HISTORIC AND DESIGN REVIEW COMMISSION

May 03, 2017

HDRC CASE NO:	**2017-194**
ADDRESS:	128 W MAGNOLIA AVE
LEGAL DESCRIPTION:	NCB 1836 BLK 11 LOT 1 & W 30 FT OF 2
ZONING:	MF-33 H
CITY COUNCIL DIST.:	1
DISTRICT:	Monte Vista Historic District
APPLICANT:	Cagney Rogers/Cagney Rogers Roofing Professionals
OWNER:	Marvin Miller Properties
TYPE OF WORK:	Roof replacement

REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to remove the existing flat tile roof and install a new standing seam metal roof on the primary structure.

APPLICABLE CITATIONS:

Historic Design Guidelines, Chapter 2, Exterior Maintenance and Alterations
3. Materials: Roofs
A. MAINTENANCE (PRESERVATION)
i. *Regular maintenance and cleaning*—Avoid the build-up of accumulated dirt and retained moisture. This can lead to the growth of moss and other vegetation, which can lead to roof damage. Check roof surface for breaks or holes and flashing for open seams and repair as needed.
B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)
i. *Roof replacement*—Consider roof replacement when more than 25-30 percent of the roof area is damaged or 25-30 percent of the roof tiles (slate, clay tile, or cement) or shingles are missing or damaged.
ii. *Roof form*—Preserve the original shape, line, pitch, and overhang of historic roofs when replacement is necessary.
iii. *Roof features*—Preserve and repair distinctive roof features such as cornices, parapets, dormers, open eaves with exposed rafters and decorative or plain rafter tails, flared eaves or decorative purlins, and brackets with shaped ends.
iv. *Materials: sloped roofs*—Replace roofing materials in-kind whenever possible when the roof must be replaced. Retain and re-use historic materials when large-scale replacement of roof materials other than asphalt shingles is required (e.g., slate or clay tiles). Salvaged materials should be re-used on roof forms that are most visible from the public right-of-way. Match new roofing materials to the original materials in terms of their scale, color, texture, profile, and style, or select materials consistent with the building style, when in-kind replacement is not possible.
v. *Materials: flat roofs*—Allow use of contemporary roofing materials on flat or gently sloping roofs not visible from the public right-of-way.
vi. *Materials: metal roofs*—Use metal roofs on structures that historically had a metal roof or where a metal roof is appropriate for the style or construction period. Refer to Checklist for Metal Roofs on page 10 for desired metal roof specifications when considering a new metal roof. New metal roofs that adhere to these guidelines can be approved administratively as long as documentation can be provided that shows that the home has historically had a metal roof.
vii. *Roof vents*—Maintain existing historic roof vents. When deteriorated beyond repair, replace roof vents in-kind or with one similar in design and material to those historically used when in-kind replacement is not possible.

FINDINGS:

a. The structure located at 128 W Magnolia is an apartment complex with a symmetrical H-plan constructed in 1926 in the Colonial Revival style by builder W. N. Nagy. It features key Colonial Revival characteristics, including a front entrance accentuated by simplified columns, triple windows, and distinctive keystones above each window on center. The complex is a contributing structure in the Monte Vista Historic District. The applicant is proposing to replace the existing asphalt shingle roof with a metal standing seam roof.
b. The existing roof features six low-pitched hipped gables, two distinct symmetrical axes, and a minimal eave overhang. It is made of scalloped tile shingles with accentuated barrel tile ridge lines. Scalloped shingles, and

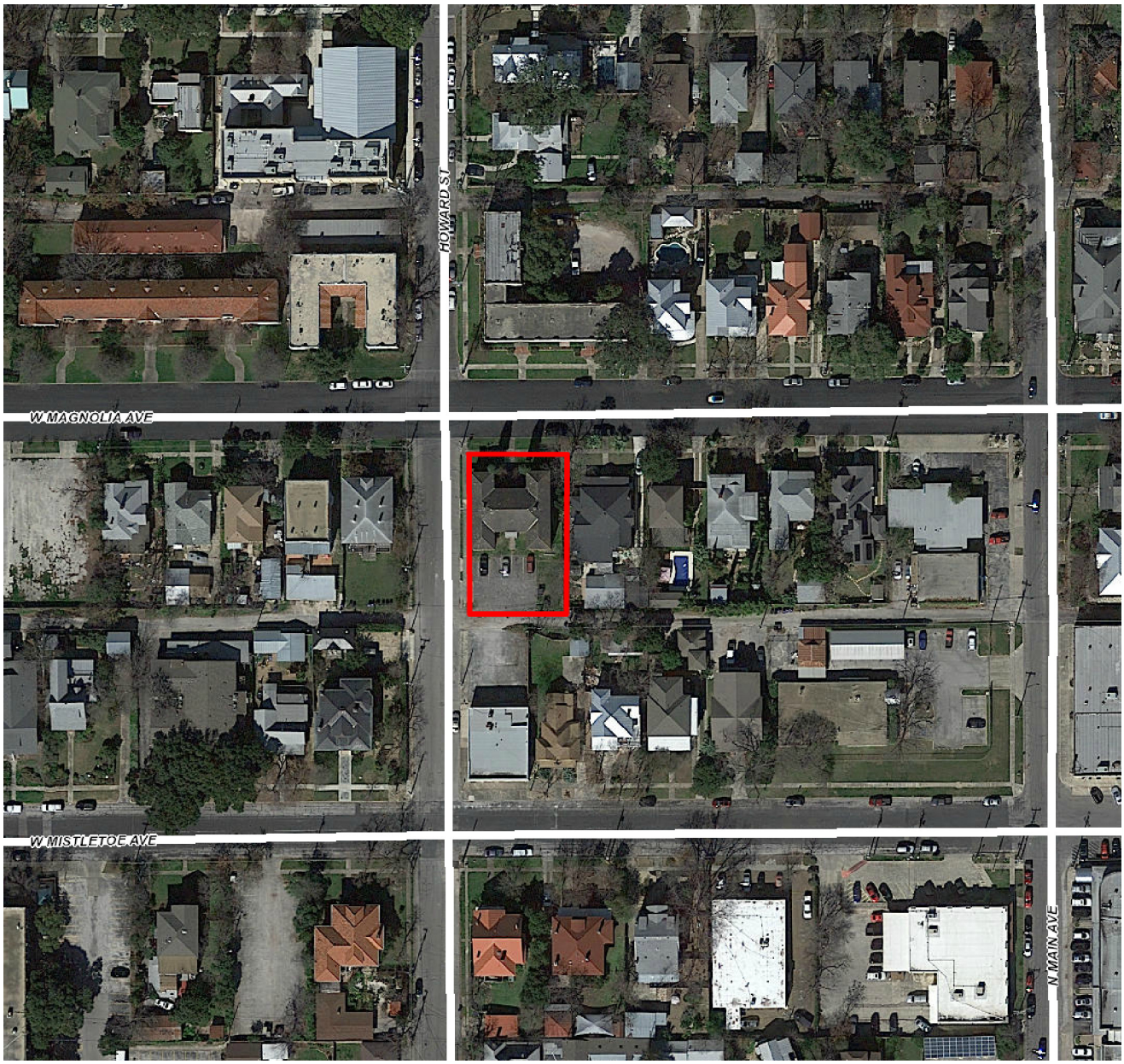
shingle roofs in general, are a character defining feature of Colonial Revival buildings. Additionally, the use of tiles, particularly barrel mission tiles on the ridge lines, is a unique feature of this structure, as it evokes a common Spanish Eclectic characteristic that suggests a blend of two styles common in both the district and period of construction in San Antonio. According to the Historic Design Guidelines, when roof replacement is required, replacement should utilize in-kind materials. Additionally, the guidelines stipulate that metal roofs may be installed if there is historic proof that a metal roof was used on the original structure, or if metal roofs are characteristic of the building's style. There is no evidence that a metal roof originally existed on this complex and metal roofs are not characteristic of Colonial Revival structures. Staff does not find the proposal consistent with the guidelines.

RECOMMENDATION:

Staff does not recommend approval of the roof replacement based on findings a and b. Staff recommends that the applicant meet with staff to determine the best available replacement materials.

CASE MANAGER:

Stephanie Phillips



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Flex Viewer

Powered by ArcGIS Server

Printed:Apr 27, 2017

North Side of Property(Front) Facing West Magnolia Ave

West Side facing Howard street

East side of property unable to get a un obstructed view of this side

South of property(Rear) Facing alley way

Scope of work to be performed at 128 West Magnolia Ave San Antonio Tx, 78212
This property has a Flat discontinued tile that is no longer made with no similar products on the market. Tile options would not properly represent existing materials. Standing Seam has been selected due to its durability and the amount of standing seam on west magnolia Ave

Staging and preparation: Stage Dumpsters/dump trucks on south side of building, Tarps/protection will be laid out where applicable to protect landscaping and buildings.

Removal of existing materials: The discontinued tile on the home will be properly removed and disposed of. Workers protection and state regulations will be reviewed and properly implemented during the tear off and disposal of existing roof system.

Inspection of decking and structural components of the roof system will be performed before the re install process begins.

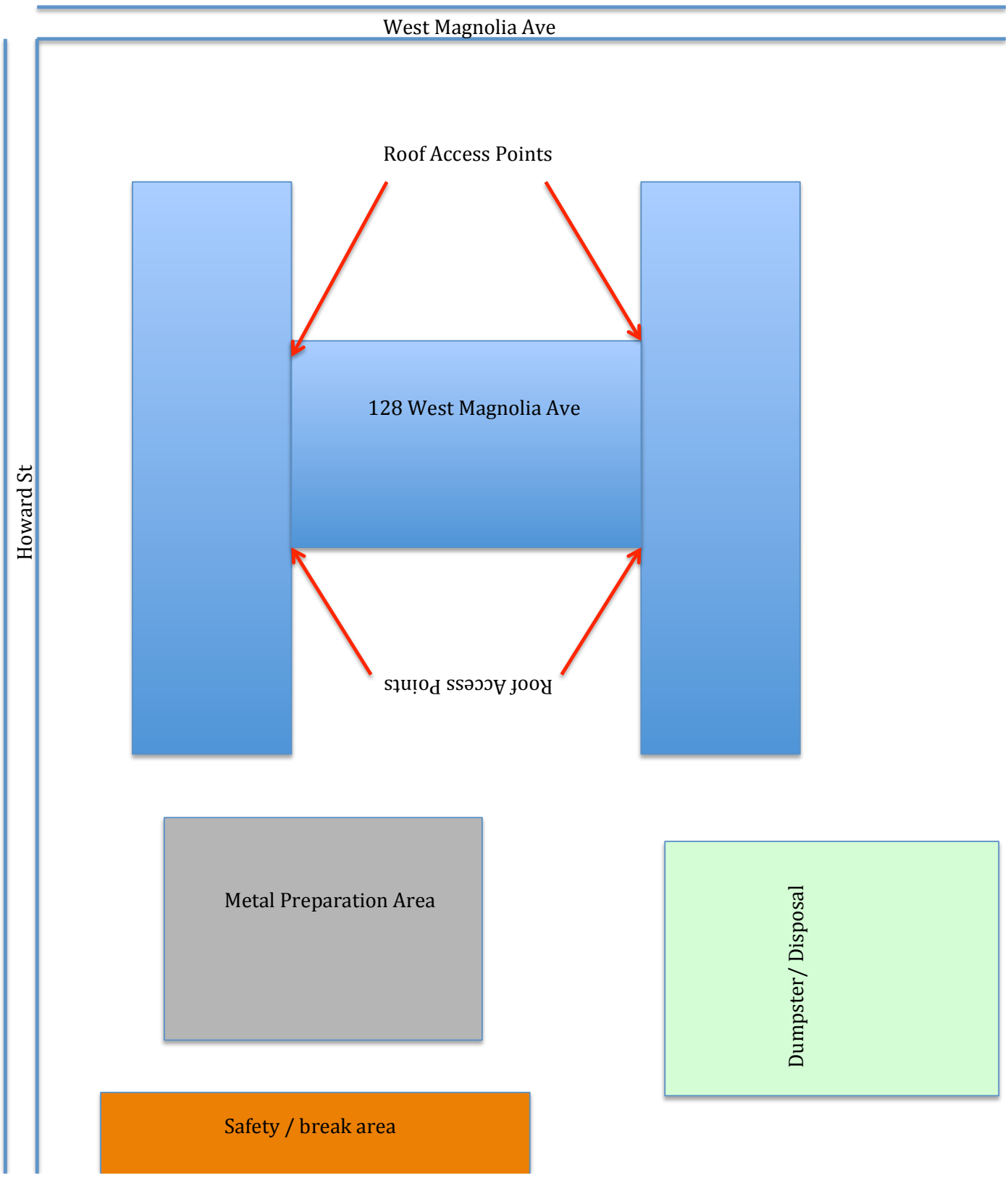
Installation of Underlayment: once all previous roof systems have been properly removed and the deck inspected a synthetic underlayment will be installed. The synthetic felt will be held down with cap nails. All penetrations of the roof system will be wrapped with ice and water shield. We will install ice and water shield in the valleys.

Installation of Standing Seam: Once the roof has been properly felted in installation of panels will begin. All panels will be formed onsite and installed according to manufactures specifications. Once all panels are installed all the proper closure pieces will be install according to specifications. The installation methods and specifications will meet or exceed city building codes.

Quality Assurance: all materials and hardware will be inspected before, during, and after installation. If problems arise recommendations by the manufacture will be followed. Installation methods will meet or exceed building codes and manufacture specifications. The worksite will be properly cleaned and all materials secure during non-work hours.

Clean Worksite: Once the roof system is properly installed and finished a detail cleaning of worksite will begin. The property will be restored to pre work conditions removing all debris from worksite.

Post Installation Inspection: A post job inspection will be performed with in 7 days of completion of the scope. Any 3rd party inspections will be need to be properly scheduled by all required parties


West Magnolia Ave
Howard St
Roof Access Points
128 West Magnolia Ave
Roof Access Points
Metal Preparation Area
Dumpster/ Disposal
Safety / break area

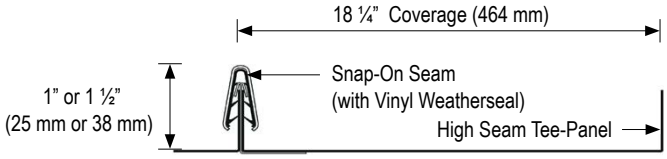
Berridge High Seam Tee-Panel

Metal Standing Seam with exclusive patented vinyl weatherseal as an integral part of Snap-On Seam. For residential or commercial construction with solid sheathing.

- **Available in 22 & 24 gauge steel & 0.032 aluminum**
- **Extruded vinyl weatherseal as integral part of Snap-on seam cap**
- **Concealed fasteners**
- **1" Tall Seam UL 90 wind uplift***
- **1.5" Tall Seam UL 90 wind uplift**
- **UL fire resistance listed***
- **ASTM air & water resistance tested***
- **Florida Product Approval**
- **Class 4 hail resistance tested***
- **May be site-formed in continuous lengths with Berridge SS-1421 portable roll former**
- **May be curved. Refer to Curved High Seam Tee Panel data sheet.**

Unless otherwise noted, all testing is for steel only
* Approved for steel and aluminum

(Shown with Striations which are standard)



See www.berridge.com for Details and Specifications
Vinyl Weatherseal: US Patent No. 4641475

SPECIFICATIONS

(Request complete specifications from factory)

Furnish and install Berridge High Seam Tee-Panel Standing Seam System as manufactured by Berridge Manufacturing Company, San Antonio, Texas.

MANUFACTURE:
Panels shall be roll-formed in continuous lengths from coil with the Berridge SS-1421 Portable Roll-Former. Seam height shall be 1" or 1½" and seam spacing shall be 18-1/4" on-center. Snap-on seams shall contain an extruded vinyl weather seal insert. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration through the standing seam system when tested in accordance with ASTM E331-86. Where required, panel assembly shall be Underwriter's Laboratory UL90, pursuant to Construction Number 297 & 475 for galvalume and 296 for 1" seam aluminum. Entire roof area shall be covered with a minimum of one layer of approved underlayment.

MATERIAL AND FINISH
(See web site: www.berridge.com)

CONSTRUCTION DETAILS
(See web site: www.berridge.com)

Berridge Manufacturing Company
6515 Fratt Road
San Antonio, Texas 78218
(800) 669-0009 • **www.berridge.com**

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A. BERRIDGE HIGH SEAM TEE PANEL IS AVAILABLE IN A PAN WIDTH OF 18 1/4" AND A SEAM HEIGHT OF 1" OR 1 1/2".

PANELS ARE FACTORY FABRICATED AND OR FIELD FABRICATED USING THE BERRIDGE MODEL SS-1421 PORTABLE ROLL FORMER.

WHEN SPECIFYING COIL FOR FIELD FORMED PANELS, PLEASE NOTE EACH SEAM HEIGHT REQUIRES A DIFFERENT WIDTH COIL.

PANELS MUST BE CURVED IN THE FIELD WITH THE BERRIDGE SS-1421 PORTABLE ROLL FORMER. THE MINIMUM RADIUS FOR THE 1 1/2" SEAM HEIGHT IS 8'-0" AND FOR THE 1" SEAM HEIGHT THE MINIMUM RADIUS IS 5'-0". CURVED PANELS CAN BE EITHER SMOOTH OR STRIATED.

FOR MULTIPLE RADIUSES THE 1" SEAM HEIGHT CAN BE FIELD ADJUSTED REFERENCE OPERATIONS MANUAL; THE 1 1/2" SEAM HEIGHT REQUIRES PRIOR TRAINING OF FIELD PERSONAL OR FACTORY ADJUSTMENT BY BERRIDGE.

A FOLDING TEE-CLIP IS AVAILABLE FOR CURVED APPLICATIONS OF THE 1" PANEL. AND 1 1/2" PANEL SEAM, REVIEW DETAIL HT-65 FOR INSTALLATION INSTRUCTIONS.

PLEASE CONTACT BERRIDGE MANUFACTURING COMPANY FOR FURTHER INFORMATION REGARDING THE BERRIDGE PORTABLE ROLL FORMERS.

B. MINIMUM SLOPE: THE HIGH SEAM TEE PANEL IS RECOMMENDED FOR SLOPES OF 1:12 AND GREATER IN MOST AREAS OF THE COUNTRY. IN HEAVY SNOW AREAS OR AREAS WHERE FREEZE-THAW CYCLES ARE PREVALENT, A MINIMUM ROOF SLOPE OF 3:12 IS RECOMMENDED.

A DOUBLE LAYER OF NUMBER THIRTY FELT UNDERLAYMENT OR EQUAL COVERING THE ENTIRE SUBSTRATE IS RECOMMENDED FOR ALL APPLICATIONS WHERE THE ROOF SLOPE IS BETWEEN 3:12 AND 1:12.

W.R. GRACE 40 MIL ICE AND WATERSHIELD OR EQUAL IS REQUIRED ON ALL CURVED INSTALLATIONS.

C. MATERIAL STORAGE: CAUTION MUST BE EXERCISED IN STORAGE OF MATERIALS PRIOR TO INSTALLATION. KEEP ALL BERRIDGE PREFINISHED MATERIAL IN A DRY LOCATION WITH ADEQUATE VENTILATION AND OUT OF DIRECT SUNLIGHT.

EXPOSURE TO DIRECT SUNLIGHT AND/OR MOISTURE MAY CAUSE THE FACTORY APPLIED STRIPPABLE PLASTIC FILM TO ADHERE TO THE METAL PERMANENTLY AND DISCOLOR THE FINISH.

D. STRIPPABLE FILM: THE STRIPPABLE PLASTIC FILM WHICH IS APPLIED OVER MOST BERRIDGE PREFINISHED PRODUCTS, PANELS, FLASHINGS, COILS AND FLAT SHEETS PROTECTS THE FINISH DURING FABRICATION AND TRANSIT. THIS FILM MUST BE REMOVED PRIOR TO INSTALLATION.

E. SOLID SHEATHING REQUIREMENTS: BERRIDGE MANUFACTURING COMPANY RECOMMENDS THE USES OF EITHER BERRIDGE 24 GA. CORRUGATED METAL (NOMINAL 2.67" PITCH x 7/8" DEPTH) OR A MINIMUM OF 1/2" SOLID WOOD SHEATHING TO PROVIDE SUFFICIENT HOLDING POWER FOR FASTENERS. CONTACT BERRIDGE MANUFACTURING'S ENGINEERING DEPARTMENT FOR USE OF ANY OTHER TYPE OF SOLID SHEATHING.

DUE TO # 30 FELTS TENDENCY TO TEAR WHEN USED OVER CORRUGATED DECKING, BERRIDGE MANUFACTURING RECOMMENDS 40 MIL GRACE ICE AND WATERSHIELD OR EQUAL TO BE USED AS AN UNDERLAYMENT FOR ALL CORRUGATED DECKS.

NOTE: FOR PROJECTS REQUIRING UL 90 ASSEMBLY, REFER TO UL 90 DETAILS.

F. SHEATHING INSPECTION:

1. SHEATHING END JOINTS SHOULD BE STAGGERED.
2. ALL END JOINTS SHOULD MEET AT EITHER A JOIST OR RAFTER.
3. BLOCKING OR "H" CLIPS SHOULD BE USED ON PLYWOOD IF JOINTS DO NOT REMAIN FLAT UNDER THE WEIGHT OF WORKMEN.
4. USE SHIMS TO KEEP ENTIRE SUBSTRATE EVEN. UNEVEN SUBSTRATE WILL RESULT IN "OIL-CANNING" IN PANELS. SUBSTRATE SHOULD BE LEVEL TO 1/4" IN 20'-0".
5. ALL CUTS AT PENETRATIONS SHOULD BE TIGHT, WITHOUT GAPS.
6. USE WOOD FRAMED CRICKETS AT LARGE PENETRATIONS.
7. MAKE SURE SUBSTRATE JOINTS ARE TIGHT AT ALL HIPS, VALLEYS AND RIDGES.

G. FASCIA/RAKE INSPECTION:

1. STRIKE A LINE THE FULL LENGTH OF THE FASCIA OR RAKE. IF NOT STRAIGHT, CORRECT WITH SHIMS.
2. MAKE SURE FASCIA/RAKE IS FLUSH WITH ROOF SUBSTRATE SHEATHING.

H. FELT UNDERLAYMENT: A SINGLE LAYER OF NUMBER THIRTY FELT UNDERLAYMENT (OR EQUAL) MUST BE APPLIED OVER SOLID SHEATHING AS SHOWN IN THE BERRIDGE MANUFACTURING COMPANY TYPICAL UNDERLAYMENT DETAILS. THE USE OF ADDITIONAL LAYERS OF NUMBER THIRTY FELT IS RECOMMENDED ON LOW-SLOPED ROOFS, AT ALL VALLEY CONDITIONS, AT ROOF PENETRATIONS, AND CERTAIN OTHER FLASHING CONDITIONS AS DEPICTED IN THE HIGH SEAM TEE PANEL TYPICAL DETAILS. GRACE ICE AND WATER-SHIELD MAY BE REQUIRED ON LOW SLOPED ROOFS OR AT CERTAIN FLASHING CONDITIONS.

I. FELTING INSTALLATION:

1. DO NOT USE RED ROSIN PAPER UNDER METAL ROOFING PANELS.
2. SWEEP ROOF AREA CLEAN.
3. USE FLAT HEAD GALVANIZED ROOFING NAILS x 1-1/4" LONG WITH BERRIDGE GALVANIZED FELT CAPS.
4. INSTALL VALLEY FELT FIRST.
5. INSTALL FELT PARALLEL TO EAVE (2 LAYERS REQUIRED AT EAVE), STARTING AT EAVE AND USING MINIMUM 6" LAPS. USE TWO LAYERS OF FELT ON ENTIRE ROOF DECK IF ROOF SLOPE BETWEEN 1:12 AND 3:12. 2 LAYERS REQUIRED AT EAVE REGARDLESS OF SLOPE.
6. INSULATE BETWEEN WOOD BLOCKING AND METAL WITH FELT OR ICE AND WATER SHIELD.

7. VERIFY CORRECT METHOD OF INSTALLING ICE AND WATERSHIELD WITH ICE AND WATERSHIELD MANUFACTURER.

J. THERMAL MOVEMENT: EXPANSION AND CONTRACTION OF PANELS WHICH EXCEEDS THIRTY FEET IN LENGTH CAN BE A FACTOR IN THE DESIGN AND INSTALLATION OF FLASHINGS AND PANELS. PLEASE REFER TO EXPANSION CHART ON PAGE HTI-6 TO DETERMINE ANTICIPATED THERMAL MOVEMENT OF PANELS. IMPROPERLY DESIGNED FLASHING MAY CAUSE PANELS TO DISENGAGE FROM FLASHING, ALLOWING OIL-CANNING IN PANEL AND/OR CAUSE FLASHING TO WORK LOOSE FROM ITS ANCHORAGE.

K. ELECTROLYSIS: PREVENT EXPOSURE TO WATER RUNDOWN FROM COPPER AND/OR LEAD. AVOID ALLOWING FLASHING AND PANELS TO COME INTO CONTACT WITH EITHER LEAD OR COPPER.

L. FLASHING: IF BERRIDGE MANUFACTURING COMPANY IS TO SUPPLY FLASHINGS, ALL FLASHINGS SHALL BE FABRICATED IN 10'-0" LENGTHS WITH SQUARE END CUTS ONLY. THE PURCHASER MUST PROVIDE ALL DIMENSIONS AND DEGREE OF ANGLES.

M. FLASHING INSTALLATION:

1. REMOVE STRIPPABLE PLASTIC FILM FROM ALL FLASHINGS PRIOR TO INSTALLATION.
2. ALWAYS STAGGER JOINTS WHEN TWO ROWS OF FLASHING OCCUR.
3. INSTALL ALL FLASHINGS AS PER BERRIDGE TYPICAL DETAILS.
4. ALL FLASHINGS ARE TO BE DESIGNED AND INSTALLED NOT TO TRAP WATER.

N. PANELS: BERRIDGE MANUFACTURING COMPANY WILL PROVIDE SQUARE END CUTS ONLY ON ALL HIGH SEAM TEE PANELS. COMPUTATION OF ALL QUANTITIES AND DIMENSIONS ARE THE RESPONSIBILITY OF THE PURCHASER.

