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METAL ROOF PANELS

PANEL SYSTEM DATA: Series 2500 Structural Panel System, Mechanical Seam

MATERIAL DATA: Galvalume Steel, Standard Permacolor/Permametallic 3500 Finish

COLOR CHART

UNDERLAYMENT DATA: MetalMan HT Self Adhering Underlayment, Englert Premium Nailable

DETAILS

STANDARD DETAILS

WARRANTIES

ENGLERT STANDARD FINISH WARRANTY

MAINTENANCE GUIDE



STRUCTURAL SYSTEM FOR COMMERCIAL AND INSTITUTIONAL

2" STRUCTURAL AND ARCHITECTURAL MECHANICALLY SEAMED PANEL SYSTEM

Designed particularly as a structural roof system for pre-engineered buildings, Englert's Series 2500 Armco style single-lock panel is the industry's most extensively tested system, with over 50 years of history in the field. The 2500 profile incorporates a unique heavy duty interlock clip that secures the system while allowing thermal expansion and contraction.

SYSTEM APPLICATIONS

- Heavy duty for commercial and industrial use
- 1/2"/12" minimum slope
- Can be installed over a solid deck or open framing
- Requires seam sealant if air and water tests are specified
- Engineering available for various panel sizes and substrates upon request

SUBSTRATES

- 26, 24 and 22 gauge steel
- .032" and .040" aluminum
- 16 oz. and 20 oz. copper



FINISHES

Englert's Series 2500 system is available in a wide variety of coatings and colors. See the Englert color card for our full range of standard colors and paint system specifications.

Englert can match the color of virtually any material – including brick, wood and fabric – with short lead times as needed. Custom colors are available in quantities as low as 5,000 lbs. on steel or aluminum.

SYSTEM WARRANTIES

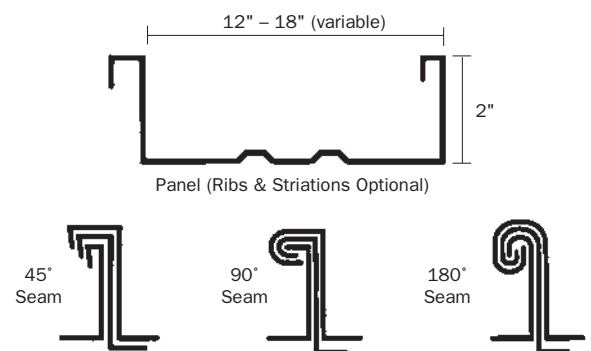
- Galvalume Plus® – 25-year steel warranty on acrylic coated Galvalume®
- PermaColor 2000 – 30-year steel or aluminum warranty on Kynar 500®/Hylar 5000® coating
- PermaMetallic 2000 – 20-year steel or aluminum warranty on Kynar 500®/Hylar 5000® coating
- Siliconized Modified Polyester – 15-year steel or aluminum coating warranty

RATINGS AND CERTIFICATIONS

- UL-90 rated over 22 gauge metal deck at 16" wide with clips at 30" o.c. (24 ga. steel)
- UL-90 rated over 16 gauge purlins at 16" wide with clips at 60" o.c. (24 ga. steel)
- ASTM-E-1646-95 and ASTM-E-331 water penetration tested
- ASTM-E-1680-95 and ASTM-E-283 air infiltration tested
- ASTM-E-1592-98 uplift tested (24 and 22 ga. steel, .040" aluminum)
- ASTM-E-84 Class A fire rating on coating and substrate
- FM-I90 rated over 16 gauge purlins at 16" wide with clips at 60" o.c. (24 ga. steel)



Series 2500 2" Mechanically Seamed



Allowable Uniform Live Load (PSF)

No. of Spans	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
14" Width — 24 ga. steel					
2	79	62	50	41	34
3 or more	92	72	58	48	40
14" Width — 22 ga. steel					
2	110	87	70	58	48
3 or more	129	102	82	68	57
16" Width — 24 ga. steel					
2	69	54	44	36	30
3 or more	80	63	51	42	35
16" Width — 22 ga. steel					
2	97	76	61	51	42
3 or more	113	89	72	59	50
18" Width — 24 ga. steel					
2	61	48	39	32	27
3 or more	71	56	45	37	31
18" Width — 22 ga. steel					
2	86	68	55	45	37
3 or more	100	79	64	53	44

Note: Load values shown may be increased by 1/3 for allowable wind load.

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Hylar 5000® is a registered trademark of Ausimont USA
Galvalume® and Galvalume Plus® are registered trademarks of BIEC International, Inc.
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SPECIFICATIONS

SYSTEM PECIFIER

www.englertinc.com

MANUFACTURER

ENGLERT, INC.
1200 Amboy Avenue
Perth Amboy, New Jersey 08861
Tel: (732) 826-8614
Fax: (732) 826-8865

SECTION 07410 - MANUFACTURED ROOF AND WALL PANELS SECTION 07610 - SHEET METAL ROOFING

PART I – GENERAL

1.01 WORK INCLUDED

Providing all labor, materials, tools, equipment and services to furnish and install metal roofing, wall panels/siding, including soffit, flashing, trim and such other accessories to make the system complete and weathertight, as indicated on the drawings and specified herein.

1.02 RELATED WORK (to be coordinated with other trades by the successful contractor under this section). FOR APPLICATIONS OVER PLYWOOD DECKING (edit as required)

- A. Section 06100: Rough Carpentry
- B. Section 06200: Finish Carpentry
- C. Section 07620: Sheet Metal Flashing and Trim
- D. Section 07700: Roof Specialties and Accessories
- E. Section 07800: Skylights
- F. Section 07900: Joint Sealers

OR

1.02 RELATED WORK (to be coordinated with other trades by the successful contractor under this section). FOR APPLICATIONS OVER METAL DECKING WITH RIGID INSULATION AND STANDING SEAM ROOF (edit as required).

- A. Section 05100: Structural Steel
- B. Section 05200: Steel Joists
- C. Section 05300: Metal Decking
- D. Section 05580: Sheet Metal Fabrication
- E. Section 07200: Insulation
- F. Section 07500: Membrane Roofing
- G. Section 07620: Sheet Metal Flashing and Trim
- H. Section 07700: Roof Specialties and Accessories
- I. Section 07800: Skylights
- J. Section 07900: Joint Sealers



This specification guide is designed to assist in the proper insertion of Englert Roof Systems into any architectural building specifications. This guide is formatted to match the CSI Spec Data System, however is not part of that program.

SERIES 2500

TRI\SPECS:2500:07/19/13
90311K

1.03 QUALITY ASSURANCE

- A. **Installation:** By a roofing/sheet metal contractor with at least a minimum of five years experience in similar type of construction and documenting successful completion of contracts for projects similar in size, scope and products.
- B. **Before Fabrication:** The contractor shall take field measurements of the structure and substrates indicated and specified to ensure that panel lengths and brakeformed flashings are dimensioned accurately to facilitate easy installation. Fabrication shall not begin until all field conditions have been verified. Allow for sufficient trimming of panel units at eaves, valleys, and gables prior to fabrication.

1.04 REFERENCES

- A. SMACNA (Sheet Metal and Air Conditioning Contractors National Association, Inc.) Architectural Sheet Metal Manual.
- B. NRCA (The National Roofing Contractors Association) Roofing and Waterproofing Manual (including Construction Details), and Handbook of Accepted Roofing Knowledge.
- C. Manufacturer's Construction Details Handbook.
- D. AISC Steel Construction Manual.
- E. AISI Cold Formed Steel Design Manual.

1.05 SUBMITTALS

- A. Submit product literature, shop drawings, and samples in accordance with Section 01340.
- B. Product Literature:
 - 1. Manufacturer's descriptive literature.
 - 2. Manufacturer's standard color chart.
- C. Shop drawings are to be a small scale layout of roof plan and elevation, indicating the extent of work to be performed. Include sections of roof, fascia, walls, siding and soffits, for each condition, detailing flashing and trim for different conditions, such as eaves, outside/inside corners, ridge, valleys, gutters, end wall terminations, closures, etc., showing a full and complete installation. Show securement of panels and clips, spacing, type and number of fasteners, as recommended by the Manufacturer.
- D. Submit 2'0" long sample panel indicating the metal, gauge, color, texture, and finish proposed.
- E. Submit Manufacturer's warranty covering the substrate (metal) against rupture, perforation, and structural failure due to normal atmospheric corrosion for twenty-five (25) years.
- F. Submit Manufacturer's thirty-five (35) year warranty on paint finish against cracking, peeling, blistering, chalk, and color change.
- G. Submit test reports complying with finish specifications per section 2.05.1 through 2.05.8.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Unload and store materials at job-site to protect them from any damage.
- B. Inspect delivered material. Prevent interference by other trades or any other adverse job conditions.
- C. Store materials above ground, on skids. Protect material with waterproof covering and allow sufficient ventilation to prevent condensation build-up or moisture entrapment in the materials.

1.07 WARRANTY



- A. Manufacturer shall warrant the metal roof against rupture or perforation or from structurally failing due to normal atmospheric conditions for a period of twenty-five (25) years. In addition, Manufacturer shall provide a 35-year finish warranty against peeling and blistering, chalk, and fade (color change).
- B. Installer shall provide a written warranty for two (2) years from the date of final completion and acceptance, guaranteeing materials and workmanship for watertightness, weathertightness, and against all leaks. During the initial two (2) year period, the Installer shall assure weathertightness and watertightness of the roof, without any cost to the building owner.

PART II – PRODUCTS

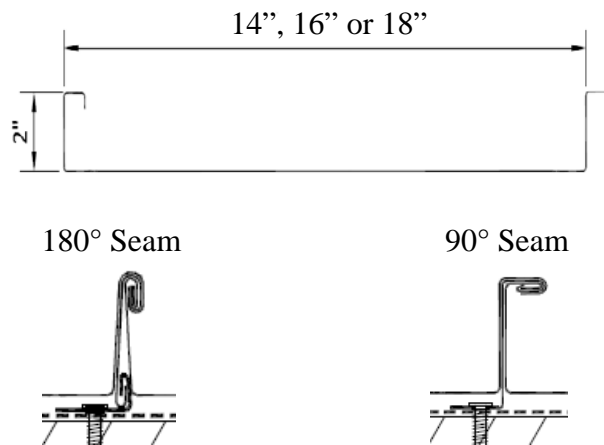
2.01 ACCEPTABLE MANUFACTURER

ENGLERT, INC.

1200 Amboy Avenue
Perth Amboy, New Jersey 08861
Tel: (732) 826-8614
Fax: (732) 826-8865

SERIES 2500

2” High Structural/Architectural Mechanically Locked Standing Seam



NOTE TO SPECIFIER: Englert Series 2500 Panel System serves the structural needs of roofing/fascia and mansard systems. The Series 2500 may be specified for application over solid deck or over purlins or over metal deck with rigid insulation. The Series 2500 Panel System can also be secured with bearing plates and clips through the insulation to the metal deck. Minimum Pitch: 1/2”/12”. Specify as required.

- A. Panel System shall be the Englert Series 2500, 2" high, 16" wide, Structural Standing Seam System (with ribs). Mechanical seaming available in 90 or 180 degrees, dependent on project specific conditions. The panels shall have baked on finish as specified in Section 2.05 hereunder, in manufacturer's standard colors. Manufacturer shall offer at least a minimum of 23 standard colors to choose from.
- B. **Substrate:**
- 24 Gauge baked on finish over Galvalume ASTM A-792-83, AZ50, 50 KSI yield point.
 - 22 Gauge baked on finish over Galvalume ASTM A-792-83, AZ50, 50 KSI yield point.

NOTE TO SPECIFIER: *22 gauge steel available subject to minimum order requirements. *Call Englert for details.*

- C. **Performance:**
1. Panel shall meet the requirements of Underwriter's Laboratories, Inc. for Class 90 wind uplift resistance.
 2. ASTM E-283-84 Air Infiltration: Maximum of 0.006 CFM/Ft² at 1.57 psf pressure differential on 45 degree seamed profile and 0.013 CFM/Ft² at 6.24 psf pressure differential.
 3. ASTM E-331-70 Water Penetration: No evidence of uncontrolled leakage on 45 degree seamed panel at 15.10 psf pressure differential.
 4. Panel shall display a flame spread classification of a Class 1, when tested in accordance with ASTM E-84-87
 5. Panel shall have been tested and rated in accordance with ASTM-E-1592 structural performance of sheet metal roof and siding systems by uniform static air pressure difference in 24 gauge steel and .040" aluminum.
 6. Panel shall have been tested and rated in accordance with Factory Mutual Research Corporation's Class 4471 wind uplift testing; minimum rating of FMI90.
 7. ASTM-E-1680-95 standard method for rate of air leakage through exterior metal roof panel systems.
 8. ASTM-E-1646-95 standard test method for water penetration of metal roof systems by uniform static air pressure differential.
 9. Florida Building Code product approval.

IF METAL SOFFIT IS REQUIRED, SPECIFY AS FOLLOWS:

2.03 SOFFIT PANEL SYSTEMS

- A. Soffit Panels: Series 2500 is not recommended for use as a soffit system.

2.04 FABRICATION

- A. Panel Construction: Panels shall be uniformly dimensioned, rollformed to exact lengths to avoid trimming. The panel system shall be anchored as recommended by the Manufacturer. All fasteners shall be concealed. Panels shall be continuous from ridge to eaves with no end laps. There shall be no face penetration of panels, except as approved by the architect for securing panels to facilitate directional expansion/contraction.
- B. Flashing and Trim: All exposed standard or special flashing/trim and such other brakeformed in the same gauge, color, and finish to match roofing panels, furnished with protective strippable film to be removed upon installation.
- C. Accessories such as clips, closures, fasteners, etc., shall be as recommended by the Manufacturer.

2.05 PERMACOLOR 3500 FINISH - (35-Year Warranty)

- A. Englert's PermaColor 3500 standard 35-year color coatings comprises of a .8 to .9 mil full strength 70% Kynar 500 fluorocarbon (Polyvinylidene Fluoride PVF2) coating over a urethane primer of .2 to .3 mil on the finish side, with primer and a wash coat on the reverse, on steel with just a wash coat on aluminum. Face film thickness 1.0 mil \pm .2 mil.

2.05.1 FILM THICKNESS



Topside Finish: Primer shall be .2-.3 mil. Kynar 500 top coat shall be .8 - .9 mil. Reverse side finish shall be .2 - .3 mil primer with a wash coat. Total dry film thickness for the coating system shall be 1.00 mil nominal. All measurements per NCCA Technical Bulletin II-4 or ASTM D1005-84.

2.05.2 SPECULAR GLOSS

As determined per ASTM D523-85 at a glossmeter angle of 60 degrees. 10% maximum specular reflectance.

2.05.3 HUMIDITY RESISTANCE

No blistering, cracking, peeling, loss of gloss or softening of the finish after 3000 hours aluminum 1000 hours coated steel, of exposure at 100% humidity at 95 degrees F, per Federal Test Method Standard 141, Method 6201 or ASTM D2247-87.

2.05.4 SALT SPRAY RESISTANCE

Samples diagonally scored and subjected to 5% - at 95 degrees F, neutral salt spray per ASTM B117-85, then taped with Scotch #610 cellophane tape: 3000 hours aluminum/1000 hours coated steel, no blistering and no loss of adhesion greater than 1/8 from score line. (Samples taped one hour after removal from test cabinet.)

2.05.5 CHEMICAL RESISTANCE

No effect after 24 hour exposure of a 10% solution of hydrochloric acid, and 18-hour exposure to 20% sulfuric acid, per ASTM D1308-85, including exposure to 10% muriatic acid and nitric acid fumes.

2.05.6 CHALKING RESISTANCE

No chalking greater than #8 rating, per ASTM D659-86 test procedure after a 3000-hour weatherometer test.

2.05.7 COLOR CHANGE

Finish coat color change shall not exceed 5 NBS units per ASTM D-822-86, ASTM G-23-88 and ASTM D2244-85 (South Florida 10-years) test procedure after 3000-hour weatherometer test.

2.05.8 ABRASION RESISTANCE

Shall pass 60 liters/mil., minimum of falling sand per ASTM D968-81. Method A.

2.06.1 PERMAMETALLIC 3500 FINISH - (35 Year Warranty)

- A. Metallic Copper (non-aging) comprises of a .8 to .9 mil metallic fluorocarbon full strength 70% Kynar 500 finish coating over a layer of .3 to .5 mil full strength 70% Kynar 500 base coat. the reverse side is treated with a primer and wash coat. Face film thickness: 1.2 mil \pm .2 mil.
- B. Pre-weathered Galvalume coating comprises of a .8 to .9 mil full strength, 70% Kynar 500 fluorocarbon (Polyvinylidene Fluoride PVF2) coating over a urethane primer of .2 to .3 mil on the finish side, with primer and a wash coat on the reverse, on steel; with just a wash coat on aluminum. Face film thickness: 1.0 mil \pm .2 mil.

2.07.1 MILL FINISH GALVALUME (Bare)

- A. A coating of aluminum zinc alloy applied by a continuous hot dipping process, offering greater corrosion resistance, high temperature oxidation resistance, and heat reflectivity. Mill finish Galvalume carries a 25-year warranty(AZ-55)

PART III - EXECUTION



3.01 INSPECTION

- A. Verify substrate is uniform, even and symmetrical by running a string test. Inspect to assure that all purlins or sub-structure/framing members are flat and insulation is embedded symmetrically so when the metal panels are applied, they will not appear wavy or distorted.
- B. Provide a written report of discrepancies or variations in the substrate to the Architect.
- C. Do not begin installation until unsatisfactory conditions are corrected.
- D. Do not proceed with installation until adjoining areas scheduled for stucco treatment have been stuccoed and washed down. Do not wash down acid residues from stucco directly over the metal panels.
- E. Commencement of installation shall signify acceptance of the substrate and adjacent conditions as being proper and acceptable for treatment of roofing.
- F. After beginning installation, submit approximately 500 square feet of product in place for Architect's approval, before proceeding with substantial work.

3.02 INSTALLATION

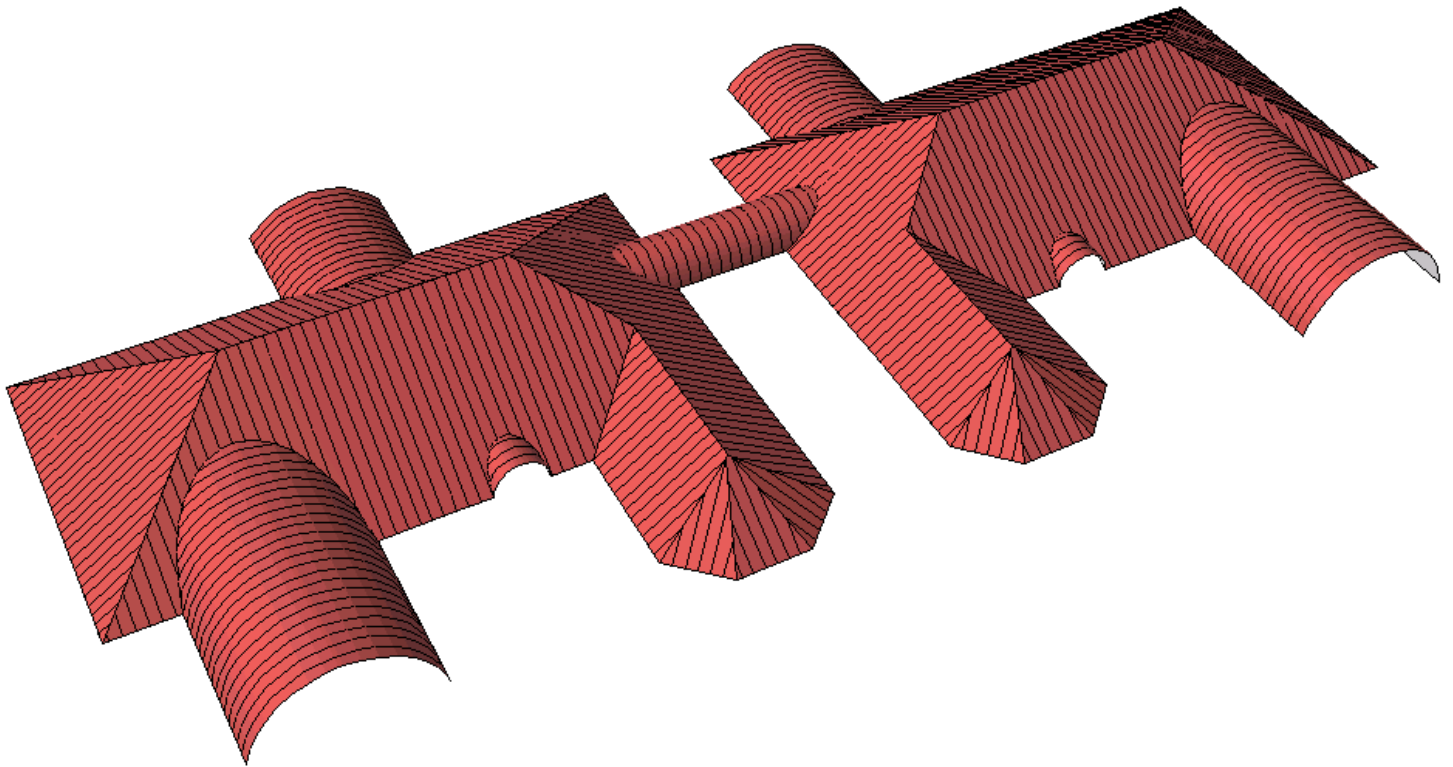
- A. The metal panel system shall be installed plumb, level, and straight over a layer of 30 lb. felt, (dry) with a minimum 6" for horizontal lap and 12" for end lap.
- B. The (standing; batten) seam shall be equidistant and shall align for corners, hips, valleys, mullions, and columns in accordance with architectural design parameters as shown on the drawings.
- C. Installation shall be made in accordance with Manufacturer's recommended procedures and layout drawings. Manufacturer's of construction Details Handbook, SMACNA Architectural Sheet Metal manual, NRCA Roofing and Waterproofing Manual and Handbook of Roofing Knowledge shall be used as guides and details whenever applicable.
- D. No face penetrations or perforation shall be made in metal panels by fasteners without architect's specific approval. All panels shall be continuous from ridge to eaves with no horizontal end laps.
- E. End lap all flashing and trim at least 3". All gutters must be mitered, soldered and caulked with a lining of Ice and Watershield applied at the laps to make it watertight. All butt joints must be caulked. Soldered areas shall be counter-flashed or painted to match. all valleys shall be treated with a layer of Ice and Watershield spread out at least 24" each side from the center of the valley, on both sides, before applying valley flashing. End lap at least 6" at joints.
- F. Exercise proper care during installation to avoid damage or scratching of the panels. Avoid walking over the metal roof after installation is completed.

3.03 CLEANING AND PROTECTION

- A. Peel of any strippable film on flashing as they are installed.
- B. Complete all items on punch list.
- C. Touch up all minor scratches and spots.
- D. Remove all debris resulting from work under this Section.

INSTALLATION GUIDE

ENGLERT SERIES 2500

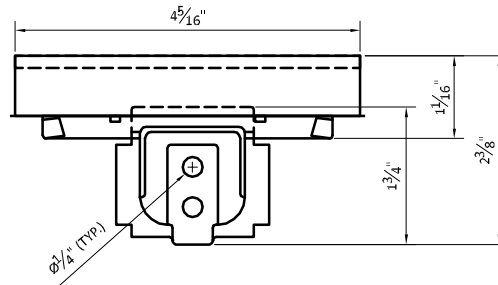


USE WITH: ENGLERT S2500 PANEL

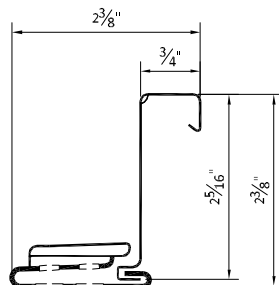
PRODUCT# 05082F (22 ga Galv, 2 $\frac{3}{8}$ " high), or 05082C (22 ga Galv, 3" high)
STANDARD USE w/ 1" THERMAL BLOCK

GRAPHIC SCALE $\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " 1"

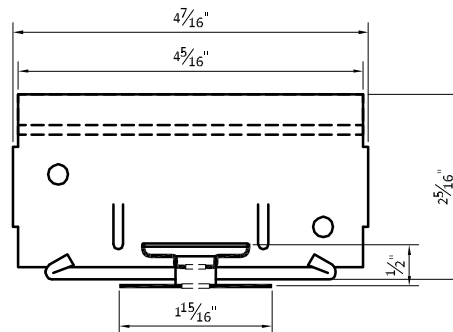
(CLIP ASSUMED TO BE 05082C SHOWN. SEE PROJECT SAMPLE FOR ACTUAL CLIP DIMENSIONS.)



TOP VIEW



SIDE VIEW



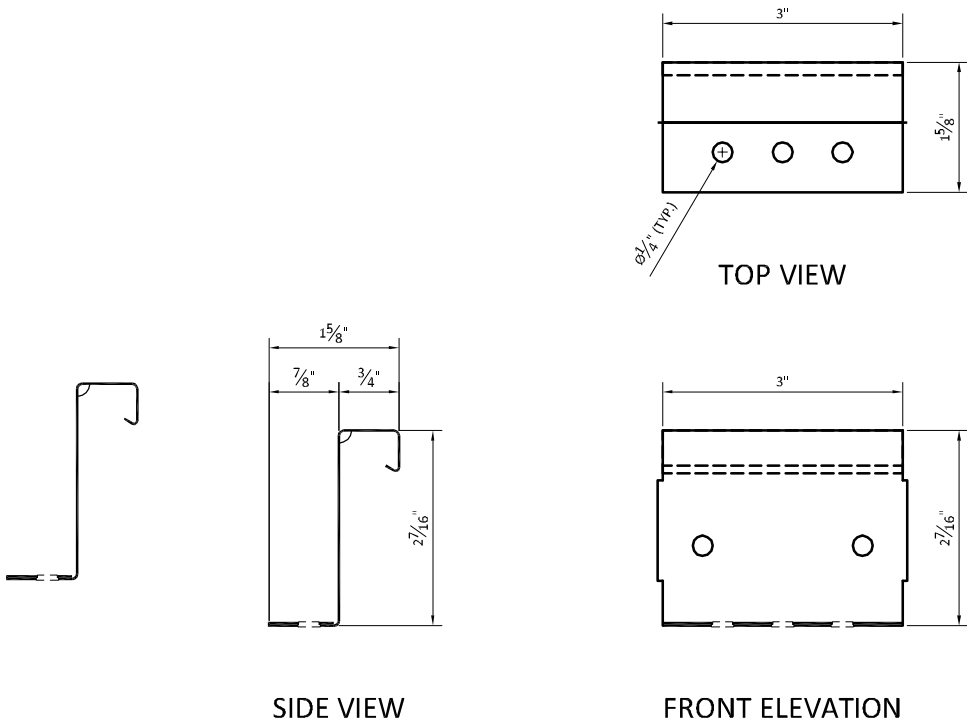
FRONT ELEVATION

USE WITH: ENGLERT S2500 PANEL

PRODUCT# 05081B (22 ga Galv, 2³/₈" high), or 05081C (22 ga Galv, 3" high)
STANDARD USE w/ 1" THERMAL BLOCK

GRAPHIC SCALE 

(CLIP 05081B SHOWN. SEE PROJECT SAMPLE FOR ACTUAL CLIP DIMENSIONS.)



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GENERIC BEST PRACTICE ASSEMBLY SHOWN. WATERTIGHTNESS WARRANTY NOT IMPLIED. WHEN SITE CONDITION DIFFERS, SPECIFIC ENGINEERING NECESSARY.

ROOF CLIP

SERIES S2500 - 90° FIXED 2"

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.

Detail #

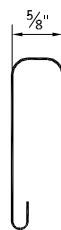
R02.25-sx

USE WITH: ENGLERT S2500 PANEL

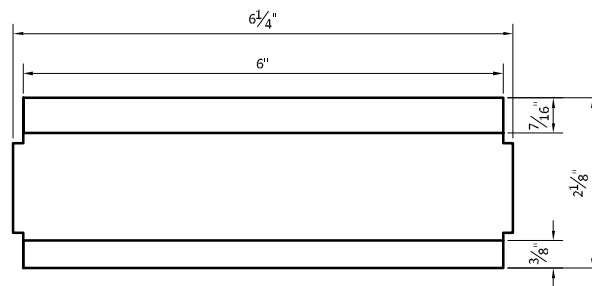
PRODUCT# FLOATING TOP: 05082J (24 ga GALVALUME), or 05082H (24 ga SS)
FLOATING BASE: 05082I (18 ga Galv), or 05082K (18 ga SS)

GRAPHIC SCALE 

(CLIP 05082H & 05082I SHOWN. SEE PROJECT SAMPLE FOR ACTUAL CLIP DIMENSIONS.)

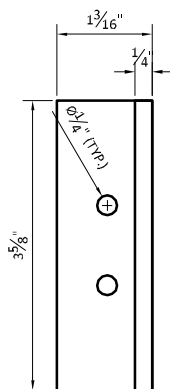


SIDE VIEW

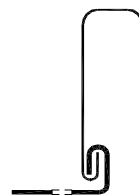


FRONT ELEVATION

FLOATING TOP



TOP VIEW



ASSEMBLED CLIP
w/ TOP & BASE:
SIDE VIEW



SIDE VIEW

FLOATING BASE

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WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF CLIP

SERIES S2500 - 180° 2-PIECE FLOATING INTERLOCK 2"

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #

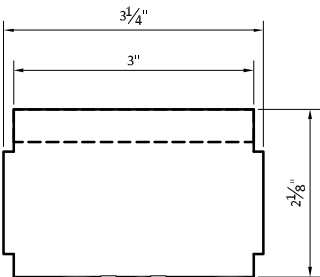
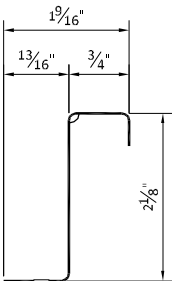
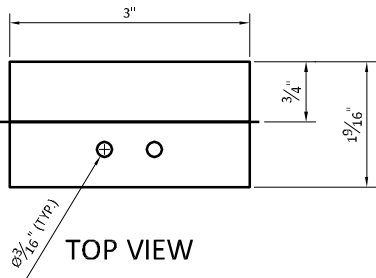
R02.25-df

USE WITH: ENGLERT S2500 PANEL

PRODUCT# 05083A (22 ga Galv)

GRAPHIC SCALE 

(CLIP 05083A SHOWN. SEE PROJECT SAMPLE FOR ACTUAL CLIP DIMENSIONS.)



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WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF CLIP	
SERIES S2500 - 180° FIXED 2"	

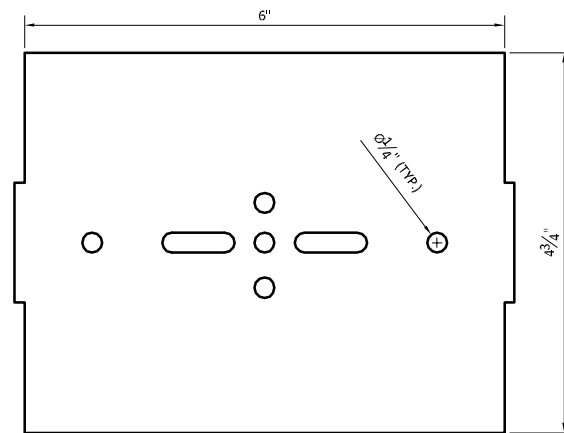
DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R02.25-dx

USE WITH: ANY ENGLERT PANEL CLIP
PROVIDES SUPPORT ON RIGID INSULATION

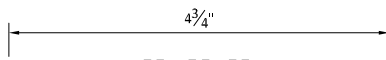
PRODUCT# 05075F (24 ga GALVALUME)

GRAPHIC SCALE 

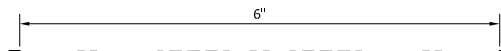
(CLIP 05075F SHOWN. SEE PROJECT SAMPLE FOR ACTUAL CLIP DIMENSIONS.)



TOP VIEW



SIDE VIEW



FRONT ELEVATION

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GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF CLIP	
UNIVERSAL BEARING PLATE	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R02.9

The **ENGLERT ADVANTAGE** in Metal Roofing:

GALVALUME

Aluminum-Zinc Alloy Coated Steel

The **BENEFITS** of
working with



Environmentally friendly metal roofing solutions.

Englert systems permit complex roof configurations from ridge to eave, to ensure a crisp roof line and greater weather-tightness. Our metal roofing systems have earned the Energy Star® label, and reflect radiant heat back to the sun, reducing cooling requirements and lowering energy consumption.



Sales and technical support whenever you need it.

You can count on responsible, experienced support at every stage of your project. We provide knowledgeable assistance with everything from product selection to installation support. Skilled technical advice and a list of nationwide certified installers are just a call away.

Comprehensive warranty on metal and paint finish.

Virtually maintenance-free, Englert Galvalume roofing carries a 25 year limited warranty on the Galvalume substrate and 25-35 year limited warranty against chip, crack, check, peel, chalk, and fade on pre-painted Galvalume.

1-800-ENGLERT

www.englertinc.com

Why is Galvalume Better? *Galvalume has enjoyed the fastest growth rate of any steel product on the world market. It has become the preferred material for roofing applications, which formerly would have utilized aluminum-coated or galvanized steel.*

- **CUT EDGE PERFORMANCE** The composition of the Galvalume alloy coating creates highly corrosion-resistant sheet steel that delivers the optimum combination of features of aluminum and zinc: the barrier protection and long-term durability of aluminum and the sacrificial or galvanic protection of sheared edges that is characteristic of zinc.
- **EXCELLENT LONG-TERM DURABILITY** Galvalume has been subjected to long-term testing for resistance to normal atmospheric corrosion. Typical durability for Galvalume sheet is two to four times that of galvanized G90 sheet.
- **EXCELLENT ENERGY EFFICIENCY** Galvalume sheet's metallic surface provides excellent reflectivity. Also, a Galvalume standing seam roof enables the use of a generous amount of insulation. Together, these two factors result in a long-life, cost-effective, energy efficient roofing system.
- **EXCELLENT FORMABILITY** Galvalume can be formed about as readily as continuously annealed galvanized sheet steel. Lock forming and roll forming are readily accomplished.



Technical Data

Galvalume sheet is produced according to ASTM Specification A792/A792M-97a "Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process." AZ50 or 0.50 oz/sq. ft. (150 g/sq. m.) coated Galvalume sheet is generally used for pre-painted architectural Galvalume Standing Seam Roofing (SSR) and AZ55 or 0.55 oz/sq. ft. (165 g/sq. m.) for unpainted structural Galvalume SSR.

Structural Galvalume steel used for SSR panels has the following range of mechanical properties:

- **YIELD STRENGTH:** 50+ ksi (414+ MPa)
- **TENSILE STRENGTH:** 55-70 ksi (379-483 MPa)
- **TOTAL ELONGATION:** 18-36%
- **HARDNESS:** 50-65 HRB

Galvalume is an environmentally conscious product choice. The Galvalume production process uses approximately 25 to 35 percent old steel (scrap) to make new steel. An estimate by the Steel Recycling Institute identifies the recycled scrap to average approximately 80% post-consumer and 20% post-industrial material.

Finishes that meet any design objective.

Englert is one of the few single source metal roof manufacturers with an in-house coil coating line and an exceptionally broad range of finishes, whether the design calls for a natural weathered appearance or bright, high performance, full strength fluorocarbon colors.



Englert—The Metal Experts.

Englert is one of the nation's leading forces in metal roofing, rainware, coil coating and portable roll-forming equipment. Since 1966, we've been a pioneer in construction products, from the development of LeafGuard®, the revolutionary debris-shedding gutter system, to fully integrated metal roofing with an in-house, continuous coil coating line.



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info@englertinc.com

STANDARD COLORS AND COATINGS

PermaColor 3500 – Full Strength 70% Kynar 500®/Hylar 5000®

All colors available in Galvalume and Aluminum (.032", .040" & .050"). See your local sales representative for more information.



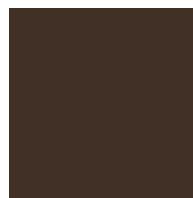
SunNet Blue NEW
Matches SunNet BIPV Laminate



Hartford Green
R 28.1 • E.9 • SRI 29.7



Dark Bronze
R 29.1 • E.9 • SRI 31



Mansard Brown
R 31 • E.9 • SRI 33.4



Burgundy
R 35.4 • E.9 • SRI 39.2



Royal Blue
R 28 • E.9 • SRI 29.6



Forest Green
R 28.7 • E.89 • SRI 30



Matte Black
R 28.2 • E.9 • SRI 29.8



Medium Bronze
R 32.3 • E.91 • SRI 35.6



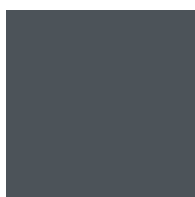
Colonial Red
R 36.8 • E.9 • SRI 41



Pacific Blue
R 28.5 • E.9 • SRI 30.1



Everglade Moss
R 32 • E.9 • SRI 34.7



Charcoal Gray
R 30.1 • E.9 • SRI 32.3



Sierra Tan
R 35 • E.91 • SRI 39.1



Deep Red
R 42 • E.91 • SRI 48.2



Slate Blue
R 31 • E.91 • SRI 33.9



Patina Green
R 39 • E.91 • SRI 44.3



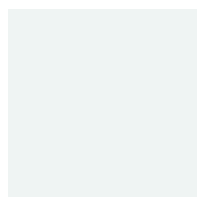
Slate Gray
R 40.3 • E.9 • SRI 45.6



Sandstone
R 51 • E.9 • SRI 59.8



Terra Cotta NEW
R 34.8 • E.89 • SRI 37.9



Bone White
R 67 • E.9 • SRI 81.4



Hemlock Green
R 28 • E.92 • SRI 30.4



Dove Gray
R 28 • E.9 • SRI 29.6



Stone White
R 62.5 • E.9 • SRI 75.3

R - Denotes Reflectivity
E - Denotes Emissivity
SRI - Denotes Solar Reflective Index



Due to the limitations of printing processes,
this color chart is not an accurate representation
of our actual colors.

Sample chips are available on request at no charge.
Colors available as of 3/2009.



Mill Finish



Galvalume-Plus®
R 68 • E.10 • SRI 54.5

CALL ENGLERT FOR DETAILS
1-800-ENGLERT

PermaMetallics 3500*



Metallic Copper
R 43.8 • E.9 • SRI 50.2



Champagne
R 38.4 • E.91 • SRI 43.5



**Prewheathered
Galvalume®**
R 45.7 • E.91 • SRI 53.1

*These are premium priced
paint systems.



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Perth Amboy, NJ 08861

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www.englertinc.com

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90300B

Englert is one of the few single-source metal roof manufacturers with an in-house coil coating line and an exceptionally broad range of finishes to meet any design objective. Whether your design calls for a natural weathered appearance or bright high-performance, full-strength fluoro-carbon color—Englert offers a complete array of standard finishes.

Custom Colors

Englert offers a wide range of custom colors with short lead times and low minimum order requirements depending on the type of substrate. Englert can match the color of virtually any material, including brick, wood and fabric.

PermaColor 3500

Englert's PermaColor 3500 standard 35-year **low gloss** color coatings are comprised of a .7 to .9 mil full strength 70% Kynar 500®/Hylar 5000® fluorocarbon (Polyvinylidene fluoride PVDF) coating over a urethane primer of .2 to .3 mil on the finish side, with primer and a washcoat on the reverse side.

PPG DURANAR® ULTRA-Cool® is state-of-the-art when it comes to energy-efficient metal roofing. PPG DURANAR® ULTRA-Cool® meets Energy Star® specs for Cool Roofs and not only saves energy but money as well because:

- Heat is reflected away from the building
- Smog is reduced when environmental temperatures are reduced
- Energy costs are saved because of cooler interior spaces
- Life expectancy of the roof is increased due to less expansion and contraction
- Monetary incentives are increasingly being offered for switching to reflective roofing products
- Emissivity values of the coatings exceed 85%

PermaMetallics 3500

Englert now offers PermaMetallics 3500 with **low gloss** PPG DURANAR® ULTRA-Cool® coatings with a 35 year warranty to match our PermaColor 3500 color palette. Metallic Copper (non-aging), Champagne and Preweathered Galvalume coatings are comprised of a .8 to .9 mil full strength, 70% Kynar 500®/Hylar 5000® fluoro-carbon (Polyvinylidene fluoride PVDF) coating over a urethane primer of .2 to .3 mil on the finish side, with primer and a washcoat on the reverse.

Galvalume-Plus®

This product has the advantage of an acrylic coating to reduce mill finish discoloration and uneven weathering. This metal is available as a new hi-tech solution to standard uncoated steel.

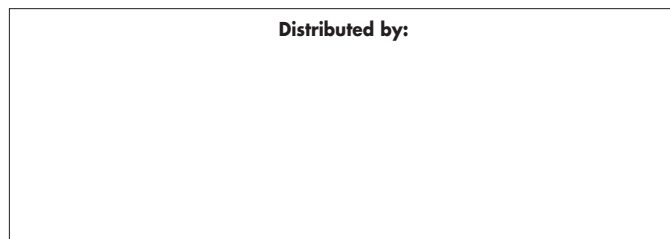


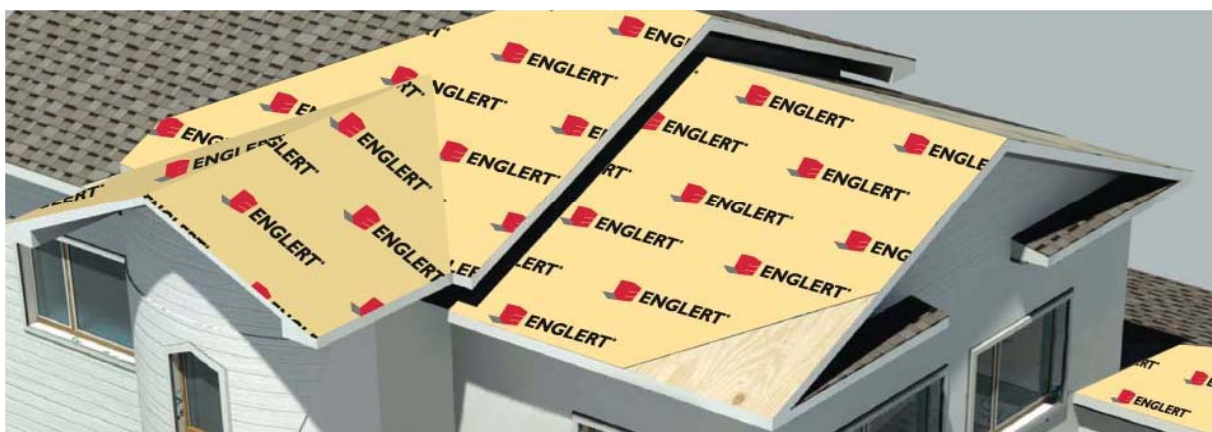
PermaColor and PermaMetallics Durability Tests

Description	ASTM Method	Durability	Substrates
Gloss	D523-89	10° max	steel and aluminum
Pencil Hardness	D3363-00	HB-2H	steel and aluminum
Flexibility T-Bend	D4145-83 (2002)	1-T	steel and aluminum
Flexibility T-Bend	D4145-83 (2002)	2-T	steel
Mandrel	D522-93a (2001)	no cracking	steel and aluminum
Adhesion	D3359-02	no adhesion loss	steel and aluminum
Reverse Impact	D2794-93 (1999)	no adhesion loss, no cracking	steel and aluminum
Falling Sand	D968-93 (2001)	80 liters per mil. DFT	steel and aluminum
Mortar Resistance	C267-01	no effect	steel and aluminum
Acid Pollutants	AAMA-605.2-91	<5 units color change	steel and aluminum
Acid Rain	Kesternich	10 cycles min.	steel and aluminum
Alkali Resistance	D1308-02	no effect	steel and aluminum
Salt Fog	B117-02	passes 3000 hours	aluminum
Salt Fog	B117-02	passes 1000 hours	steel
Humidity	D2247-02	passes 3000 hours	aluminum
Humidity	D2247-02	passes 1000 hours	steel
Color Retention	D822-01	passes 3000 hours	steel and aluminum
S. Florida Exposure	D2244-02	max. 5 units change	steel and aluminum
Chalk Resistance	D4214-98	min. rating of 8	steel and aluminum

Kynar 500® is a registered trademark of Atofina Chemicals, Inc.
Hylar 5000® is a registered trademark of Ausimont USA, Inc.
Galvalume® and Galvalume Plus® are registered trademarks of BIEC International, Inc.
DURANAR® ULTRA-Cool® is a registered trademark of PPG.

Distributed by:





Englert Premium Underlayment:

- Does not support mold growth, rot or dry out as it contains no organic material and will not absorb moisture.
- Is 100% recyclable
- Is far stronger, lighter and less costly to install than #30 felt and has much greater coverage per roll.
- Requires fewer nails than conventional felt underlayments.

Strength, Safety, Durability

Englert Nailable Roofing Underlayment is a premium product that delivers exceptional long term weather barrier performance compared to traditional asphalt felt products and other synthetic underlayments.

Englert Premium Underlayment is 100% synthetic with slip-resistant coatings on both sides. The bottom is designed to reduce slippage between the underlayment and the roof sheathing. The **textured** top side contains a rubberized polyolefin coating that provides unsurpassed slip resistance ensuring a safer and more secure work surface...

And Englert Premium Underlayment can be left exposed to the elements for up to twelve (12) months.

Englert Premium Underlayment System Benefits

- **Exceptional Barrier Performance:** Woven Synthetic Rubber Barrier engineered with 100% synthetic polypropylene weave and modified polyolefin coatings.
- **Endurance:** The underlayment withstands prolonged exposure in all climates.
- **High Temperature Resistance:** Withstands surface temperatures up to 250°F (120°C). Won't flow or leach out at high temperatures like some asphalt felts.
- **Fire Resistance:** Meets Class A under ASTM E1098/UL790.
- **Six Month Exposure Period:** Englert Premium Underlayment can remain exposed for up to one (6) months.
- **Wind Uplift Resistance:** Offers exceptional tear and puncture strength, tougher than felt in inclement weather.
- **Low Temperature Application:** Remains flexible in cold weather and will roll out without cracking or chatter when fastened.
- **Slip Resistant Textured Surface:** Coated on both sides with special slip resistant coatings that also provide a layer of toughness. The top side contains a rubber-modified polyolefin coating.

ENGLERT® METALMAN HT UNDERLAYMENT

High Temperature Self Adhesive Roof Underlayment Membrane



ENGLERT METALMAN HT

ENGLERT METALMAN HT High Temperature underlayment is a 40 mil self-adhesive waterproofing membrane composed of SBS modified bitumen and a tough UV anti-slip polyethylene woven top facer. The release film backing is also UV resistant and protects the product from degradation when stored outside for less than 90 days without the need for a cardboard box.

ENGLERT METALMAN HT is designed for use in high temperature environments where the in-service temperature can reach temperatures as high as 240°F. This self sealing, high tensile strength underlayment will provide maximum waterproof protection before, during and after the installation of a metal roof system.



FEATURES/BENEFITS:

- Self-adhered High Temperature underlayment
- Material composed of special elastomeric modified bitumen blends of SBS and other polymers
- Features tough anti-slip polyethylene woven top facer (100% UV resistant)
- Designed for use in extremely hot climates where surface temperatures are as high as 240°F
- Self-sealing composition provides water proof protection (ASTM D 1970)
- Excellent heat reflectivity and high tensile strength ensure maximum performance when installed under a metal roof
- Underlayment can be exposed to the elements for periods of up to 90 days prior to roof being installed
- Product is easy to install
- Miami-Dade Compliant NOA #08-0225.10
- Florida Building Code Compliant FL11351.1

TECHNICAL DATA



MATERIAL COMPOSITION

Elastomeric Bitumen	Blend of bitumen & SBS polymers
Core Material	Elastomeric bitumen (blend of bitumen & SBS polymers)
Topside Composition	Tri-laminate polyethylene
Underside Composition	Self adhered with release material

MATERIAL SPECIFICATIONS

Approx. Nominal Thickness	40 MIL
Approx. Gross Roll Coverage	200 FT ²
Side Lap (if applicable)	3 IN
End Lap (if applicable)	6 IN
Roll Length	67 FT
Roll Width	36 IN
Approx. Roll Weight	40 LBS
Rolls per Pallet	25
High Temperature Rating	240°F
Part No.	07050I



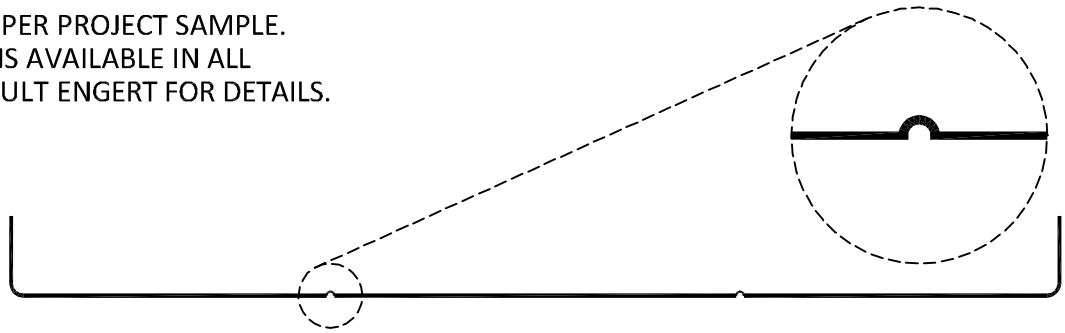
PRODUCT TEST RESULTS

Low Temperature Flexibility ASTM D 1970	-22°F	
Peel Resistance on Plywood ASTM D 903	11.4 LBS/FT	
Florida Building Code	FL 11351.1	
Miami-Dade Product Control Approved	NOA #08-0225.10	
Load Strain Properties @ 77°F	Machine Direction	Cross Machine Direction
Maximum Load (LBS/IN)	64	88
Elongation @ Maximum Load (%)	52	24

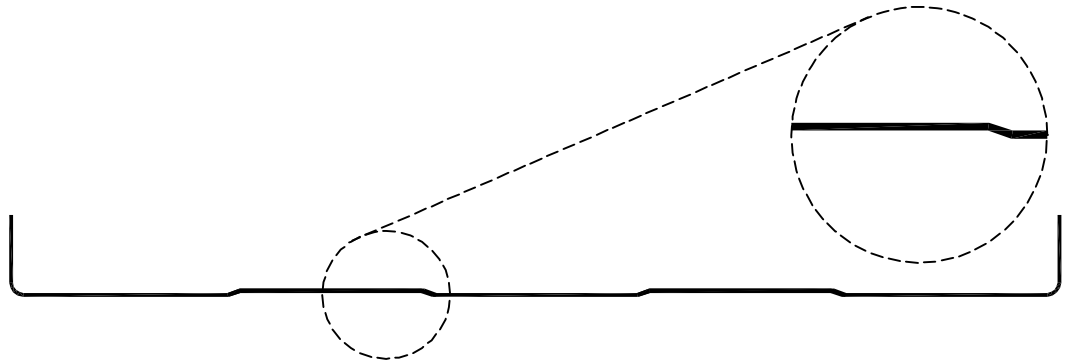
NOTES:

- PANEL OPTIONS PER PROJECT SAMPLE.
- NOT ALL OPTIONS AVAILABLE IN ALL REGIONS. CONSULT ENGLERT FOR DETAILS.

