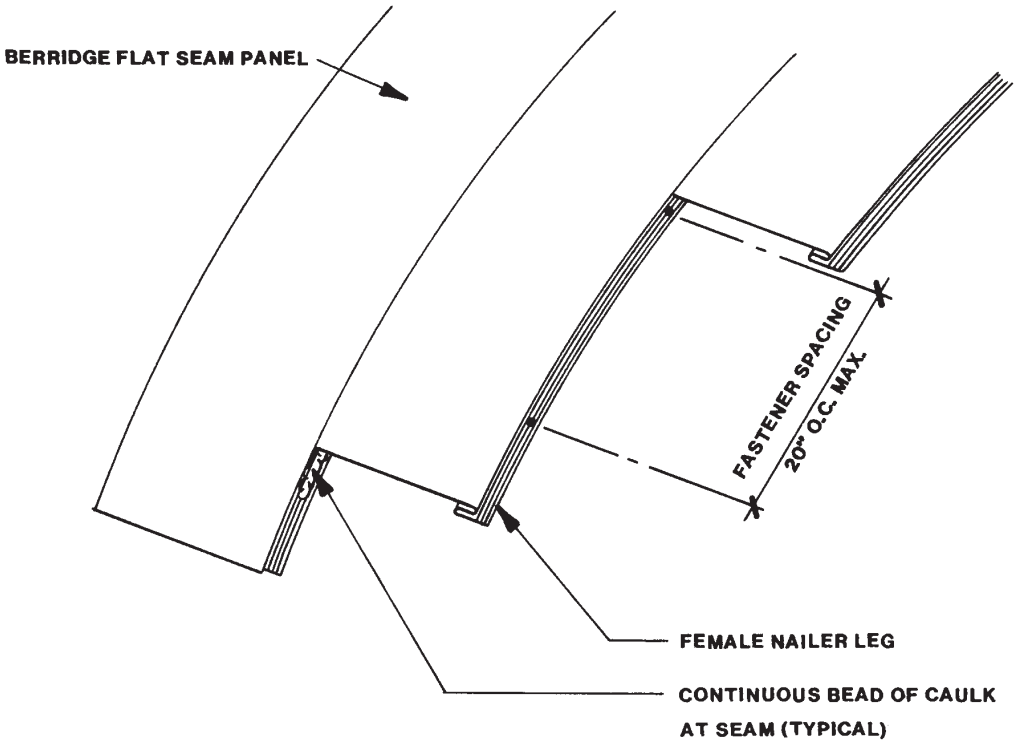
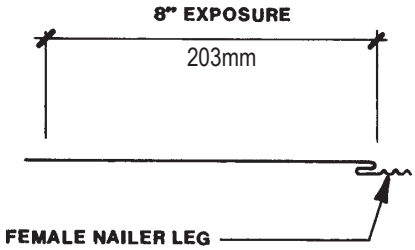
CURVED FLAT SEAM

CURVED FLAT SEAM OVERVIEW





FLAT SEAM PANEL

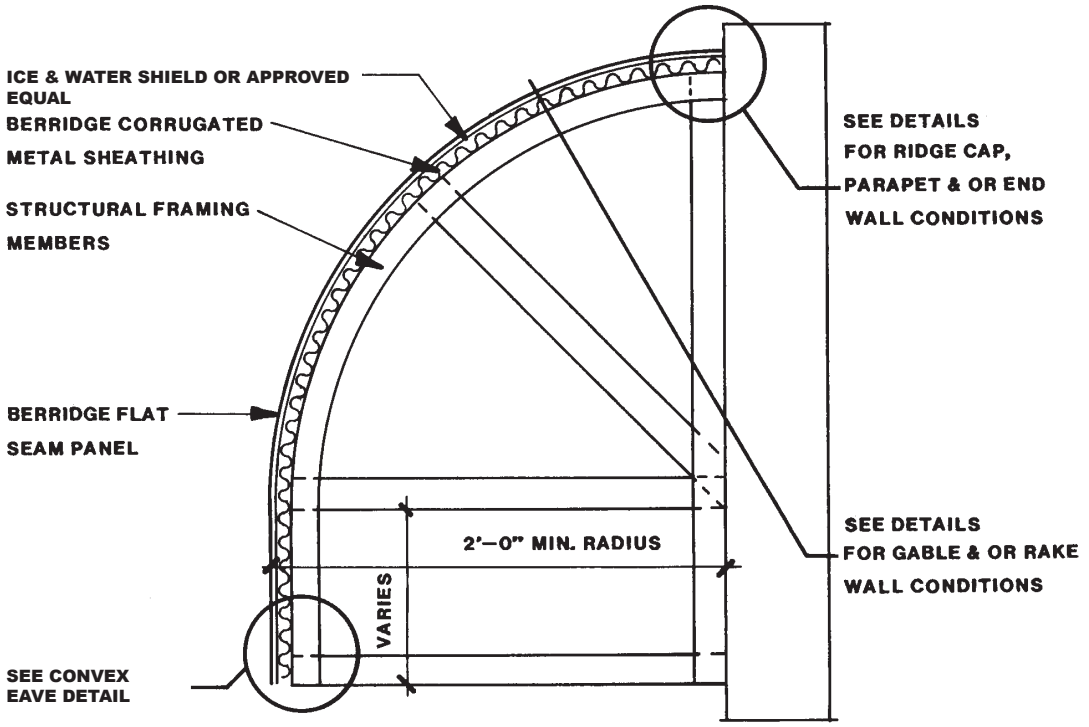
SEAM CAULK DETAIL

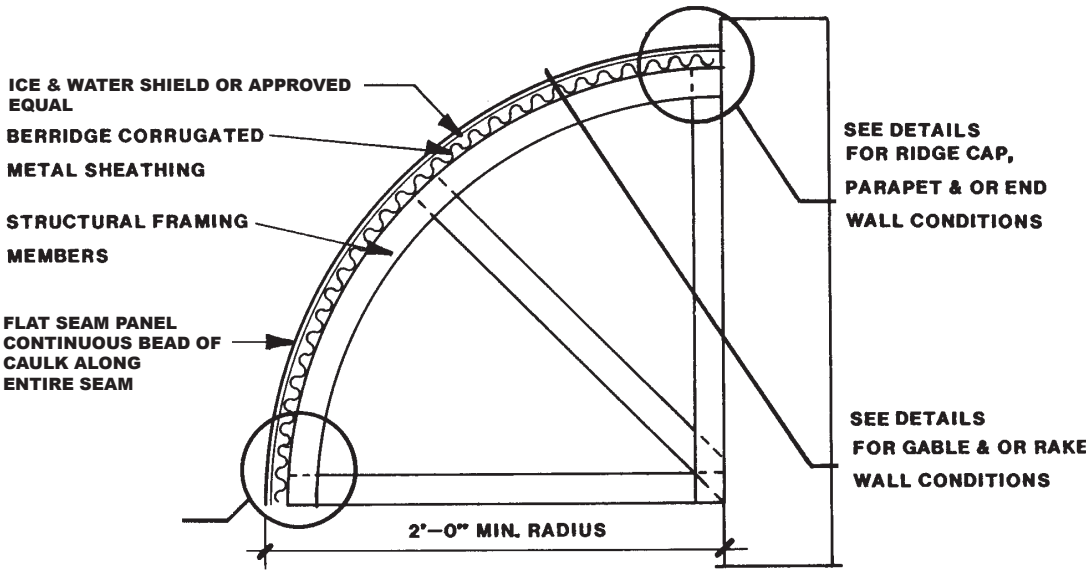
NOTE : FLAT SEAM PANELS ARE RECOMMENDED FOR CURVED APPLICATIONS ONLY.

NOTE: Underlayment required for Curved Flat Seam, use a 40 mil minimum thickness, self-adhering membrane. Refer to product specifications page 11 for list of approved products.

CURVED FLAT SEAM

CONVEX CANOPY DETAILS





A 40-MIL MINIMUM THICKNESS, SELF-ADHERING MEMBRANE IS REQUIRED, REFER TO PRODUCT SPECIFICATIONS PAGE 11 FOR LIST OF APPROVED PRODUCTS.

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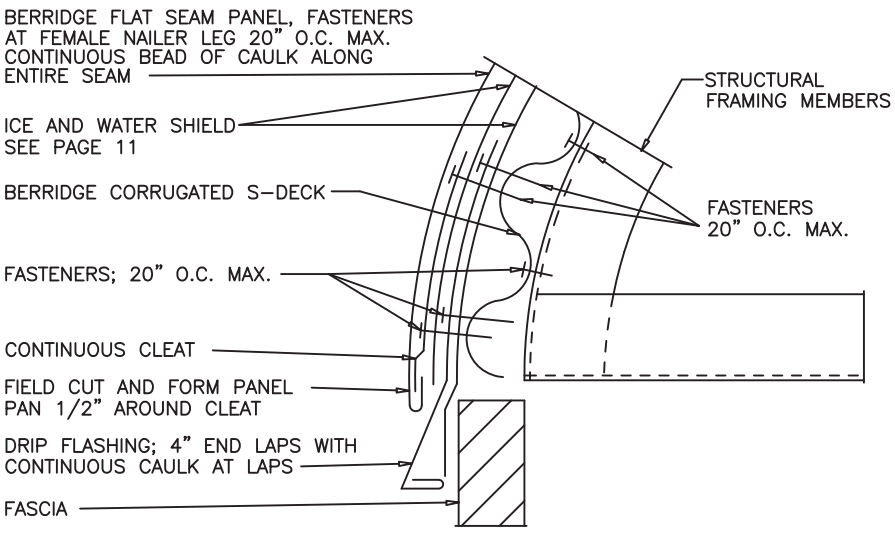
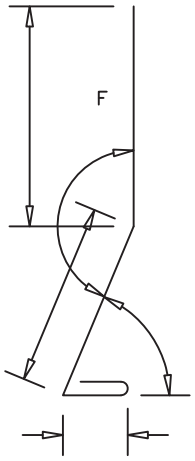
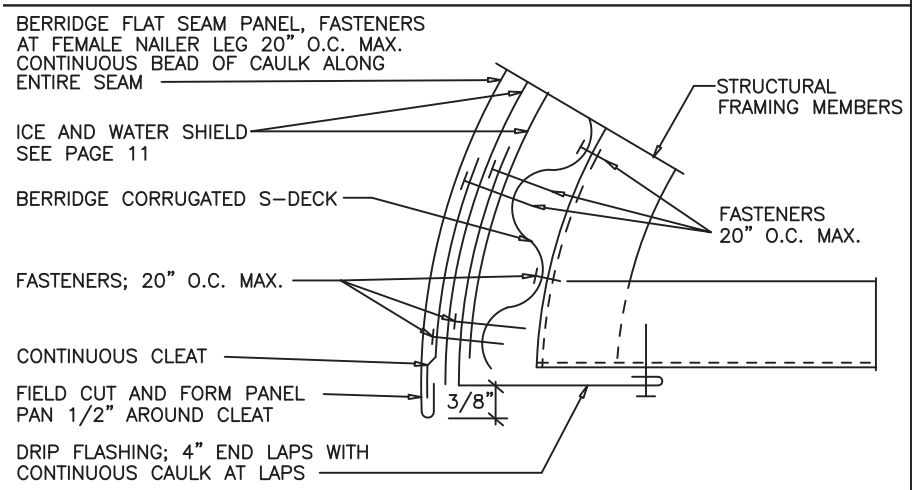
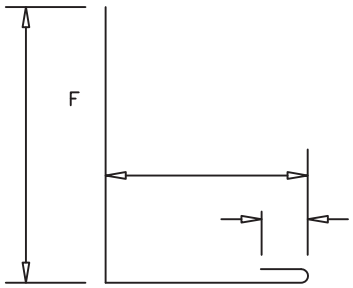
CURVED FLAT SEAM

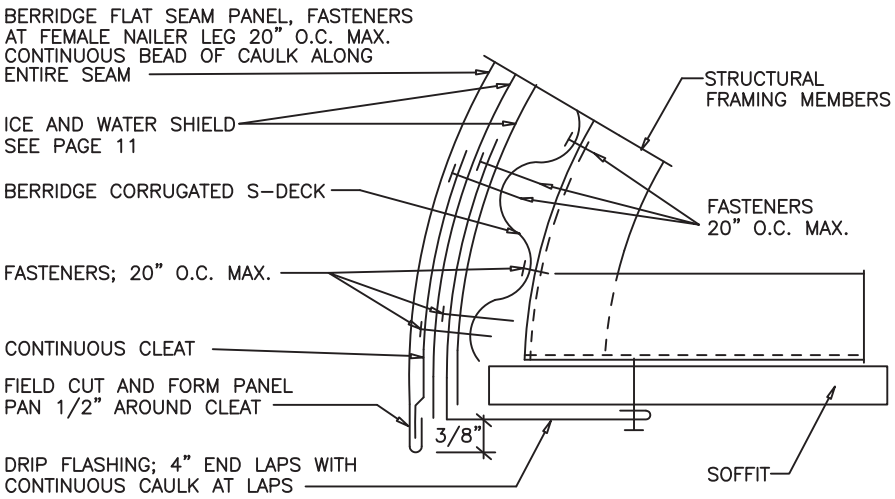
CONVEX EAVE DETAILS

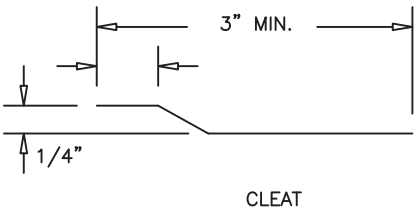












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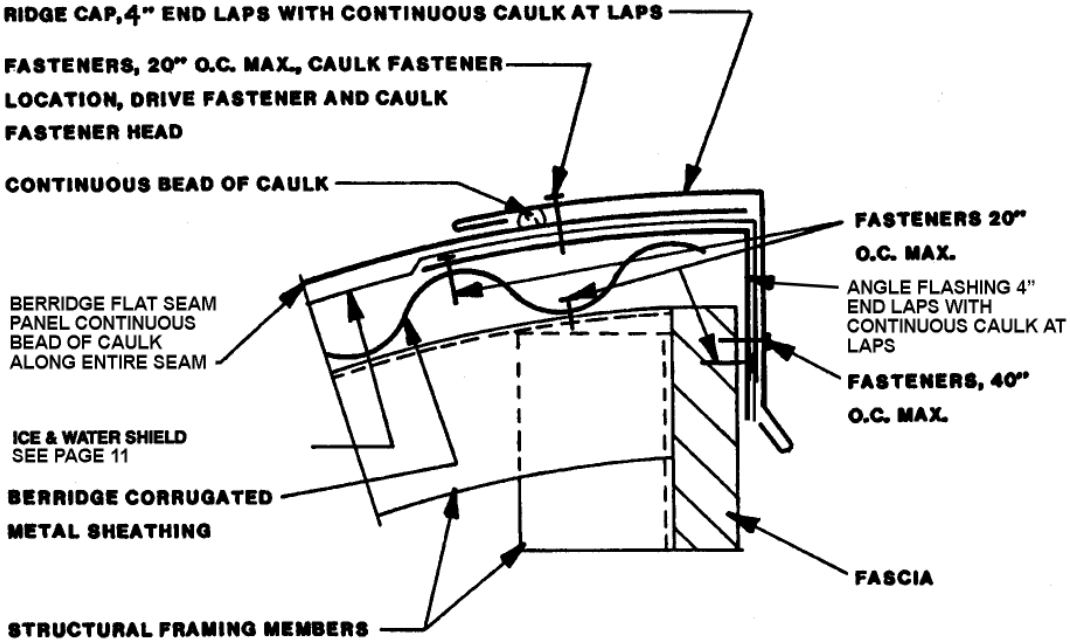
CURVED FLAT SEAM

CONVEX RIDGE DETAIL



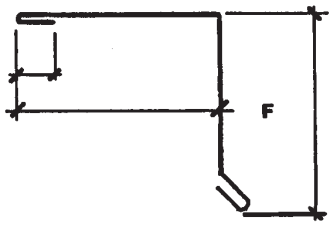
1 SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).

2 BERRIDGE 16 GAUGE 1 1/2" X 2" CURVED OR STRAIGHT ANGLE FRAMING IS SHOWN. HEAVIER GAUGE FRAMING MEMBERS MAY BE REQUIRED DEPENDING ON SIZE OF APPLICATION AND LOAD REQUIREMENTS.

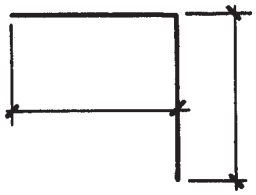
3 THE DESIGN, SIZING AND SPACING OF FRAMING MEMBERS TO BE DETERMINED BY OTHERS.

UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



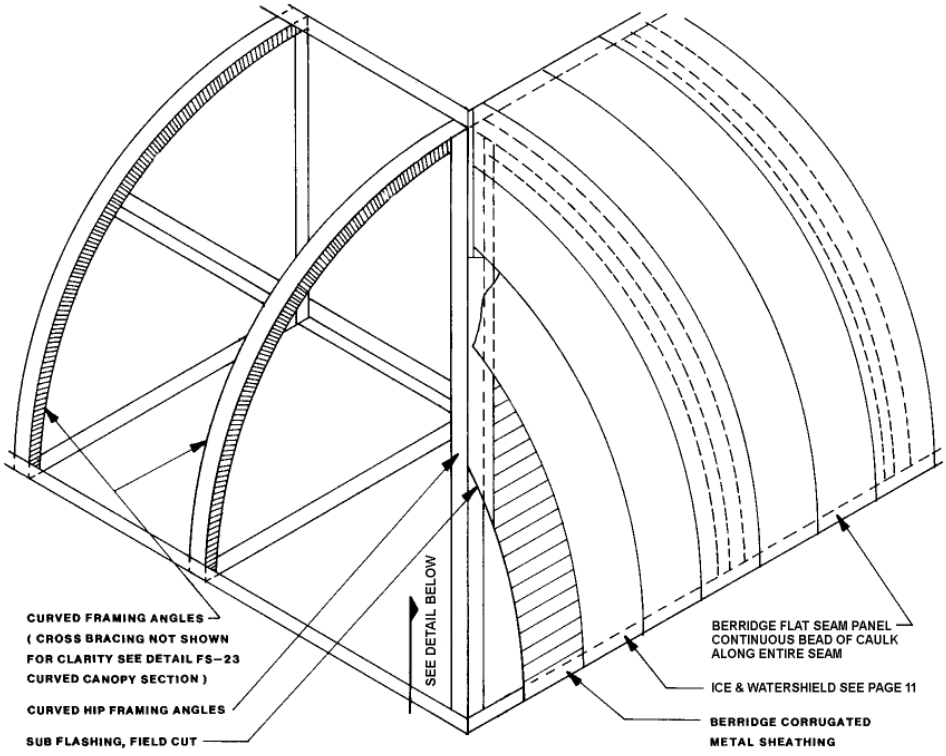
RIDGE CAP

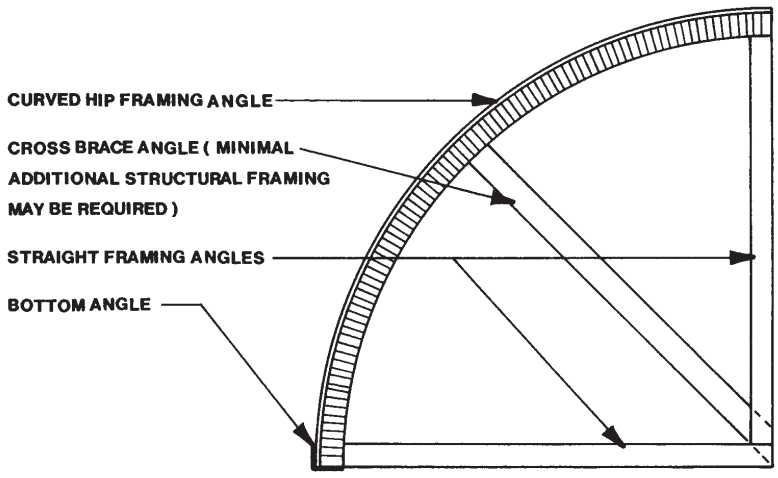


ANGLE FLASHING

CURVED FLAT SEAM

CONVEX HIP ISOMETRIC & SECTION DETAIL



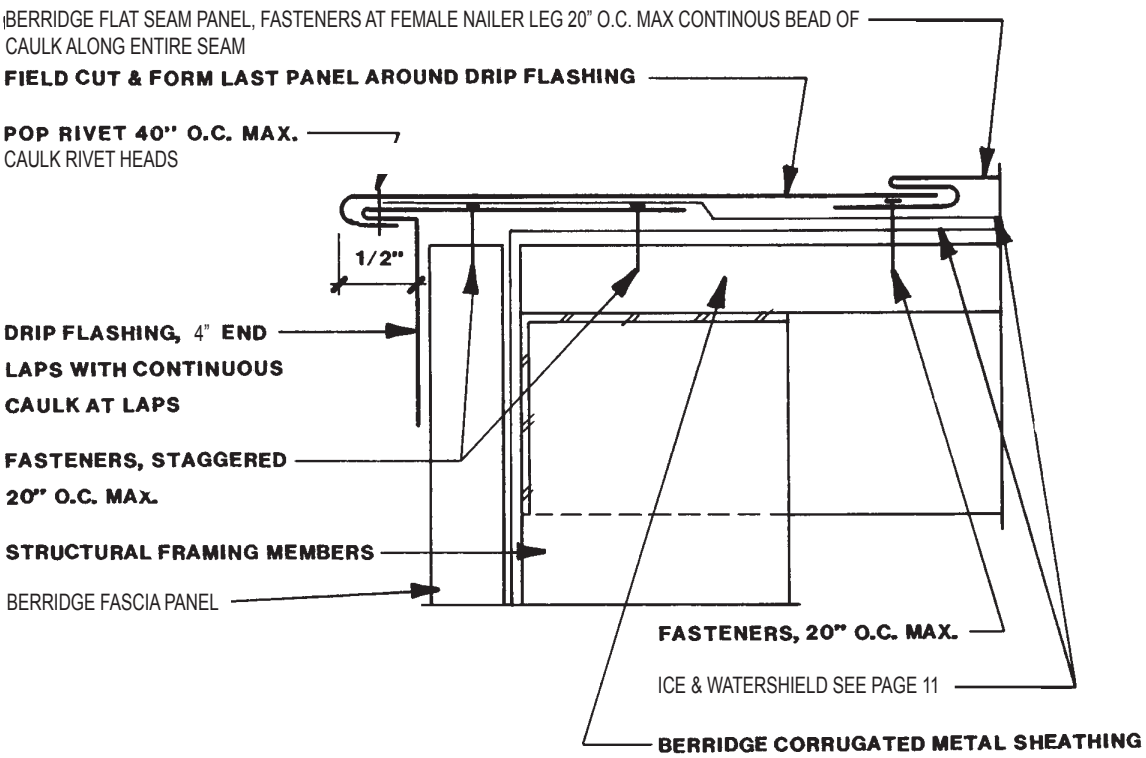


BERRIDGE 16 GAUGE 1 1/2" × 2" CURVED OR STRAIGHT ANGLE FRAMING IS SHOWN. HEAVIER GAUGE FRAMING MEMBERS MAY BE REQUIRED DEPENDING ON SIZE OF APPLICATION AND LOAD REQUIREMENTS.

THE DESIGN, SIZING AND SPACING OF FRAMING MEMBERS TO BE DETERMINED BY OTHERS.

CURVED FLAT SEAM

CONVEX GABLE DETAIL



1. FIELD CUT AND FORM LAST PANEL AROUND DRIP FLASHING.
2. SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).
3. BERRIDGE 16 GAUGE 1 1/2" × 2" CURVED OR STRAIGHT ANGLE FRAMING IS SHOWN. HEAVIER GAUGE FRAMING MEMBERS MAY BE REQUIRED DEPENDING ON SIZE OF APPLICATION & LOAD REQUIREMENTS.
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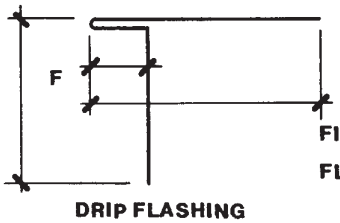
5. ALL UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



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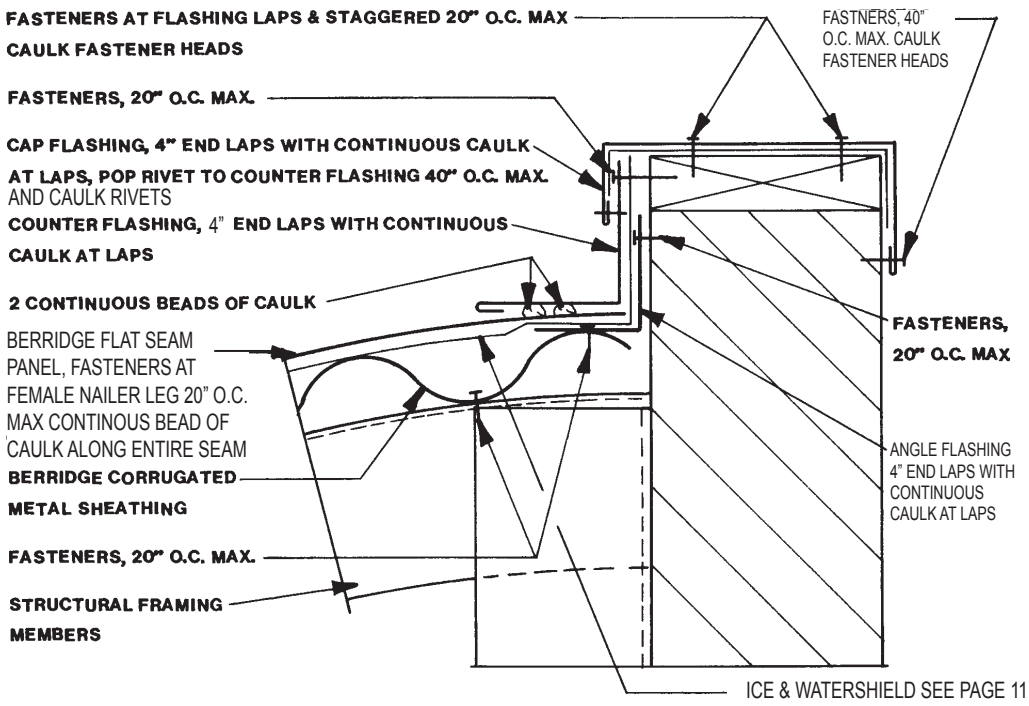
CURVED FLAT SEAM

CONVEX PARAPET DETAILS



1 SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).

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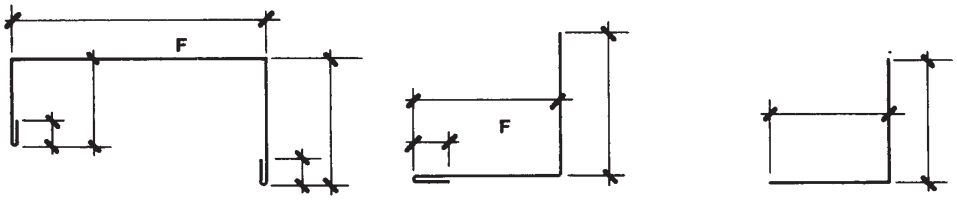
4 ALL UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



CAP FLASHING COUNTER FLASHING ANGLE FLASHING

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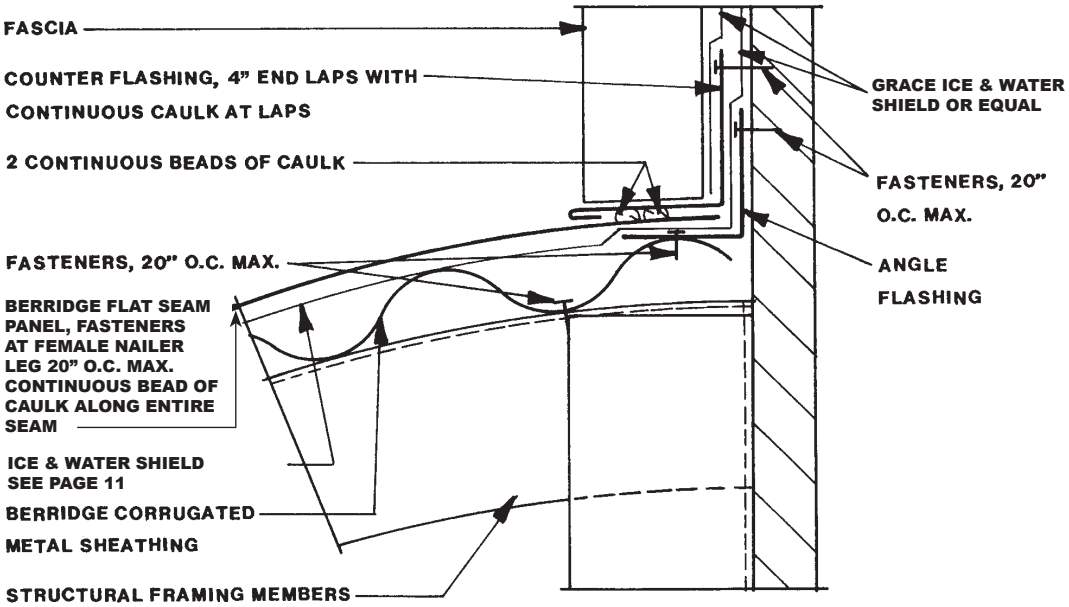
CURVED FLAT SEAM