O. PANEL INSTALLATION:

1. REMOVE STRIPPABLE PLASTIC FILM FROM EACH PANEL PRIOR TO INSTALLATION.
2. DETERMINE CENTER LINE OF ROOF AREA AND START PANEL INSTALLATION AT THE CENTER OF THE ROOF, WORKING TOWARD THE GABLE ENDS. MAKE SURE PANELS ARE PERPENDICULAR TO EAVE. AT VALLEY AREAS, MAKE SURE PANELS ARE INSTALLED SO THAT DRAINAGE HAS FREE FLOW AND IS NOT OBSTRUCTED BY PANEL SEAMS.
3. INSTALL HIGH SEAM TEE PANEL CLIPS AS PER BERRIDGE TYPICAL DETAILS AND TEE-CLIP INSTALLATION NOTES.
4. EACH PANEL IS TO BE KEPT TIGHT AGAINST THE LEG OF THE ADJOINING PANEL. NEVER PERMIT A GAP BETWEEN VERTICAL LEGS. ANY CRIMPS IN VERTICAL LEGS MUST BE STRAIGHTENED (TOTALLY STRAIGHT WITHOUT ANY BENDS, CRIMPS, CREASES, ETC.) PRIOR TO SEAM INSTALLATION.
5. ALWAYS INSTALL SEAM AS YOU INSTALL EACH PANEL. DO NOT INSTALL PANELS FIRST AND THEN FOLLOW LATER WITH SEAM INSTALLATION.
6. KEEP PANELS ALIGNED SO THAT SEAMS MATCH AT HIPS, VALLEYS AND WHERE VERTICAL PANELS ADJOIN ROOF PANELS. DO NOT INSTALL LONG CONTINUOUS RUNS OF PANELS ALL AT ONE TIME WHERE SEAM LINES MUST MATCH. INSTALL 10 OR 12 PANELS IN ONE ELEVATION AND THEN FOLLOW WITH A LIKE NUMBER OF PANELS ON

THE OTHER ELEVATION. WHEN YOU INSTALL PANELS IN THIS MANNER, YOU WILL BE ABLE TO MAKE ANY ADJUSTMENTS REQUIRED TO INSURE SEAM MATCHING.

7. COPPER-COTE;™ CHAMPAGNE, LEAD-COTE;™ AND PREWEATHERED GALVALUME® PANEL INSTALLATION: NOTE THE SERIES OF ARROWS PAINTED ON THE UNDERSIDE OF THE PANEL. ALL PANELS MUST BE INSTALLED IN A CONSISTENT MANNER; MEANING THAT THE ARROWS ON EVERY PANEL ARE ALL POINTING IN THE SAME DIRECTION. IF A PANEL IS REVERSED (ARROWS POINTING OPPOSITE OF THOSE ON OTHER PANELS) IT WILL APPEAR, FROM A DISTANCE, A DIFFERENT SHADE DUE TO THE GRANULAR EFFECT OF THE PIGMENTS IN THE FINISH. METALLIC FINISHES ARE MATCH – LOT FINISHES. DO NOT MIX LOTS.

P. SNAP-ON SEAM: BERRIDGE PATENTED SNAP-ON SEAMS HAVE BEEN LABORATORY TESTED ON BOTH SOLID WOOD SUBSTRATE AND METAL FRAMING, BOTH ASSEMBLIES SHOWED NO

SIGNIFICANT LEAKAGE IN ACCORDANCE WITH THE ASTM E 283-84 AND ASTM E 331-86 AIR AND WATER INFILTRATION TESTS. TEST REPORTS ARE AVAILABLE UPON REQUEST.

Q. SNAP-ON SEAM INSTALLATION:

1. INSTALL SEAMS WITH HAND PRESSURE ONLY. DO NOT POUND OR HAMMER SEAMS INTO PLACE; THIS WILL DAMAGE THE SEAM AND VINYL, PERMITTING WATER INFILTRATION.

2. INSPECT EACH SEAM AS YOU INSTALL IT TO MAKE SURE THE VINYL IS PROPERLY SEATED IN THE METAL CAP AND IS SNUGLY FITTED NEXT TO THE PANEL LEGS.

3. USE TWO (2) WORKERS (OR MORE, DEPENDING ON SEAM LENGTH) TO INSTALL SEAMS; ONE WORKER (OR WORKERS) HOLDING ONE END OF THE SEAM AT AN ANGLE OFF THE ROOF SURFACE AND THE OTHER WORKER INSERTING THE SEAM OVER THE PANEL LEGS.

R. TEE-CLIP INSTALLATION:

1. THE CLIPS ARE TO BE INSTALLED AS SHOWN IN THE BERRIDGE TEE-PANEL DETAILS.
2. CLIP SPACING IS TYPICALLY TWENTY (20) INCHES ON CENTER.*

S. FASTENERS: INSTALL FASTENERS AS PER TYPICAL DETAILS. USE 11 GAUGE 1-1/4" GALVANIZED ROOFING NAILS FOR INSTALLATION OVER WOOD SHEATHING AND USE #10 PANCAKE HEAD TEKS FASTENERS (ZINC-PLATED SCREW WITH PHILLIPS INSERT, AS MADE BY CONSTRUCTION FASTENERS CO.) FOR INSTALLATION TO METAL.** WHEN USING POP RIVETS ON FLASHING, STAINLESS STEEL RIVETS ARE RECOMMENDED TO AVOID RUST RUST STAINS.

MAKE SURE ALL FASTENERS ARE DRIVEN STRAIGHT AND SET FLAT. DO NOT OVERDRIVE FASTENERS, AS THIS WILL CAUSE THE CLIP AND/OR FLASHINGS TO BUCKLE OR BECOME RECESSED BELOW THE ELEVATION OF THE SUBSTRATE.

* NOTE: IF LOCAL CODES OR OTHER REGULATIONS DICTATE SPECIFIC WIND UPLIFT REQUIREMENTS, CONSULT THE BERRIDGE ENGINEERING DEPARTMENT, AS IT MAY BE NECESSARY TO USE A DIFFERENT CLIP SPACING OR FASTENER.

** CONSULT BERRIDGE MANUFACTURING'S ENGINEERING DEPARTMENT REGARDING THE USE OF ANY OTHER TYPE OF FASTENER.

T. UNDERWRITERS LABORATORIES RATINGS:
THE FOLLOWING UL RATINGS: THE BERRIDGE HIGH SEAM TEE-PANEL COMPLIES WITH

1. NO. 580 "TEST FOR WIND UPLIFT RESISTANCE OF ROOF ASSEMBLIES" CLASS UL 90 (REFER TO BERRIDGE TYPICAL DETAIL HT-90, 91 & 92)

2. UL FIRE–RESISTANT ROOF ASSEMBLIES: UL DESIGN NUMBERS P224,P225, P227, P230, P237, P250, P259, P508, P510, P512, P514, P518, P701, P711, P713, P717, P719, P720, P722, P723, P724, P726, P731, P734, P736, P801, P803, P814, P815, P818, P819, P823, AND P824.
REFER TO BERRIDGE TYPICAL DETAILS HT–92, HT–93, AND HT–94.

U. SEALANT RECOMMENDATIONS: TREMCO INC. SPECTREM 1 OR EQUAL.
DO NOT USE CLEAR CAULK.

* NOTE: IF LOCAL CODES OR OTHER REGULATIONS DICTATE SPECIFIC WIND UPLIFT REQUIREMENTS, CONSULT THE BERRIDGE ENGINEERING DEPARTMENT, AS IT MAY BE NECESSARY TO USE A DIFFERENT CLIP SPACING OR FASTENER.

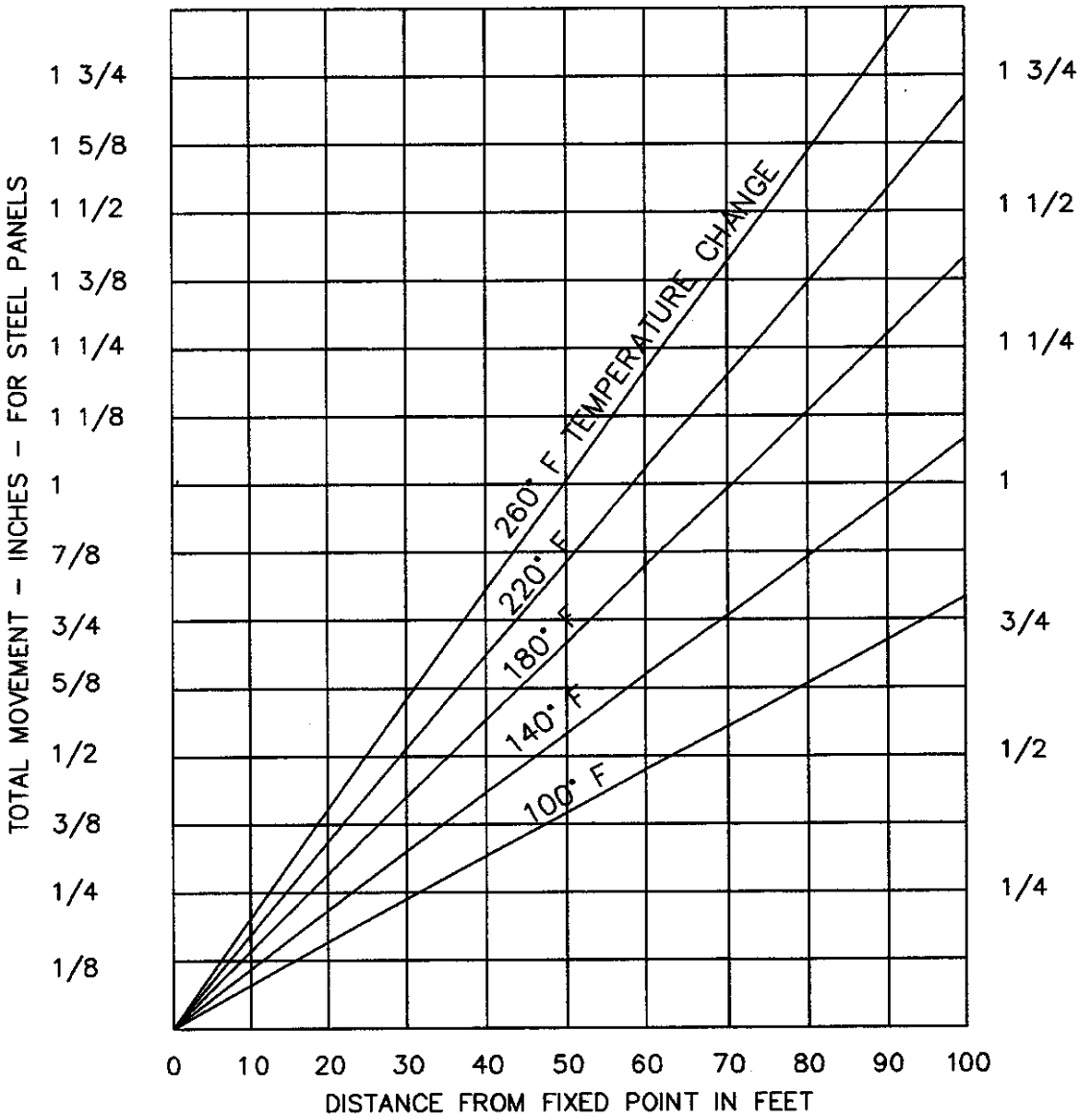
** CONSULT BERRIDGE MANUFACTURING'S ENGINEERING DEPARTMENT REGARDING THE USE OF ANY OTHER TYPE OF FASTENER.

BERRIDGE MANUFACTURING COMPANY STRIVES TO PROVIDE ITS CUSTOMERS WITH THE HIGHEST QUALITY STRETCHER LEVELED STEEL AVAILABLE. THE LATEST TECHNOLOGY IS ALSO INCORPORATED IN BERRIDGE'S HIGH–PRECISION COIL HANDLING AND ROLL FORMING EQUIPMENT TO MINIMIZE THE STRESS ON METAL DURING PRODUCTION. FURTHERMORE, BERRIDGE UTILIZES HEAVIER 24 GAUGE METAL RATHER THAN 26 GAUGE STEEL OR LIGHT GAUGE ALUMINUM AS OFFERED BY MANY COMPETITORS. ALL THESE MEASURES HAVE BEEN TAKEN TO MINIMIZE THE AMOUNT OF "OIL–CANNING" (WAVINESS) WHICH IS NATURALLY INHERENT IN FLAT SHEET METAL. MANY TIMES, HOWEVER, THE CAUSE OF WAVINESS OR "OIL–CANNING" CAN BE TRACED TO UNEVEN SHEATHING, IMPROPER FELT INSTALLATION, IMPROPER HANDLING, OR FOOT TRAFFIC ON THE PANELS.

ALL ARCHITECTURAL PANELS REQUIRE CARE IN HANDLING AND INSTALLATION TO AVOID DAMAGING OR DEFORMING THE PANELS.

THESE INSTALLATION INSTRUCTIONS AND THE FOLLOWING TYPICAL DETAILS ARE INTENDED TO PROVIDE OUR CUSTOMERS WITH THE INFORMATION REQUIRED FOR AN AESTHETICALLY PLEASING AND FUNCTIONAL INSTALLATION OF THE BERRIDGE TEE–PANEL SYSTEM.

NOTE: ALL PRODUCTS, SPECIFICATIONS, DETAILS, AND INSTRUCTIONS SUBJECT TO CHANGE WITHOUT NOTICE. FOR SPECIFIC PROJECT DETAILS, CONTACT BERRIDGE.



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 ABOVE CHART EMPHASIZES THE NEED TO PROVIDE AMPLE CLEARANCES FOR GUTTERS, RIDGES, END WALLS, ETC.

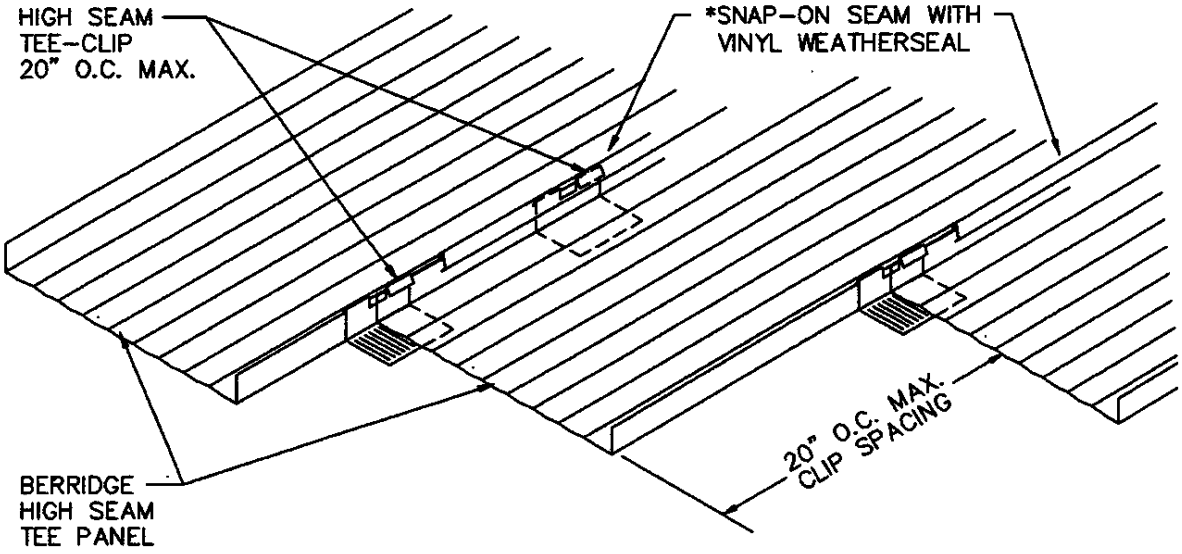
MAXIMUM TEMPERATURE SHOULD BE NO LOWER THAN 140° F FOR WHITE PANELS, UP TO 180° F FOR DARK PAINTED PANELS, REGARDLESS OF AMBIENT MAXIMUM. MINIMUM SHOULD BE FIGURED WELL BELOW AMBIENT MINIMUM TO ALLOW FOR RADIATION TO NIGHT SKY. IN ANY CASE, A MINIMUM OF 100° F DIFFERENTIAL IS RECOMMENDED.

DATE: 12/11/01	INSTALLATION INSTRUCTIONS NOMINAL LINEAR EXPANSION	Berridge Manufacturing Company Roofs of Distinction
PAGE\FILE **HTI-6**	**HIGH SEAM TEE PANEL**	

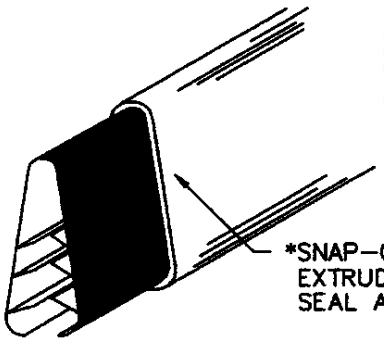
THE DETAILS CONTAINED IN THE FOLLOWING PAGES ARE MERELY RECOMMENDATIONS AS TO HOW BERRIDGE MANUFACTURING MATERIALS SHOULD BE INSTALLED. THEY MAY REQUIRE ADAPTATIONS OR MODIFICATIONS FOR A SPECIFIC PROJECT AS CONDITIONS VARY IN BOTH BUILDING DESIGN AND LOCAL WEATHER PECULIARITIES.

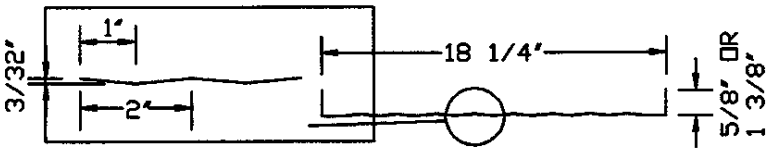
BERRIDGE MANUFACTURING COMPANY SHALL BE HELD HARMLESS FROM ANY AND ALL CLAIMS ARISING FROM A LACK OF WATERTIGHTNESS AS A RESULT OF FOLLOWING THESE RECOMMENDED DETAILS. ENSURING WATERTIGHTNESS ON ANY GIVEN PROJECT IS THE FUNCTION OF THE INSTALLER. THE ARCHITECT/GENERAL CONTRACTOR/INSTALLER MUST ACCEPT THE RESPONSIBILITY TO ADAPT THESE DETAILS TO MEET PARTICULAR BUILDING REQUIREMENTS AND TO ASSURE ADEQUATE WATERTIGHTNESS.

THE INSTALLER CAN VIRTUALLY ASSURE WATERTIGHTNESS IF THESE FLASHING DETAILS HAVE BEEN PROPERLY ADAPTED, ADEQUATE LAPS HAVE BEEN PROVIDED, CORRECT TYPE OF SEALANT USED, ALL JOINTS ADEQUATELY CAULKED AND PROFESSIONAL WORKMANSHIP EMPLOYED.

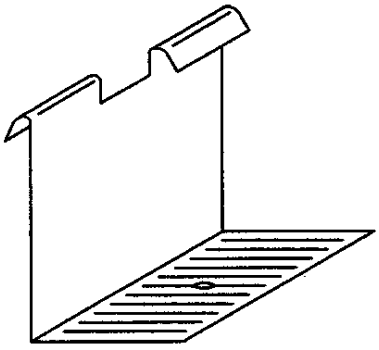


*SNAP-ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.



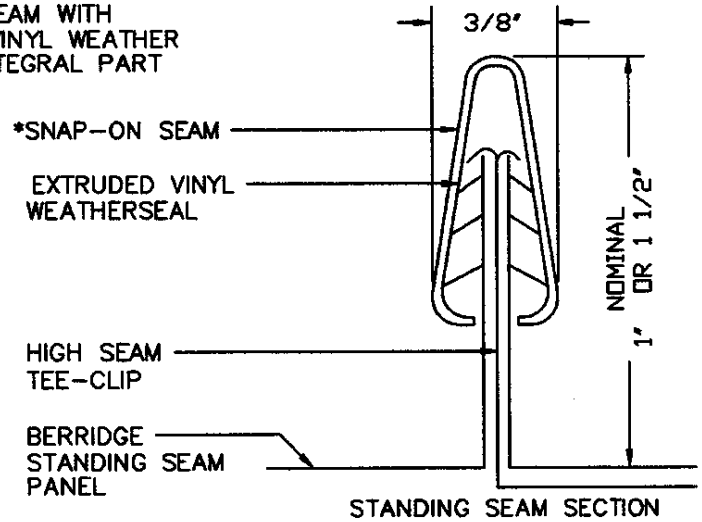


HIGH SEAM TEE PANEL SECTION
RIGID PROFILE STANDARD



USE TEE CLIP FOR 1" PANEL

USE HIGH SEAM TEE CLIP
FOR 1 1/2" PANEL



STANDING SEAM SECTION

Berridge Manufacturing Company
Roofs of Distinction

OVERVIEW HIGH SEAM TEE PANEL STANDING SEAM SYSTEM

DATE: 12/11/01

HIGH SEAM TEE PANEL

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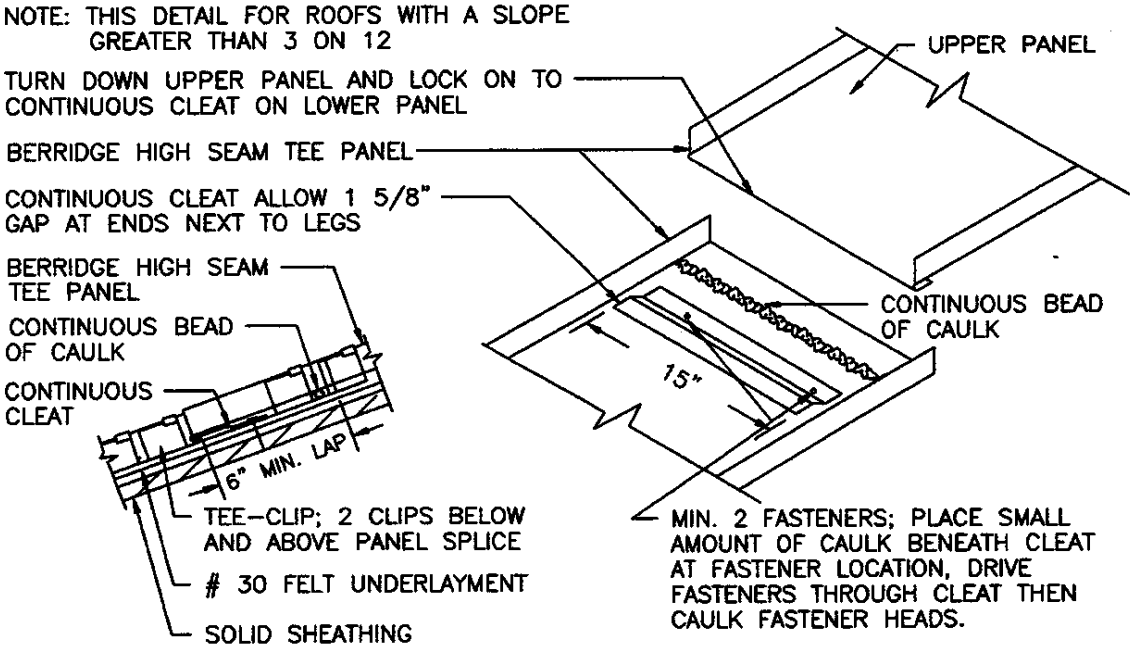
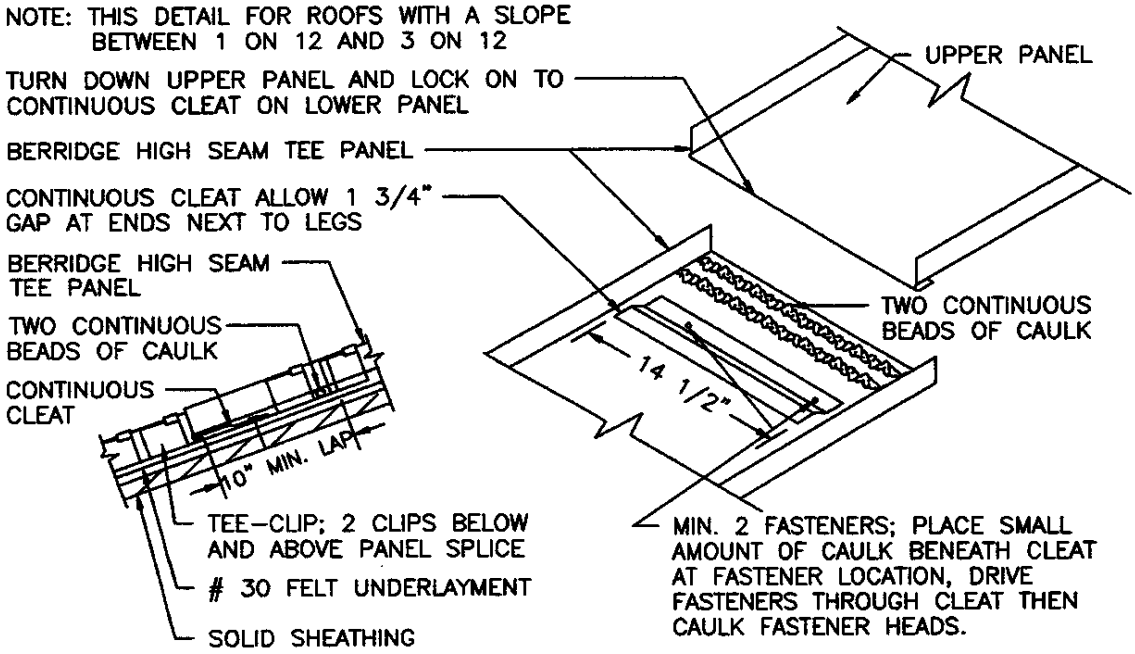
HT-4

NOTE: THIS DETAIL FOR ROOFS WITH A SLOPE GREATER THAN 3 ON 12



NOTE: THIS DETAIL FOR ROOFS WITH A SLOPE BETWEEN 1 ON 12 AND 3 ON 12



DATE: 12/11/01

HIGH SEAM TEE PANEL SPLICE DETAIL

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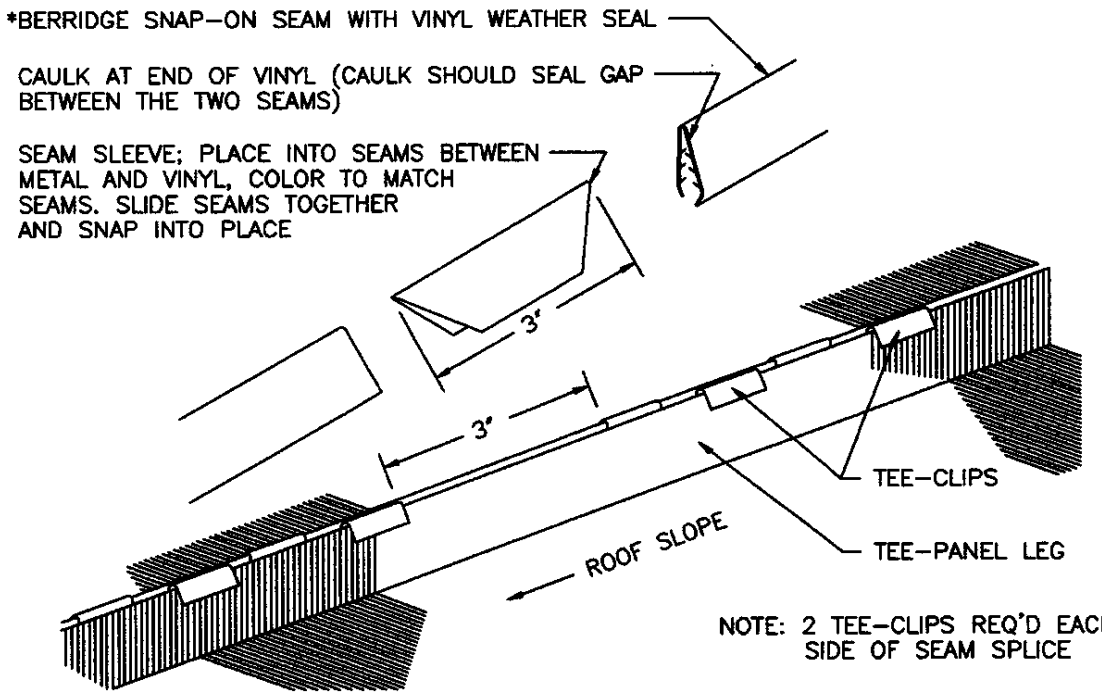
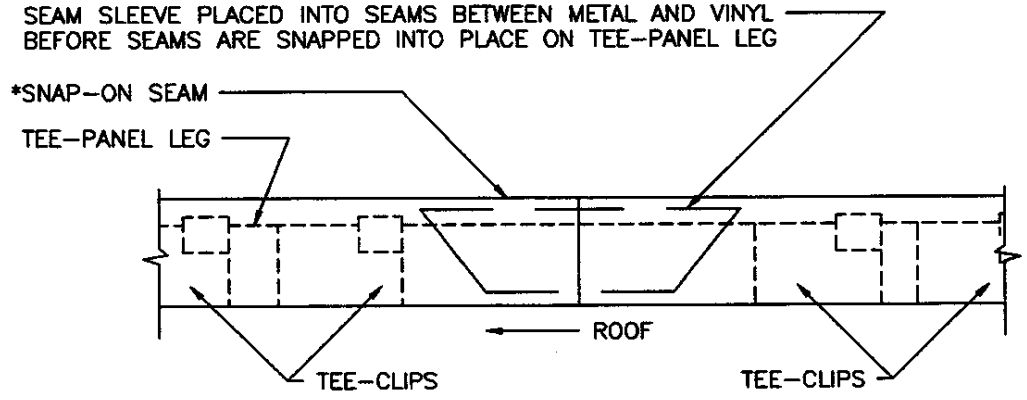
HIGH SEAM TEE PANEL

Berridge Manufacturing Company
Roofs of Distinction



NOTE: 2 TEE–CLIPS REQ'D EACH SIDE OF SEAM SPLICE



NOTE: 1) SPLICES IN SEAMS AND PANELS SHOULD BE STAGGERED. NEVER SPLICE A PANEL AND A SEAM AT THE SAME LOCATION.