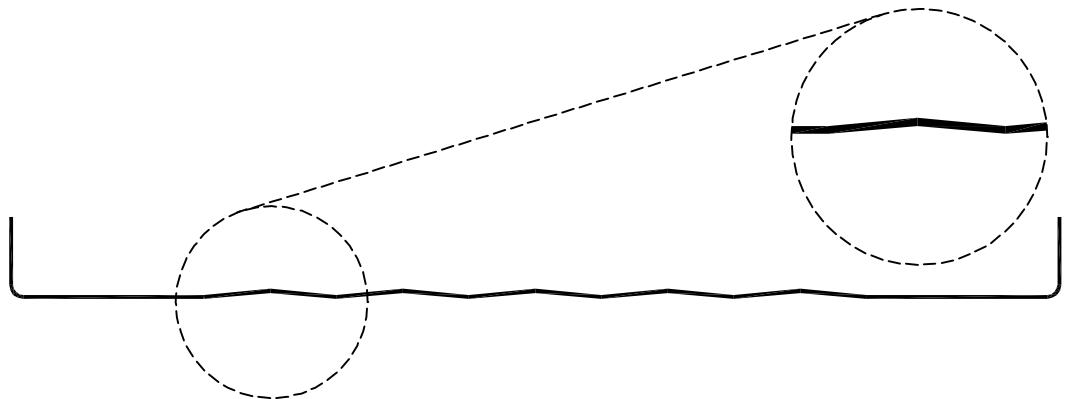
PENCIL RIB



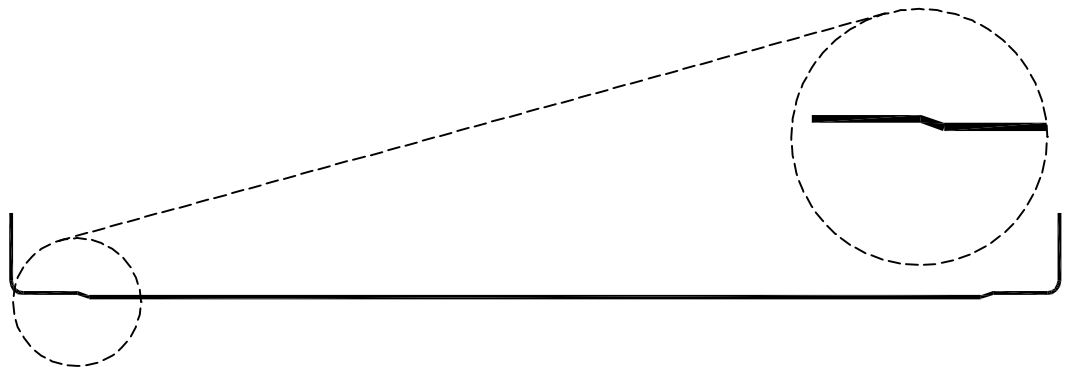
STIFFENER RIB



STRIATION



CLIP OFFSET



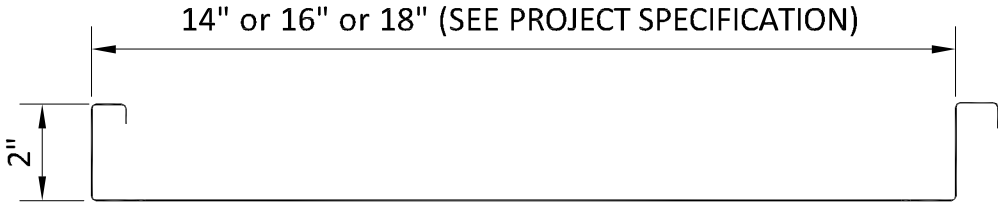
ENGLERT S2500 ROOF PANEL

PANEL MATERIAL SHALL BE:
22 GA or 24 GA GALVALUME
or .040" or .032" ALUMINIUM


90° or 180° MECHANICAL SEAMS SHALL BE
2" HIGH AT 14" or 16" or 18" WIDE

NOT ALL PANEL SIZES AVAILABLE IN ALL
REGIONS. CONSULT ENGLERT FOR DETAILS.

COLOR PER PROJECT SAMPLE.



NOTE: PANEL OPTIONS PER PROJECT
SAMPLE. SEE DETAIL# R01.

 ENGLERT [™] www.englertinc.com 800-364-5378 <small>GENERIC BEST PRACTICE ASSEMBLY SHOWN. WATERTIGHTNESS WARRANTY NOT IMPLIED. WHEN SITE CONDITION DIFFERS, SPECIFIC ENGINEERING NECESSARY.</small>	ROOF PANEL PROFILE		DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
	SERIES S2500		Detail #
			R01.25

ACCEPTABLE FASTENERS:

USE LOW PROFILE (aka PANCAKE, WAFER, or OVAL HEAD) SCREWS
w/ THREADS THAT BEGIN RIGHT UNDER SCREW HEAD FOR FULL
ENGAGEMENT INTO PRODUCT. ALL TO BE CORROSION RESISTANT.

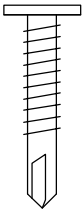
WOOD #10 GP
 #12 GP
 #14 DP1

METAL #10 DP3
 #12 DP3

SCREW SIZE AND SPACING PER PROJECT REQUIREMENTS (i.e.,
ENGINEER, ARCHITECT/DESIGNER, AND BUILDING CODES).

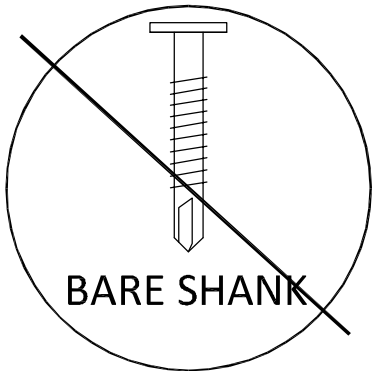


GIMLET POINT (GP)

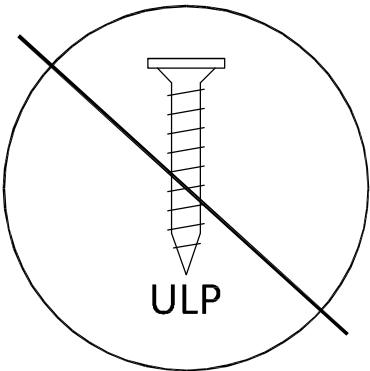


DRILL POINT (DP)

BARE SHANK AND ULTRA LOW PROFILE (ULP) SCREWS ARE NOT
APPROVED BECAUSE THREADS DO NOT ENGAGE PRODUCT IN
SHANK AREA UNDER HEAD.



BARE SHANK



ULP

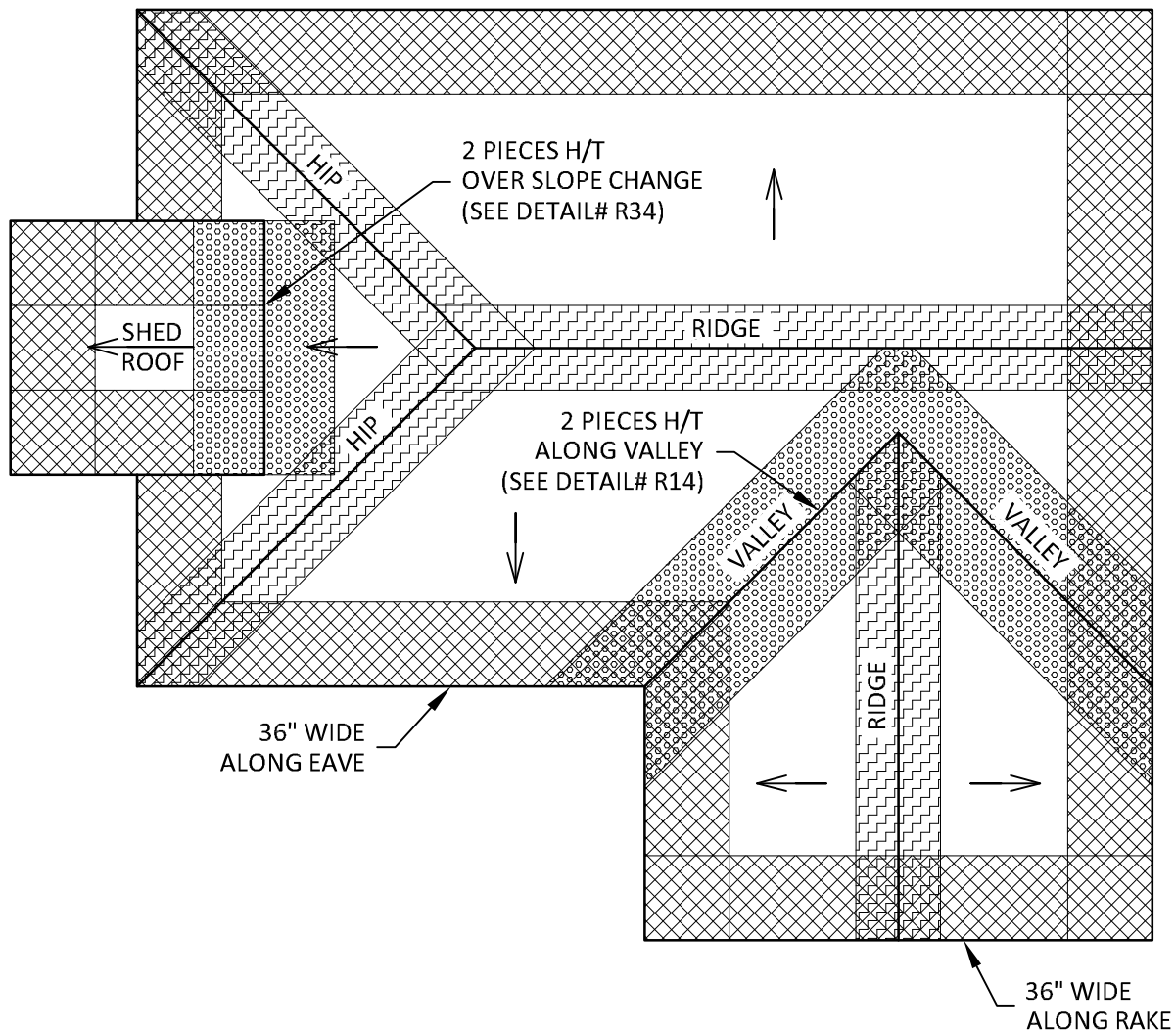
UNDERLAYMENT SYSTEM SHALL INCLUDE:

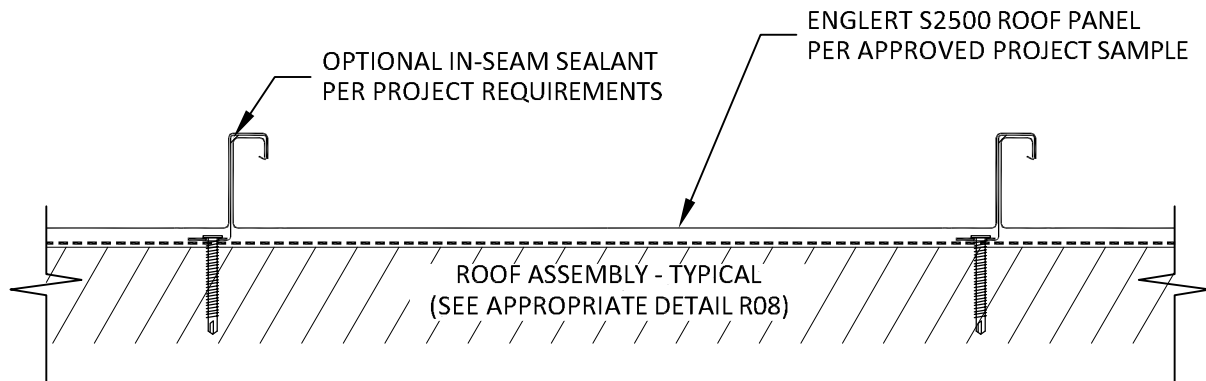
- * TYPICAL - ENGLERT HIGH TEMPERATURE (H/T) PEEL & STICK ROOFING UNDERLAYMENT
- * ON METAL DECKING - SELF-ADHESIVE UNDERLAYMENT DESIGNED FOR APPLICATION DIRECTLY ONTO METAL DECKS (e.g., SOPREMA® SOPRAVAP'R VAPOR BARRIER)

APPLIED EITHER:

- * OVER ENTIRE ROOF, or
- * INSTALLED ALONG PERIMETERS (AS SHOWN) w/ ENGLERT SYNTHETIC UNDERLAYMENT ON TOP OVER ENTIRE ROOF

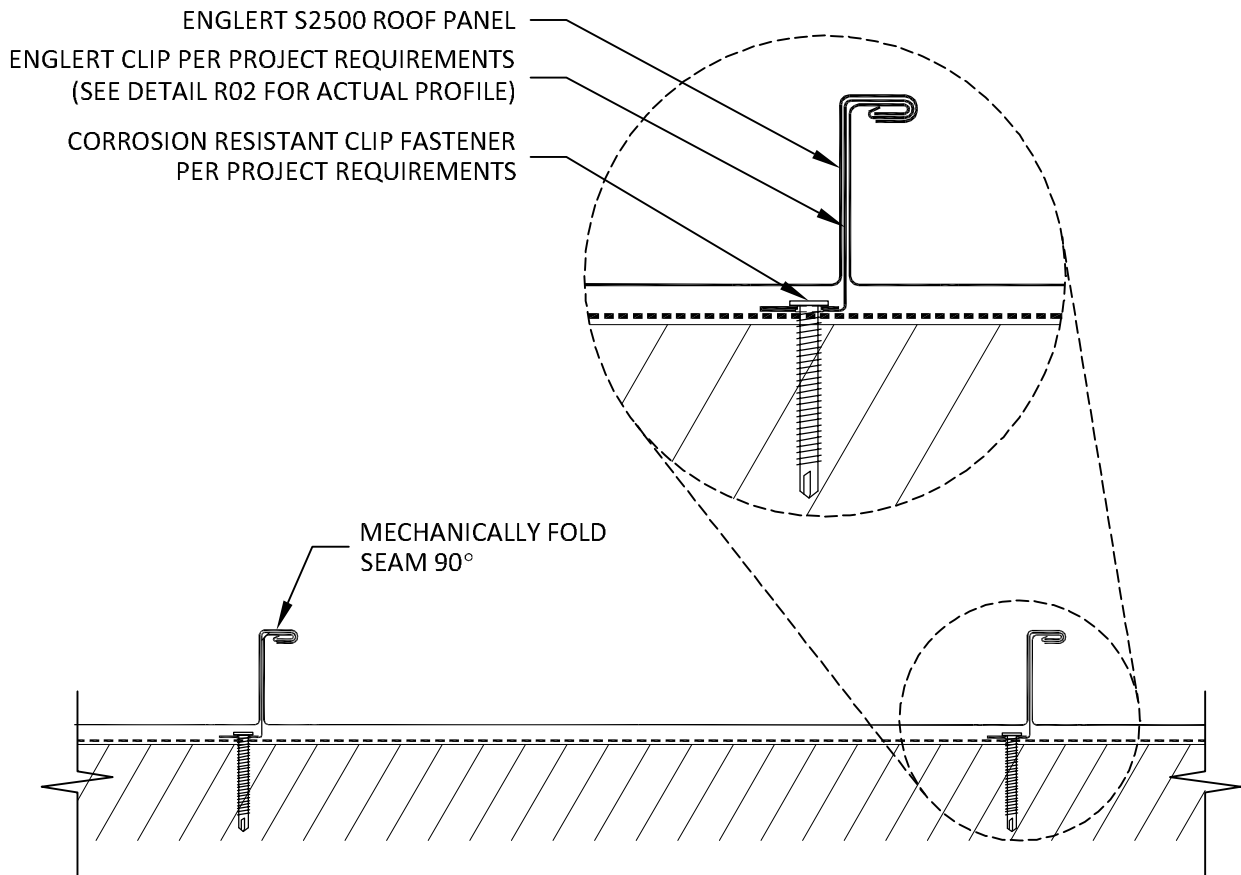
	RIDGE or HIP	36" (18" EACH SIDE)
	EAVE or RAKE	36"
	VALLEY or SLOPE CHANGE	60" (30" EACH SIDE)



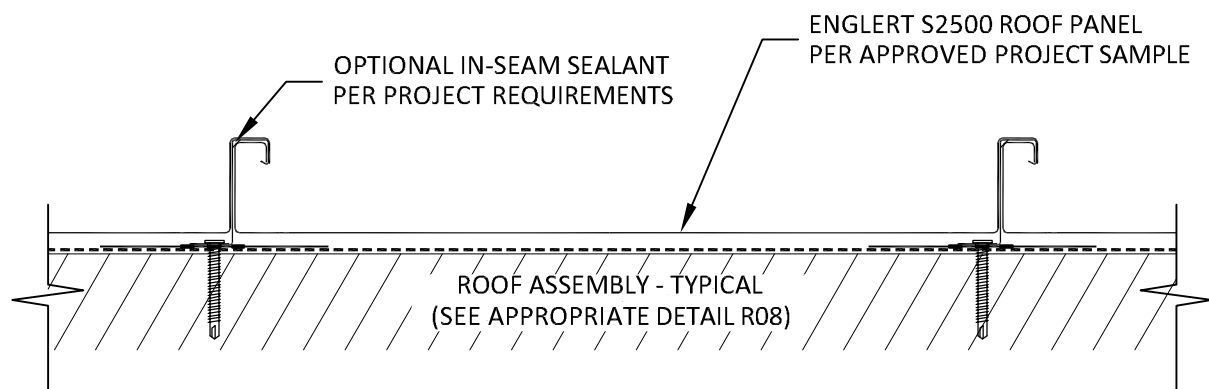


PHASE 1: INSTALL PRODUCTS

FOR USE ON SOLID SUBSTRATES SUCH AS:
SOLID DECK, HARD SURFACE, or OPEN FRAMING

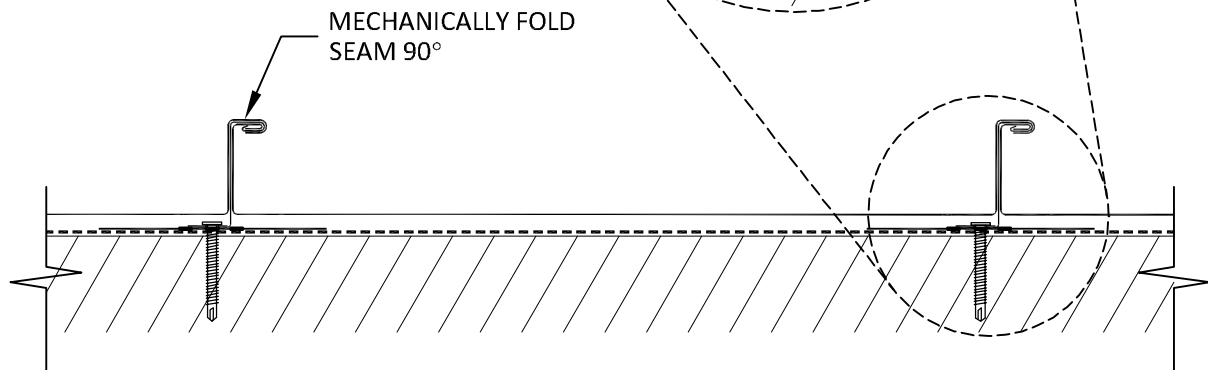


PHASE 2: FIELD SEAMING

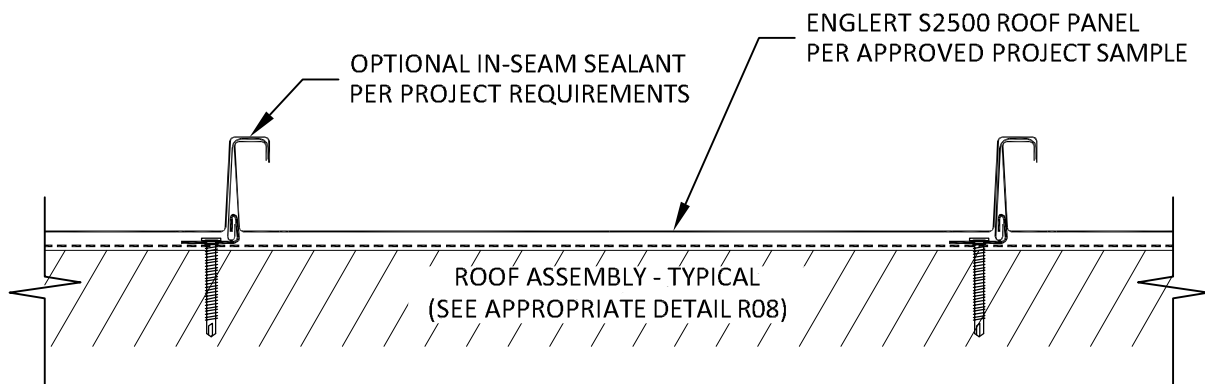


PHASE 1: INSTALL PRODUCTS
FOR USE ON RIGID INSULATION

ENGLERT S2500 ROOF PANEL
ENGLERT CLIP PER PROJECT REQUIREMENTS
(SEE DETAIL R02 FOR ACTUAL PROFILE)
CORROSION RESISTANT CLIP FASTENER
PER PROJECT REQUIREMENTS
UNIVERSAL BEARING PLATE



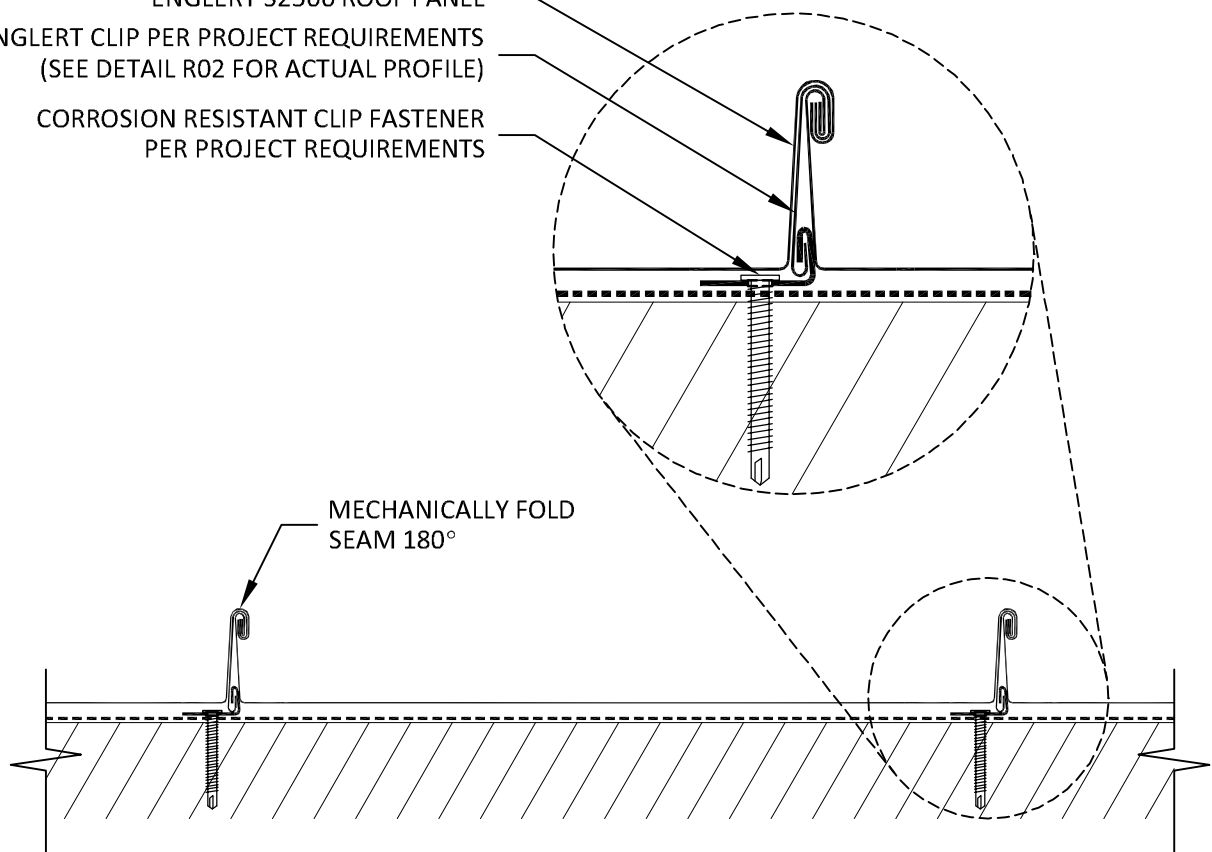
PHASE 2: FIELD SEAMING



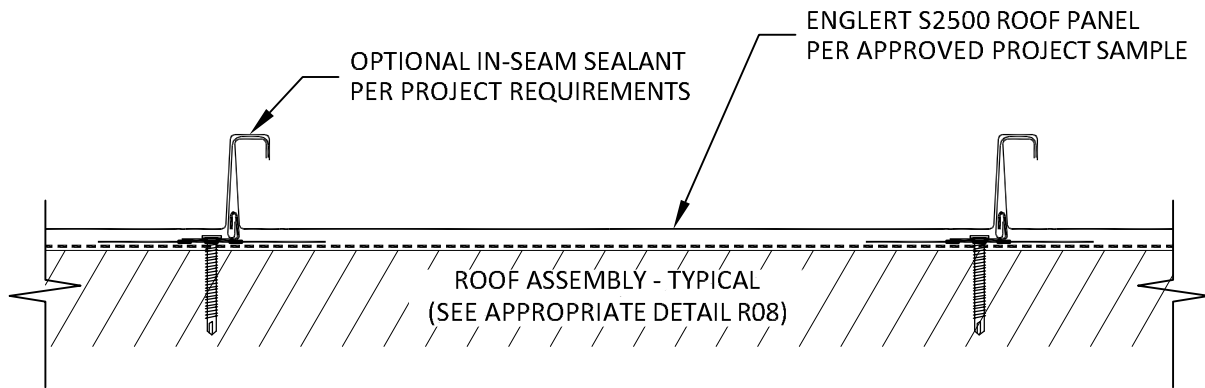
PHASE 1: INSTALL PRODUCTS

FOR USE ON SOLID SUBSTRATES SUCH AS:
SOLID DECK, HARD SURFACE, or OPEN FRAMING

ENGLERT S2500 ROOF PANEL
ENGLERT CLIP PER PROJECT REQUIREMENTS
(SEE DETAIL R02 FOR ACTUAL PROFILE)
CORROSION RESISTANT CLIP FASTENER
PER PROJECT REQUIREMENTS

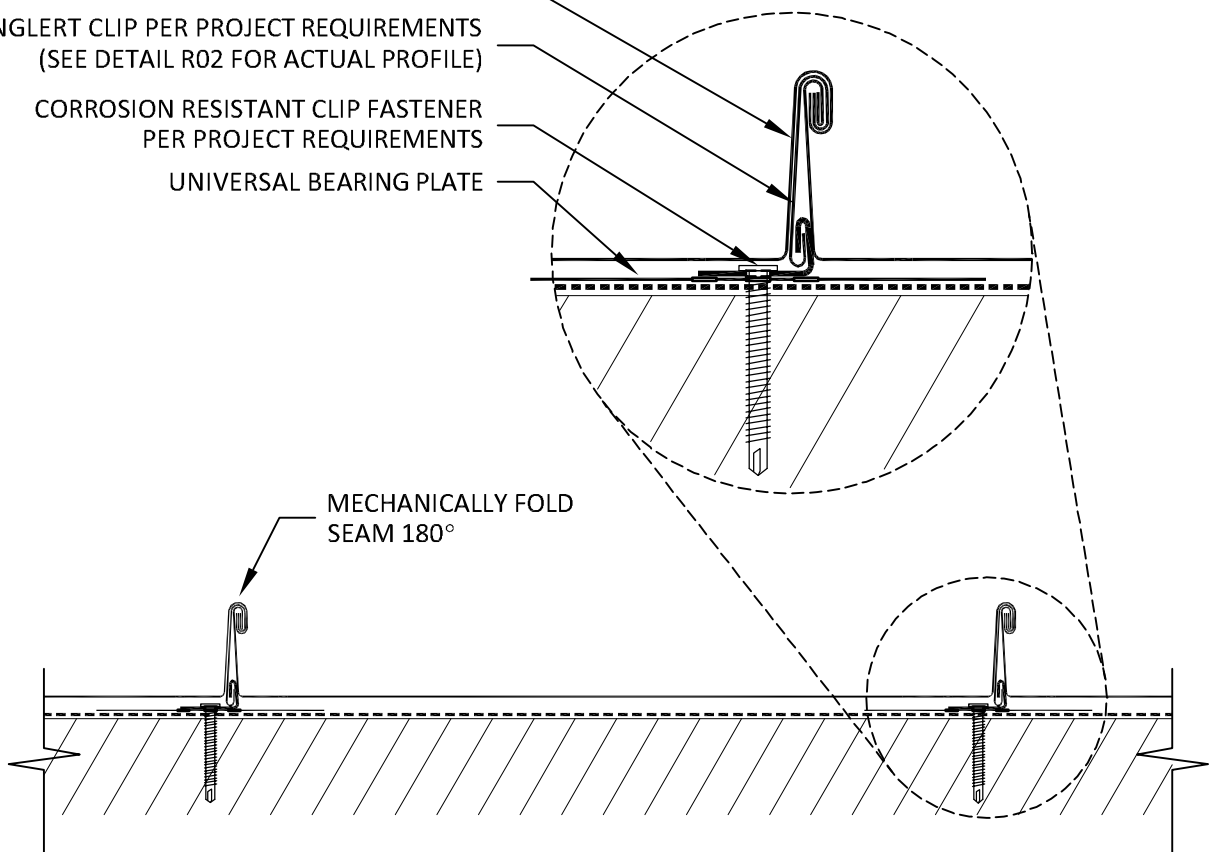


PHASE 2: FIELD SEAMING



PHASE 1: INSTALL PRODUCTS
FOR USE ON RIGID INSULATION

- ENGLERT S2500 ROOF PANEL
- ENGLERT CLIP PER PROJECT REQUIREMENTS
(SEE DETAIL R02 FOR ACTUAL PROFILE)
- CORROSION RESISTANT CLIP FASTENER
PER PROJECT REQUIREMENTS
- UNIVERSAL BEARING PLATE



PHASE 2: FIELD SEAMING

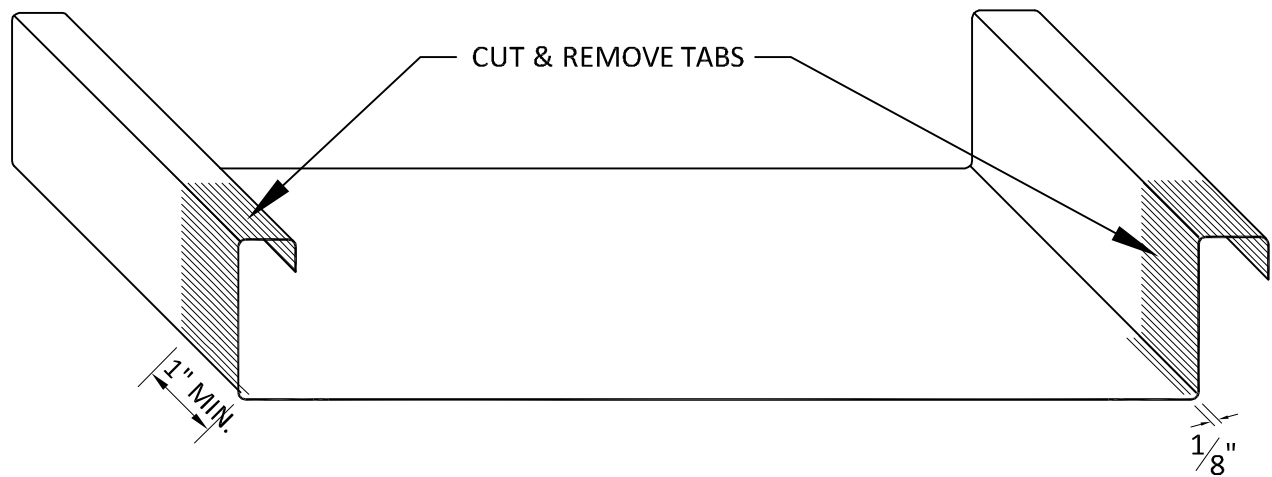
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SPECIFIC ENGINEERING NECESSARY.

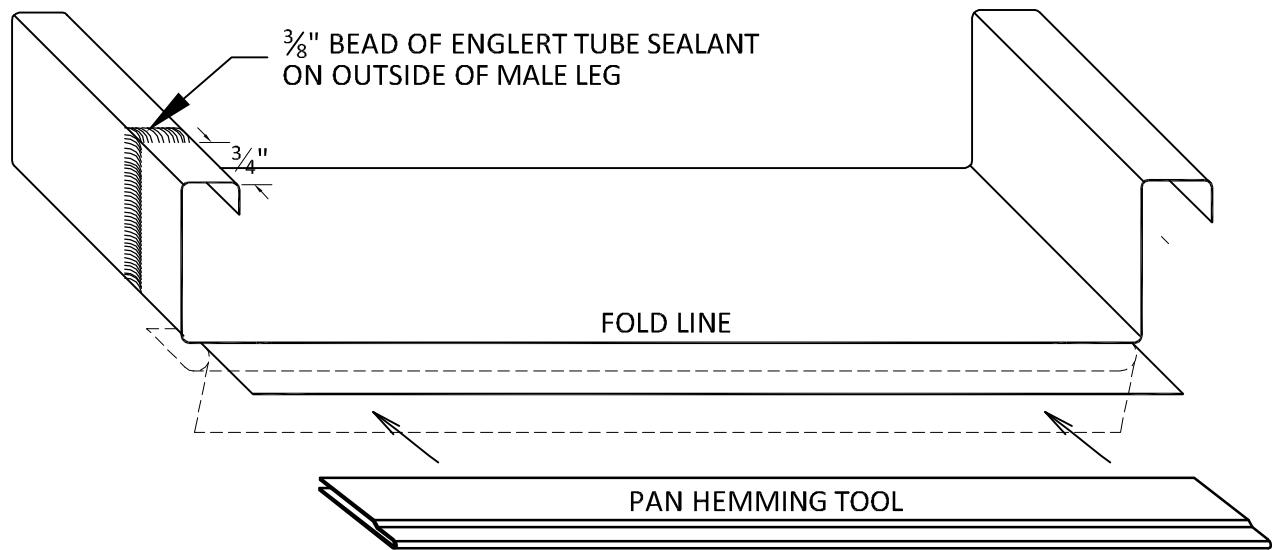
ROOF PANEL SEAM	
SERIES S2500 - 180° SEAM w/ BEARING PLATE	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R04.25-db

NOTE: LENGTH OF TAB VARIES
BASED ON PANEL LENGTH.
SEE ENGLERT EXPANSION CHART.



PHASE 1: CORNER CUTS



PHASE 2: FOLD BACK FLANGES

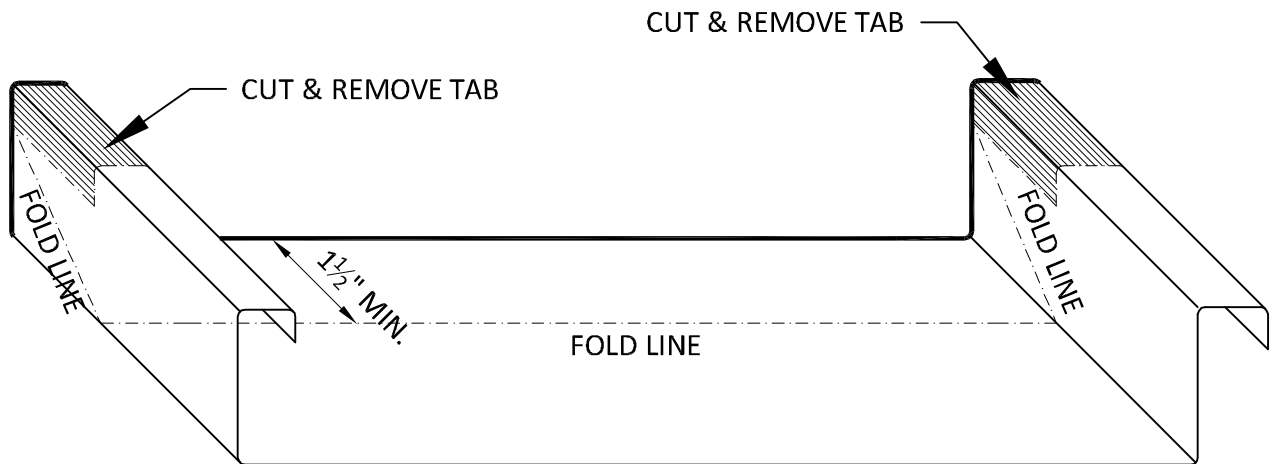
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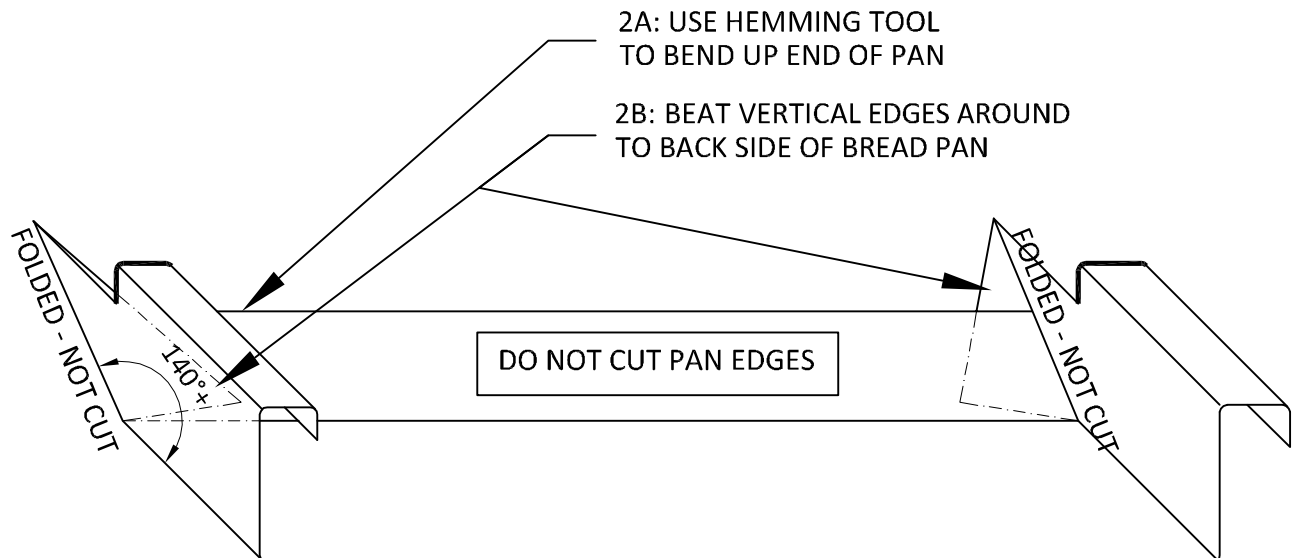
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WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF EAVE HEM	
SERIES S2500	

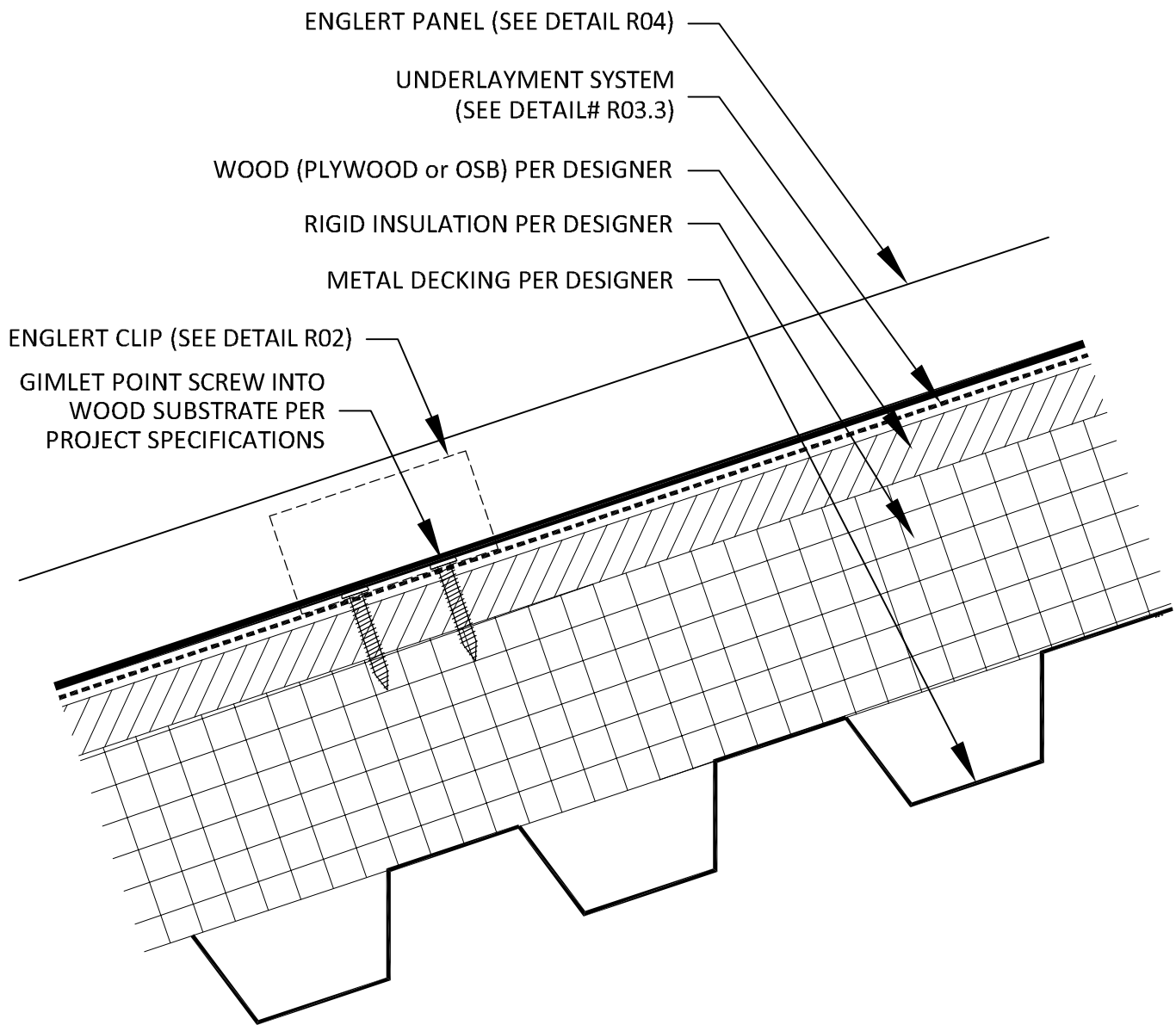
DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R05.25



PHASE 1: PREPARE FOLD



PHASE 2: FOLD PANEL END & TUCK EXCESS TO BACK



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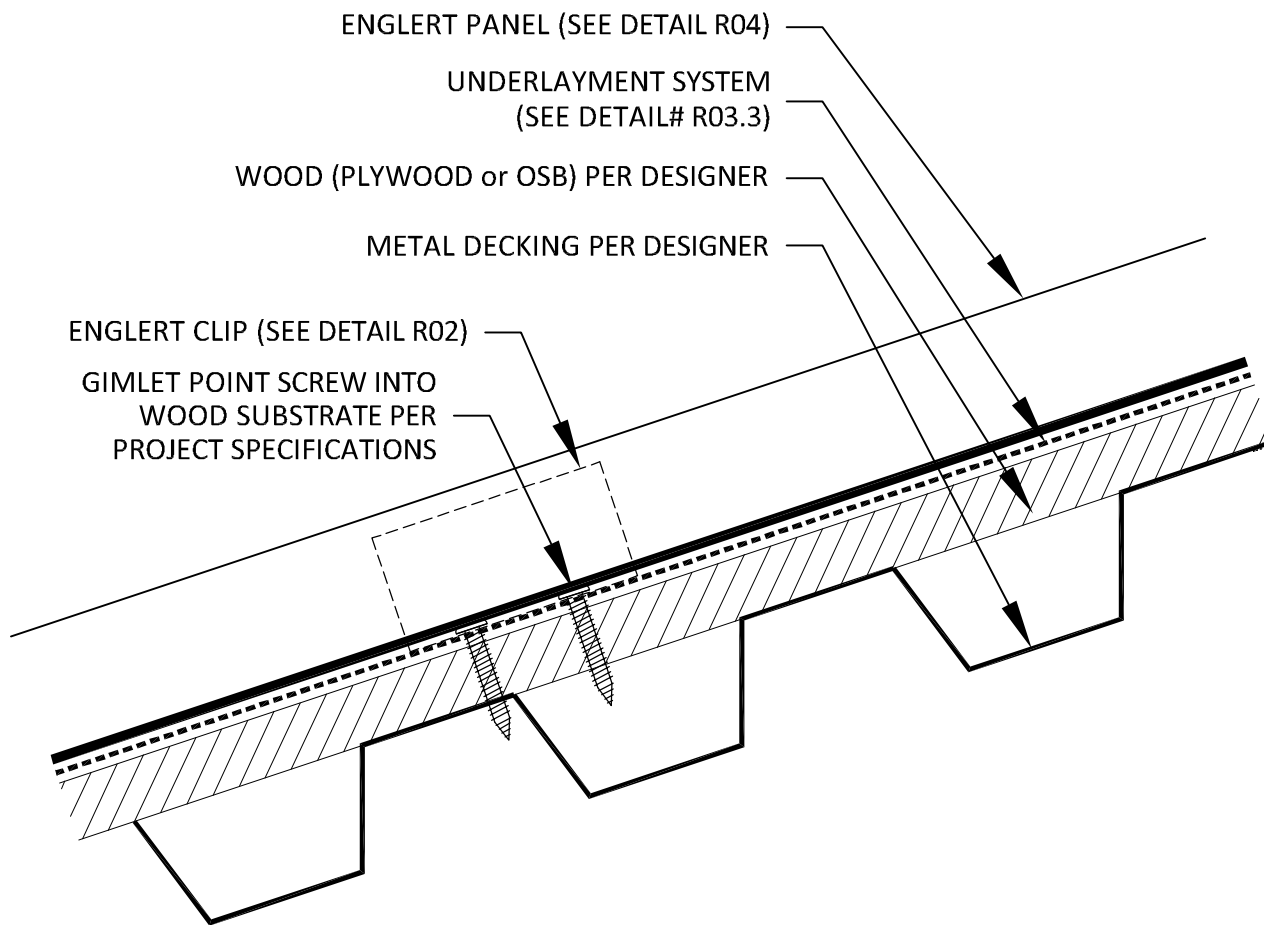
GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF ASSEMBLY

WOOD w/ INSULATION + METAL DECKING

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #
R08.1.1

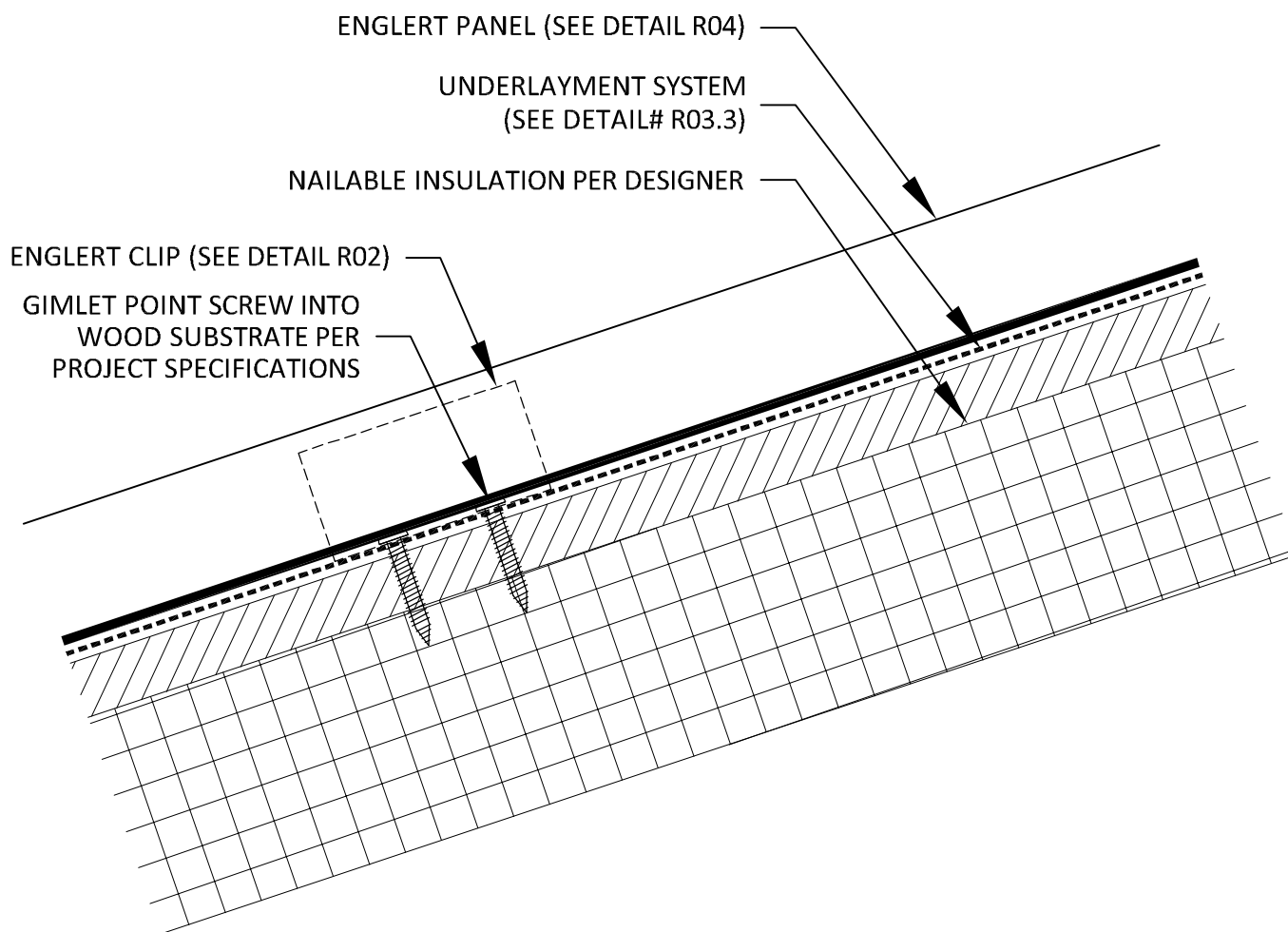


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WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF ASSEMBLY	
WOOD w/ METAL DECKING	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R08.1.2

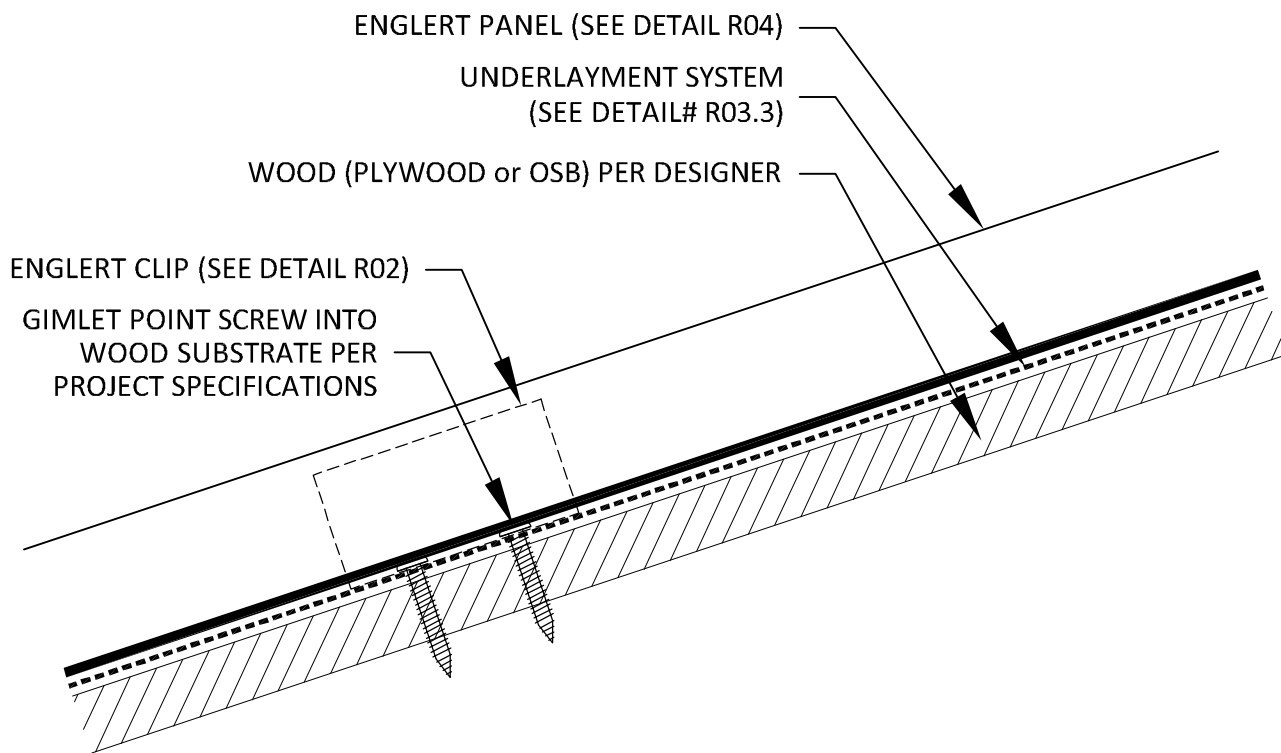


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GENERIC BEST PRACTICE ASSEMBLY
 SHOWN. WATERTIGHTNESS
 WARRANTY NOT IMPLIED.
 WHEN SITE CONDITION DIFFERS,
 SPECIFIC ENGINEERING NECESSARY.