CONVEX END WALL DETAILS



1. SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).
2. BERRIDGE 16 GAUGE 1 1/2" × 2" CURVED OR STRAIGHT ANGLE FRAMING IS SHOWN. HEAVIER GAUGE FRAMING MEMBERS MAY BE REQUIRED DEPENDING ON SIZE OF APPLICATION & LOAD REQUIREMENTS.
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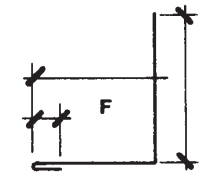
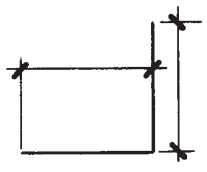


COUNTER FLASHING



ANGLE FLASHING

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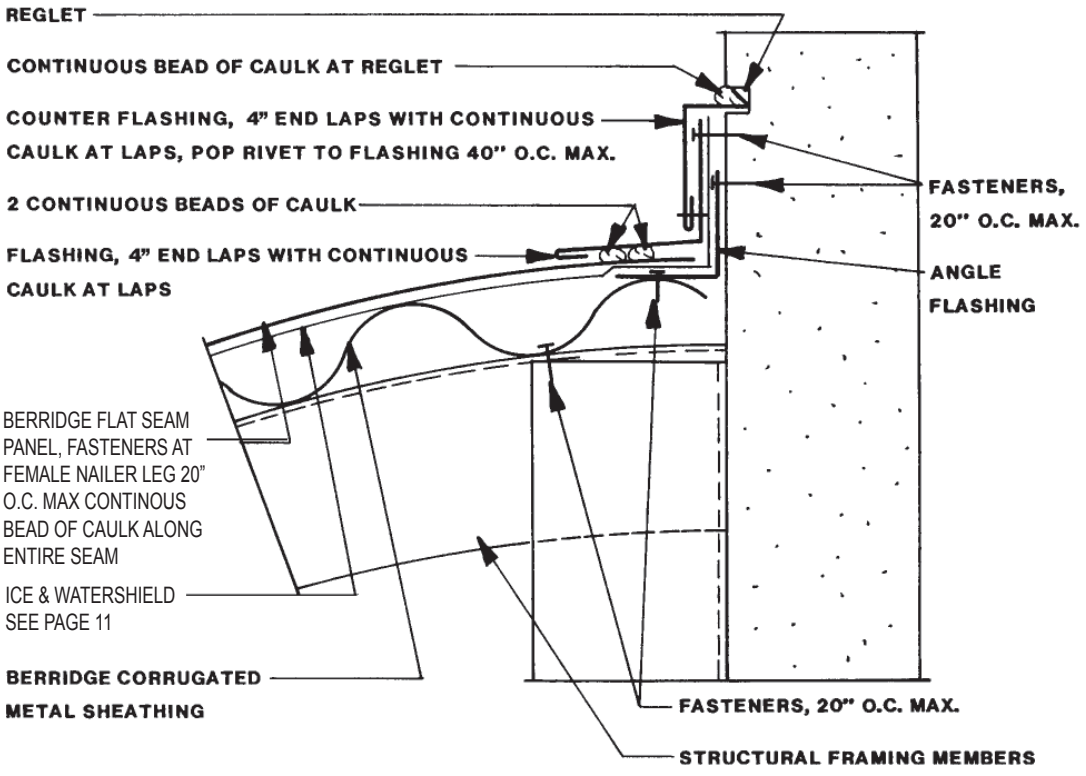
CURVED FLAT SEAM

CONVEX END WALL DETAILS



ANGLE FLASHING 4" END LAPS WITH CONTINUOUS CAULK AT LAPS

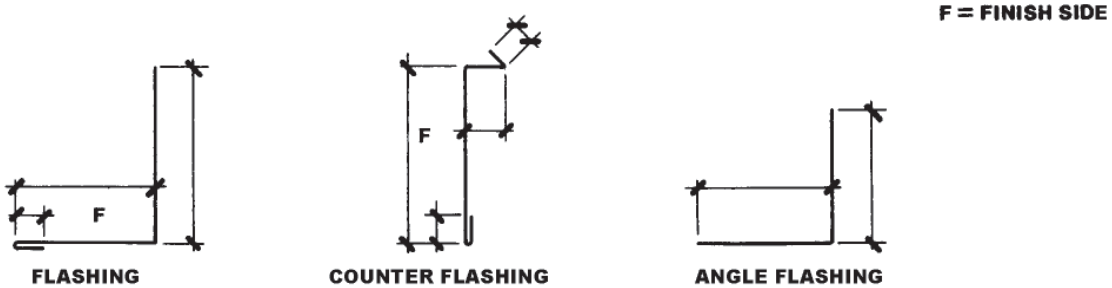
1 SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).

2 BERRIDGE 16 GAUGE 1 1/2" × 2" CURVED OR STRAIGHT ANGLE FRAMING IS SHOWN. HEAVIER GAUGE FRAMING MEMBERS MAY BE REQUIRED DEPENDING ON SIZE OF APPLICATION & LOAD REQUIREMENTS.

3 THE DESIGN, SIZING AND SPACING OF FRAMING MEMBERS TO BE DETERMINED BY OTHERS.

4 ALL UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



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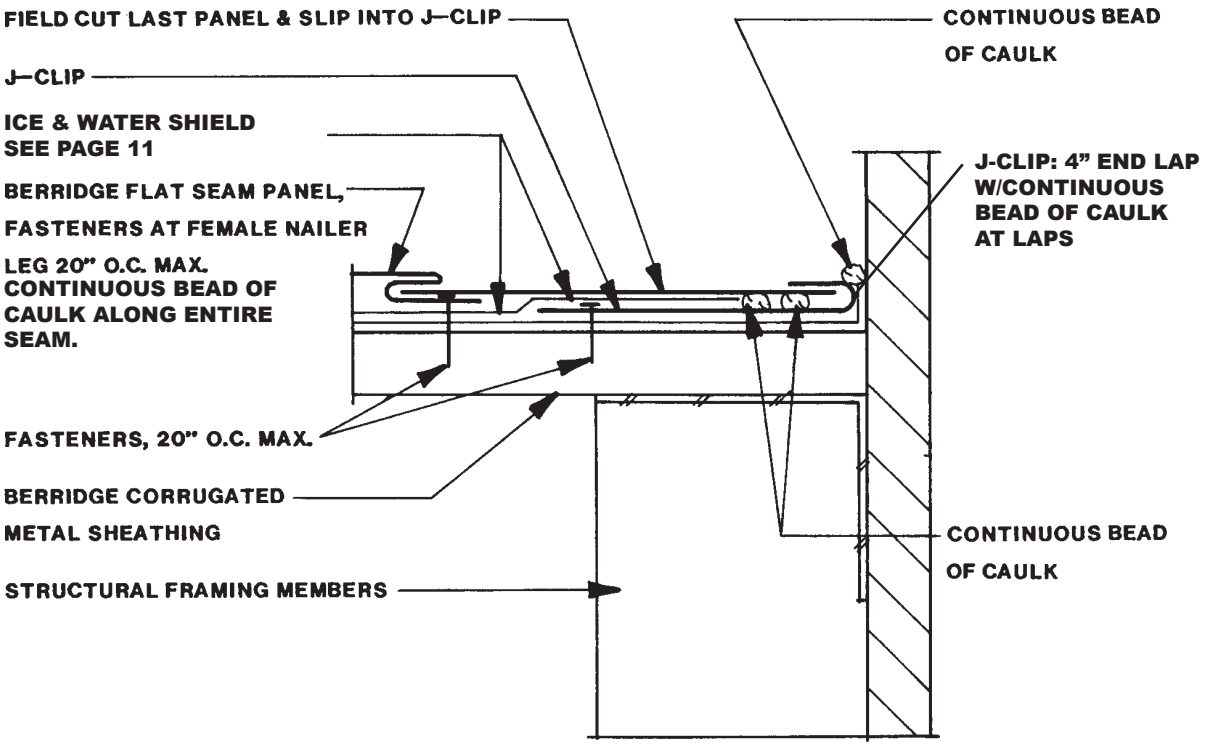
CURVED FLAT SEAM

CONVEX RAKE WALL DETAILS



1 FIELD CUT AND FORM LAST PANEL AROUND DRIP FLASHING.

2 SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).

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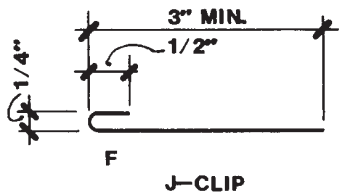

J–CLIP

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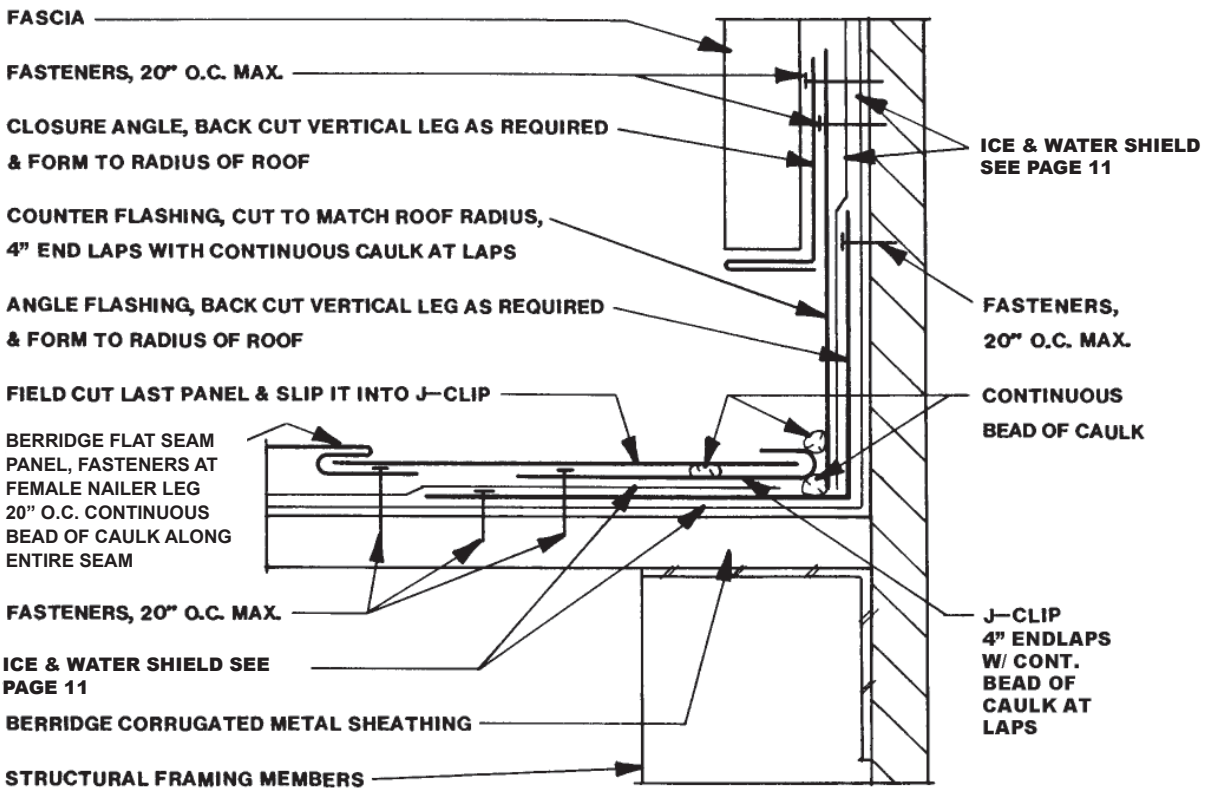
CURVED FLAT SEAM

CONVEX RAKE WALL DETAILS



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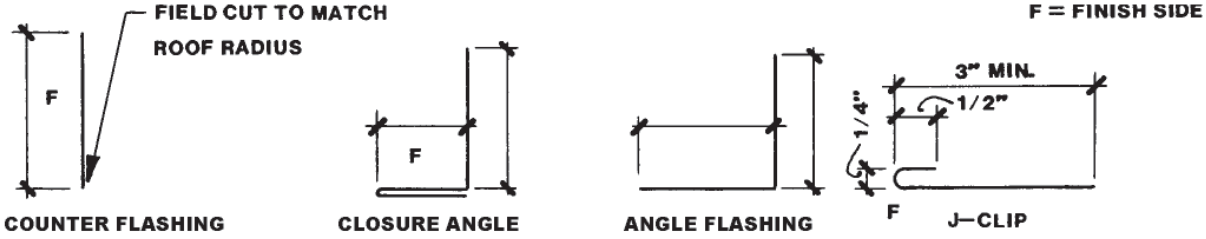
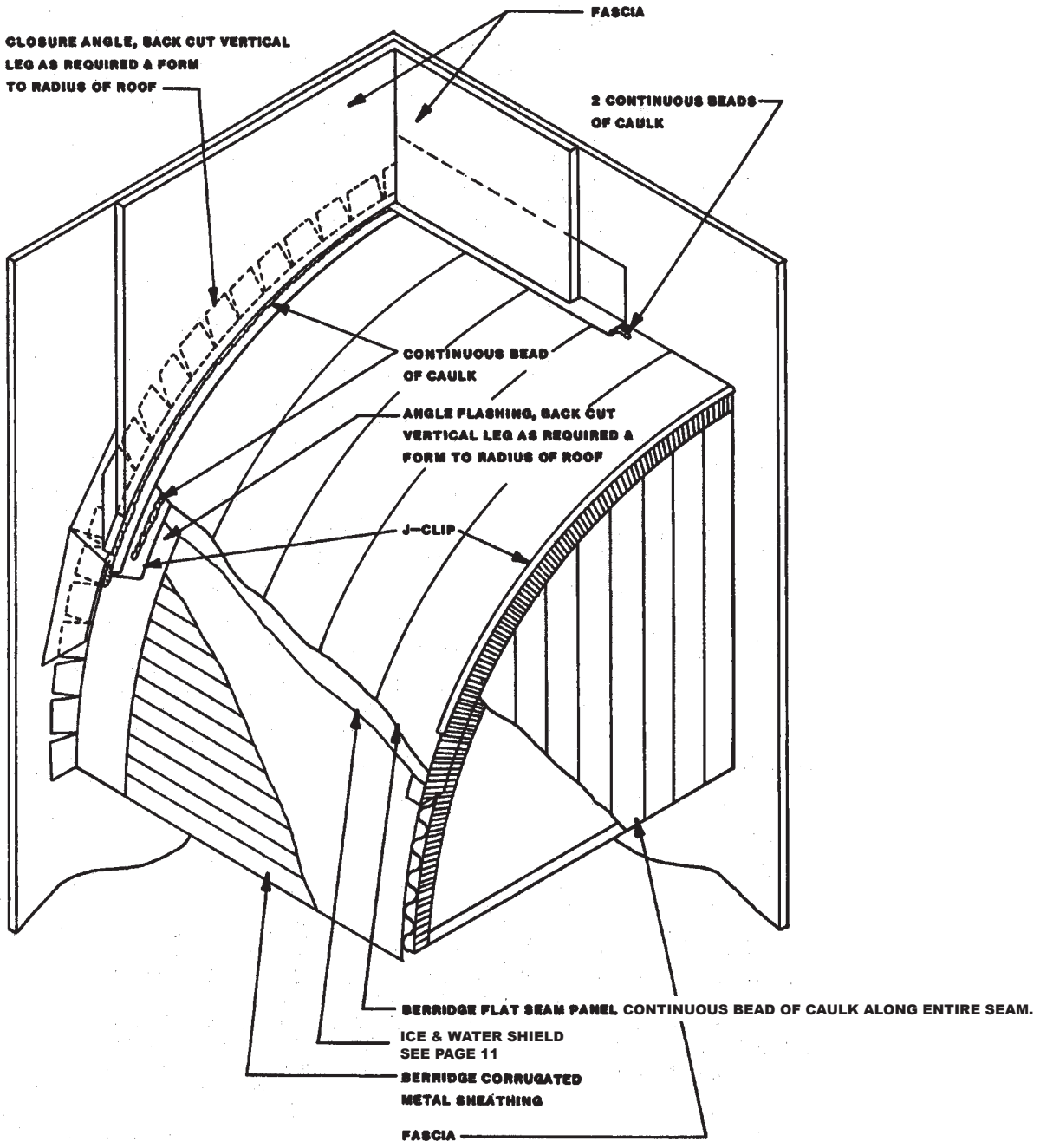


CURVED FLAT SEAM

CONVEX CANOPY ISOMETRIC DETAILS



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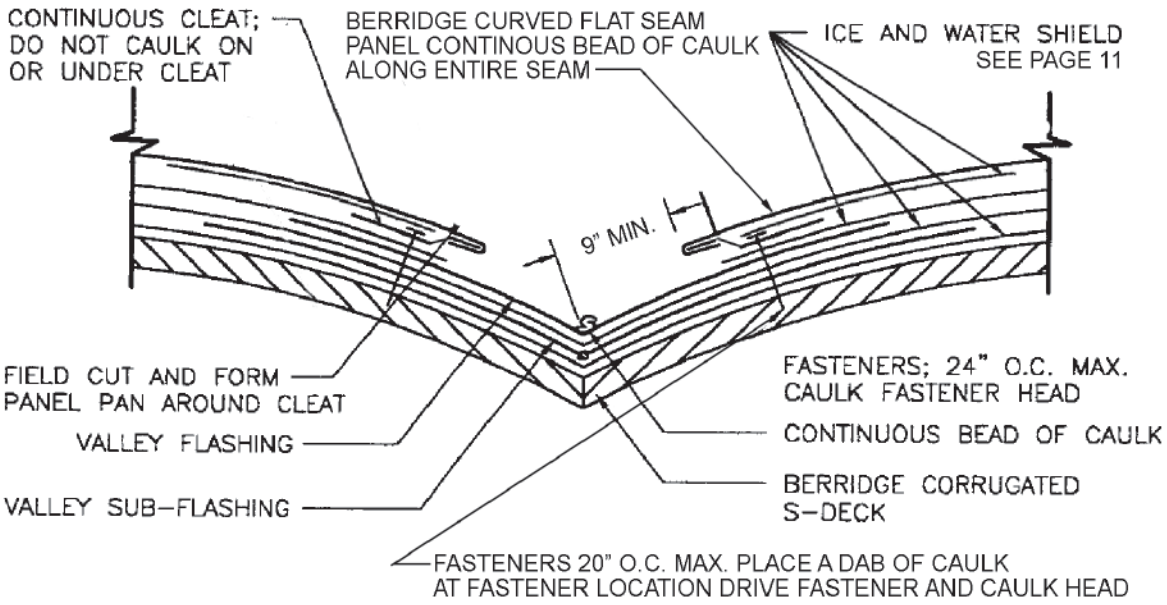
CURVED FLAT SEAM

CONVEX VALLEY DETAIL



1. SHEATHING TO BE MINIMUM 24 GAUGE CORRUGATED METAL SHEATHING OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS (1/2" PLYWOOD MINIMUM THICKNESS MAY BE USED IN LIEU OF CORRUGATED METAL SHEATHING).
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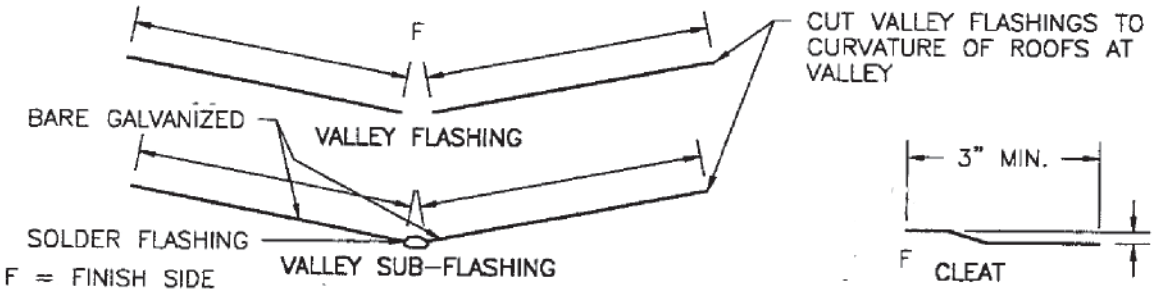
3. ALL UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



BERRIDGE

Roofs of Distinction

SECTION 5
FASCIA WALL
& SOFFIT SYSTEMS

- HR-16 WALL PANEL
- HS-8 & HS-12 WALL PANELS
- FLUSH SEAM PANEL
- B-6 PANEL
- VEE-PANEL & VENTED VEE-PANEL
- FW-1025 & FW-12 PANEL
- THIN-LINE PANEL
- L-PANEL
- FASCIA, WALL & SOFFIT DETAILS

For the most up-to-date information visit *www.berridge.com*

SECTION 5 FASCIA, WALL & SOFFIT SYSTEMS

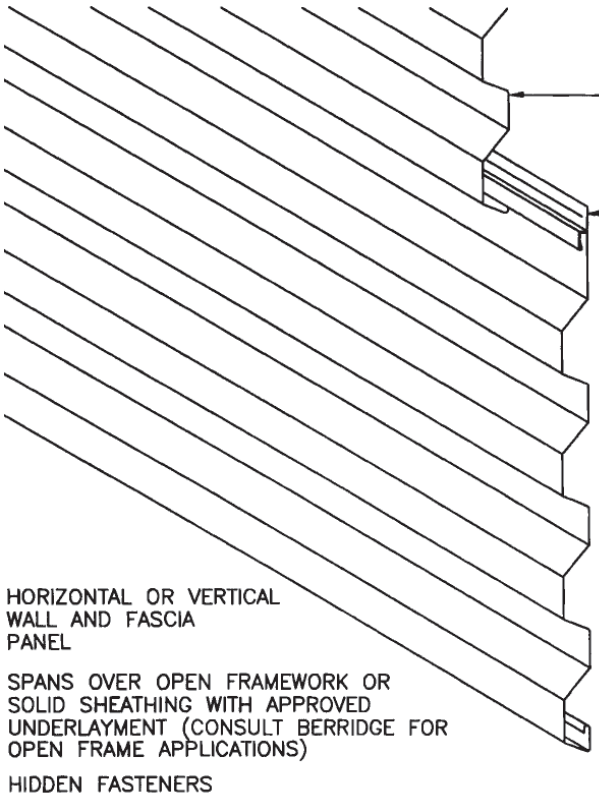
The details contained in this manual are merely recommendations as to how Berridge Manufacturing Company materials should be installed. They may require adaptations or modifications for a specific project, as conditions vary in both building design and local climatic conditions.

Berridge Manufacturing Company shall be held harmless from any and all claims arising from lack of watertightness as a result of following these recommended details. Ensuring watertightness on any given project is the function of the installer. The architect, general contractor or installer must accept the responsibility to adapt these details to meet particular building requirements and assure adequate watertightness.

The installer can virtually assure watertightness if these details have been properly adapted, adequate laps have been provided, correct type of underlayment and sealant used, all joints adequately caulked and professional workmanship employed.

Should a watertightness warranty be required on a specific project, please refer to the procedures outlined in the “Design Guide” section of this manual. These procedures must be adhered to in order for Berridge to issue any type of watertightness warranty.

HR-16 PANEL OVERVIEW



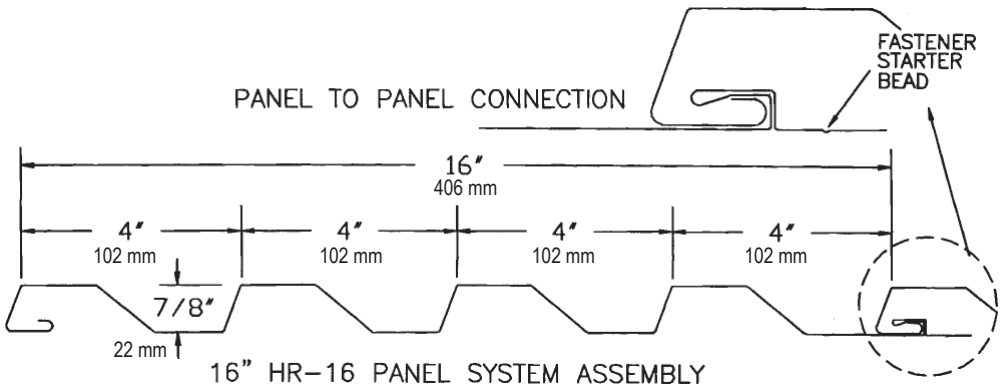
NOTE: FOR COMPLETE INSTALLATION DETAILS VISIT WWW.BERRIDGE.COM

BERRIDGE HR-16 WALL PANEL INTERLOCKS WITH BERRIDGE HS-8 & HS-12 PANELS ON NEXT PAGE

24 GAUGE HR-16 WALL PANEL - NEGATIVE DESIGN LOADS		
SPAN (FT)	1592 TEST LOAD	DESIGN LOAD
2.0	230	115
2.5	210	105
3.0	190	95
3.5	170	85
4.0	150	75
4.5	130	65
5.0	110	55

Notes:
1. Panel Description: HR-16, 24 ga.
2. The above loads were derived from uplift tests done in accordance with ASTM E-1592 by Force Engineering.
3. All values are interpolated and/or extrapolated from tests performed at spans of 2'-0" and 5'-0".
4. Test results are highlighted.
5. Design Load contains a 2.0 factor of safety in accordance with AISI '01.