2) TWO TEE–CLIPS REQUIRED AT EACH SIDE OF SEAM SPLICE.

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

Berridge Manufacturing Company
Roofs of Distinction

SEAM SPLICE DETAIL

DATE: 12/11/01

HIGH SEAM TEE PANEL

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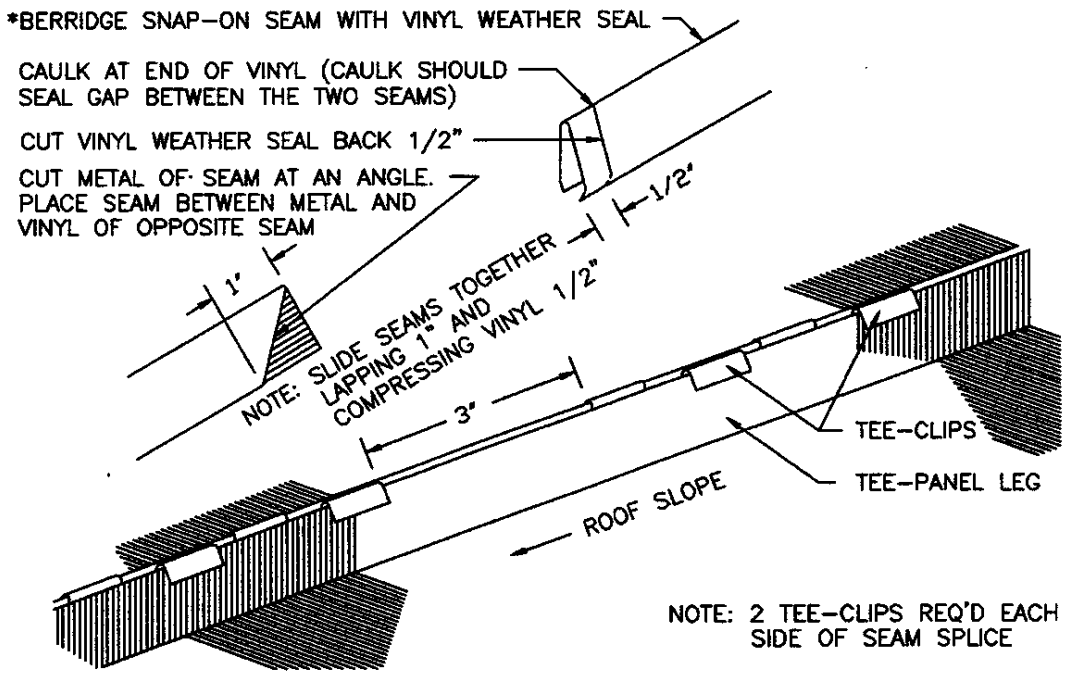
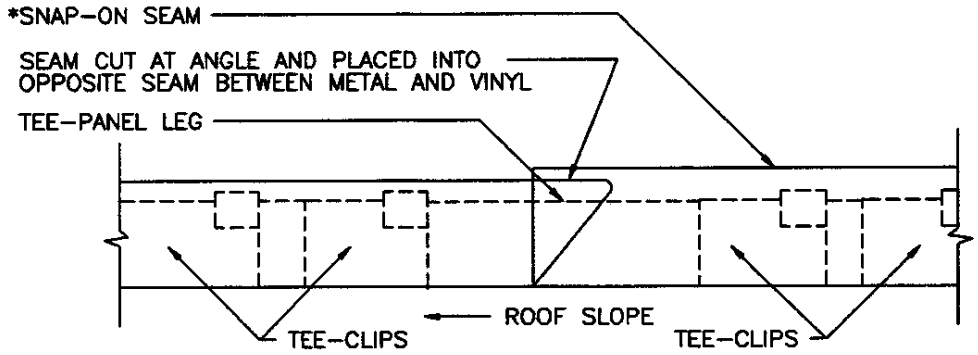


NOTE: 2 TEE-CLIPS REQ'D EACH SIDE OF SEAM SPLICE

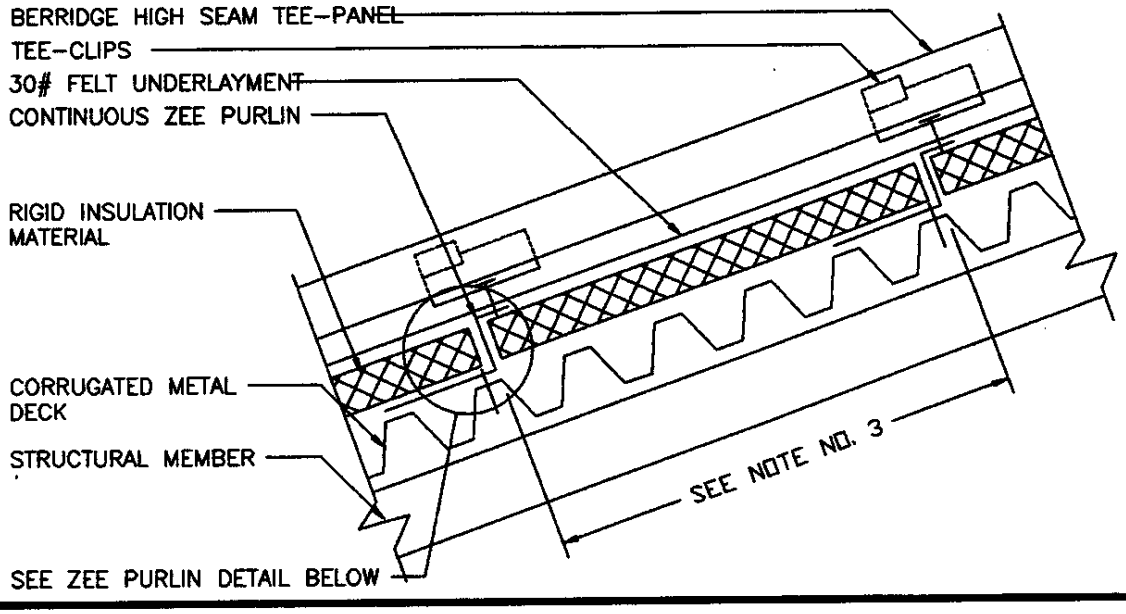


NOTE: 1) SPLICES IN SEAMS AND PANELS SHOULD BE STAGGERED. NEVER SPLICE A PANEL AND A SEAM AT THE SAME LOCATION.

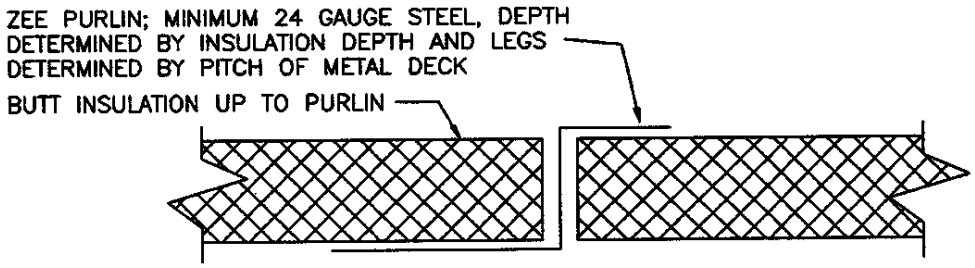
2) TWO TEE-CLIPS REQUIRED AT EACH SIDE OF SEAM SPLICE.

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

DATE: 12/11/01	ALTERNATE SEAM SPLICE DETAIL	Berridge Manufacturing Company. Roofs of Distinction
PAGE\FILE HT-7	HIGH SEAM TEE PANEL	



1. ALL 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 EXACT SAME DEPTH AS INSULATION.
3. PURLIN SPACING AND FASTENER TYPE WILL BE DEPENDENT ON GOVERNING CODE AND SPECIFICATION REQUIREMENTS. CONTACT BERRIDGE FOR SPECIFIC INFORMATION.
4. RIGID INSULATION MUST HAVE ADEQUATE COMPRESSIVE STRENGTH TO SUPPORT THE WEIGHT OF A 300 POUND MAN WITHOUT CAUSING ANY DEFORMATION IN THE PANEL.
5. DEPTH OF ZEE PURLINS MUST BE GOVERNED BY INSULATION THICKNESS. ANY DEVIATION COULD BE CAUSE FOR DAMAGE TO PANELS OR LEAKS.



ZEE PURLIN DETAIL

Berridge Manufacturing Company
Roofs of Distinction

INSULATED DECK DETAIL

DATE: 12/11/01

HIGH SEAM TEE PANEL

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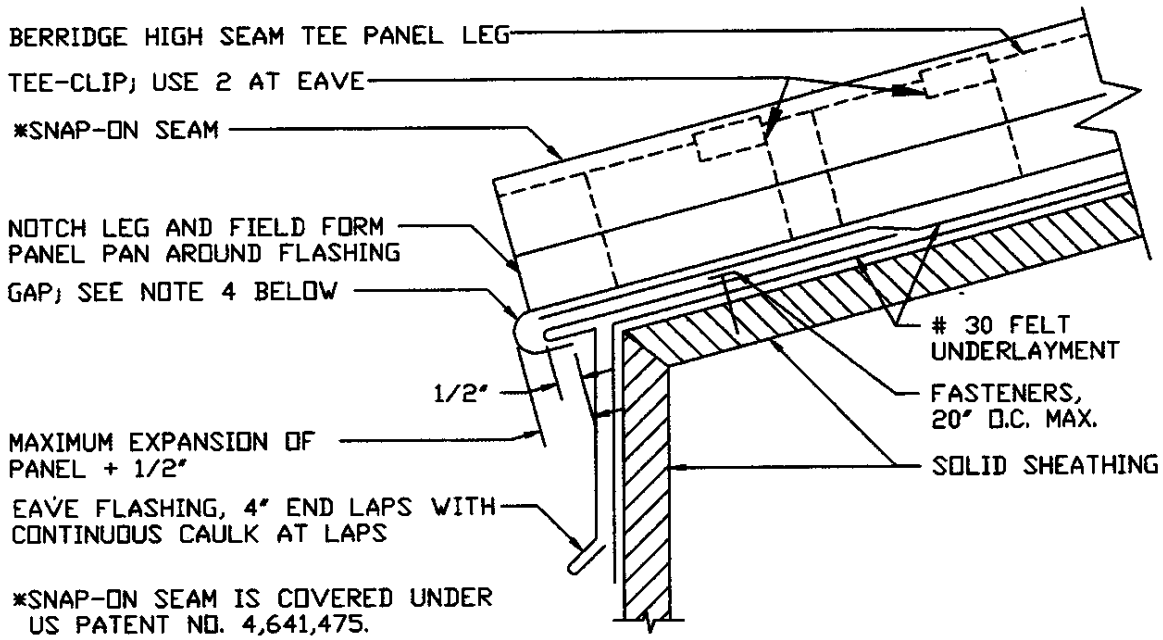
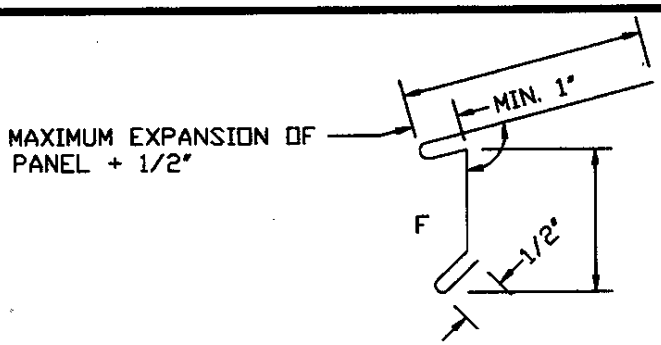


*SNAP-ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. THIS DETAIL IS RECOMMENDED FOR AREAS WITH HEAVY SNOW LOADS OR WHERE EXPANSION AND CONTRACTION OF PANELS IS A DESIGN FACTOR.
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.
4. 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 DETAIL HTI-6.
5. GAP BETWEEN EAVE FLASHING AND PANEL MUST BE ADJUSTED TO SUIT TEMPERATURE DURING INSTALLATION.



F = FINISH SIDE

Berridge Manufacturing Company
Roofs of Distinction

EAVE DETAIL

DATE: 12/11/01

HIGH SEAM TEE PANEL

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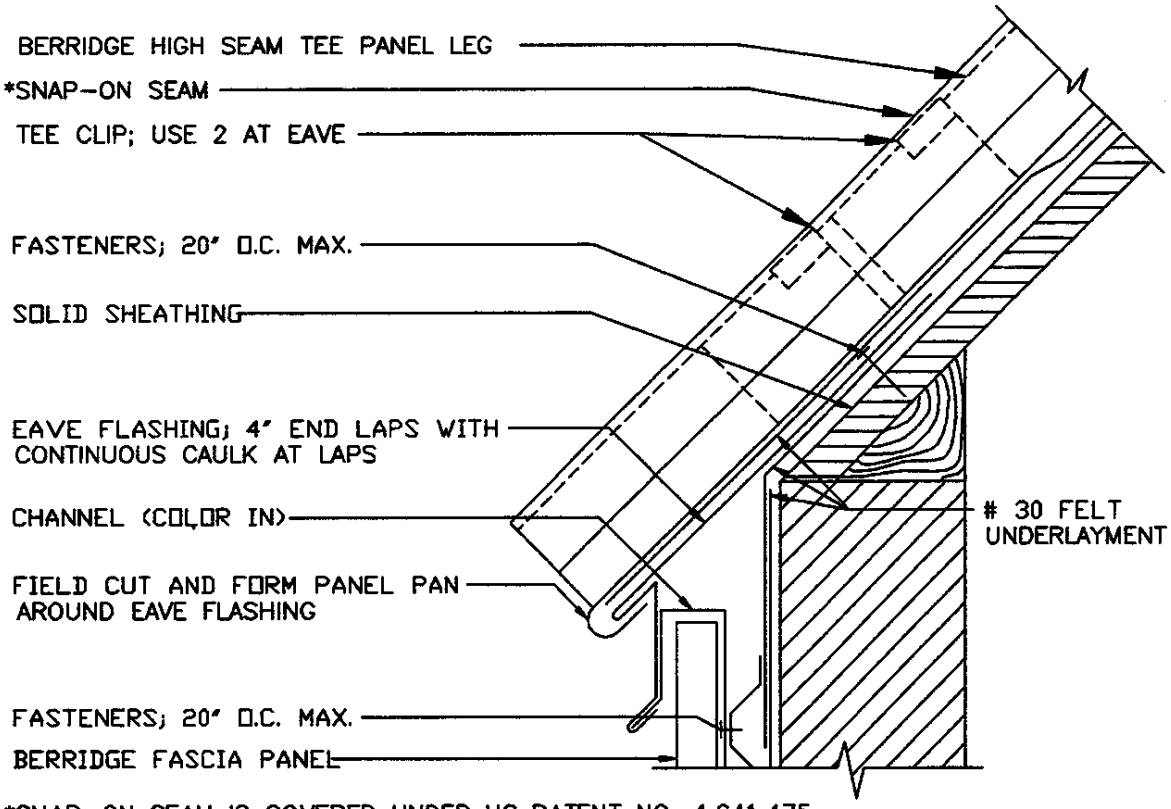
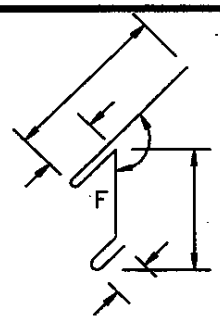


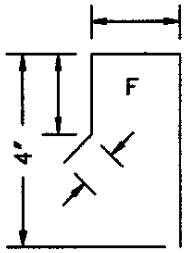
*SNAP-ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. AS ROOF PANELS ARE INSTALLED, SNIP APPROXIMATELY 3/8" SECTION FROM EACH PANEL LEG AT EAVE, AND FORM PANEL PAN AROUND EAVE FLASHING.
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.

F = FINISH SIDE



EAVE FLASHING



CHANNEL

DATE: 12/11/01

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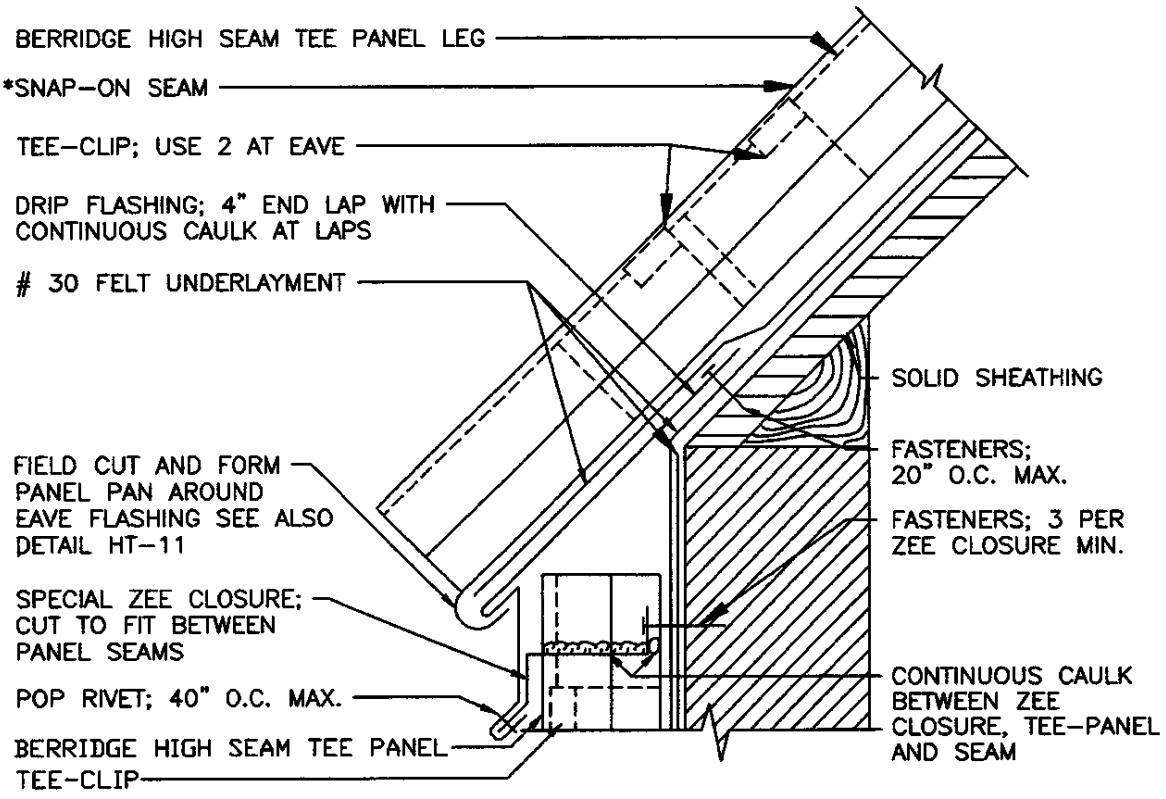
HT-II

EAVE DETAIL

HIGH SEAM TEE PANEL

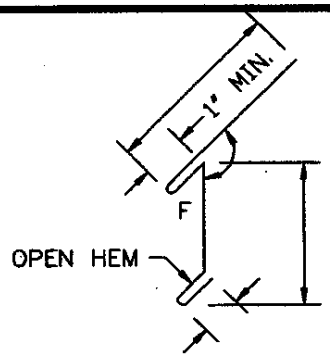
Berridge Manufacturing Company
Roofs of Distinction



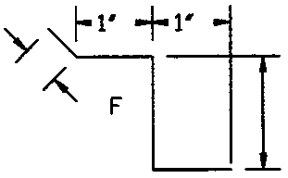
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. AS ROOF PANELS ARE INSTALLED, SNIP A SECTION FROM EACH PANEL LEG AT EAVE AND FORM THE PAN AROUND THE DRIP FLASHING.
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.

F = FINISH SIDE



DRIP FLASHING



SPECIAL ZEE CLOSURE

Berridge Manufacturing Company

Roofs of Distinction

EAVE DETAIL

DATE: 12/11/01

HIGH SEAM TEE PANEL

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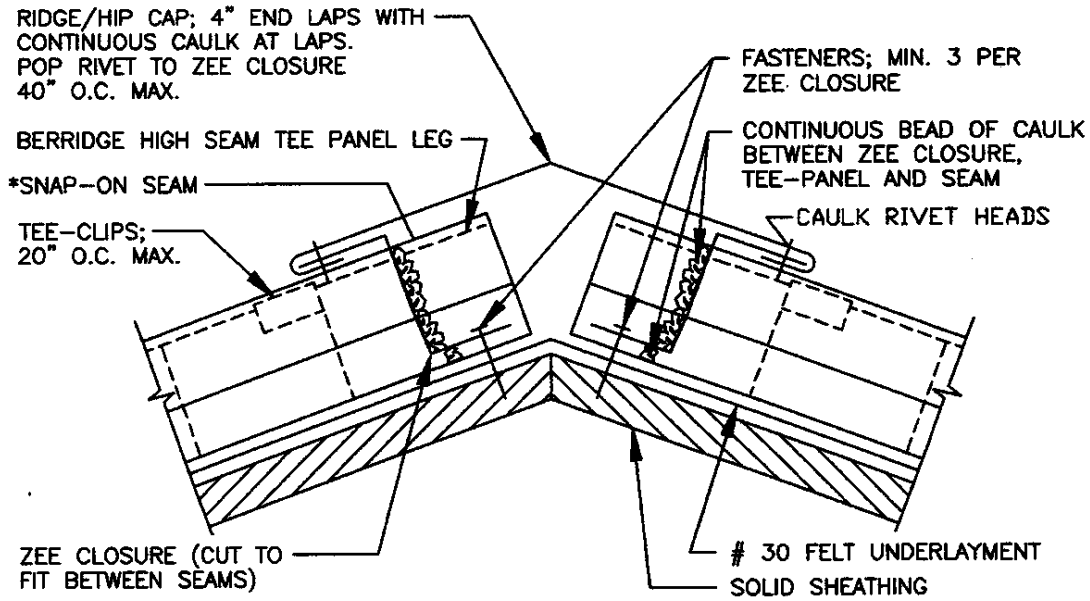
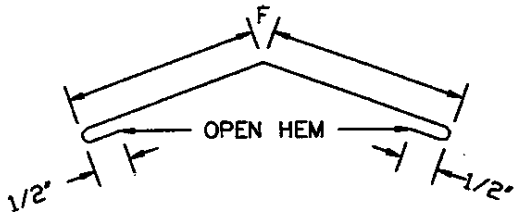


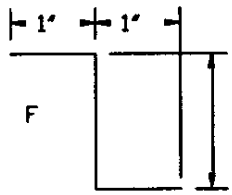
*SNAP-ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. FIELD CUT ZEE CLOSURES TO FIT BETWEEN SEAMS.
2. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
3. 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



ZEE CLOSURE

Berridge Manufacturing Company
Roofs of Distinction

RIDGE AND HIP DETAIL

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HIGH SEAM TEE PANEL

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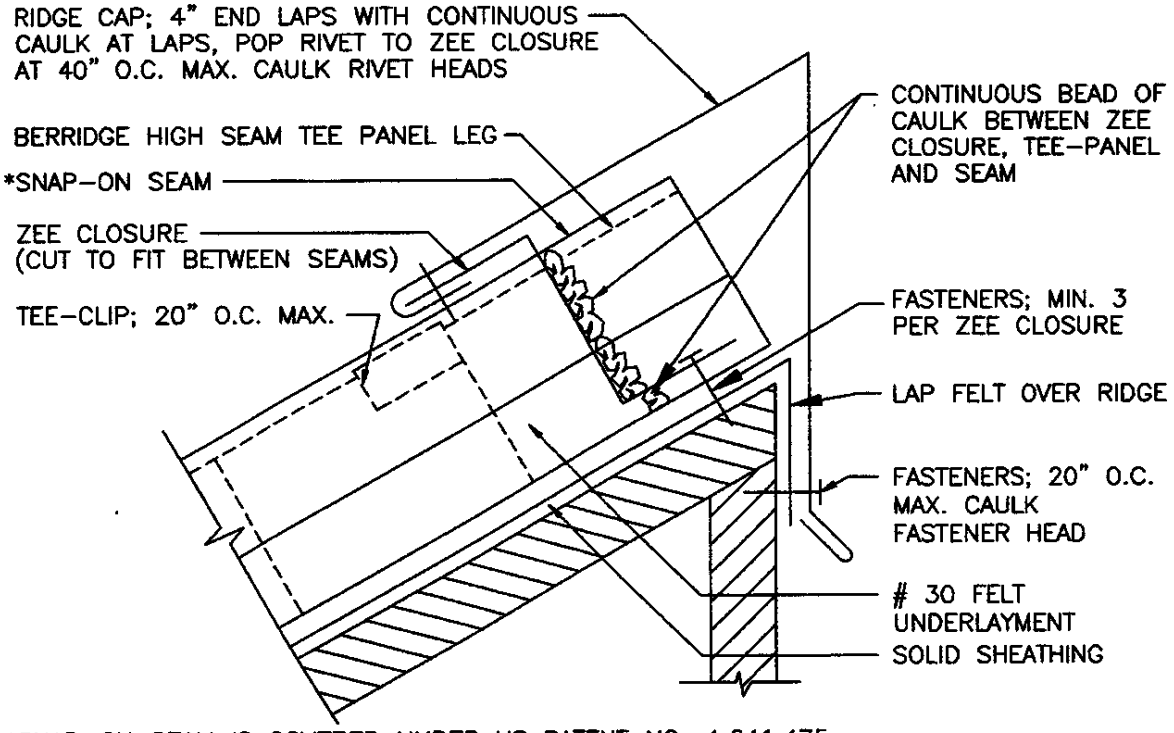
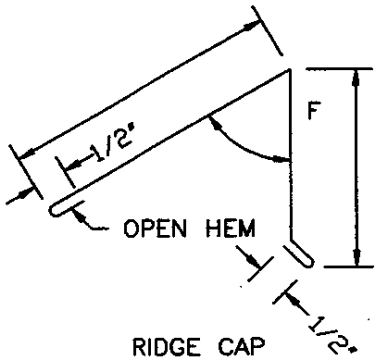
HT-20



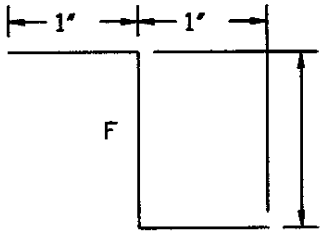
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. FIELD CUT ZEE CLOSURE TO FIT BETWEEN 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.