ROOF ASSEMBLY	
WOOD as NAILABLE INSULATION	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R08.1.3



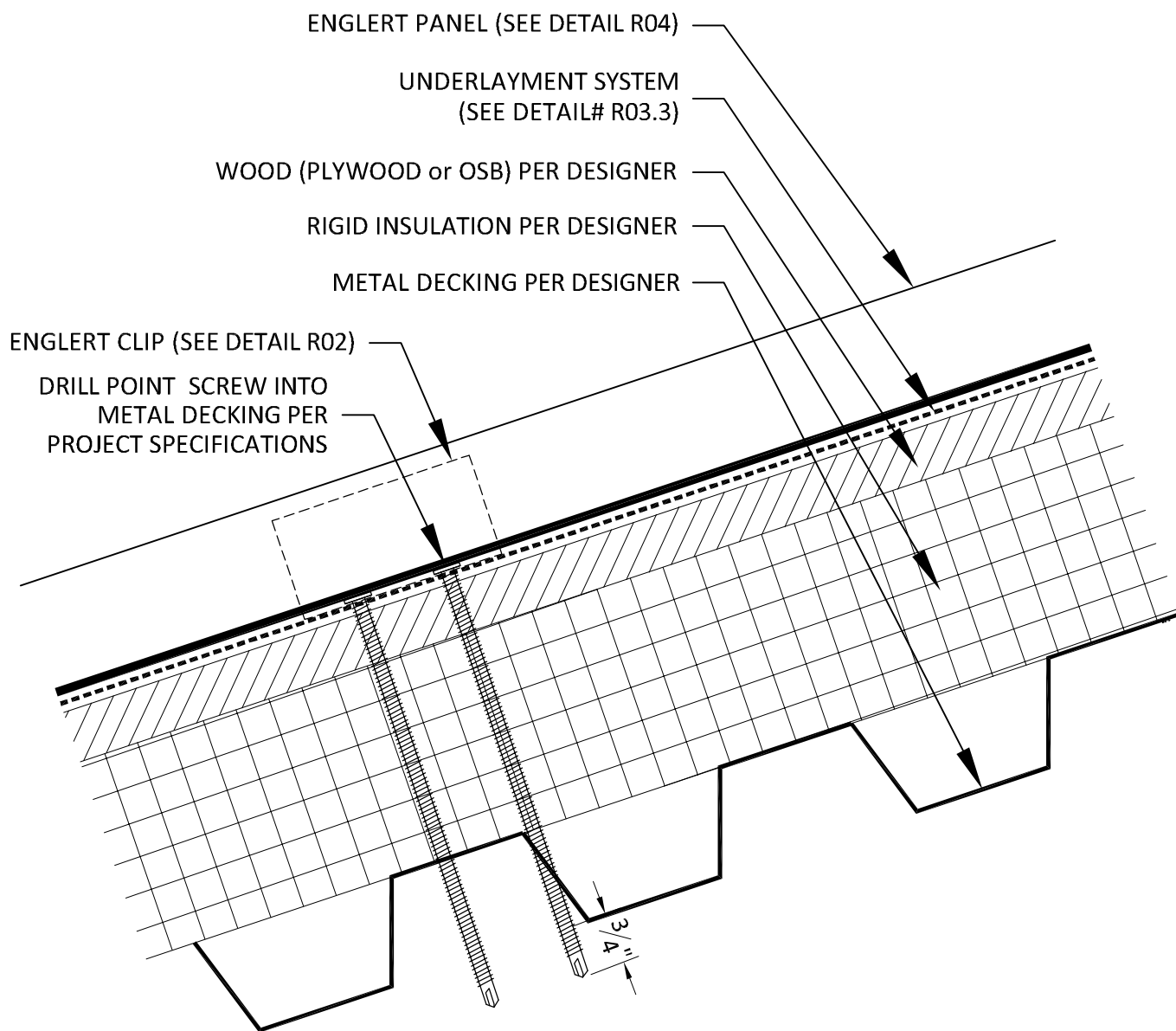

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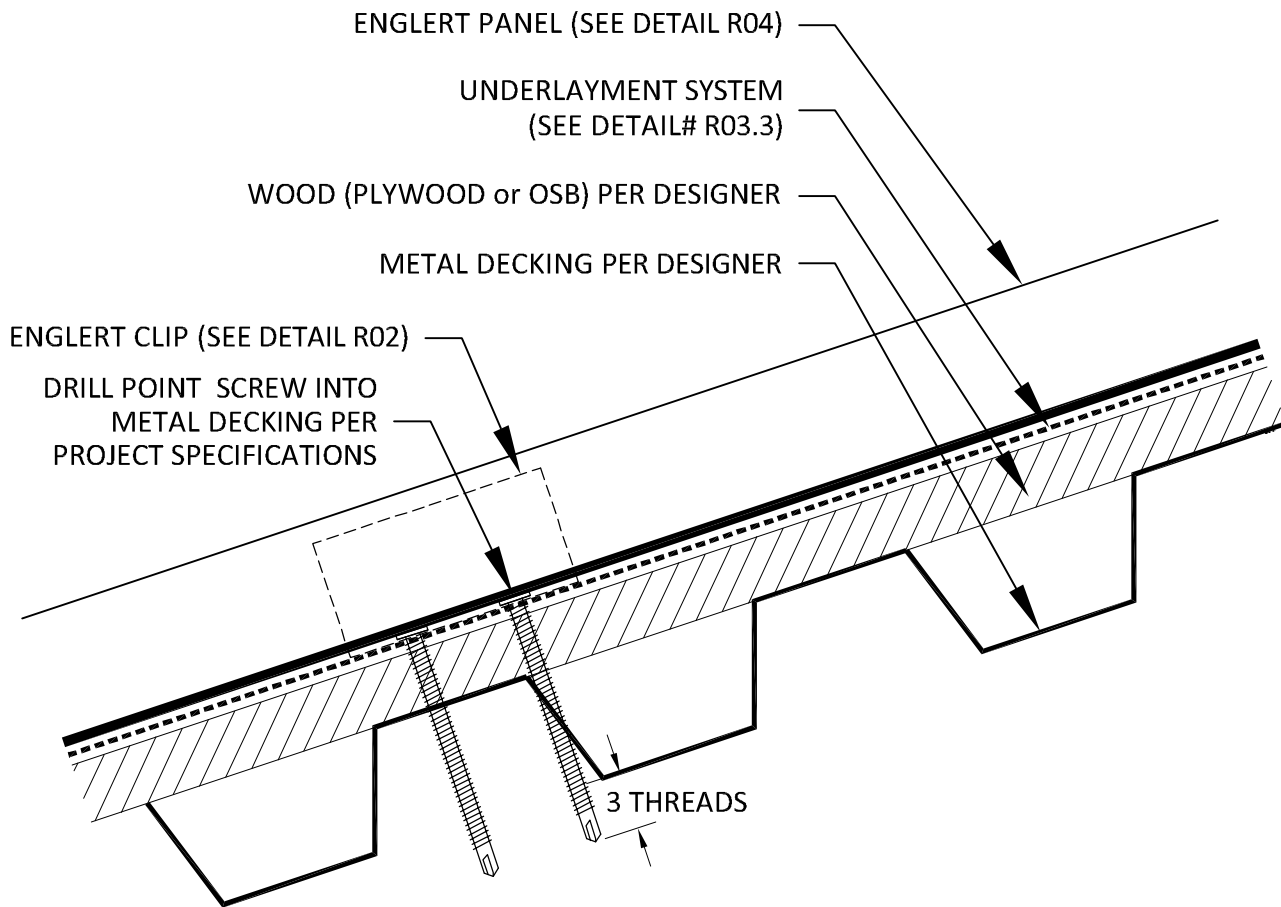
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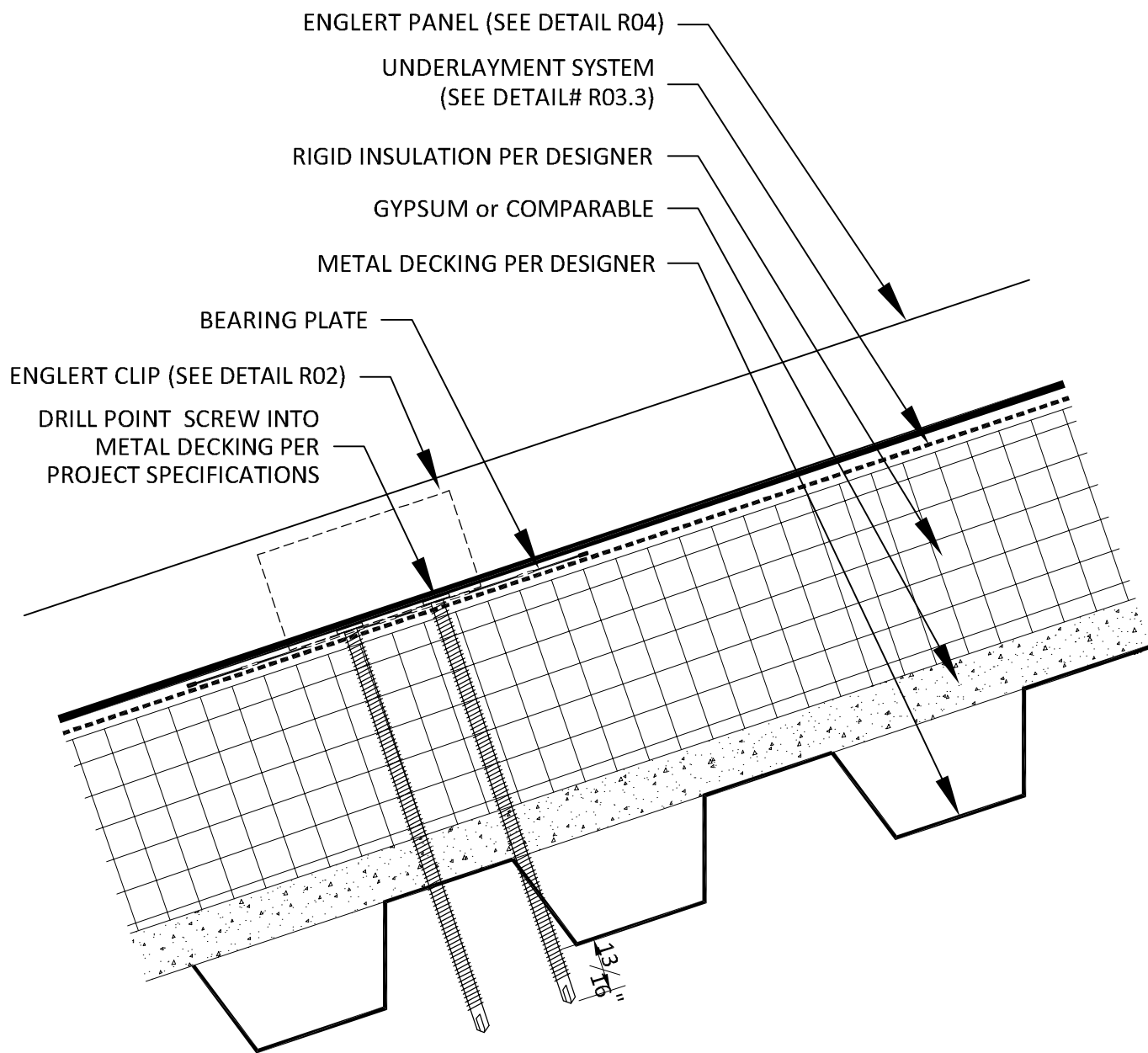
GENERIC BEST PRACTICE ASSEMBLY
 SHOWN. WATERTIGHTNESS
 WARRANTY NOT IMPLIED.
 WHEN SITE CONDITION DIFFERS,
 SPECIFIC ENGINEERING NECESSARY.

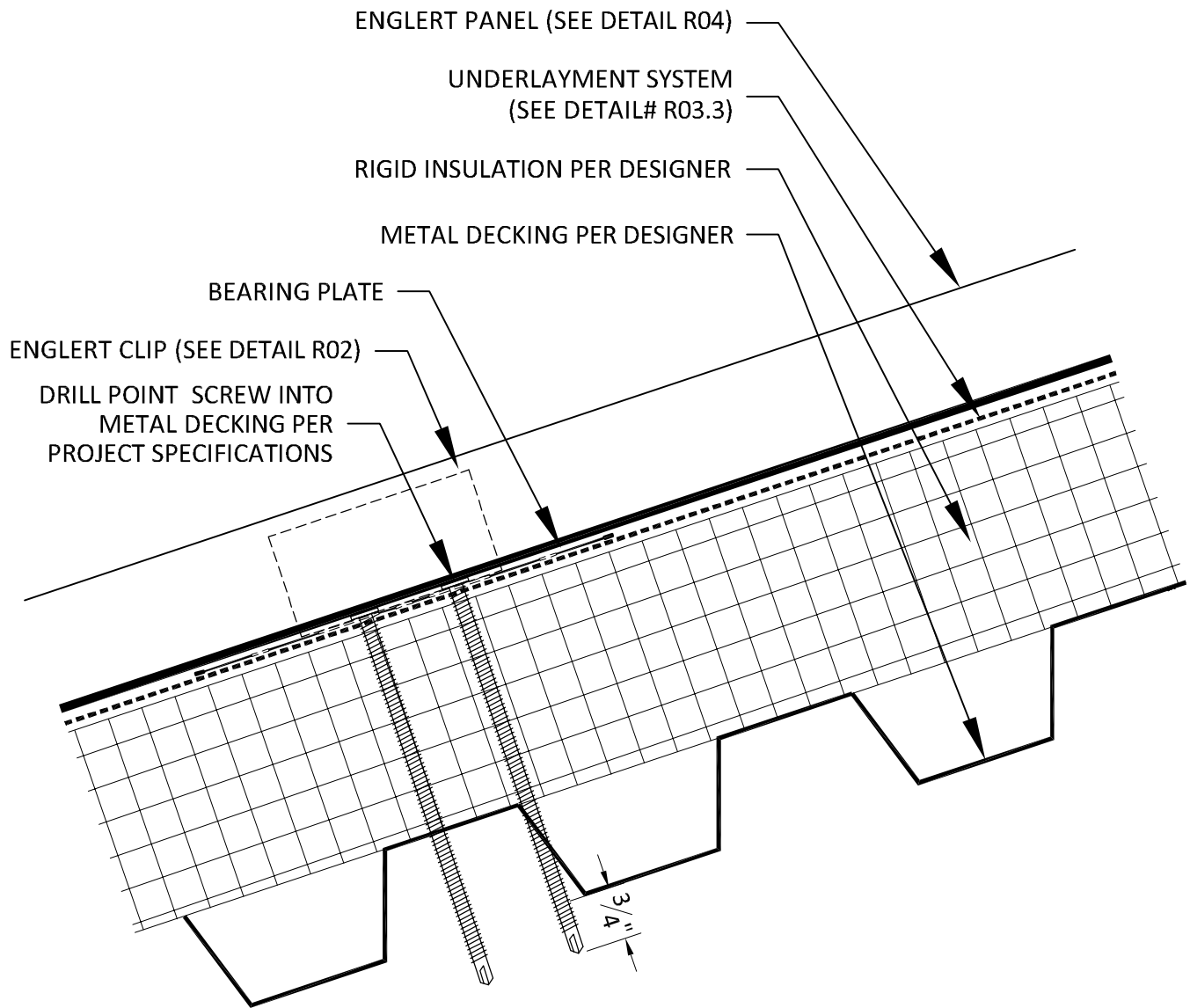
ROOF ASSEMBLY	
WOOD	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail #
R08.1.4









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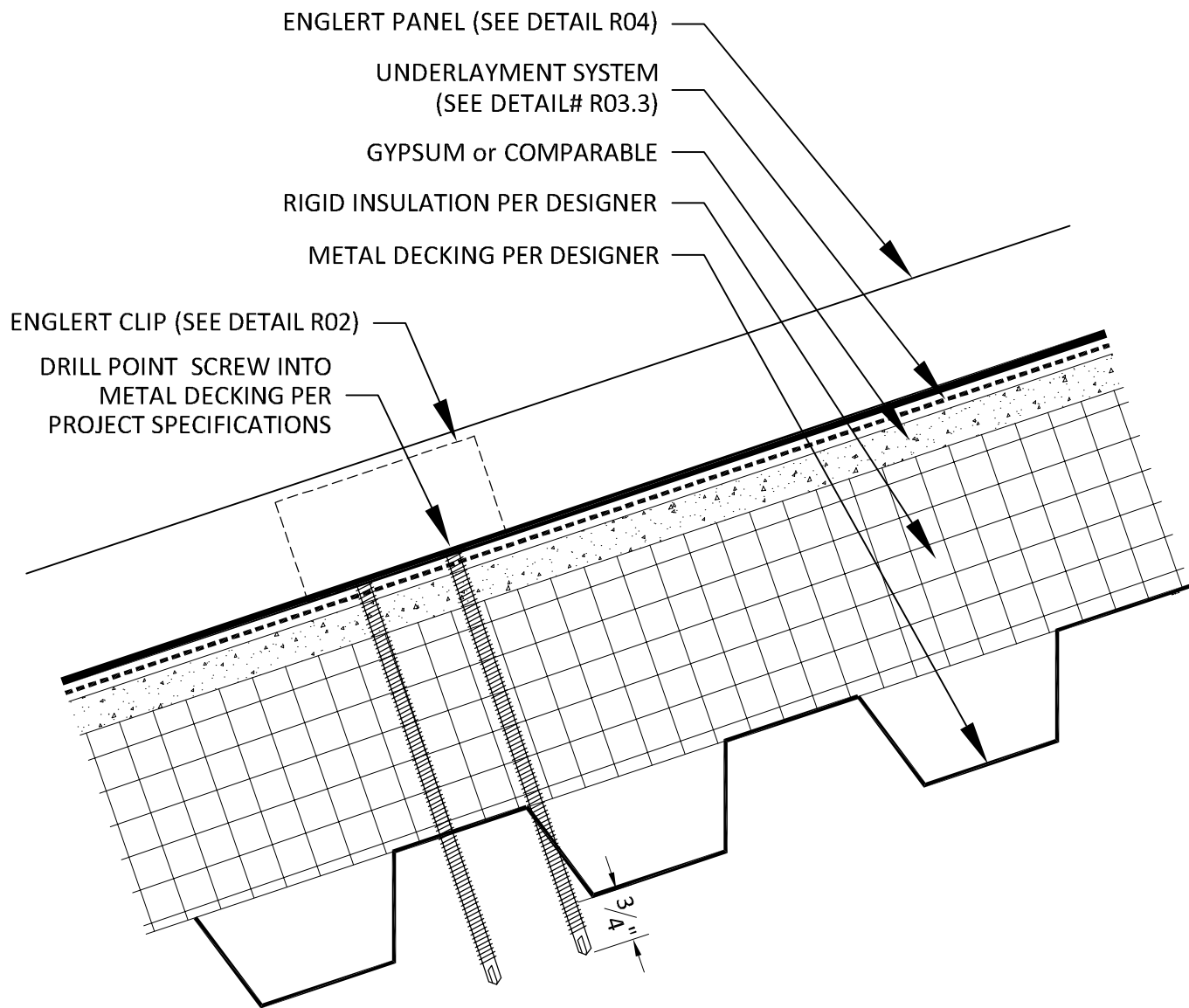
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SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

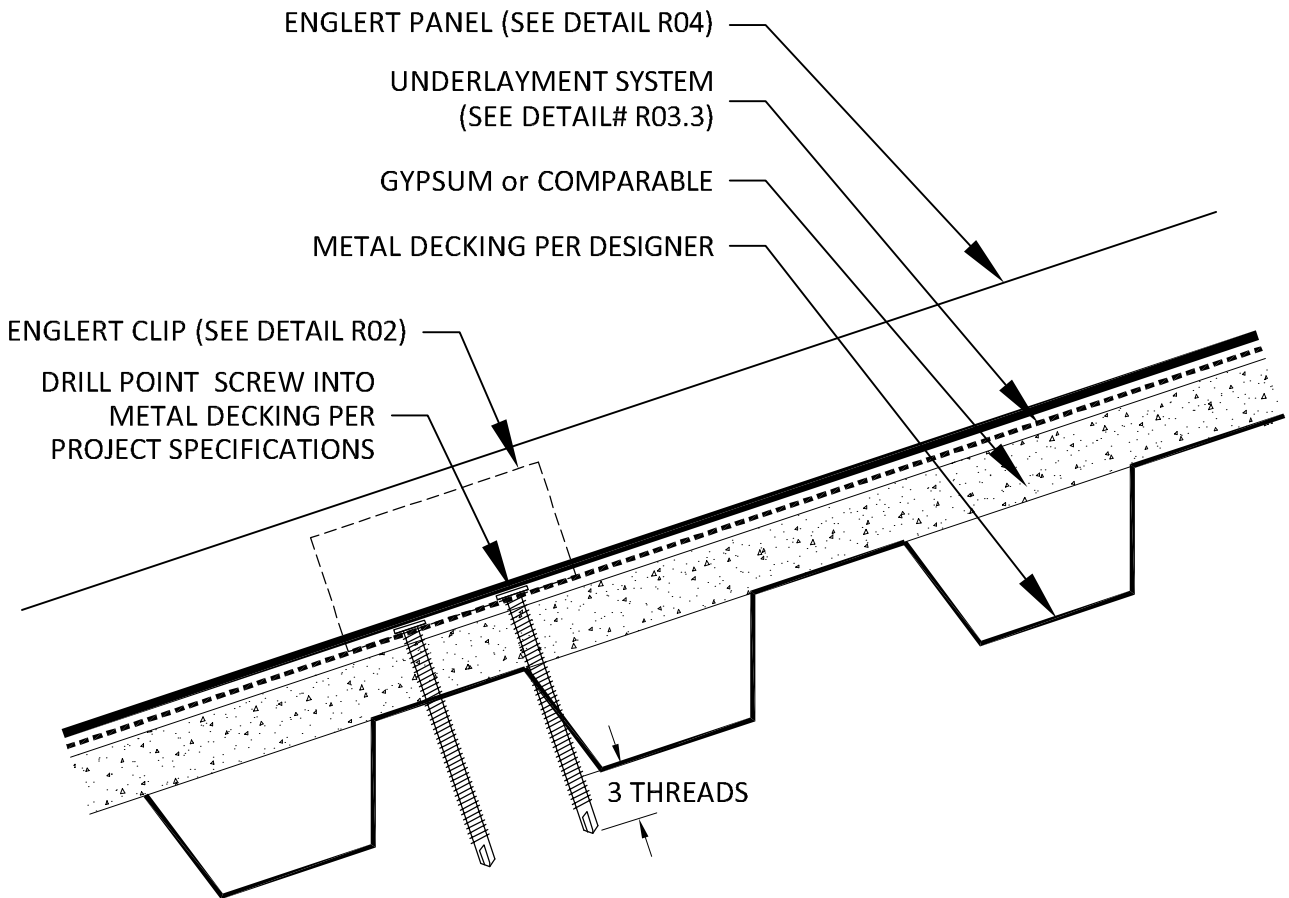
ROOF ASSEMBLY

METAL DECKING w/ PLATES + INSULATION

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #
R08.2.4



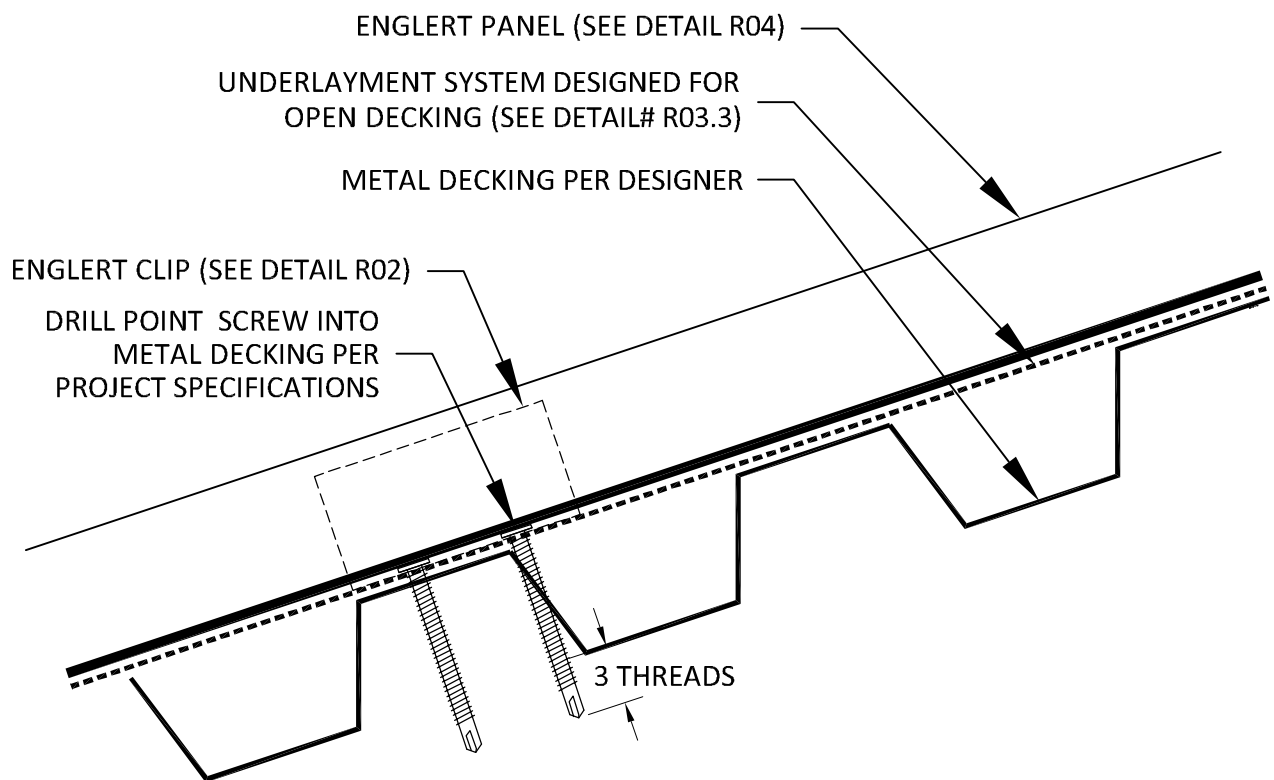


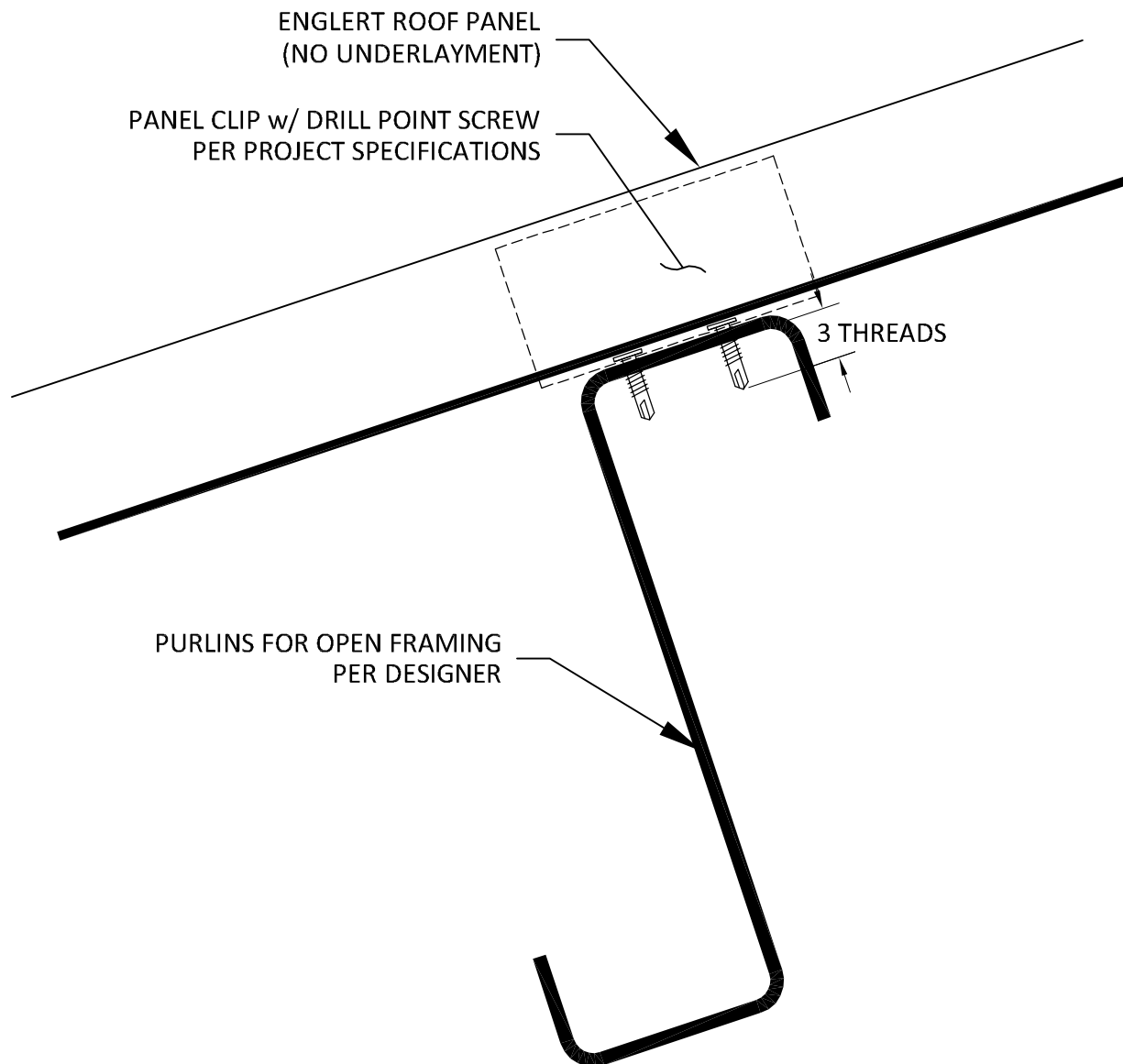
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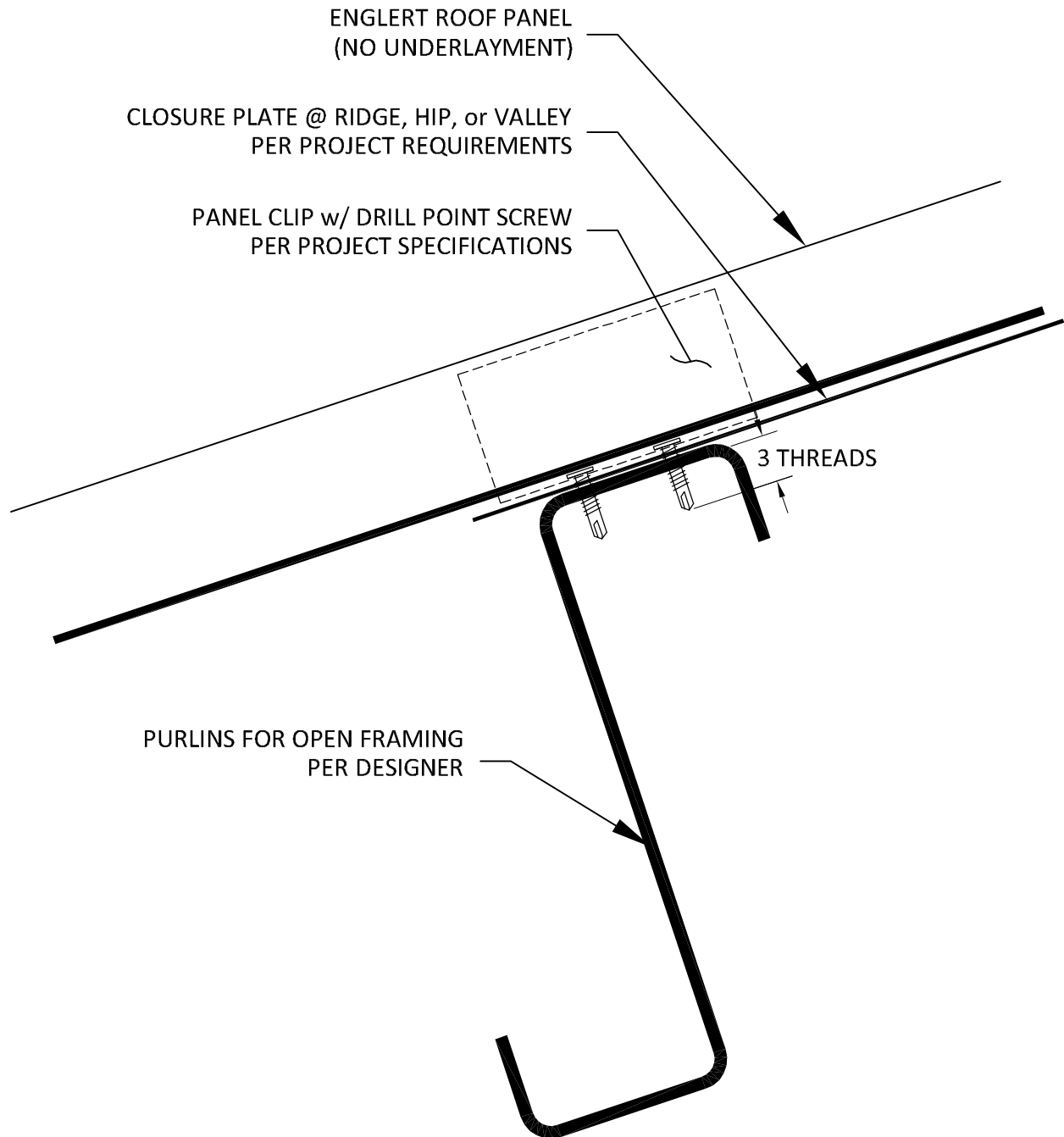
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 SPECIFIC ENGINEERING NECESSARY.

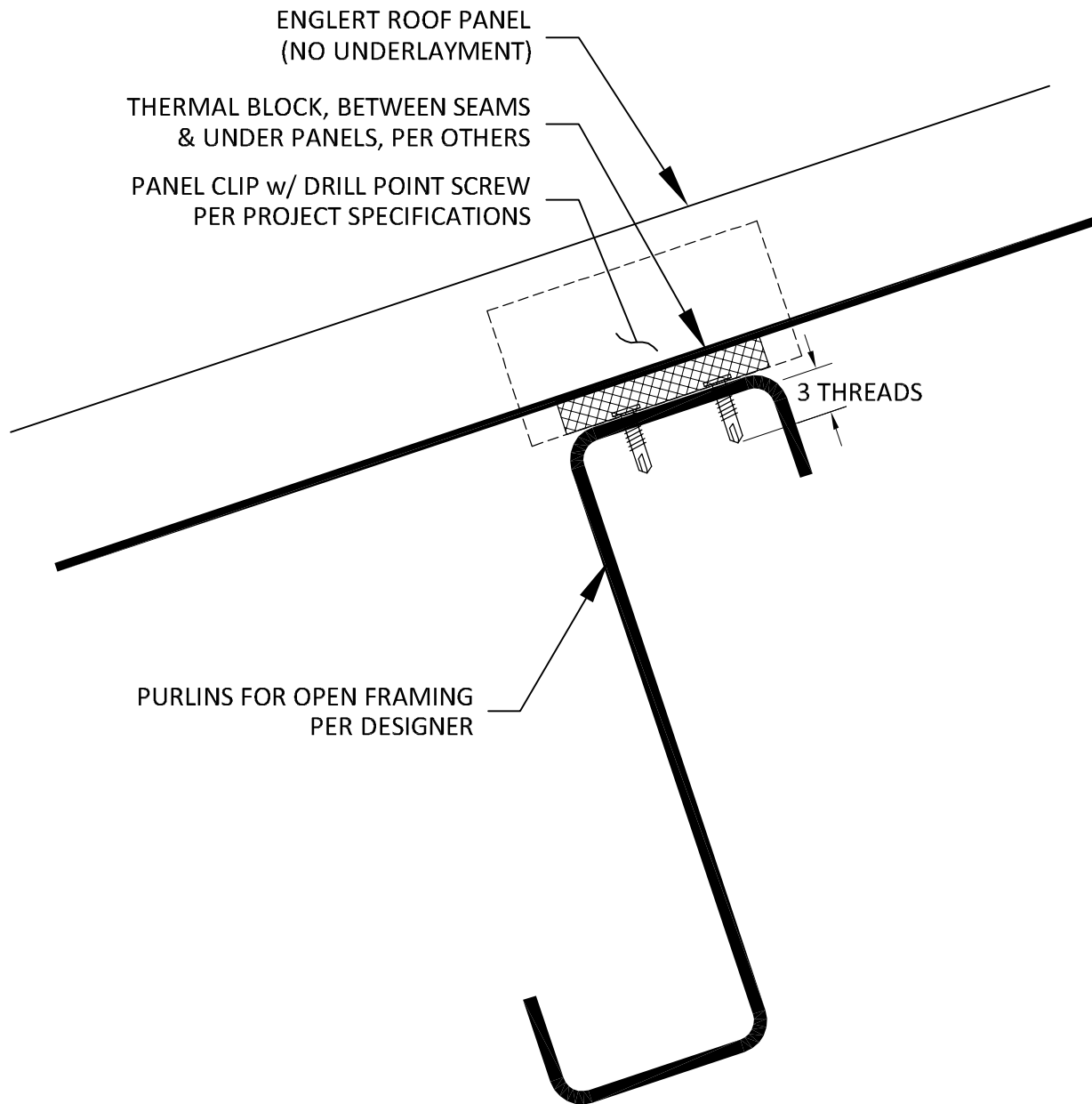
ROOF ASSEMBLY	
METAL DECKING under GYPSUM	

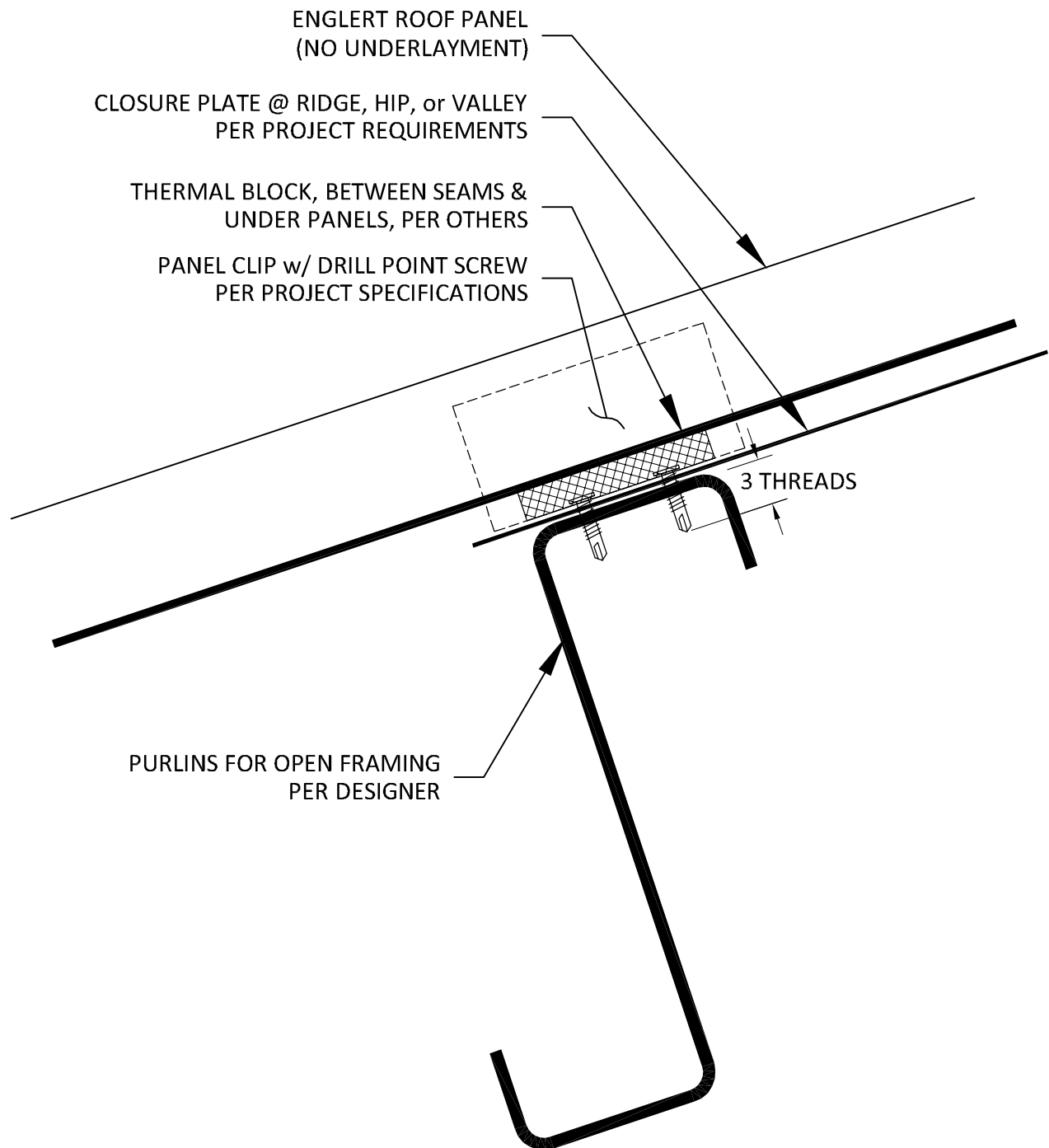
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Detail # R08.2.6

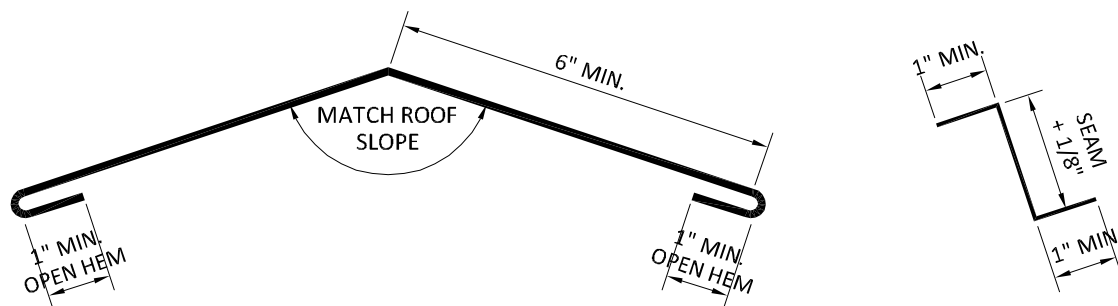
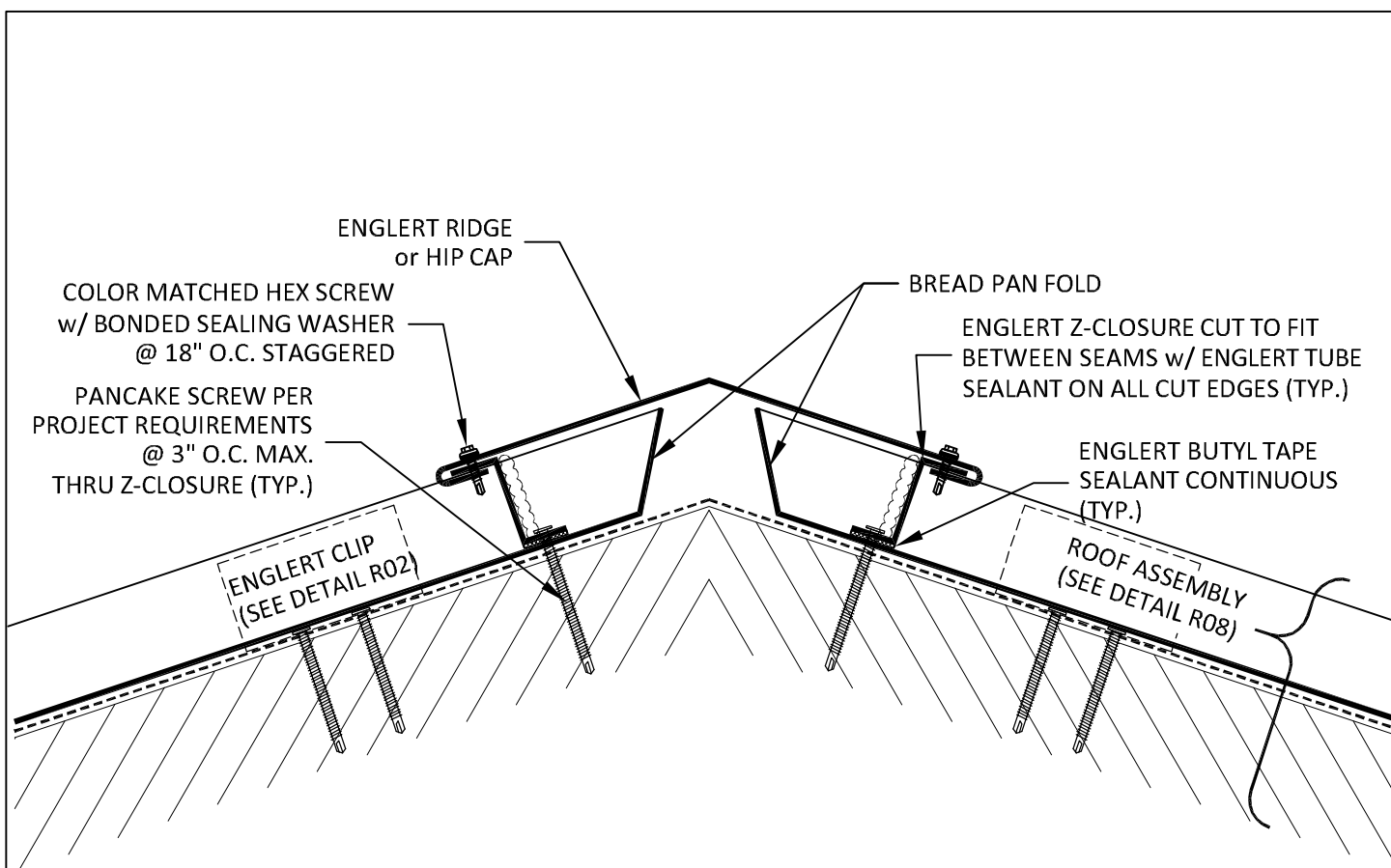