16" HR-16 PANEL SECTION



16" HR-16 PANEL SYSTEM ASSEMBLY

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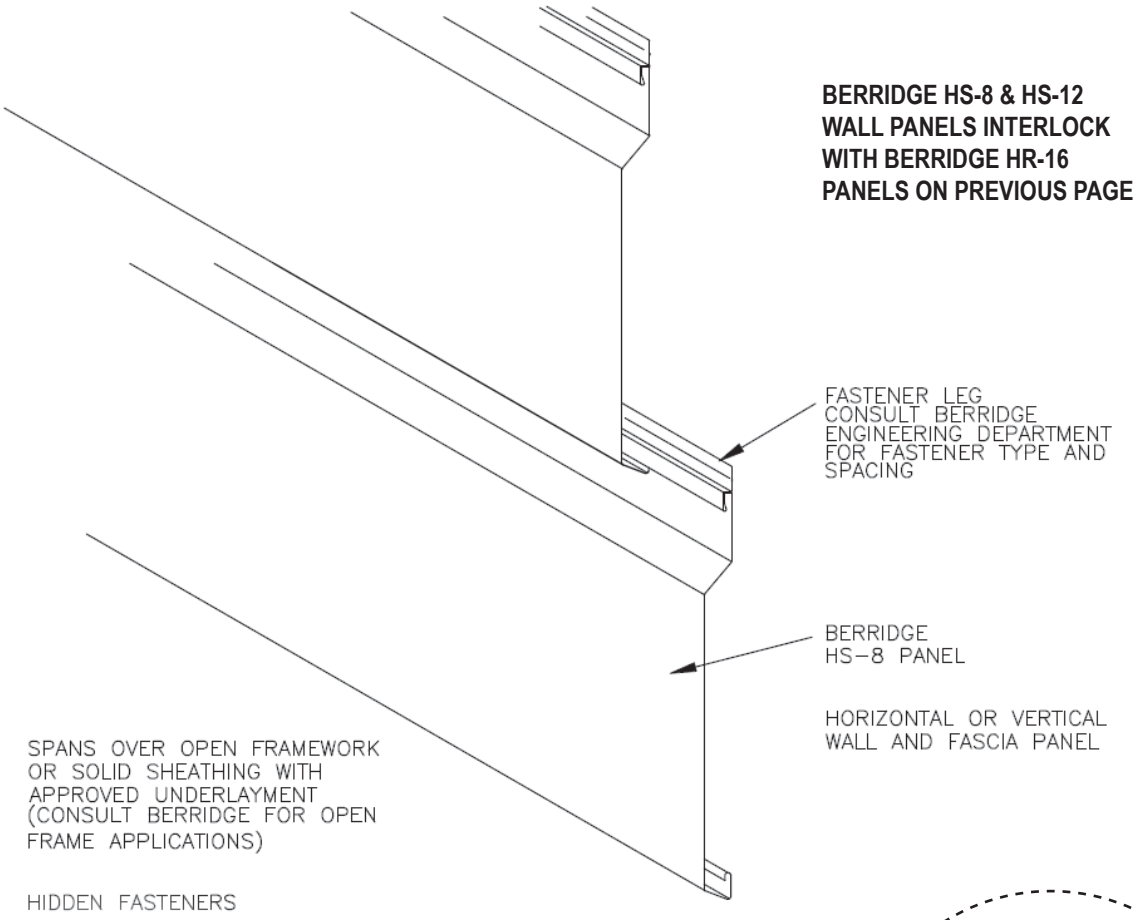
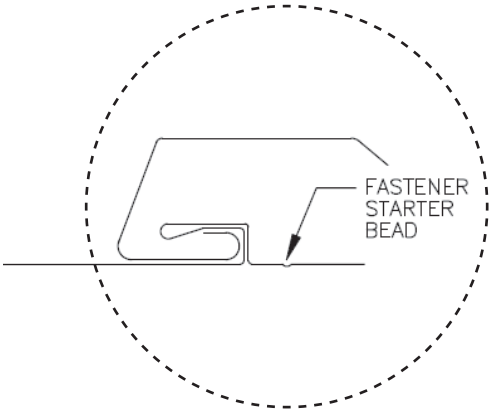
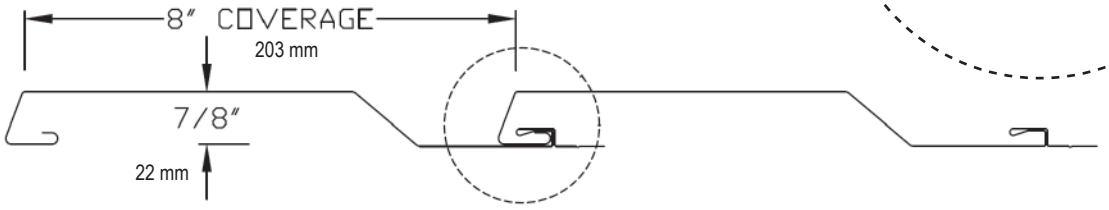
HS-8 & HS-12 PANEL OVERVIEW

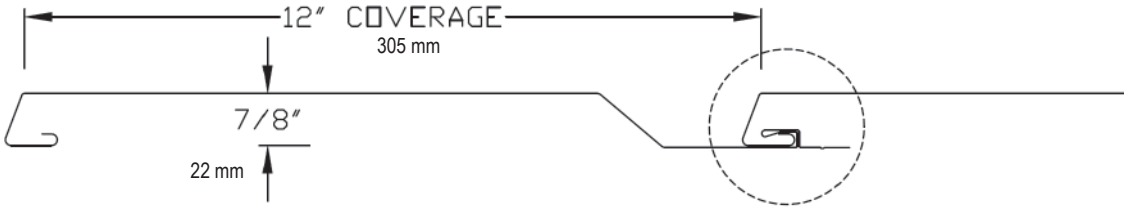
BERRIDGE HS-8 & HS-12 WALL PANELS INTERLOCK WITH BERRIDGE HR-16 PANELS ON PREVIOUS PAGE







HS-8 PANEL SYSTEM ASSEMBLY



HS-12 PANEL SYSTEM ASSEMBLY

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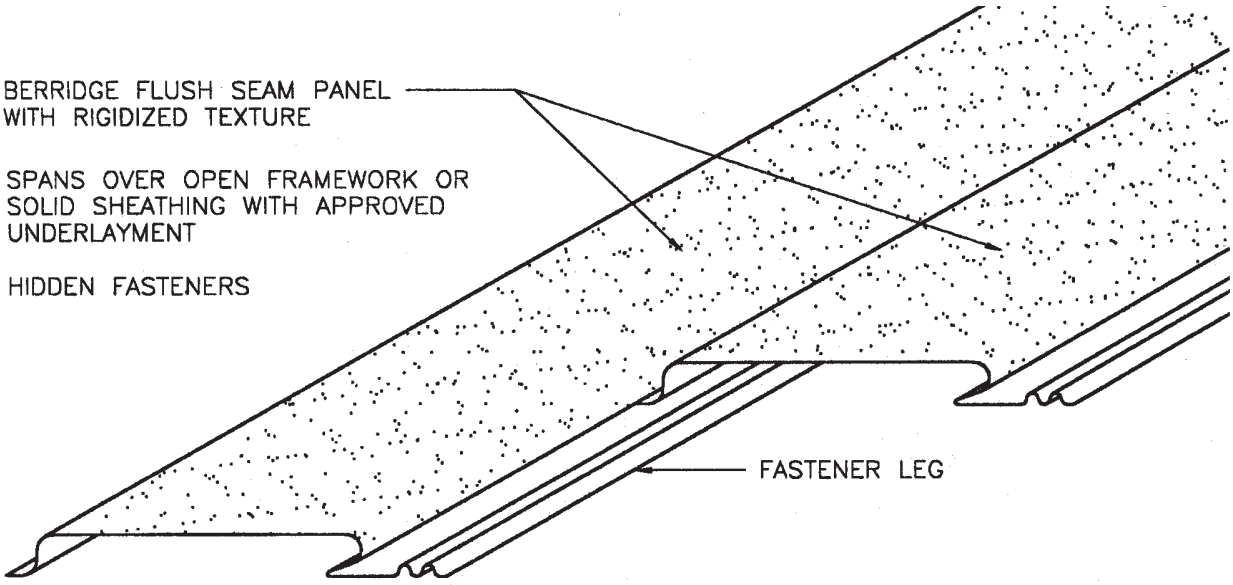
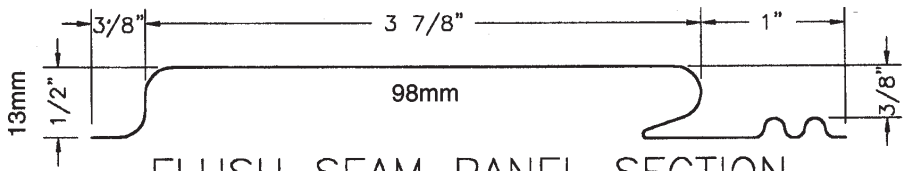
FLUSH SEAM PANEL OVERVIEW



SECTION PROPERTIES BASED ON 24 GAUGE 40 K.S.I.			
FLUSH SEAM PANEL	DL_x (in⁴/ft.)	M_A (ft.–lbs/ft.)	V_A (lbs)
POSITIVE BENDING	0.01206	79.8	516
NEGATIVE BENDING	0.01323	64.8	516

RECOMMENDED LOAD IN POUNDS PER SQUARE FOOT Panel Weight = 1.4 p.s.f.						
SPAN	NET VERTICAL LIVE LOAD			NET VERTICAL WIND UPLIFT		
(FEET)	1–SPAN	2–SPAN	3–SPAN	1–SPAN	2–SPAN	3–SPAN
2'–6"	90	90	90	83	90	90
2'–8"	83	90	90	73	90	90
3'–0"	58	75	87	58	90	90
3'–6"	35	55	65	40	68	76d
4'–0"	25	42	47d	27	52	51d
4'–6"	17	34	32d	19	41	36d
5'–0"	12	27d	24d	12	33	26d
5'–6"		22d	18d		25d	20d
6'–0"		17d	14d		19d	15d

NOTES:
1. ALL LOADS MEET L/240 DEFLECTION CRITERIA. (d) DEFLECTION GOVERNS ALLOWABLES.
2. WIND LOAD ALLOWABLE STRESSES INCREASED BY 33%.
3. VALUES BASED ON 1986 EDITION OF AISI, MARCH 1987 PRINTING AND GOOD ENGINEERING PRACTICE.



FLUSH SEAM PANEL SECTION

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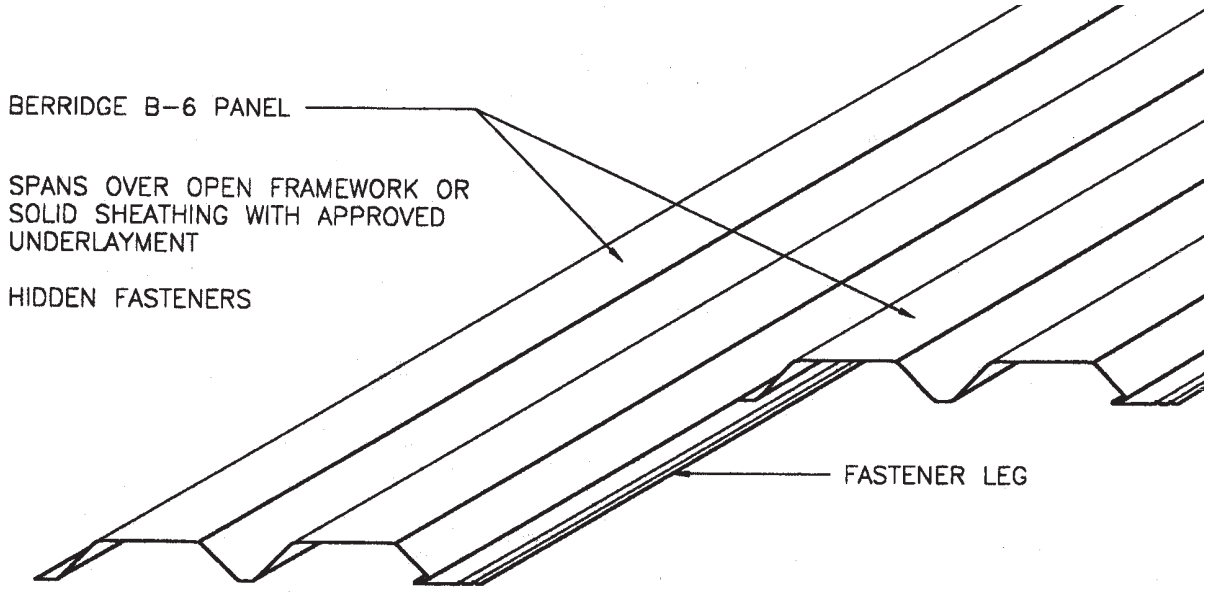
B-6 PANEL OVERVIEW



SECTION PROPERTIES BASED ON 24 GAUGE 40 K.S.I.			
B-6 PANEL	DL_x (In⁴/ft.)	M_A (ft.-lbs/ft.)	V_A (lbs)
POSITIVE BENDING	0.0242	79.68	1320
NEGATIVE BENDING	0.0224	95.4	1320

RECOMMENDED LOAD IN POUNDS PER SQUARE FOOT Panel Weight = 1.3 p.s.f.						
SPAN (FEET)	NET VERTICAL LIVE LOAD			NET VERTICAL WIND UPLIFT		
	1-SPAN	2-SPAN	3-SPAN	1-SPAN	2-SPAN	3-SPAN
2'-6"	90	90	90	90	90	90
2'-8"	90	90	90	90	90	90
3'-0"	90	90	90	85	90	90
3'-6"	74d	82	90	62	90	90
4'-0"	50d	63	74	45d	90	86d
4'-6"	35d	50	58	32d	72	61d
5'-0"	25d	40	47d	24d	56d	44d
5'-6"	19d	34	35d	17d	42d	33d
6'-0"	15d	28	28d	14d	33d	25d

NOTES:
1. ALL LOADS MEET L/240 DEFLECTION CRITERIA. (d) DEFLECTION GOVERNS ALLOWABLES.
2. WIND LOAD ALLOWABLE STRESSES INCREASED BY 33%.
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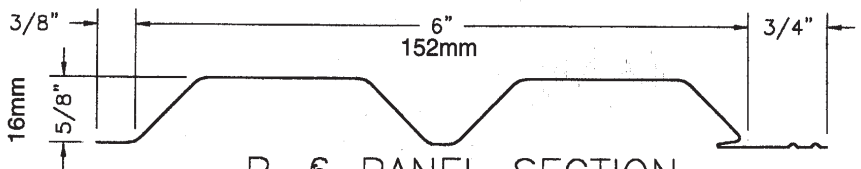

B-6 PANEL SECTION

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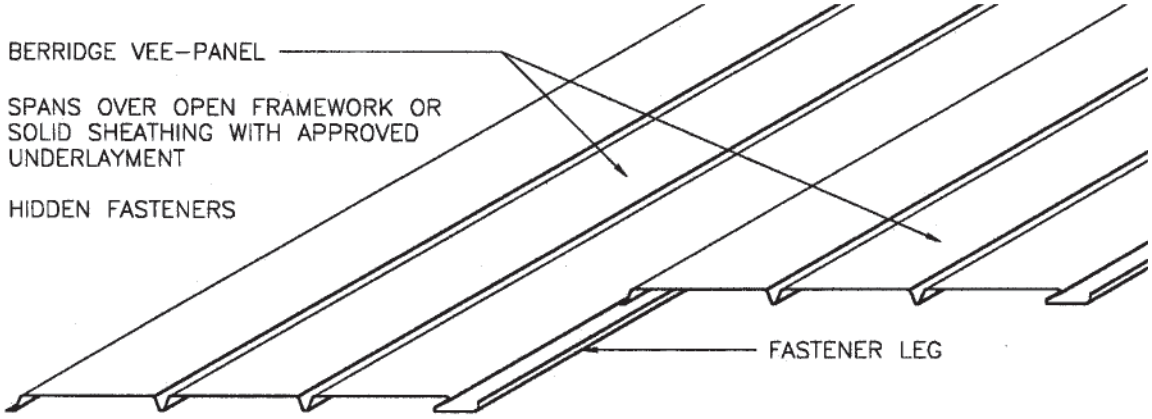
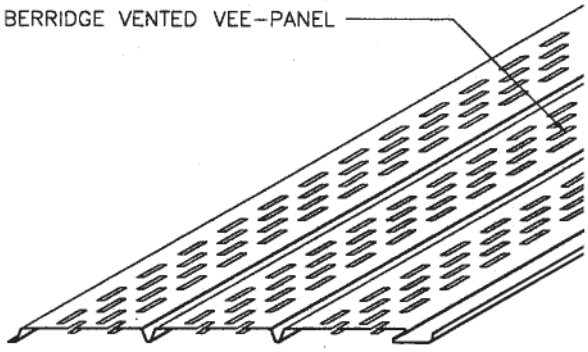
VEE-PANEL & VENTED VEE-PANEL OVERVIEW





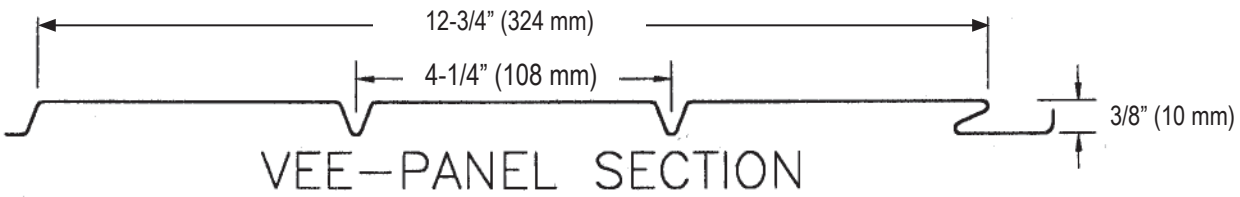
SECTION PROPERTIES BASED ON 24 GAUGE 40 K.S.I.			
VEE–PANEL	I_x (In^4)	S_x (IN^3)	M_A (Ft.Lbs)
POSITIVE BENDING	0.00291	0.01134	.272
NEGATIVE BENDING	0.00258	0.00924	.221

RECOMMENDED LOAD IN POUNDS PER SQUARE FOOT Panel Weight = 1.4 p.s.f.						
SPAN	POSITIVE WIND LOAD			NEGATIVE WIND LOAD		
(FEET)	1–SPAN	2–SPAN	3–SPAN	1–SPAN	2–SPAN	3–SPAN
1.0	191d	197	230	169d	242	283
1.5	56d	87	101d	50d	108	101d
2.0	24d	49	42d	21d	54D	42d
2.5	12d	28d	22d	11d	28d	22d
3.0	7d	16d	13d	6d	16d	13d

NOTES:
1. ALL LOADS MEET L/240 DEFLECTION CRITERIA. (d) DEFLECTION GOVERNS ALLOWABLES.
2. WIND LOAD ALLOWABLE STRESSES INCREASED BY 33%.
3. VALUES BASED ON 1986 EDITION OF AISI, MARCH 1987 PRINTING AND GOOD ENGINEERING PRACTICE.

Vented Vee-Panel Notes: Panel provides 6.46 square inches of Net Free Vent Area (NFVA) per linear foot of panel. Berridge Manufacturing Company does not recommend vented products in applications subject to aggressive atmospheres, marine environments or high humidity due to the corrosive nature of these environments on raw edges of steel.

The entire soffit area should not be vented; a ratio of 1:300 soffit vs. attic area, and 60:40 ridge vent vs. soffit vent s.f. is recommended.



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FW-1025 & FW-12 PANEL OVERVIEW

BERRIDGE FW-1025 or FW-12 PANEL

SPANS OVER OPEN FRAMEWORK OR SOLID SHEATHING WITH APPROVED UNDERLAYMENT

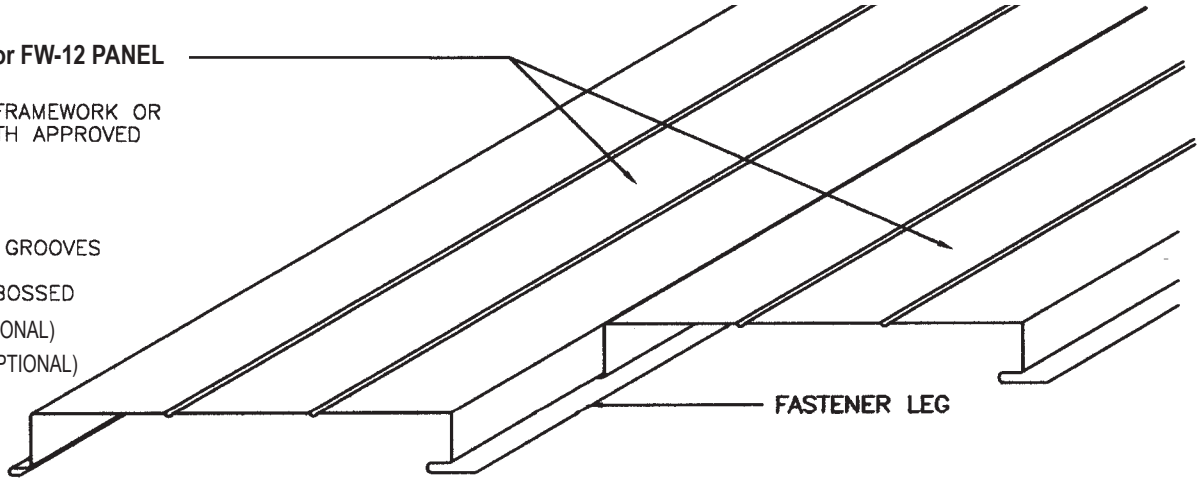
HIDDEN FASTENERS

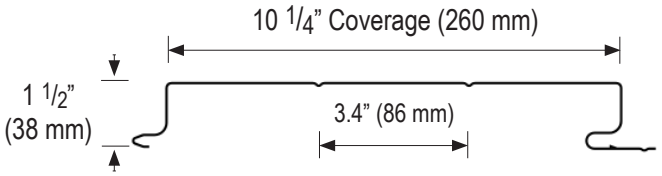
AVAILABLE WITH OUT GROOVES

MAY BE STUCCO EMBOSSED

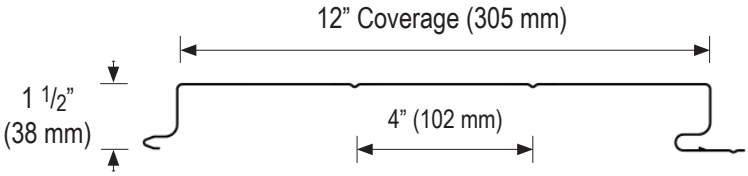
STRIATED PROFILE (OPTIONAL)

SEAM LOCK FEATURE (OPTIONAL)





FW-1025



FW-12

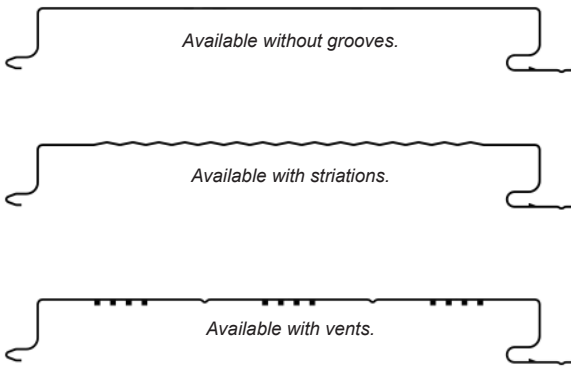
SECTION PROPERTIES BASED ON 24 GAUGE 40 K.S.I.			
FW–12 PANEL	I_x (In^4)	S_x (IN^3)	M_A (Ft.Lbs)
POSITIVE BENDING	0.0922	0.0710	1.70
NEGATIVE BENDING	0.0582	0.0644	1.54

RECOMMENDED LOAD IN POUNDS PER SQUARE FOOT Panel Weight = 1.4 p.s.f.						
SPAN	POSITIVE WIND LOAD			NEGATIVE WIND LOAD		
(FEET)	1–SPAN	2–SPAN	3–SPAN	1–SPAN	2–SPAN	3–SPAN
4'–0"	94	86	100	60d	94	110
5'–0"	48d	55	64	30d	60	71
6'–0"	28d	38	43	18d	42	43d
7'–0"	18d	28	27d	11d	31	27d
8'–0"	12d	21	18d	7d	23d	18d

For specific job application recommendations, please contact Berridge Technical Department 1–800–231–8127

NOTES:
1. ALL LOADS MEET L/240 DEFLECTION CRITERIA. (d) DEFLECTION GOVERNS ALLOWABLES.
2. WIND LOAD ALLOWABLE STRESSES INCREASED BY 33%.
3. VALUES BASED ON 1986 EDITION OF AISI, MARCH 1987 PRINTING AND GOOD ENGINEERING PRACTICE.

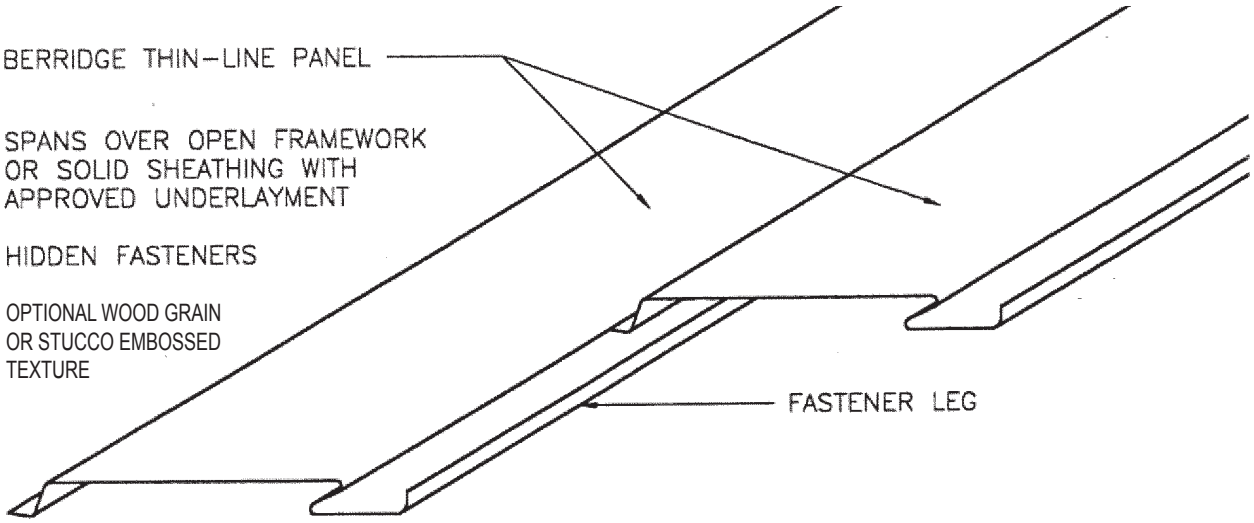
OTHER PROFILE OPTIONS

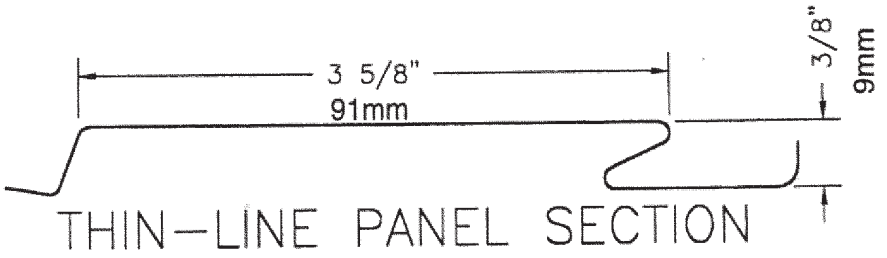


Vented FW-12 Notes: Panel provides 6.82 square inches of Net Free Vent Area (NFVA) per linear foot of panel. Berridge does not recommend vented products in applications subject to aggressive atmospheres, marine environments or high humidity.

The entire soffit area should not be vented; a ratio of 1:300 soffit vs. attic area, and 60:40 ridge vent vs. soffit vent s.f. is recommended.

THIN-LINE PANEL OVERVIEW

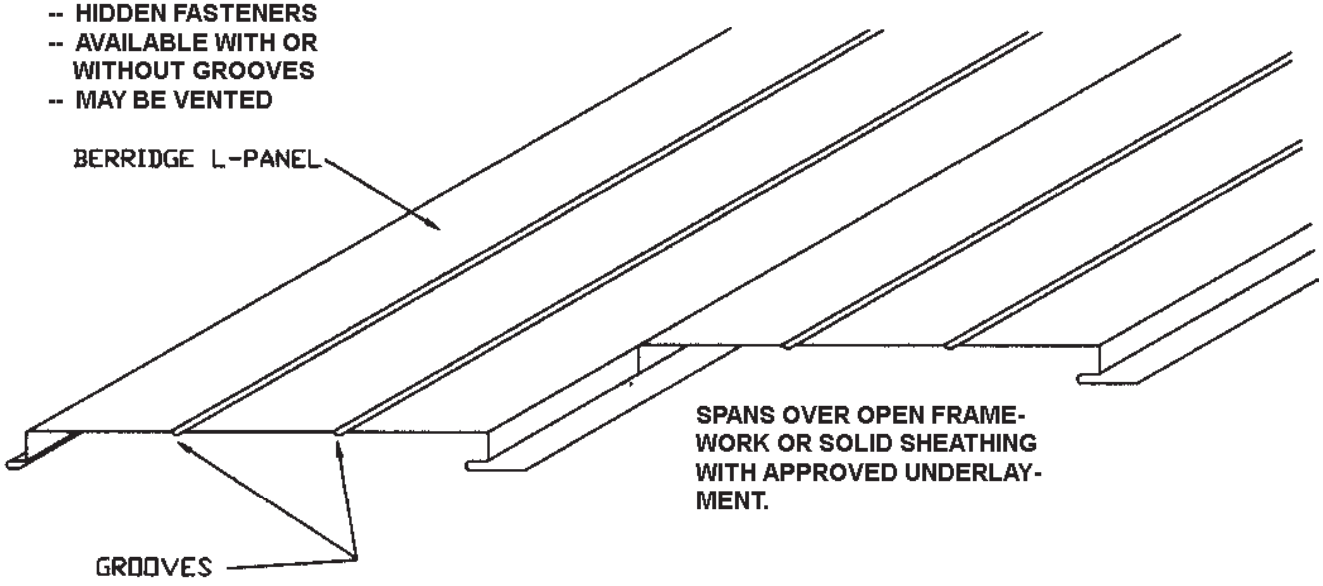




THIN-LINE PANEL SECTION

L-PANEL OVERVIEW

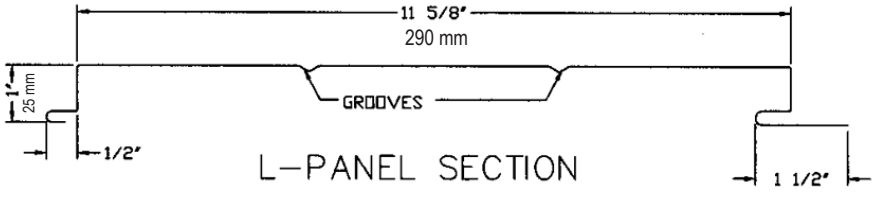
-- HIDDEN FASTENERS
-- AVAILABLE WITH OR WITHOUT GROOVES
-- MAY BE VENTED



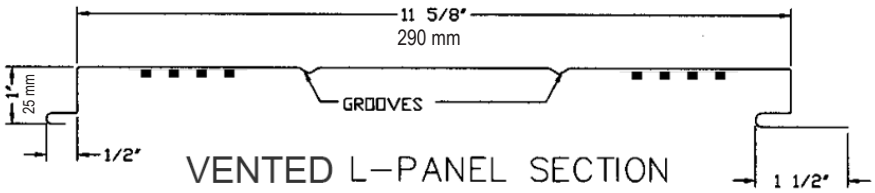
11-5/8" L-PANEL PROPERTIES					
24GA. 0.0240 TKNS/INCH 1.46 WT PSF FY 40 KSI					
TOP IN COMPRESSION			BOTTOM IN COMPRESSION		
Ix in⁴/ft	Sx in³/ft	Ma in-kip/ft	Ix in⁴/ft	Sx in³/ft	Ma in-kip/ft
0.0253	0.0404	0.97	0.0371	0.0417	1.00

11-5/8" L-PANEL LOAD TABLE WIND PRESSURE ON TOP OF PANEL (PSF)						
SPAN FT	1-SPAN		2-SPAN		3-SPAN	
	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240
3.0	72	61	74	182	86	143
4.0	40	26	42	77	49	60
5.0	26	13	27	39	31	31
6.0	18	8	19	23	22	18

NOTES:
1. THE PROPERTIES AND LOAD TABLES ARE FOR THE PANEL ALONE. THE PANEL PROFILE HAS BEEN ASSUMED TO REMAIN CONSTANT UNDER LOADING. THE CAPACITY OF CLIPS AND FASTENERS IS NOT INCLUDED.
2. THE PANEL SECTION PROPERTIES HAVE BEEN CALCULATED IN ACCORDANCE WITH THE 2001 AISI SPECIFACTION.
3. THE VALUES ABOVE ARE BASED ON 24 GA. MATERIAL.