F = FINISH SIDE



RIDGE CAP



ZEE CLOSURE

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SHED ROOF RIDGE CAP DETAIL

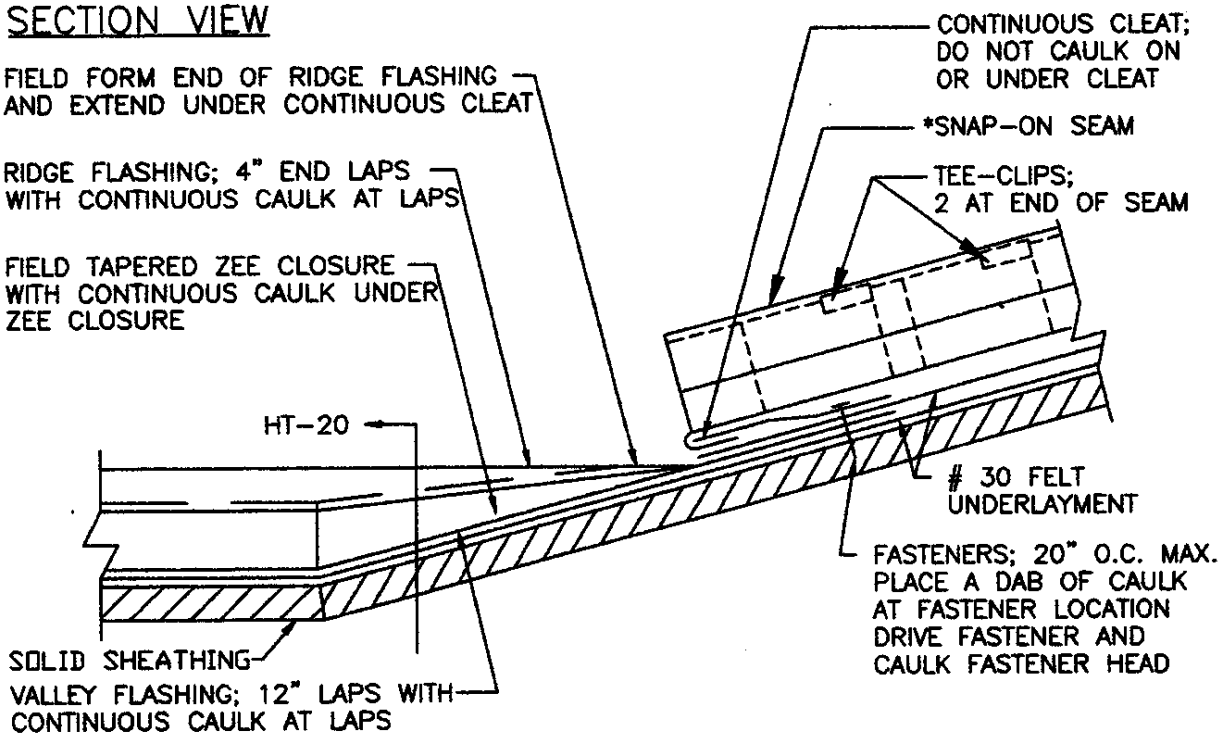
HIGH SEAM TEE PANEL

BERRIDGE

Berridge Manufacturing Company

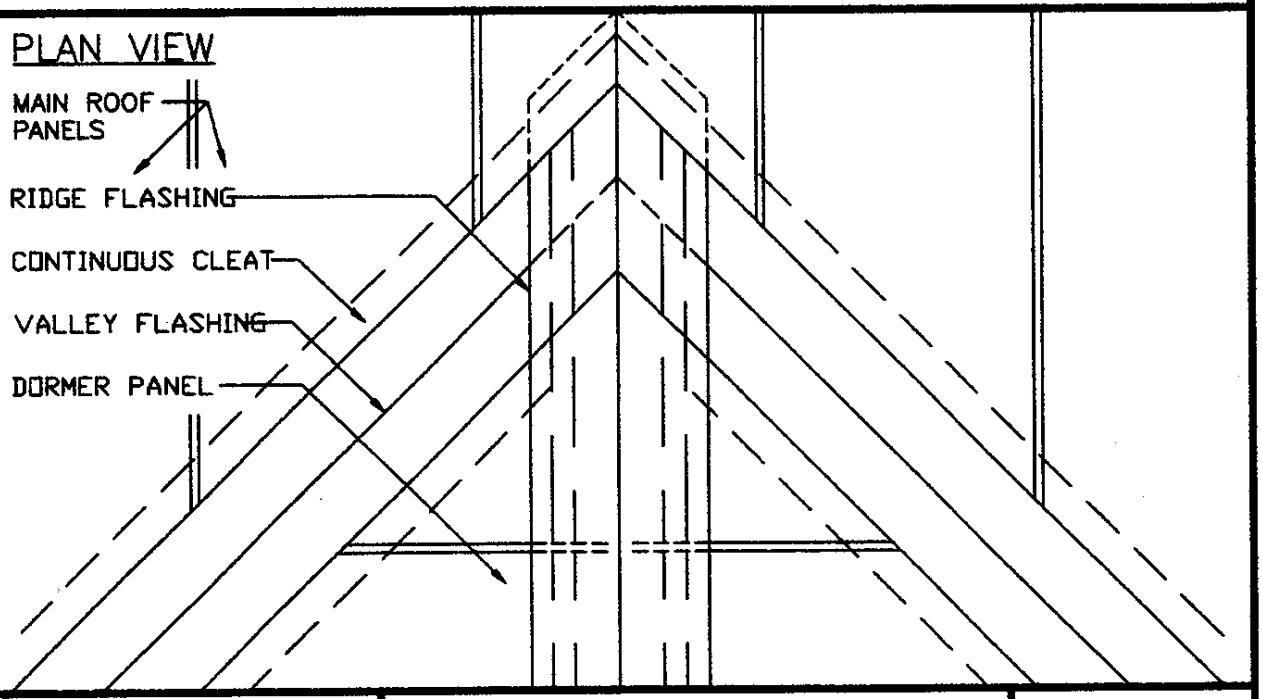
Roofs of Distinction

SECTION VIEW



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

PLAN VIEW



Berridge Manufacturing Company
Roofs of Distinction

RIDGE TERMINATION AT DORMER VALLEY

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HIGH SEAM TEE PANEL

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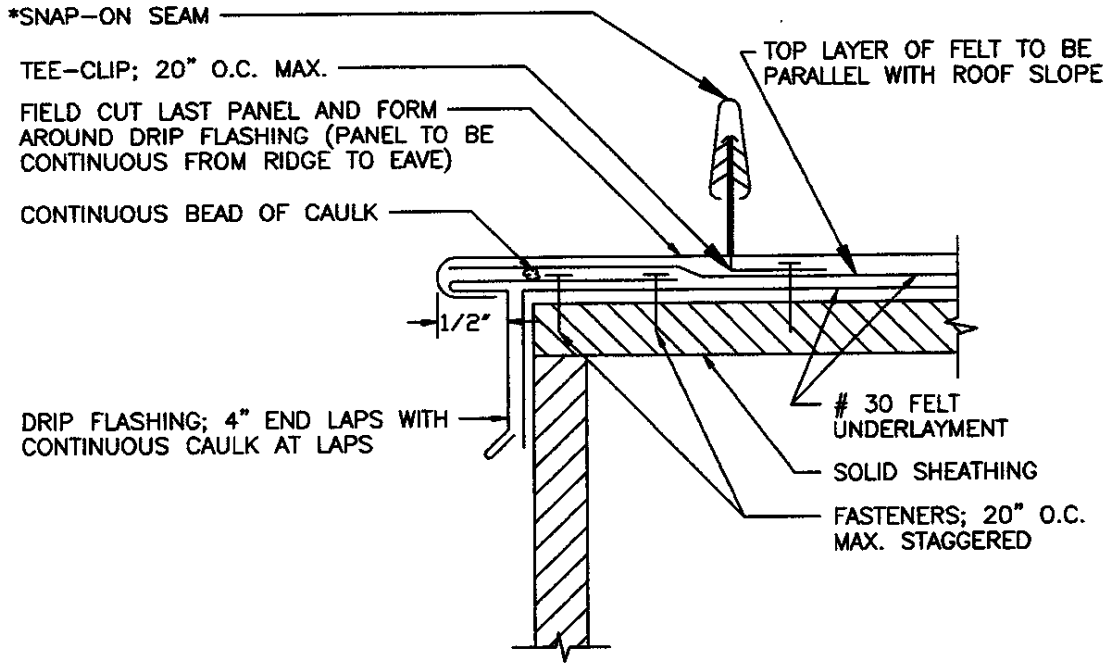
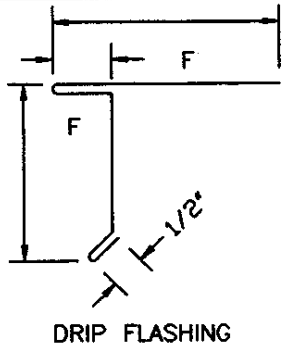


*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. FIELD CUT AND FORM LAST PANEL AROUND DRIP FLASHING. PANEL MUST BE CONTINUOUS FROM RIDGE TO EAVE.
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.



F = FINISH SIDE

Berridge Manufacturing Company
Roofs of Distinction

GABLE DETAIL

DATE: 12/11/01

HIGH SEAM TEE PANEL

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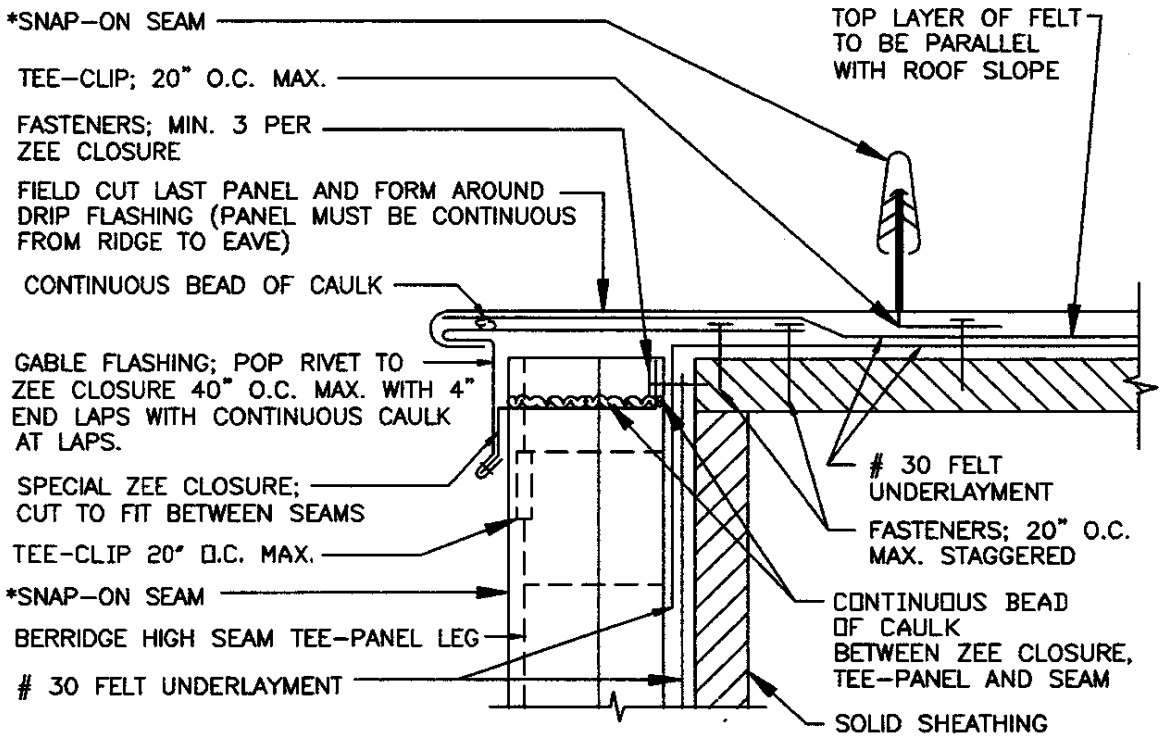
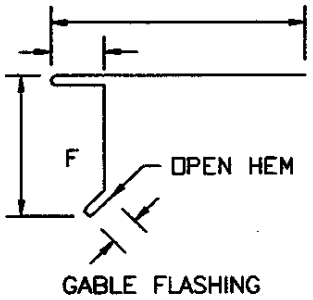
HT-30



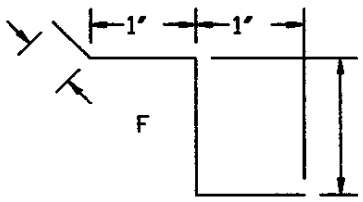
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. FIELD CUT AND FORM LAST PANEL AROUND GABLE FLASHING PANEL MUST BE CONTINUOUS RIDGE TO EAVE.
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.



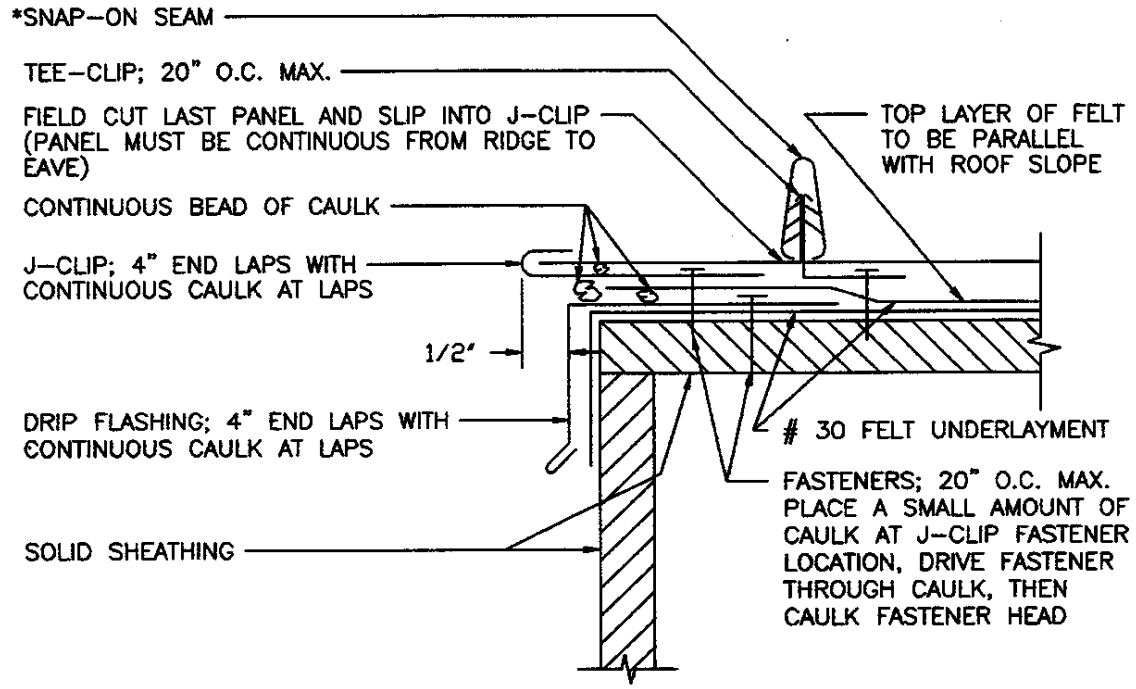
GABLE FLASHING

F = FINISH SIDE



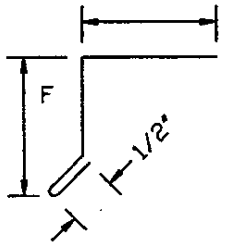
SPECIAL ZEE CLOSURE

DATE: 12/11/01	GABLE DETAIL	Berridge Manufacturing Company Roofs of Distinction
PAGE\FILE **HT-31**	**HIGH SEAM TEE PANEL**	



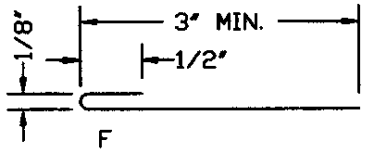
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. FIELD CUT LAST PANEL AND SLIP INTO J–CLIP. PANEL MUST BE CONTINUOUS RIDGE TO EAVE.
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.



DRIP FLASHING

F = FINISH SIDE



J–CLIP

Berridge Manufacturing Company
Roofs of Distinction

GABLE DETAIL

DATE: 12/11/01

HIGH SEAM TEE PANEL

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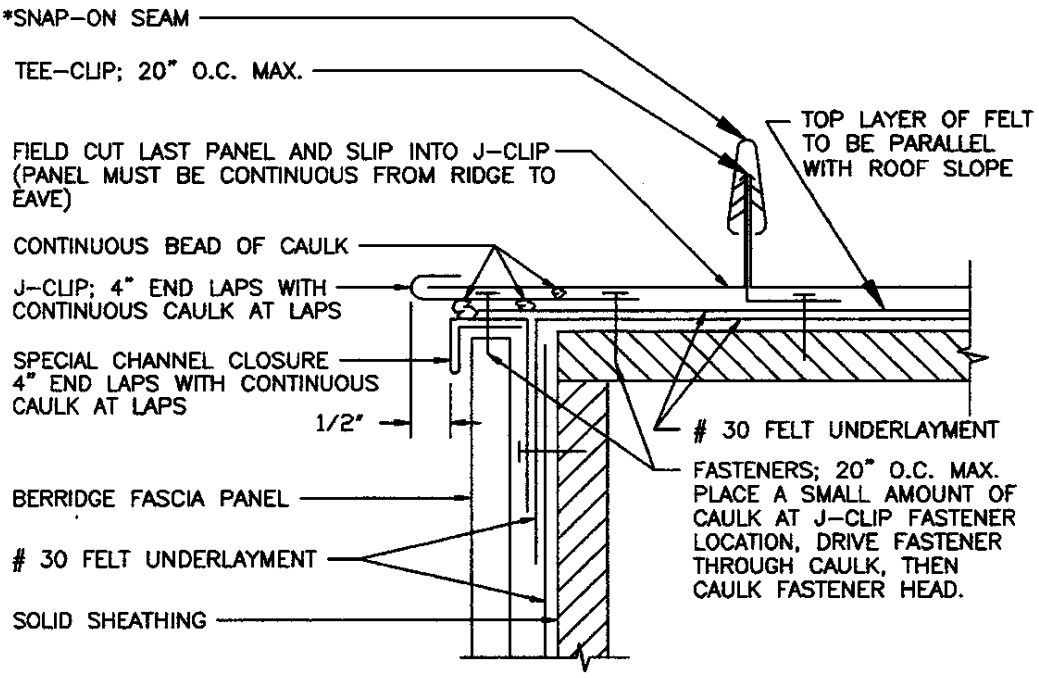
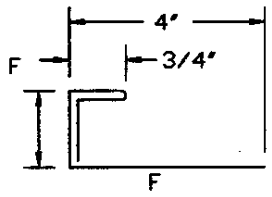


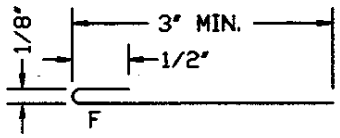
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. FIELD CUT LAST PANEL AND SLIP INTO J–CLIP. PANEL MUST BE CONTINUOUS RIDGE TO EAVE.
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.



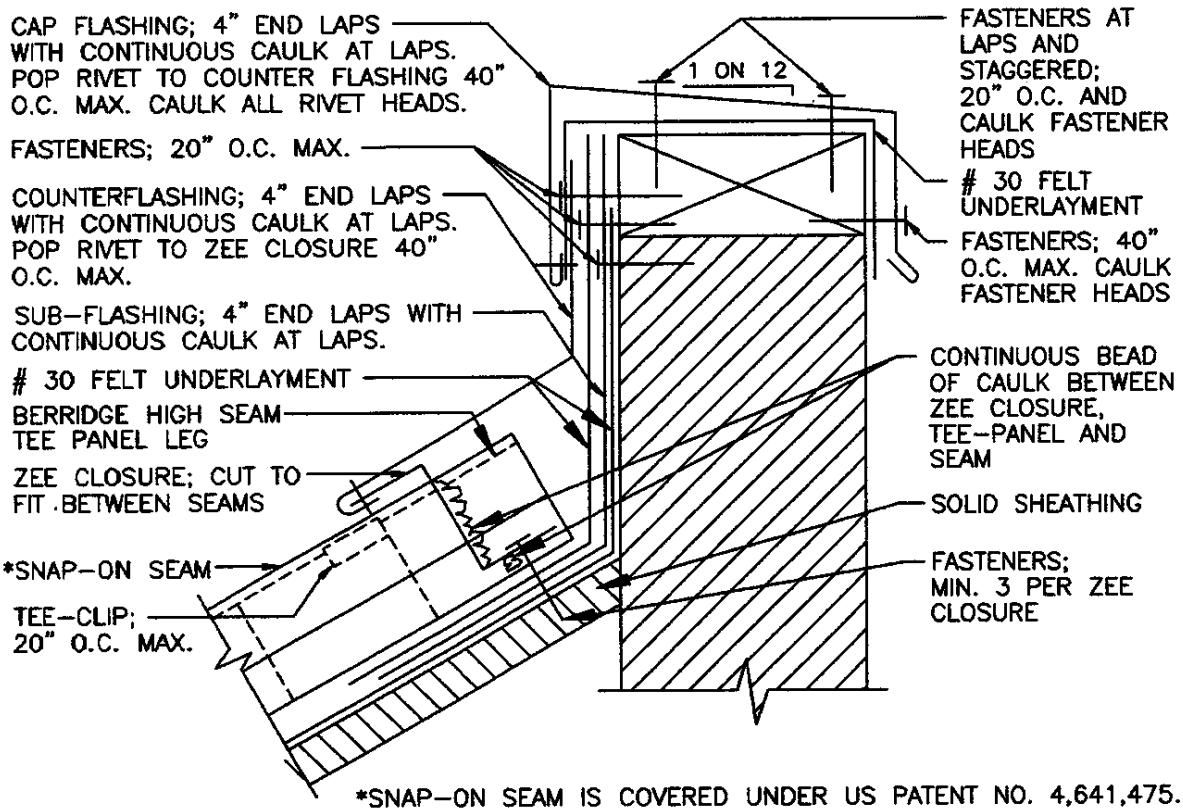
SPECIAL CHANNEL CLOSURE

F = FINISH SIDE



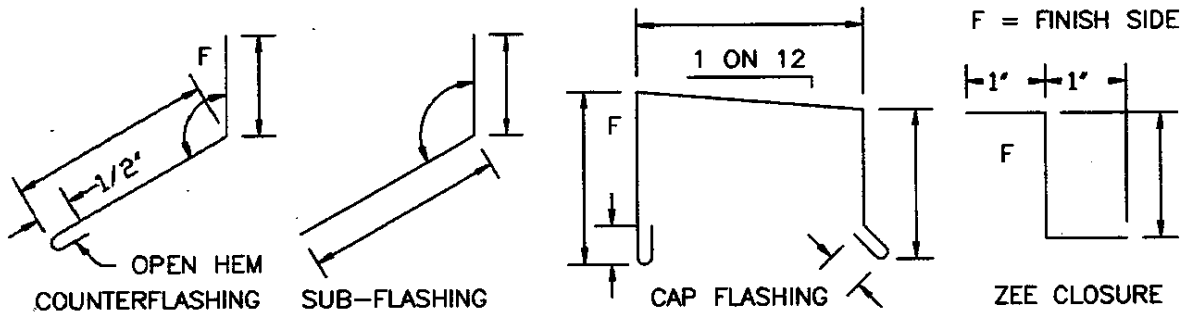
J–CLIP

DATE: 12/11/01	GABLE DETAIL	Berridge Manufacturing Company Roofs of Distinction
PAGE\FILE HT-33	**HIGH SEAM TEE PANEL**	