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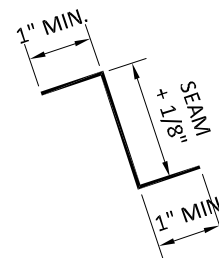
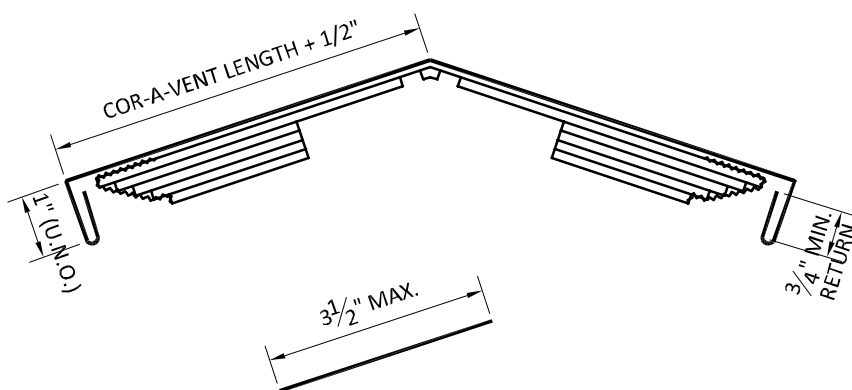
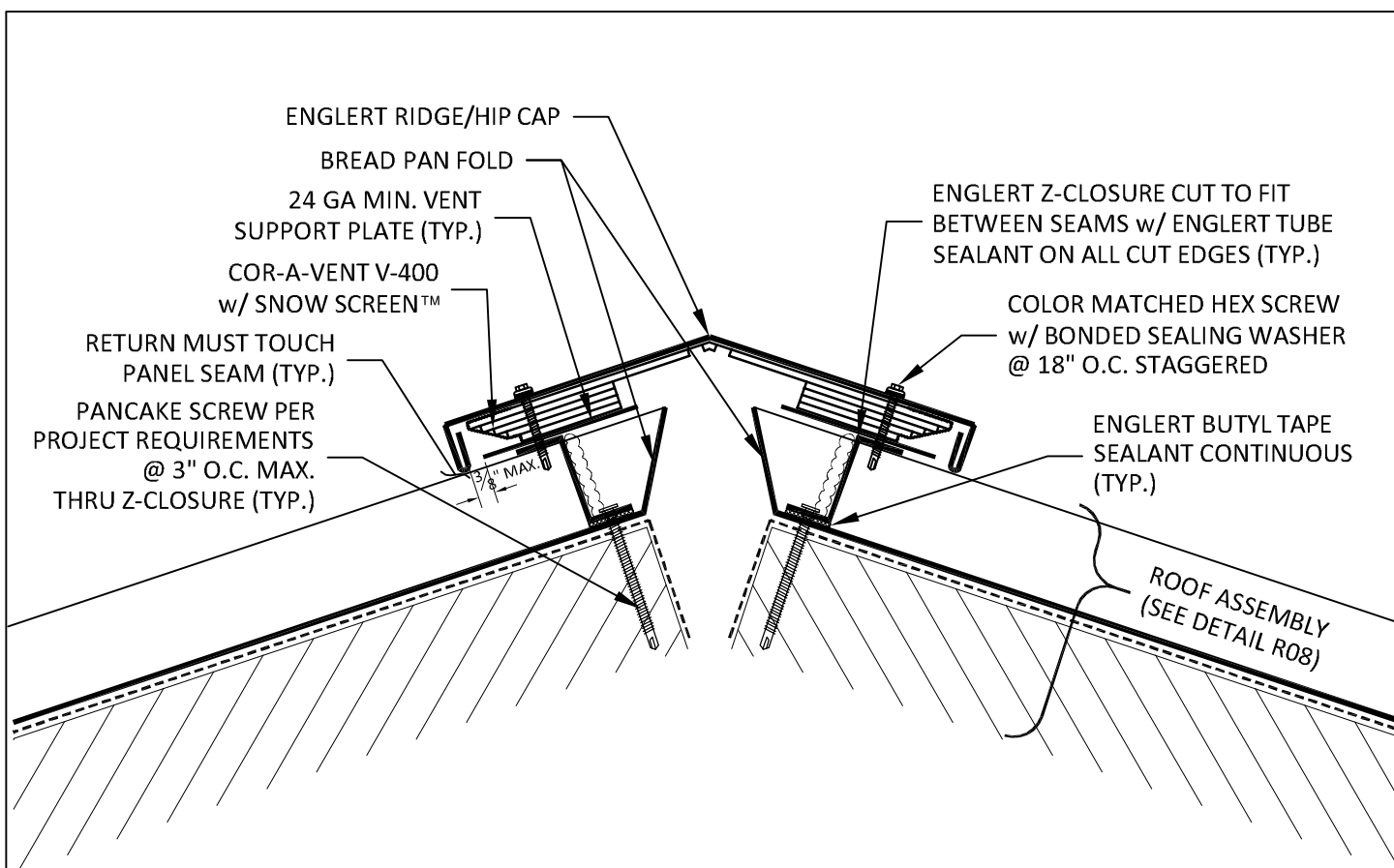
ROOF RIDGE / HIP

TYPICAL CAP

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #

R10.1



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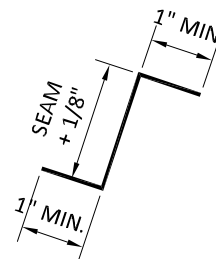
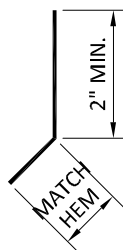
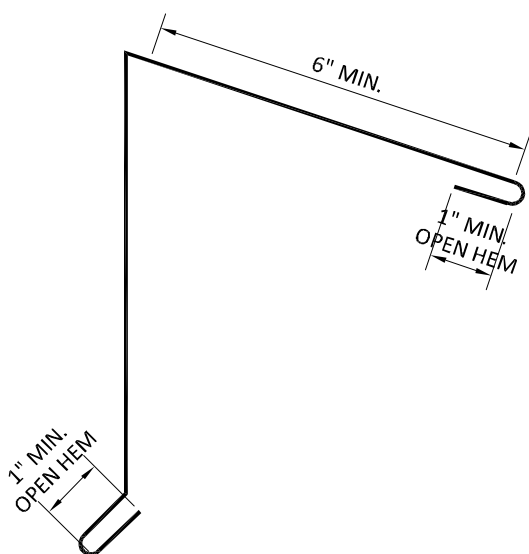
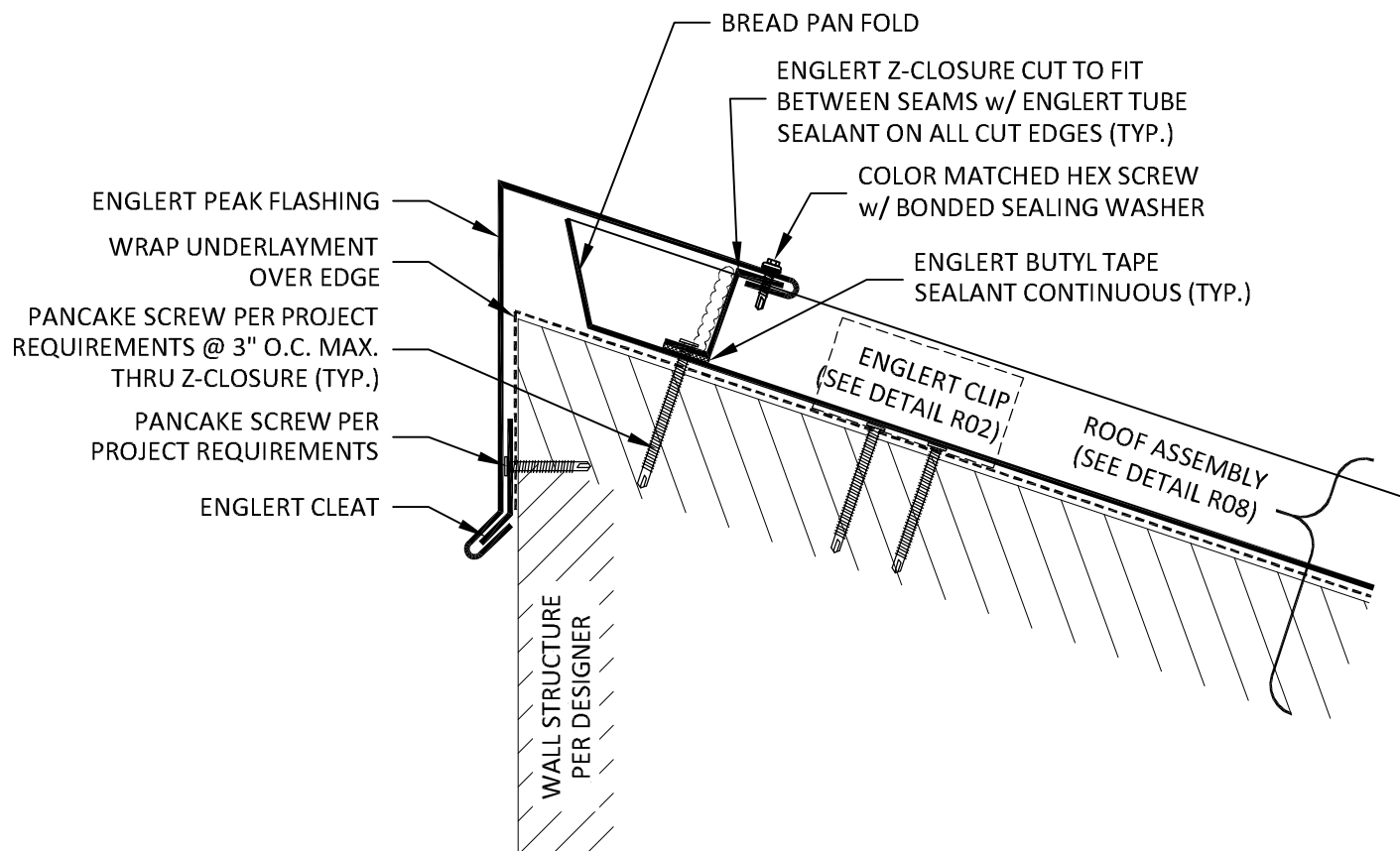
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WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF RIDGE / HIP

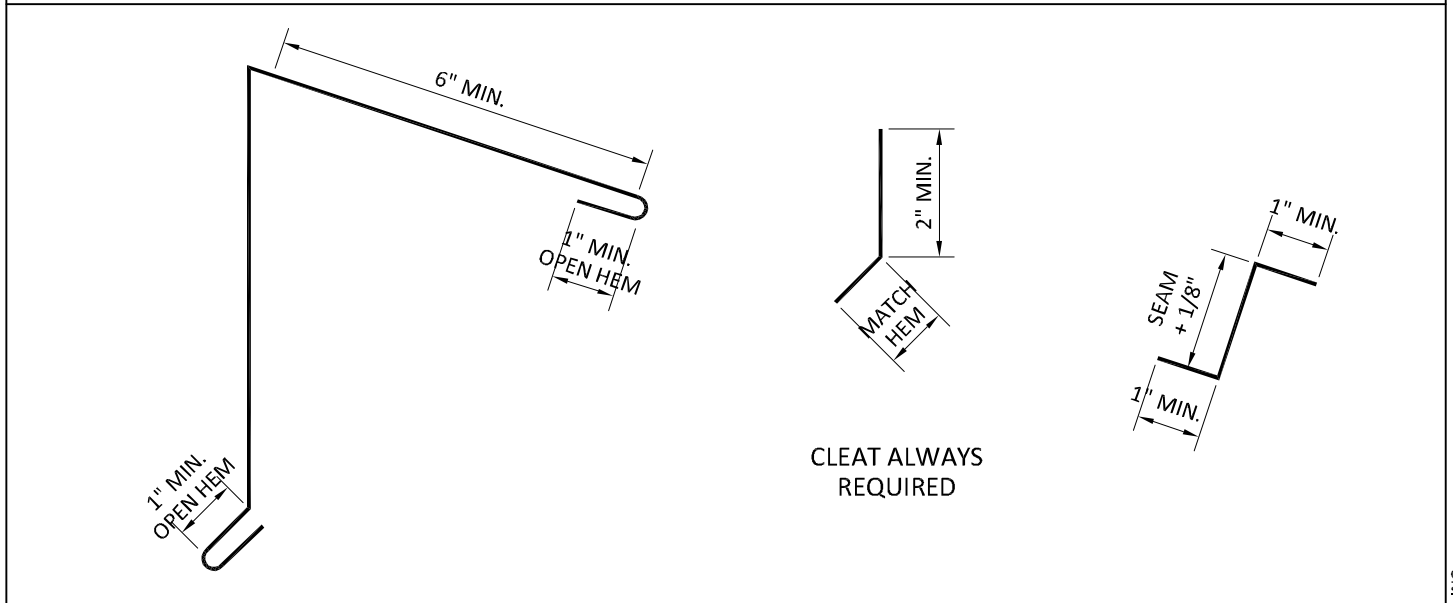
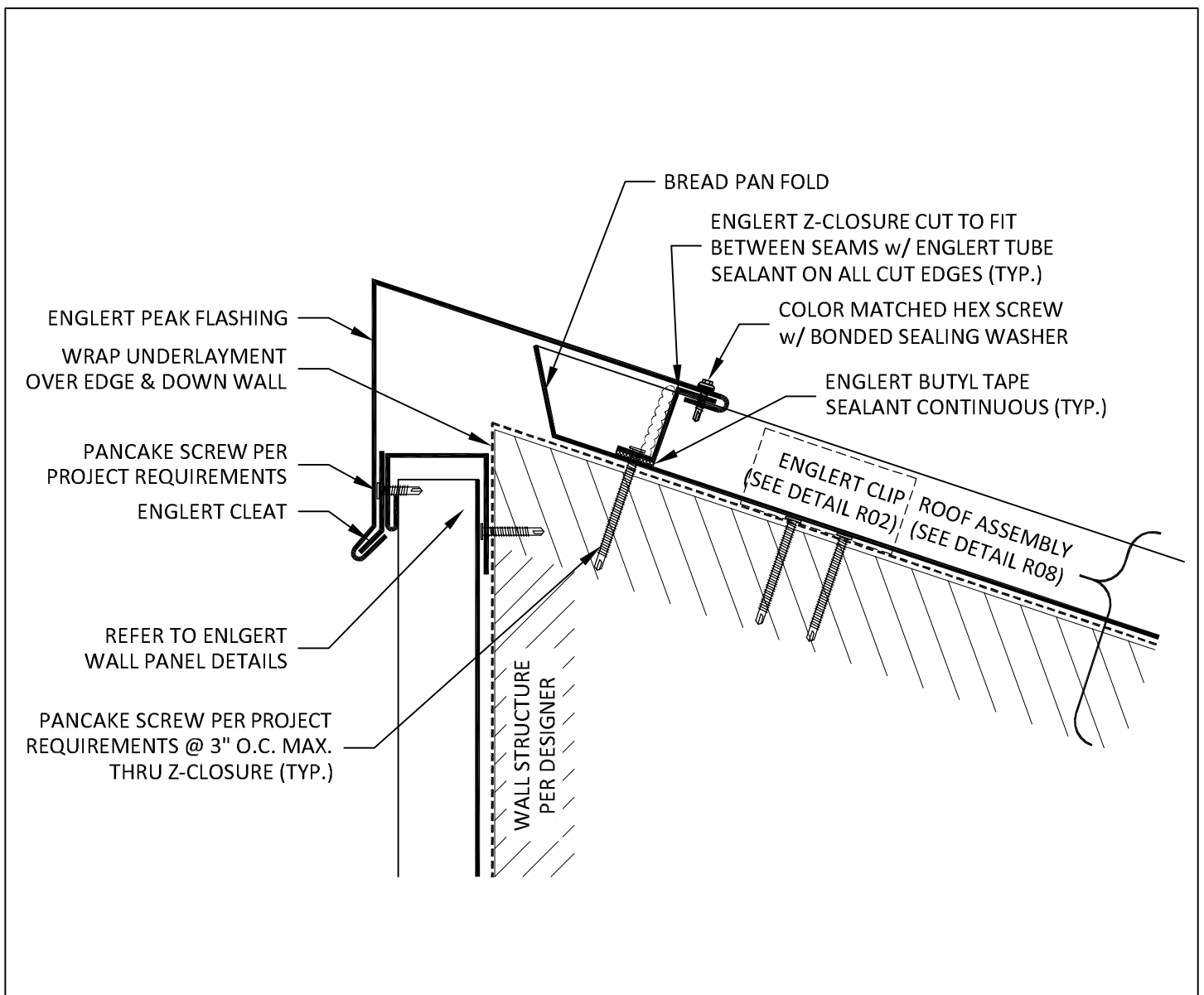
VENTED w/ EXPOSED FASTENER


DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

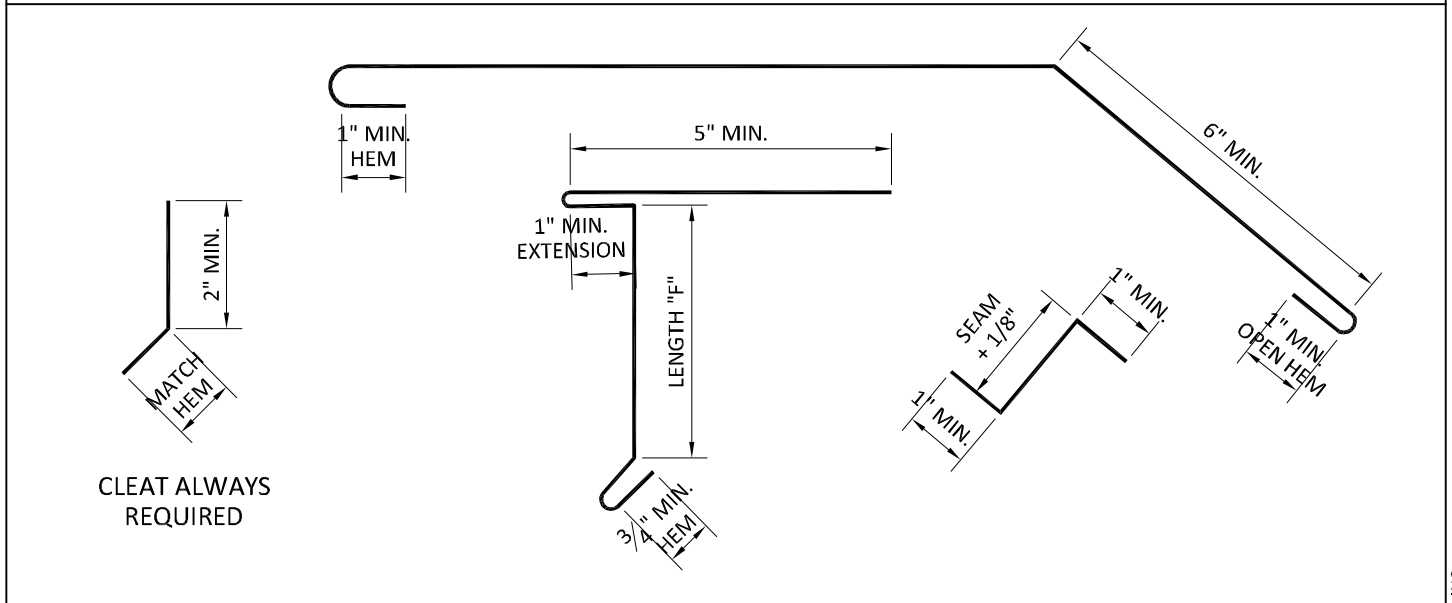
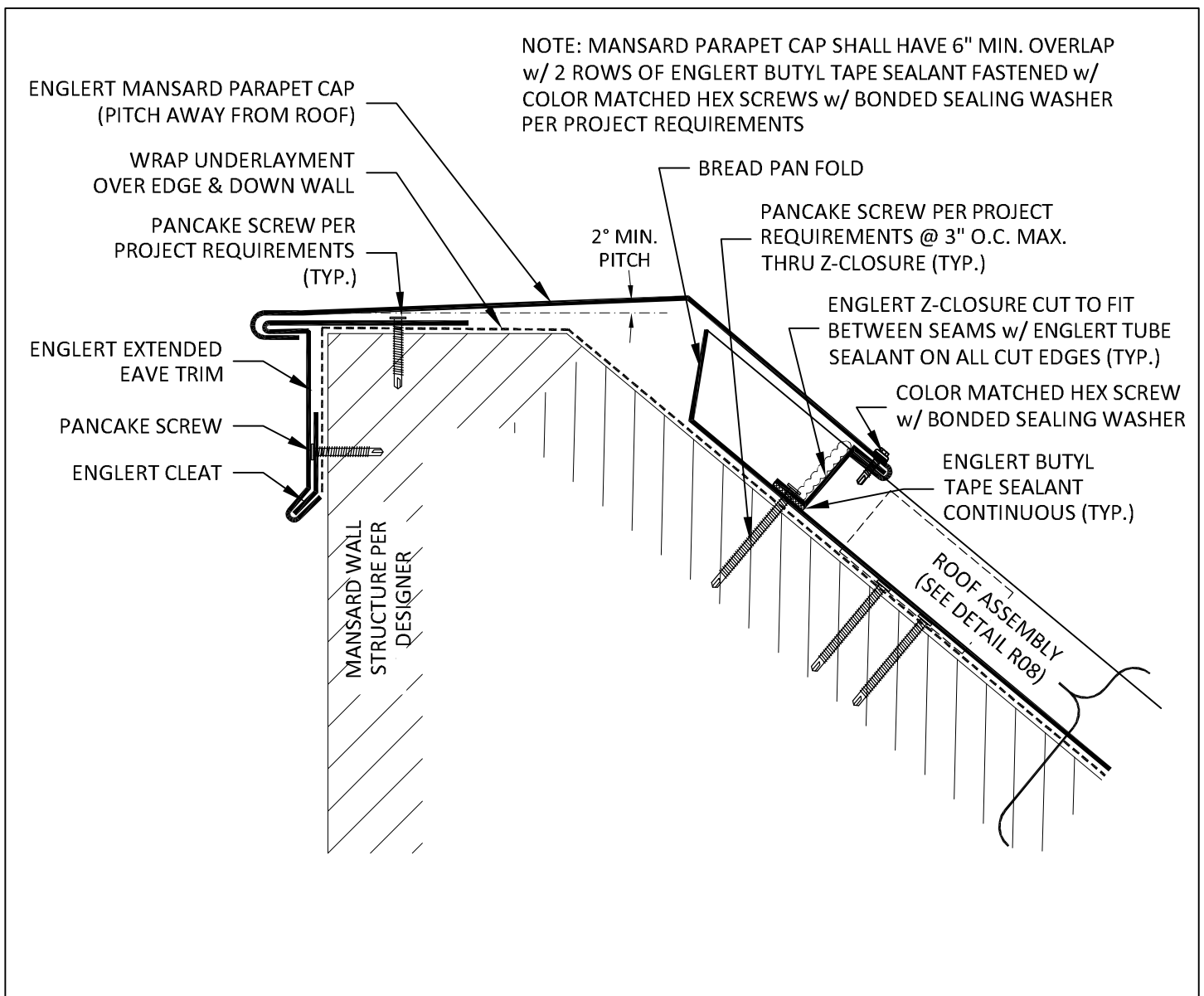
Detail #
R10.2.2




CLEAT ALWAYS
REQUIRED



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	WALL PANEL FASCIA		Detail #
			R12.2

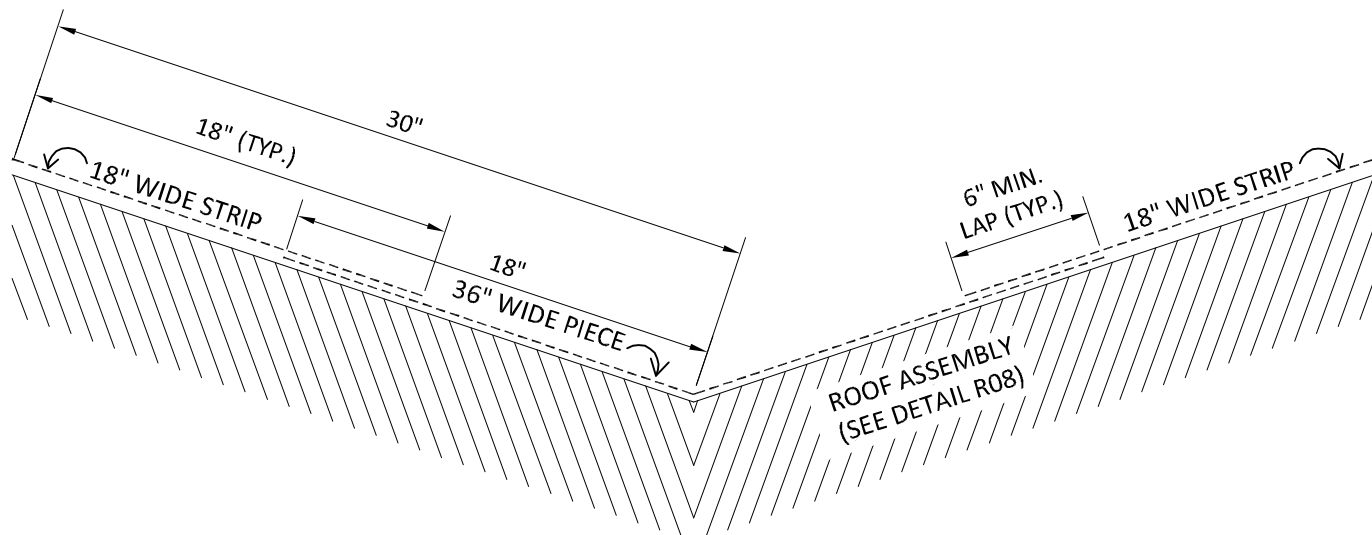


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	MANSARD		Detail #
			R12.3

USE THIS INSTALLATION PROCEDURE WHEN SLOPE IS 3:12 or GREATER,
REGARDLESS WHETHER ENGLERT H/T UNDERLAYMENT IS OVER ENTIRE ROOF
or ONLY ALONG PERIMETERS.

WHEN SLOPE IS LESS THAN 3:12, CONSULT ENGLERT TECHNICAL DEPARTMENT.

- 1) PLACE ONE 36" WIDE PIECE OF UNDERLAYMENT DOWN MIDDLE OF VALLEY
WITH 18" OF COVERAGE ON EACH SIDE.
- 2) CUT ONE 36" WIDE PIECE IN HALF TO CREATE 18" STRIPS.
- 3) PLACE ONE 18" STRIP ON EACH SIDE OF VALLEY AS SHOWN. SHINGLE LAP
UNDERLAYMENT BY 6" MINIMUM. MAXIMIZE VALLEY COVERAGE.
- 4) WHEN NECESSARY, END LAP UNDERLAYMENT BY 6" MINIMUM.



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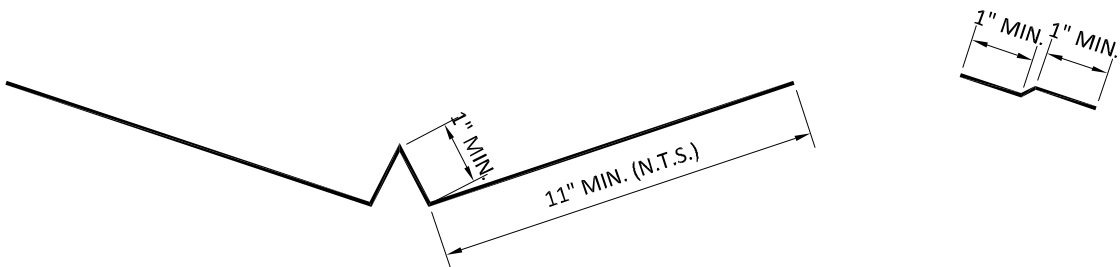
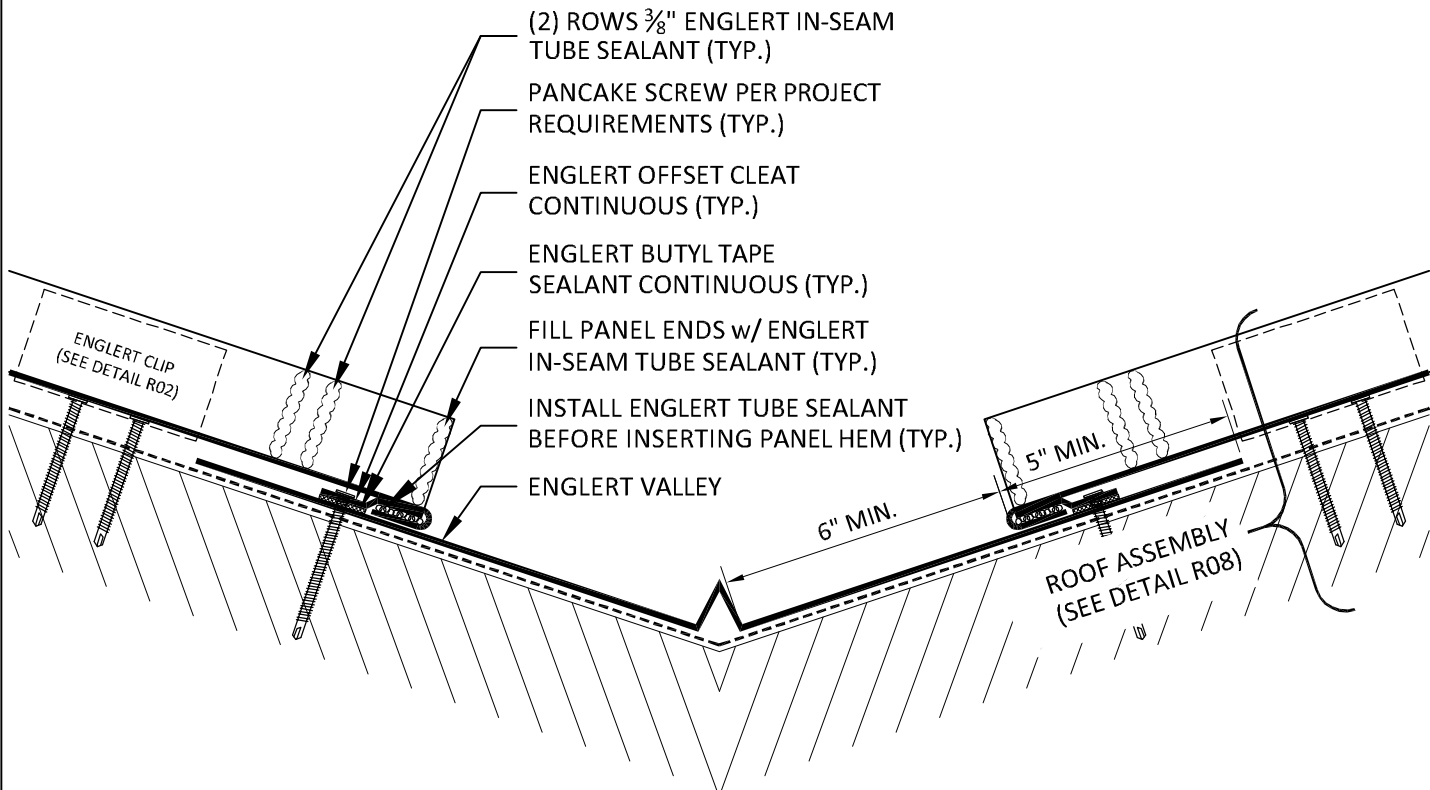
GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF VALLEY	
VALLEY UNDERLAYMENT	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R14

IMPORTANT! CONSULT ENGLERT TECHNICAL DEPARTMENT WHEN SLOPE IS LESS THAN 3:12 FOR REQUIRED VALLEY FLASHING WIDTH.

IMPORTANT! ENGLERT H/T UNDERLAYMENT REQUIRED ON SOLID SUBSTRATES & RIGID INSULATION. SEE DETAIL# R14 FOR INSTALLATION INSTRUCTIONS.



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ROOF VALLEY

OFFSET CLEAT

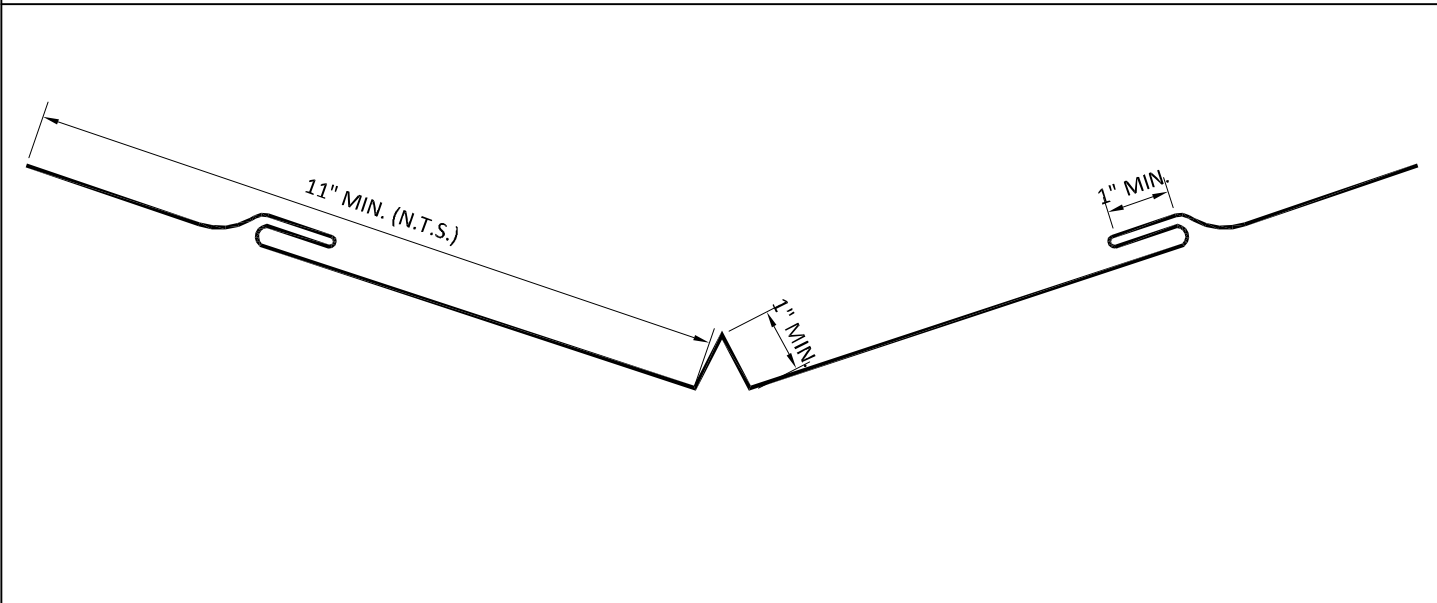
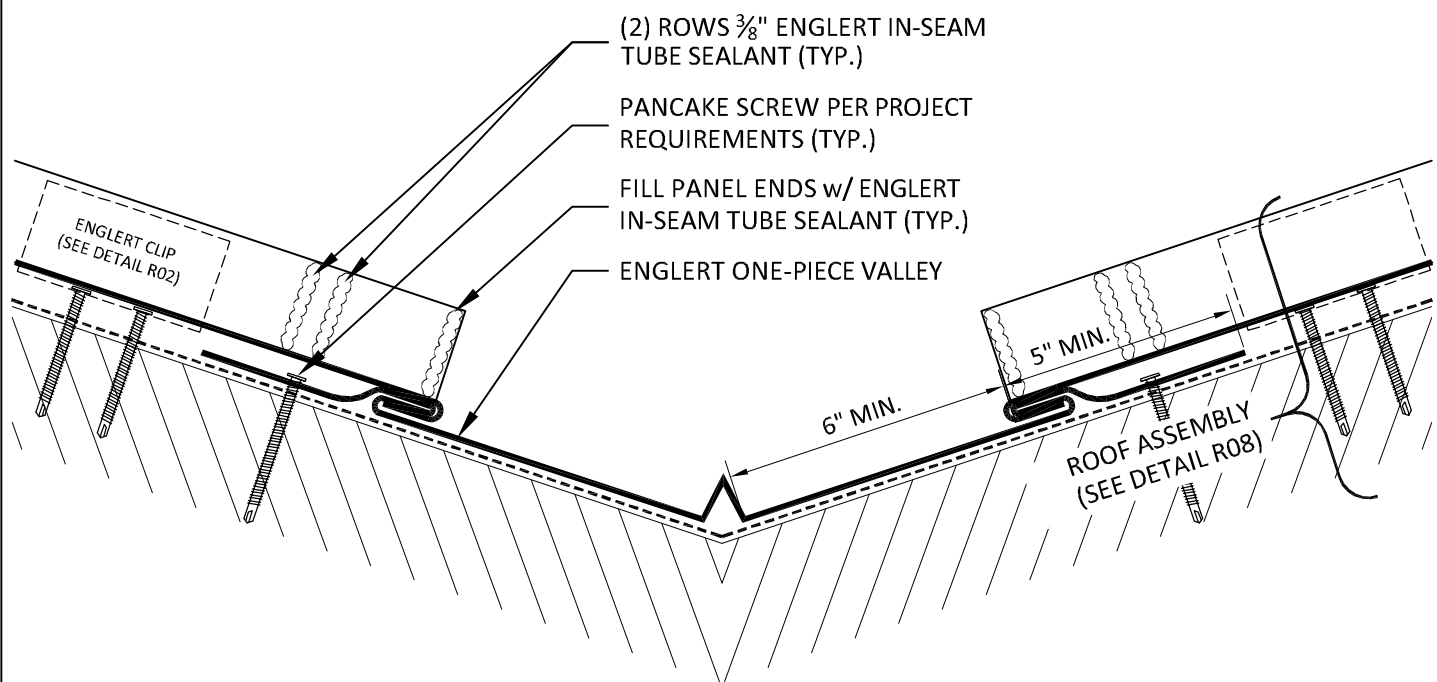
DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.


Detail #

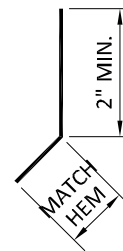
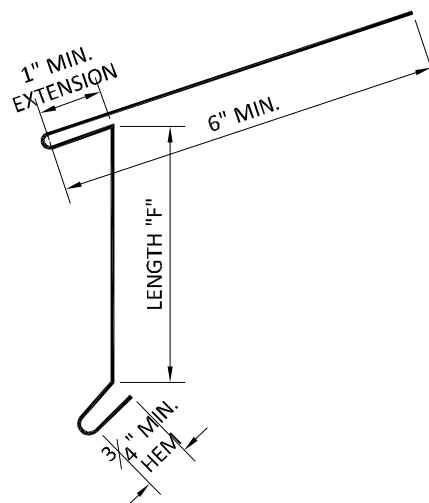
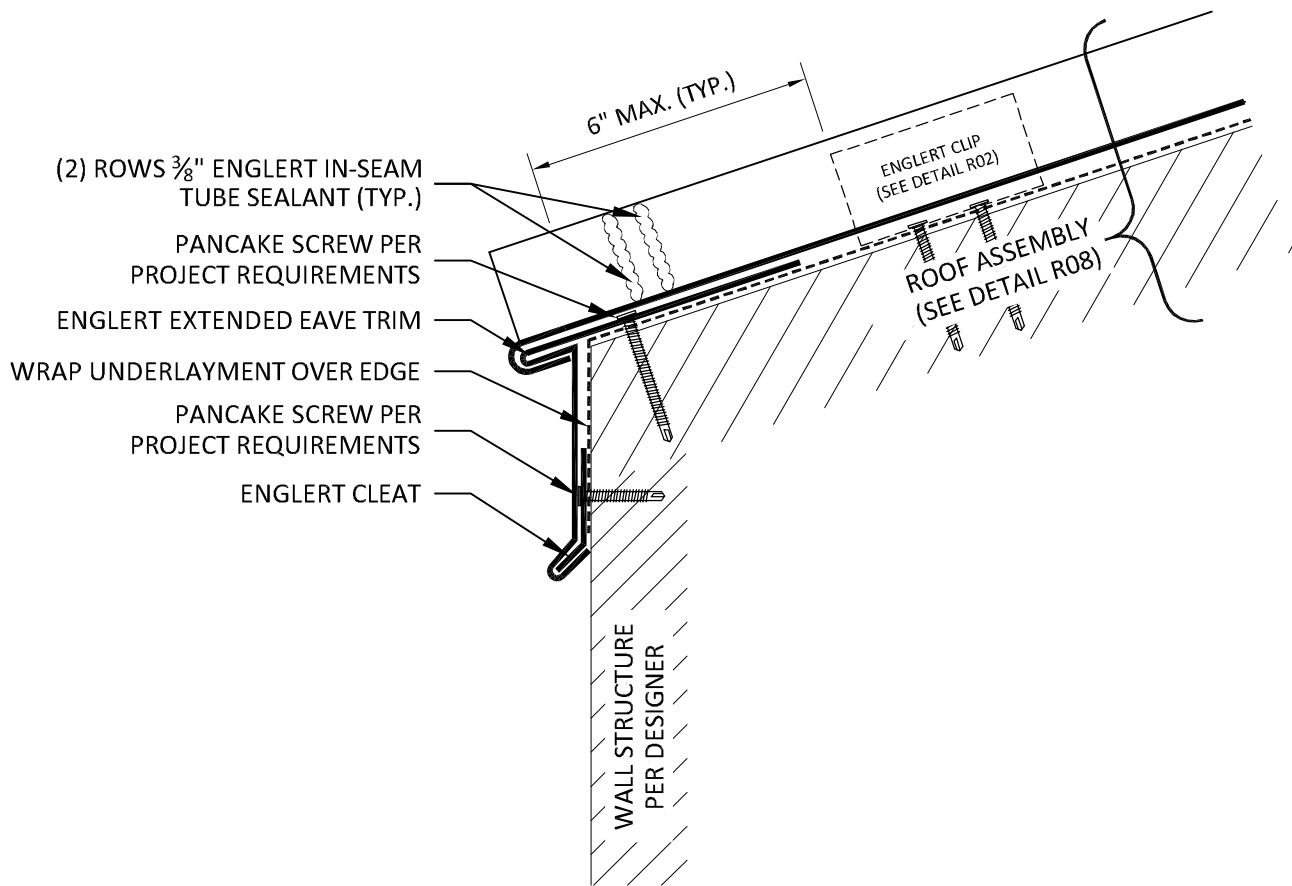
R14.1

IMPORTANT! CONSULT ENGLERT TECHNICAL DEPARTMENT WHEN SLOPE IS LESS THAN 3:12 FOR REQUIRED VALLEY FLASHING WIDTH.

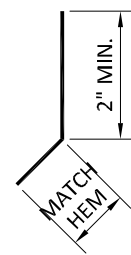
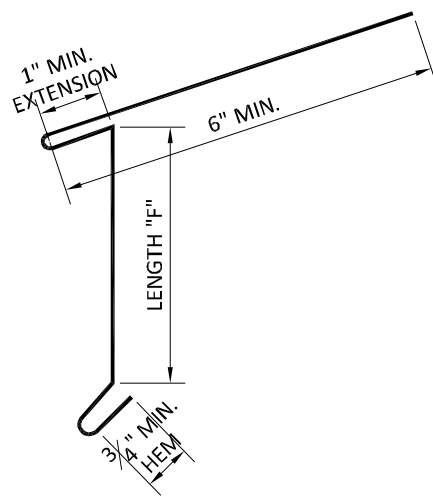
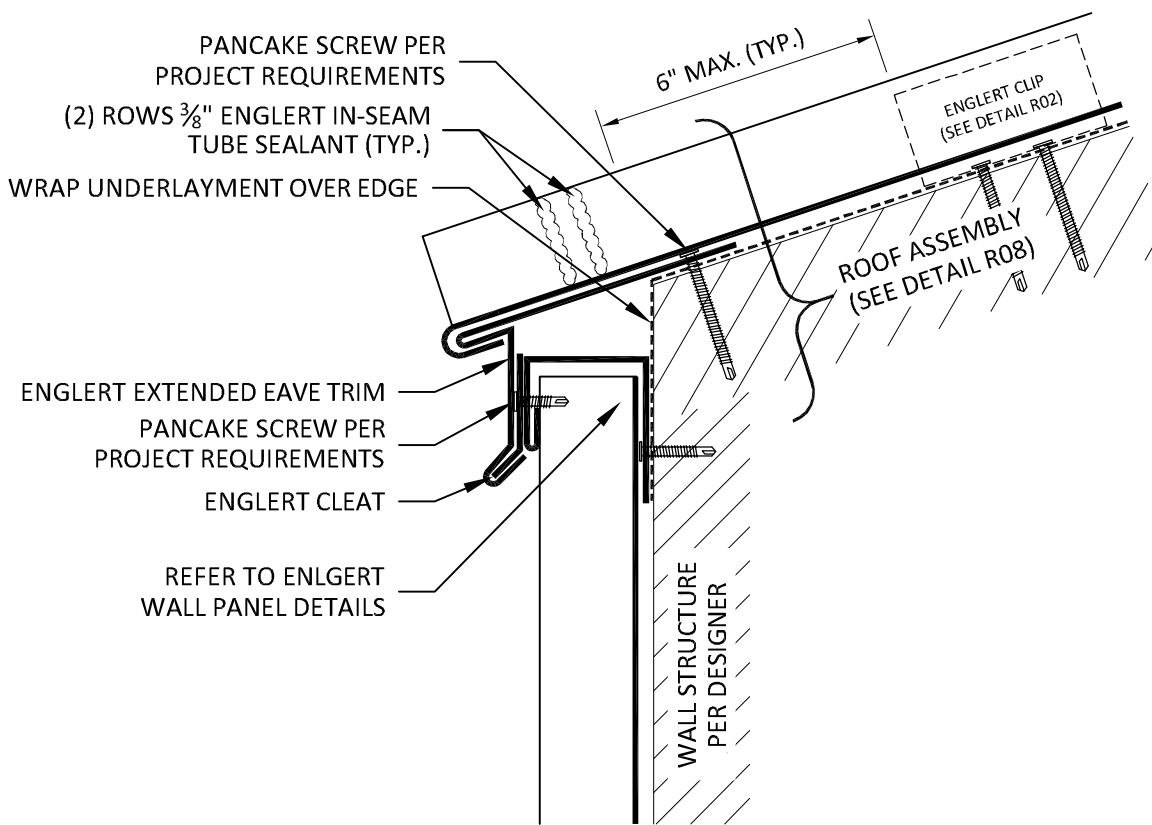
IMPORTANT! ENGLERT H/T UNDERLAYMENT REQUIRED ON SOLID SUBSTRATES & RIGID INSULATION. SEE DETAIL# R14 FOR INSTALLATION INSTRUCTIONS.