L-PANEL SECTION



VENTED L-PANEL SECTION

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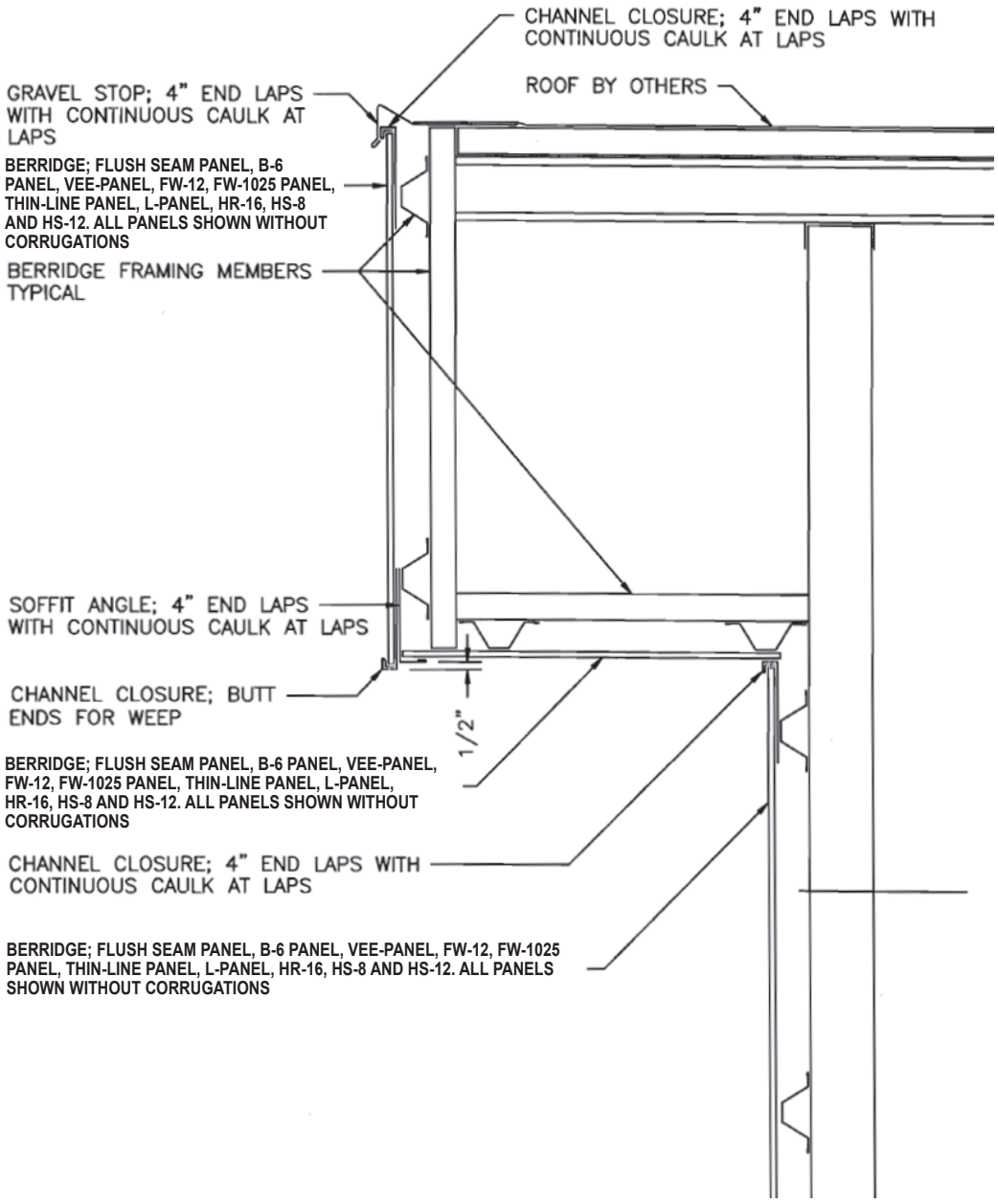
FASCIA, WALL & SOFFIT PANELS

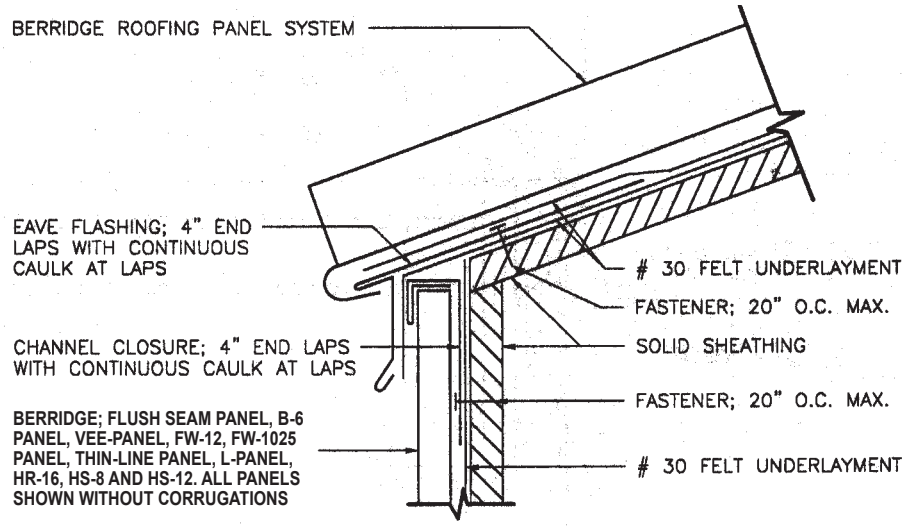
OPEN FRAMING DETAILS



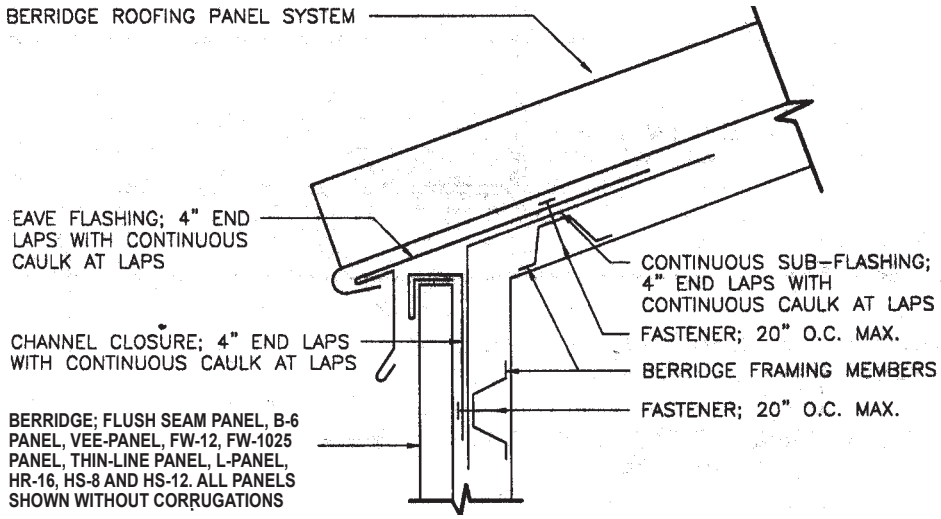
FASCIA, WALL & SOFFIT PANELS

EAVE DETAILS

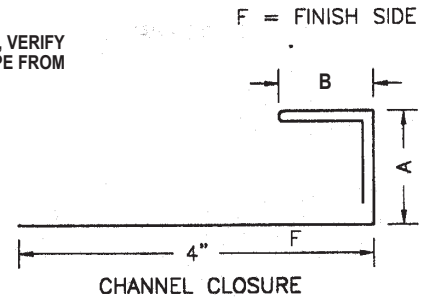
SOLID SHEATHING



OPEN FRAMING



DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE



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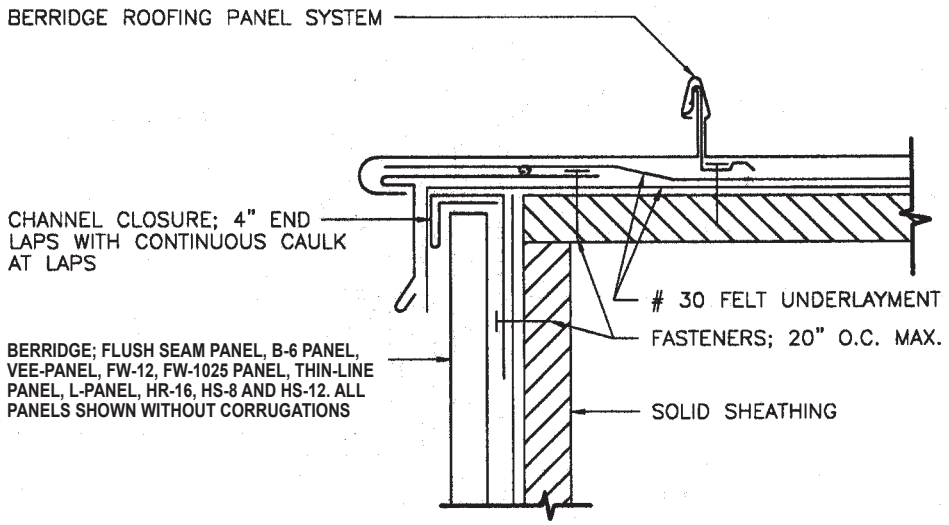
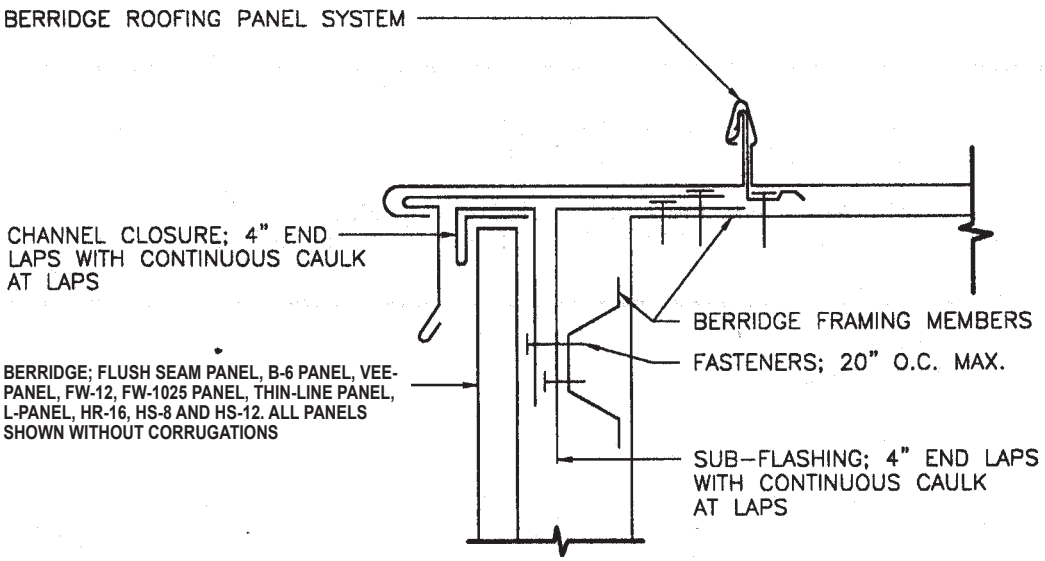
FASCIA, WALL & SOFFIT PANELS

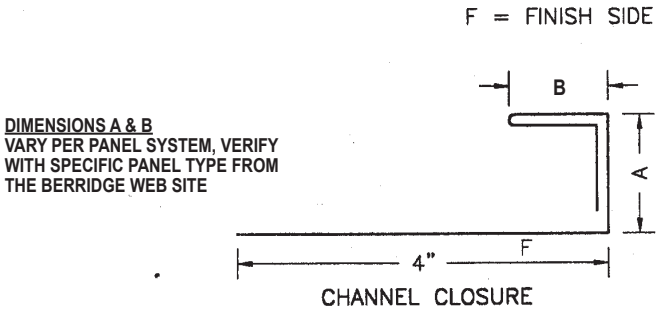
GABLE DETAILS

SOLID SHEATHING



OPEN FRAMING





DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE

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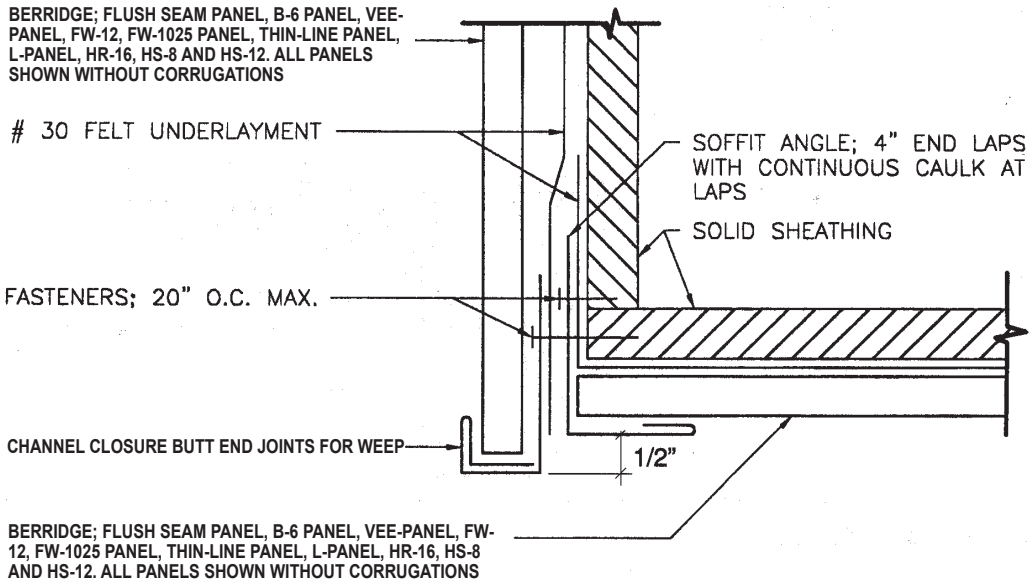
FASCIA, WALL & SOFFIT PANELS

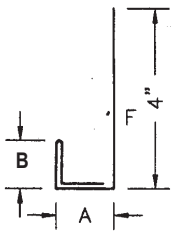
FASCIA/SOFFIT DETAIL: SOLID SHEATHING



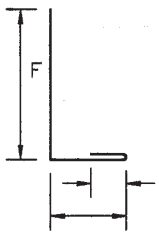
1. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
2. ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE

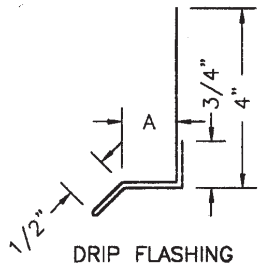
DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE



CHANNEL CLOSURE



SOFFIT ANGLE



DRIP FLASHING

DRIP FLASHING MAYBE USED IN PLACE OF CHANNEL CLOSURE FLASHING TO HAVE 4" END LAPS WITH CONTINUOUS CAULK AT LAPS

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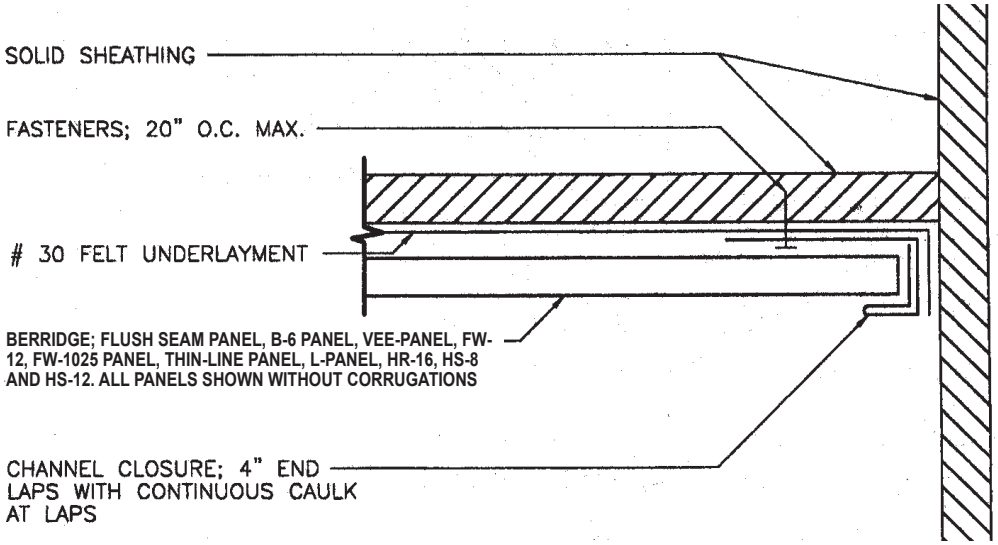
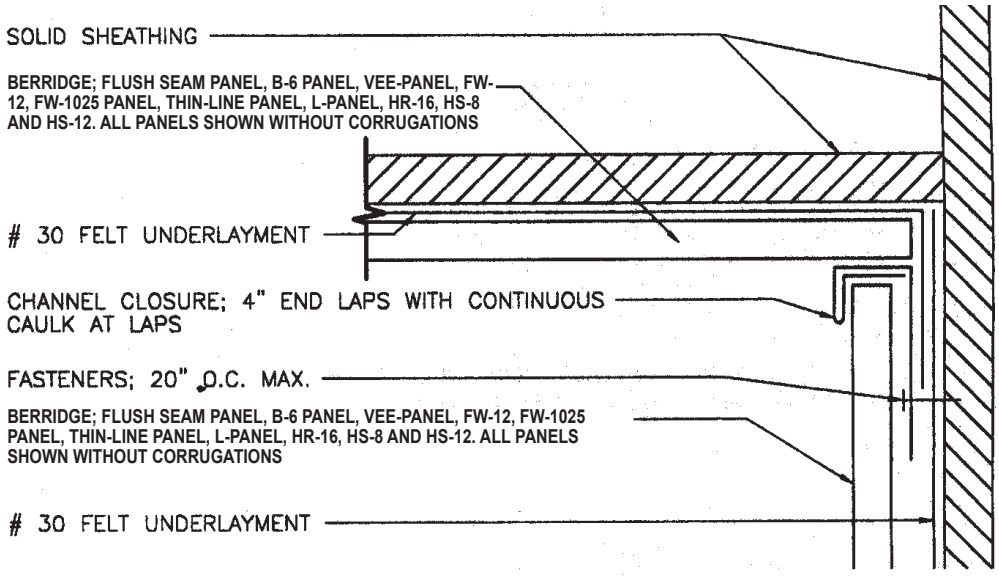
FASCIA, WALL & SOFFIT PANELS

SOFFIT TO WALL/BUILDING DETAILS

SOFFIT TO WALL

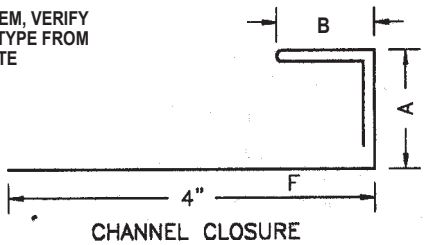


SOFFIT TO BUILDING



F = FINISH SIDE

DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE



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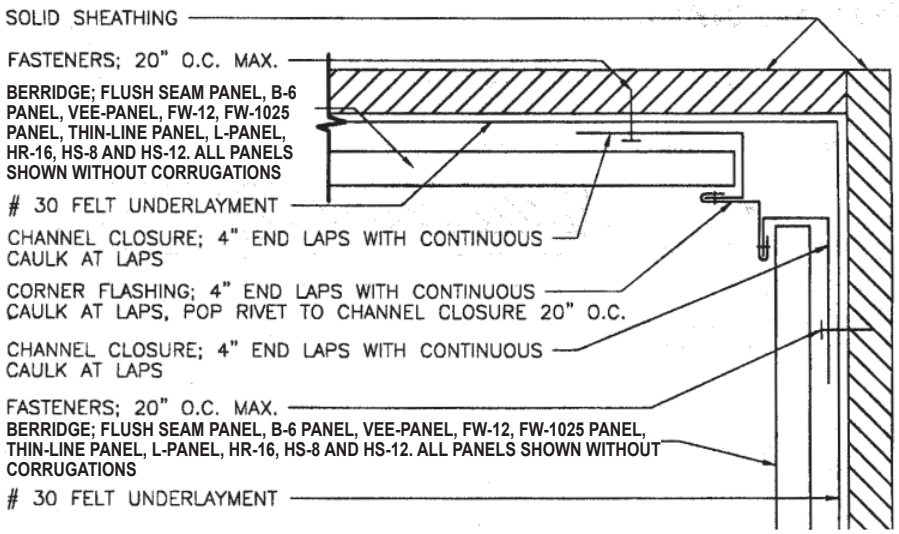
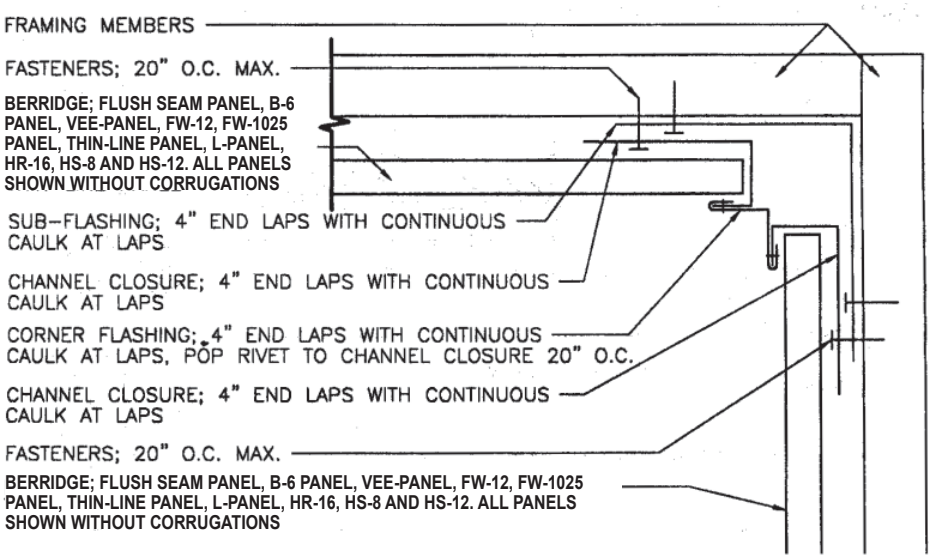
FASCIA, WALL & SOFFIT PANELS

INSIDE CORNER DETAILS

SOLID SHEATHING

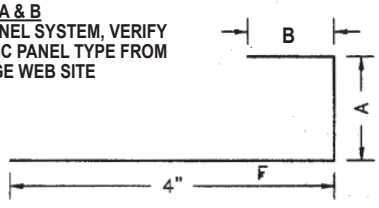


OPEN FRAMING

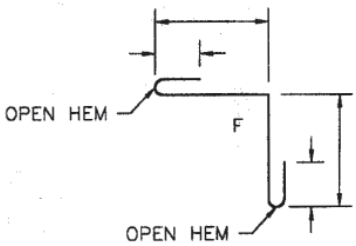


F = FINISH SIDE

DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE



CHANNEL CLOSURE



CORNER FLASHING

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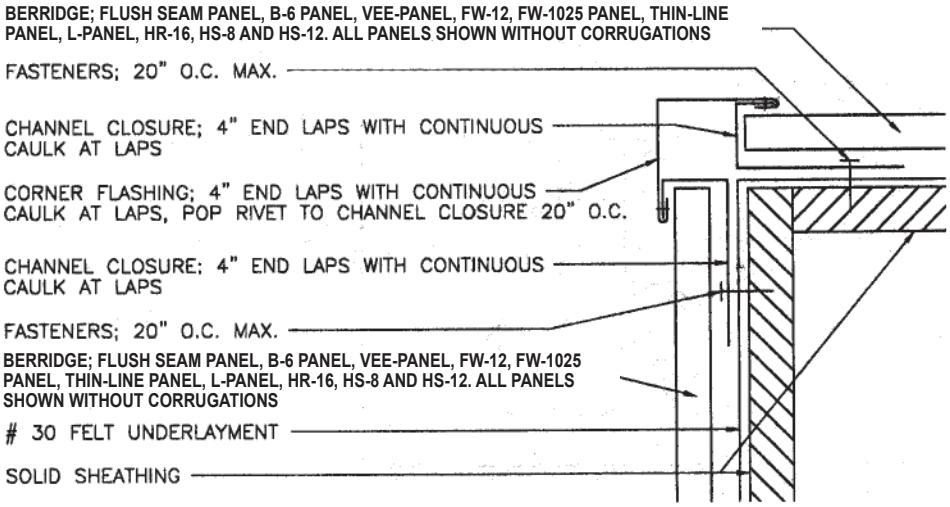
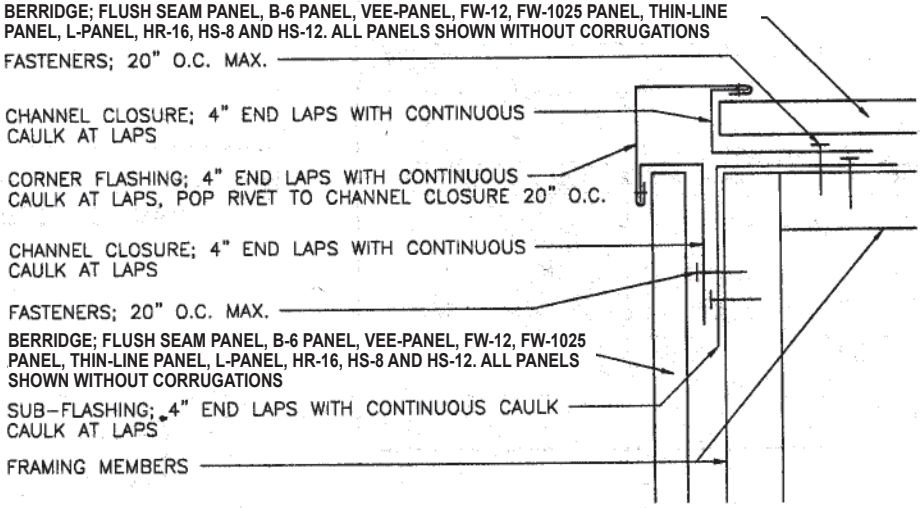
FASCIA, WALL & SOFFIT PANELS