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

1. FIELD CUT ZEE CLOSURES TO FIT BETWEEN 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.



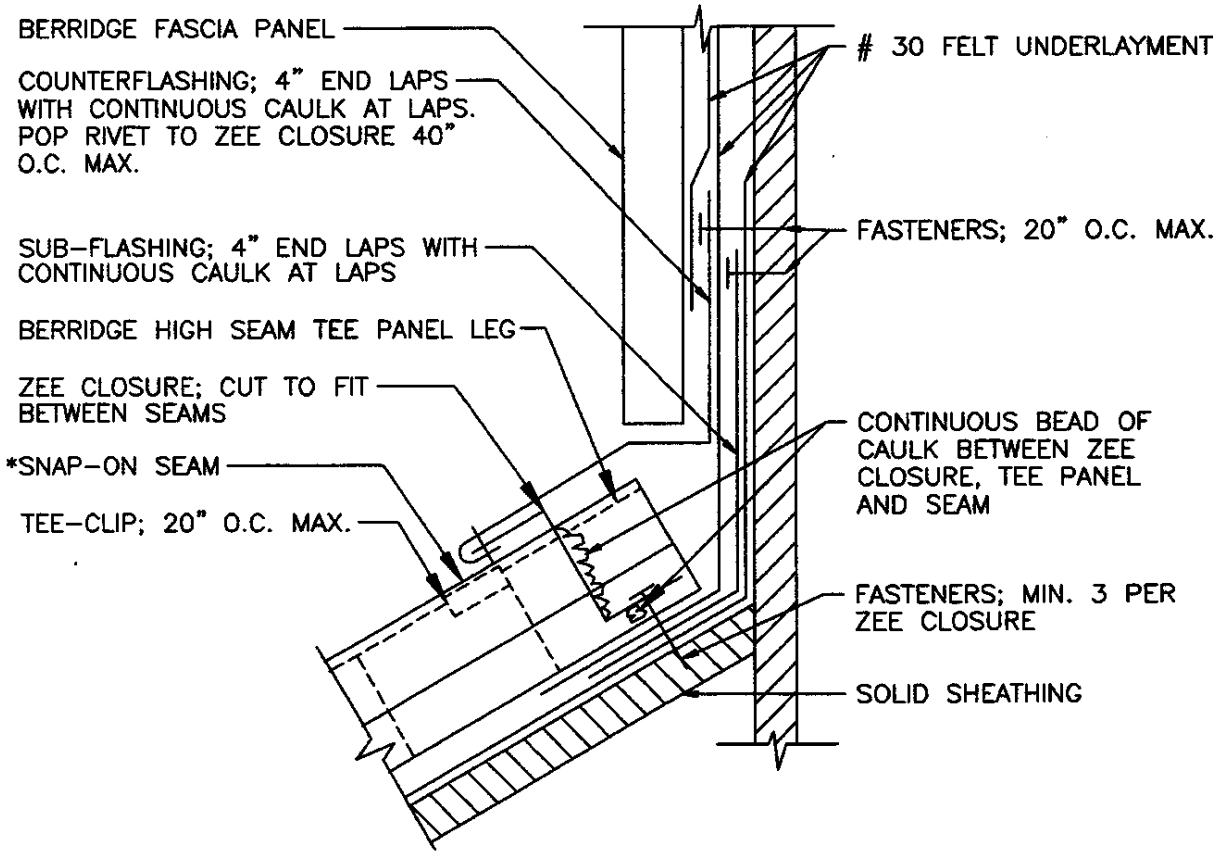
Berridge Manufacturing Company
Roofs of Distinction

PARAPET DETAIL

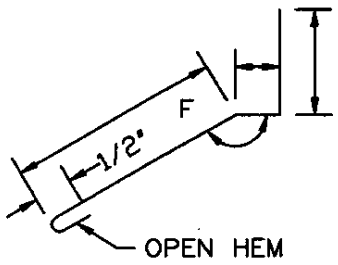
DATE: 12/11/01

HIGH SEAM TEE PANEL

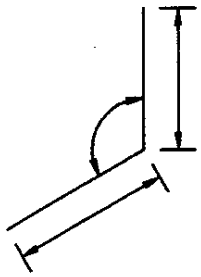
PAGE\FILE
HT-40



1. FIELD CUT ZEE CLOSURES TO FIT BETWEEN 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.

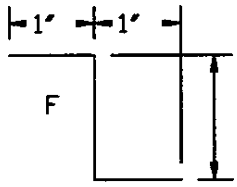


COUNTERFLASHING



SUB-FLASHING

F = FINISH SIDE



ZEE CLOSURE

Berridge Manufacturing Company

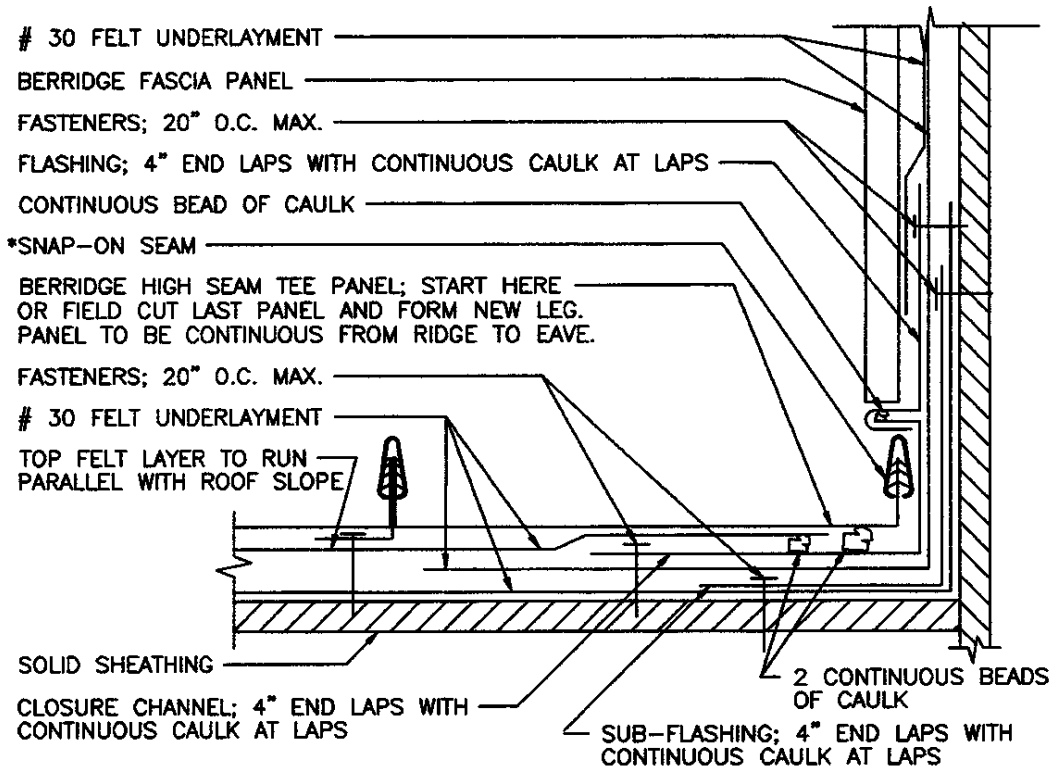
Roofs of Distinction

HEAD WALL DETAIL

DATE: 12/11/01

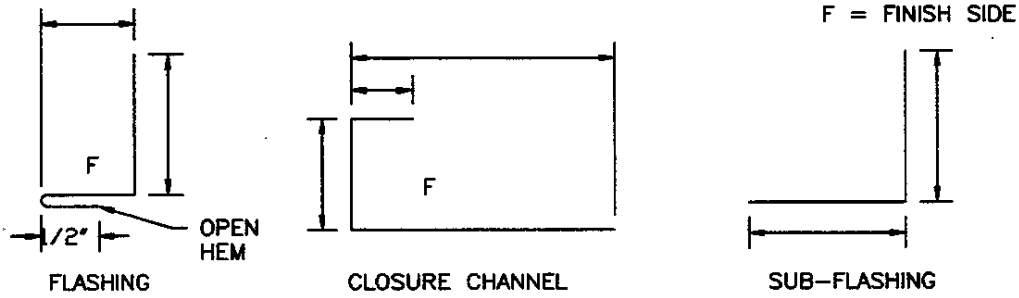
HIGH SEAM TEE PANEL

PAGE\FILE
HT-50



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

1. FIELD CUT LAST PANEL AND FORM NEW LEG. PANEL MUST BE CONTINUOUS RIDGE TO EAVE.
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.



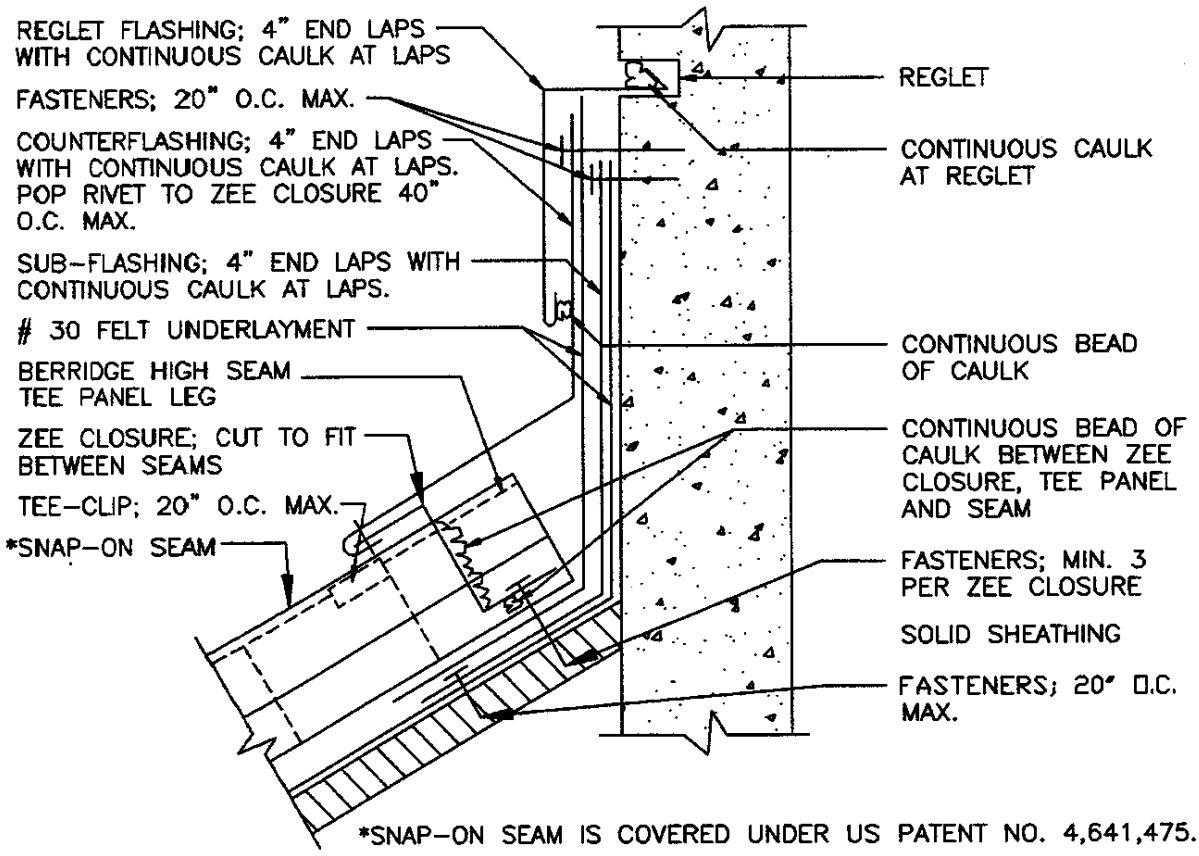
DATE: 12/11/01

PAGE\FILE
HT-51

RAKE WALL DETAIL

HIGH SEAM TEE PANEL

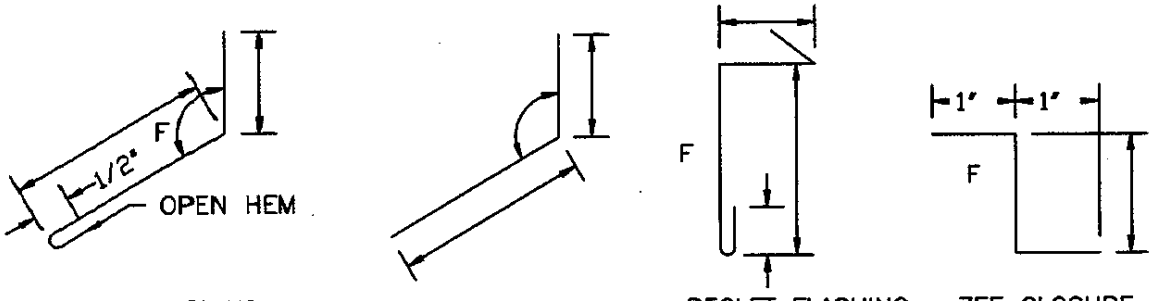
Berridge Manufacturing Company
Roofs of Distinction



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

1. FIELD CUT ZEE CLOSURES TO FIT BETWEEN 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.

F = FINISH SIDE



COUNTERFLASHING | SUB-FLASHING | REGLET FLASHING | ZEE CLOSURE

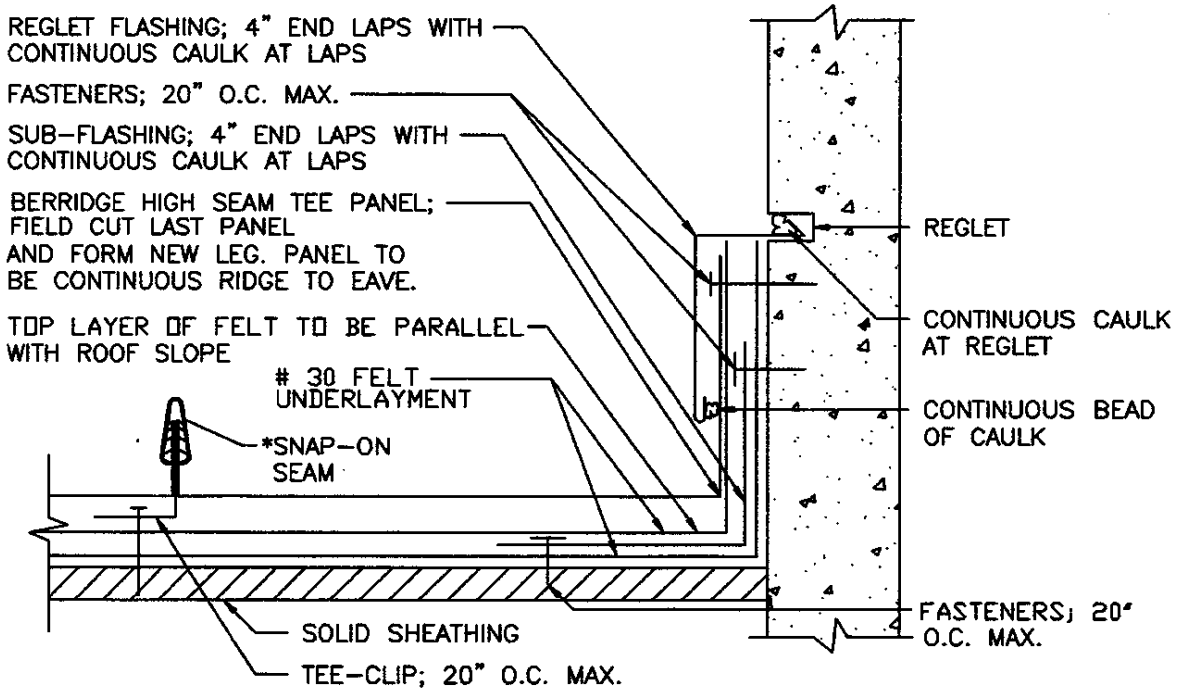
Berridge Manufacturing Company
Roofs of Distinction

HEAD WALL DETAIL

DATE: 12/11/01

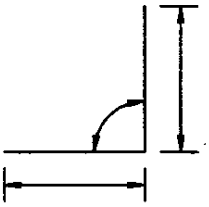
HIGH SEAM TEE PANEL

PAGE\FILE
HT-52

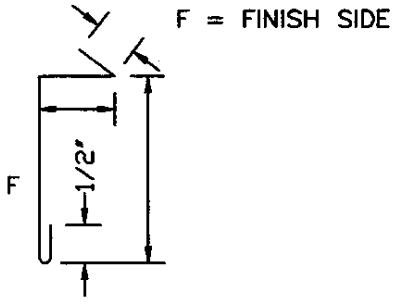


*SNAP-ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. FIELD CUT LAST PANEL AND FORM NEW LEG. PANEL MUST BE CONTINUOUS RIDGE TO EAVE.
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.

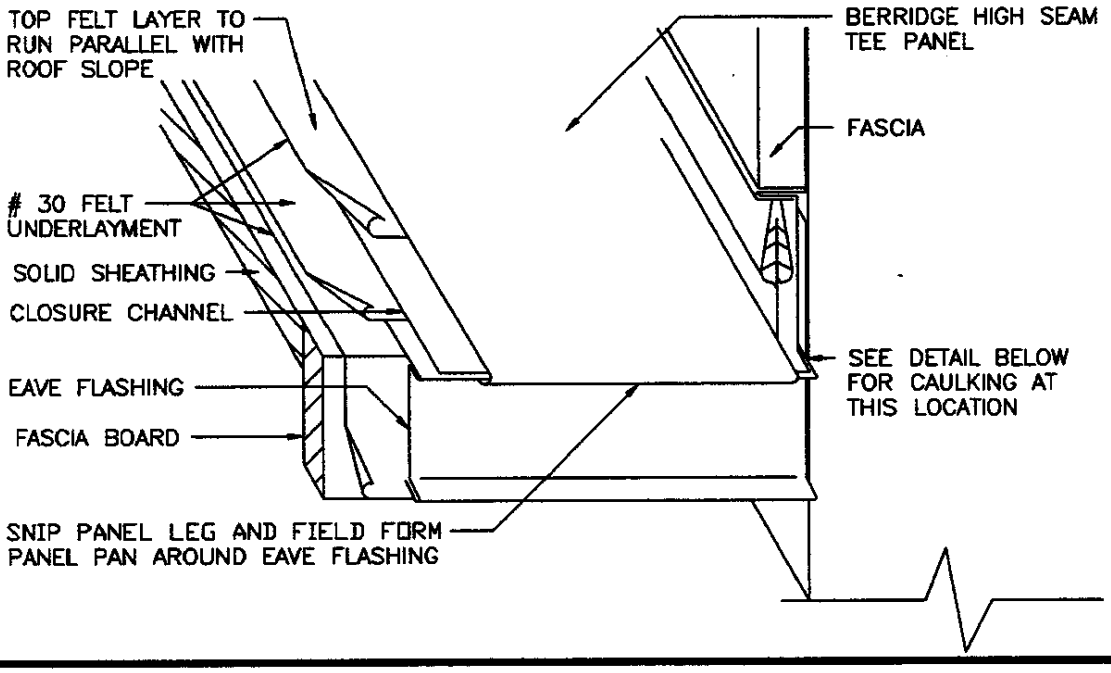


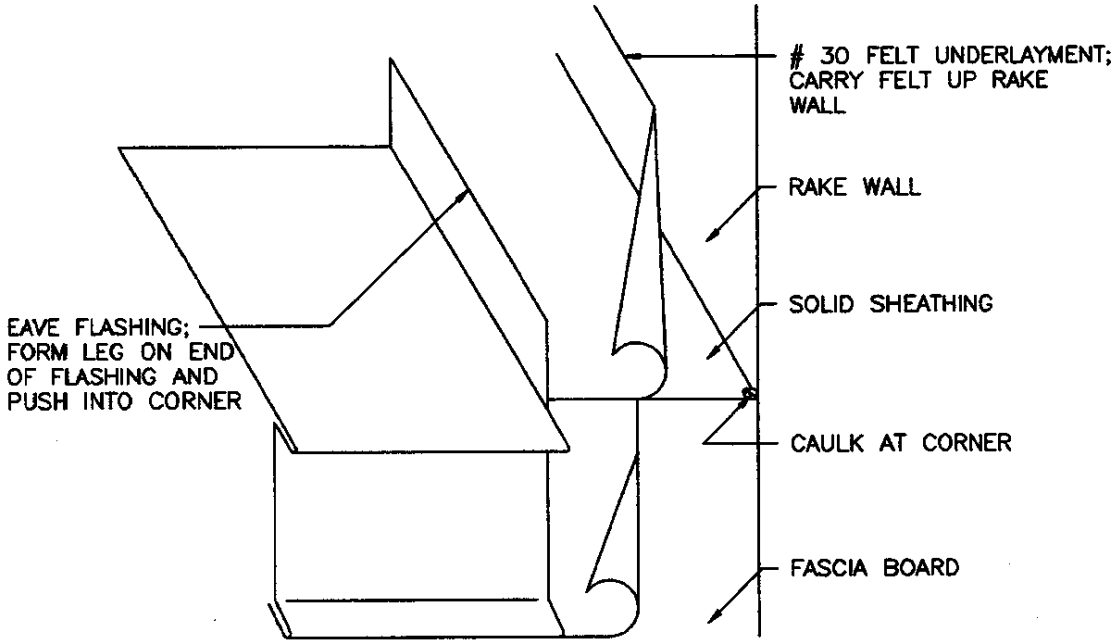
SUB-FLASHING



REGLET FLASHING

DATE: 12/11/01	RAKE WALL DETAIL	Berridge Manufacturing Company Roofs of Distinction
PAGE\FILE HT-53	**HIGH SEAM TEE PANEL**	





Berridge Manufacturing Company

Roofs of Distinction

RAKE AT EAVE

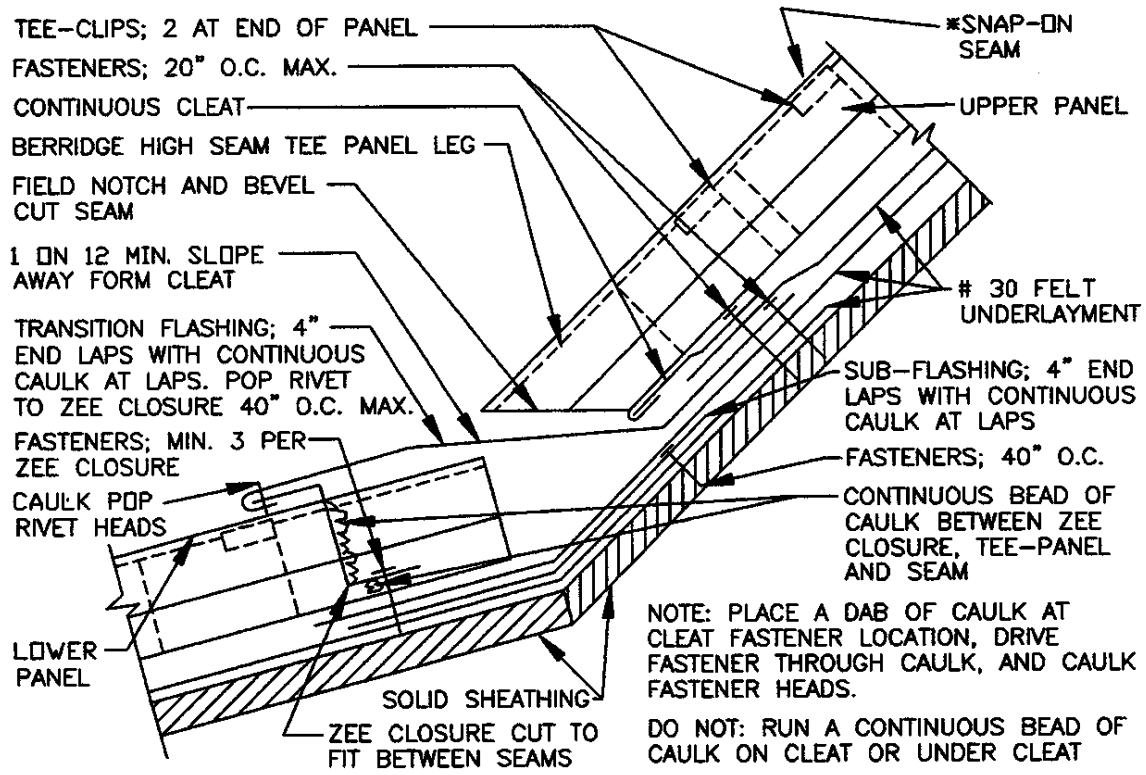
USE THIS DETAIL AT RAKE DETAILS, HT-51 & HT-53

DATE: 12/11/01

HIGH SEAM TEE PANEL

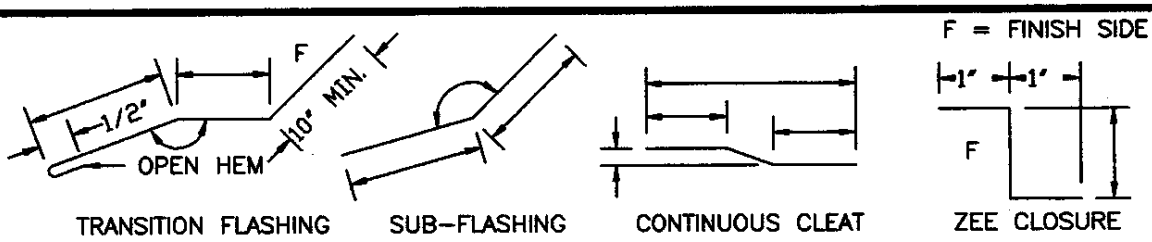
PAGE\FILE

HT-54



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

1. FIELD CUT ZEE CLOSURE TO FIT BETWEEN SEAMS.
2. AS ROOF PANELS ARE INSTALLED, SNIP APPROXIMATELY 3/8" SECTION FROM EACH PANEL LEG AT UPPER PANEL.
3. AS SEAMS ARE INSTALLED ON UPPER ROOF PANELS, FIELD NOTCH AND BEVEL CUT EACH SEAM.
4. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 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.