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	ONE-PIECE		Detail #
			R14.2

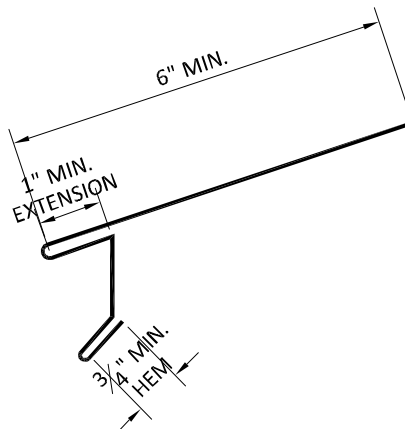
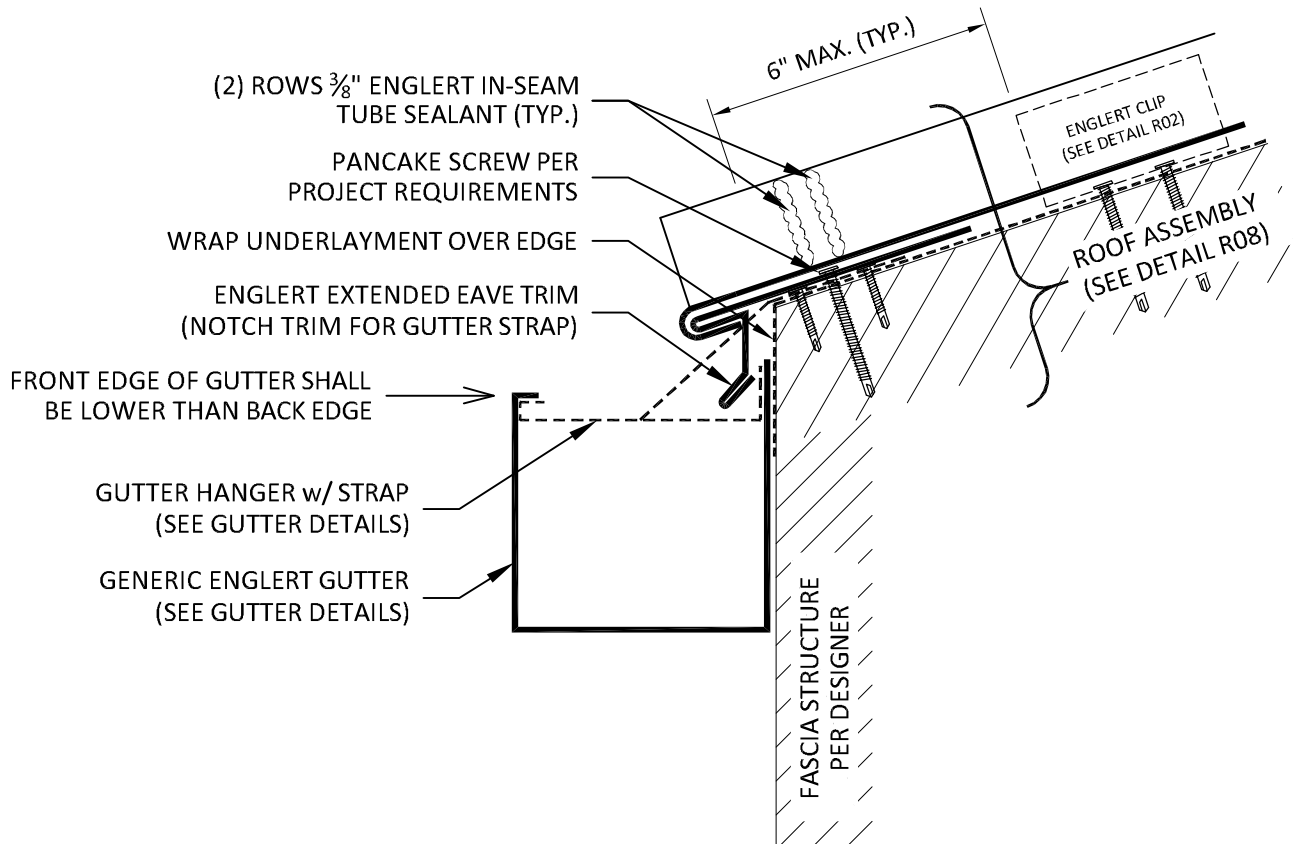


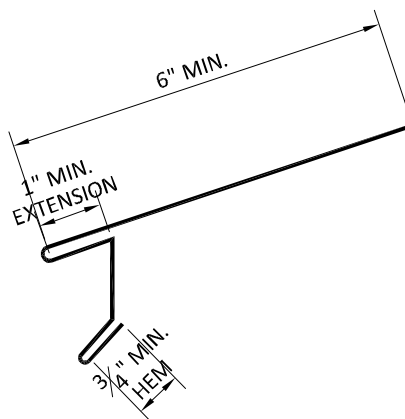
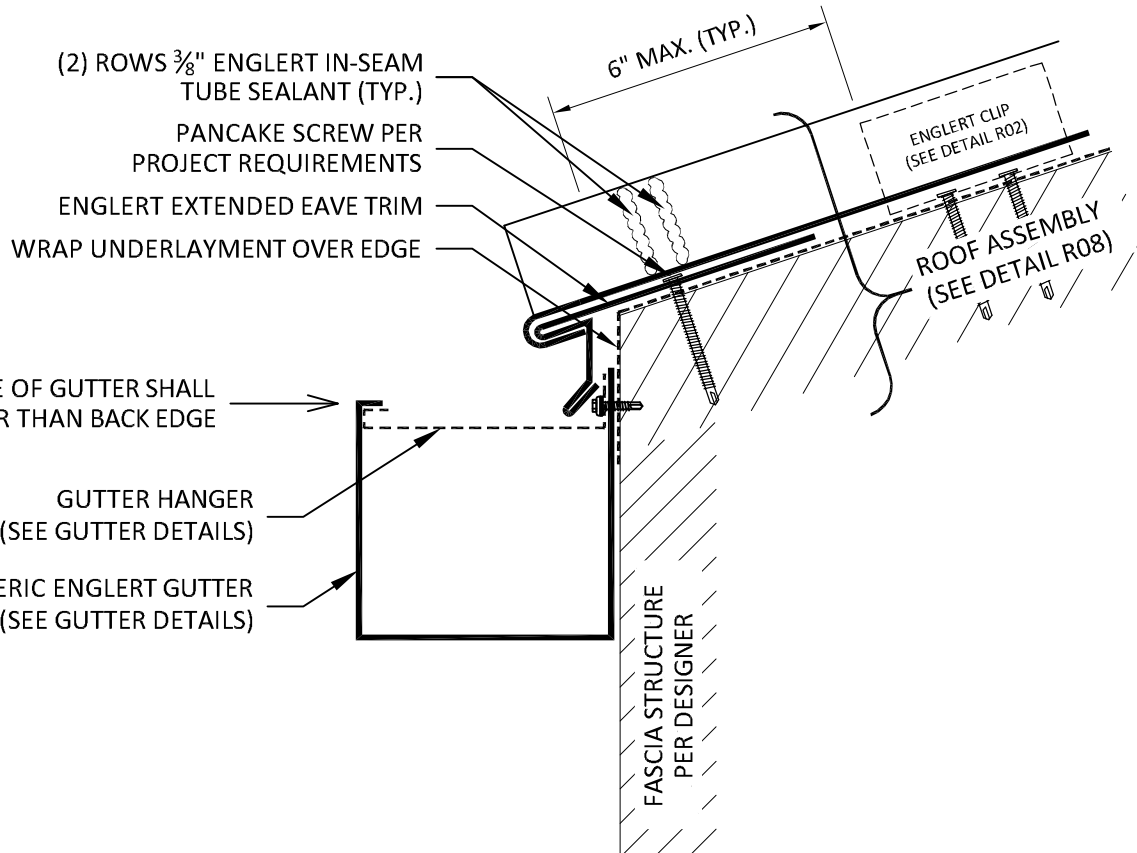
CLEAT REQUIRED
WHEN LENGTH "F"
IS GREATER THAN 4"

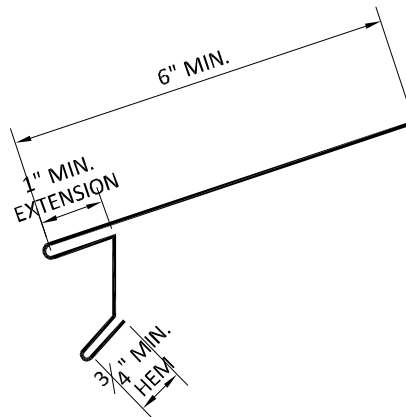
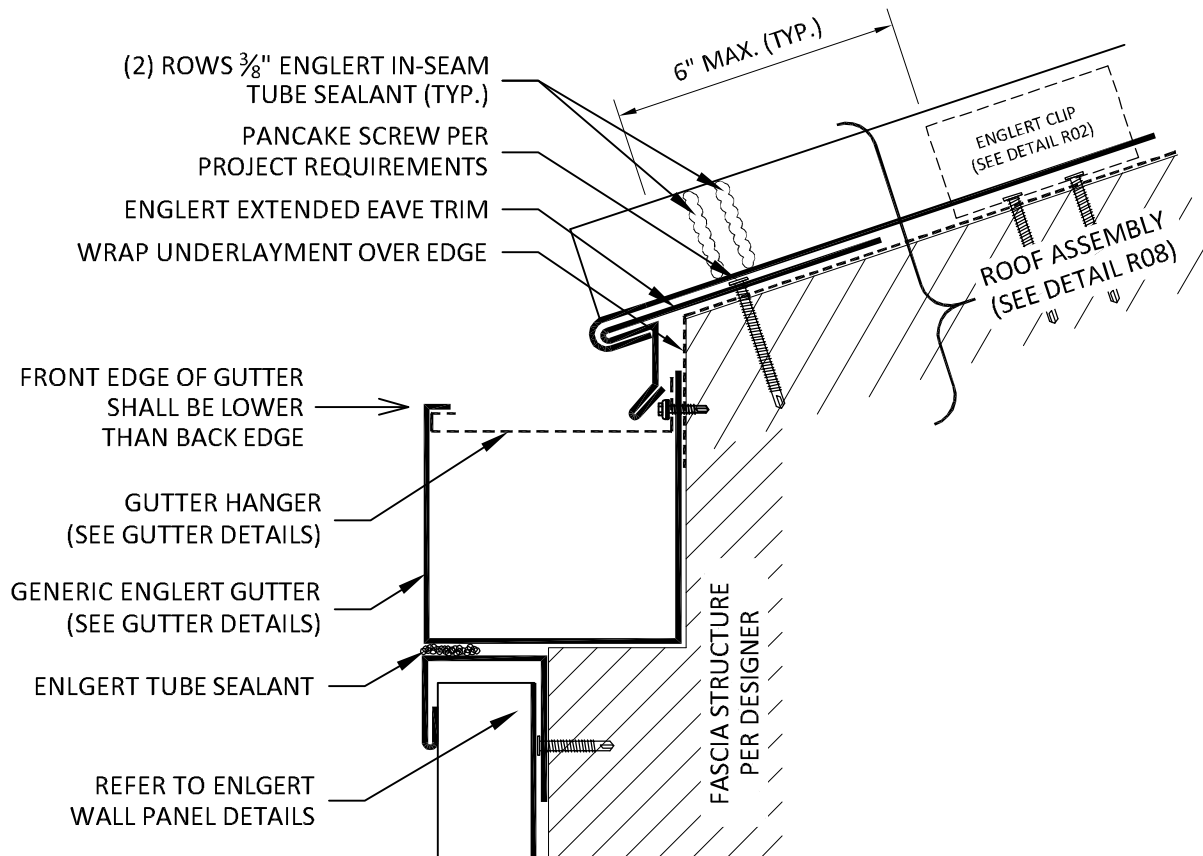


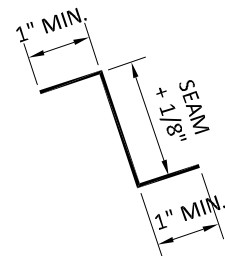
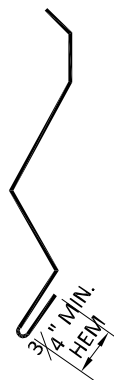
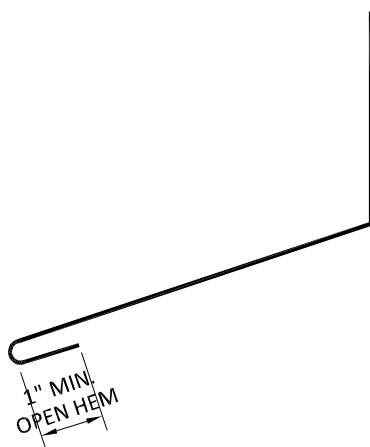
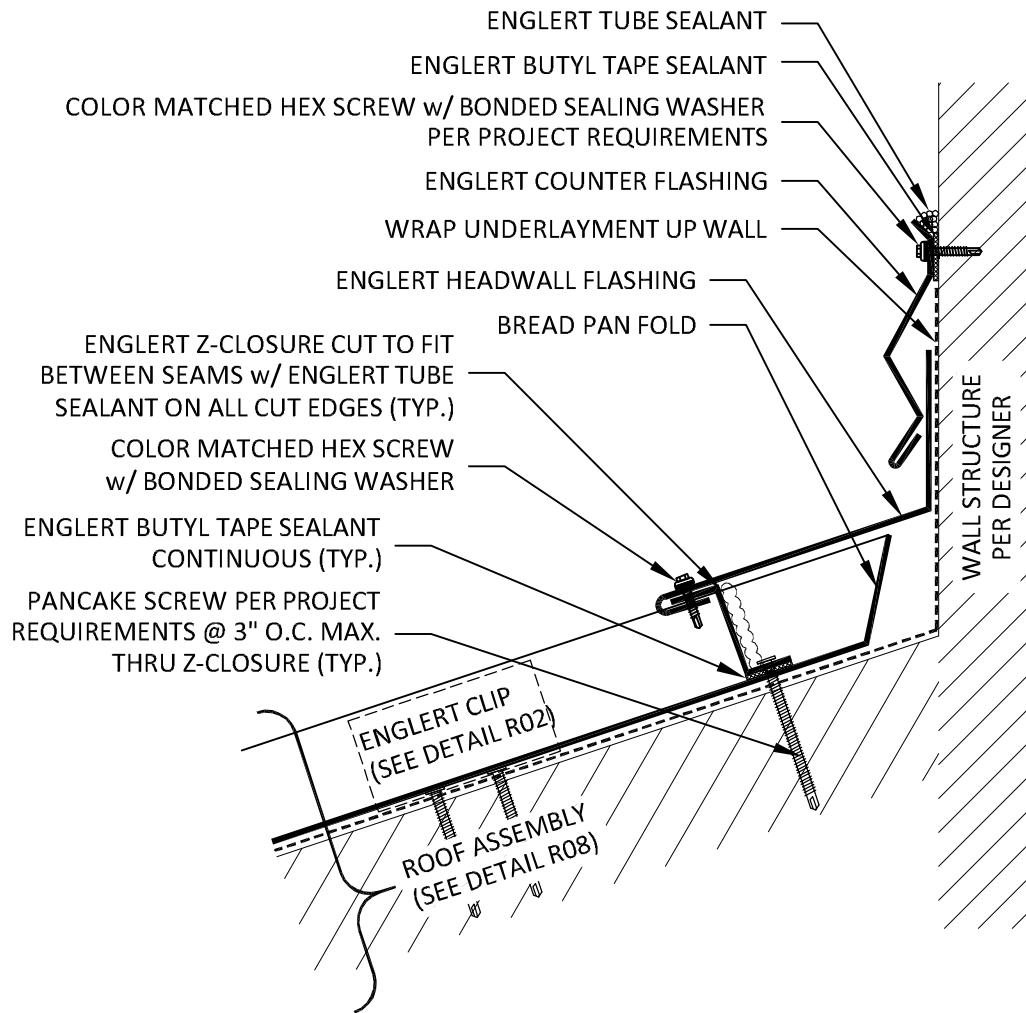
CLEAT REQUIRED
WHEN LENGTH "F"
IS GREATER THAN 4"

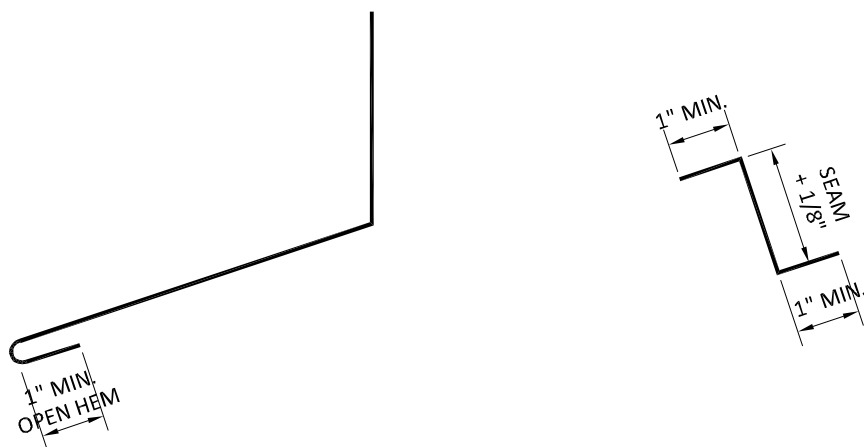
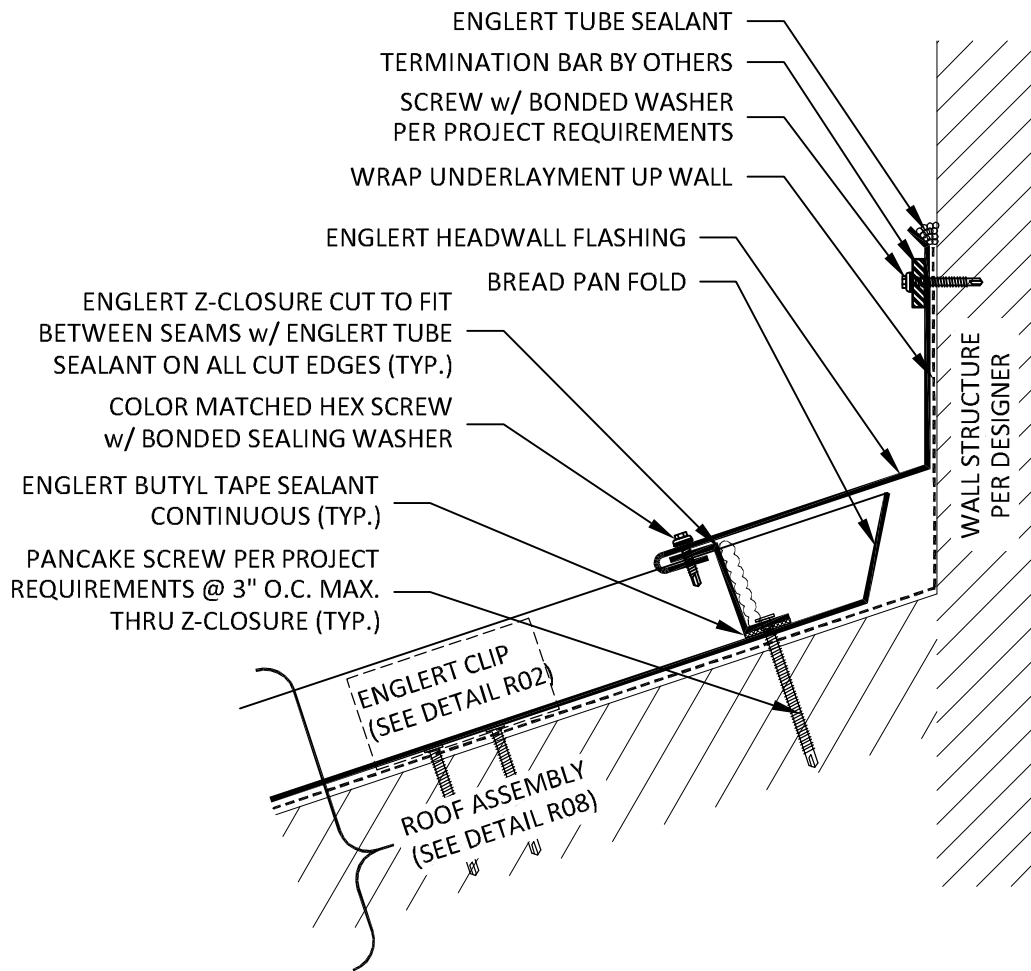
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	DRIP EDGE over WALL PANEL		Detail #
			R16.1.2

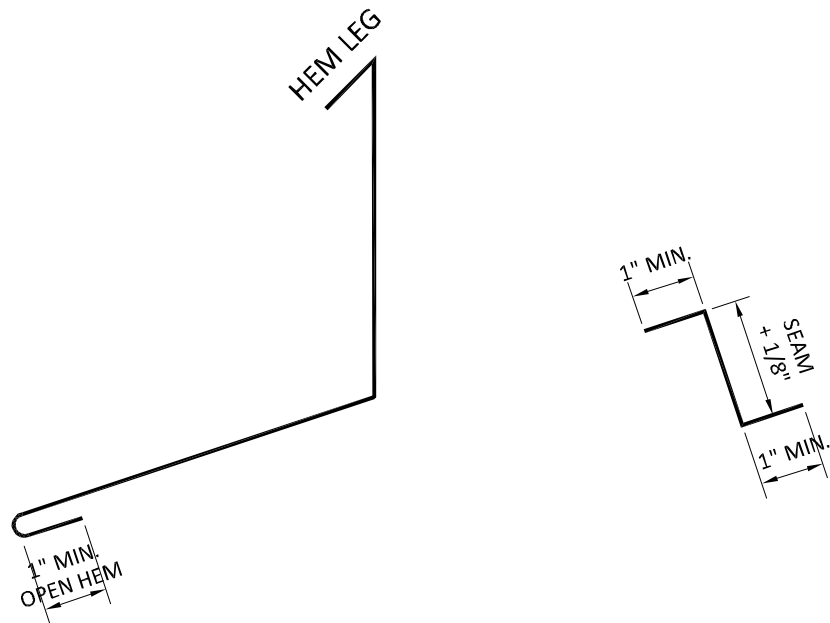
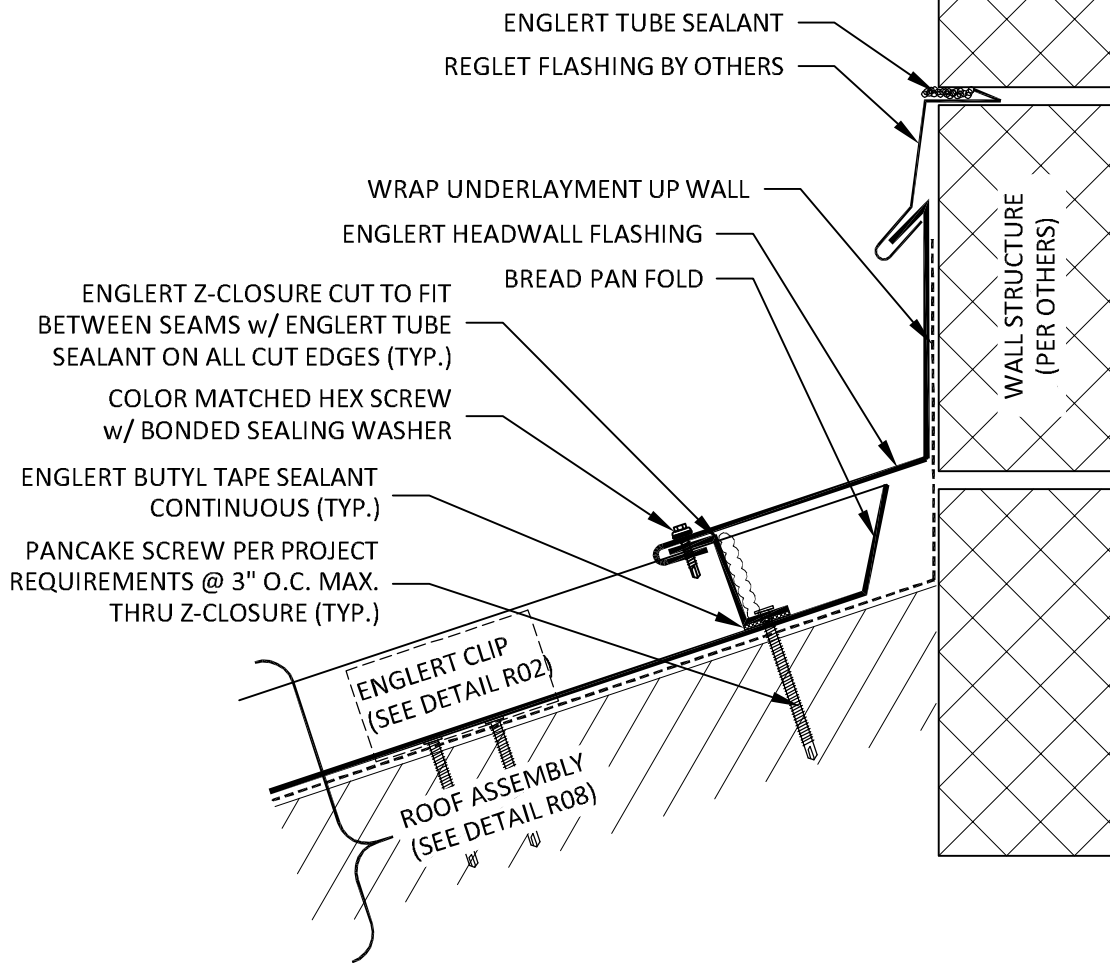


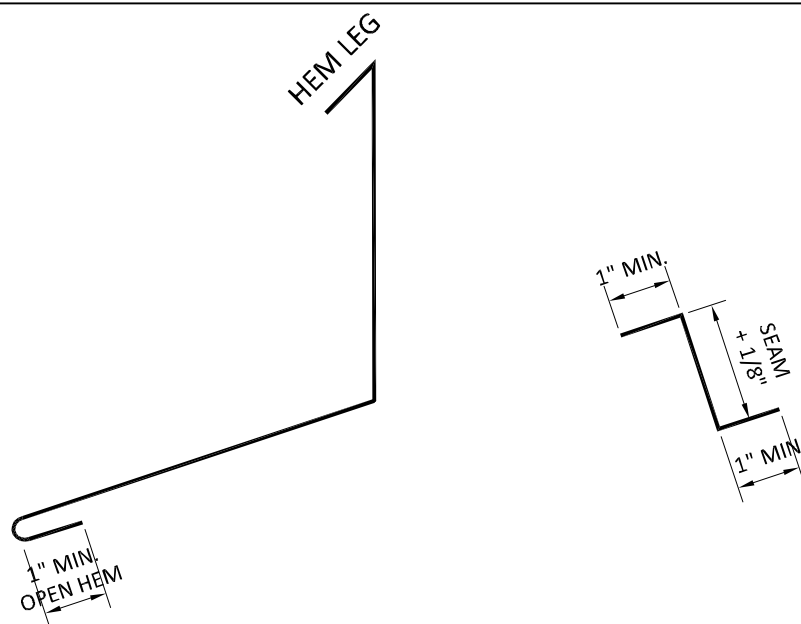
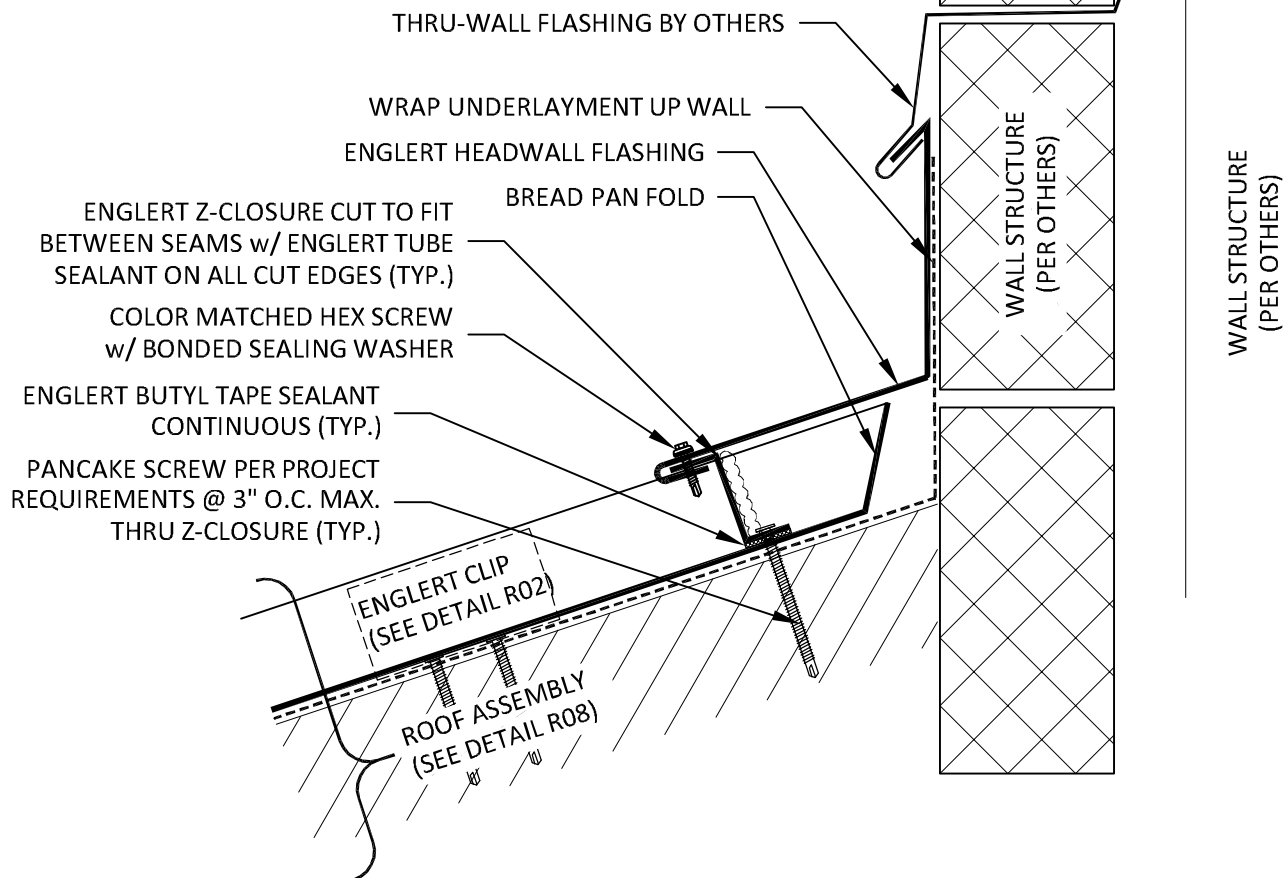


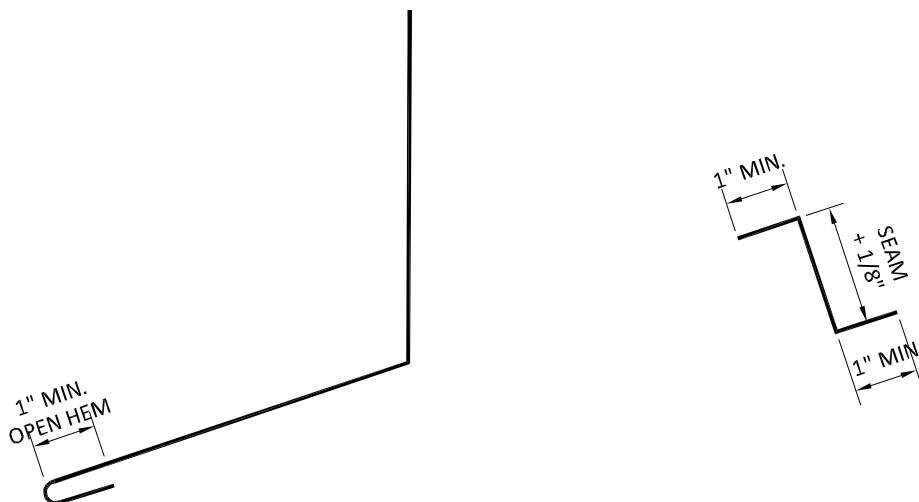
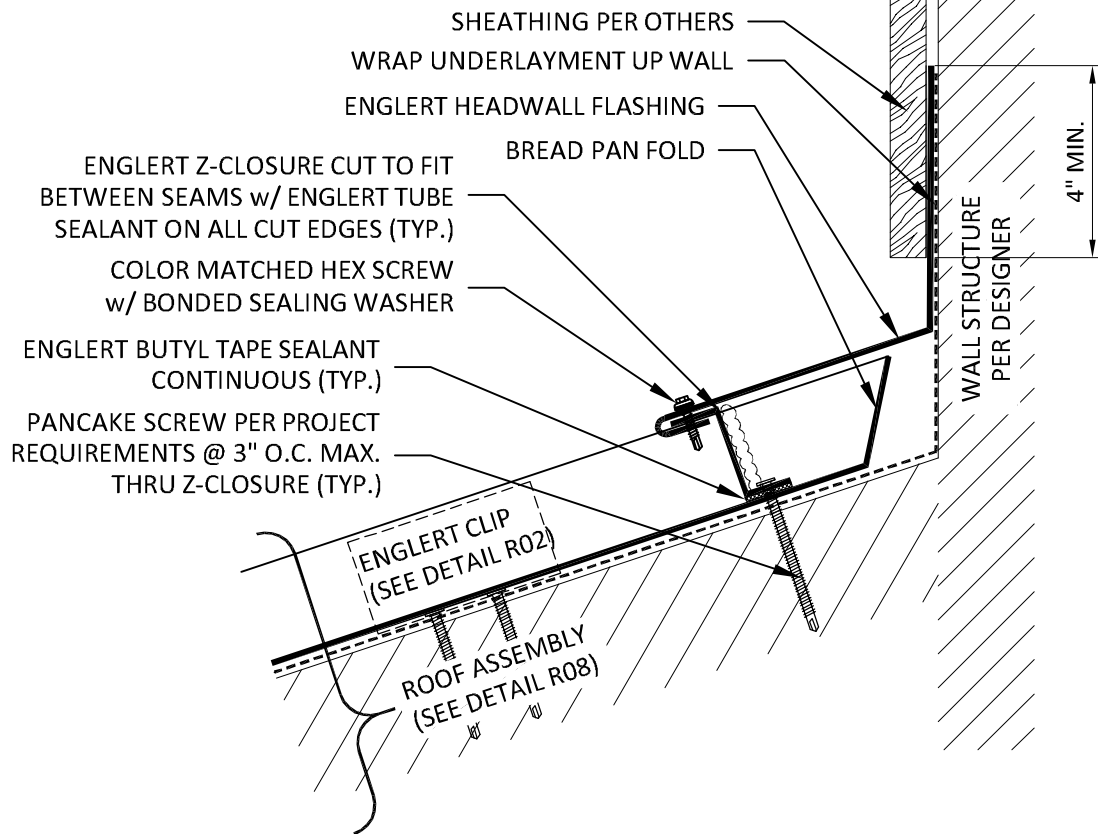


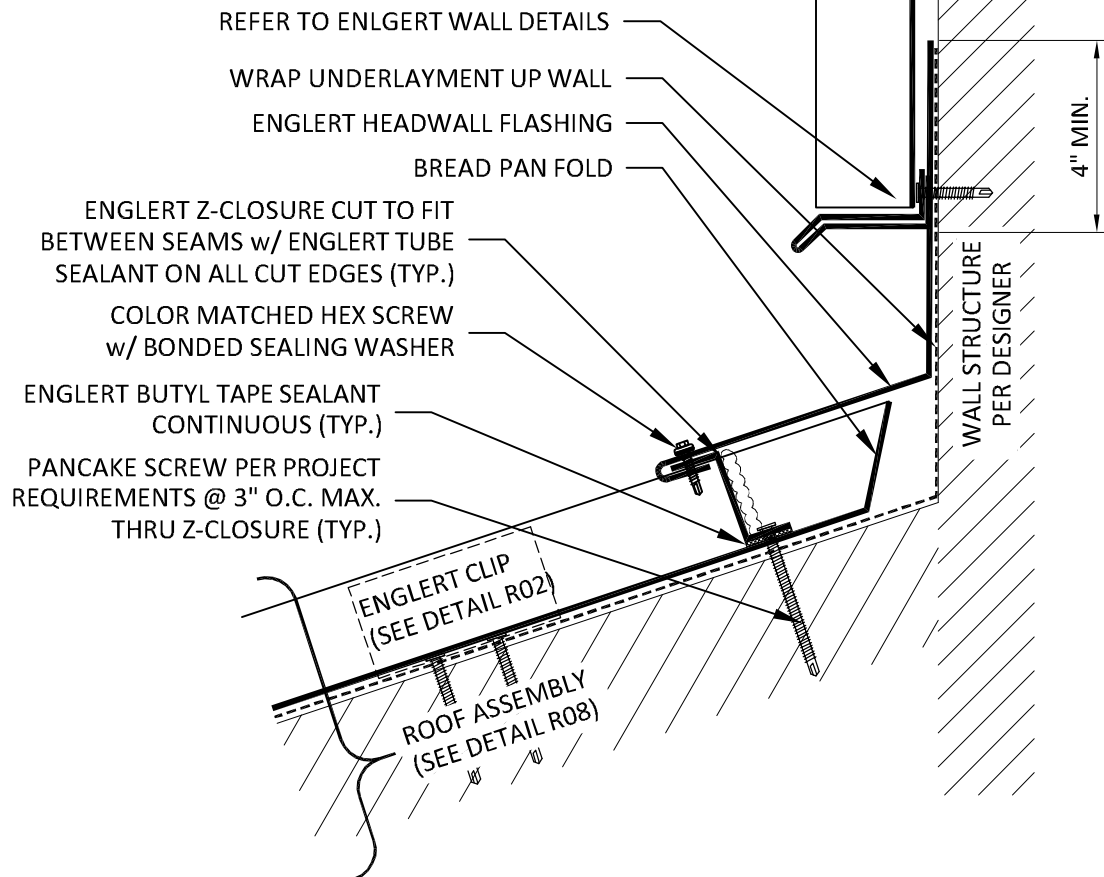


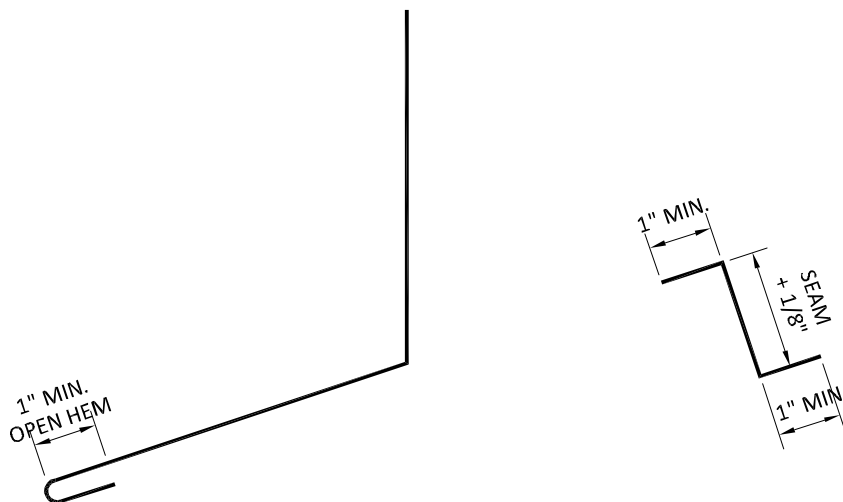
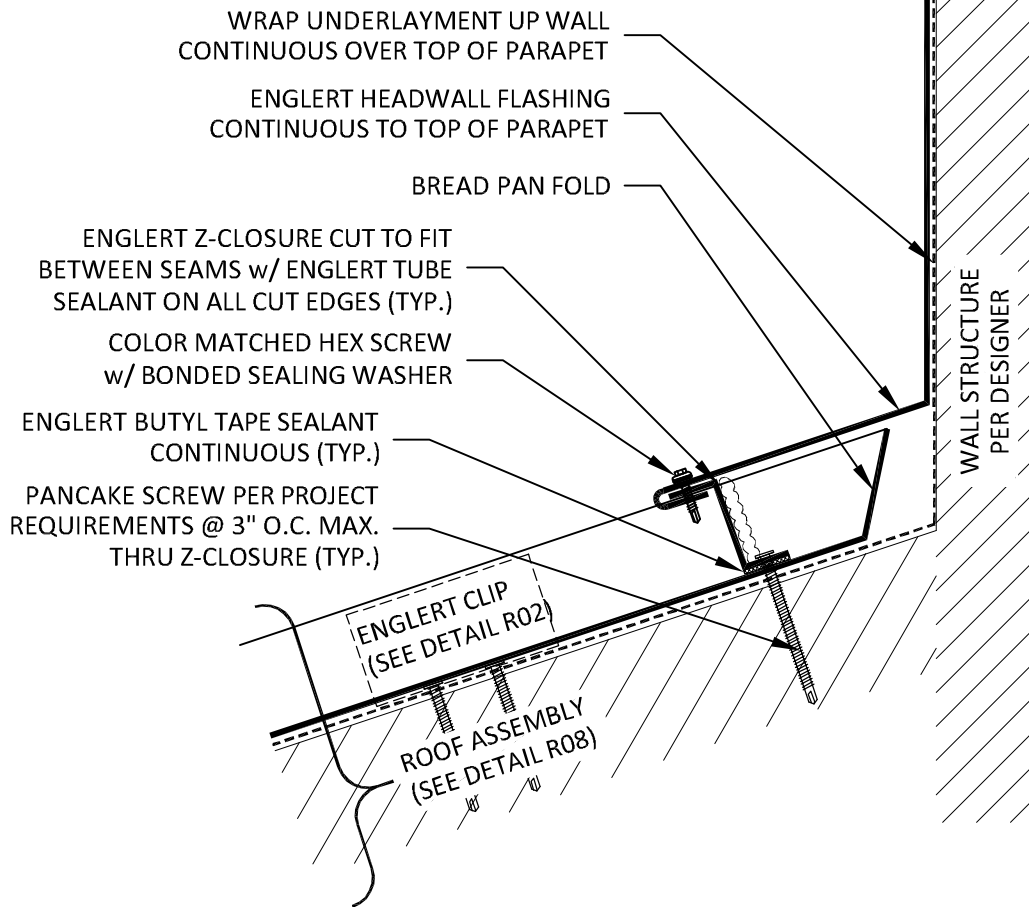


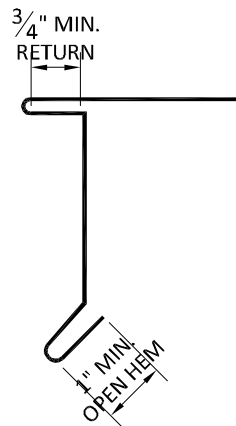
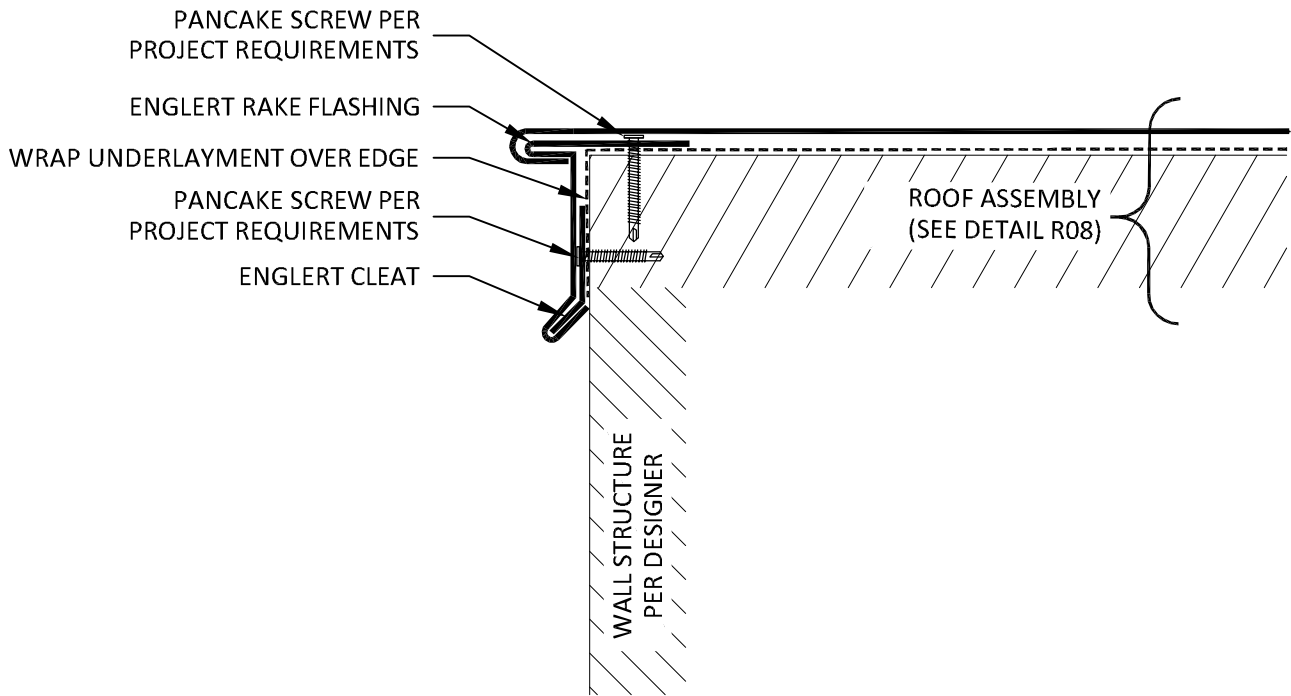












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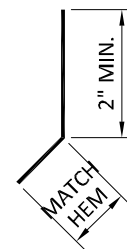
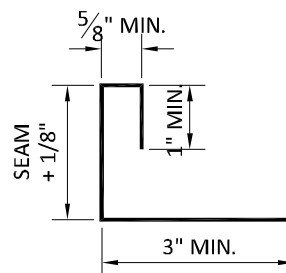
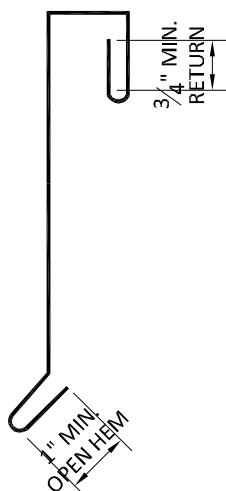
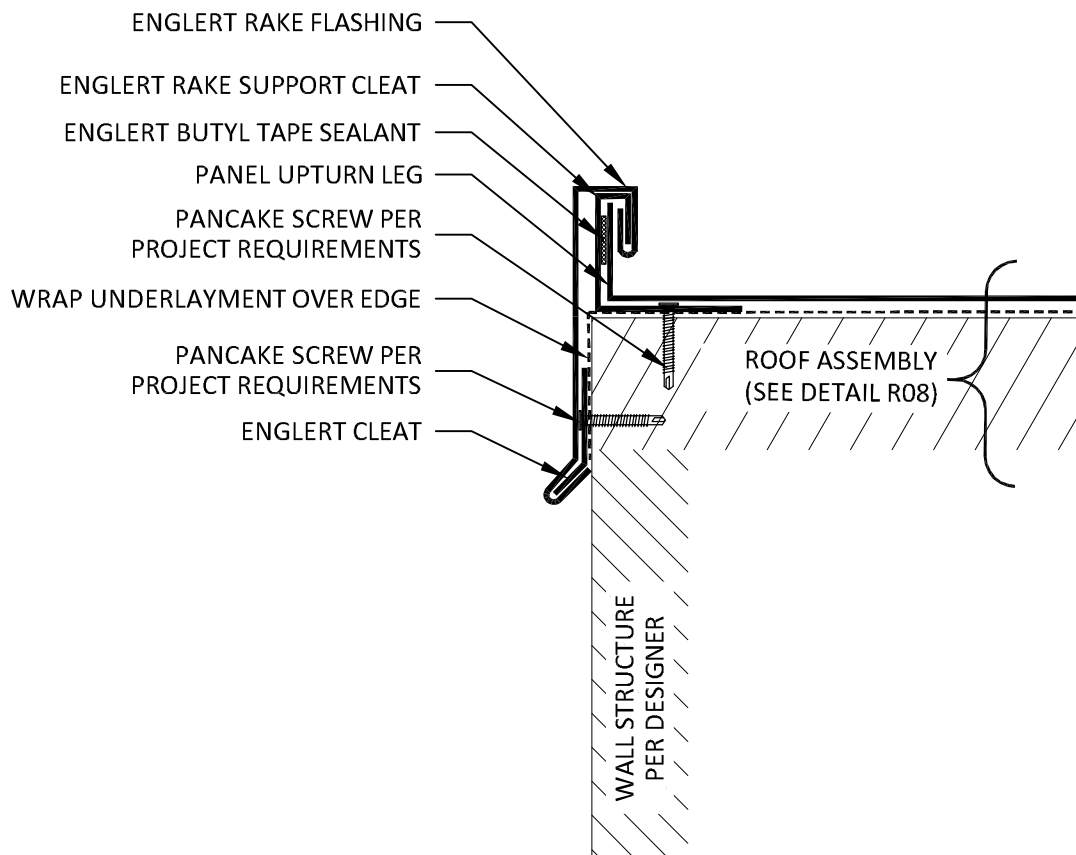
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ROOF RAKE

HEM PANEL

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.