OUTSIDE CORNER DETAILS

SOLID SHEATHING

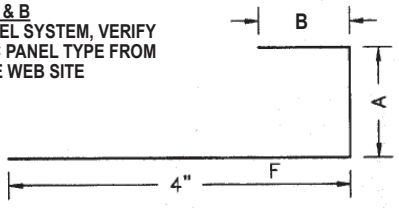


OPEN FRAMING

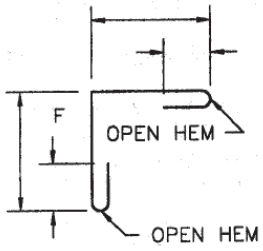


F = FINISH SIDE

DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE



CHANNEL CLOSURE



CORNER FLASHING

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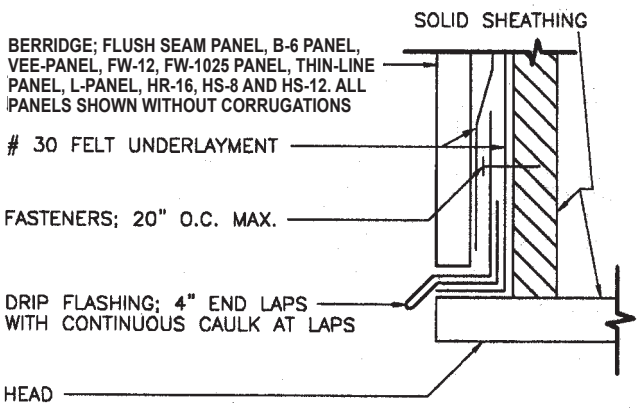
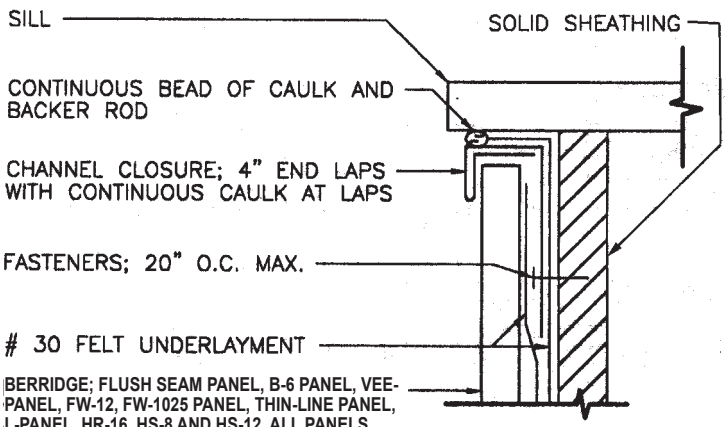
FASCIA, WALL & SOFFIT PANELS

HEAD, SILL & JAMB DETAILS: SOLID SHEATHING

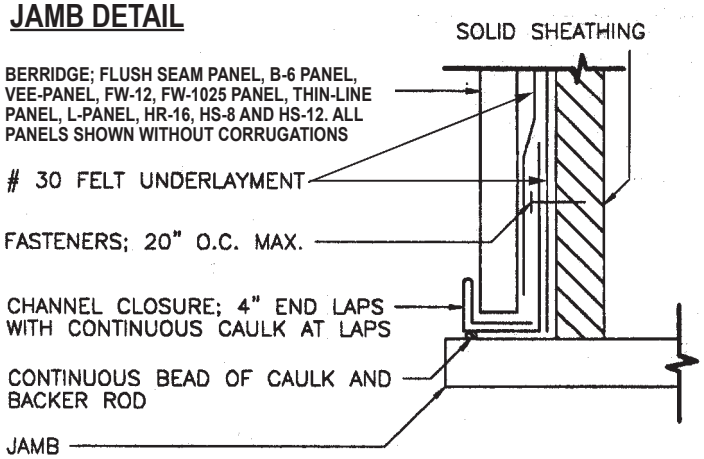
HEAD DETAIL

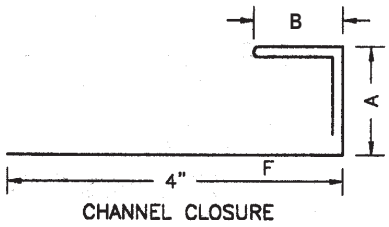


SILL DETAIL



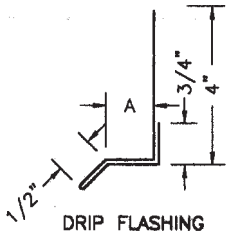
JAMB DETAIL





CHANNEL CLOSURE

DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE



DRIP FLASHING

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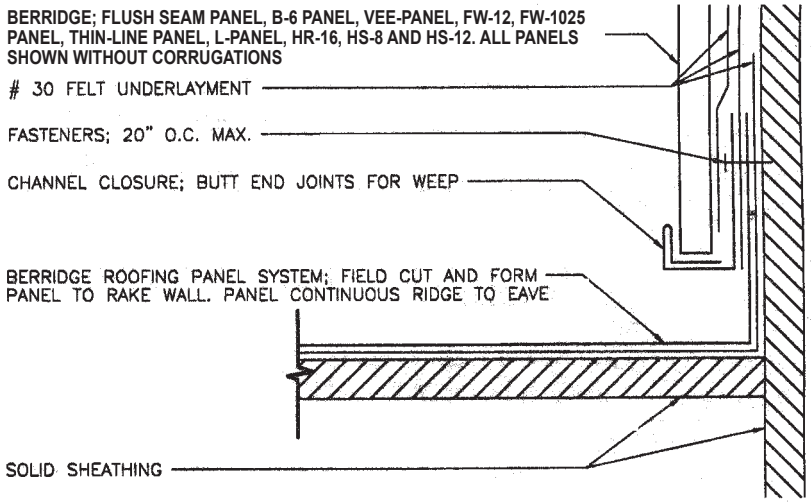
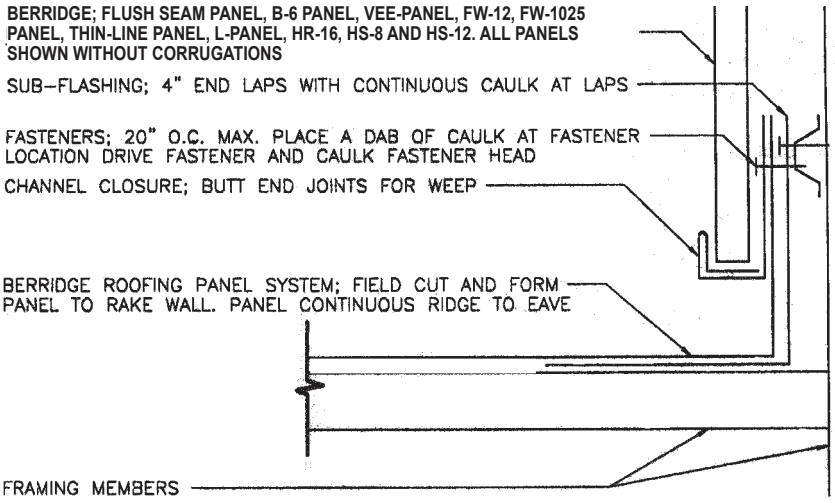
FASCIA, WALL & SOFFIT PANELS

RAKE WALL DETAILS

SOLID SHEATHING

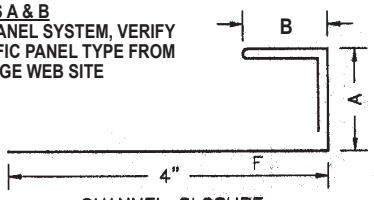


OPEN FRAMING

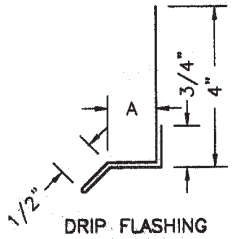


F = FINISH SIDE

DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE



CHANNEL CLOSURE



DRIP FLASHING

DRIP FLASHING MAYBE USED IN PLACE OF CHANNEL CLOSURE FLASHING TO HAVE 4" END LAPS WITH CONTINUOUS CAULK AT LAPS

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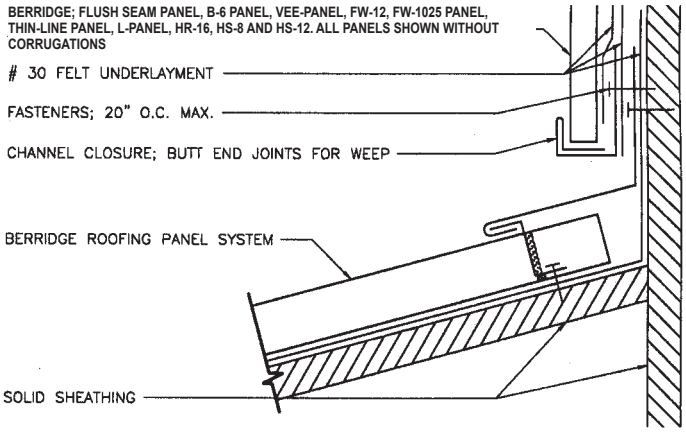
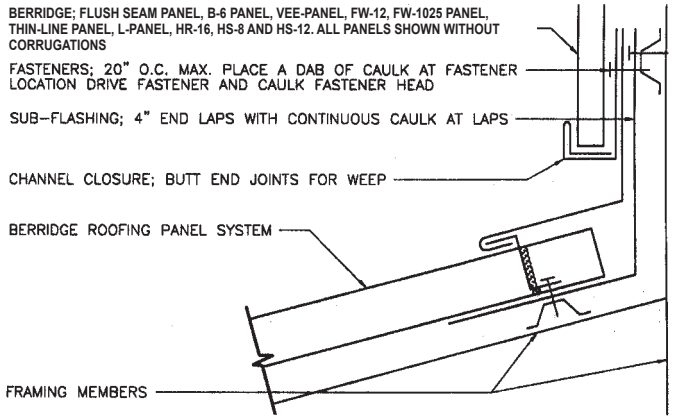
FASCIA, WALL & SOFFIT PANELS

HEAD WALL & BASE DETAILS

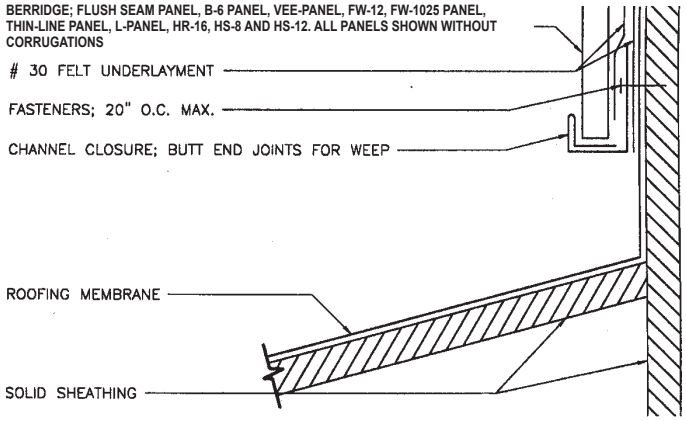
SOLID SHEATHING



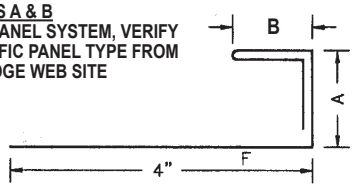
OPEN FRAMING



BASE DETAIL (SOLID SHEATHING)

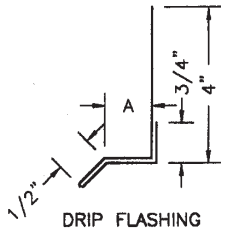


DIMENSIONS A & B
VARY PER PANEL SYSTEM, VERIFY WITH SPECIFIC PANEL TYPE FROM THE BERRIDGE WEB SITE



CHANNEL CLOSURE

F = FINISH SIDE



DRIP FLASHING

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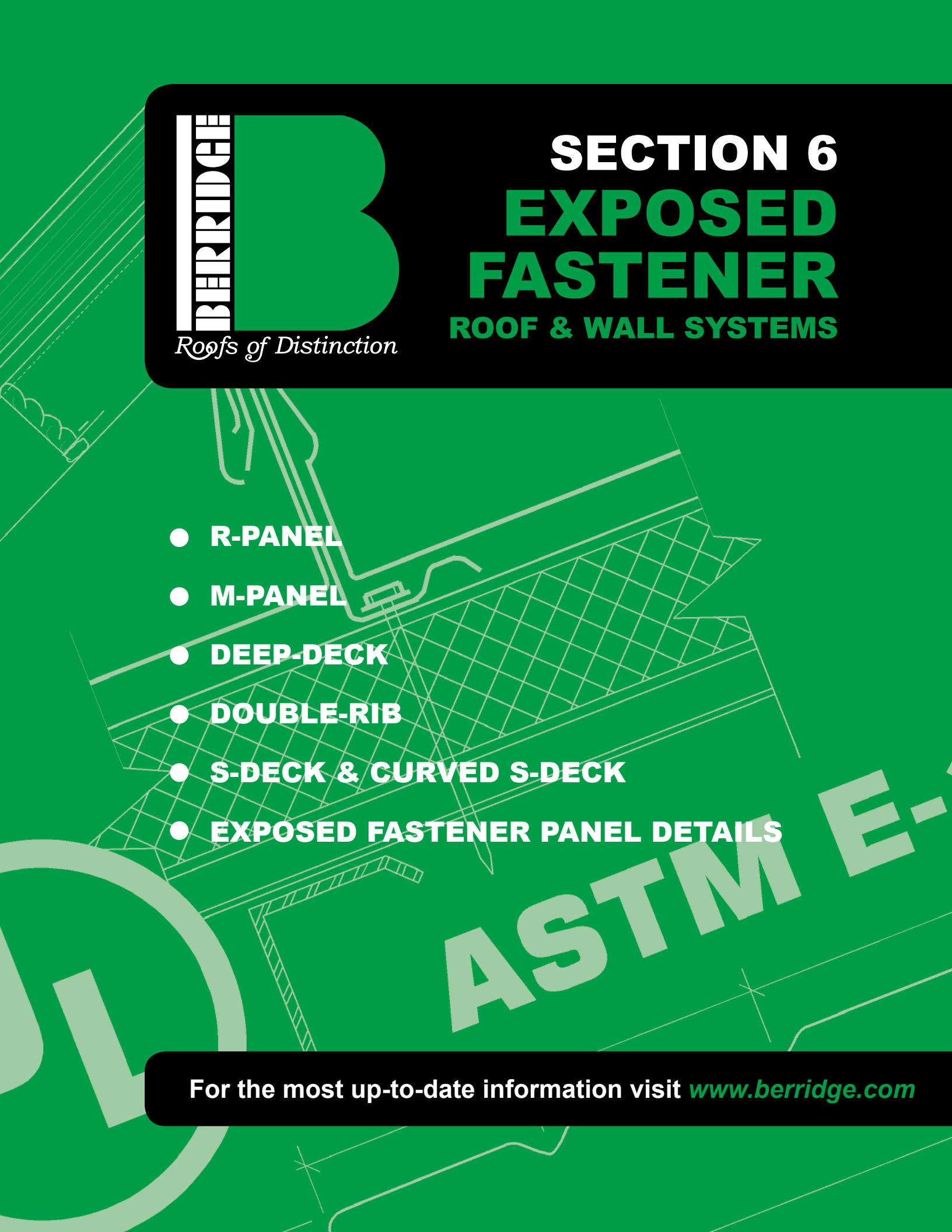
BERRIDGE

Roofs of Distinction

SECTION 6
EXPOSED FASTENER
ROOF & WALL SYSTEMS

- R-PANEL
- M-PANEL
- DEEP-DECK
- DOUBLE-RIB
- S-DECK & CURVED S-DECK
- EXPOSED FASTENER PANEL DETAILS



For the most up-to-date information visit *www.berridge.com*

SECTION 6 EXPOSED FASTENER ROOF & WALL SYSTEMS

Note: Details listed above are for Berridge S-Deck. Actual details for other exposed fastener products may vary slightly. Consult installation details on www.berridge.com for complete details on all Berridge products. Consult Design Guide Section 1 for additional information on UL Fire Assemblies.

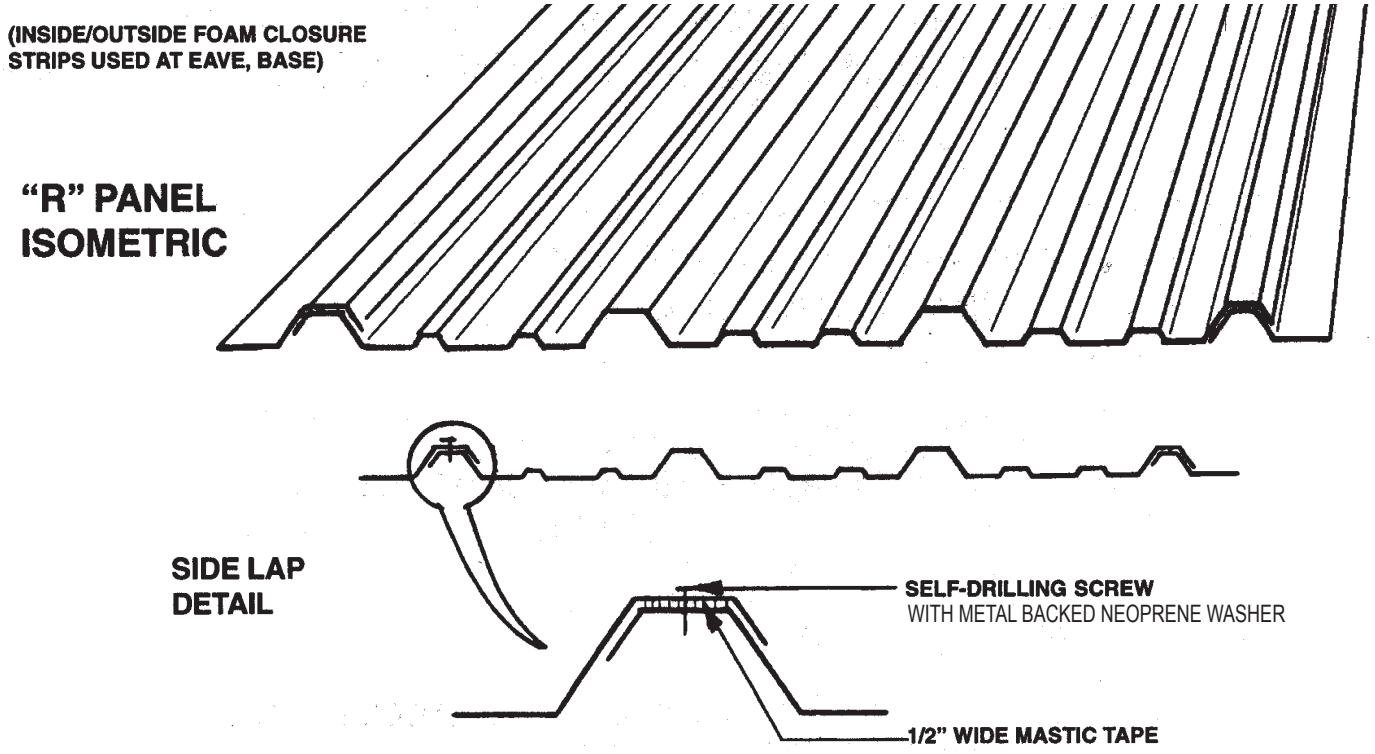
The details contained in this manual are merely recommendations as to how Berridge Manufacturing Company materials should be installed. They may require adaptations or modifications for a specific project, as conditions vary in both building design and local climatic conditions.

Berridge Manufacturing Company shall be held harmless from any and all claims arising from lack of watertightness as a result of following these recommended details. Ensuring watertightness on any given project is the function of the installer. The architect, general contractor or installer must accept the responsibility to adapt these details to meet particular building requirements and assure adequate watertightness.

The installer can virtually assure watertightness if these details have been properly adapted, adequate laps have been provided, correct type of underlayment and sealant used, all joints adequately caulked and professional workmanship employed.

Should a watertightness warranty be required on a specific project, please refer to the procedures outlined in the “Design Guide” section of this manual. These procedures must be adhered to in order for Berridge to issue any type of watertightness warranty.

R-PANEL OVERVIEW

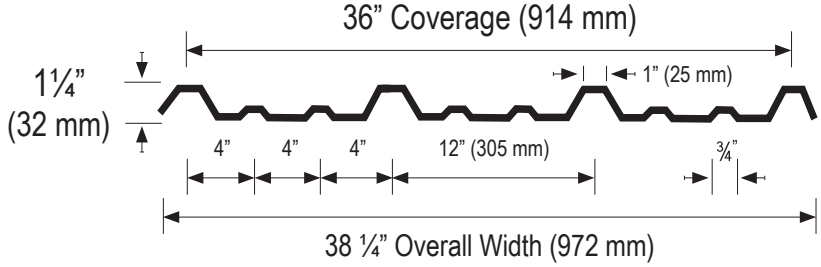


SECTION PROPERTIES BASED ON 24 GAUGE 40 K.S.I.			
"R" PANEL	I_x (in⁴/ft)	S_x (in³/ft)	M_A (in-kip/ft)
Positive Bending	0.0554	0.0575	1.380
Negative Bending	0.0536	0.0567	1.360

RECOMMENDED LOAD IN LBS/FT² PANEL WT = 1.3 p.s.f												
SPAN (FT)	NET VERTICAL DEAD + LIVE LOAD						NET VERTICAL WIND UPLIFT					
	1-SPAN		2-SPAN		3-SPAN		1-SPAN		2-SPAN		3-SPAN	
	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240
3'	101	134	99	319	116	250	102	130	103	319	120	250
4'	56	57	55	134	65	105	58	55	59	134	68	105
5'	36	29	35	69	41	54	37	28	38	69	44	54

NOTES:
1. The panel weight has been deducted from the allowable stress values.
2. The properties and load tables are for the panel alone. The capacity of clips and fasteners is not included
3. The panel section properties have been calculated in accordance with 2007 AISI Specification.

For specific job application recommendations, please contact Berridge Technical Department 1-800-231-8127.



Exposed Fastener

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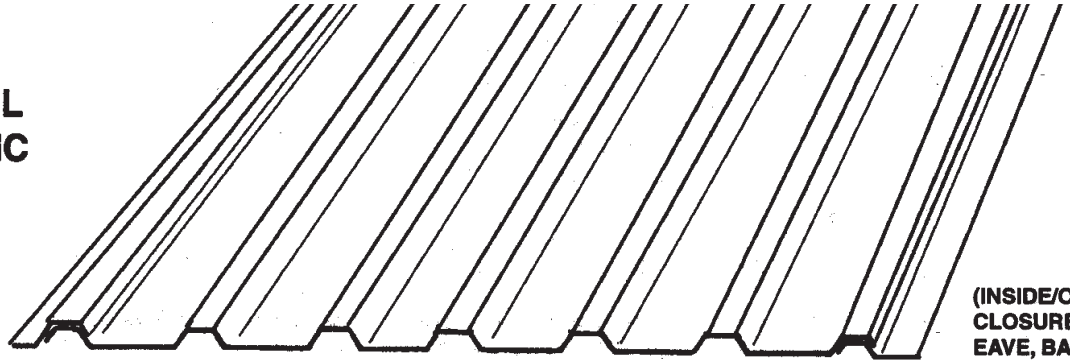
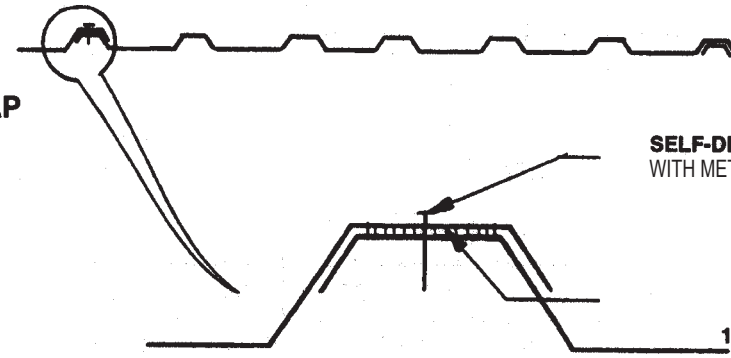
M-PANEL OVERVIEW

"M" PANEL ISOMETRIC



(INSIDE/OUTSIDE FOAM CLOSURE STRIPS USED AT EAVE, BASE)

SIDE LAP DETAIL



SELF-DRILLING SCREW
WITH METAL BACKED NEOPRENE WASHER

1/2" WIDE MASTIC TAPE

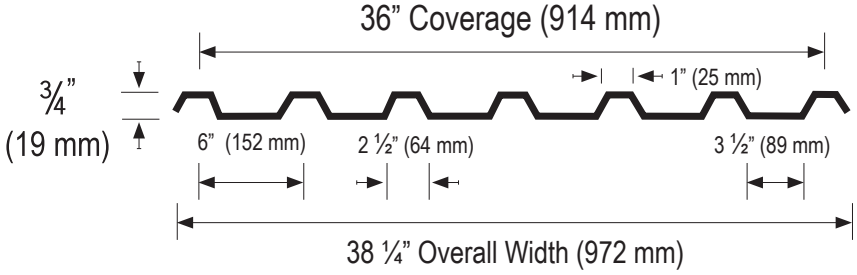
NOTES:
1. The panel weight has been deducted from the allowable stress values.
2. The properties and load tables are for the panel alone. The capacity of clips and fasteners is not included
3. The panel section properties have been calculated in accordance with 2007 AISI Specification.

For specific job application recommendations, please contact Berridge Technical Department 1-800-231-8127.

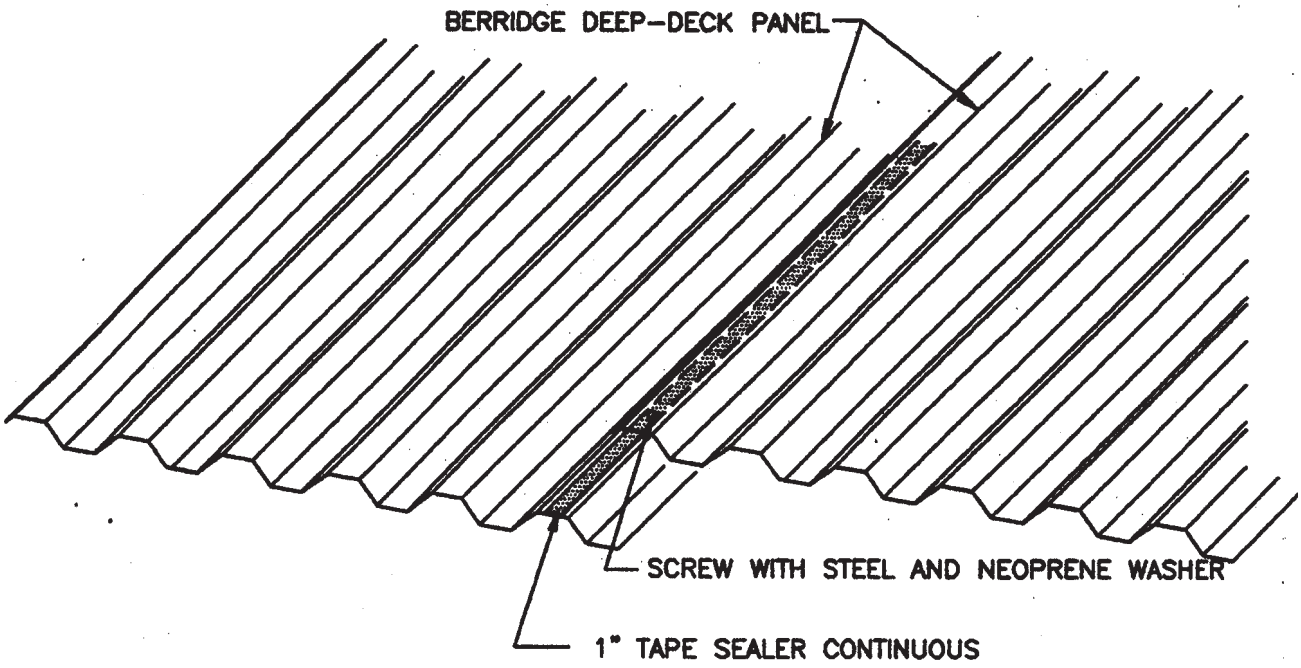
SECTION PROPERTIES BASED ON 24 GAUGE 40 K.S.I.			
"M" PANEL	I_x (in^4/ft)	S_x (in^3/ft)	M_A (in-kip/ft)
Positive Bending	0.0279	0.0537	1.290
Negative Bending	0.0228	0.0494	1.180

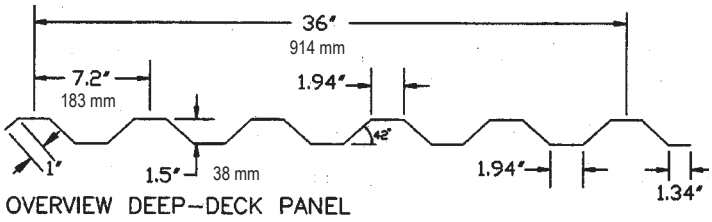
RECOMMENDED LOAD IN LBS/FT² PANEL WT = 1.3 p.s.f

SPAN (FT)	NET VERTICAL DEAD + LIVE LOAD						NET VERTICAL WIND UPLIFT					
	1-SPAN		2-SPAN		3-SPAN		1-SPAN		2-SPAN		3-SPAN	
	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240
3'	94	68	87	148	101	116	89	55	97	148	113	116
4'	53	29	48	63	56	49	50	23	55	63	64	46
5'	33	15	30	32	36	25	33	12	35	32	41	25



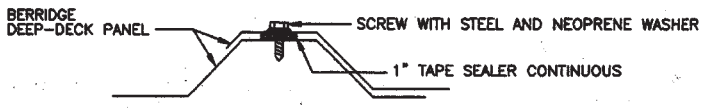
DEEP-DECK OVERVIEW





OVERVIEW DEEP–DECK PANEL

DEEP-DECK PANEL PROPERTIES						
GA.	TKNS/INCH		WT PSF		FY KSI	
24	0.0240		1.21		40	
TOP IN COMPRESSION			BOTTOM IN COMPRESSION			
Ix In^4/ft	Sx In^3/ft	Ma In-kip/ft	Ix In^4/ft	Sx In^3/ft	Ma In-kip/ft	
0.1073	0.1218	2.92	0.1073	0.1218	2.92	



SIDE LAP DETAIL (TYPICAL)

DEEP-DECK PANEL LOAD TABLES DEAD + LIVE LOADING (PSF)						
	1-SPAN		2-SPAN		3-SPAN	
	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240
4.0	120	110	120	264	141	207
5.0	77	56	77	135	90	106
6.0	53	33	53	78	62	61
7.0	39	20	39	49	45	39

DEEP-DECK WIND UPLIFT LOADING (PSF)						
	1-SPAN		2-SPAN		3-SPAN	
	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240
4.0	123	110	123	264	143	207
5.0	79	56	79	135	92	106
6.0	55	33	55	78	64	61
7.0	41	20	41	49	48	39

Notes:
1. The panel weight has been deducted from the allowable stress values.
2. The properties and load tables are for the panel alone: The panel profile has been assumed to remain constant under loading. The capacity of fasteners is not included.
3. The panel section properties have been calculated in accordance with the 2001 AISI Specfication.
4. Also available in 22 ga. material; consult with Berridge for Load Properties.