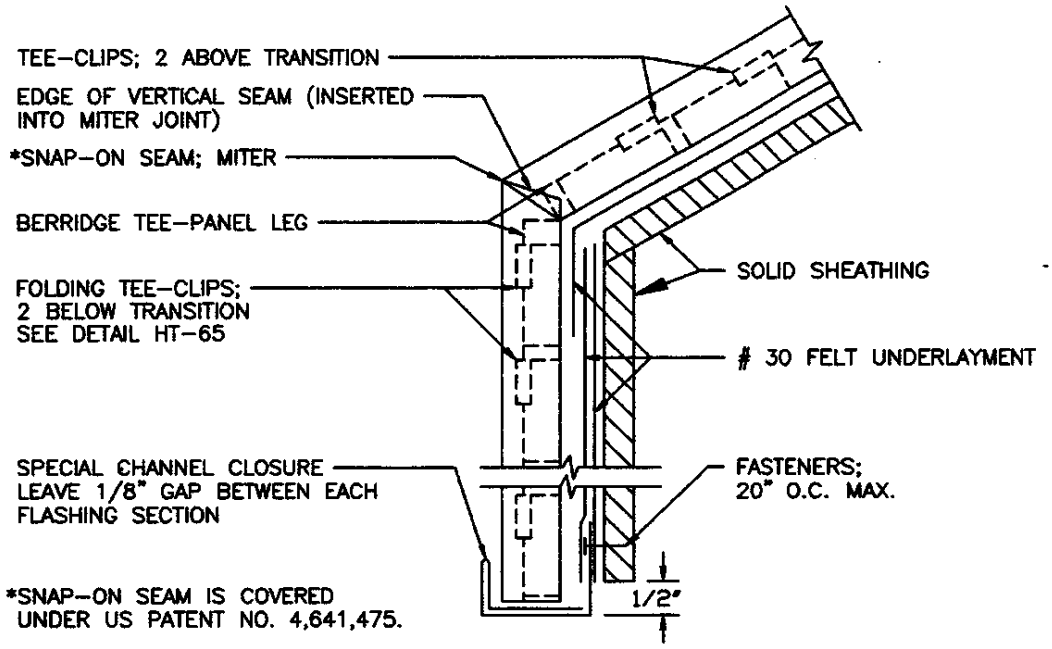
Berridge Manufacturing Company
Roofs of Distinction

SLOPE TRANSITION DETAIL

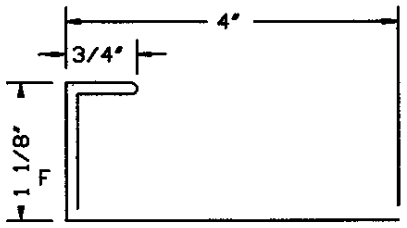
DATE: 12/11/01

HIGH SEAM TEE PANEL

PAGE\FILE
HT-60



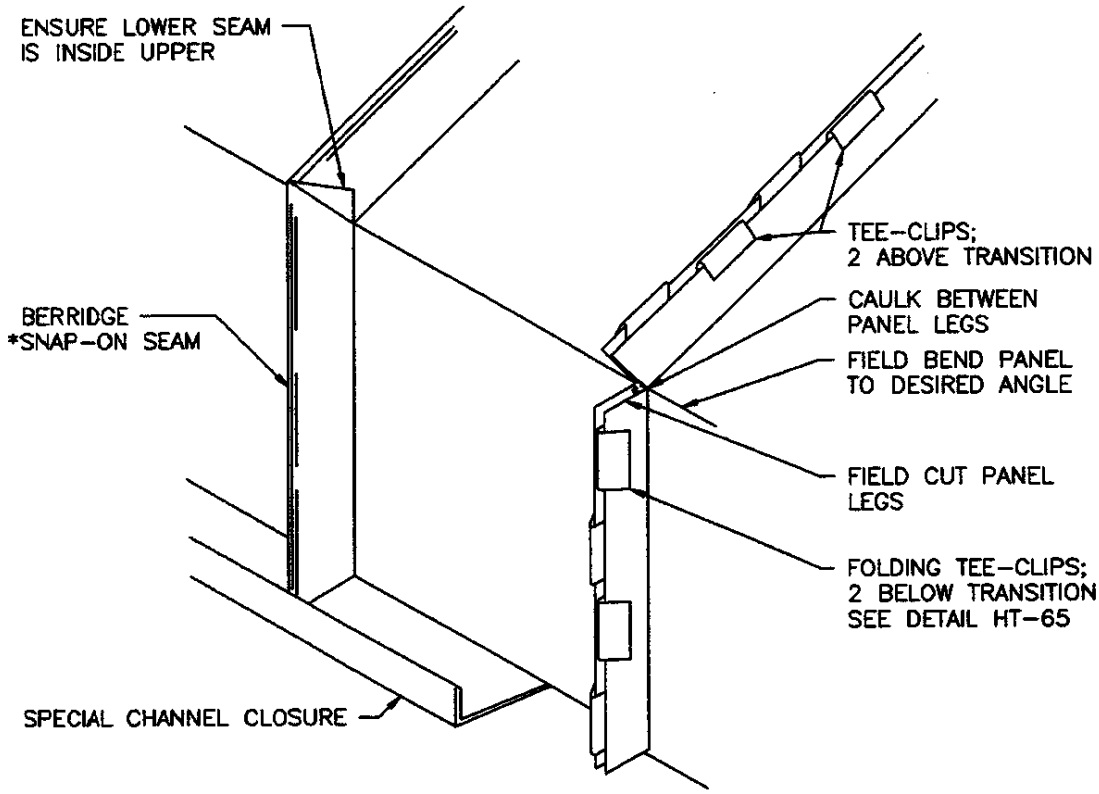
1. FIELD CUT PANEL LEG AND BEND PANEL AS REQUIRED FOR CHANGE IN SLOPE FROM ROOF TO FASCIA.
2. FIELD MITER SNAP–ON SEAM TO SLOPE CHANGE.
3. ONLY ONE SLOPE TRANSITION PER PANEL IS RECOMMENDED.
4. SEE SLOPE TRANSITION ISOMETRIC FOR ROOF TO FASCIA FOR CAULK AND SNAP–ON SEAM MITER DETAIL. (DETAIL HT–62)
5. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
6. ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



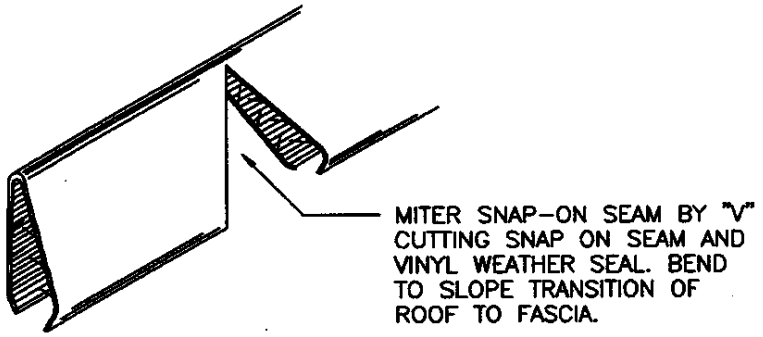
F = FINISH SIDE

SPECIAL CHANNEL CLOSURE

DATE: 12/11/01	SLOPE TRANSITION DETAIL ROOF TO FASCIA – A FOR 1" SEAM HEIGHT ONLY	Berridge Manufacturing Company. Roofs of Distinction
PAGE\FILE HT-61	**HIGH SEAM TEE PANEL**	



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



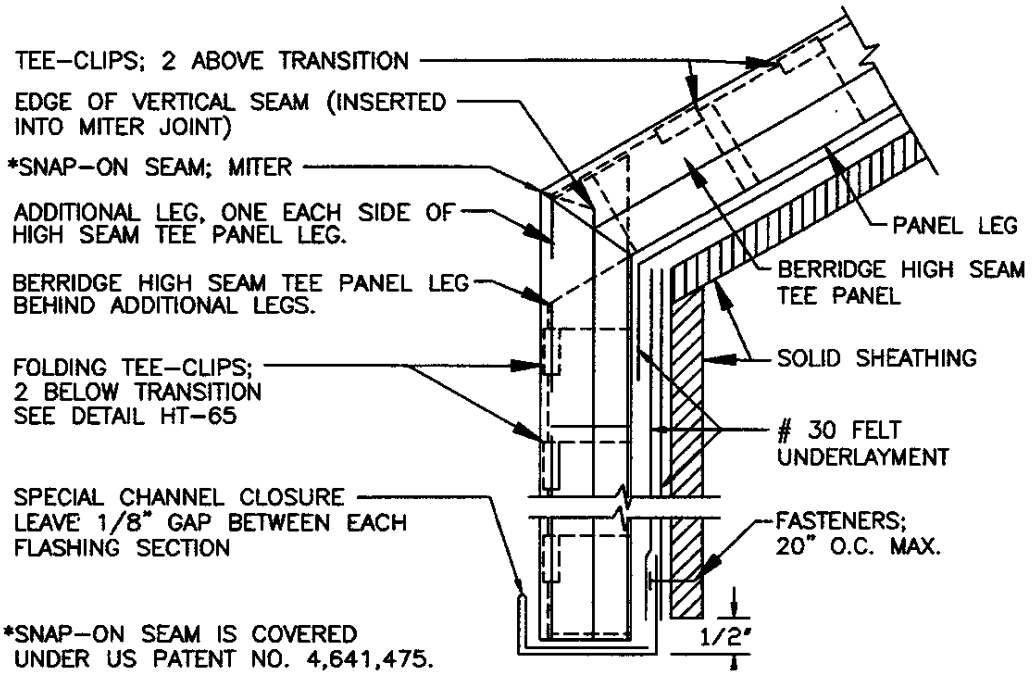
Berridge Manufacturing Company
Roofs of Distinction

SLOPE TRANSITION DETAIL
ROOF TO FASCIA – B
FOR 1" SEAM HEIGHT ONLY

DATE: 12/11/01

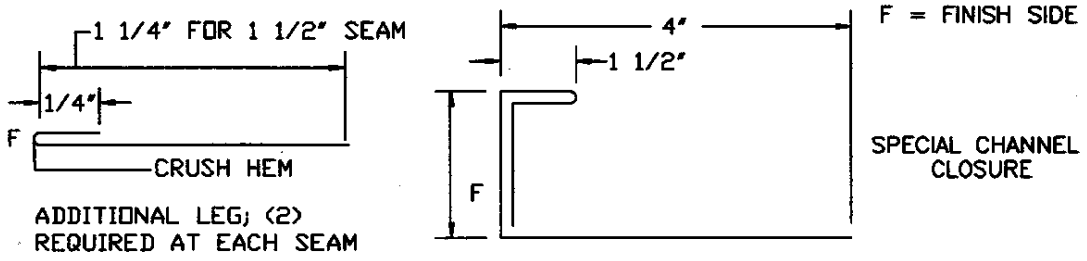
HIGH SEAM TEE PANEL

PAGE\FILE
HT-62



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

1. FIELD CUT PANEL LEG AND BEND PANEL AS REQUIRED FOR CHANGE IN SLOPE FROM ROOF TO FASCIA.
2. ADDITIONAL LEGS HELD IN PLACE WITH CLIPS AND SEAM AT FASCIA.
3. FIELD MITER SNAP–ON SEAM TO SLOPE CHANGE.
4. ONLY ONE SLOPE TRANSITION PER PANEL IS RECOMMENDED.
5. SEE SLOPE TRANSITION ISOMETRIC FOR ROOF TO FASCIA FOR CAULK AND SNAP–ON SEAM MITER DETAIL. (DETAIL HT–64)
6. SOLID SHEATHING (BY OTHERS) TO BE MINIMUM 1/2" PLYWOOD OR EQUIVALENT IN STRENGTH FOR HOLDING POWER OF FASTENERS.
7. ALL FELT UNDERLAYMENT, CAULKING, AND FASTENERS, ARE ITEMS TO BE FURNISHED AND INSTALLED BY THE ROOFING INSTALLER AT THE DISCRETION OF THE ARCHITECT.



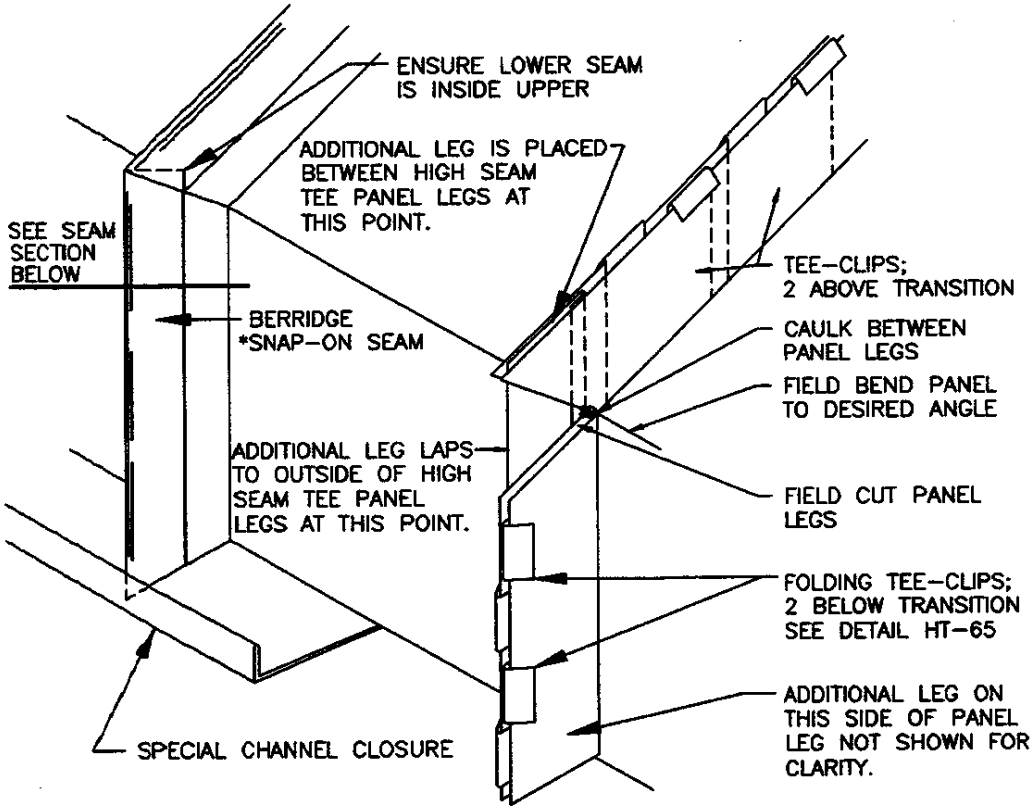
DATE: 12/11/01

PAGE\FILE
HT-63

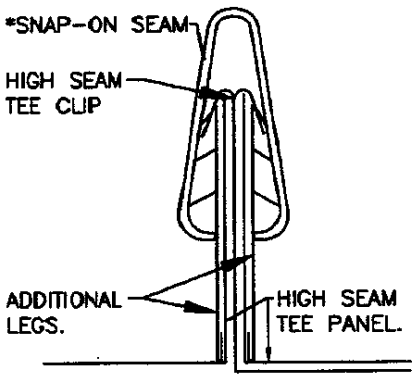
SLOPE TRANSITION DETAIL ROOF TO FASCIA – C FOR 1 1/2"

HIGH SEAM TEE PANEL

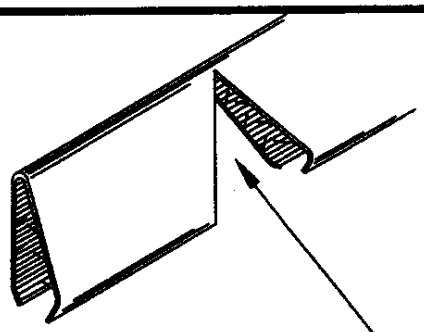
Berridge Manufacturing Company
Roofs of Distinction



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



SEAM SECTION



MITER SNAP-ON SEAM BY "V" CUTTING SNAP ON SEAM AND VINYL WEATHER SEAL. BEND TO SLOPE TRANSITION OF ROOF TO FASCIA.

Berridge Manufacturing Company

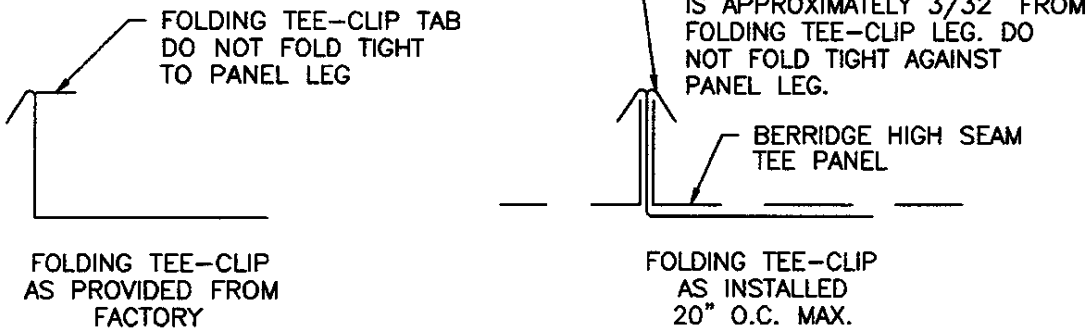
Roofs of Distinction

SLOPE TRANSITION DETAIL ROOF TO FASCIA – D FOR 1 1/2"

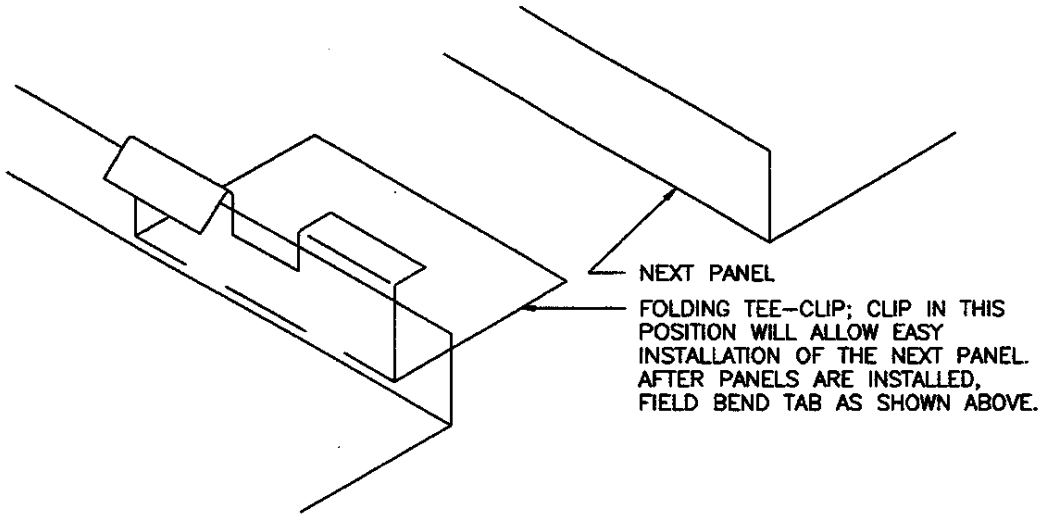
DATE: 12/11/01

HIGH SEAM TEE PANEL

PAGE\FILE HT-64



1. AFTER FOLDING TEE–CLIPS AND TEE–PANELS ARE INSTALLED, FIELD BEND FOLDING THE CLIP TAB SO THAT IT IS APPROXIMATELY 3/32" FROM CLIP LEG. DO NOT BEND TAB TIGHT AGAINST PANEL LEG AS VINYL INSERT IN SEAM WILL THEN NOT GRIP THE EDGE OF THE TAB.
2. USE FOLDING TEE–CLIP AT SLOPE TRANSITION (ROOF TO FASCIA, SEE DETAILS HT–61 AND HT–62). USE STANDARD TEE–CLIP THROUGHOUT REST OF STANDARD TEE PANEL SYSTEM.



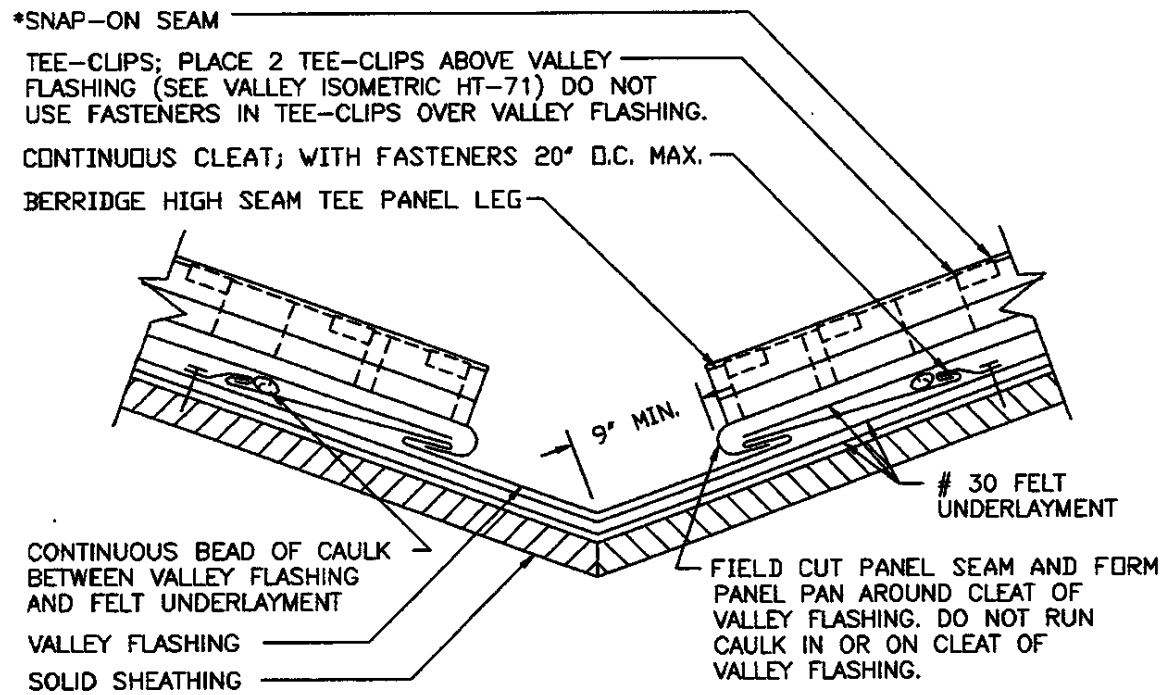
DATE: 12/11/01

PAGE\FILE
HT-65

FOLDING TEE–CLIP INSTALLATION

HIGH SEAM TEE PANEL

Berridge Manufacturing Company
Roofs of Distinction

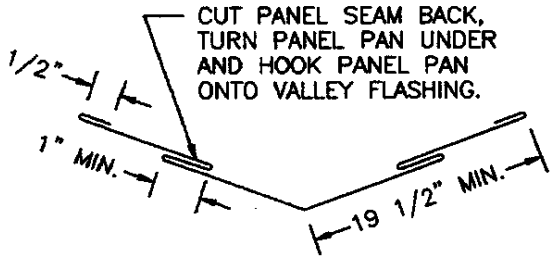


SEE DETAIL HT–71 FOR VALLEY FLASHING LAPPING.

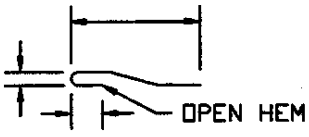
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

1. FOR EXPANSION AND CONTRACTION OF PANELS, SEE HTI–6 AND HT–11.
2. SOLID SHEATHING (BY OTHERS) TO BE A MINIMUM OF 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



VALLEY FLASHING



CONTINUOUS CLEAT

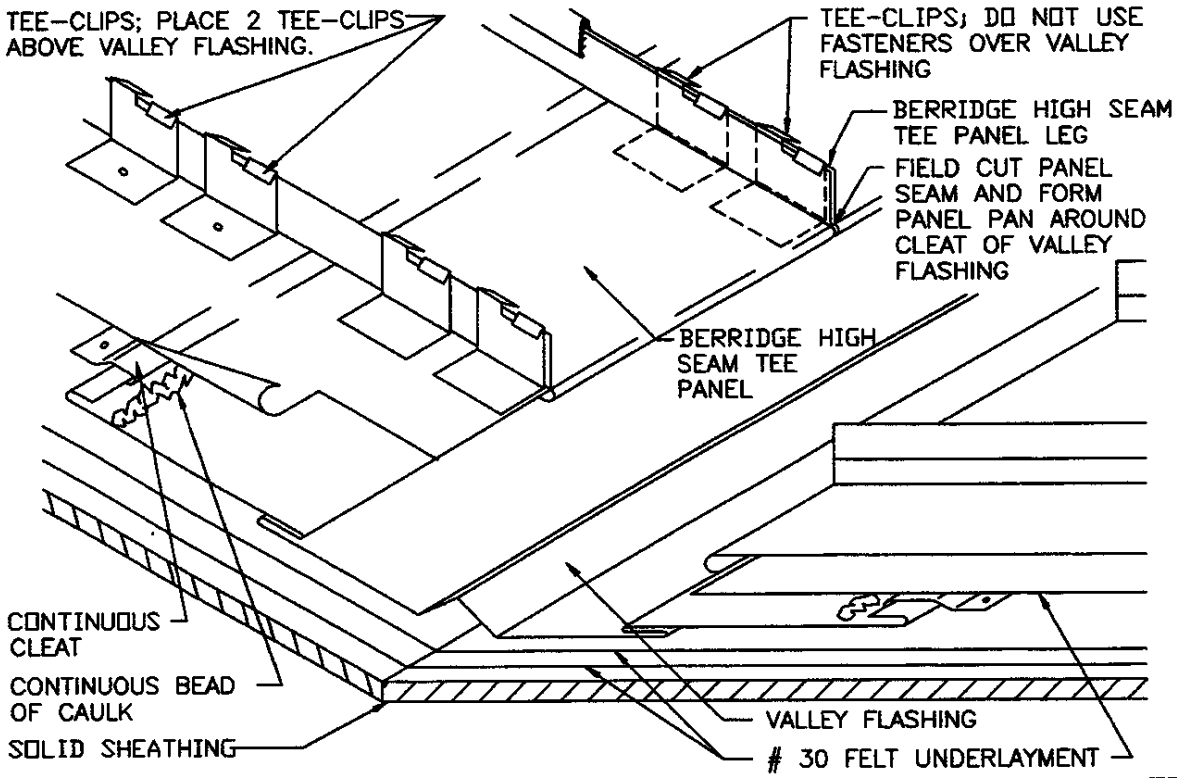
Berridge Manufacturing Company
Roofs of Distinction