Detail #
R20.1



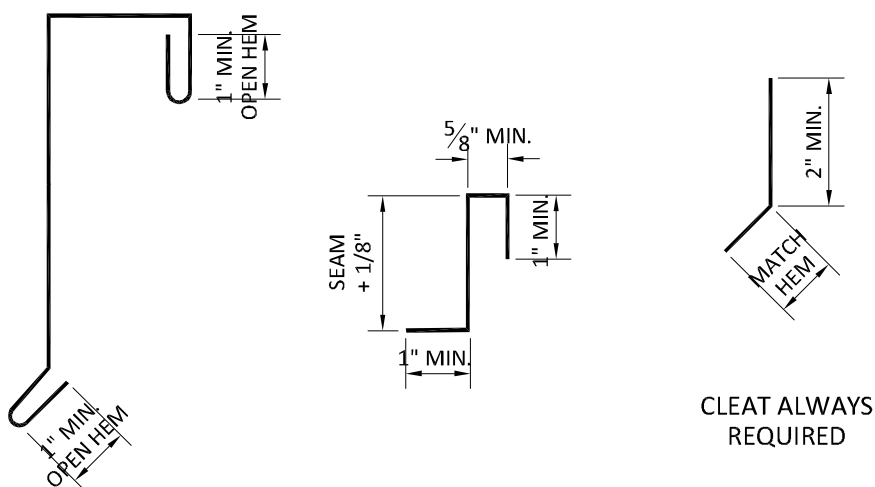
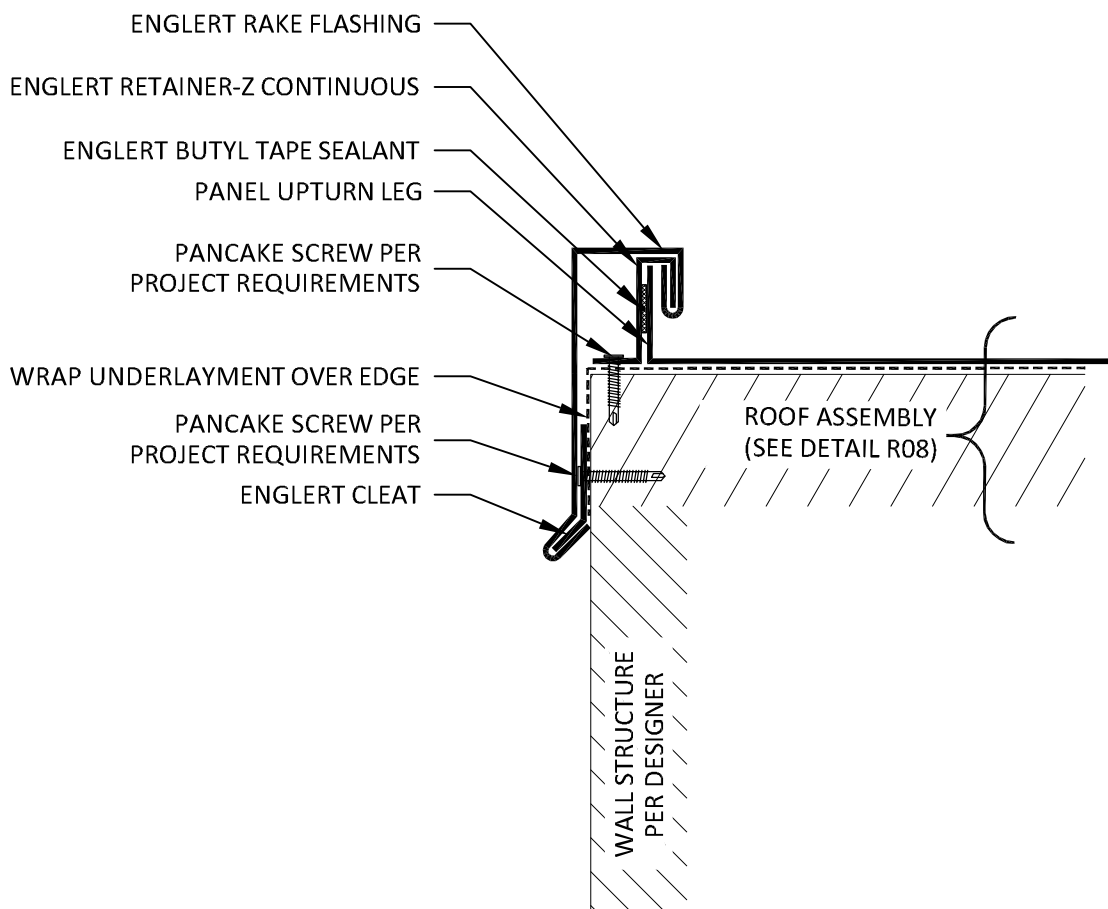
CLEAT ALWAYS REQUIRED

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ROOF RAKE SUPPORT CLEAT

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail #
R20.2



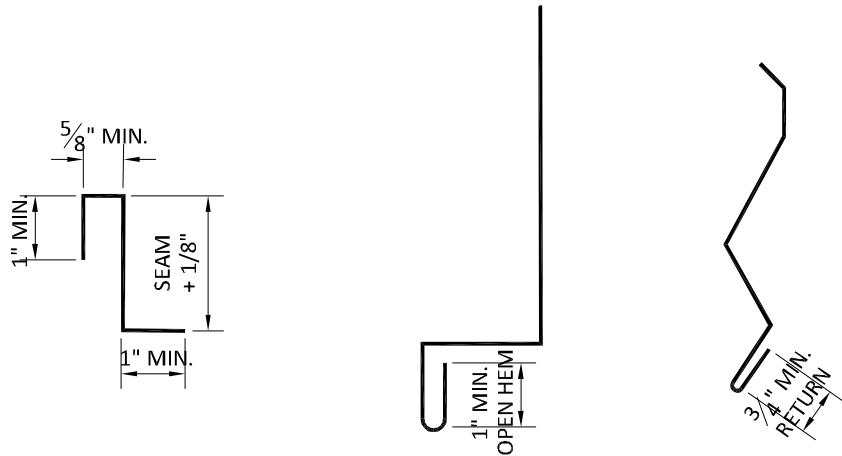
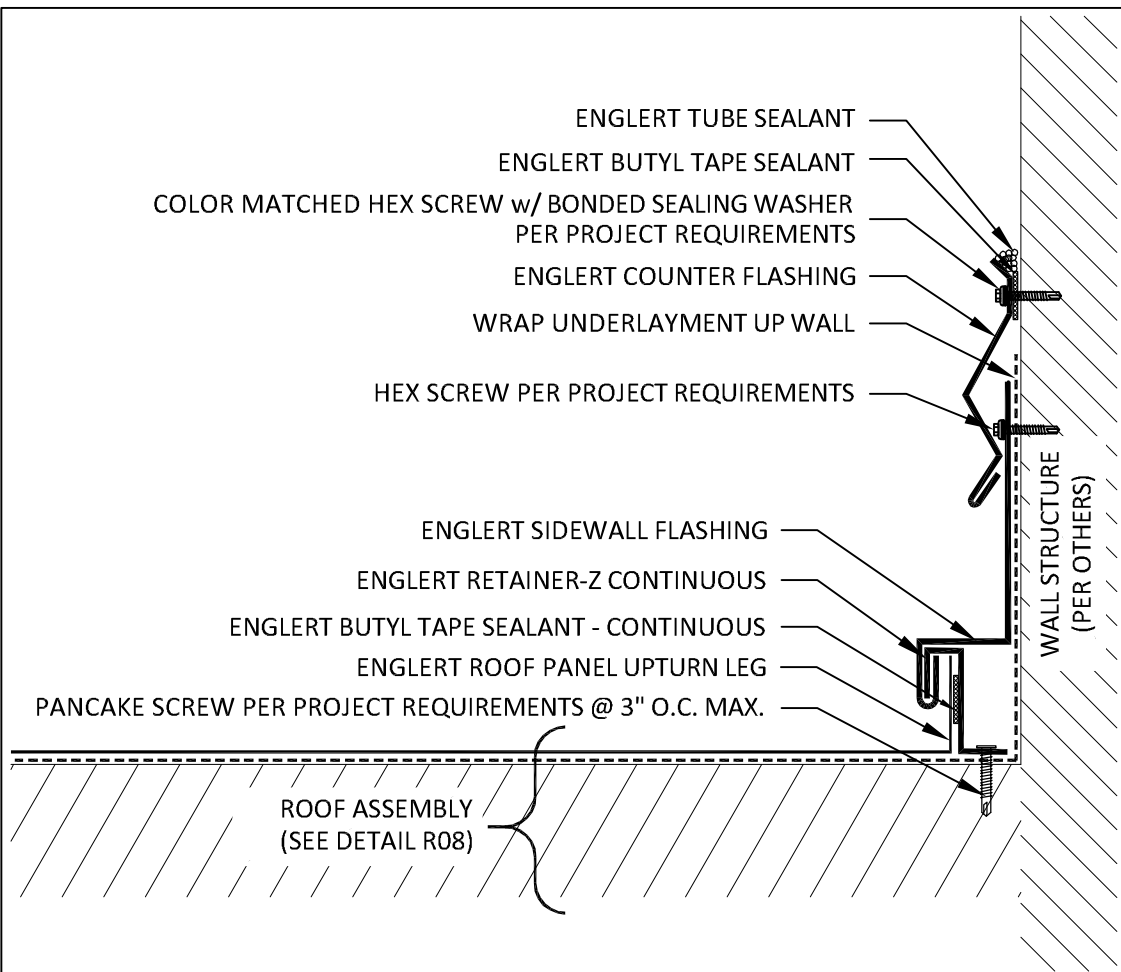
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ROOF RAKE	
RAKE RETAINER-Z	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R20.3



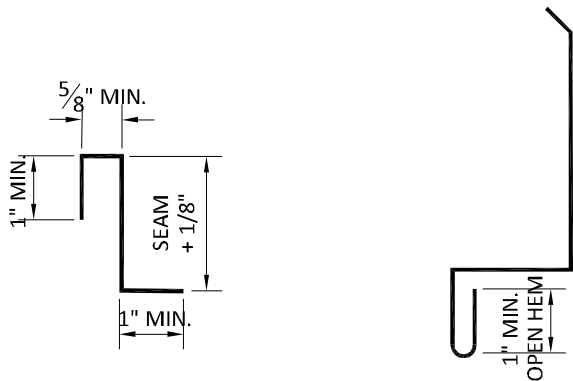
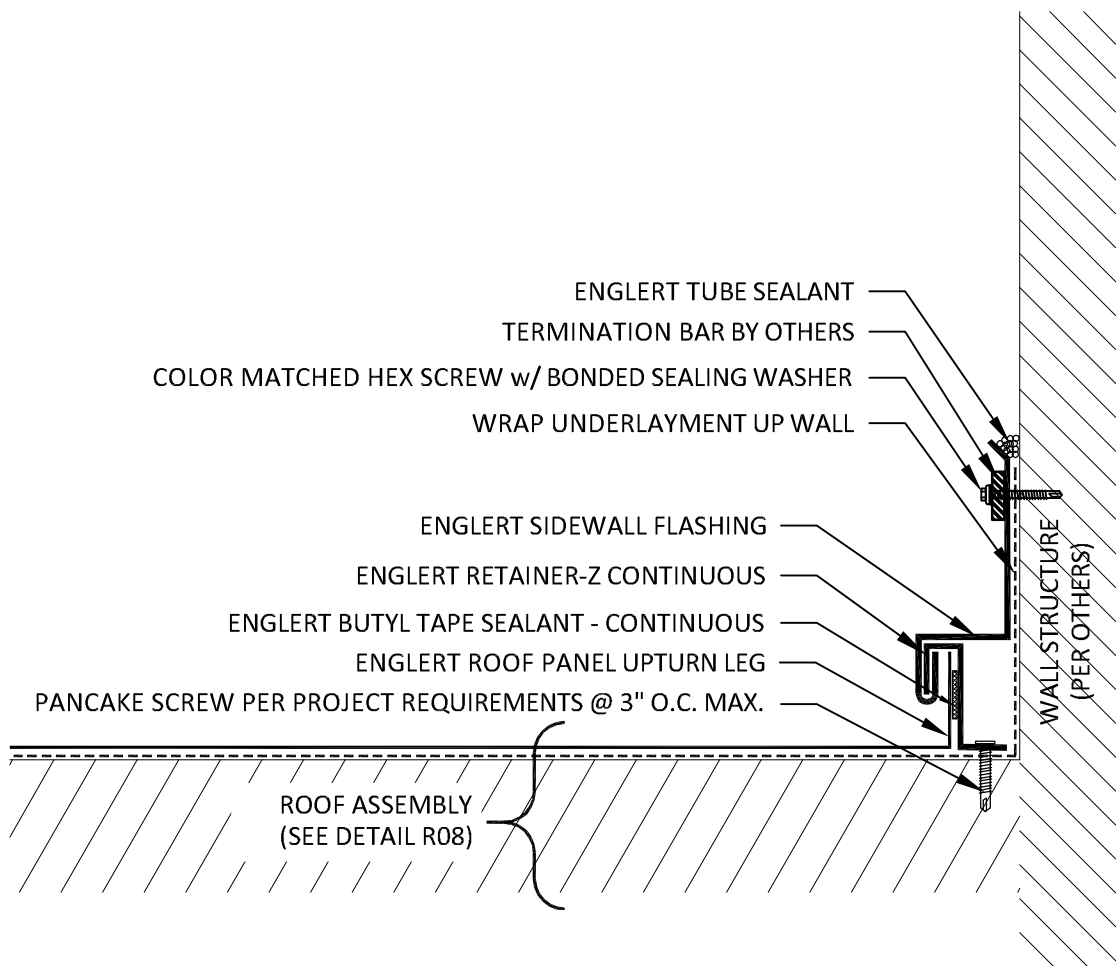

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ROOF SIDEWALL
 COUNTER FLASHING w/ SEALANT

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
 Detail #
R22.1



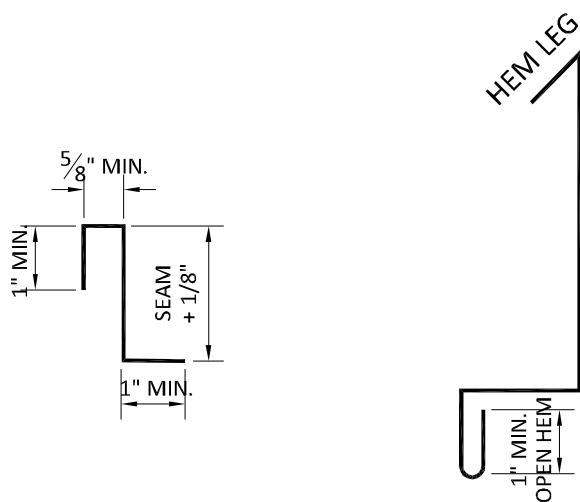
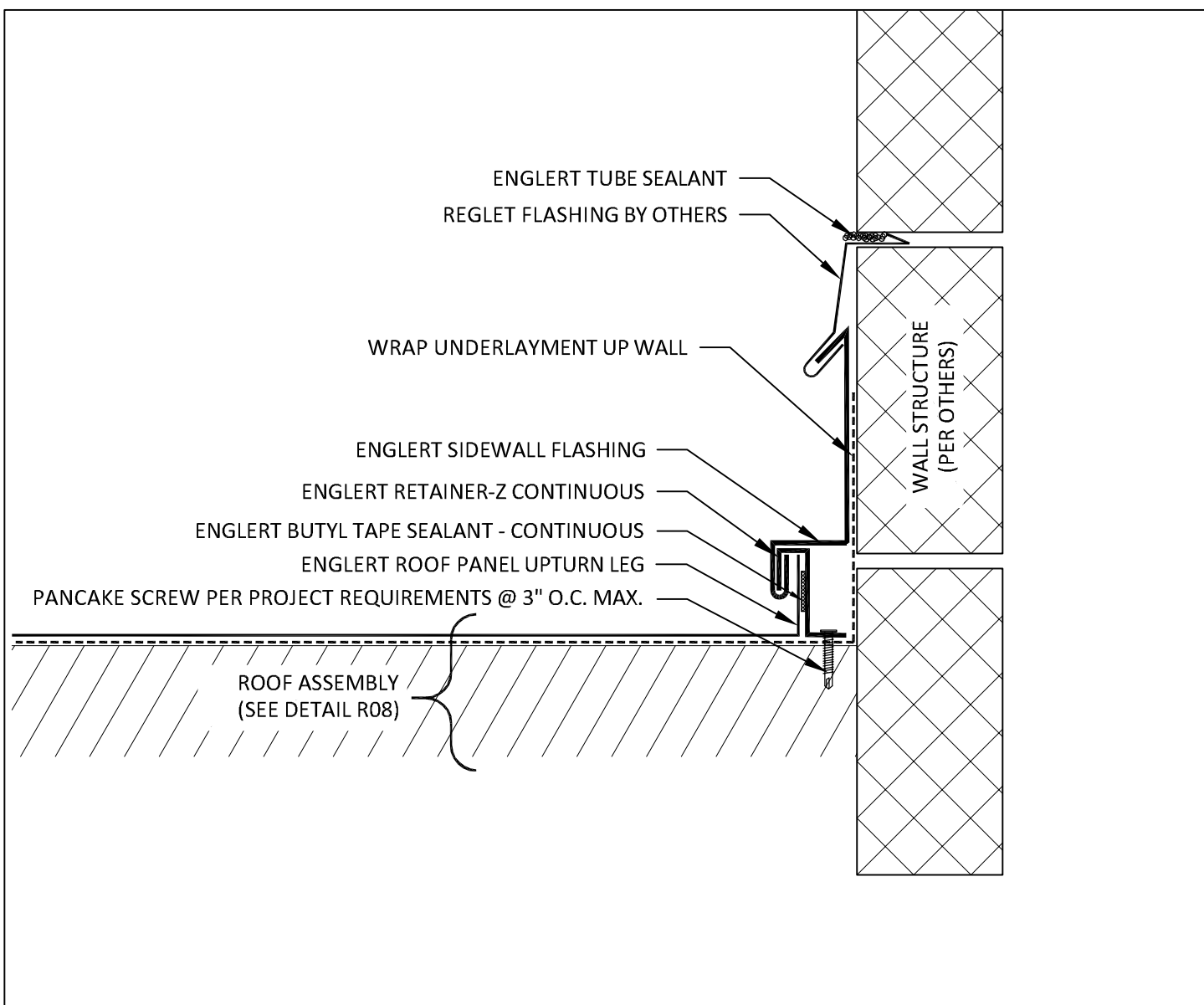


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ROOF SIDEWALL
 TERMINATION BAR

DETAIL SUBJECT TO CHANGE
 WITHOUT NOTICE.
 Detail #
R22.2



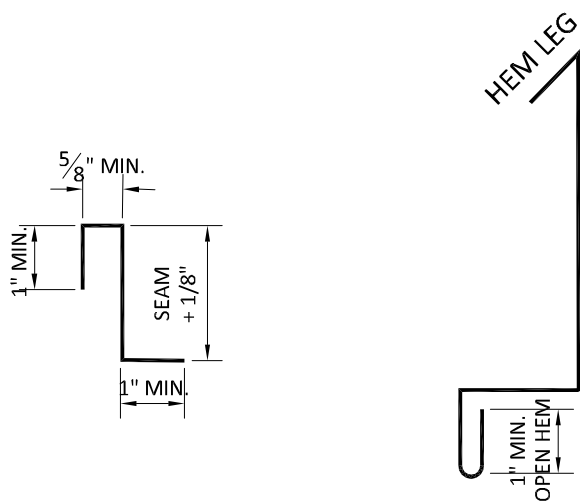
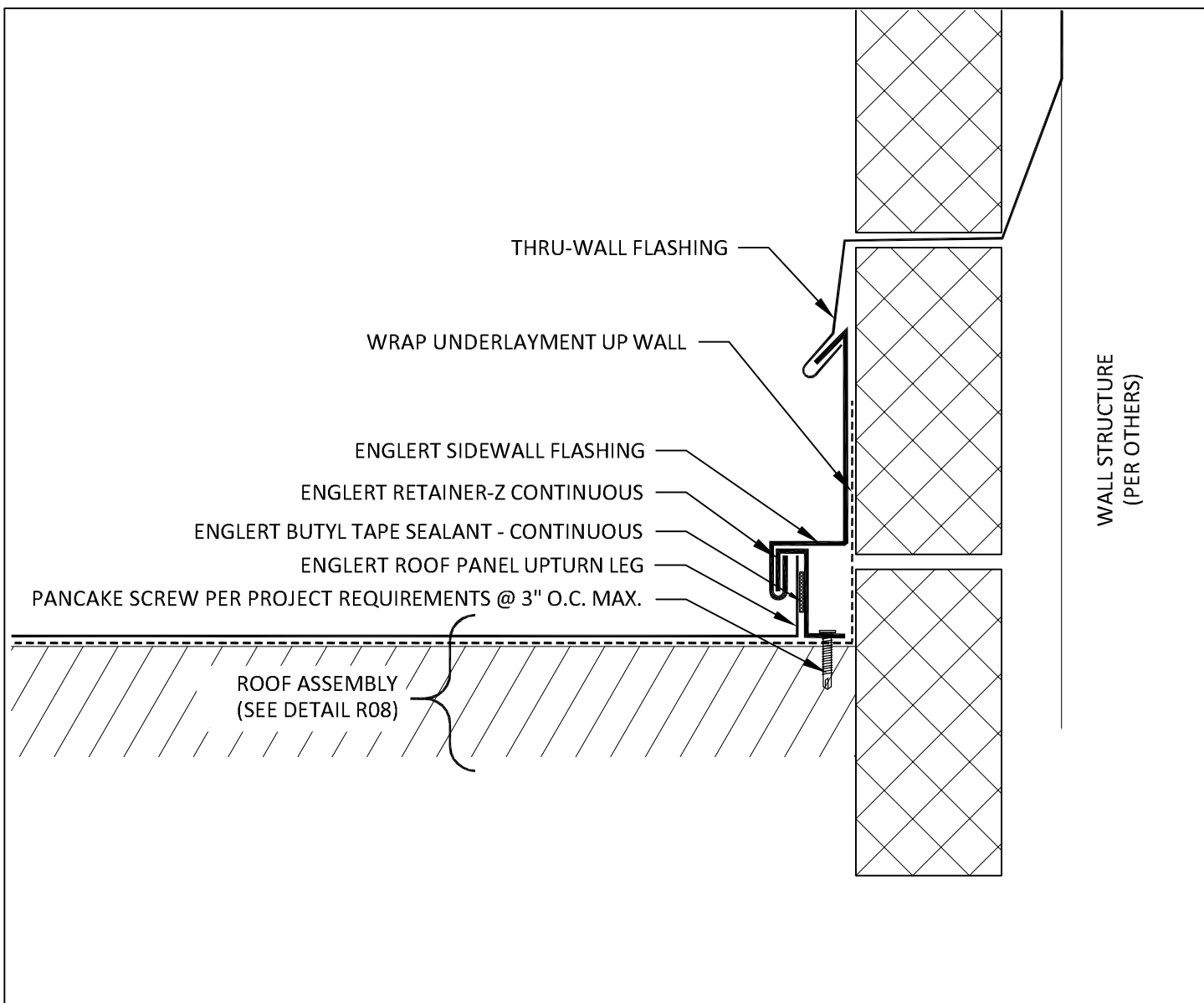
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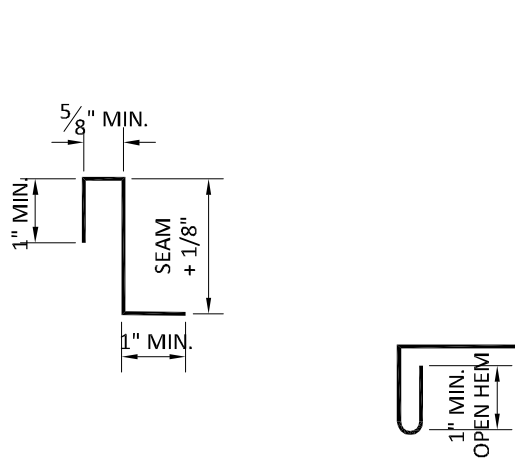
GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

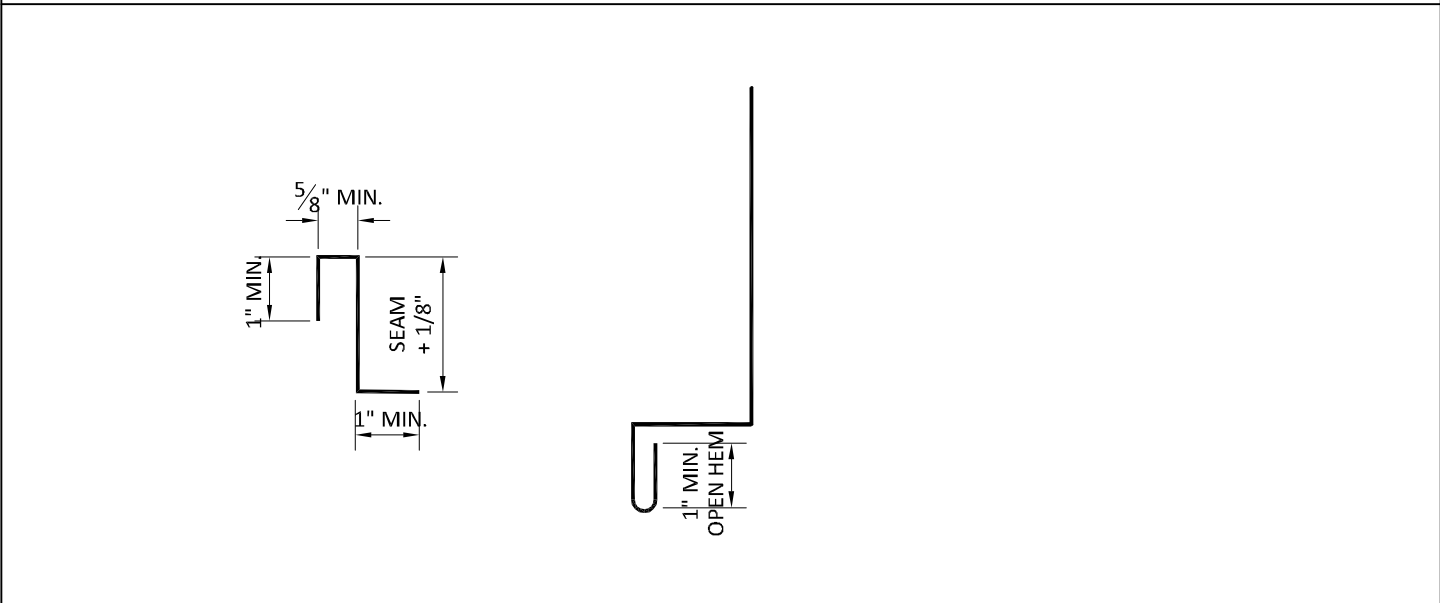
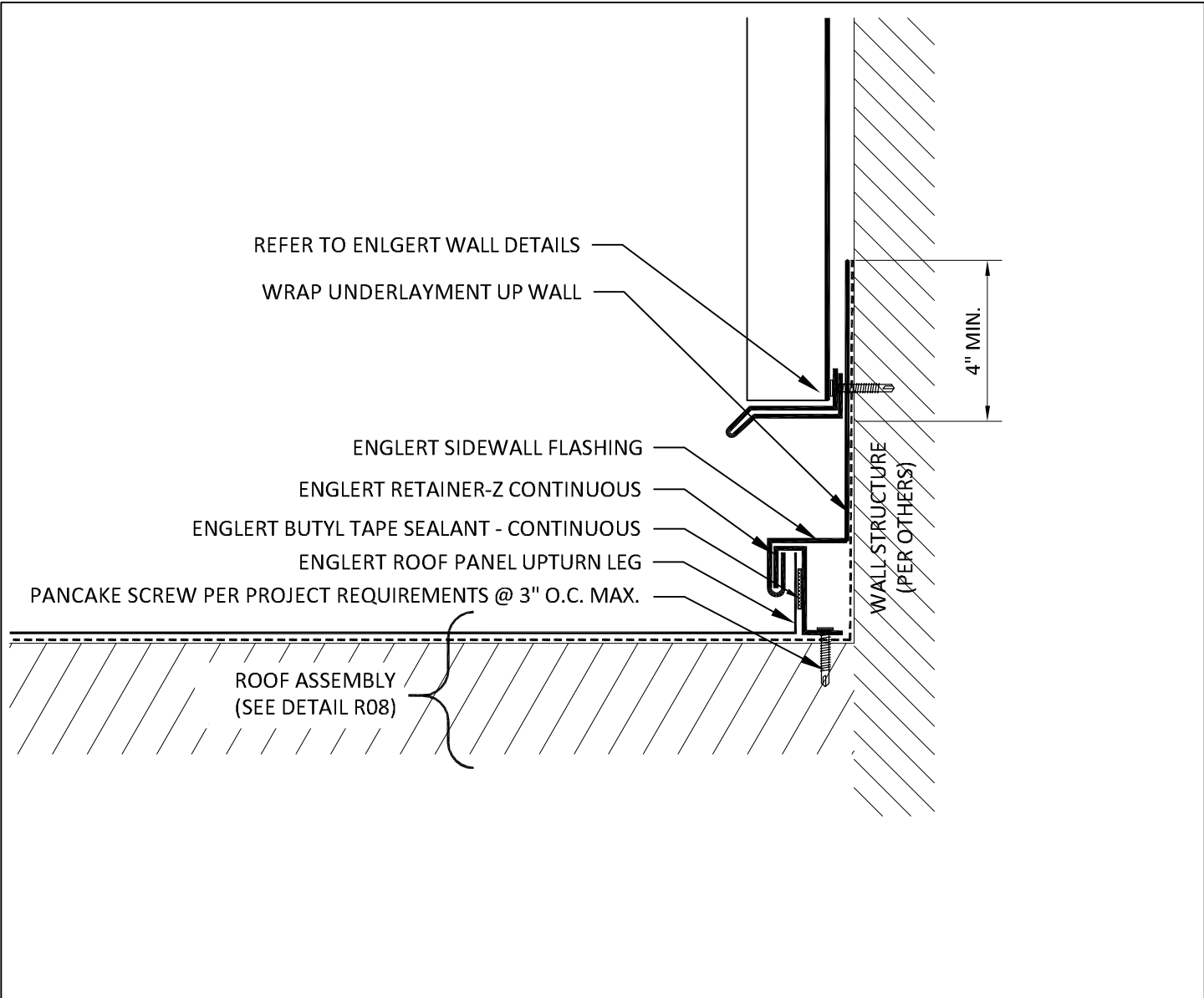
ROOF SIDEWALL MASONRY REGLET


DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

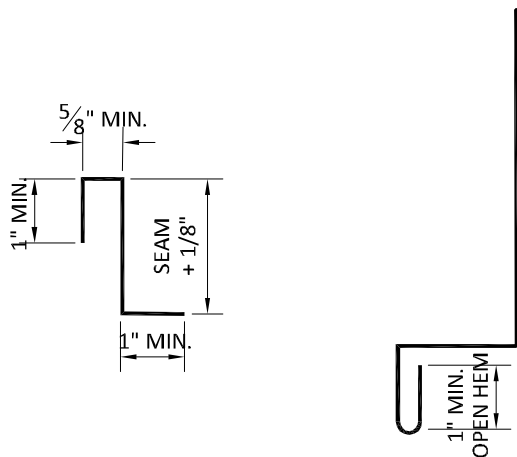
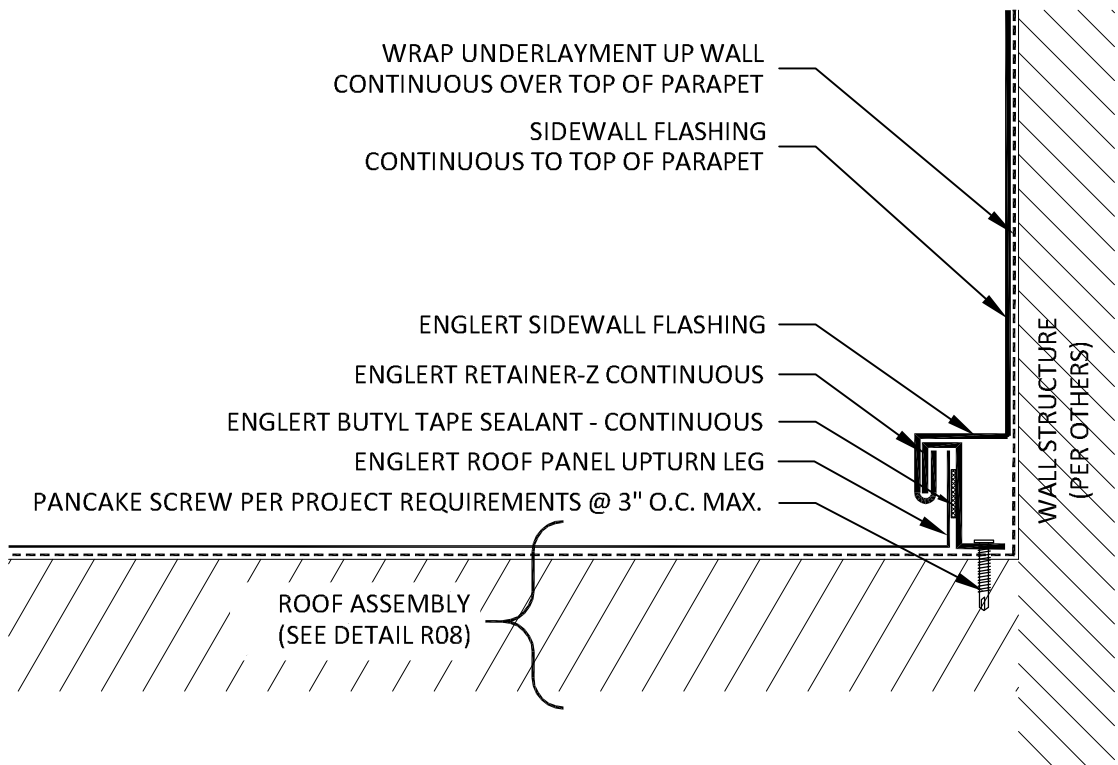
Detail #
R22.3







 ENGLERT™ www.englertinc.com 800-364-5378 <small>GENERIC BEST PRACTICE ASSEMBLY SHOWN. WATERTIGHTNESS WARRANTY NOT IMPLIED. WHEN SITE CONDITION DIFFERS, SPECIFIC ENGINEERING NECESSARY.</small>	ROOF SIDEWALL		DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
	WALL PANEL		Detail #
			R22.6



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800-364-5378

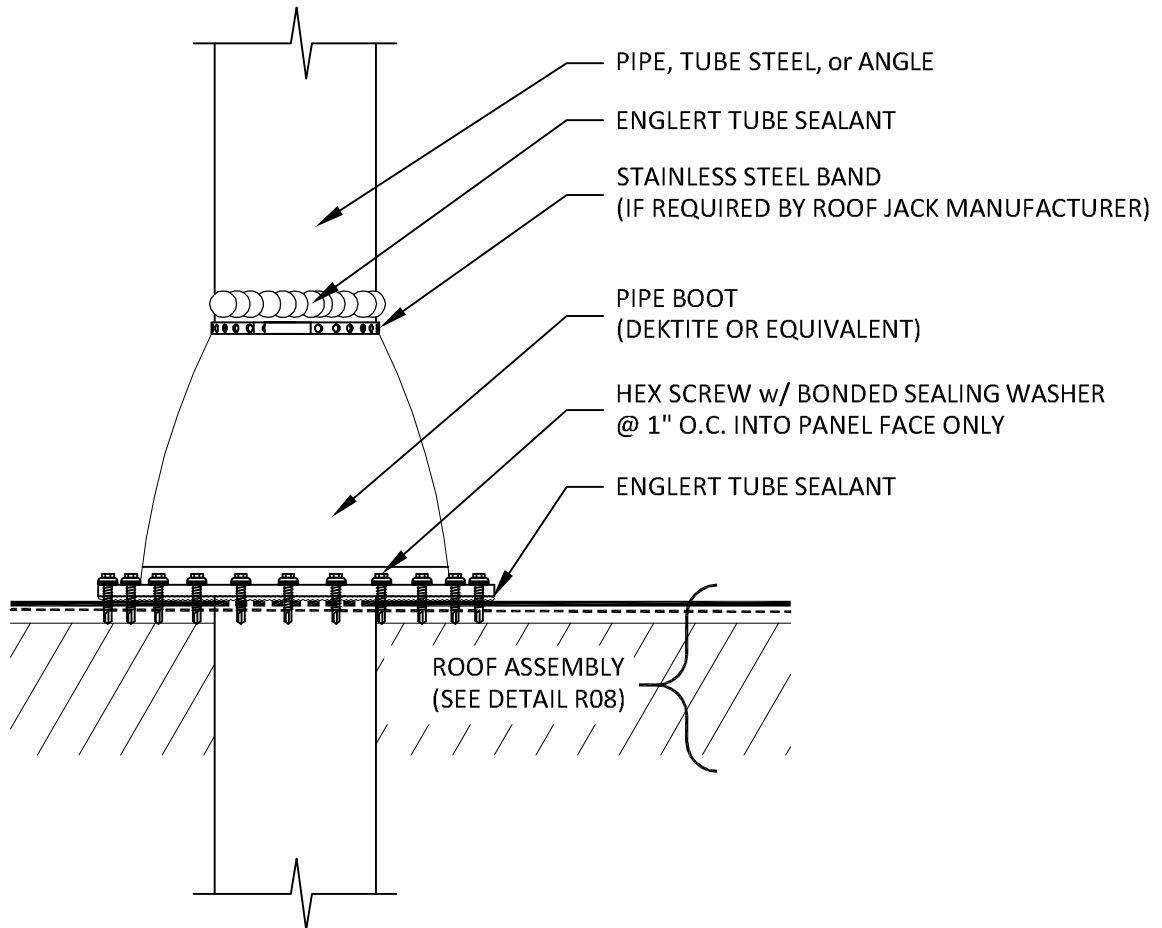
GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF SIDEWALL PARAPET SHEATHING

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #
R22.7

CAUTION - THIS DETAIL MAY
PIN PANELS AT THIS POINT!



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GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

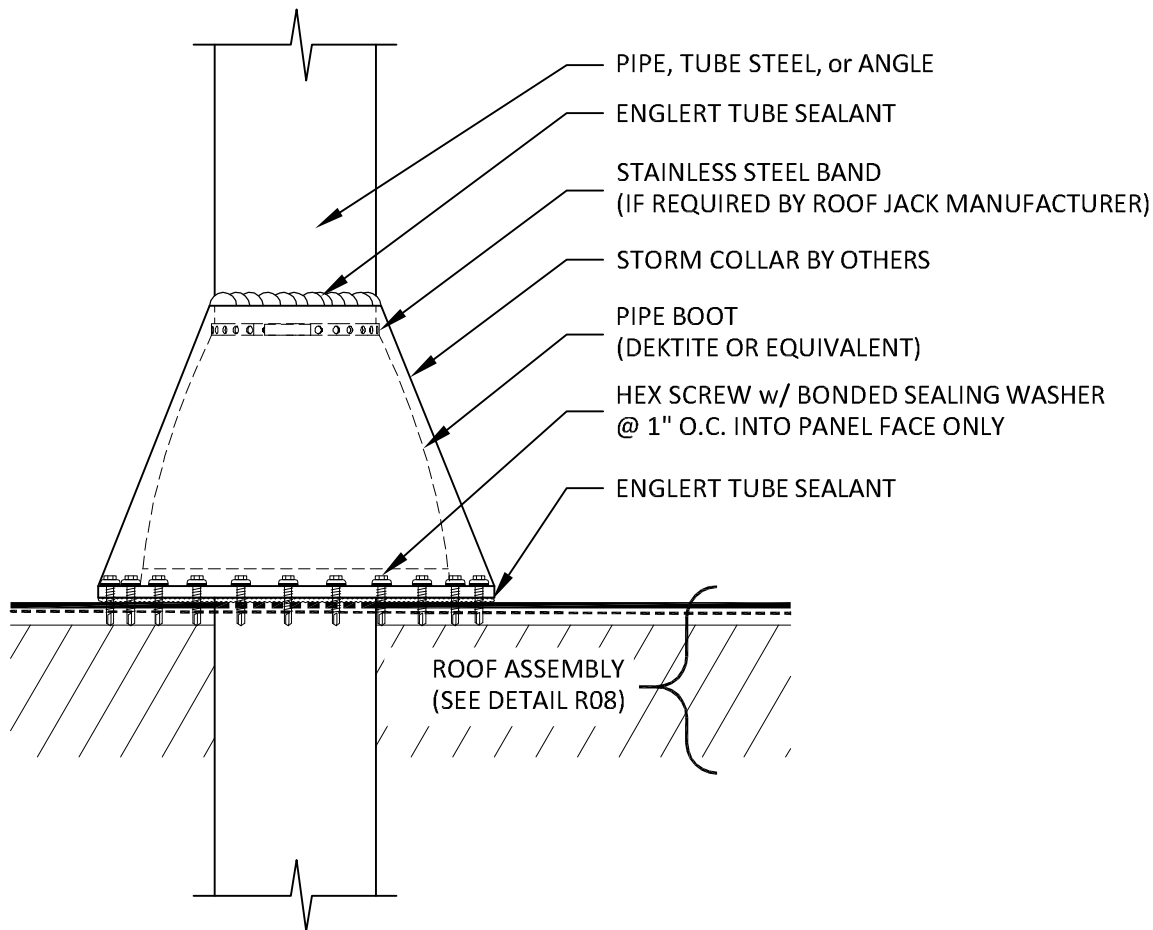
ROOF PENETRATION

PIPE BOOT

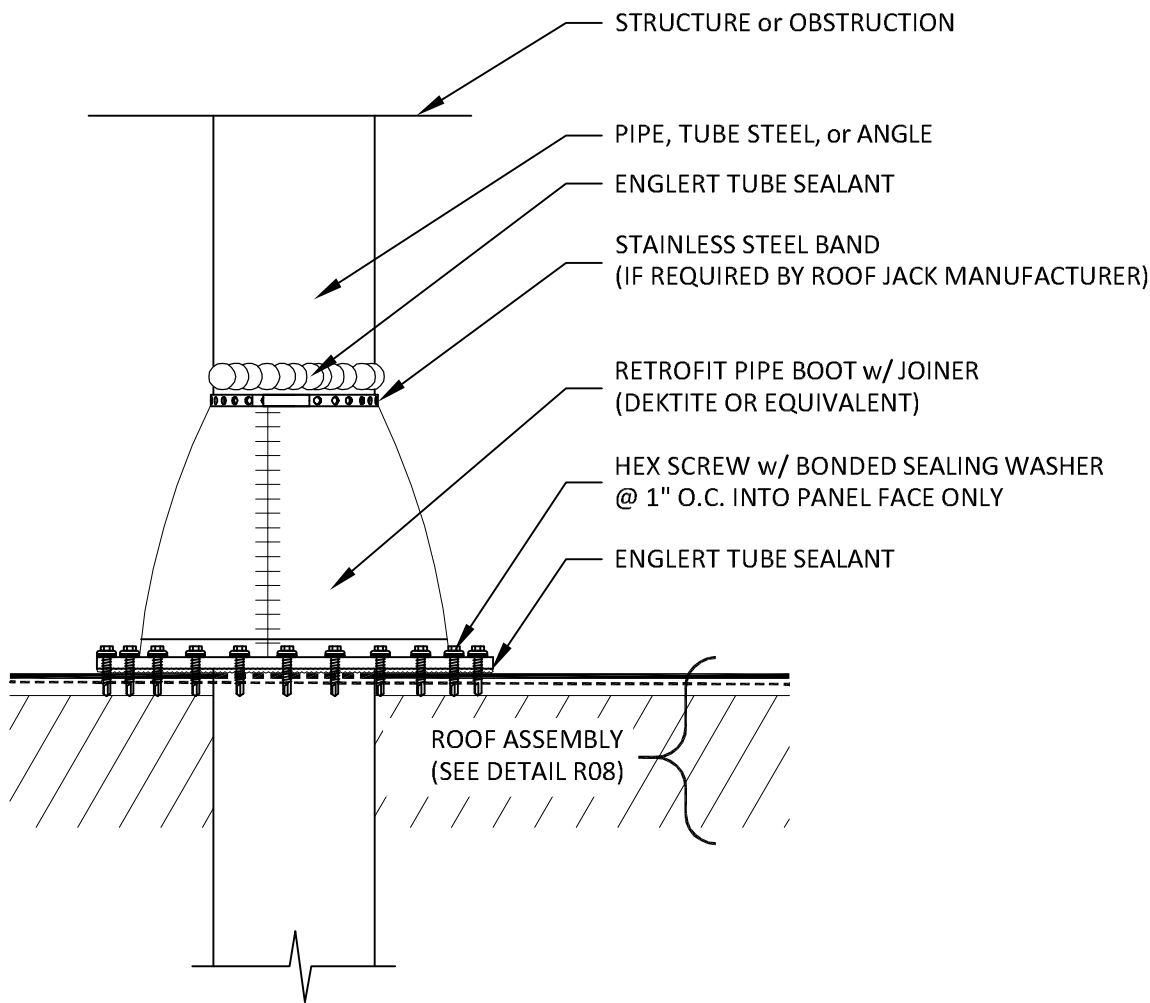
DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #
R26.1

CAUTION - THIS DETAIL MAY
PIN PANELS AT THIS POINT!



CAUTION - THIS DETAIL MAY
PIN PANELS AT THIS POINT!



**ENGLERT™**

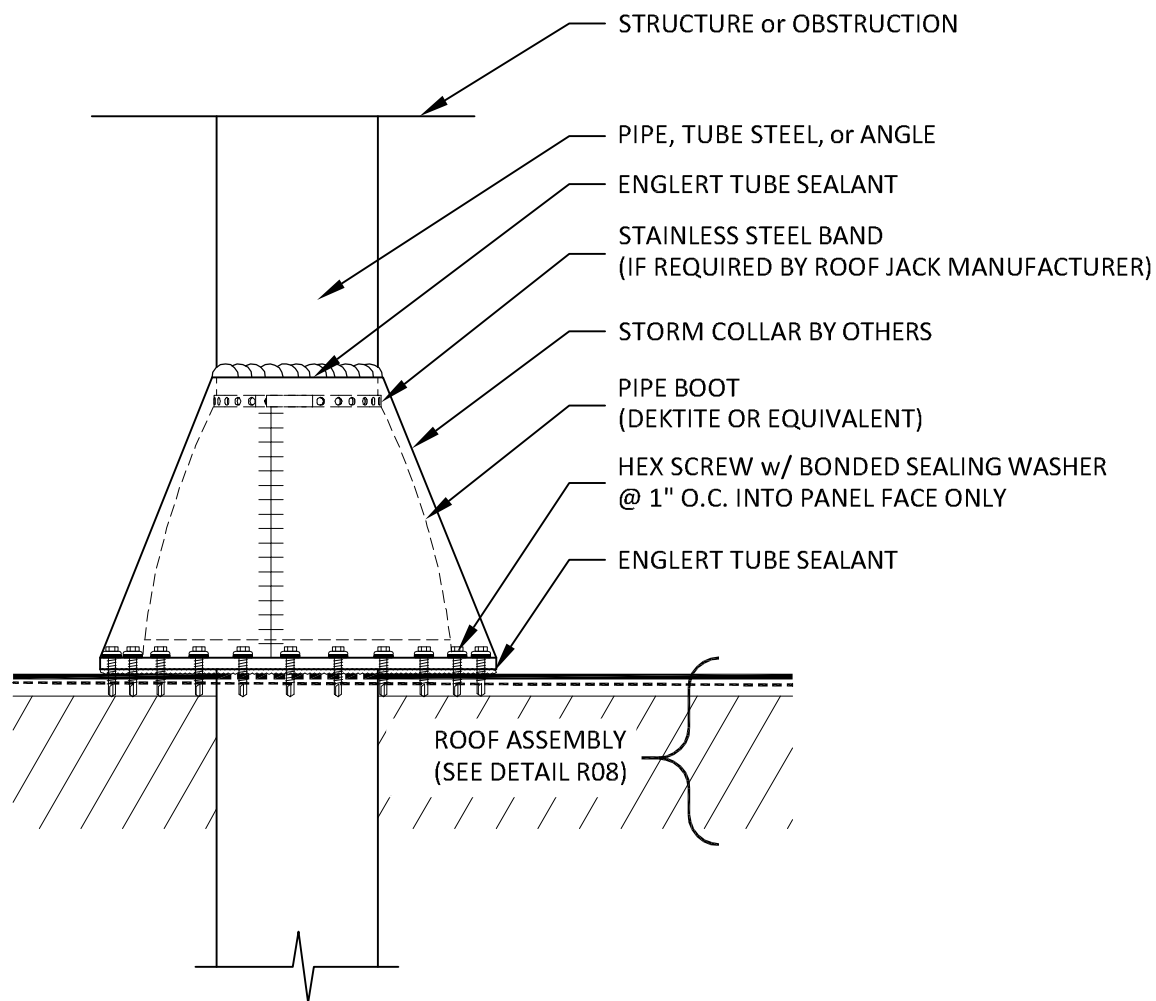
www.englertinc.com
800-364-5378

GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF PENETRATION	
RETROFIT PIPE BOOT	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R26.2

**CAUTION - THIS DETAIL MAY
PIN PANELS AT THIS POINT!**



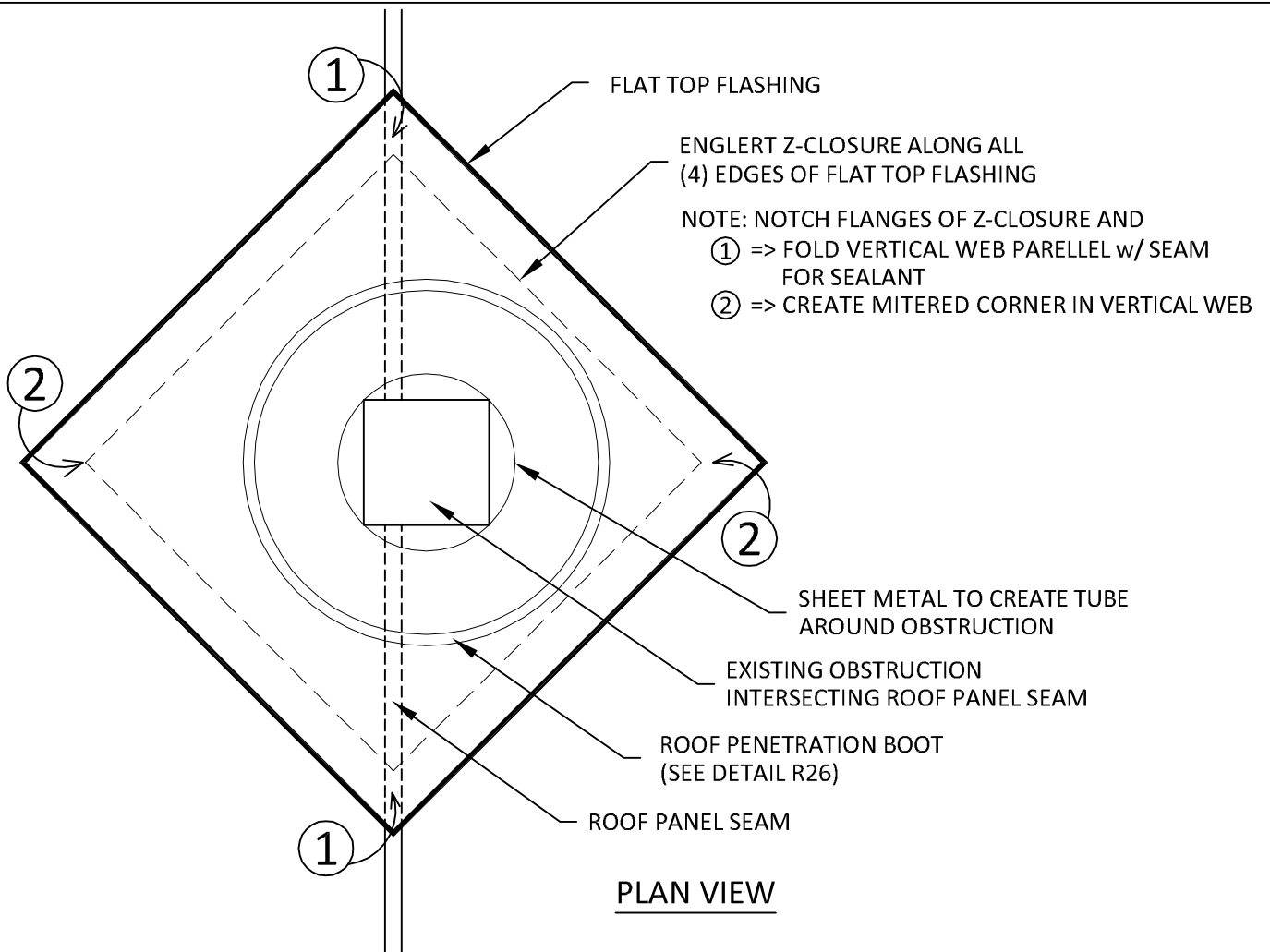
ENGLERT
www.englertinc.com
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GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF PENETRATION RETROFIT PIPE BOOT w/ STORM COLLAR

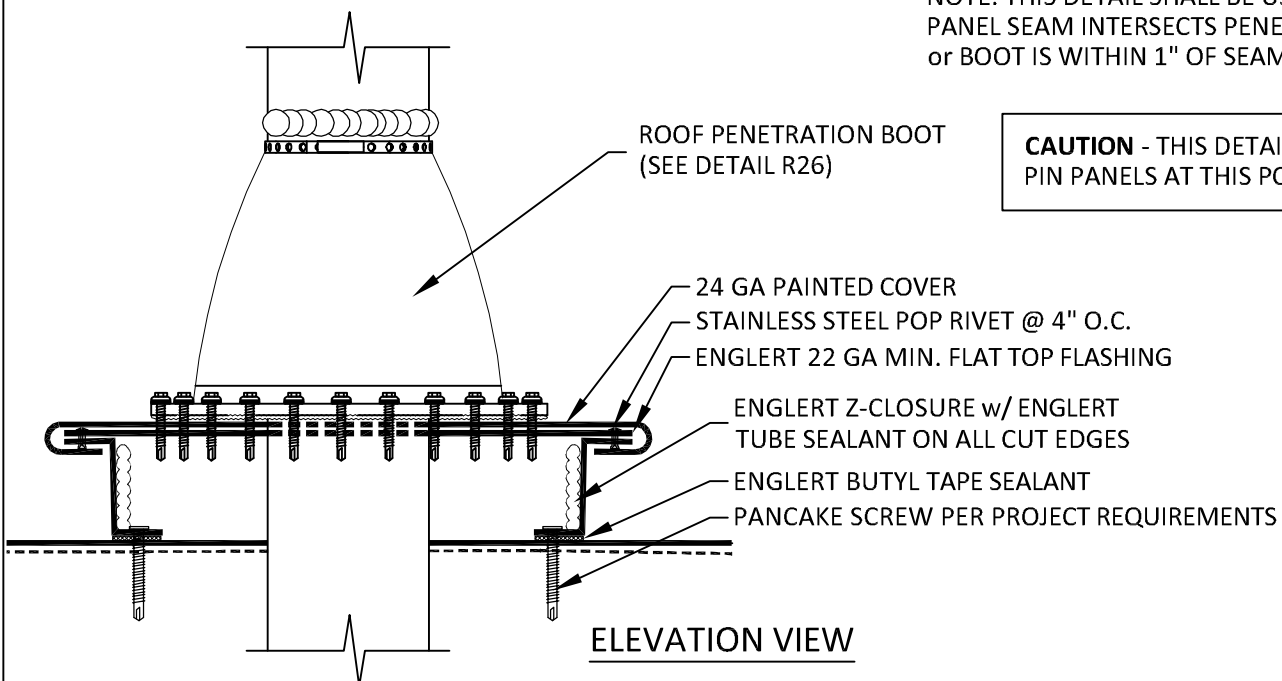
DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #
R26.2.2

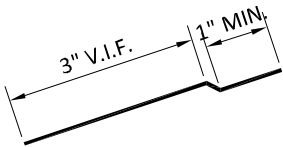
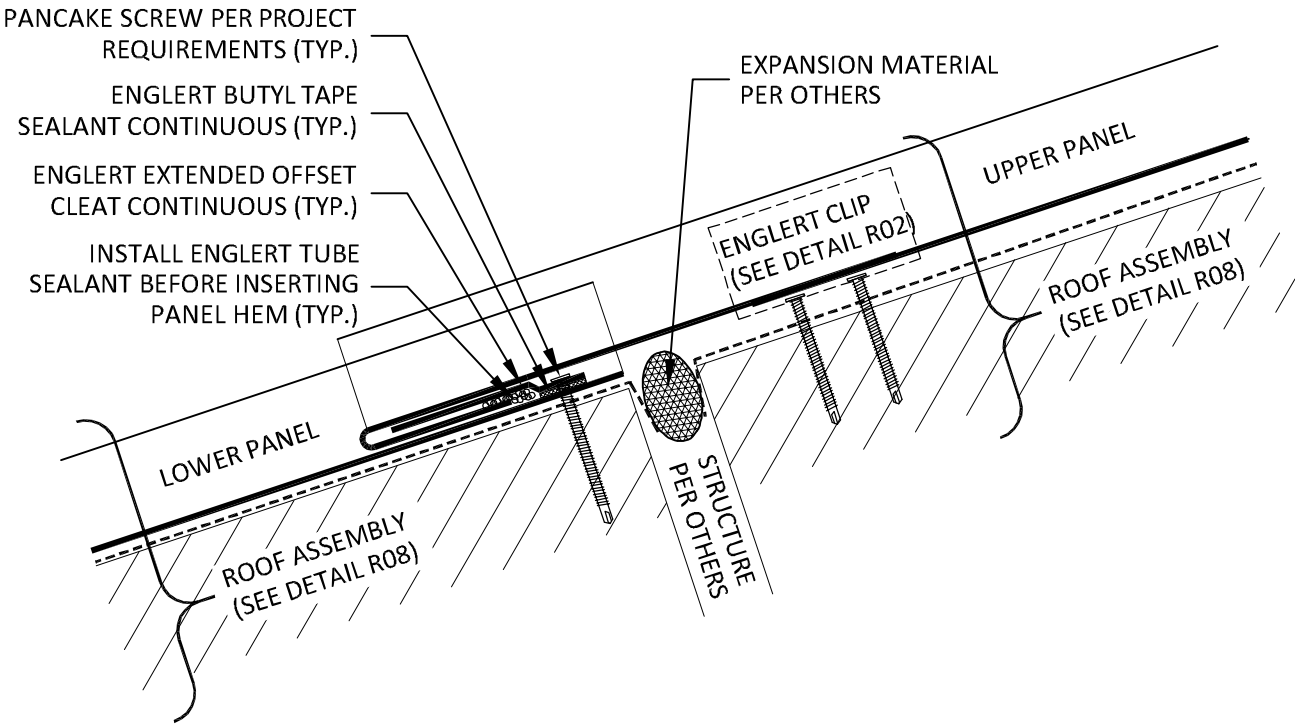


NOTE: THIS DETAIL SHALL BE USED WHEN
 PANEL SEAM INTERSECTS PENETRATION
 or BOOT IS WITHIN 1" OF SEAM.