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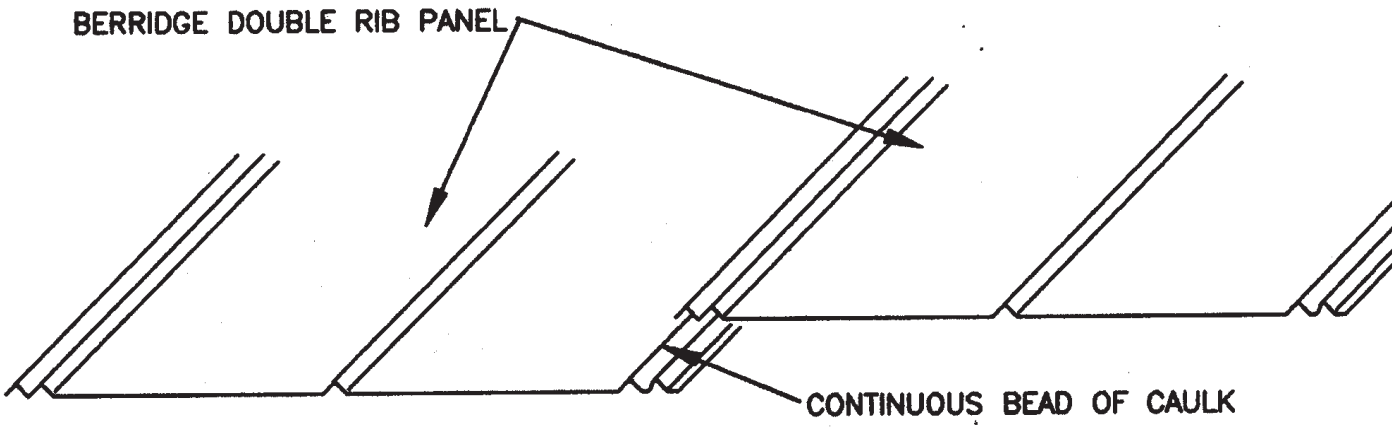
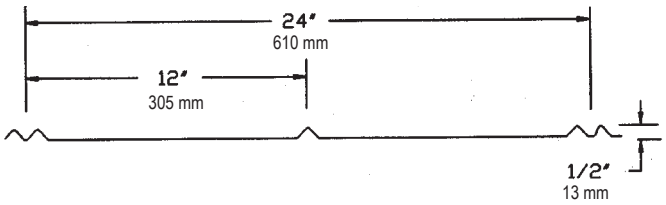
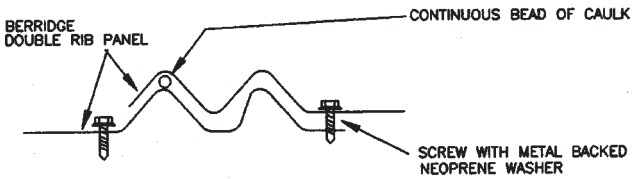
DOUBLE-RIB OVERVIEW



DOUBLE-RIB PANEL PROPERTIES					
GA. 24	TKNS/INCH 0.0240		WT PSF 1.08		FY KSI 40
TOP IN COMPRESSION			BOTTOM IN COMPRESSION		
Ix In^4/ft	Sx In^3/ft	Ma In-kip/ft	Ix In^4/ft	Sx In^3/ft	Ma In-kip/ft
0.0021	0.0055	0.13	0.0017	0.0049	0.12



DOUBLE-RIB PANEL LOAD TABLES DEAD + LIVE LOADING (PSF)						
	1-SPAN		2-SPAN		3-SPAN	
	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240
1.0	88	138	77	303	90	237
1.5	38	41	34	90	40	70
2.0	21	17	18	38	22	30

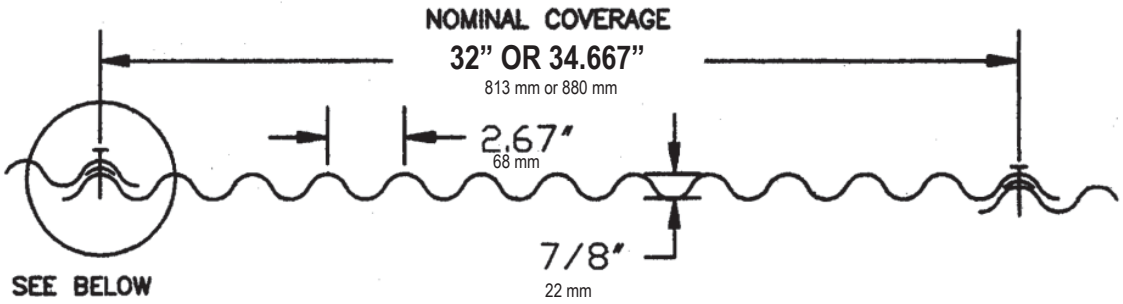


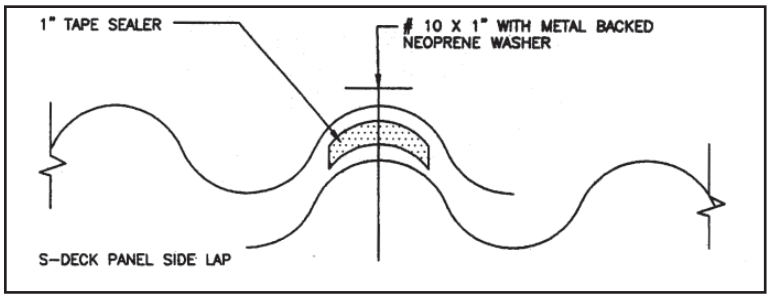
SIDE LAP DETAIL (TYPICAL)

DOUBLE-RIB PANEL WIND UPLIFT LOADING (PSF)						
	1-SPAN		2-SPAN		3-SPAN	
	STRESS	DEFL L/240	STRESS	DEFL L/240	STRESS	DEFL L/240
1.0	79	113	90	303	105	237
1.5	36	33	40	90	47	70
2.0	21	14	23	38	27	30

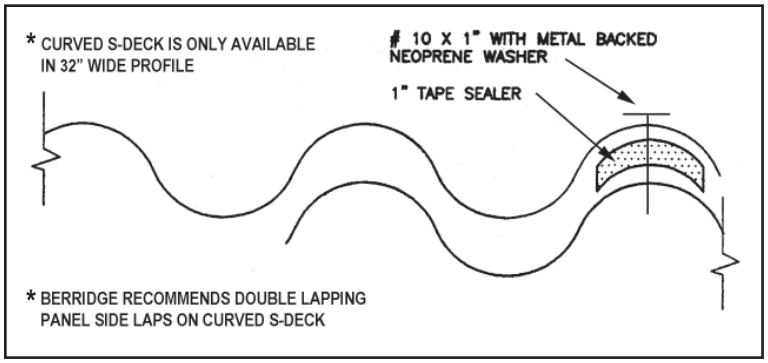
Notes:
1. The panel weight has been deducted from the allowable stress values.
2. The properties and load tables are for the panel alone. The panel profile has been assumed to remain constant under loading. The capacity of fasteners is not included.
3. The panel section properties have been calculated in accordance with the 2001 AISI Specification.

S-DECK OVERVIEW





*CURVED S-DECK SIDE LAP - 29-2/3" COVERAGE W/ DOUBLE LAP



SECTION PROPERTIES

THICKNESS		WT.	FY	IX	MA
GAGE	INCHES (STEEL)	(PSF)	(KSI)	(IN4/FT)	(FT-LBS/FT)
24	.0239	1.24	40	0.0194	103.7

ALLOWABLE UNIFORM LOADS (PSF)

THICKNESS (INCHES)	DEAD + LIVE LOAD (STRESS)					LIVE LOAD DEFL (L/240)				
	3'-0	3'-6	4'-0	4'-6	5'-0	3'-0	3'-6	4'-0	4'-6	5'-0
.0239	104	77	58	46	37	88	55	37	25	20

1. SECTION PROPERTIES AND ALLOWABLE STRESSES HAVE BEEN CALCULATED IN ACCORDANCE WITH 1986 AISI SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.
2. PANEL STEEL CONFORMS TO ASTM A653 GRADE C.
3. VALUES SHOWN AS ALLOWABLE LOADS ARE BASED ON PANELS COVERING THREE EQUAL CONTINUOUS SPANS. MULTIPLY THE VALUES BY 0.8 FOR TWO SPAN ALLOWABLE LOADS.
4. THE PANEL WEIGHT HAS BEEN DEDUCTED FROM THE ALLOWABLE LOAD TABLES.
5. THE ALLOWABLE LOADS SHOWN ABOVE MAY BE INCREASED BY 33% FOR WIND UPLIFT.
6. SHEER DIAPHRAGM VALUE = 210#/L.F. NOMINAL

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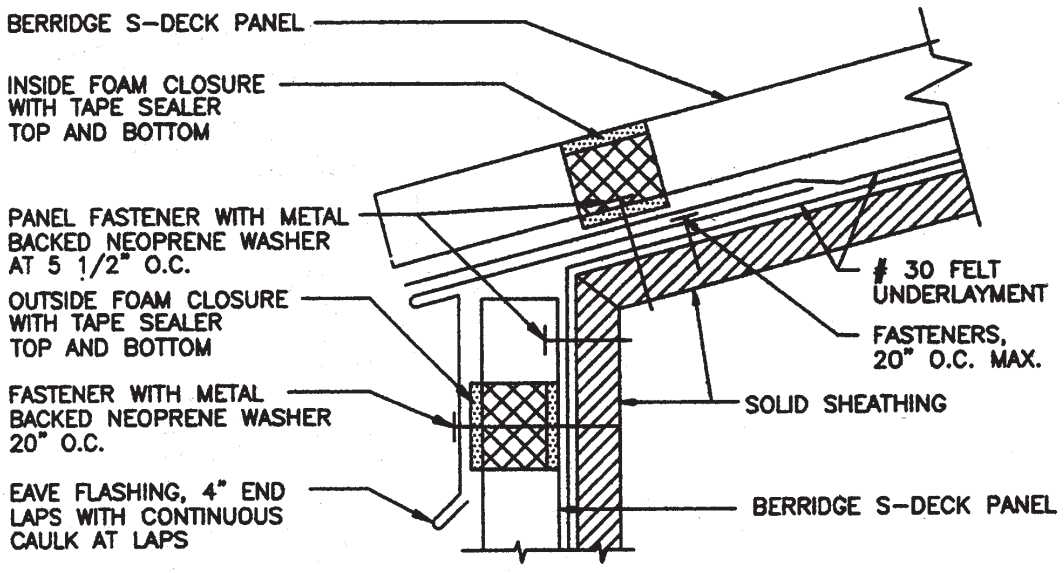
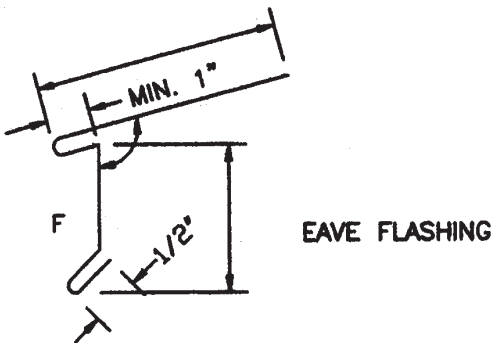
EXPOSED FASTENER PANELS

EAVE DETAILS

(S-Deck shown; for specific product details, visit www.berridge.com)



1. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
2. ALL FELT UNDERLAYMENT, CAULKING AND FASTENERS ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.
3. USE ICE AND WATERSHIELD AS UNDERLAYMENT FOR CURVED S-DECK.



F = FINISH SIDE

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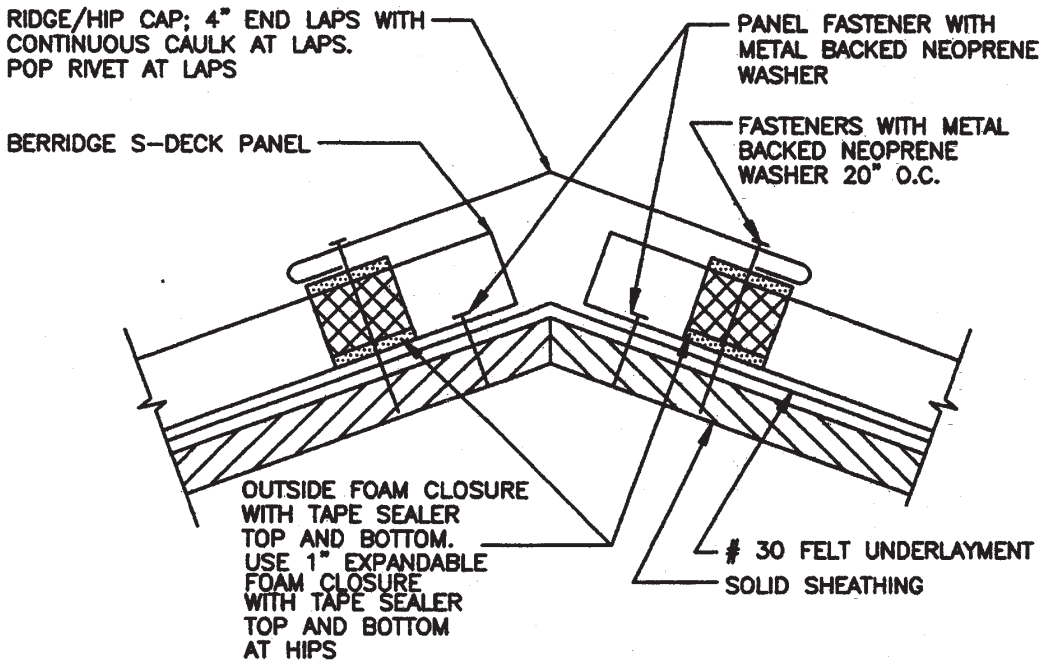
EXPOSED FASTENER PANELS

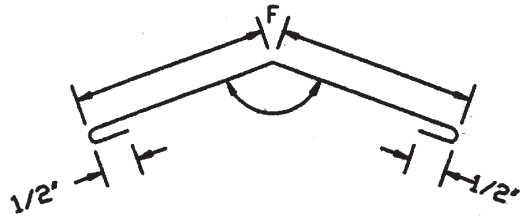
RIDGE & HIP DETAIL

(S-Deck shown; for specific product details, visit www.berridge.com)



1. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
2. ALL FELTING UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE



RIDGE/HIP CAP

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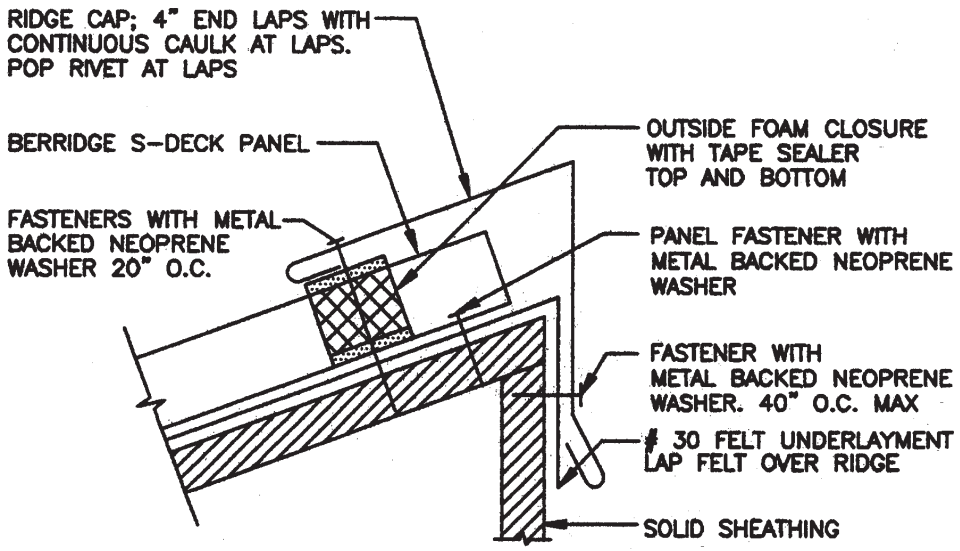
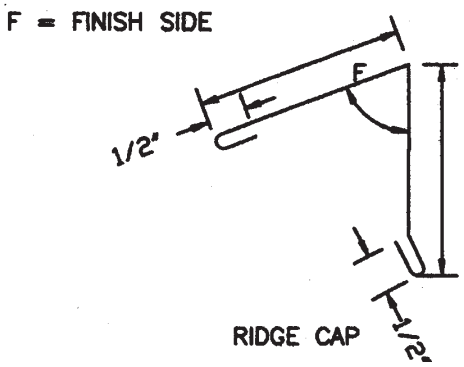
EXPOSED FASTENER PANELS

SHED ROOF DETAIL

(S-Deck shown; for specific product details, visit www.berridge.com)



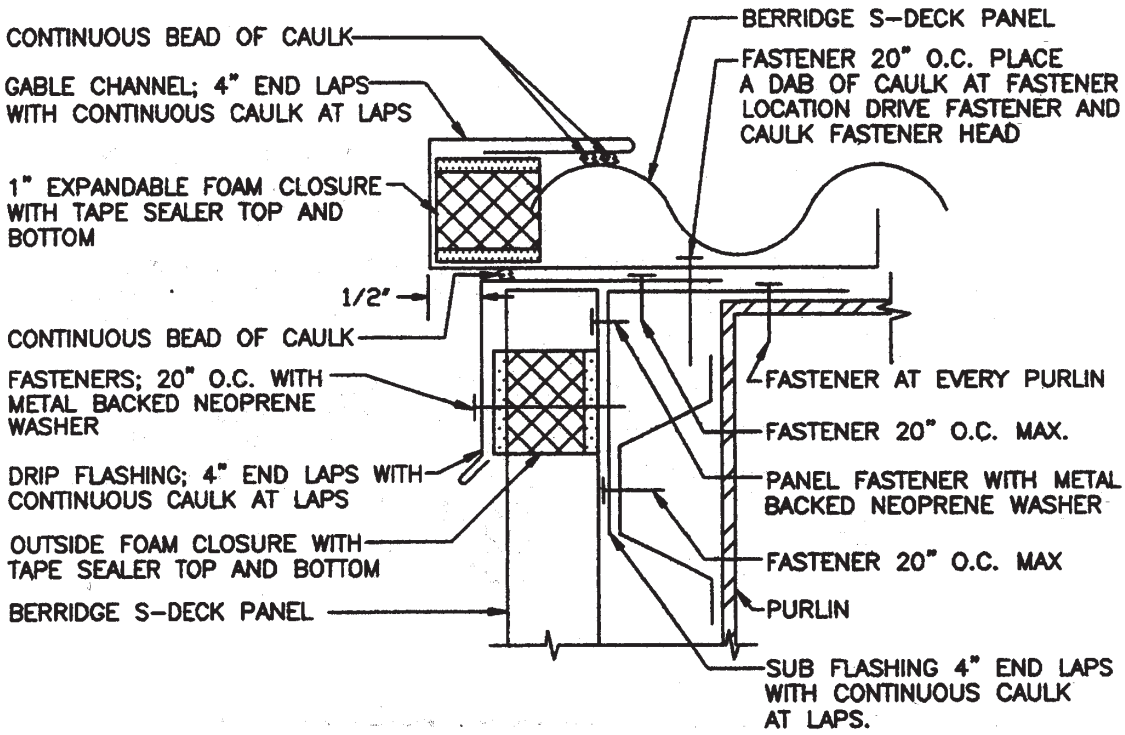
1. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
2. ALL FELTING UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



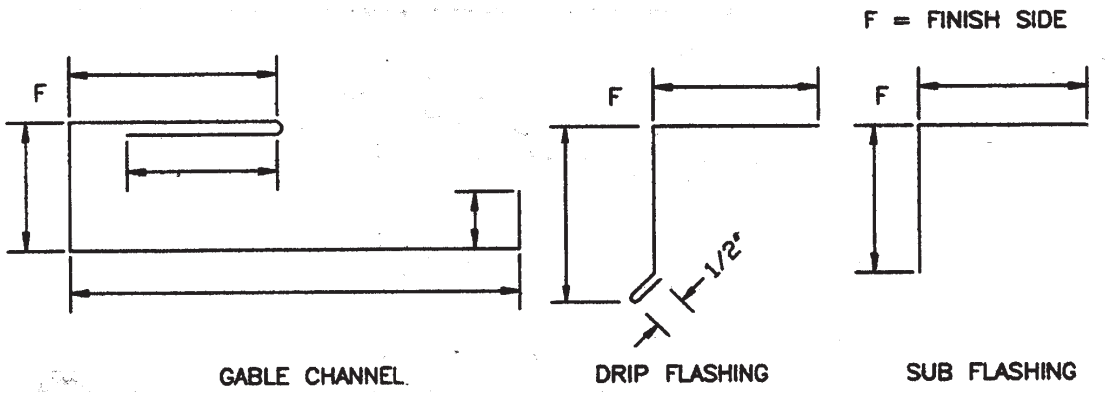
EXPOSED FASTENER PANELS

GABLE DETAIL

(S-Deck shown; for specific product details, visit www.berridge.com)



1. ALL CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



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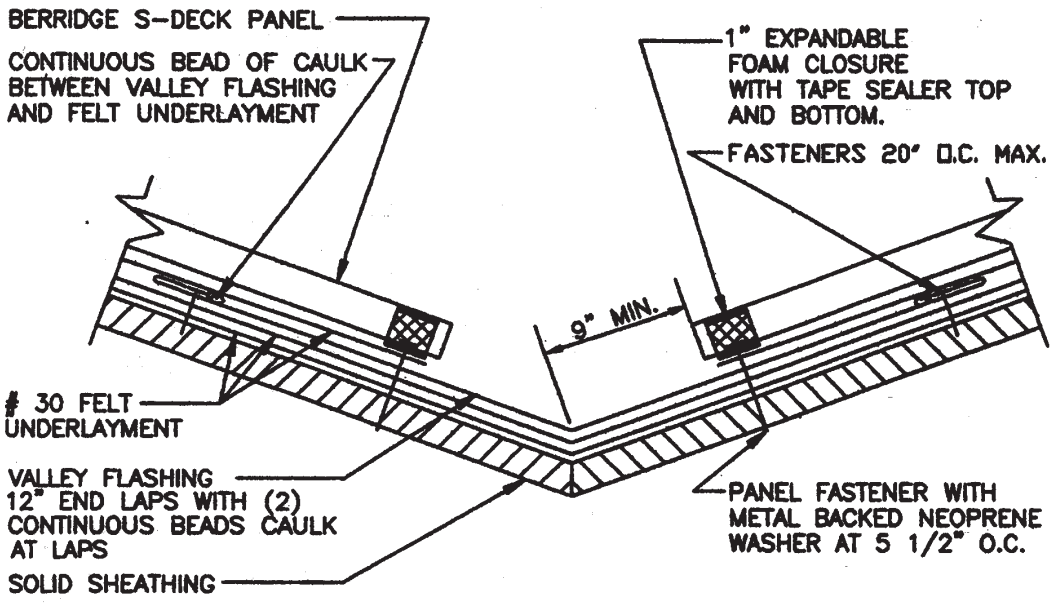
EXPOSED FASTENER PANELS

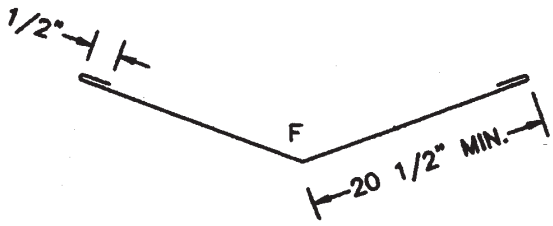
VALLEY DETAIL

(S-Deck shown; for specific product details, visit www.berridge.com)



1. SOLID SHEATHING (BY OTHERS) TO BE A MINIMUM OF 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
2. ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.