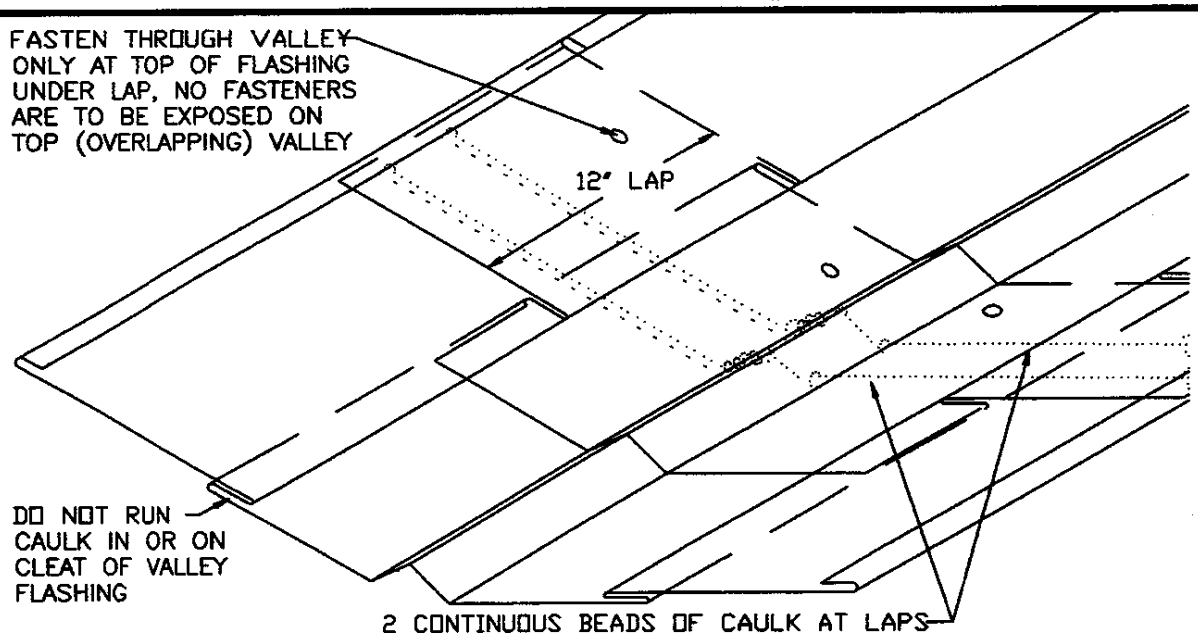
VALLEY DETAIL

HIGH SEAM TEE PANEL

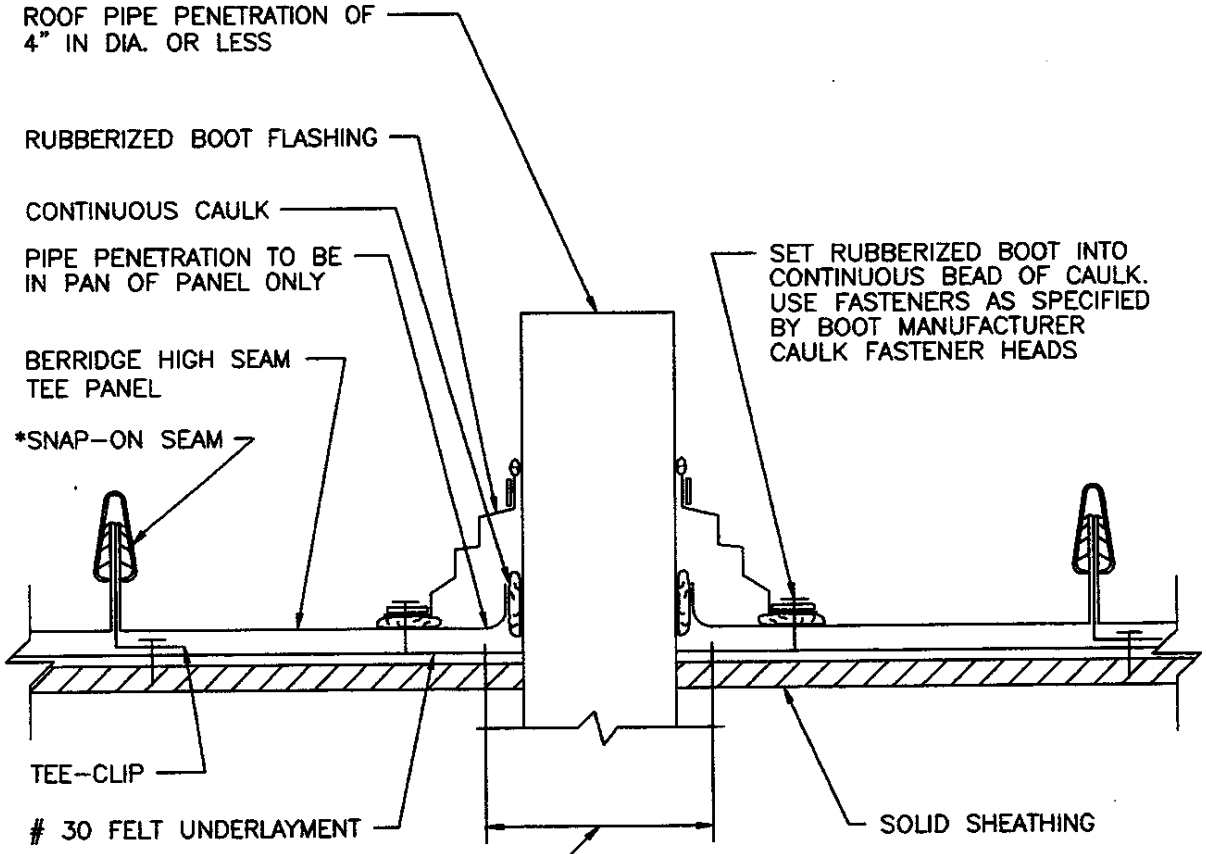
DATE: 12/11/01

PAGE\FILE
HT-70





DATE: 12/11/01	VALLEY DETAIL; ISOMETRIC	Berridge Manufacturing Company. Roofs of Distinction
PAGE\FILE HT-71	**HIGH SEAM TEE PANEL**	



CUT PANEL 1" SMALLER THAN PENETRATION, BACK CUT TABS, FOLD TABS UP AROUND PENETRATION, AND CAULK.

NOTE: CUT HOLE TO ALLOW FOR THERMAL MOVEMENT IF PANELS ARE 30'-0" OR LONGER.

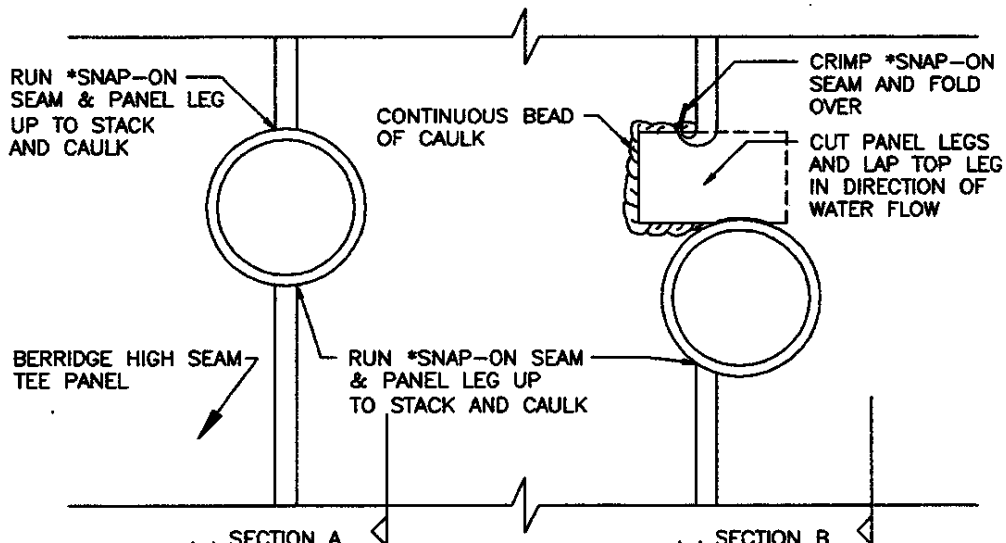
NOTE: IF PIPE IS MADE OF METAL, IT MUST BE PAINTED TO PREVENT RUST RUN-OFF FROM STAINING PANELS.

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

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

Berridge Manufacturing Company Roofs of Distinction	PIPE PENETRATION (PREFERRED METHOD) IN PAN OF PANEL ONLY 4" DIA. OR LESS	DATE: 12/11/01
	HIGH SEAM TEE PANEL	PAGE\FILE **HT-80**

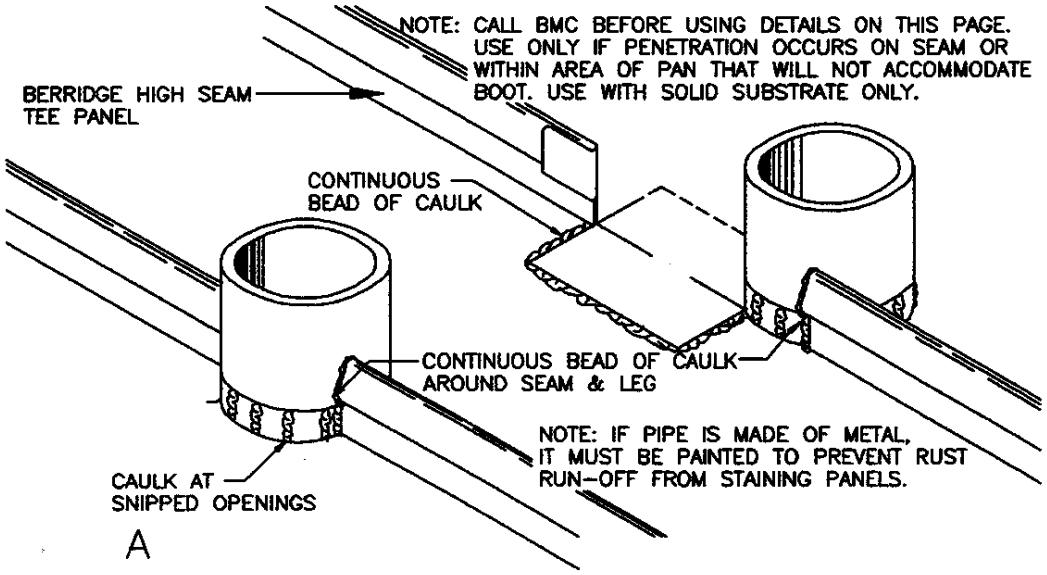
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.



**SECTION A
**PAGE HT–82
ROOF PENETRATION CENTERED ON SEAM

**SECTION B
**PAGE HT–82
ROOF PENETRATION OFF CENTER OF SEAM

**CALL BMC BEFORE USING THIS DETAIL

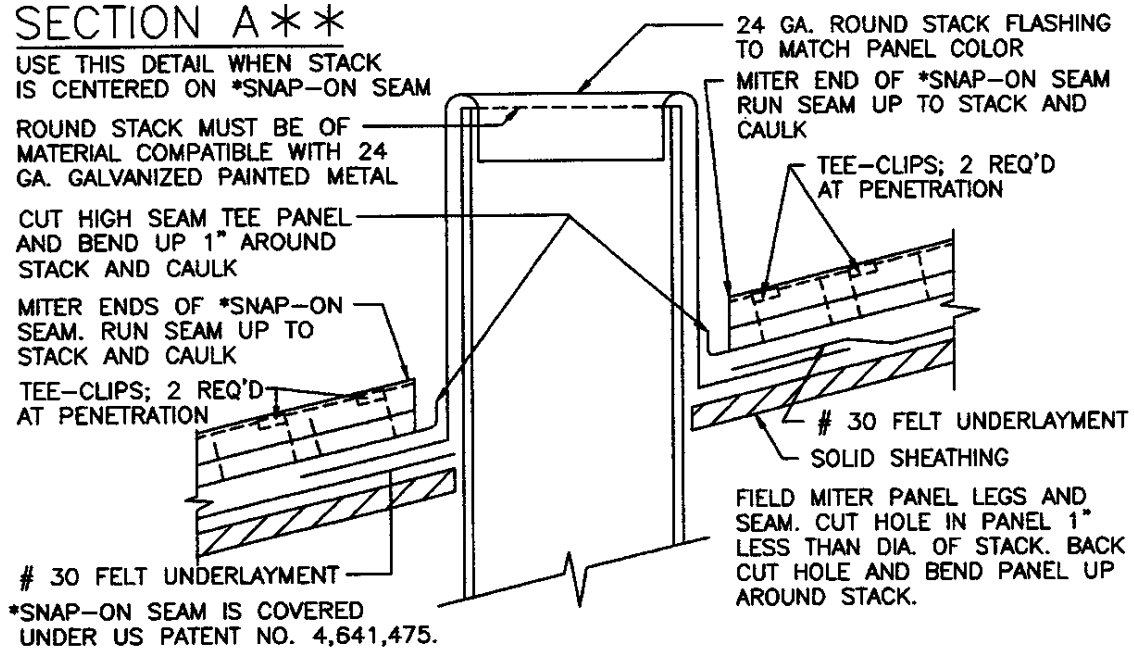


A

DATE: 12/11/01	PIPE PENETRATION OF PANEL SEAM ISOMETRIC AND PLAN VIEW **CALL BMC BEFORE USING THIS DETAIL	Berridge Manufacturing Company. Roofs of Distinction
PAGE\FILE HT-81	**HIGH SEAM TEE PANEL**	

SECTION A**

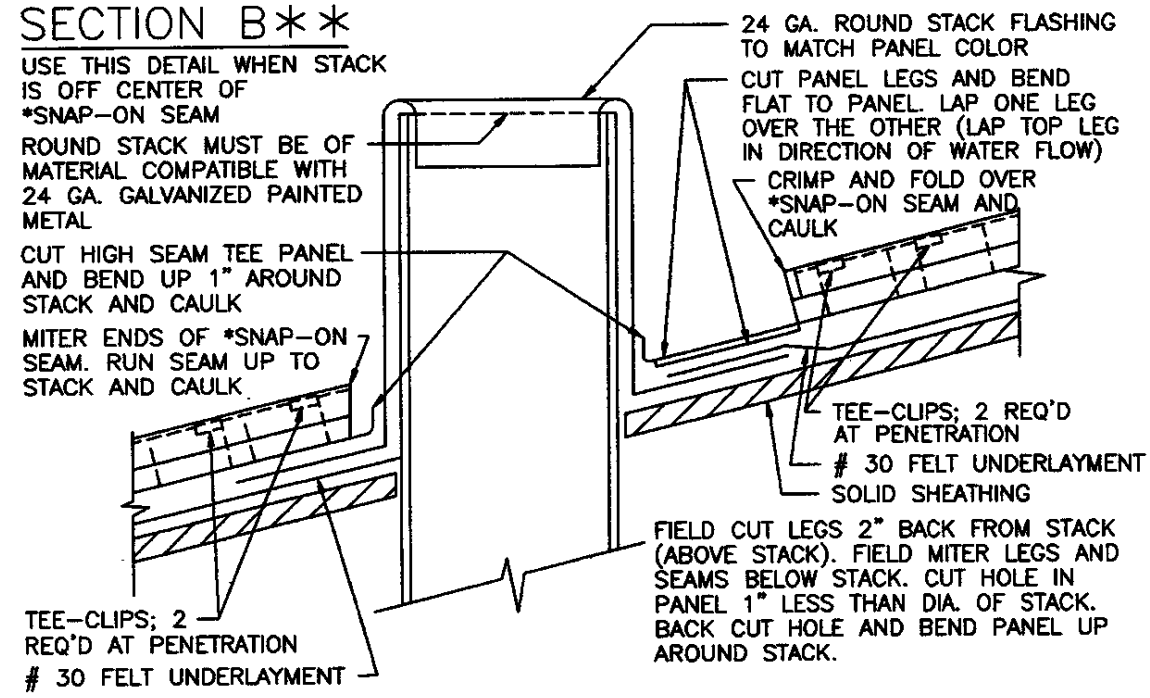
USE THIS DETAIL WHEN STACK IS CENTERED ON *SNAP–ON SEAM



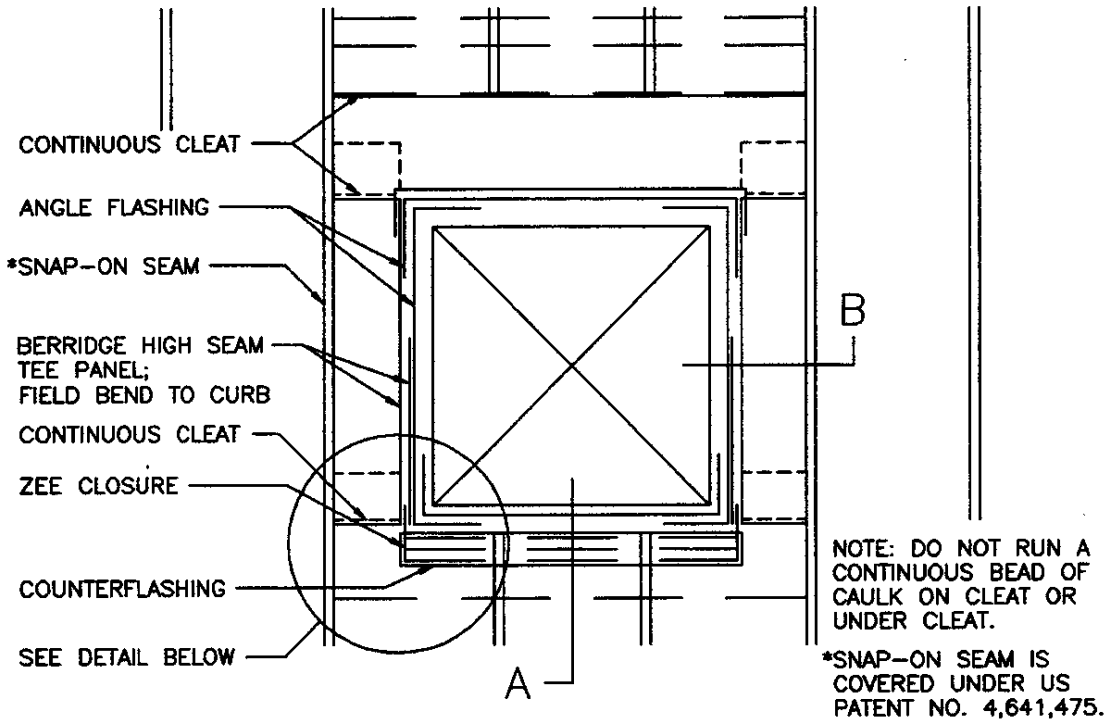
*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

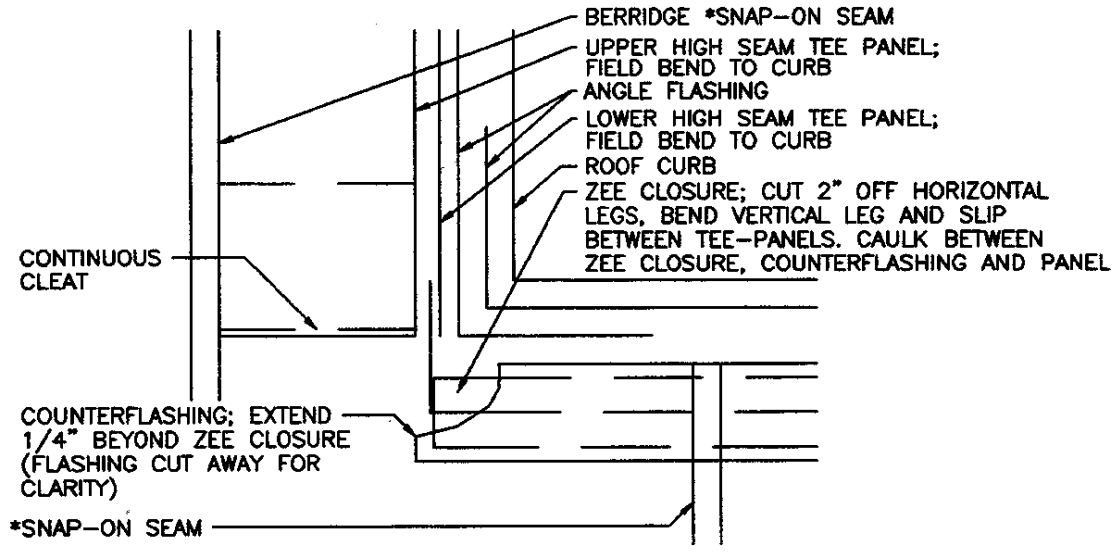
SECTION B**

USE THIS DETAIL WHEN STACK IS OFF CENTER OF *SNAP–ON SEAM



Berridge Manufacturing Company Roofs of Distinction	PIPE PENETRATION ON PANEL SEAM; SECTIONS **CALL BMC BEFORE USING THIS DETAIL	DATE: 12/11/01
	HIGH SEAM TEE PANEL	PAGE\FILE **HT-82**





DATE: 12/11/01

PAGE\FILE
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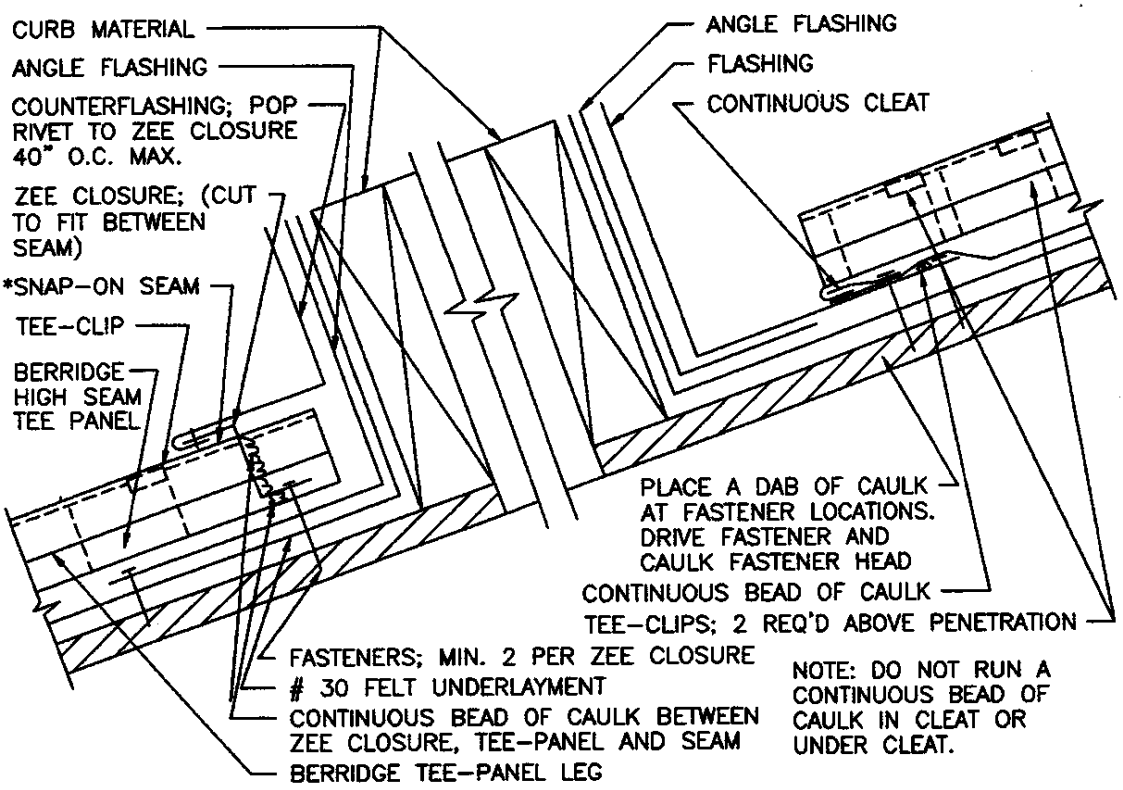
ROOF PENETRATION RECTANGULAR/SQUARE

HIGH SEAM TEE PANEL

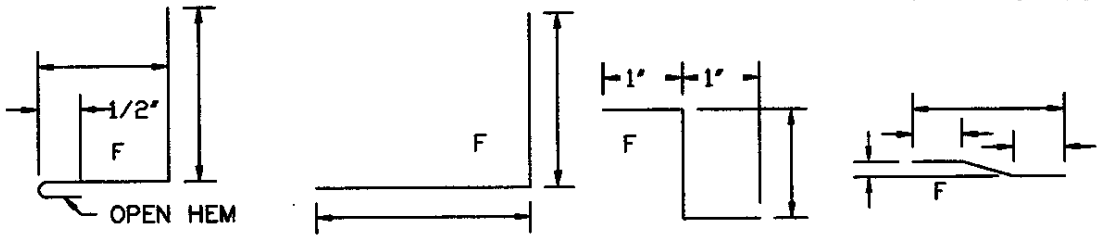
Berridge Manufacturing Company
Roofs of Distinction



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

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



Berridge Manufacturing Company
Roofs of Distinction

ROOF PENETRATION SECTION A

HIGH SEAM TEE PANEL

DATE: 12/11/01

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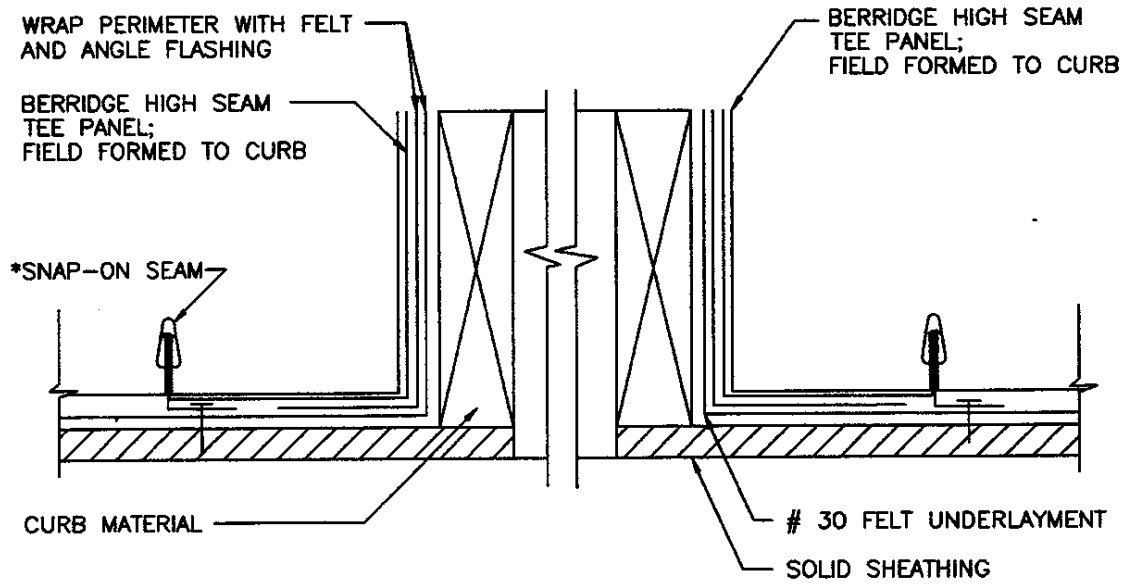
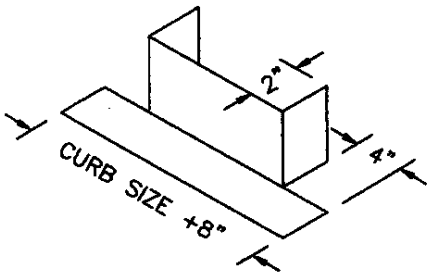
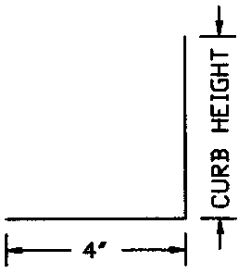


*SNAP–ON SEAM IS COVERED UNDER US PATENT NO. 4,641,475.