CAUTION - THIS DETAIL WILL
 PIN PANELS AT THIS POINT!



NOTE: LENGTH OF EXTENDED OFFSET CLEAT VARIES. SEE ENGLERT EXPANSION CHART AND PROJECT REQUIREMENTS.



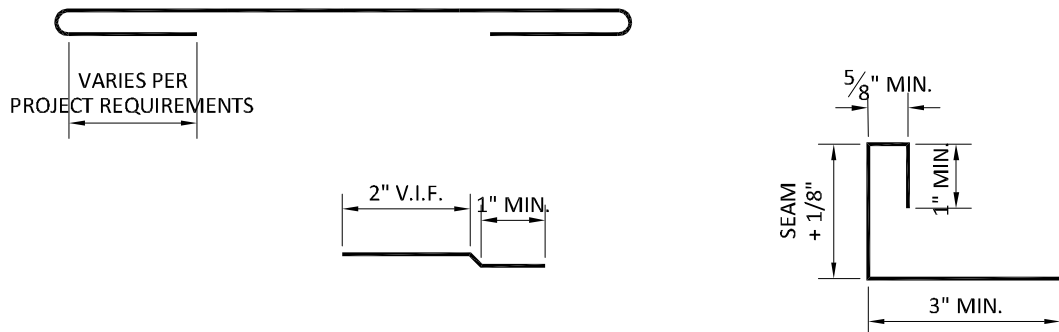
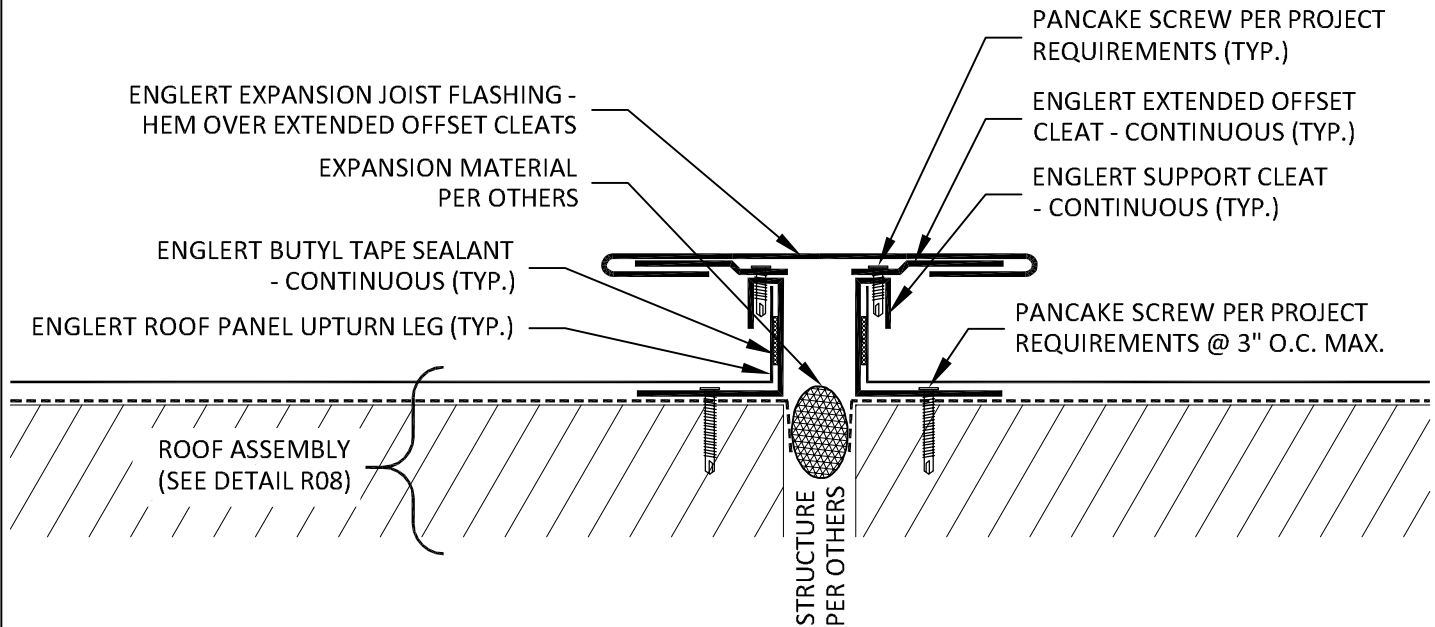
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GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF EXPANSION JOINT	
MID-ROOF across PANELS	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R28.1

NOTE: LENGTH OF EXTENDED OFFSET CLEAT VARIES. SEE ENGLERT EXPANSION CHART AND PROJECT REQUIREMENTS.



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GENERIC BEST PRACTICE ASSEMBLY SHOWN. WATERTIGHTNESS WARRANTY NOT IMPLIED. WHEN SITE CONDITION DIFFERS, SPECIFIC ENGINEERING NECESSARY.

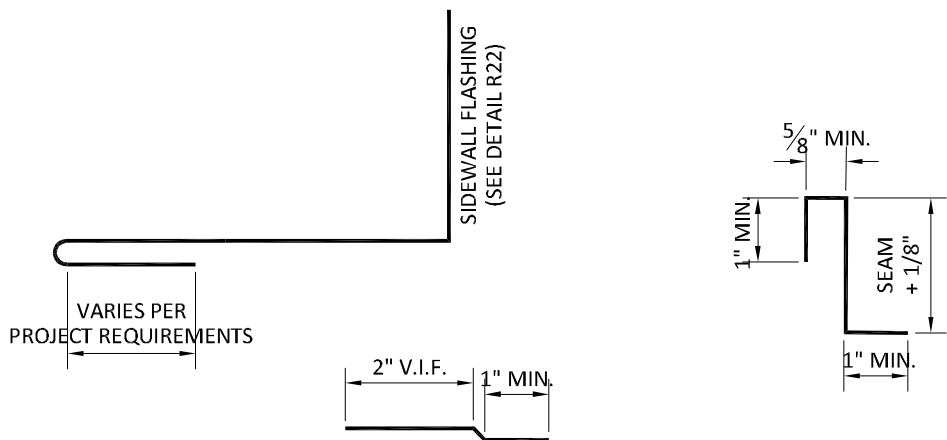
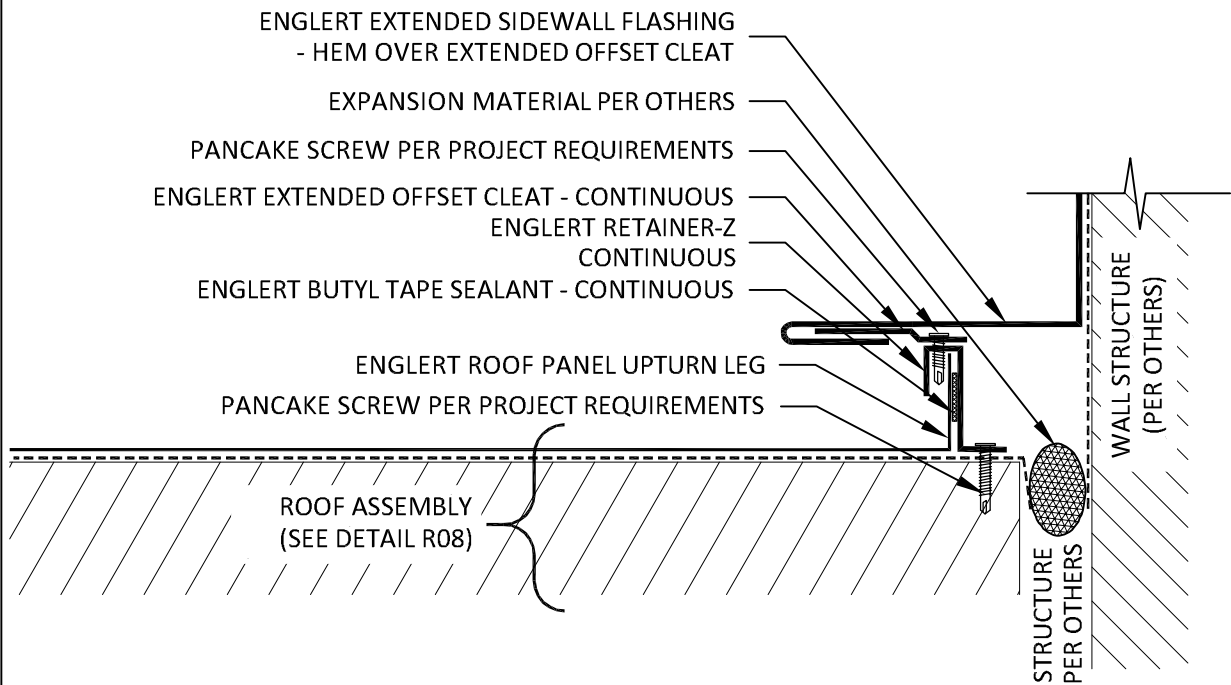
ROOF EXPANSION JOINT

MID-ROOF along PANEL LENGTH

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.

Detail #
R28.2

NOTE: LENGTH OF EXTENDED OFFSET CLEAT VARIES. SEE ENGLERT EXPANSION CHART AND PROJECT REQUIREMENTS.



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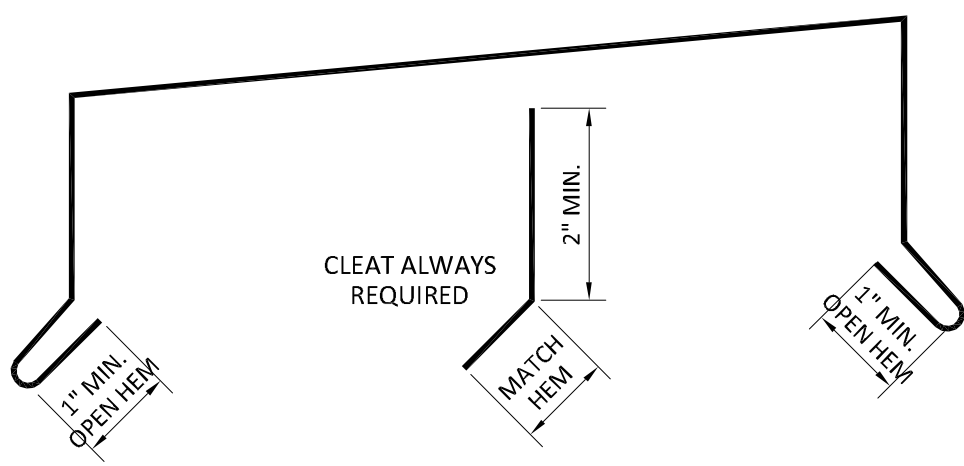
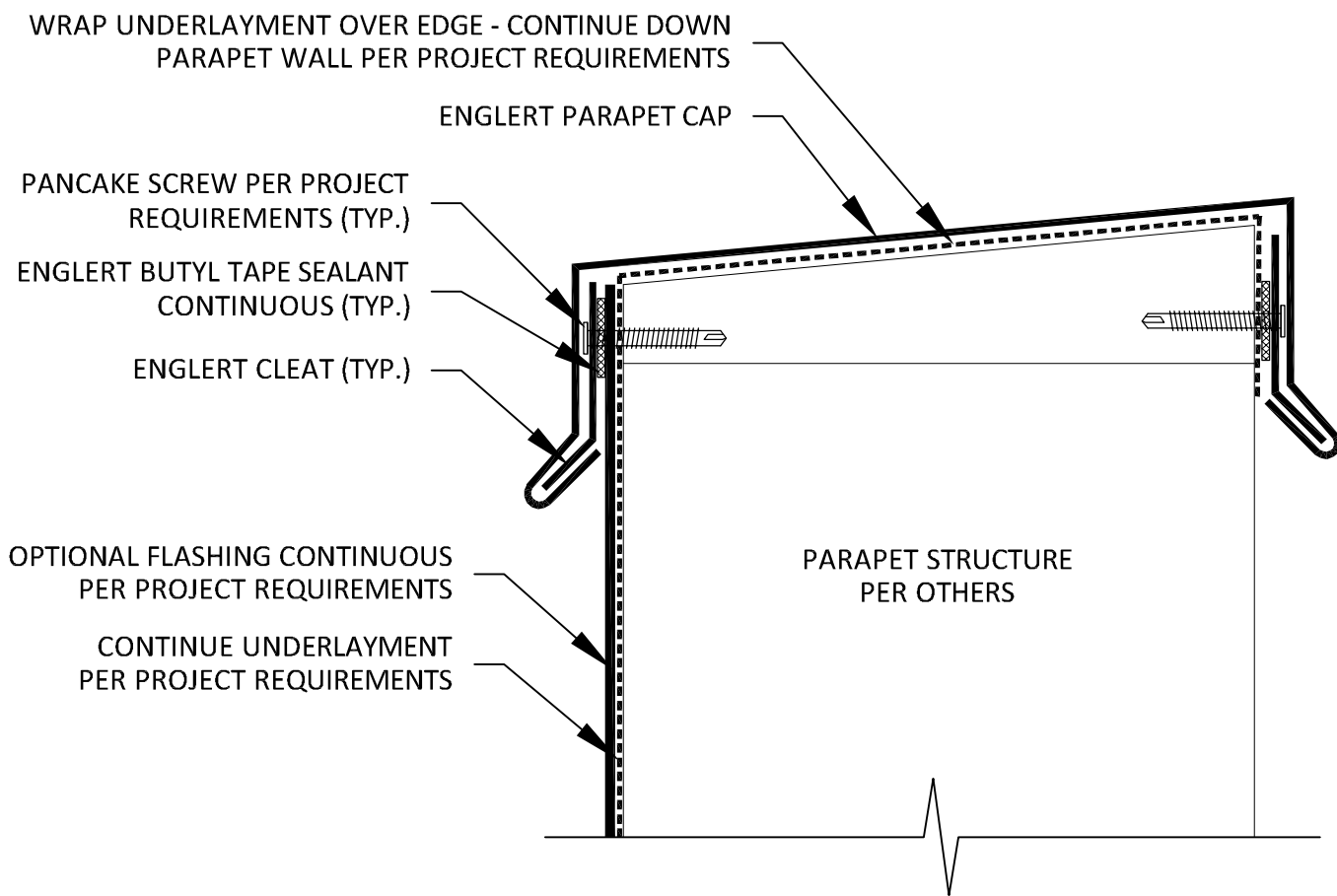
GENERIC BEST PRACTICE ASSEMBLY SHOWN. WATERTIGHTNESS WARRANTY NOT IMPLIED. WHEN SITE CONDITION DIFFERS, SPECIFIC ENGINEERING NECESSARY.

ROOF EXPANSION JOINT

SIDEWALL

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.

Detail # **R28.3**



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ROOF PARAPET COPING	
CLEAT	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail #
R30.1

WRAP UNDERLAYMENT OVER EDGE - CONTINUE DOWN
PARAPET WALL PER PROJECT REQUIREMENTS

ENGLERT PARAPET CAP

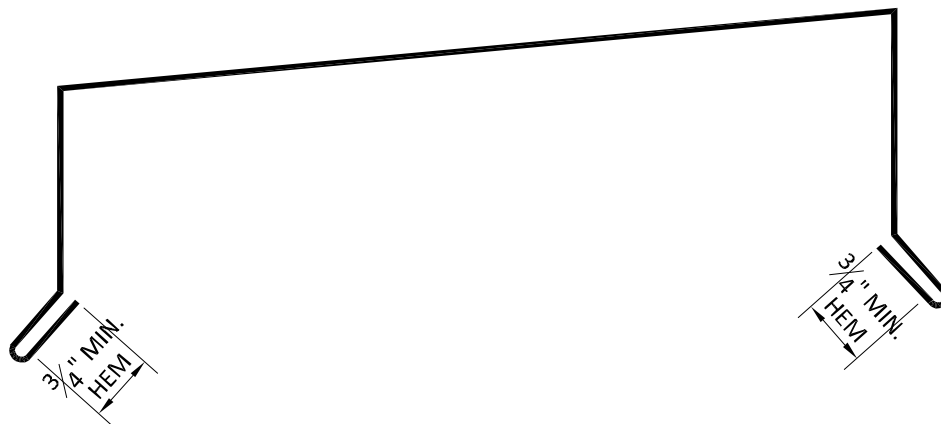
ENGLERT BUTYL TAPE SEALANT
CONTINUOUS (TYP.)

HEX SCREW w/ BONDED
SEALING WASHER PER PROJECT
REQUIREMENTS (TYP.)

OPTIONAL FLASHING CONTINUOUS
PER PROJECT REQUIREMENTS

CONTINUE UNDERLAYMENT
PER PROJECT REQUIREMENTS

PARAPET STRUCTURE
PER OTHERS



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GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

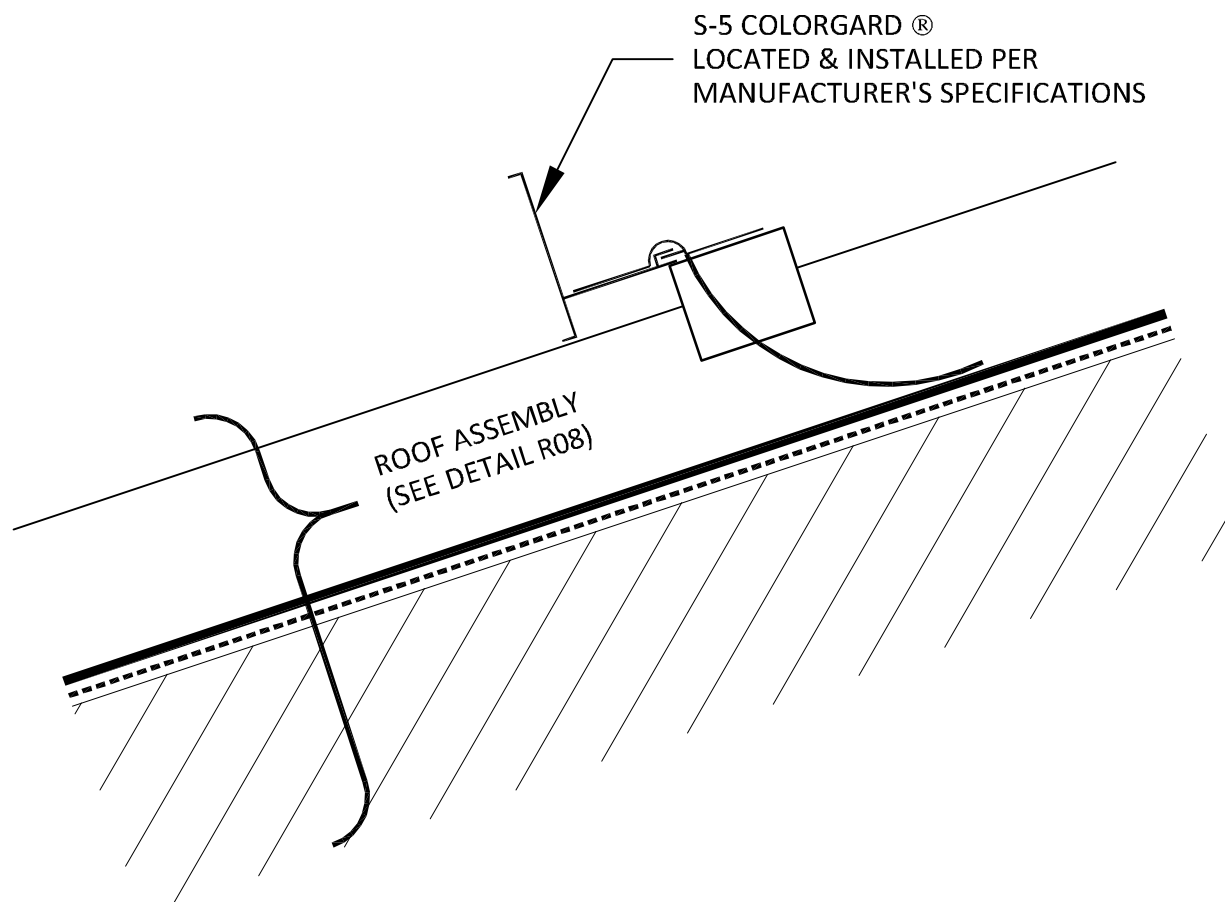
ROOF PARAPET COPING

EXPOSED FASTENERS

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #

R30.2



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GENERIC BEST PRACTICE ASSEMBLY
 SHOWN. WATERTIGHTNESS
 WARRANTY NOT IMPLIED.
 WHEN SITE CONDITION DIFFERS,
 SPECIFIC ENGINEERING NECESSARY.

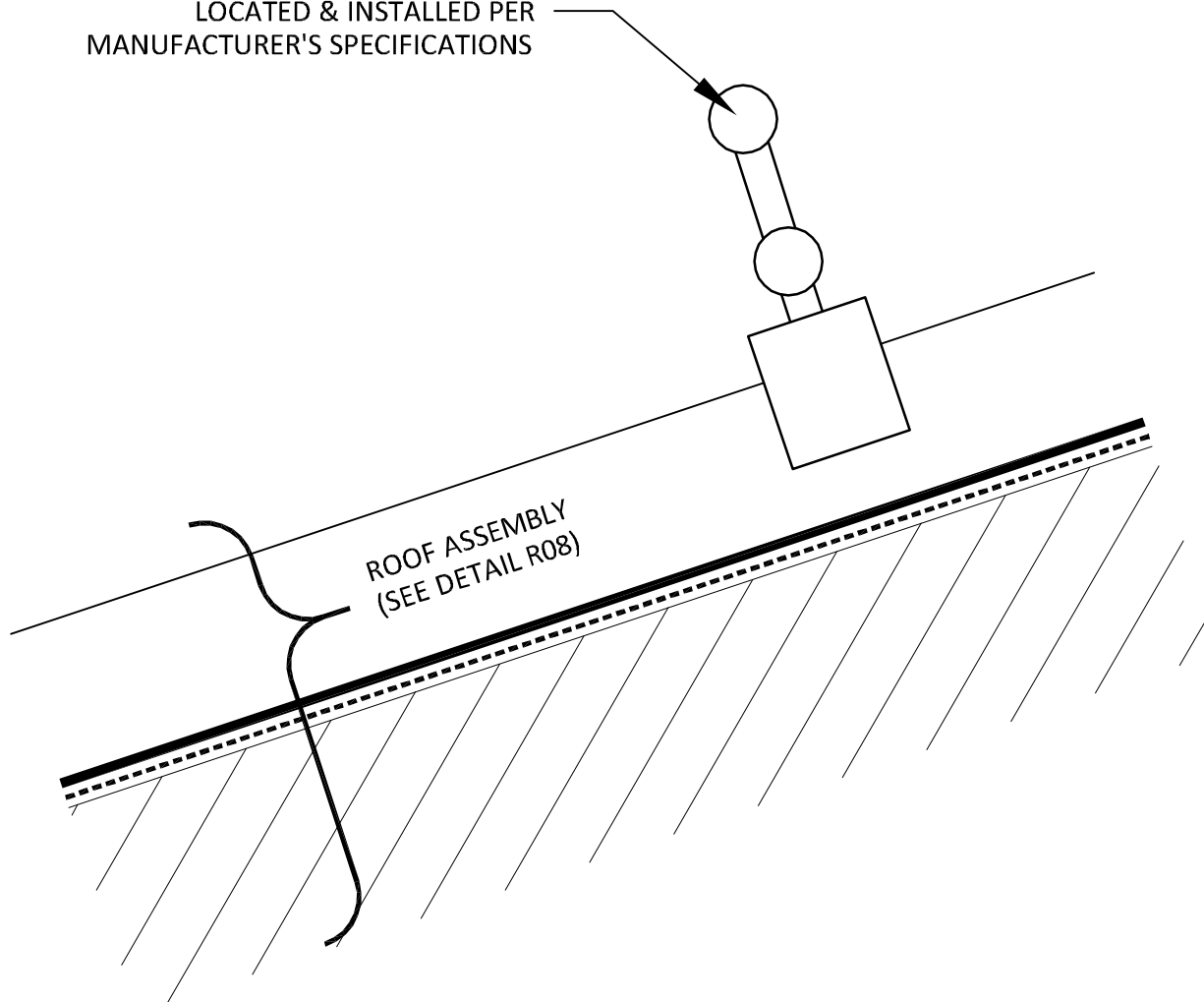
ROOF SNOW GUARDS

S-5! COLORGARD®

DETAIL SUBJECT TO CHANGE
 WITHOUT NOTICE.

Detail #
R32.1

S-5 SNOFENCE™
LOCATED & INSTALLED PER
MANUFACTURER'S SPECIFICATIONS




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GENERIC BEST PRACTICE ASSEMBLY
 SHOWN. WATERTIGHTNESS
 WARRANTY NOT IMPLIED.
 WHEN SITE CONDITION DIFFERS,
 SPECIFIC ENGINEERING NECESSARY.

ROOF SNOW GUARDS

S-5! SNOFENCE™

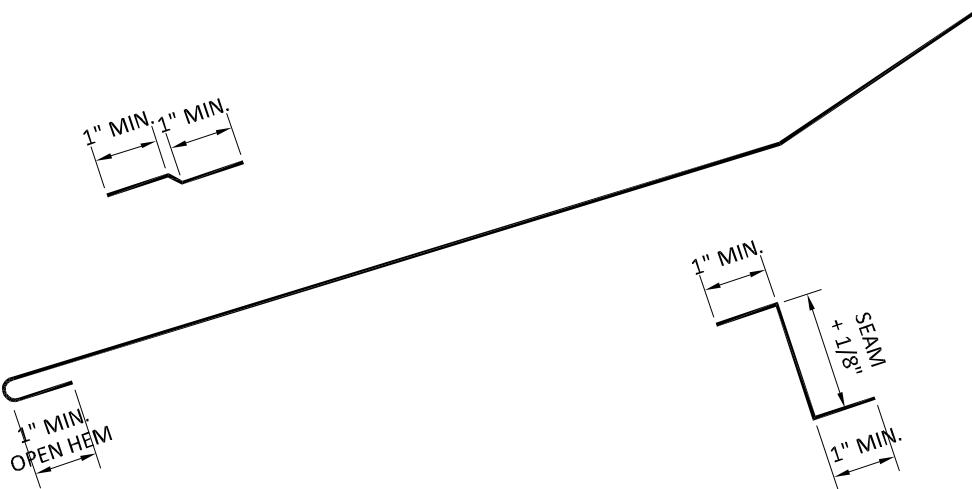
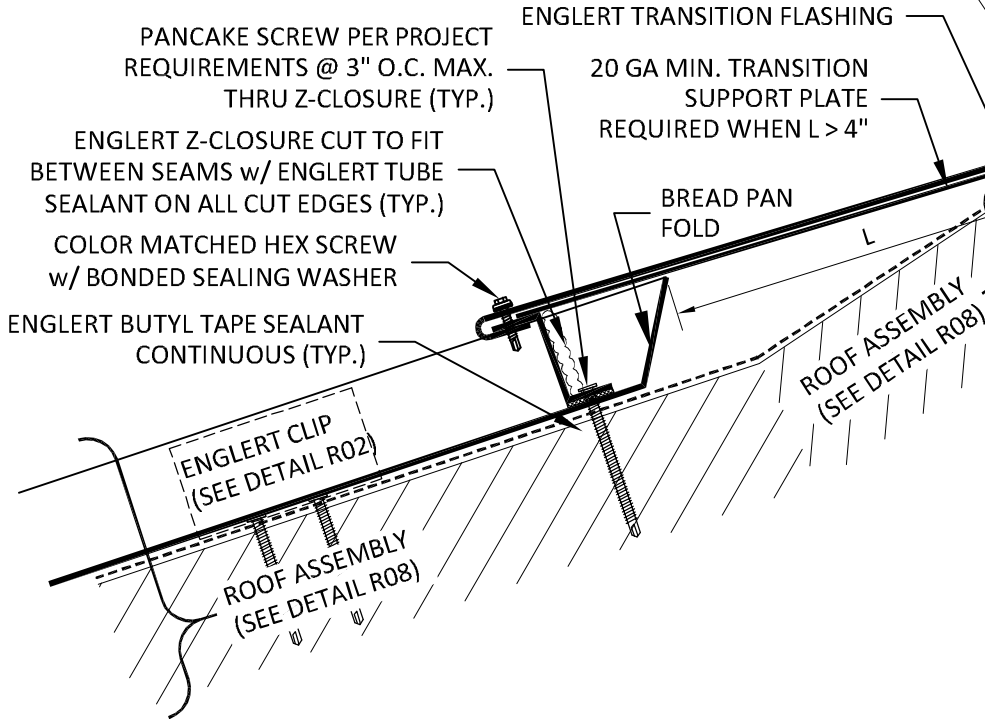
DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #

R32.2

NOTES: ENGLERT TRANSITION FLASHING SHALL HAVE 6" MIN. OVERLAP w/ 2 ROWS OF ENGLERT BUTYL TAPE SEALANT FASTENED w/ COLOR MATCHED HEX SCREWS w/ BONDED SEALING WASHER PER PROJECT REQUIREMENTS. TRANSITION SUPPORT PLATE, WHEN REQUIRED, SHALL EXTEND TO Z-CLOSURE.

(2) ROWS $\frac{3}{8}$ " ENGLERT IN-SEAM TUBE SEALANT (TYP.)
 ENGLERT OFFSET CLEAT CONTINUOUS (TYP.)
 PANCAKE SCREW PER PROJECT REQUIREMENTS (TYP.)
 ENGLERT BUTYL TAPE SEALANT CONTINUOUS (TYP.)
 INSTALL ENGLERT TUBE SEALANT BEFORE INSERTING PANEL HEM (TYP.)



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GENERIC BEST PRACTICE ASSEMBLY SHOWN. WATERTIGHTNESS WARRANTY NOT IMPLIED. WHEN SITE CONDITION DIFFERS, SPECIFIC ENGINEERING NECESSARY.

ROOF TRANSITION

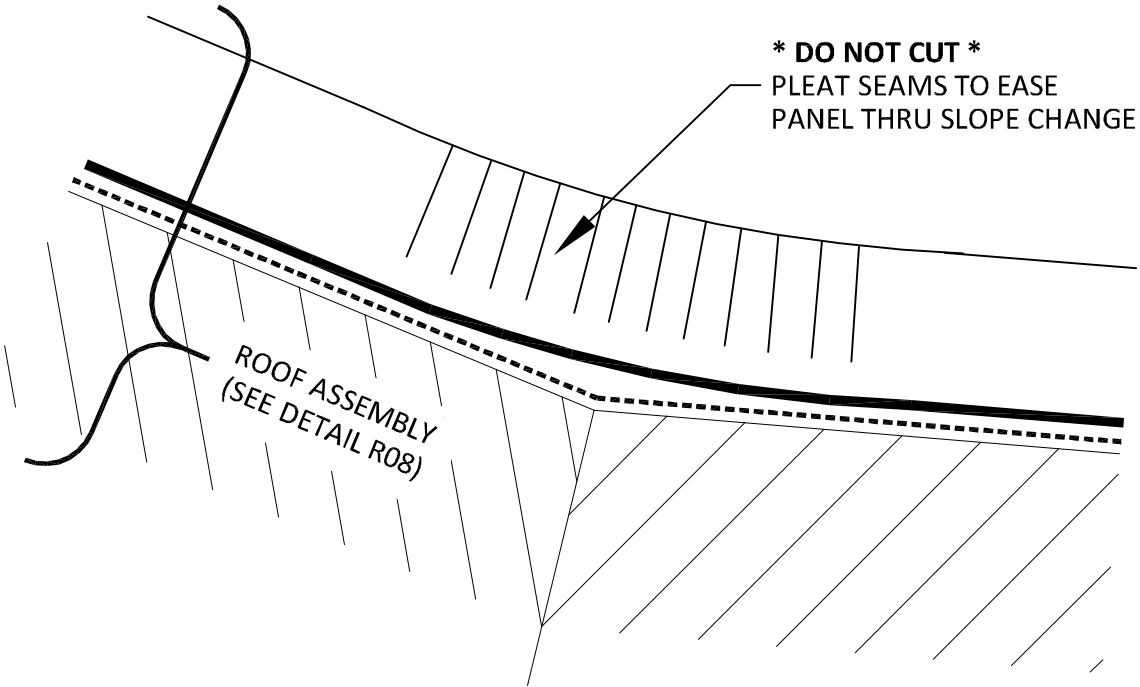
PITCH BREAK

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.

Detail #

R34.1

NOTE: THIS DETAIL ONLY USED WITH
S1300 or S1301 PANELS w/ 180° SEAMS IN
26 GA GALVALUME or .032" ALUMINIUM.



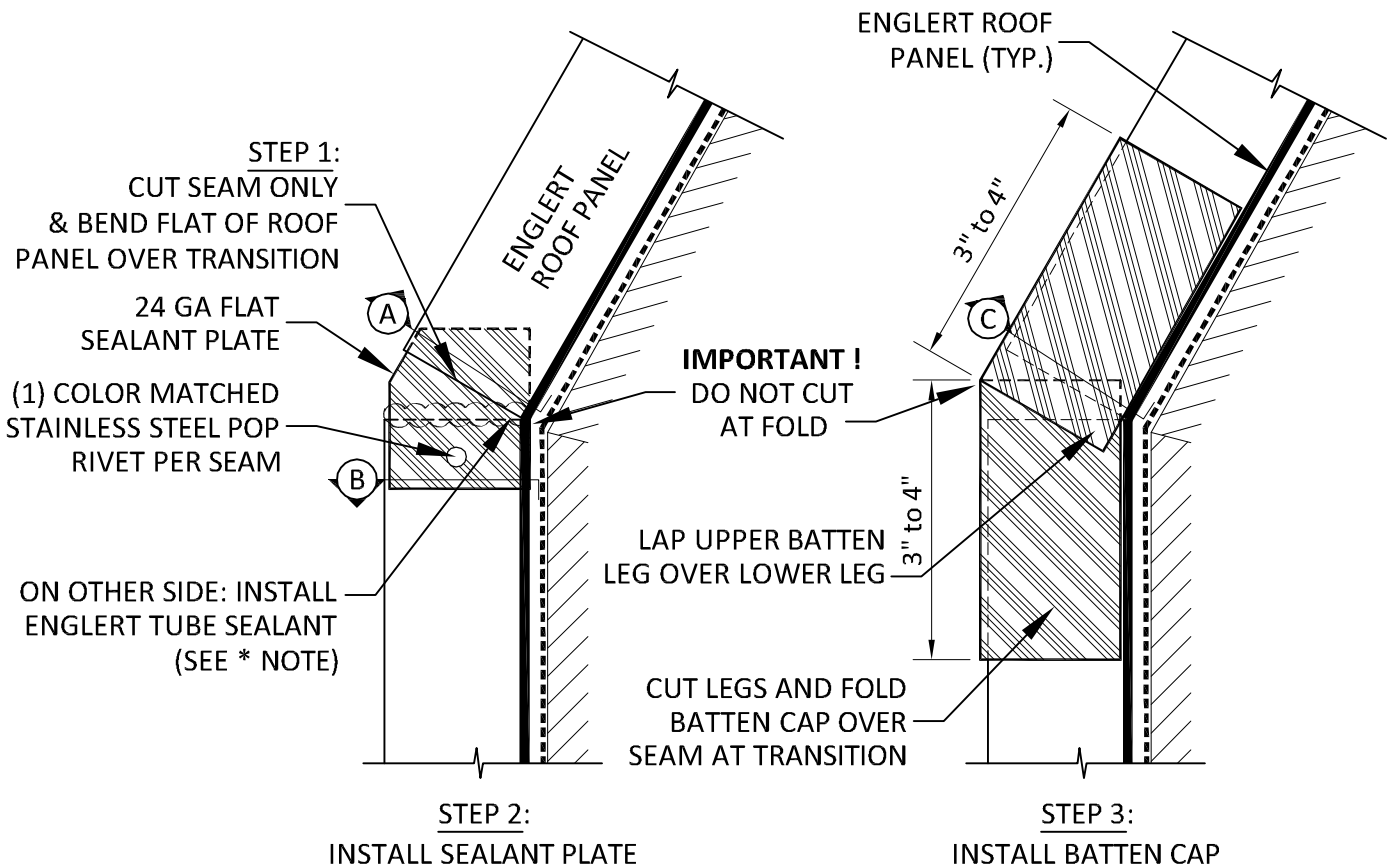
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GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

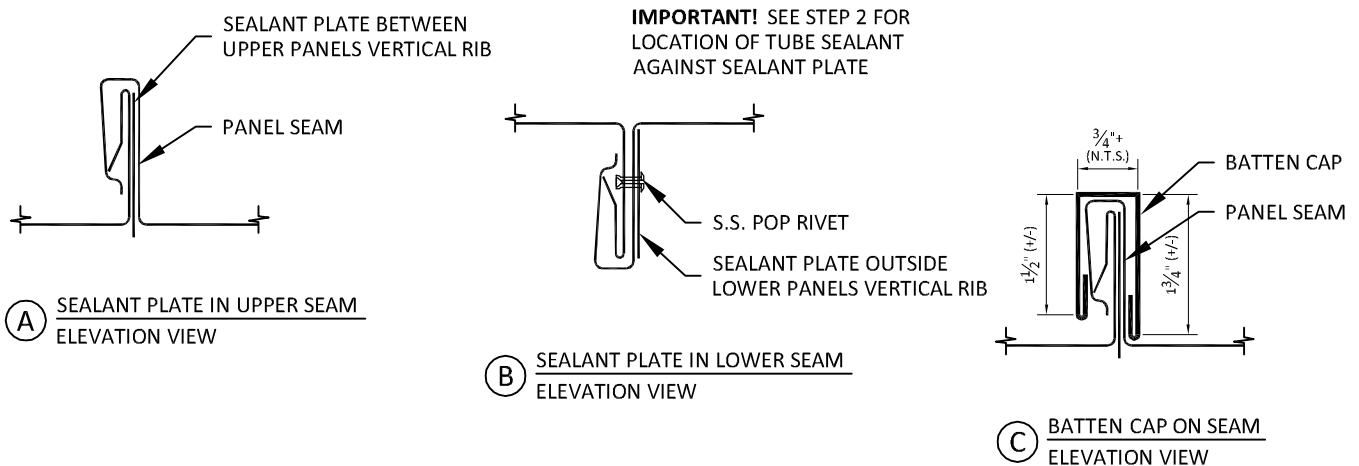
ROOF TRANSITION	
S1300 or S1301 PLEATED SEAM	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # R34.2

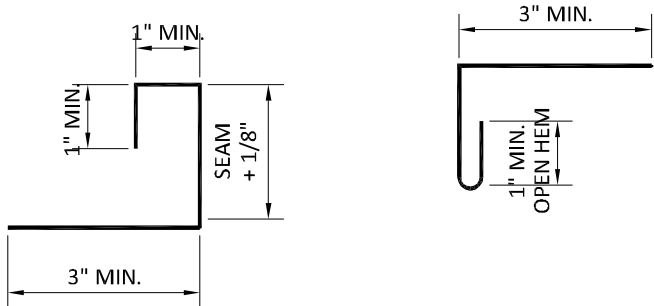
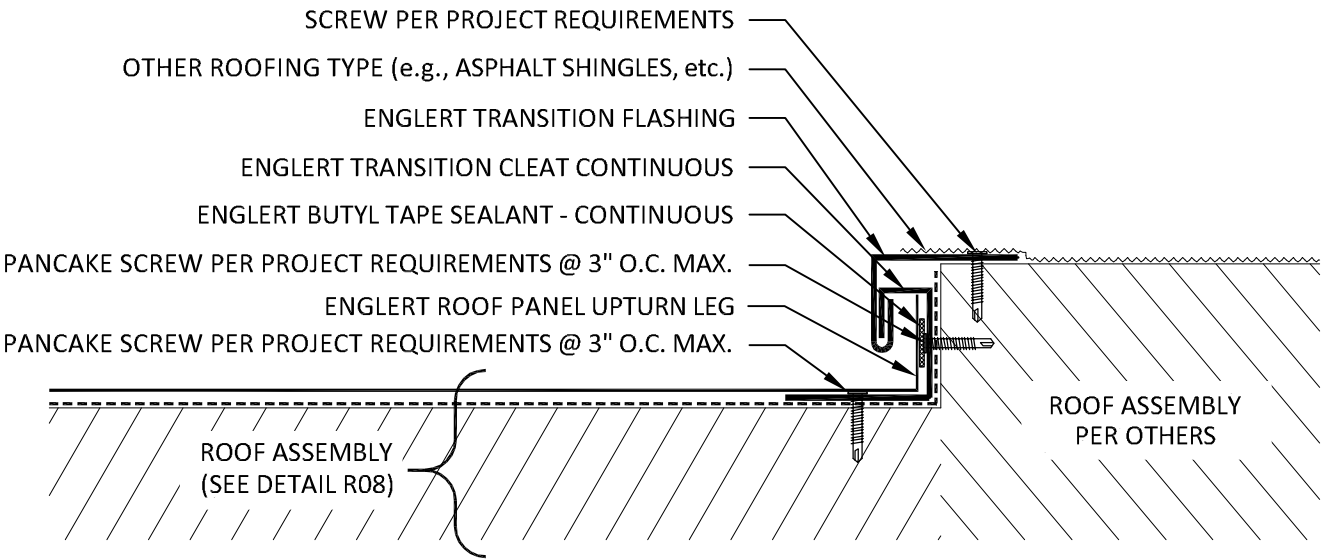


* NOTE: POSITION TUBE SEALANT OVER TOP OF CUT EDGE OF VERTICAL RIBS ON LOWER PANELS USING SEALANT PLATE AS BACKER.

FINGER SMOOTH TUBE SEALANT SO THAT WATER FLOW IS PREVENTED FROM ENTERING CUT EDGES OF PANEL RIBS AND WATER IS DIVERTED QUICKLY OFF ROOF.



NOTE: COORDINATE w/ OTHER ROOFING TYPE
MANUFACTURER ON TRANSITION MEANS &
METHODS TO PROTECT PRODUCT WARRANTY.



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GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

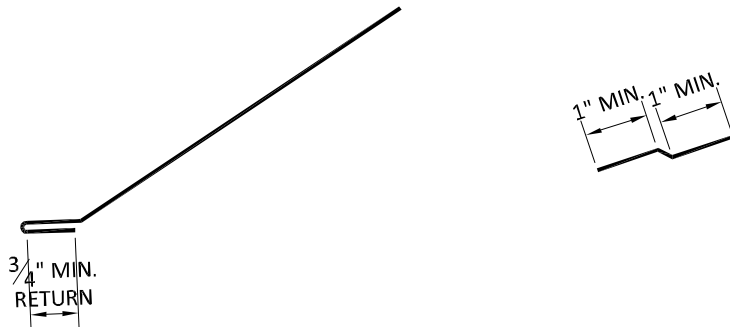
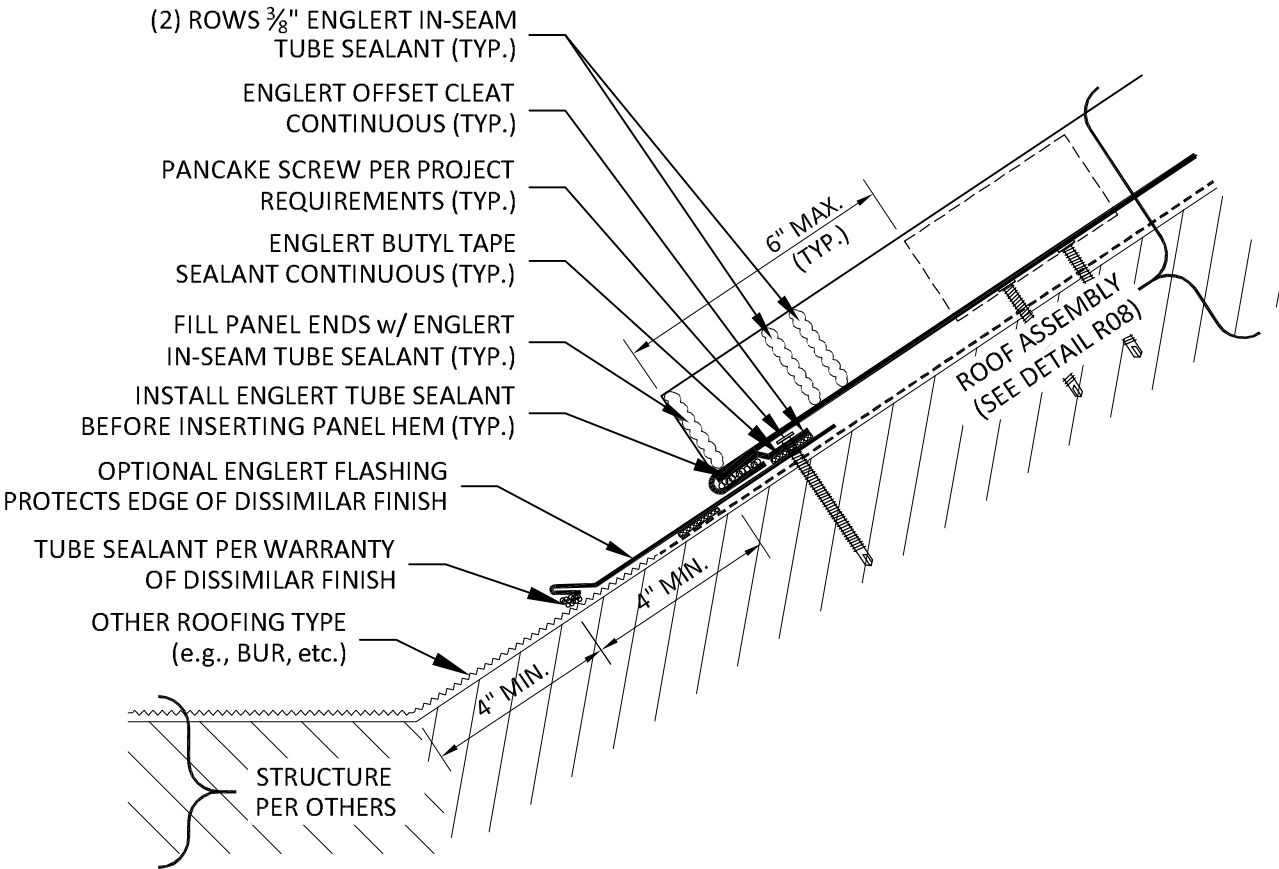
ROOF TRANSITION

STANDING SEAM RAKE to OTHER ROOFING TYPE

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #
R34.4

NOTE: COORDINATE w/ OTHER ROOFING TYPE
MANUFACTURER ON TRANSITION MEANS &
METHODS TO PROTECT PRODUCT WARRANTY.