F = FINISH SIDE

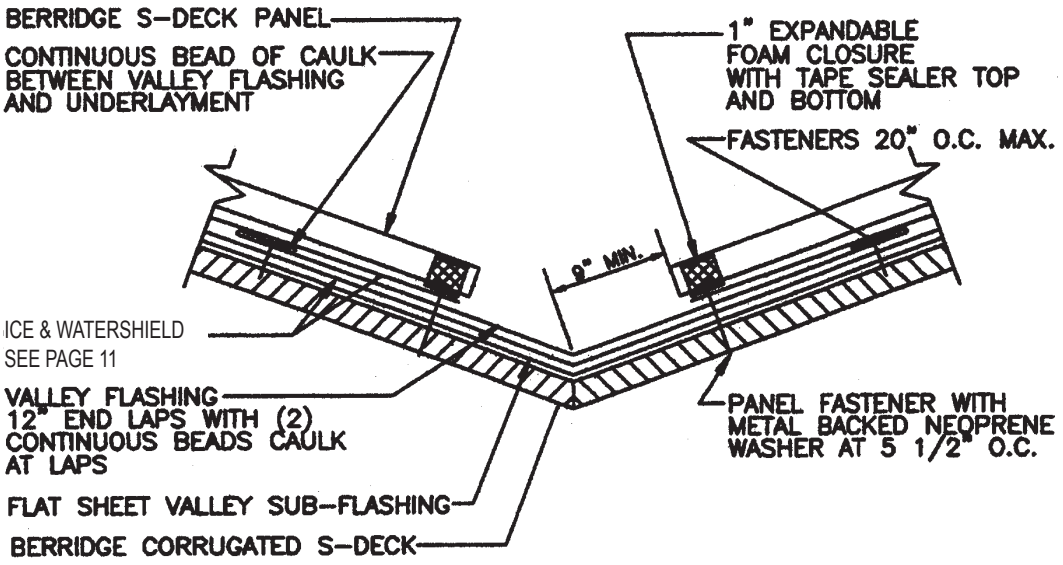


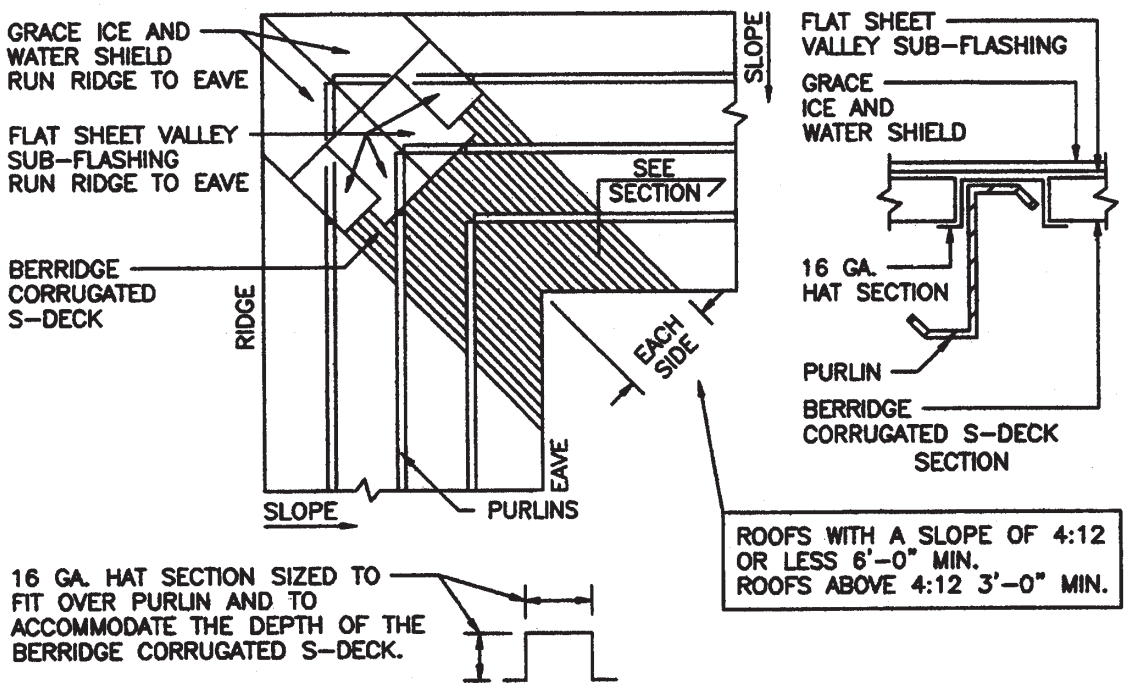
VALLEY FLASHING

EXPOSED FASTENER PANELS

OPEN FRAMING VALLEY DETAILS

(S-Deck shown; for specific product details, visit www.berridge.com)





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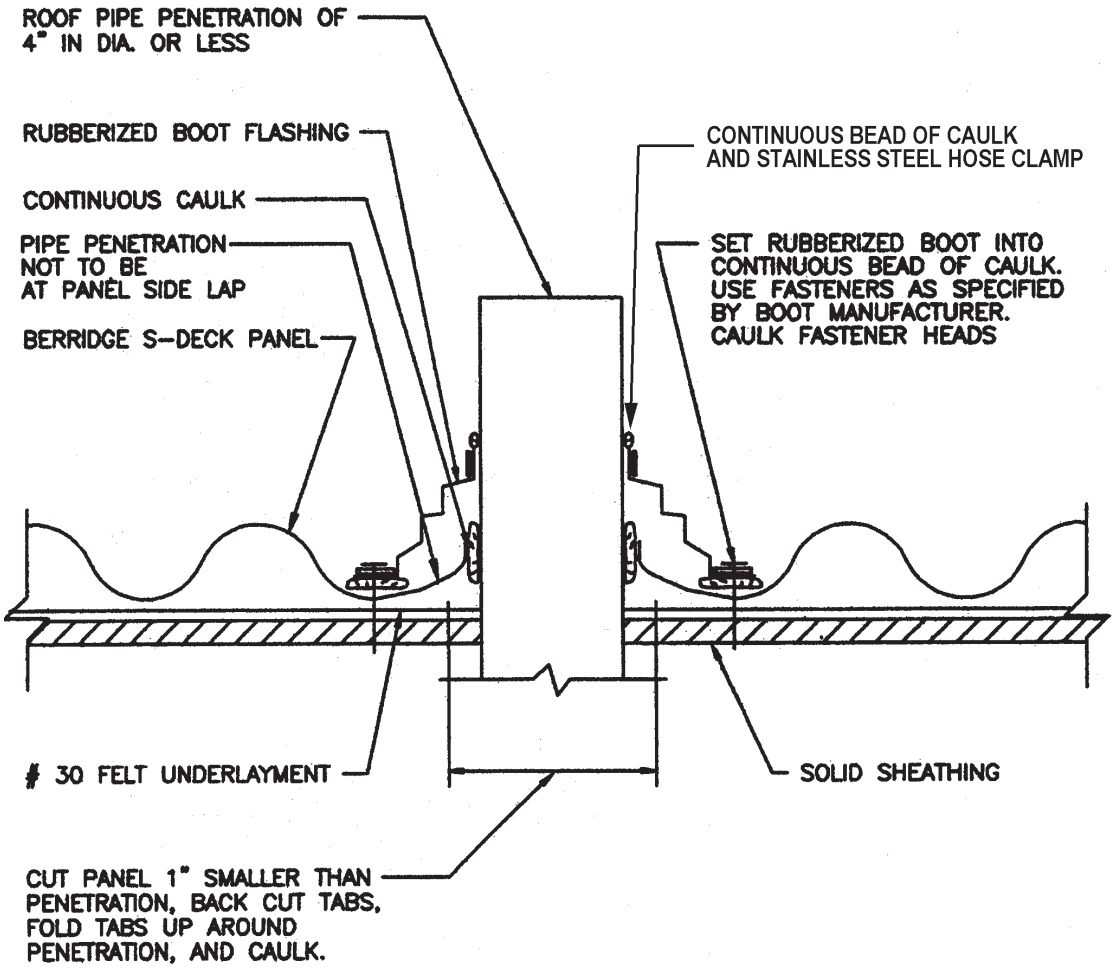
EXPOSED FASTENER PANELS

PIPE PENETRATION DETAIL (4" DIAMETER OR LESS)

(S-Deck shown; for specific product details, visit www.berridge.com)



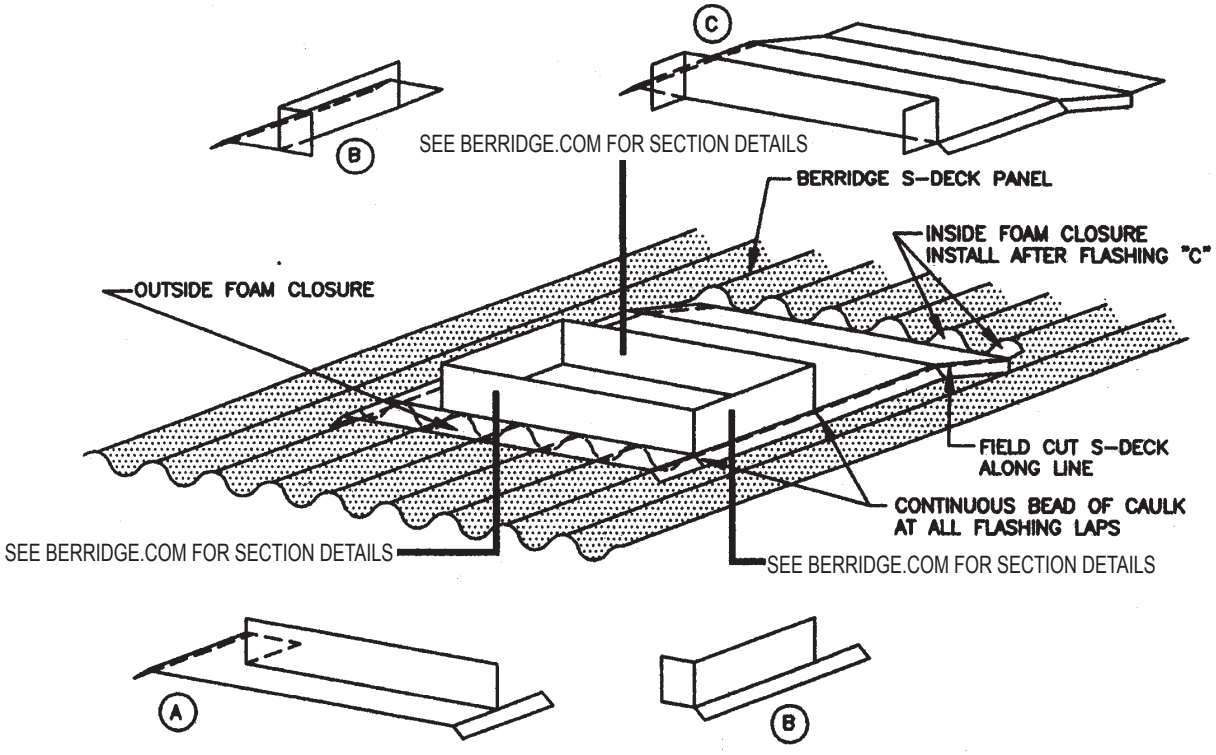
NOTE: IF PIPE IS MADE OF METAL, IT MUST BE PAINTED TO PREVENT RUST RUN-OFF FROM STAINING PANELS.

NOTE: POSITION SQUARE BASED BOOTS IN A DIAMOND ORIENTATION WHERE POSSIBLE TO AID IN DIVERTING WATER.

EXPOSED FASTENER PANELS

SQUARE PENETRATION DETAIL

(S-Deck shown; for specific product details, visit www.berridge.com)



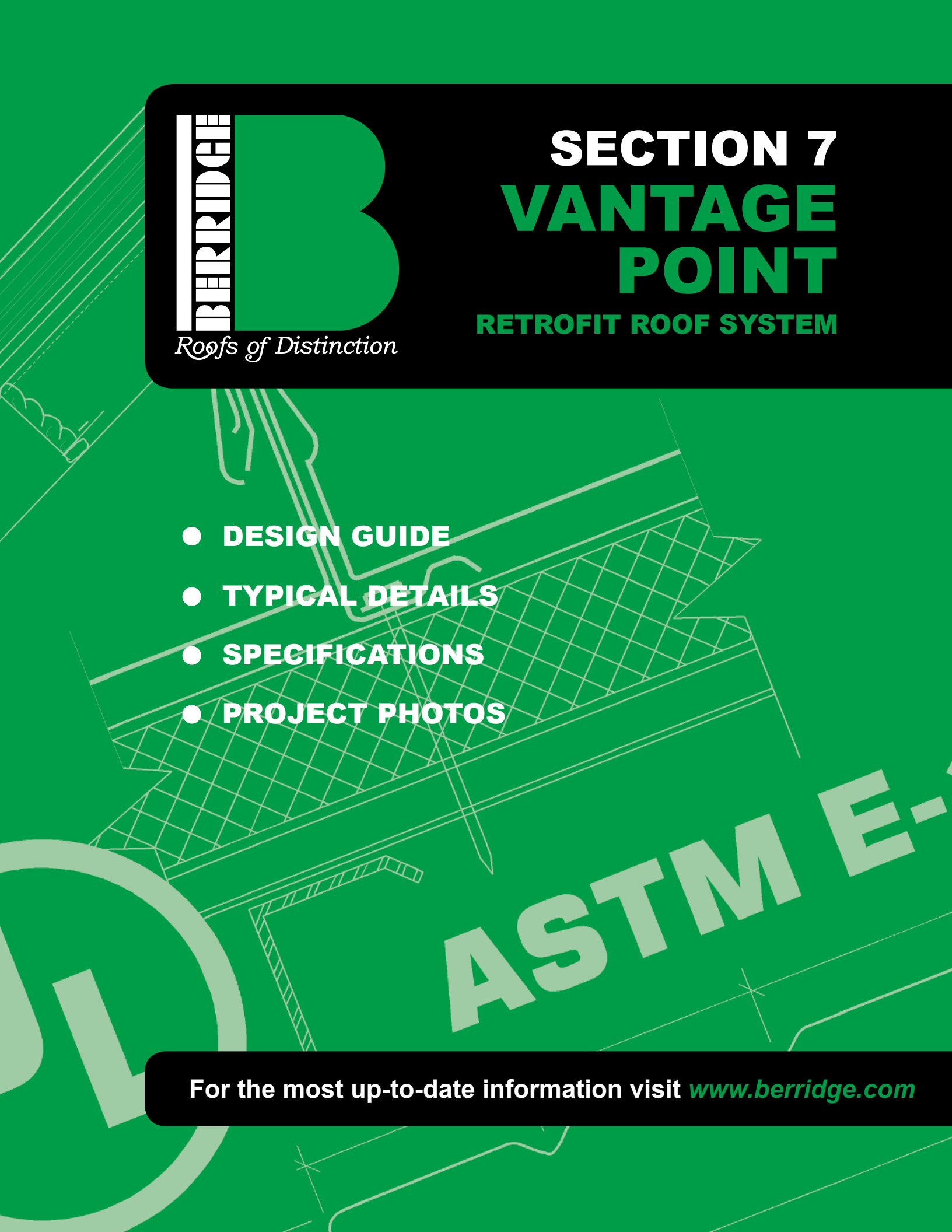
FIELD CUT PANEL ALONG DOTTED LINE AND INSTALL PANEL. INSTALL FLASHING "A" FIRST ALONG WITH FOAM CLOSURE. INSTALL FLASHING "B" SECOND. CAULK ALL FLASHING LAPS. INSTALL FLASHING "C" LAST. THIS FLASHING IS TO BE SLIPPED UNDER THE S-DECK PANEL AND FELT AS SHOWN IN DETAIL SD-84 BEFORE THE FOAM CLOSURE OR FASTENERS ARE INSTALLED. SEE BERRIDGE.COM FOR SECTION DETAILS AND FOR FELTING AND SUBFLASHING.

BERRIDGE

Roofs of Distinction

SECTION 7
VANTAGE POINT
RETROFIT ROOF SYSTEM

- DESIGN GUIDE
- TYPICAL DETAILS
- SPECIFICATIONS
- PROJECT PHOTOS



For the most up-to-date information visit *www.berridge.com*

SECTION 7 VANTAGE POINT RETROFIT ROOF SYSTEM

VANTAGE POINT

RETROFIT ROOF SYSTEM

NOTE:

The details contained in this manual are merely recommendations as to how Berridge Manufacturing Company materials should be installed. They may require adaptations or modifications for a specific project, as conditions vary in both building design and local climatic conditions.

Berridge Manufacturing Company shall be held harmless from any and all claims arising from lack of watertightness as a result of following these recommended details. Ensuring watertightness on any given project is the function of the installer. The architect, general contractor or installer must accept the responsibility to adapt these details to meet particular building requirements and assure adequate watertightness.

The installer can virtually assure watertightness if these details have been properly adapted, adequate laps have been provided, correct type of underlayment and sealant used, all joints adequately caulked and professional workmanship employed.

Should a watertightness warranty be required on a specific project, please refer to the procedures outlined in the “Design Guide” section of this manual. These procedures must be adhered to in order for Berridge to issue any type of watertightness warranty.

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VANTAGE POINT RETROFIT ROOF SYSTEM

VANTAGE POINT

DESIGN GUIDE

BERRIDGE VANTAGE POINT SYSTEM: MORE THAN JUST A NEW ROOF — IT'S A NEW LOOK

Berridge VANTAGE POINT reroofing system combines a new, aesthetic look with simple mechanical attachment over existing flat built-up roofs that will last for years to come. VANTAGE POINT is more than just a patchup or a re-roof solution; it is a permanent, new roof with a new, higher profile which gives your old building a totally new look. The sloped, light weight, self supporting metal panels need no substrate, thus avoiding extra weight and cost. They provide a watertight standing seam that sheds water in contrast to dated, flat built-up roofs which are subject to water ponding and subsequent leakage.

ECONOMICAL INSTALLATION — NO TEAR-OFF REQUIRED

The Berridge VANTAGE POINT Retrofit Roof System completely covers your old roof with its leaks and unneeded, leak-prone roof penetrations to provide a low maintenance, leak-free roof with a 20 year KYNAR 500® paint finish warranty and a life expectancy of years beyond. The system can often be installed directly over the existing roof; Because there's no need to remove old roofing, operations need not be interrupted and relocation of contents is unnecessary.

HIGH-QUALITY STRUCTURAL/ARCHITECTURAL PANEL

The ZEE-LOCK Standing Seam Roof system is a cost-efficient, 16" coverage roof panel with a machine seamed, two-inch high seam. It is formed on the job site in continuous lengths to eliminate leak-prone panel endlaps. The Berridge ZEE-LOCK standing seam panel carries the U.L. 90 Wind Uplift Rating. This profile allows for various slopes, heights, and configurations in all standard KYNAR 500® colors and natural metal finishes to provide the architect with custom design solutions and the owner with increased building value.

SINGLE SOURCE CONVENIENCE

The ZEE-LOCK panels bear directly on economical Berridge manufactured 16-gauge, light weight, cold rolled framing shapes. The installer orders all necessary coil material & components and all pre-cut retrofit roof system framing members from Berridge. All these points combine to make VANTAGE POINT the choice for an economical, attractive, value added reroofing system for schools, municipal buildings and other dated facilities.

GUIDELINES FOR DESIGN

Technical input to the architect at the earliest design stage insures successful conversion of existing flat built-up roofs to the sloped, watertight VANTAGE POINT system by Berridge. Because the surface panels are self supporting there is no substrate, therefore watertightness is dependent on simple flashing configurations. The architect must consider both building facade and simplification of flashing conditions together at the earliest design stage to avoid design flaws that are difficult to solve.

A RETROFIT DESIGN CHECKLIST FOR ARCHITECTS & DESIGNERS:

Careful planning in early design stages will save both time and money through prevention of leak-prone designs. Use the following checklist to ensure that your new Berridge VANTAGE POINT Retrofit Roof System will deliver leak-free performance and a lifetime of service:

- Roof slopes may be a minimum of one in twelve to a steep mansard profile.

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VANTAGE POINT
DESIGN GUIDE

- Intersecting planes such as hips, dormer and valleys should be kept to a minimum.

- Minimize penetrations such as skylights, curbs for roof-mounted heating or air-conditioning units, roof jacks, or other mechanical systems.

PROCEDURE

SUBMIT EXISTING ROOF PLAN TO BERRIDGE

In most cases existing structure will support new, lighter VANTAGE POINT Retrofit Roof System, thus avoiding building down time and relocation of contents.

APPROVAL OF SHOP DRAWINGS & DETAILS

Upon request and for a fee, Berridge Manufacturing will lay out the VANTAGE POINT Retrofit Roof System application for acceptance by the Architect. Upon acceptance, Berridge will engineer framing design and details, and submit shop drawings for approval by the Architect. Erection drawings will be completely dimensioned and numbered for factory fabrication, quality and cost control, and uninterrupted installation.

STRUCTURAL DESIGN AND COMPONENTS

Berridge VANTAGE POINT provides the architect with a structural component layout tailored to the individual building configuration using economical, Berridge manufactured, cold rolled, light gauge framing shapes. (See illustrations on Pages 199-201). Exact spacing and size of members will vary according to existing structural components. These details are schematic and will be specifically designed on a job by job basis considering most economical use of material and factory and field labor in accordance with standard codes. Budget prices will be quoted upon request.

THERMAL & MECHANICAL CONSIDERATIONS

INSULATION

The space between the old and new roof allows for easily rolled out, low cost, blanket insulation on existing roof deck thus increasing insulation values and greatly reducing heating and cooling costs. This added value helps pay for the cost of the new installation.

VAPOR BARRIER (IF REQUIRED)

A vinyl vapor barrier attached to the underside of the blanket insulation avoids condensation from the building penetrating to the insulation itself and beyond to the new framing system and underside of roof panels.

MECHANICAL EQUIPMENT

Any existing and new mechanical equipment can be located at ground level or grouped and left open by the new roof thus reducing penetrations and the possibility of leaks. Please review equipment height with design considerations to determine configuration.

VENTILATION

The new attic space can be ventilated in several ways. The VANTAGE POINT Retrofit Roof System allows for a self ventilating ridge cap, or louvers may be provided at gables.

THERMAL MOVEMENT

Normal thermal movement is allowed for by floating eave. Where length of panel runs exceed nominal end movement provide inner rib expansion joints.

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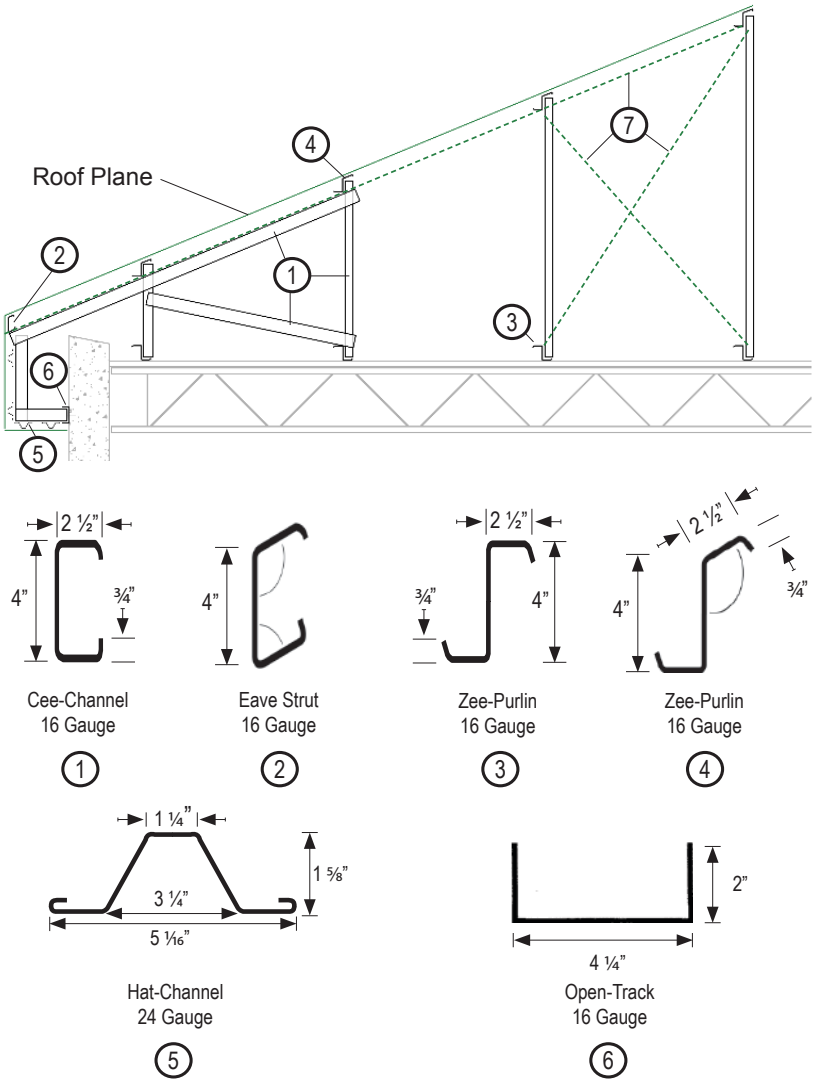
VANTAGE POINT RETROFIT ROOF SYSTEM

BASIC VANTAGE POINT RETROFIT ROOF ASSEMBLY



1. 16 ga. Cee-Channel. Connect each end w/ (4) #12-14 self-drilling fasteners.
2. 16 ga. Eave Strut. Connect to beam w/ (2) #12-14 self-drilling fasteners.
3. 16 ga. Continuous 4" x 2-1/2" Zee-Purlin Roof Support.
4. 16 ga. Continuous 4" x 2-1/2" Retrofit Zee-Purlin.
5. 24 ga. Hat-Channel. Connect to beam w/ (2) #12-14 self-drilling fasteners each flange.
6. 16 ga. Open-Track x 1'-0" Long. Anchor into wall. Connect to beam w/ (2) #12-14 self-drilling fasteners each flange.
7. 24 ga. 2" Bottom Flange Strapping at Purlin mid-span. Connect to purlin w/ (1) #12-14 self-drilling fastener.

Disclaimer: *Project specific engineering required. Consult Engineering Dept. for pricing. Suggested detail shown above may not be applicable to every project.*

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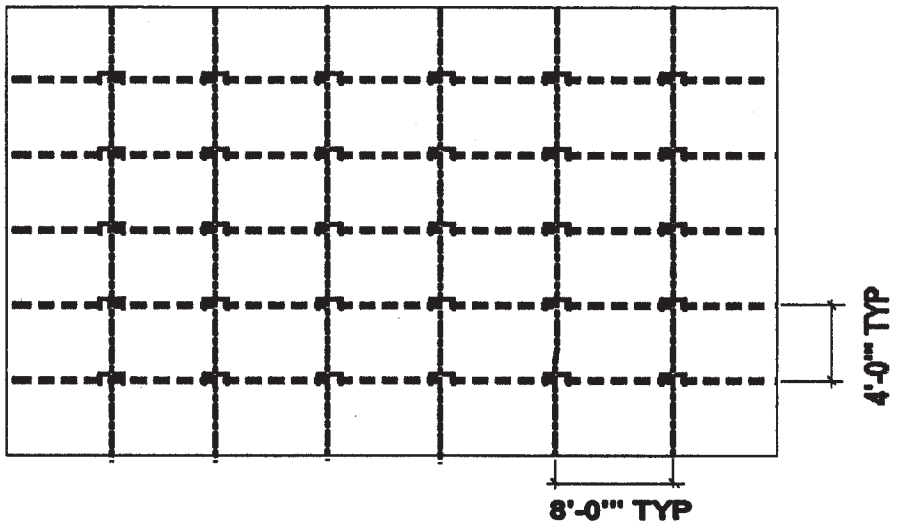
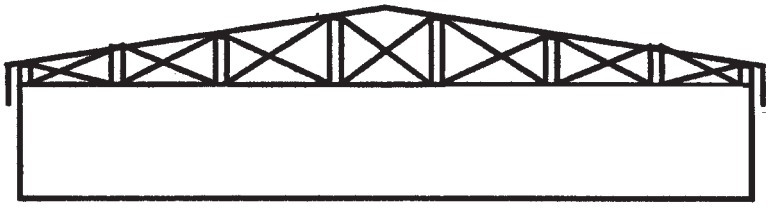
VANTAGE POINT RETROFIT ROOF SYSTEM

EXISTING & NEW RETROFIT FRAMING MEMBER LOCATIONS

PLAN VIEW



SECTION VIEW



EXISTING STRUCTURAL FRAMING

VANTAGE POINT RETRO FRAMING VERTICAL MEMBERS

VANTAGE POINT RETROFIT FRAMING & BRACING HORIZONTAL MEMBERS

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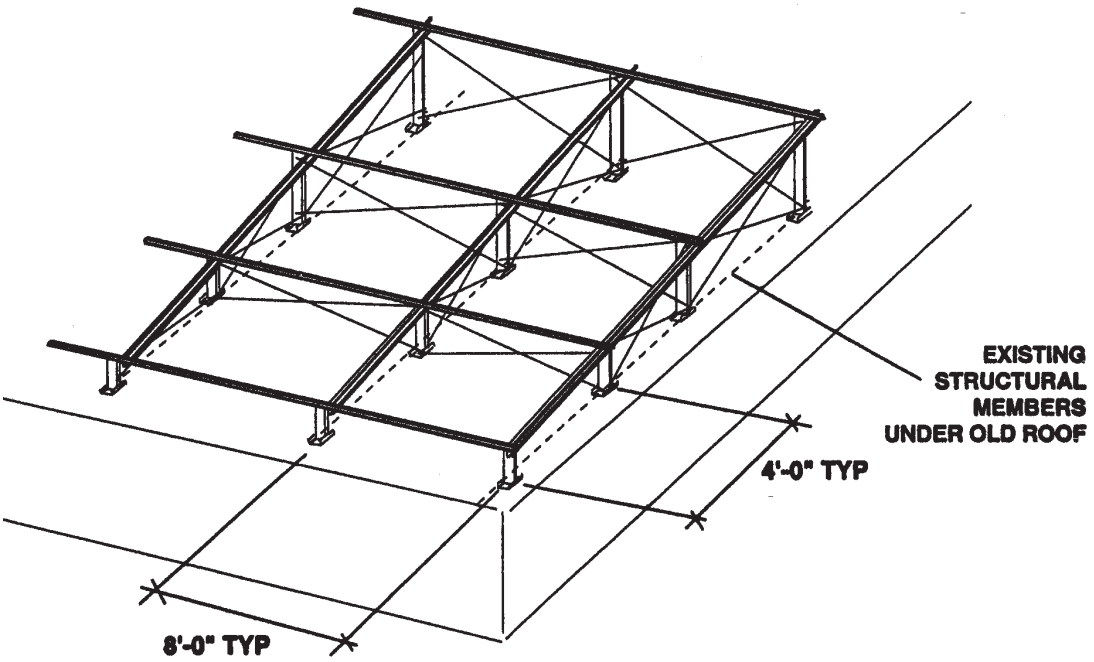
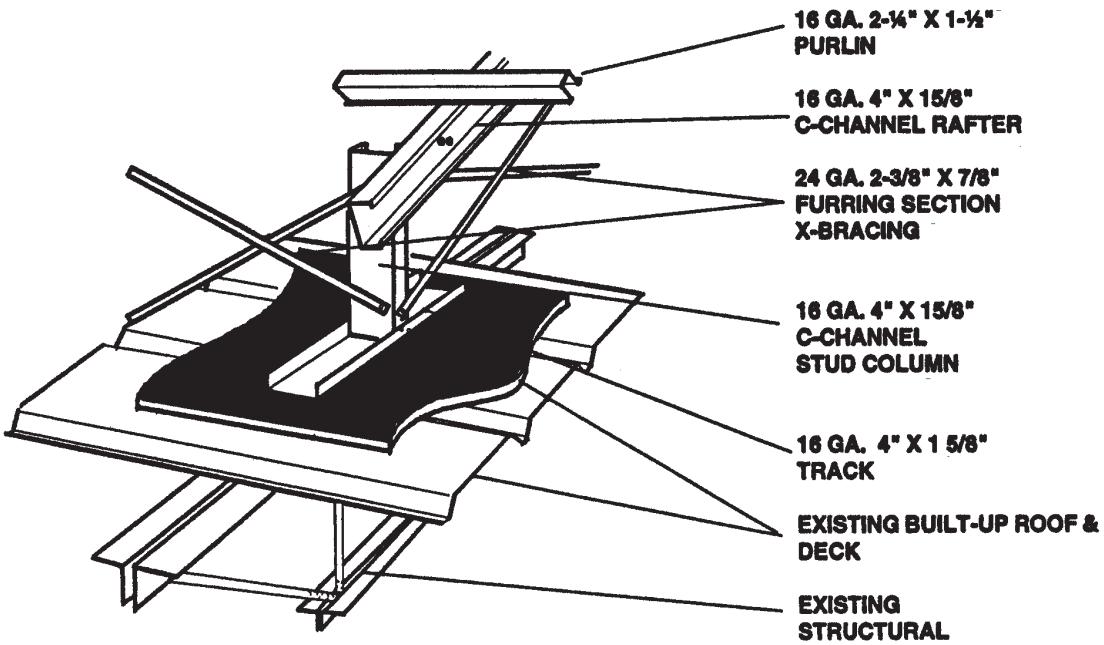
VANTAGE POINT RETROFIT ROOF SYSTEM

ISOMETRIC VIEW SHOWING EXISTING & NEW FRAMING





ASSEMBLIES MAY VARY DEPENDING ON PROJECT. CONSULT TECHNICAL DEPT. AT (800) 669-0009.
SEE ASSEMBLY ON PAGE 201 FOR MOST COMMON APPLICATION.