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

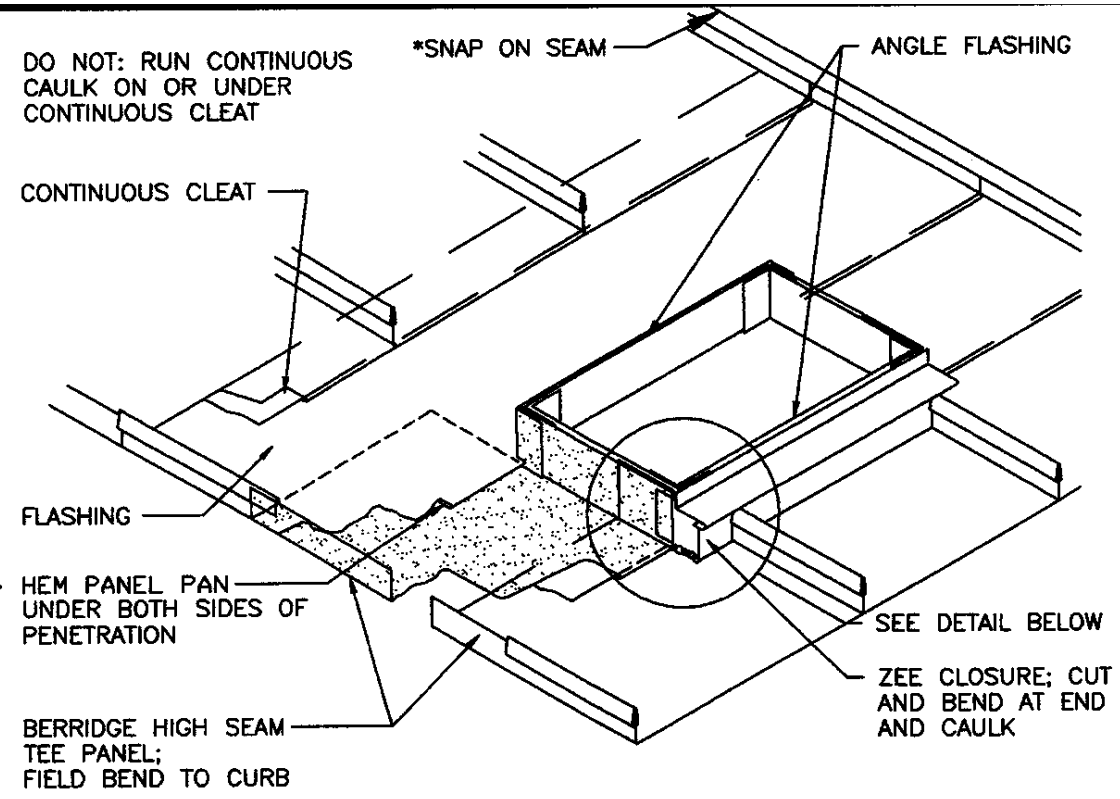


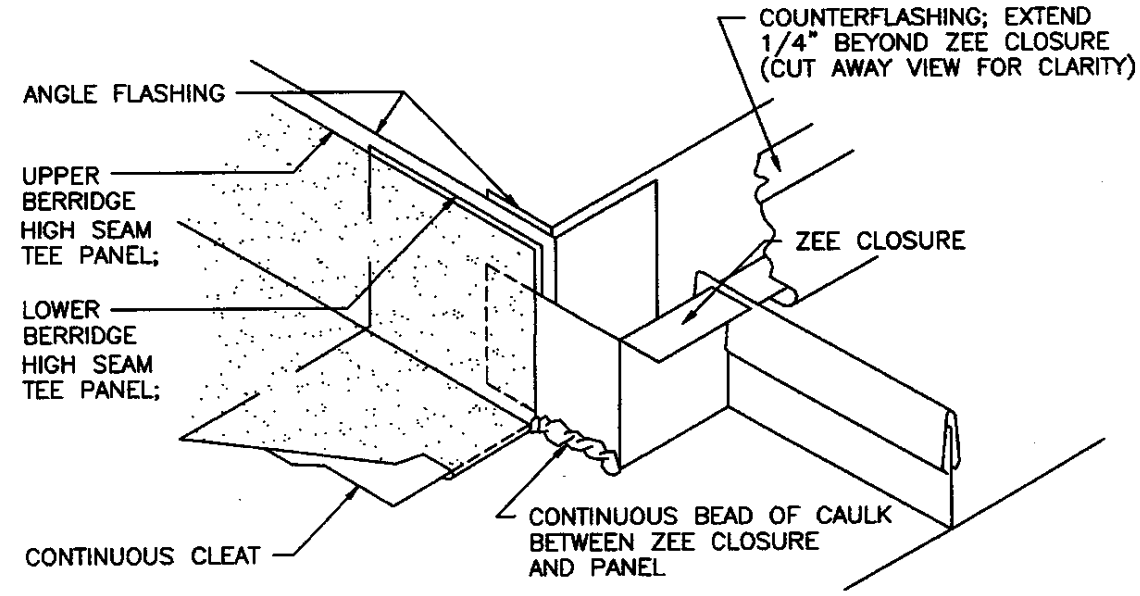
WRAP FLASHING



ANGLE FLASHING

DATE: 12/11/01	ROOF PENETRATION SECTION B	Berridge Manufacturing Company
PAGE\FILE HT-85	**HIGH SEAM TEE PANEL**	Roofs of Distinction





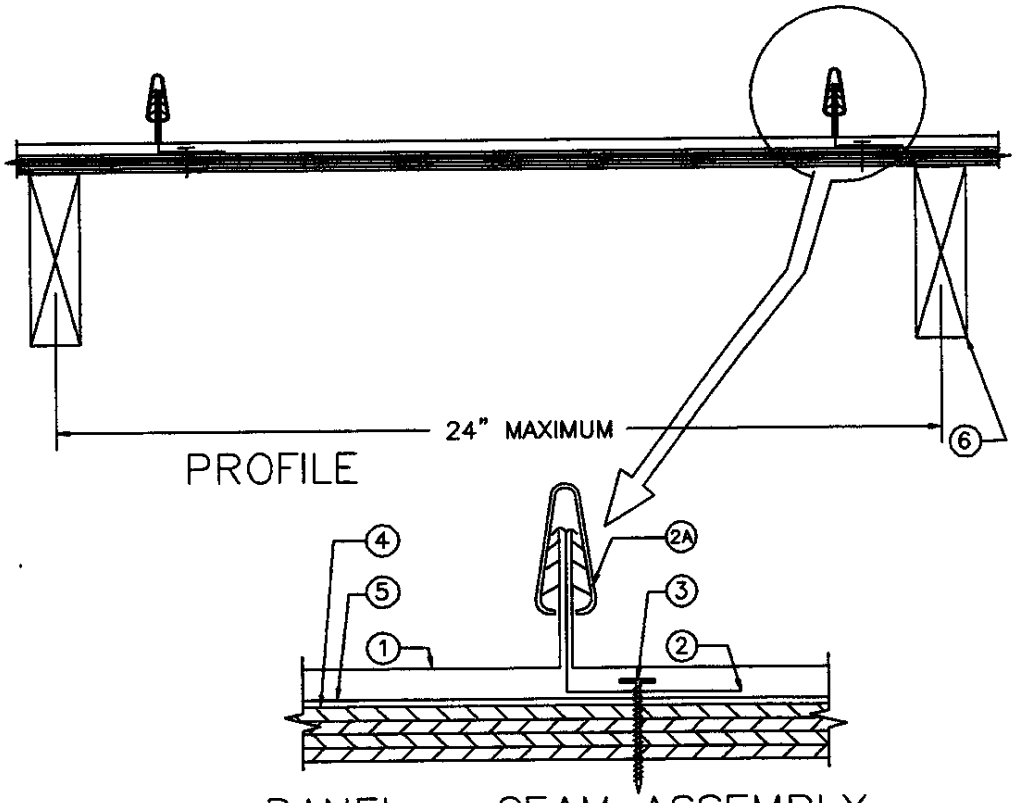
Berridge Manufacturing Company
Roofs of Distinction

ROOF PENETRATION ISOMETRIC

DATE: 12/11/01

HIGH SEAM TEE PANEL

PAGE\FILE
HT-86



PANEL – SEAM ASSEMBLY

1. METAL ROOF DECK PANELS: No. 24 MSG min. 40,000 psi yield strength coated steel. Panel widths to be 18–1/4" and rib height to be 1 3/8". Total seam height with snap–on seam cover in place is nominal 1 1/2". Panels to be continuous length. End laps to be overlapped minimum 6". A line of sealant may be used at end and sidelaps.
Berridge Manufacturing Co. – "High Seam Tee–Panel"

2. ROOF DECK FASTENERS: (Panel Clips) one piece clip, formed from the same type and thickness material as that used to fabricate metal panels. Clips spaced max. 24" O.C., located at panel sides with guide holes in bottom to accommodate screw fasteners.
Berridge Manufacturing Co. – "High Seam Tee–Clip"

2A. ROOF DECK FASTENERS: (Seam Covers) Seams covering panel ribs are to be 3/8" wide and 7/8" high with vinyl insert (US Patent No. 4,641,475), formed from the same type and thickness material as that used to fabricate metal panels.
Berridge Manufacturing Company – "Seam Covers"

3. FASTENERS: Screws used to attach the panel clips to plywood to be No. 10 by 1" long pancake head wood screw with a No. 2 Phillips drive. One screw per clip. Screws used to attach plywood substructure to wood trusses of joist to be deformed shank nails. When light ga. Structural Steel joists are used, screws to be No. 12 x 1–5/8" long with Phillips drive head. Spacing of screws to be 6" O.C. at plywood ends and 12" O.C. at interior joints.

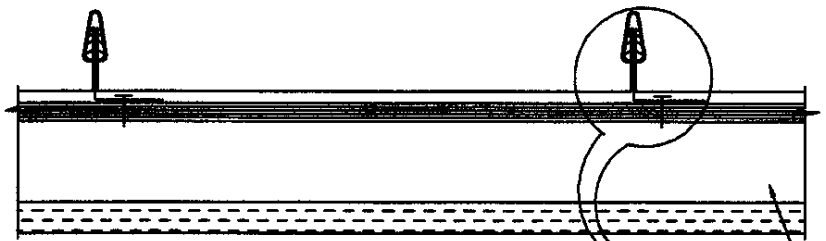
4. SUBSTRUCTURE: (Plywood) Plywood decking to be a nominal 5/8" thick, exposure sheathing span C–D, 40/20 plywood. All butt joints are to be sealed with tape and/or caulked.

5. FELT PAPER: Two ply, No. 30 felt per 100 square feet.

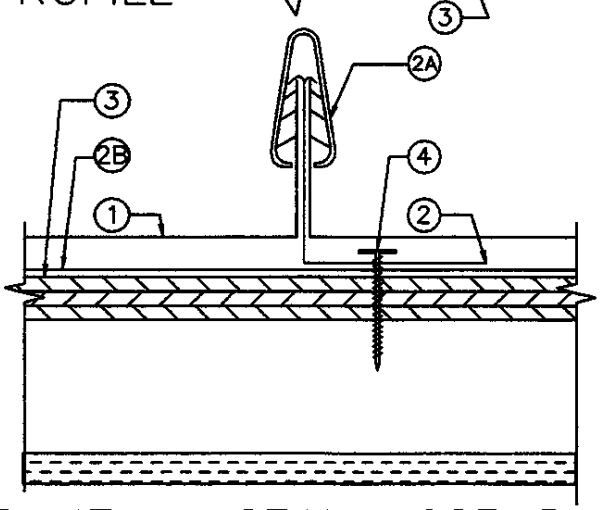
6. JOISTS: Joist spaced at 2'–0" O.C. may be one of the following:
   A. Nom. 2 x 6 wood joists No. 2 or better.
   B. Nom. 2 x 4 wood when used on a top chord of a wood truss, No. 2 or better.
   C. Light gauge structural steel framing with the member against the plywood to be a minimum No. 22 MSG coated steel.

FOR ADDITIONAL INFORMATION, PLEASE REFER TO THE UNDERWRITERS LABORATORY, INC. BUILDING MATERIALS DIRECTORY.

Berridge Manufacturing Company *Roofs of Distinction*	UL 90 APPROVED HIGH SEAM TEE PANEL ASSEMBLY CONSTRUCTION NO. 297	DATE: 12/11/01
	HIGH SEAM TEE PANEL	PAGE\FILE **HT-90**



PROFILE



PANEL – SEAM ASSEMBLY

1. METAL ROOF DECK PANELS: No. 24 MSG min. 40,000 psi yield strength coated steel. Maximum panel width 18 1/4" and rib height to be 1 3/8". Total seam height with snap–on seam cover in place is nominal 1 1/2". Panels continuous over two or more spans. End laps are to be overlapped minimum 6". A line of sealant may be used at end and sidelaps.
Berridge Manufacturing Co. – " High Seam Tee–Panel"

2. ROOF DECK FASTENERS: (Panel Clips) one piece assembly, fabricated from 24 MSG coated steel. Clips are spaced a maximum of 12 in. OC located at panel sides with guide holes in bottom to accommodate screw fasteners.
Berridge Manufacturing Co. – " High Seam Tee–Clip"

2A. ROOF DECK FASTENERS: (Seam Covers) Seams covering panel ribs are to be 3/8" wide and 7/8" high with vinyl insert (US Patent No. 4,641,475), formed from the same type and thickness material as that used to fabricate metal panels.
Berridge Manufacturing Co. – "Snap on Seam"

2B. FELT PAPER:
Two ply, No. 30 felt per 100 square feet.

3. STRUCTURAL CEMENT–FIBER UNITS:
Consists of 5 in. thick composite structural cement fiber units with foamed plastic core and 7/16 in. OSB structural panel on one face. All transverse butt joints are to occur over structural support.
Tectum, Inc. – "Type E or Type 3"

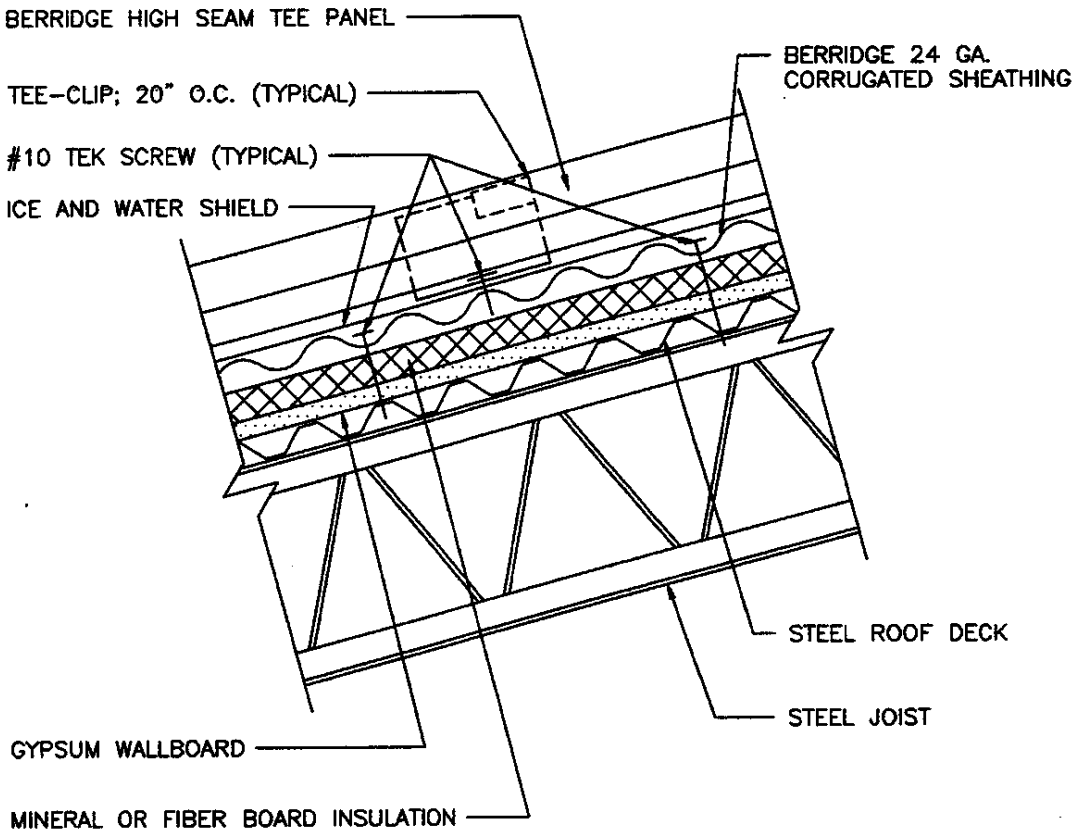
4. FASTENERS:
(Screws) – Scresw used to attach structural cement fiber units (item 3) to structural supports (item 5) to be 6 in. long minimum 14 MSG screw with a 5/8 in. diam head. Fasteners are spaced 12 in. OC. Screws used to attach roof deck fasteners (item 2) to structural cement fiber unit deck to be No. 10 pancake head self–tapping steel screws. Screws to be spaced maximum 12 in. OC.
Fasteners used to attach roof deck fasteners (panel clips) (item 2) to plywood substructure to be No. 10 by 1 in. long pan head steel screws. Two screws per roof deck fastener.

5. SUPPORT (JOIST):
Cee channels to be spaced maximum 7 ft. 0 in. As alternatives, structural steel components (hot rolled beams, open web joist, etc.) may be used. min gauge and yield to depend on design considerations for uplift loading.

6. LATERAL BRACING:
(Not shown) As required. Refer to General Information, Roof Deck Constructions (Roofing Materials and Systems Directory) for items not evaluated.

FOR ADDITIONAL INFORMATION, PLEASE REFER TO THE UNDERWRITERS LABORATORY, INC. BUILDING MATERIALS DIRECTORY.

DATE: 12/11/01	UL 90 APPROVED HIGH SEAM TEE–PANEL ASSEMBLY CONSTRUCTION NO. 475	Berridge Manufacturing Company Roofs of Distinction
PAGE\FILE **HT-91**	**HIGH SEAM TEE PANEL**	

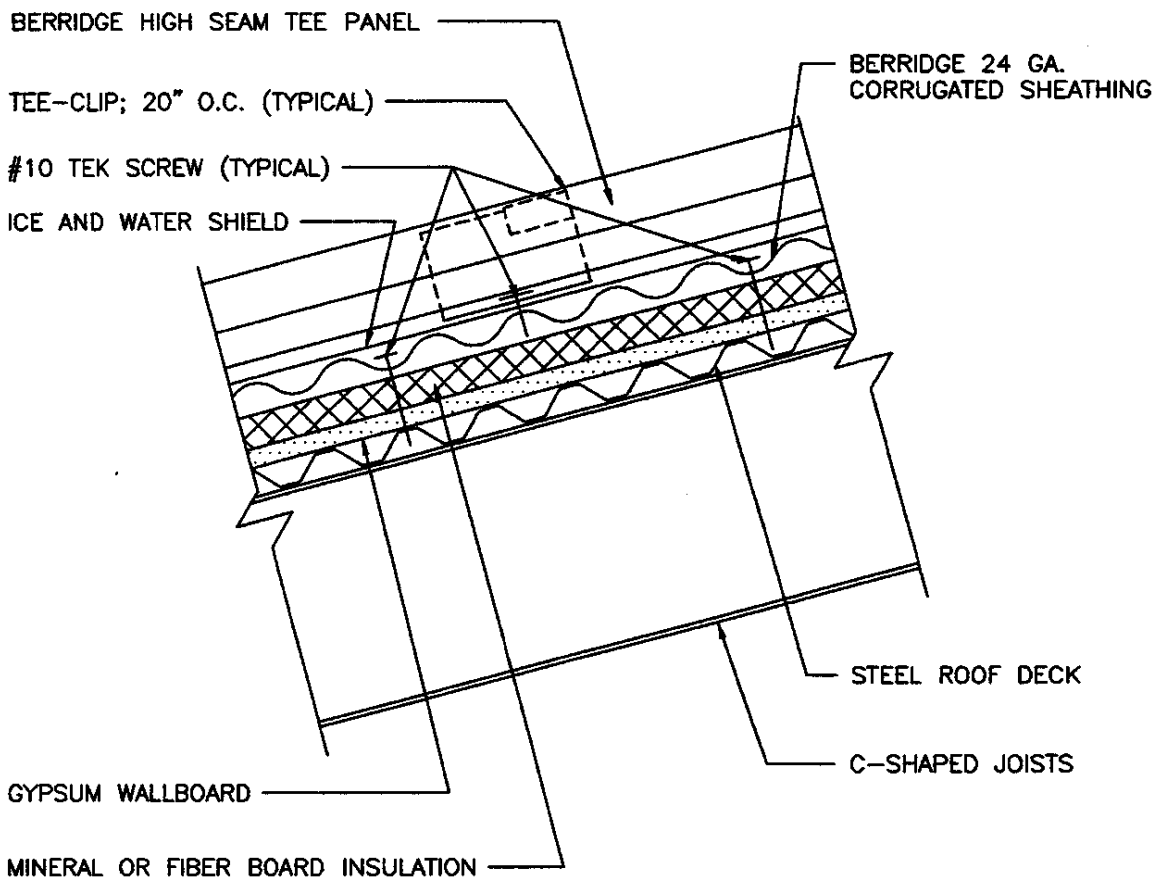


1. IN ORDER TO QUALIFY FOR A FIRE-RESISTANT RATING, THE ROOF SYSTEM CANNOT MAKE A PENETRATION IN THE INSULATION SYSTEM. THE TEE-PANEL, IN ORDER TO MAKE POSITIVE ATTACHMENT, MUST BE ATTACHED TO A CORRUGATED SUBSTRATUM (IF THE INSULATION SYSTEM HAS NO NAILABLE SURFACE). THE CORRUGATED SUBSTRATUM IS TO BE MOUNTED DIRECTLY TO THE INSULATION SYSTEM WITH FASTENERS FASTENED THROUGH INTO THE STRUCTURAL STEEL DECK.

2. THIS ASSEMBLY QUALIFIES FOR THE FOLLOWING UL FIRE-RESISTANT ROOF ASSEMBLIES: UL DESIGN NO. P224, P225, P227, P230, P237, P250, P259, P508, P510, P512, P514, P518, P701, P711, P713, P717, P719, P720, P722, P723, P724, P726, P731, P734, P736, P801, P803, P814, P815, P818, P819, P823, AND P824.

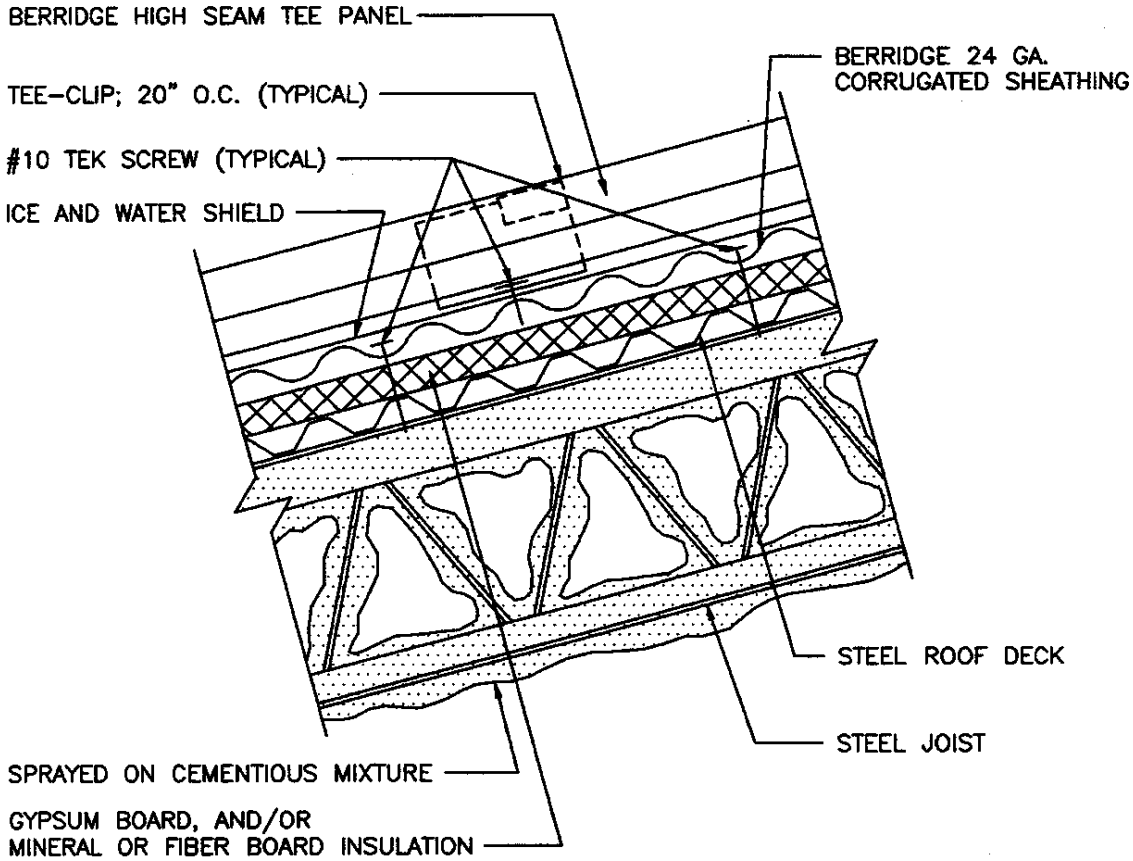
3. ADDITIONAL INFORMATION REGARDING THIS ASSEMBLY IS AVAILABLE IN THE UL FIRE RESISTANCE DIRECTORY.

Berridge Manufacturing Company *Roofs of Distinction*	UL FIRE RESISTANCE ROOF ASSEMBLY	DATE: 12/11/01
	HIGH SEAM TEE PANEL	PAGE\FILE **HT-100**



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 POSITIVE ATTACHMENT, MUST BE ATTACHED TO A CORRUGATED SUBSTRATUM (IF THE INSULATION SYSTEM HAS NO NAILABLE SURFACE). THE CORRUGATED SUBSTRATUM IS TO BE MOUNTED DIRECTLY TO THE INSULATION SYSTEM WITH FASTENERS FASTENED THROUGH INTO THE STRUCTURAL STEEL DECK.
2. THIS ASSEMBLY QUALIFIES FOR THE UL FIRE-RESISTANT ROOF ASSEMBLY: P512.
3. ADDITIONAL INFORMATION REGARDING THIS ASSEMBLY IS AVAILABLE IN THE UL FIRE RESISTANCE DIRECTORY.

DATE: 12/11/01	UL FIRE RESISTANCE ROOF ASSEMBLY	Berridge Manufacturing Company. Roofs of Distinction
PAGE\FILE HT-101	**HIGH SEAM TEE PANEL**	



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 POSITIVE ATTACHMENT, MUST BE ATTACHED TO A CORRUGATED SUBSTRATUM (IF THE INSULATION SYSTEM HAS NO NAILABLE SURFACE). THE CORRUGATED SUBSTRATUM IS TO BE MOUNTED DIRECTLY TO THE INSULATION SYSTEM WITH FASTENERS FASTENED THROUGH INTO THE STRUCTURAL STEEL DECK.

2. THIS ASSEMBLY QUALIFIES FOR THE FOLLOWING UL FIRE RESISTANT ROOF ASSEMBLIES: UL DESIGN NO. P224, P225, P227, P230, P237, P250, P259, P508, P510, P512, P514, P518, P701, P711, P713, P717, P719, P720, P722, P723, P724, P726, P731, P734, P736, P801, P803, P814, P815, P818, P819, P823, AND P824.

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

Berridge Manufacturing Company *Roofs of Distinction*	UL FIRE RESISTANCE ROOF ASSEMBLY	DATE: 11-15-00
	HIGH SEAM TEE PANEL	PAGE\FILE **HT-102**