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GENERIC BEST PRACTICE ASSEMBLY
SHOWN. WATERTIGHTNESS
WARRANTY NOT IMPLIED.
WHEN SITE CONDITION DIFFERS,
SPECIFIC ENGINEERING NECESSARY.

ROOF TRANSITION

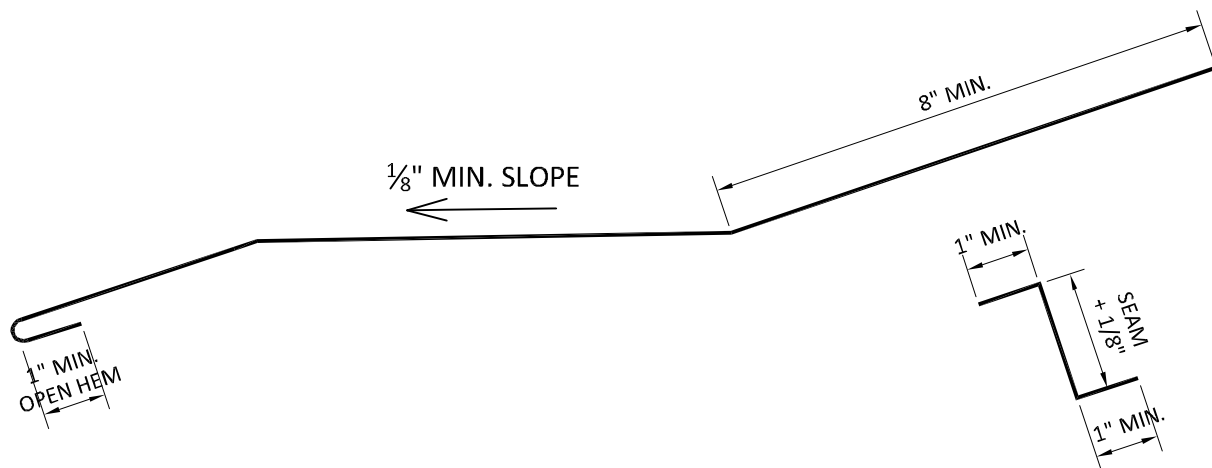
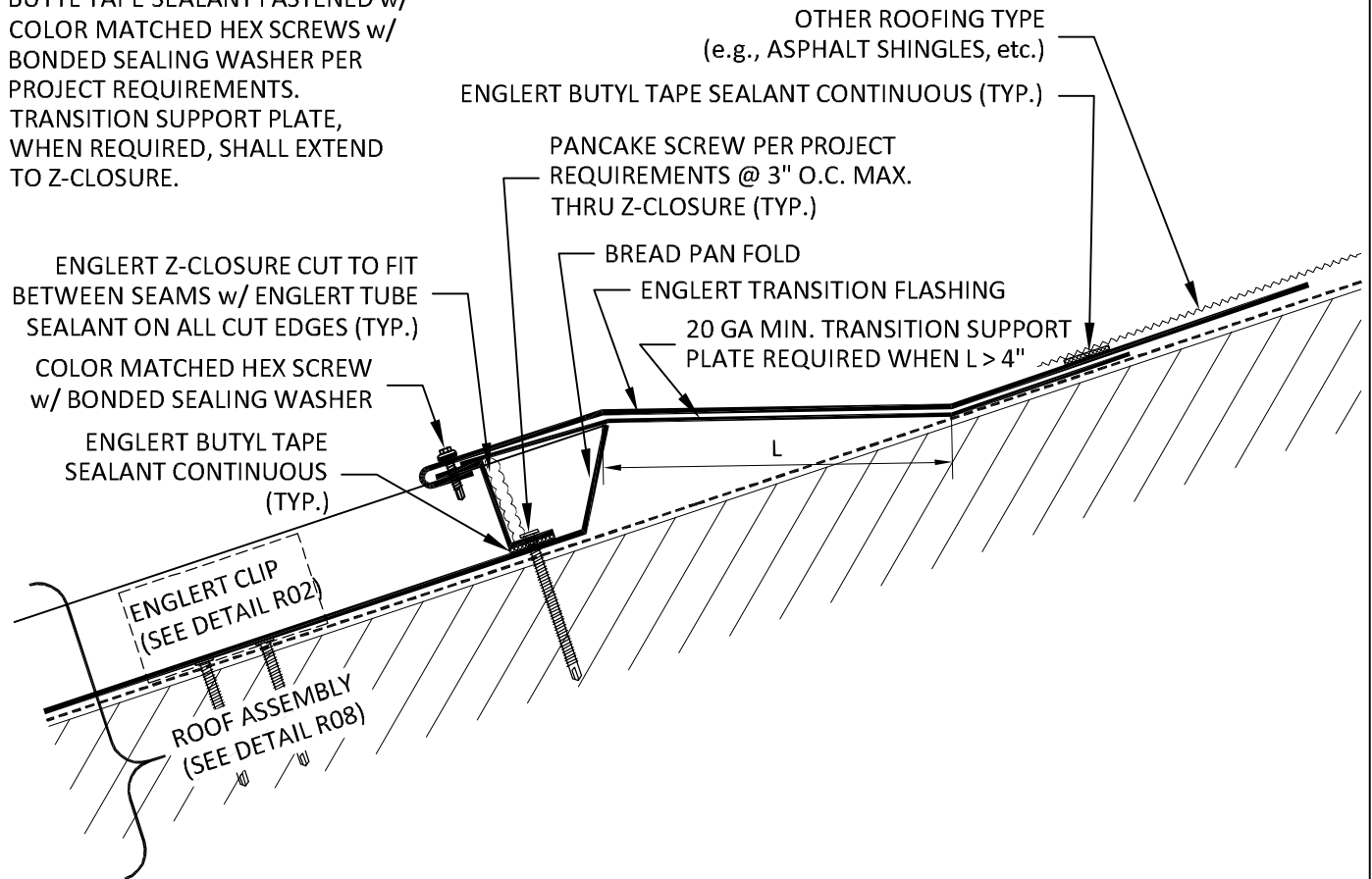
STANDING SEAM PITCH BREAK to OTHER ROOFING TYPE

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #
R34.5.1

NOTES: ENGLERT TRANSITION FLASHING SHALL HAVE 6" MIN. OVERLAP w/ 2 ROWS OF ENGLERT BUTYL TAPE SEALANT FASTENED w/ COLOR MATCHED HEX SCREWS w/ BONDED SEALING WASHER PER PROJECT REQUIREMENTS. TRANSITION SUPPORT PLATE, WHEN REQUIRED, SHALL EXTEND TO Z-CLOSURE.

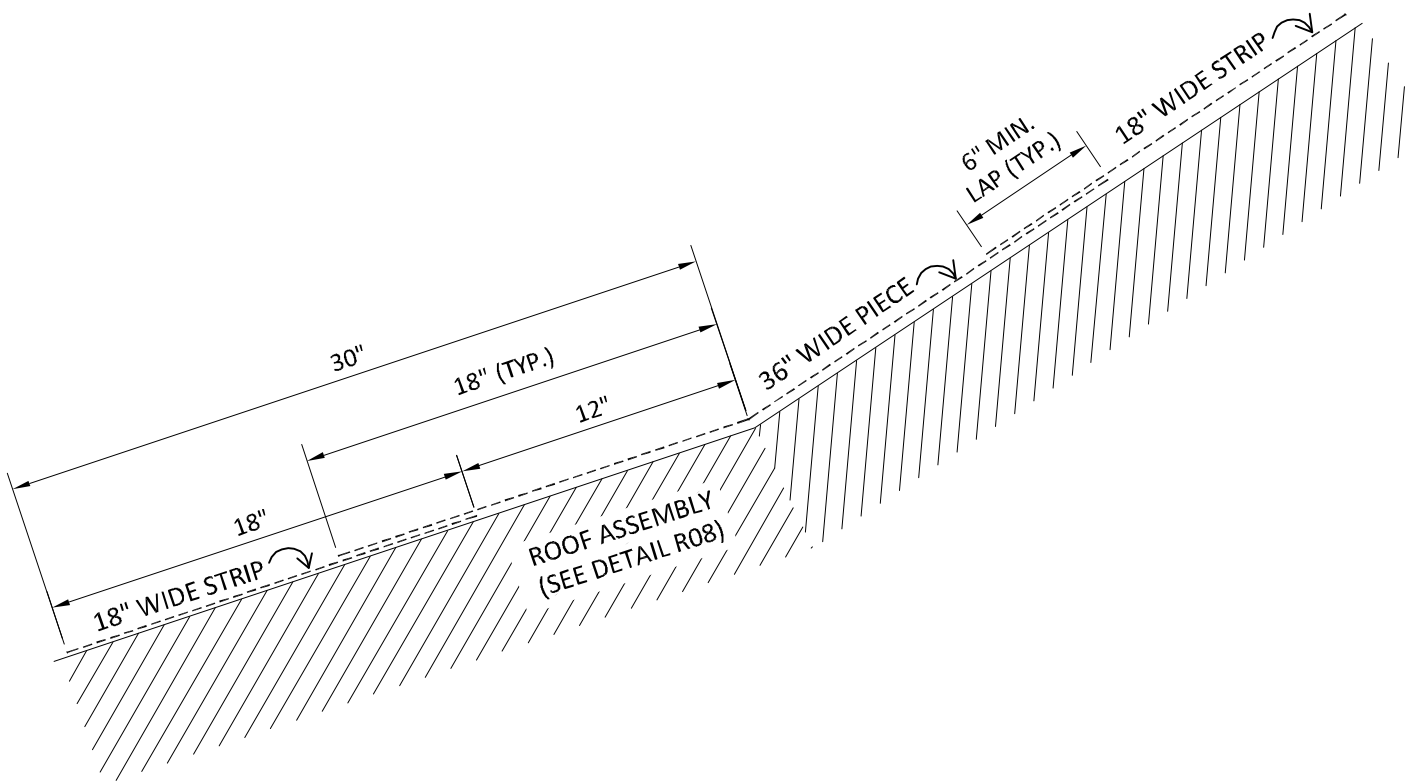
NOTE: COORDINATE w/ OTHER ROOFING TYPE MANUFACTURER ON TRANSITION MEANS & METHODS TO PROTECT PRODUCT WARRANTY.




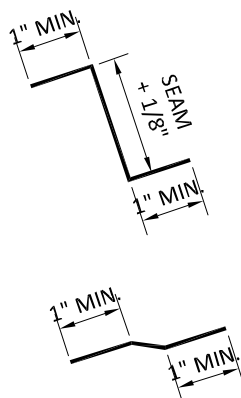
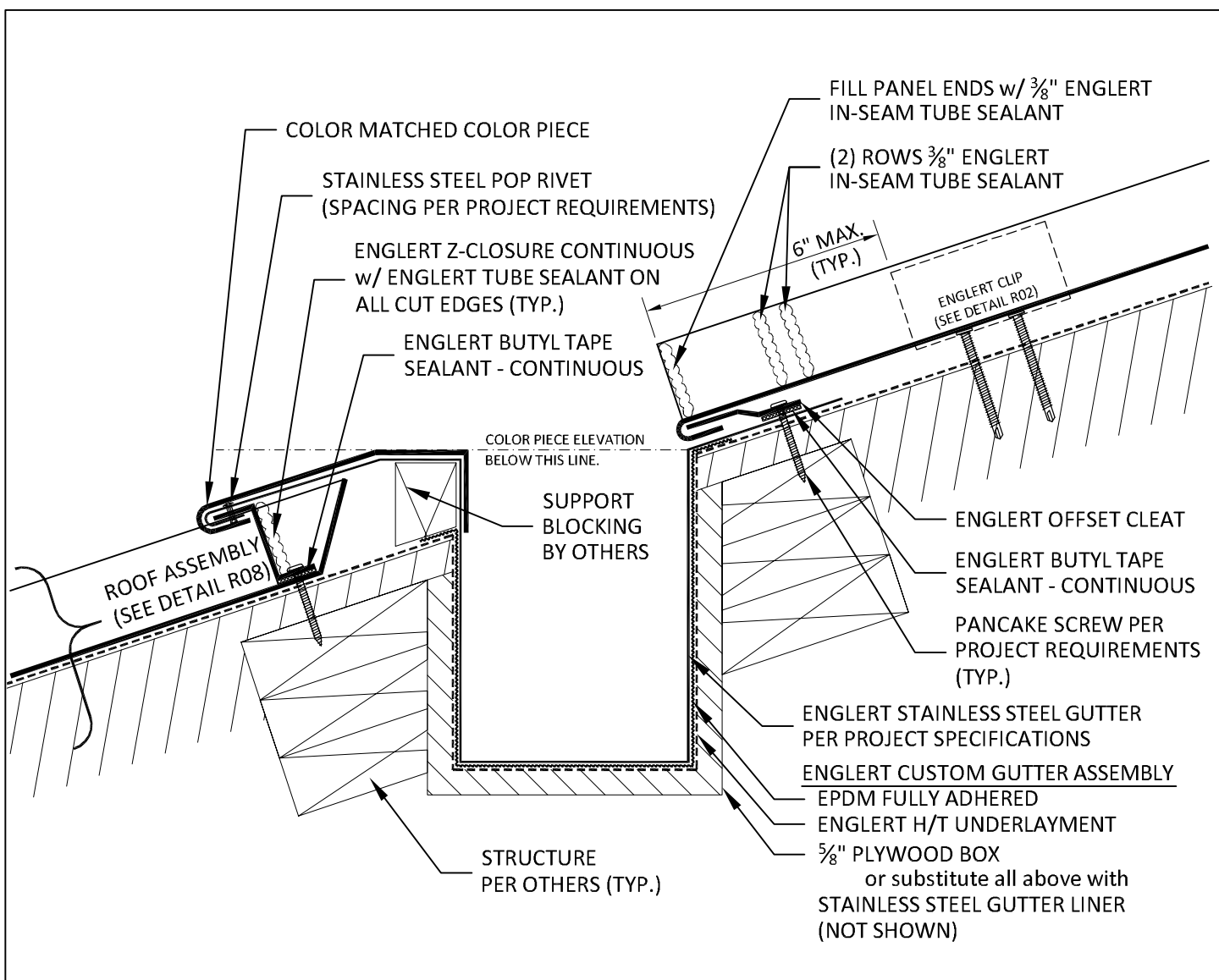
USE THIS INSTALLATION PROCEDURE ALONG SLOPE CHANGES, REGARDLESS WHETHER ENGLERT H/T UNDERLAYMENT IS OVER ENTIRE ROOF or ONLY ALONG PERIMETERS.

WHEN SLOPE IS LESS THAN 3:12, CONSULT ENGLERT TECHNICAL DEPARTMENT.

- 1) MEASURE 12" DOWN FROM SLOPE CHANGE AND MARK.
- 2) CUT ONE 36" WIDE PIECE OF UNDERLAYMENT IN HALF TO CREATE 18" STRIPS.
- 3) PLACE ONE 18" STRIP BELOW LINE MARKED IN STEP #1.
- 4) SHINGLE LAP 36" WIDE PIECE OVER EDGE OF LOWER STRIP AND UP ROOF.
- 5) SHINGLE LAP THE OTHER 18" STRIP OVER EDGE OF 36" PIECE TO FINISH. MAXIMIZE SLOPE CHANGE COVERAGE.
- 6) WHEN NECESSARY, END LAP UNDERLAYMENT BY 6" MINIMUM.



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	PITCH BREAK UNDERLAYMENT		Detail #
			R34



- GUTTER SHALL BE STAINLESS STEEL OF EPDM ONLY
- SIZE PER PROJECT REQUIREMENTS

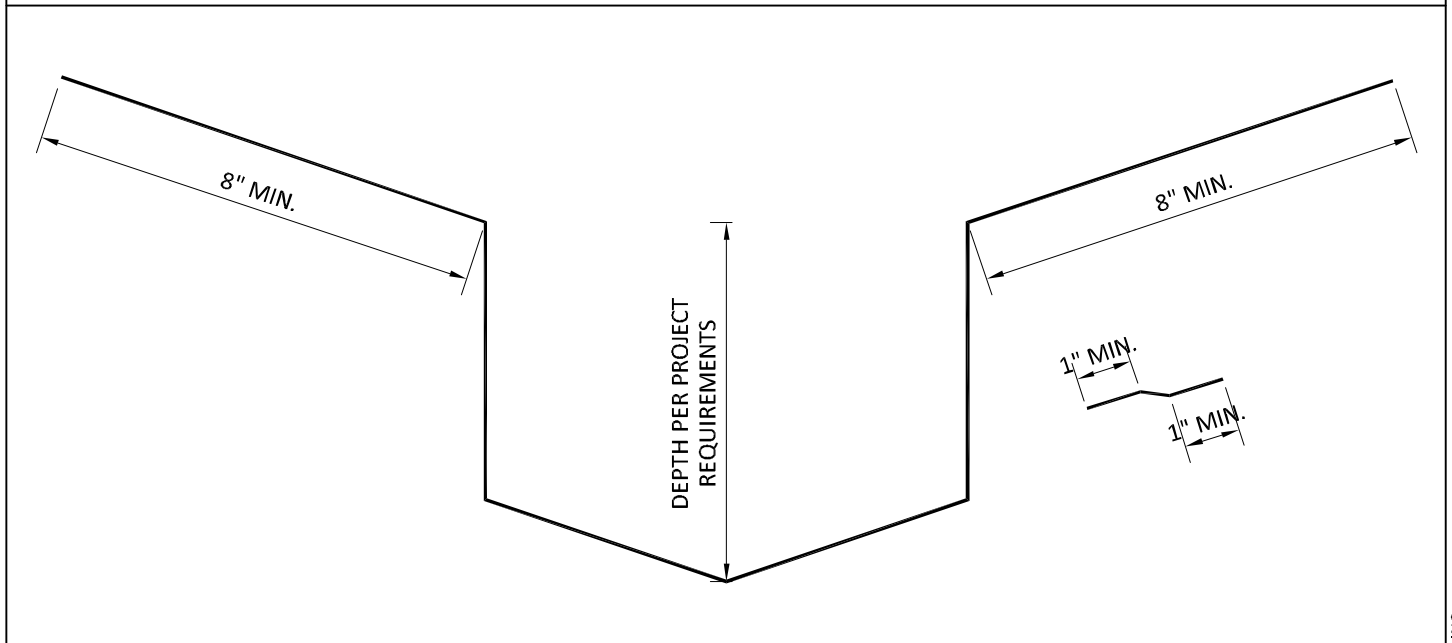
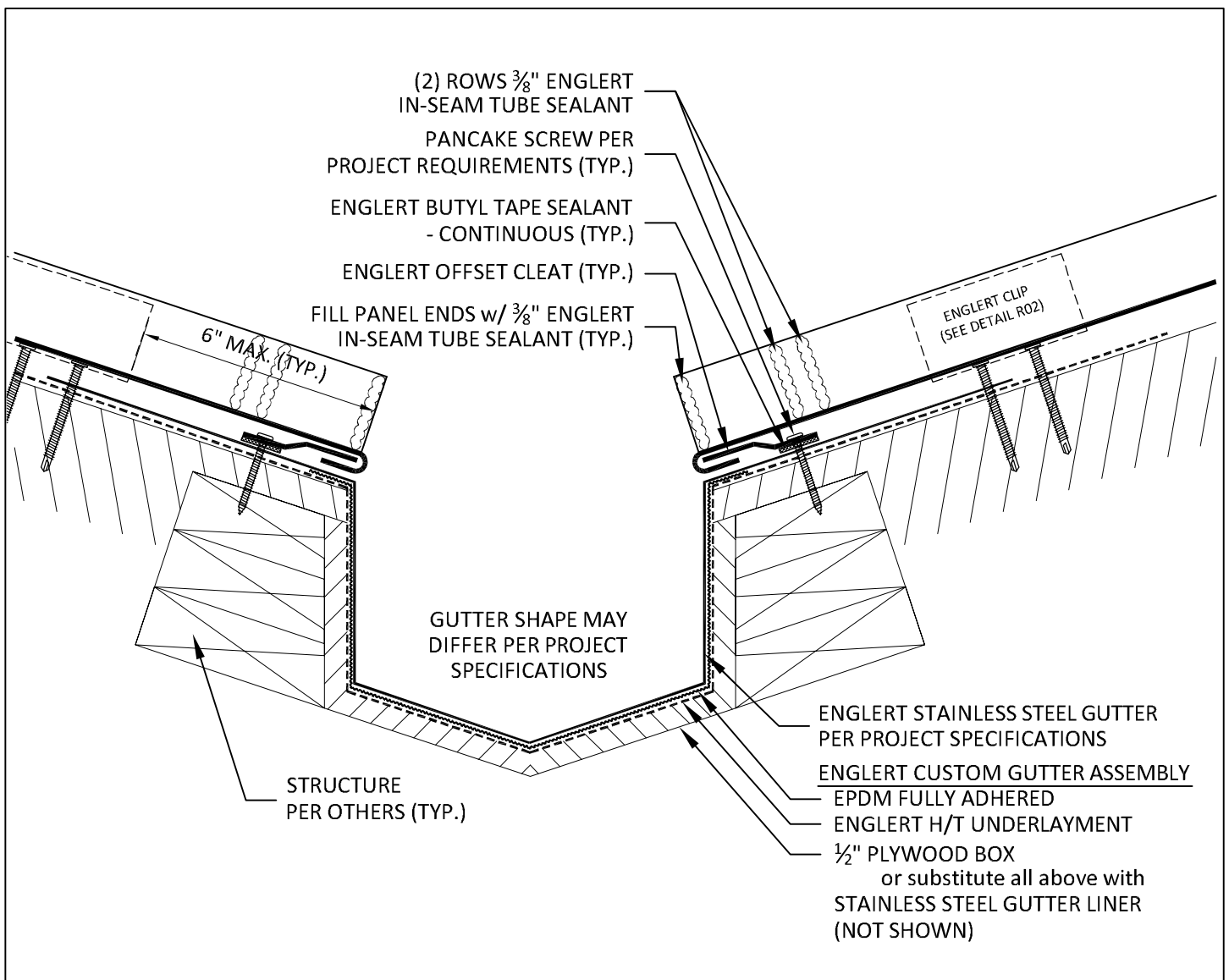
ROOF INTERIOR GUTTER


BOX-SHAPED

DETAIL SUBJECT TO CHANGE
WITHOUT NOTICE.

Detail #

R36.1



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	VALLEY-SHAPED		Detail #
			R36.2

I. INTRODUCTION

Englert, Inc., Perth Amboy, New Jersey, (*hereinafter referred to as "Englert"*) hereby offers the following paint finish warranties and base metal warranties to only the original and first owner(s) of the project and/or building where Englert's coil and flat stock is used for formed roofing, fascia, mansard, wall panels, siding and soffit applications (*hereinafter to be referred to as "Product"*). The warranted paint systems will be the PermaColor 2000, PermaMetallic 2000, PermaColor 3500 ULTRA-Cool® low gloss, and PermaMetallic 3500 ULTRA-Cool® low gloss paint colors which is comprised of a full-strength 70% Kynar 500®/Hylar 5000® Fluorocarbon. Aluminum will only be offered as a prepainted product. Galvalume® will be offered in prepaint, as a passivated mill finish, or as an acrylic coated mill finish product in both AZ55 or AZ50 coating weights. Englert warrants that its Products, upon delivery, will be free from defects, excluding any freight damage. (*The term "the material will be free from defects" does not include waviness present in the flat/planer areas of Englert's product, due to inconsistency in the metal making process and uneven substrates over which the product is applied, which the industry has accepted as being prevalent and normal.*) Waviness shall not be a cause for a claim under this or any other warranty.

II. GENERAL INFORMATION

This warranty covers three separate and distinct products as outlined below:

1. Prepainted Aluminum Warranty

- When Prepainted Aluminum materials are installed on a property that is located over one-half mile from the seacoast, salt water, or brackish water, Englert will offer a 30-year limited warranty on PermaColor 2000 paint colors, a 35-year limited warranty on PermaColor 3500 ULTRA-Cool® low gloss paint colors, a 30-year limited warranty on PermaMetallic 2000 paint colors, and a 35-year limited warranty on PermaMetallic 3500 ULTRA-Cool® low gloss paint colors.
- When Prepainted Aluminum materials are installed on a property that is located within one half mile from the seacoast, salt water, or brackish water, Englert will offer a 25-year limited warranty on PermaColor 2000 paint colors, PermaColor 3500 ULTRA-Cool® low gloss paint colors, PermaMetallic 2000 paint colors, and PermaMetallic 3500 ULTRA-Cool® low gloss paint colors.

2. Prepainted Galvalume® Warranty

- When Prepainted Galvalume® materials are installed on a property that is located over one-half mile from the seacoast, salt water, or brackish water, Englert will offer a 25-year limited warranty on the Galvalume®, a 30-year limited warranty on PermaColor 2000 paint colors, a 35-year limited warranty on PermaColor 3500 ULTRA-Cool® low gloss paint colors, a 30-year limited warranty on PermaMetallic 2000 paint colors, and a 35-year limited warranty on PermaMetallic 3500 ULTRA-Cool® low gloss paint colors
- When Prepainted Galvalume® materials are installed on a property that is located within one half mile from the seacoast, salt water, or brackish water, Englert does not offer any warranty for any period of time on prepainted Galvalume®.

3. Mill Finish Galvalume® Warranty

- When Mill Finish Galvalume® materials are installed on a property that is located over one-half mile from the seacoast, salt water, or brackish water, Englert will offer a 25-year warranty on an AZ55 coating weight on the base metal and a 20-year warranty on an AZ50 coating weight on the base metal.
- When Mill Finish Galvalume® materials are installed on a property that is located within one-half mile from the seacoast, salt water, or brackish water, Englert does not offer any warranty for any time period on the mill finish Galvalume®.

III. ENGLERT, INC.'S 30-YEAR AND 35-YEAR PERMACOLOR 2000 / 3500 AND PERMAMETALLIC 2000 / 3500 PAINT FINISH WARRANTY

This portion of the warranty applies to the paint finish as outlined below. The Galvalume® base metal is covered in Section IV.

The paint finish on Englert's PermaColor 2000 / 3500 and PermaMetallic 2000 / 3500 is comprised of a full-strength 70% Kynar 500®/Hylar 5000® fluorocarbon paint which will not:

- A. Chip, crack, check, or peel. (*These terms shall not mean deviations to the paint finish as a result of exposed raw edges, or as a result of roll-forming, embossing, and end cutting of Product, which may occur in and during proper fabrication of the Product.*)
- B. Chalk in excess of eight (8) numerical ratings, when installed 0 degrees to 86 degrees from vertical, when measured in accordance with the standard test procedures as specified under ASTM D4214-89.
- C. Fade in excess of five (5) E Units (NBS), when installed 0 degrees to 86 degrees from vertical, measured on exposed painted surfaces which have been cleaned of external deposits, as determined under ASTM D-2244-85, Paragraph 6.3. Color change shall be measured on an exposed, painted surface that has been cleaned or surface soils and chalk, and the corresponding values measured on the original or unexposed, painted surface, equally exposed to the sun and elements.

This paint finish warranty applies only to Englert's pre-painted coils and flat stock in steel or aluminum used for formed roofing, fascia, mansard, wall panels, siding, and soffit applications and only to **Product erected within the Continental United States** and has been exposed to normal atmospheric conditions. This warranty does not apply to product exposed at any time to corrosive or aggressive atmospheric conditions, including, but not limited to:

1. Areas subject to salt-water marine atmospheres or to spraying of either salt or fresh water. (Except pre-painted aluminum.)
2. Areas subject to fallout or exposure to corrosive chemicals, fumes, ash, cement dust, animal waste or its decomposition by-products, carbon black, or fallout from copper, lead, salt, nickel or silver mining or refining operations.
3. Areas subject to water run-off from lead or copper flashing or piping or areas in contact with lead or copper.
4. Conditions/circumstances where corrosive fumes or condensates are generated or released inside the building.

This warranty **DOES NOT APPLY** in the event of:

1. Bends less than 4T inside bend diameter for all coil and flat stock thicknesses.
2. Roof or sections of the roof flatter than ¼:12 slope.
3. Mechanical, chemical, or other damage sustained during shipment, storage, forming, fabrication, or during or after erection including damage caused by walking on the roof.
4. Forming which incorporates severe reverse bending or which subjects the coating to alternate compression and tension.
5. Failure to provide free drainage of water, including internal condensation, from overlaps and all other surfaces of the sheets or panels.
6. Any form of moisture entrapment resulting from, but not limited to, the improper handling, fabrication and/or installation of the product. **Moisture entrapment due to the improper handling, fabrication, and/or installation of the product may cause product failure.**
7. Failure to remove debris from overlaps and all other surface of the sheets or panels.
8. Damage caused to the metallic coating by improper forming (*including, but not limited to, roll forming, press braking or embossing*) or scouring or cleaning procedures.
9. Deterioration of the panels caused by contact with green or wet or pressure-treated lumber, or wet storage stain caused by water damage or condensation.
10. Presence of damp insulation, soil, vegetation, cement, or other corrosive materials in contact with or in close proximity to the sheets or panels.
11. Deterioration to the panels caused directly or indirectly by panel contact with fasteners or by overdriving the fasteners so as to damage the panel. Selection of suitable long-lasting fasteners to be used with aluminum and Galvalume panels rests solely with the Buyer. Fasteners are to be electrically insulated from the panel surface (*e.g., with elastomeric grommets*) to prevent dissimilar metal contact.
12. Failures caused by acts of God, falling objects, external forces, hurricanes, explosions, fires, riots, civil commotions, acts of war, terrorist acts or radiation.
13. The installation of any unapproved fixture, attachment, device, equipment, accessory, or appurtenance to, upon, or through the Product, including but not limited to, snow guards, lightning protection, solar panels, or communications devices. Englert reserves the sole and exclusive right to approve the installation of any such fixture, attachment, device, equipment, or accessory. This approval shall be in writing and must be signed by an authorized officer of Englert.
 - a. Regardless of any installation approval by Englert, any Product failure caused by, arising from, or relating to the installation of any such products or devices as listed above voids this warranty.

The limited warranty does not extend to, or cover: (a) any damage to the coating system caused by the installation of the photovoltaic cells laminates; (b) any damage to coating system caused by removal of the photovoltaic cells laminates; (c) any differential fade or chalk caused by removal of, differential shielding by or reflection of light by the photovoltaic cells laminates; (d) damage, discoloration, differential fade or chalk due to run off from the photovoltaic cells

laminates as a result of cleaning, rain, etc.; (e) any damage caused by water entrapment by the photovoltaic cells laminates; or (f) any deficiency in the cleaning, photovoltaic cells laminates pretreatment, or failure of the photovoltaic cells laminates for any reason. This limited warranty will only extend to, or cover applications of photovoltaic cells laminates where the photovoltaic cells laminates are applied over profiles where there are no panel ribs or where striations are either absent or are less than or equal to 15 degrees.

On prepainted aluminum product located less than a half mile from a seacoast, salt water, or brackish water, annual maintenance must be performed by the owner(s) including annual "sweet water" (*fresh tap water*) rinse in accordance with AAMA 610.1-1979 (*copy available upon request*). It will be the owner's responsibility to maintain records to demonstrate this maintenance has occurred and such records must be produced to Englert upon request. Failure of the owner to produce the maintenance records upon request will void the warranty and Englert shall have no further obligation under the warranty. The Product must not be cleaned with abrasive or chemical cleaners. The use of any such cleaners will void the warranty and Englert shall have no further obligation under the warranty.

This paint finish warranty is strictly limited to the Product as outlined herein and shall not apply to failures, leaks, or consequential damages caused by application of the Product. This paint finish warranty is offered to the original owner(s) only, who is the registered purchaser of the Product, and is not transferable or assignable. Englert expressly precludes others from claiming, representing, or implying that this paint finish warranty extends to or is available to anyone other than the original and first owner(s). It is the responsibility of the building owner(s) to maintain such identification records for purposes of exercising the rights under this paint finish warranty throughout the duration of the paint finish warranty period.

All claims must be submitted in writing to Englert within the paint finish warranty period and within thirty (30) days after discovery of the claimed defect. Failure to timely submit a claim shall constitute a material breach of the Warranty and Englert will not provide any coverage under this for any claim that is not submitted within the thirty (30) day time period. The claim must describe the defect and refer to the paint finish warranty, date of issuance, and include the name of the contractor and invoice of purchase. Englert will then examine the Product or cause it to be examined. If after inspection by Englert it is determined that the claim is valid and in accordance with the terms of the Warranty, Englert agrees at its option to repair or replace the defective Product.

Englert will assume 100% of the cost of refinishing or replacing Product on a non-prorated basis for 25-years, 30-years, or 35-years (in accordance with the applied warranty as outlined in Section I) from the date of installation. The basis for computing cost of refinishing or replacing Product shall be at the current market price. Englert will have sole discretion as to whether the Product is to be refinished, or replaced. If Englert determines that refinishing is the appropriate measure to be taken, then the building owner(s) shall extend a license to Englert or to any of its authorized representatives or contractors to proceed with uninterrupted work for such refinishing. The building owner(s) shall indemnify and hold Englert or any of its agents, authorized representatives, or contractors, harmless from any damages or claims arising out of or connected with such refinishing, provided that such indemnification shall not extend to acts of negligence by Englert, its agents, employees, authorized representatives or contractors.

In the event replacement of Product is deemed necessary by Englert, it shall mean and is limited to Englert furnishing replacement Product only, F.O.B. Perth Amboy, New Jersey. **The term "replacement" does not include labor costs of Product removal, fabrication, or installation.** The refinished or replaced product shall be warranted for the unexpired term of the original warranty. This paint finish warranty does not confer upon the owner(s) the right to refinish, restore, repair, or replace Product without a written authorization executed by a duly authorized officer of Englert. Any restoration, refinishing, repairing, or replacement of Product not authorized in writing by a duly authorized officer of Englert shall result in this warranty becoming null and void.

IV. **ENGLERT, INC.'S LIMITED 20 or 25-YEAR GALVALUME® BASE METAL WARRANTY**

This portion of the warranty applies to the base metal of Galvalume® as outlined below. The paint finish is covered in Section III.

Englert offers the following base metal warranty on Galvalume® (AZ50 or AZ55) to the original and first owner(s). Englert warrants that the base metal of Galvalume® will not rupture, fail structurally, or perforate due to exposure to normal atmospheric conditions, **if erected within the Continental United States**. Visual or cosmetic variations caused by weathering of mill finish Product or variations in spangle are specifically excluded from this base metal warranty. The Product shall be free from material defects, excluding any freight damage. This warranty shall commence from the date of the completion of the installation of all of the Product at the project. The warranty shall apply for the following time periods:

- A. 25-years on prepainted Galvalume® AZ50 or AZ55 coating weight or Galvalume Mill Finish passivated AZ55 or Galvalume Mill Finish Acrylic Coated AZ55 coating weight, **excluding product that is installed less than half a mile from the seacoast, salt water or brackish water.**
- B. 20-years on Galvalume Mill Finish passivated AZ50 or Galvalume Mill Finish Acrylic Coated AZ50 coating weight, **excluding product that is installed less than half a mile from the seacoast, salt water or brackish water.** The warranty does not apply for product installed less than a half mile from the seacoast, salt water or brackish water.

This warranty **DOES NOT APPLY** to coil and flat stock exposed at any time to corrosive or aggressive atmospheric conditions, including, **BUT NOT LIMITED TO:**

- 1. Areas subject to salt-water marine atmospheres or to spraying of either salt or fresh water.
- 2. Areas subject to fallout or exposure to corrosive chemicals, fumes, ash, cement dust, animal waste or its decomposition by-products, carbon black, or fallout from copper, lead, salt, nickel or silver mining or refining operations.
- 3. Areas subject to water run-off from lead or copper flashings or piping or areas in contact with lead or copper.
- 4. Conditions/circumstances where corrosive fumes or condensates are generated or released inside the building.

This warranty **DOES NOT APPLY** in the event of:

- 1. Bends less than 4T inside bend diameter for all coil and flat stock thicknesses.
- 2. Roof or sections of the roof flatter than ¼:12 slope.
- 3. Mechanical, chemical, or other damage sustained during shipment, storage, forming, fabrication, or during or after erection including damage caused by walking on the roof.
- 4. Forming which incorporates severe reverse bending or which subjects the coating to alternate compression and tension.
- 5. Failure to provide free drainage of water, including internal condensation, from overlaps and all other surfaces of the sheets or panels.
- 6. Any form of moisture entrapment resulting from, but not limited to, the improper handling, fabrication and/or installation of the product. **Moisture entrapment due to the improper handling, fabrication, and/or installation of the product may cause product failure**
- 7. Failure to remove debris from overlaps and all other surface of the sheets or panels.
- 8. Damage caused to the metallic coating by improper forming (*including, but not limited to, roll forming, press braking or embossing*) or scouring or cleaning procedures.
- 9. Deterioration of the panels caused by contact with green or wet or pressure-treated lumber, or wet storage stain caused by water damage or condensation.
- 10. Presence of damp insulation, soil, vegetation, cement, or other corrosive materials in contact with or in close proximity to the sheets or panels.
- 11. Deterioration to the panels caused directly or indirectly by panel contact with fasteners or by overdriving the fasteners so as to damage the panel. Selection of suitable long-lasting fasteners to be used with Galvalume panels rests solely with the Buyer. Fasteners are to be electrically insulated from the panel surface (*e.g., with elastomeric grommets*) to prevent dissimilar metal contact.
- 12. Failures caused by acts of God, falling objects, external forces, hurricanes, explosions, fires, riots, civil commotions, acts of war, terrorist acts or radiation.
- 13. The installation of any unapproved fixture, attachment, device, equipment, accessory, or appurtenance to, upon, or through the Product, including but not limited to, snow guards, lightning protection, solar panels, or communications devices. Englert reserves the sole and exclusive right to approve the installation of any such fixture, attachment, device, equipment, or accessory. This approval shall be in writing and must be signed by an authorized officer of Englert.
 - a. Regardless of any installation approval by Englert, any Product failure caused by, arising from, or relating to the installation of any such products or devices as listed above voids this warranty.

The limited warranty does not extend to, or cover: (a) any damage to the coating system caused by the installation of the photovoltaic cells laminates; (b) any damage to coating system caused by removal of the photovoltaic cells laminates; (c) any differential fade or chalk caused by removal of, differential shielding by or reflection of light by the photovoltaic cells laminates; (d) damage, discoloration, differential fade or chalk due to run off from the photovoltaic cells laminates as a result of cleaning, rain, etc. (e) any damage caused by water entrapment by the photovoltaic cells laminates; or (f) any deficiency in the cleaning, photovoltaic cells laminates pretreatment, or failure of the photovoltaic cells laminates for any reason. This limited warranty will only extend to, or cover applications of photovoltaic cells laminates where the photovoltaic cells laminates are applied over profiles where there are no panel ribs or where striations are either absent or are less than or equal to 15 degrees.

This limited base metal warranty applies only to Product used for formed roofing, fascia, mansard, wall panels, siding, and soffit applications and only to **Product erected within the Continental United States** which have been exposed to normal atmospheric conditions. It does not apply to Product that has been exposed to corrosive or aggressive atmospheric conditions, as defined and described above.

This base metal warranty is strictly limited to the Product as identified above and shall not apply to failures, leaks, or consequential damages caused by application of the Product. This base metal warranty is offered to the original owner(s) only, who is the registered purchaser of the Product, and is nontransferable or assignable. Englert expressly precludes others from claiming, representing or implying that this warranty extends to or is available to anyone other than the original and first owner(s). It is the responsibility of the owner(s) to maintain such identification records for purposes of exercising the rights under this base metal warranty throughout the duration of the base metal warranty period.

All claims must be submitted in writing to Englert within the base metal warranty period and within thirty (30) days after discovery of the claimed defect. Failure to timely submit a claim shall constitute a material breach of the Warranty and Englert will not provide any coverage under this for any claim that is not submitted within the thirty (30) day time period. The claim must describe the defect and refer to this base metal warranty number and the date of issuance, and to include the name of the contractor and invoice of the purchase. Englert will then examine the Product or cause it to be examined. If, after inspection, it is determined by Englert that the claim is valid in accordance with the terms of the base metal Warranty, Englert agrees, at its option, to repair or replace the defective Product. Englert will assume 100% of the cost of repairing or replacing Product for 25-year metal limited warranty for prepainted Galvalume AZ55 and AZ50 with a 30-year limited warranty on the PermaColor 2000 paint colors, a 35-year limited warranty on PermaColor 3500 ULTRA-Cool® low gloss paint colors, a 30-year limited warranty on PermaMetallic 2000 paint colors, and a 35-year limited warranty on PermaMetallic 3500 ULTRA-Cool® low gloss paint colors.


A limited base metal warranty of 25-years is given for Mill Finish Galvalume AZ55 and 20-years for Mill Finish Galvalume AZ50. This is outlined in Section IV; A and B, above. The basis of computing cost of repairing or replacing Product shall be the current market price. Englert has sole discretion as to whether the Product shall be the current market price. Englert has sole discretion as to whether the Product is to be repaired or replaced. If Englert determines that repairing is the most appropriate measure to be taken, the owner(s) shall extend a license to Englert or to any of its authorized representatives or contractors to proceed with uninterrupted work for such repairing of Product. The owner(s) shall indemnify and hold Englert or any of its agents, authorized representatives, or contractors, harmless from any damages or claims arising out of or connected with such repair, provided however, that such indemnification shall not extend to acts of negligence by Englert, its agents, employees authorized representatives or contractors.

Repaired or replaced Product shall be warranted for the unexpired term of the original base metal warranty. The term “replacement” shall mean and is limited to Englert furnishing replacement Product only F.O.B., Perth Amboy, New Jersey. **The term “replacement” does not include labor costs of Product removal, fabrication, or installation.** This base metal warranty does not confer upon the owner(s) the right to refinish, restore, repair, or replace product without a written authorization executed by a duly authorized officer of Englert. Any restoration, refinishing, repairing, or replacement of Product not authorized in writing by a duly authorized officer of Englert shall result in this warranty becoming null and void.

Inconsistencies, such as waviness or oil canning, of the flat/planer surfaces of Englert’s Product are not a defect and are expressly excluded from this base metal warranty as this is considered an inherent characteristic of the Product when roll-formed. On Mill Finish Galvalume, both passivated and acrylic coated, uniform visual appearance is not guaranteed. If uniform visual appearance is necessary or desired then a prepainted product should be purchased.

V. General Terms of All Warranties Contained Within This Certificate

- A. **DISCLAIMER OF ALL OTHER WARRANTIES: ENGLERT’S WARRANTIES PROVIDED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES. ENGLERT PROVIDES NO OTHER WARRANTIES BEYOND THE DESCRIPTION OF THE WARRANTIES PROVIDED HEREIN. ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR IMPLIED WARRANTIES OF FITNESS OF USE FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED.**
- B. The purchased product warranties contained in this certificate are not valid unless issued by Englert, duly signed by an authorized officer of Englert for the Product on a specific project, identifying its name and location and proof of purchase of the Product from Englert. The warranty certificate must be completed and submitted to Englert. The provisions hereof shall constitute the owner’s exclusive remedy for breach of warranty, given under this certificate. Englert shall not be liable to the owner(s) for incidental, special or consequential damages for breach of any written or implied warranty on the Product or its application and under no circumstances shall Englert be responsible for any consequential damages or loss to the building, its contents or other material.
- C. Some states do not allow the exclusion or limitation of incidental or consequential damages or the disclaimer of implied warranties, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary, from state to state. In the event that any provisions of this Warranty are found to be invalid or unenforceable by a court of competent jurisdiction, all other provisions shall remain in full force and effect.
- D. This certificate covers any and all agreements under this Warranty, either expressed or implied, and shall not be modified or extended, except in writing by an authorized officer of Englert.
- E. Failure to apply for any of the warranties herein within thirty (30) days of substantial completion of the component of the building of which the Product is a part shall result in all warranty/warranties becoming null and void.
- F. The parties agree that the warranties in this certificate shall be governed by, construed, and enforced in accordance with the laws of the State of New Jersey. Legal action to construe or enforce any of the warranties in this certificate shall be brought in a Court of competent jurisdiction in Perth Amboy, NJ, USA. The owner(s) expressly agree to submit to the jurisdiction and laws of the courts as set forth above.
- G. No waiver of any provision or condition of this Warranty by Englert, through the course of performance, action, or otherwise, shall be construed by the owners(s) to be a waiver of any other provision or condition of the Warranty.
- H. In the event of any litigation or alternative dispute resolution proceeding arising out of, under, related to, or in connection with this Warranty, the prevailing party shall be entitled to recover all of its reasonable attorney’s fees and costs from the non-prevailing party, including but not limited to, pre-trial, trial and appellate levels.



No. _____

Customer Name: _____

Customer Address: _____

City/State/Zip Code: _____

Telephone No.: _____

Order Date: _____

Invoice Number(s): _____

Material Lot Numbers: _____

Color: _____

Building Owner(s) _____

Owner Location: _____

Architect: _____

General Contractor: _____

Project Name: _____

Project Location: _____

Project Completion Date: _____

Panel Profile: _____

Project Size in Sq.Ft _____

Roof/Panels: _____

Components: _____

Within ½ mile from seacoast, salt water, brackish water _____

End Use – SIC Code (church, school, etc.) _____

New Roofing/Paneling _____

Re-Roof _____

Contracting Method: _____

Photos Required: _____

By _____ Title _____ on this _____



Standing Seam Metal Roofing

Recommended Maintenance and Cleaning

Periodic Maintenance - Typically, metal roofing requires no regimented maintenance schedule to protect its weathertightness or finish. However, as with any valuable investment it certainly behooves any prudent person to take the time periodically so simply make a visual inspection of the roofing taking notice particularly of areas, which could present problems in the future should nature's elements be allowed to work on the roofing system unchecked.

Areas of concern that should be checked include:

1. **Valleys** – for build up of windblown debris, which can block free drainage and cause water to back up under the panels, as well as damage the paint system.
2. **Roof Penetrations** – again for build up of windblown debris as well as the condition of the roof to penetration seal, for separation or cracking of the seal.
3. **Trims and Flashings** – Check for loose or missing trim work, which may have come loose in a recent storm, etc.

Over and above these items, metal roofing is basically maintenance free and should provide a long trouble-free service life, well outlasting any other roofing system available today.

Typically, a simple visual inspection should take place at least twice a year, once in early spring and once in late fall, as well as immediately after any major storm which has caused substantial property damage in your area, even if from the ground your roof looks fine

Cleaning Painted Surfaces – Although metal roofing typically does not need annual washing we have included instructions for washing and maintaining the paint finish on metal building panels.

While factory applied finishes for metal building panels are so durable that they will last many years longer than ordinary paints, it is desirable to clean them thoroughly on a routine basis. Apparent discoloration of the paint may occur when it has been exposed in dirt laden atmospheres for long periods of time. Slight chalking may also cause some change in appearance in area of strong sunlight. A good cleaning will generally restore the appearance of these buildings and render re-painting unnecessary. An occasional light cleaning will also help maintain an aesthetically pleasing appearance.

To maintain original finish of the building panels, the only regular maintenance necessary is that of an annual washing. Mild solutions of detergents or household ammonia will aid in the removal of most dirt, and the following are recommended levels:

1. One cup of Tide, or other common detergent which contain less than 0.5% phosphate, dissolved into five gallons of warm water. **NOTE: The use of detergents containing greater than 0.5% phosphate are not recommended for use in general cleaning of building panels. NEVER BLEND CLEANERS AND BLEACH.**
2. One cup of household ammonia dissolved into five gallons of water (room temperature).

Working from the top to the bottom of the panels, the building may be washed with either solution, and the use of a well soaked cloth, sponge, brush (with **very** soft bristles) or low pressure spray washer are advised. We **do not** recommend the use of scouring powders or industrial solvents since these agents may damage the film.

Preventing Wet Storage Stain – Prevention of wet storage stain can be ensured by adopting the following measures:

Rollform Operators/Contractors: Contractors, as the final links in the chain to prevent storage staining of Galvalume sheet, should do the following

- Inspect the coils on arrival at the building site and note on the delivery receipt any exceptions such as damage, corrosion or wet material.
- Store the coils on racks at least one foot above ground level. Do not use uncured lumber.
- Under roof storage is recommended when possible. If the coils must be stored in the open on bare ground, then a plastic ground cover should be used under the bundles to minimize condensation on the coils from moisture in the soil.
- Elevate one end of the coil to allow any moisture to run off rather than puddle on the top of the coils. Water resistant paper will not keep out puddle moisture beyond its rated moisture vapor transmission time.
- Begin rollforming and using up panels immediately upon arrival of the coils. Do not rollform panels that you cannot install the same day or leave them nesting one over the other.

Stain Removal: Storage stain on Galvalume sheet is mostly hydrated aluminum oxide, which can be very difficult to remove. In mild cases, a solvent such as mineral spirits applied with a soft rag has been known to effectively remove the stain. This method is also used to remove stain from pre-painted Galvalume sheet without damaging the paint.

For more advanced cases on unpainted Galvalume sheet, it is impossible to remove the stain without also affecting the good coating under and around the stained area. The amount of damage to the coating during removal will depend on the method used. In more severe stages, storage stain can be removed from bare Galvalume sheet with a mild household cleaner such as Bon Ami or Clorox Soft Scrub and a wet sponge or rag. Industrial products such as Oakite 84M may also be used, but are more aggressive to the coating. In any case, the Galvalume panel should be thoroughly rinsed with water after the stains have been removed.

Harsh alkaline cleaning solutions and high-pressure sprays should be avoided, as these have been known to dramatically alter the corrosion resistance and appearance of the Galvalume coating. Steel wool should not be used for two reasons: It is too abrasive and it can leave behind iron fines, which will rust and cause a cosmetic staining problem.

Regardless of what method is used to remove storage stain, remember that the coating has been affected by the stain and cleaning. These areas will have a different appearance than the surrounding coating, depending on the severity of the stain, may have a shorter lifetime.