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VANTAGE POINT RETROFIT ROOF SYSTEM

SECTION 07610
RETROFIT ROOF SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES:

A. Section Includes: Preformed and prefinished metal roofing panels, fasteners, clips, perimeter and penetration flashings, closures, insulation, sealant, gutters, seam caps, trim, vapor barriers, expansion joint covers, Retrofit Roof structural subsystem open web framing members, including cold-form track, C-Channel, Framing Sections, Purlins and miscellaneous accessories required to complete the retrofit framing and roofing enclosure as indicated by Contract Documents.

1.02 RELATED SECTIONS

A. Section 05120: Structural Steel Framing.
B. Section 05500: Miscellaneous metal fabrication.
C. Section 06100: Rough Carpentry.
D. Section 07631: Flashing and Sheet Metal Gutters.
E. Section 07900: Sealants.

1.03 REFERENCES

A. American Iron and Steel Institute (AISI), Specification for the Design of Cold-Formed Steel Structural Members (August 1986).
B. American Institute of Steel Construction (AISC) Manual of Steel Construction (Current Edition).
C. American Society for Testing and Materials (ASTM):

1. A446: Specification for Steel Sheet Zinc-Coated (Galvanized) by the Hot-Dip Process, structural (physical) property.
2. A525: Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
3. A792: Specification for Steel Sheet, Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
4. E283: Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
5. E330: Test Method for Structural Performance of Exterior Window, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
6. E331: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

D. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):

1. 1987 Architectural Sheet Metal Manual.

E. Underwriter's Laboratories (UL) Building Materials Directory

1. UL 580: Tests for Wind Uplift Resistance of Roof Materials.

1.04 SYSTEM DESCRIPTION

A. Design Requirements:

1. Continuous, one-piece, preformed, prefinished, mechanically-seamed, single-length roof pans.
2. Panels, Cleats and other components required for specific project conditions.
2. Retrofit Roof Framing Structural Subsystem, composed of cold-formed track, c-channel, purlins, framing members and hat sections, designed in accordance with necessary live, wind, dead and existing structural requirements.
4. Manufacturer is responsible for providing evidence acceptable to Architect that Manufacturer's specified roof system is capable of meeting thermal, wind uplift, and performance requirements specified.

B. Thermal Movement:

1. Completed metal roofing and flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, producing excess stress of structure, anchors or fasteners, or reducing performance ability.
2. Interface between panel and expansion clip shall provide for applicable thermal movement in each direction along the longitudinal direction.
3. Location and sizes of metal roofing rigid connectors shall be as indicated on engineer's certification and located on shop drawings.

C. Design Standards:

1. Design Loads (Panels, Clips, and Purlins): Pressures are normal to roof surface in accordance with ASCE 7-98. Where load tests are required to certify performance, factor of safety shall be 2.5 on panel buckling or on clip-to-panel connections.

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For Wind Loads, an allowable increase factor of 4/3 may be employed (this results in net factors of safety of 1.875 on panel bending or clip failure from wind loads). Factor of safety for panel capacity for Live Loads shall be 2.0.

2. Panel Clip Requirements: Connection of panel anchor clips to purlins shall be designed to resist loads developed by pressures with proper regard for prying forces and/or bending due to eccentric loading. Performance shall be evaluated at extreme positions of thermal movement. A 1/3 increase in allowable load is permitted for wind pressures. Allowable stresses for design shall be in accordance with specifications in AISI "Cold Formed Steel Design Manual"; factor of safety on testing of connections shall be 2.5.
3. Deflection Limits: Installed roof system, including framing and deck, shall carry positive uniform design loads with maximum system deflection of L/240 as measured at rib (web) of panel.

D. Performance Requirements:

1. Underwriter's Laboratories, Inc. (UL) Wind Uplift Resistance Classification For Roof Assembly shall be Class 90, as installed, pursuant to Construction Number 312, as defined by UL 580. Certified statements from manufacturer without proper UL Classification will not be acceptable.
2. Completed metal roof system, including vapor barrier, shall have maximum static pressure air infiltration of 0.02 cfm/square foot with 6.24 psf air pressure differential when tested in accordance with ASTM E283.
3. No measurable water penetration (dynamic pressure), other than condensation, when exposed to dynamic rain and at 6.24 PSF air pressure differential for not less than fifteen minutes duration, when tested in accordance with ASTM E331.
4. Calculated pull-out capacities for purlins and fasteners shall be certified by registered professional engineer. Minimum safety factor for anchoring fasteners into metal shall be 2.35. Minimum safety factor for anchoring fasteners into concrete shall be 4.0.
5. Entire roofing system (metal panels, flashings, expansion joints, and retrofit roof structural subsystem), are to be detailed to provide weathertight roof under peak weather conditions.

1.05 SUBMITTALS

A. Shop Drawings: Architectural details show design concept and relationship of retrofit roof to other conditions. It is the responsibility of the Installer to prepare detailed shop drawings that adapt proposed roof system and configuration of roof system to conditions of this Project and specified requirements. Shop drawings shall be reviewed by manufacturer's Technical Department before submittal to Architect. Installer shall recommend and make any detail modifications required to insure a proper and watertight system.

1. Show retrofit roofing system with structural framing, standing seam panels, flashings and accessories in plan, elevation, sections and details.
2. Include metal thicknesses and finishes, panel lengths, joining details, anchorage details, flashings and special fabrication provisions for termination and penetrations. Also indicated purlins and clip locations, cold formed open web framing members, thermal expansion provisions, and special supports. Submittal shall include manufacturer's written comments, all fastener descriptions and spacings, sealant description and locations, bend radii, metal thicknesses, and other pertinent information.
3. Indicate relationships with existing roof structural framing.
4. Distinguish between factory and field assembly work.
5. Submit erection drawings showing proposed sequence of laying panels. Provide manufacturer's instructions for storage, handing, and installation, and their standard construction details for conditions on this Project..
6. Shop drawings must be submitted and returned as acceptable prior to beginning field or factory fabrication.

B. Product Data: Submit manufacturer's detailed material and system description, sealant and closure installation instructions, engineering performance data, and specifications

C. Submit a sample of each type of roof panel, complete with factory finish. Submit one (1) sample of each sealant type, indicating location of intended use.

D. Quality Control Submittals:

1. Design Calculations:

   a. Submit design calculations sealed by registered engineer indicating compliance with specified performance criteria and certified fastener pullout calculations. Indicate fastener types, spacings and number required for each clip and purlin. Pullout calculations shall be for both purlins and panel clips.
   b. Empirical calculations for roof panel and clip-to-panel performance will not be accepted.

2. Test Reports:

a. Submit reports from independent testing laboratory that bears stamp of registered engineer (P.E.) to certify compliance with specified performance criteria.

b. Each prequalified manufacturer shall provide complete and current data for specified roof system as follows:

1) Thermal cycle testing of metal roof panels and panel clips as specified.
2) Uniform ultimate wind uplift load capacity test for metal roof panels as specified.
3) Ultimate pull-out capacity for panel clips, tested as specified.
4) UL 90 Classification test data as specified.
5) Model Load Test per ASTM E-1592
6) Static air infiltration resistance test data as specified.
7) Water penetration test data as specified.
8) Purlin and fastener pull-out calculations as specified.

3. Manufacturer's Field Reports:

a. Submit complete log of field reports prepared by manufacturer.
b. Include initial report, progress reports, and final report.
c. Submit letter of certification from manufacturer that roof installation is in accordance with shop drawings and manufacturer's requirements, and that entire roof installation will be issued specified Watertightness Warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer: Company specializing in Architectural Sheet Metal Products with fifteen (15) years minimum experience. Being listed as prequalified manufacturer does not release manufacturer from providing complete, current and acceptable test data for each performance, thermal, and wind load requirement specified for specific profile proposed.

B. No product substitutions shall be permitted without meeting specifications.

C. Substitutions shall be submitted 10 Days prior to Bid Date and acceptance put forth in an addendum.

D. No substitutions shall be made after the Bid Date.

E. Installer Qualifications:

1. Preformed metal roof system installer must be unconditionally acceptable to roof system manufacturer. Manufacturer will determine initial acceptability of installer qualifications for specified roofing systems.

a.Submit with Bid complete AIA Document A305 Qualification Form for proposed roofing system installer.
b.Architect will determine acceptability of installer prior to award of Contract.

2. Installer must have minimum of five (5) years experience installing preformed metal roofing systems.
3. Installer must have successfully completed minimum of five (5) significant installations of preformed metal roofing systems, including installation of long, field-formed panels. Submit complete description of each previous project, including name and phone numbers of representatives of the Owner, Architect, Manufacturer, and Contractor.
4. Submit name and resume of installer's proposed job superintendent, including list of similar projects completed by superintendent.
5. Architect reserves right to inspect fabrication facilities of installer in determining qualifications.
6. Installer must execute 100% of metal roof system installation with installers own employees.

F. Pre-Installation Conference:

1. Conduct pre-installation meeting at Project Site before each construction activity that required coordination with installation of preformed metal roofing system.
2. Other trades involved in or affected by installation of metal roof system shall attend.
3. Advise Architect of scheduled meeting dates minimum of three (3) days in advance.
4. Review progress of other construction activities and preparations for particular activity under construction at each pre-installation conference.
5. Record significant discussions and agreements/disagreements of each conference, along with approved schedule. Distribute record of meeting to everyone concerned, promptly, including Owner and Architect.
6. Do not proceed if conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene conference at earliest

VANTAGE POINT RETROFIT ROOF SYSTEM

feasible date.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver prefabricated accessories to Project site in manufacturer's unopened containers.

B. Protect components during shipment, storage, handling, and erection from mechanical abuse, stains, discoloration and corrosion.

C. Provide protective interleaving between contact areas of exposed surfaces to prevent abrasion during shipping, storage and handling.

D. Store materials off ground, providing for drainage, under cover providing for air circulation, and protected from wind movement, foreign material contamination, mechanical damage, cement, lime, or other corrosive substances.

E. Provide covered storage off ground on Project Site for storage of prefinished metal coils. Maintain availability of equipment on site to off-load and store metal coils as they are delivered to Project Site.

F. Handle materials to prevent damage to surfaces, edges and ends of roofing sheets, sheet metal items and substructural framing members. Damaged material shall be rejected and removed from site.

G. Protect field fabricated panels from wind-related damage. Provide on-site storage, or other acceptable protection, for fabricated panels prior to installation.

H. Examine materials upon delivery. Reject and remove physically damaged, stained or marred material from project site.

I. Panels with strippable film must not be stored in the open exposed to the sun.

J. Stack all materials to prevent damage and to allow for adequate ventilation.

1.07 SITE CONDITIONS

A. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage requirements for preformed metal roofing system.

B. Protection:

1. Provide protection or avoid traffic on completed roof surfaces.
2. Do not overload roof with stored materials.
3. Support no roof-mounted equipment directly on roofing system.

C. Determine that work of other trades which penetrate roof or is to be made watertight by roof is in place and accepted prior to installation of roofing system.

D. Smoking is prohibited on roof areas.

1.08 SCHEDULING

A. Coordinate staging and setup area required for field fabrication equipment provided by metal roofing manufacturer.

B. Provide temporary equipment (cranes, hoists, forklifts) in accordance with provisions of Division One.

1.09 WARRANTIES

A. Furnish manufacturer's Standard Twenty (20) Year Warranty stating architectural fluorocarbon coating finish will be:

1. Free of fading or color change in excess of 2 NBS units as measured per ASTM D 2244-68;
2. Will not chalk in excess of numerical rating of 8 when measured in accordance with standard procedures specified in ASTM D 659-74;
3. Will not peel, crack, chip or exhibit any other mechanical failure of paint to adhere to the substrate.

B. Provide Watertightness Warranty executed jointly by the roof system manufacturer and installer which warrants the installed system to be free of leaks and free from defects in materials and workmanship for a period of twenty (20) years from date of substantial completion of roofing project.

1.10 SUBSTITUTIONS:

A. Substitution of manufacturer's products for those specified will not be allowed at any time during bidding or construction.

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PART 2: PRODUCT

2.01 ACCEPTABLE MANUFACTURERS

A. Berridge Manufacturing Company, Houston, Texas. 713-223-4971 or 1-800-231-8127

B. Substitutions shall fully comply with specified requirements.

2.02 SHEET MATERIALS

A. Unfinished metal shall be ASTM A446-85 Grade C G90 Coating, ASTM 525-86 Hot-Dipped Galvanized, or Galvalume ASTM 792-86.

B. Prefinished metal shall be Hot-Dipped Galvanized ASTM A446-85 Grade C G90 Coating A525-86 24 Gauge core steel or prefinished Galvalume ASTM 792-86.

C. Finish shall be 70% Kynar 500 Fluorocarbon coating, applied by the manufacturer on a Continuous Coil Coating Line, with a top side dry film thickness of 0.70 to 0.90 mil over 0.25 to 0.35 mil prime coat, to provide a total dry film thickness of 0.95 to 1.25 mil. Bottom side shall be coated with primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500 finish supplier.

D. Strippable film shall be applied to the top side of the painted coil to protect the finish during fabrication, shipping and field handling. This strippable film must be removed before installation.

2.03 STRUCTURAL SUBSYSTEM FRAMING MATERIALS

A. Framing: Top and Bottom Chords and Open Web Framing Members to be made up from cold-form Track, C-Channel and Framing Members of an optimum size to minimize overall subsystem dead load weight upon existing roof and building structure. Longitudinal Hat Section Purlins which conform to roof slope to be provided for attachment of continuous rib roof cleats.

B. Material: 24, 22, 16, 14 or 12-Gauge Hot Dipped G-90 Coating Galvanized Steel, Grade C ASTM 525-86.

2.04 ACCESSORY MATERIALS

A. Fasteners: Stainless Steel with washers where required.

B. Sealant: As specified in Section 07900 [ ] Type.

2.04 FABRICATION:

A. All exposed adjacent flashing shall be of the same material and finish as the roof panels.

B. All flashings, hem exposed edges on underside 1/2 inch.

C. All retrofit roof structural subsystem framing materials to be pre-cut to required length and piecemarked to facilitate assembly.

2.05 PREFORMED METAL ROOFING SYSTEM:

A. Zee-Lock Standing Seam Roof System:

1. 2" high vertical legs shall be spaced at 16" on-center.
2. Panels shall be site-formed with the Berridge Model SP-21-X Portable Roll Former in continuous lengths from ridge to eave or factory-formed in continuous lengths (maximum 40'-0")
3. Continuous Zee Rib shall be 1-3/8" wide and 2-1/8" in height. Rib shall be connected to purlin with two #12-14 x 1" self-drilling/tapping fasteners [Zee Clips spaced at 3'-0"].
4. Optional Vinyl Weatherseal (U.S. Patent 5134825) to be factory-installed over Continuous Zee Rib.
5. Sidelap to be machanically seamed with a powered seamer.
6. When required, panel assembly to bear Underwriters Laboratories Label UL90, pursuant to Construction Number 312 for open framing conditions, either uninsulated or with blanket insulation; 335 or 335 (mod.) with rigid board insulation or 403 over solid substrate and applicable Fire Ratings.
7. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-331-86 and E-283-84.

B. Concealed Continuous Anchor Ribs:

1. Standing seam metal roof shall be fastened to framing members with concealed anchor ribs of minimum G-90 galvanized steel or stainless steel or other properly coated metal of adequate strength and wear resistance to meet or exceed minimum performance requirements of this specification.
2. Ribs shall accompany panel movement in each direction along longitudinal direction to adequately accommodate temperature differential and panel movement for this Project.
3. Manufacturer shall design fastener device and spacing of fasteners to maintain required wind uplift resistance at connection.

C. All exposed adjacent flashing shall be of the same material and finish as the roof panels.

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D. All flashings, hem exposed edges on underside 1/2 inch.

E. Fasteners:

1. Exposed screw fasteners shall be 300 series alloy stainless steel with integrally bonded neoprene stainless steel washers under the heads, painted with urethane finish to match roofing.
2. Exposed rivets shall be self-plugging type minimum 3/16" diameter 300 series alloy stainless steel with stainless steel stems. If located where drainage from possible head leakage does not pass to interior, seal washers are not required, other wise, use EPDM washers under the heads.
3. Concealed fasteners shall be #12 size to meet pullout requirements in specific thickness of support material.
4. There shall be no exposed fasteners except to fasten flashings, at fixing points, or as indicated on the drawings.

F. Closures:

1. Ridge and hip closures shall be factory-fabricated from 24 ga. sheet metal matching roof panels. Hip closures shall be field cut. Ridge Closures are to be die-formed to match panel configuration.

G. Sealants:

1. Must not contain oil, asbestos or asphalt.
2. Factory-applied sidelap sealant: Non-drying non-skinning, synthetic polymer-based, designed for metal-to-metal concealed joints. Spectrum 1 by Tremco or equal.

2.06 FABRICATION:

A. Panels:

1. Panels shall be fabricated on site in continuous lengths as required. No horizontal overlap joints are permitted in roof panel lengths.
2. Provide pans in full lengths from peak to eave as indicated.
3. Transverse or endlap seams will not be permitted.
4. Design panels to use concealed fasteners. Exposed fasteners in roofing pans will not be permitted.
5. Standing seam must prevent water capillary action, or otherwise prevent water infiltration.
6. Examine panels as they are formed to ensure panels are being formed within acceptable tolerances.

B. Fabricate roofing and related sheet metal work in accordance with accepted shop drawings and applicable standards.

C. Provide linear sheet metal items in minimum 10'-0" sections except as otherwise noted. Form flashing using single pieces for full width. Provide shop fabricated, mitered and joined corners.

PART 3: EXECUTION

3.01 INSPECTION:

A. Examine alignment of roof structure retrofit structural framing subsystem before proceeding with installation of preformed metal roofing.

B. Examine metal roof deck before starting installation. Deck must be clear, clean and smooth, free of depressions, waves, or projections, dry and must remain dry and free of ice and snow, after roofing application commences. Deck flutes must be clean and dry.

C. Structural supports shall be in place and sag rods, diagonal bracing, and connections shall be tightened before work can proceed.

D. Field check dimensions and check support alignment with taut string or wire. Support misalignment will cause panel to oil can.

E. Do not proceed with installation until conditions are satisfactory. Notify Architect in writing of unsatisfactory conditions.

F. Felting (for installation over solid substrate):

1. Verify #30 unperforated asphalt saturated roofing felt underlayment (in single layer, weather-lapped head 6", ends 18") has been installed over areas where solid sheathing is required and fastened in place.
2. Ensure felt installed horizontally, starting at eave to ridge with a 6" minimum overlap.
3. Ensure that all fasteners are totally flush with the substrate.

3.02 INSTALLATION:

A. General Installation Requirements:

1. Install roofing and flashings in accordance with accepted shop drawings and manufacturer's product data, within specified tolerances.
2. Isolate dissimilar metals and masonry or concrete from metals with bituminous coating. Use gasketed fasteners where required to prevent corrosive action between fastener, substrate and panels.
3. Limit exposed fasteners to extent indicated on shop drawings.
4. Anchorage shall allow for temperature expansion and

contraction movement without stress or elongation of panels, clips, or anchors. Attach clips to structural substrate using fasteners of size and spacing as determined by manufacturer's design analysis to resist specified uplift and thermal movement forces.

5. Coordinate flashing and sheet metal work to provide weathertight conditions at roof terminations. Fabricate and install in accordance with standards of SMACNA Manual using continuous cleats at all exposed edges.

B. Underlayment:

1. Assemble Retrofit open web framing members with necessary bracing as indicated on manufacturer shop drawings.
2. Install Retrofit Hat Section Purlins, spaced as indicated on plans.

C. Preformed Metal Panels:

1. Fasten clips with fasteners as recommended by manufacturer and at spacings as required for wind uplift.
2. Verify with manufacturer locations of fixed connections and expansion connections.
3. Roll form panels on site with Portable Roll Former in continuous, eave to ridge lengths. Take care to properly support long panels (support at max. 6' intervals).
4. Install starter and edge trim before installing roof panels.
5. Remove protective strippable film prior to installation of roof panels.
6. Install panels to either Continuous Clips per manufacturer's details.
7. Vinyl Weatherseal is factory-installed on Continuous Clip.
8. Seam Panel sidelaps using power-driven Seamer as recommended by manufacturer to ensure watertightness.
9. Erect metal roofing with lines, planes, rises and angles sharp and true, and plane surfaces free from objectionable wave, warp, dents, buckle or other physical defects with minimum oil canning.
10. Do not allow traffic on completed roof. If required, provide cushioned walk boards.
11. Protect installed roof panels and trim from damage caused by adjacent construction until completion of installation.
12. Remove and replace any panels or components which are damaged beyond successful repair.

D. Flashing:

1. Comply with SMACNA "Architectural Sheet Metal Manual" recommendations for installaion of work.
2. Conceal fasteners and expansion provisions wherever possible.
3. Fold back edges of concealed side of exposed edge to form hem.
4. Insert metal flashings into reglets, anchor with fasteners and wedges and seal joints.
5. Set sheet metal items level, true to line, and plumb.
6. Secure to wood with screws.
7. Set metal already partly formed in place and fasten to by means of cleats.
8. Use cleats to keep laps closed when face width exceeds 8" for 24 gauge steel.

3.03 FIELD QUALITY CONTROL

A. Tolerances:

1. Applicable erection tolerances: Maximum variation from true planes or lines shall be 1/4" in 20' - 0", 3/8" in 40' -0" or more.
2. Retrofit Roof Structural Roof Structural Subsystem are designed for minimum roof slope of 1/2:12 (refer to roof plans for areas and slope).

B. Manufacturer's Field Service:

1. Manufacturer's representative shall be present at each pre-installation and pre-roofing conference, and during set-up of manufacturer's field forming equipment.
2. Jointly examine roof structure with installer prior to beginning roof installation.
3. Manufacturer's representative shall be present during initial layout and installation of roofing system. Observe minimum of initial one week period of roof panel installation on daily basis, ensuring installer follows manufacturer's installation recommendations and shop drawings. Observe initial forming passes for fabrication within acceptable tolerances.
4. Visit Project site minimum bi-monthly for duration of installation period.
5. Examine completed installation for conformance to shop drawings. Notify installer and Contractor in writing of discrepancies.

3.03 CLEANING

A. Clean exposed surfaces of work promptly after completion of

INSTALLATION. TO PREVENT RUST STAINING ON FINISHED SURFACES, IMMEDIATELY REMOVE FILINGS PRODUCED BY DRILLING OR CUTTING.

B. CLEAN ROOF IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

C. CLEAN EXPOSED SURFACES OF ROOFING AND ACCESSORIES AFTER COMPLETION OF INSTALLATION. LEAVE IN CLEAN CONDITION AT DATE OF SUBSTANTIAL COMPLETION FOR PROJECT. TOUCH UP MINOR ABRASIONS AND SCRATCHES IN FINISH.

D. TOUCH UP EXPOSED FASTENERS USING PAINT FURNISHED BY ROOFING PANEL MANUFACTURER AND MATCHING EXPOSED PANEL SURFACE FINISH.

E. REMOVE ALL SCRAP AND CONSTRUCTION DEBRIS FROM THE SITE.

3.04 FINAL INSPECTION

A. FINAL INSPECTION WILL BE PERFORMED BY A FIRM APPOINTED AND PAID FOR BY THE OWNER IN ACCORDANCE WITH SECTION 01410.

END OF SECTION

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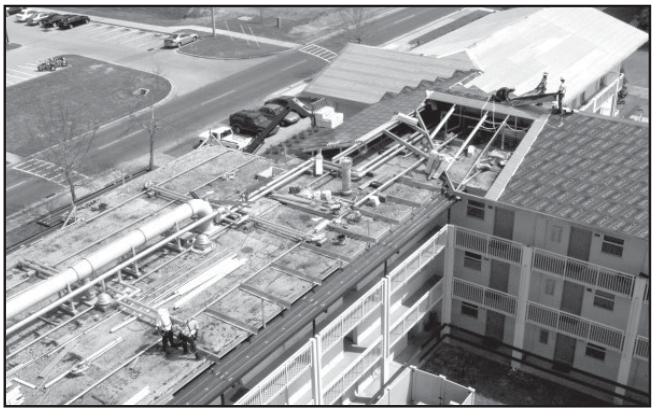
VANTAGE POINT RETROFIT ROOF SYSTEM

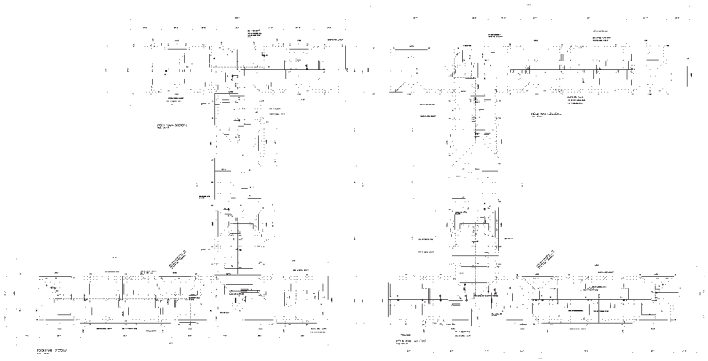
PROJECT PHOTOS



EGLIN AIR FORCE BASE
DORM 19 RENOVATION

The addition of central air conditioning and water chiller units to the massive dormitory structures at Eglin Air Force Base meant the addition of exposed ductwork and piping systems to the existing flat roofs. The solution was a new sloped standing seam roof structure to provide both aesthetics and weather protection.

General Contractor: Speegle Construction Co.
Architect: Heffernan Holland Morgan
Installer: Sheet Metal Masters, Inc.
Retrofit System: Berridge Vantage Point Retrofit Framing System
Roof System: Zee-Lock Standing Seam Roof System



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