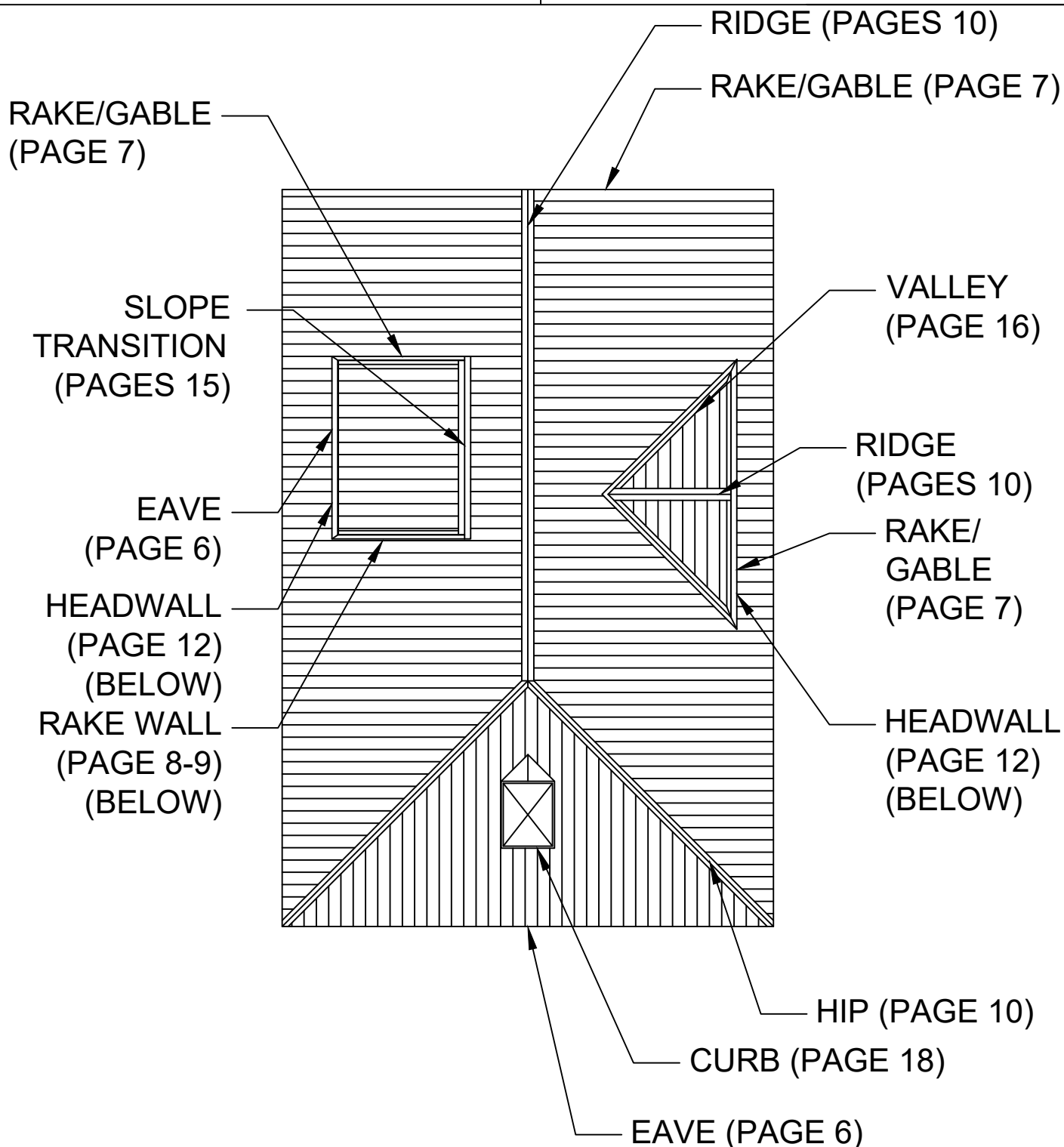


# **HPM CUSTOM METAL ROOFING EXPOSED FASTEN PANELS DESIGN & DETAIL GUIDE**





# EXPOSED FASTEN ROOF LAYOUT





## Table of Contents

DETAIL	PAGE
General Design Information.....	1
Panel Profile Drawings w/Dimensions.....	2
Fastener Placement.....	3
Lap Detail.....	4
Closures.....	5
Eave.....	6
Rake / Gable.....	7
Rake Wall with Reglet (Saw Cut) .....	8
Rake Wall with Reglet .....	9
Ridge / Hip.....	10
Vented Ridge / Hip.....	11
Head Wall.....	12
Vented Headwall.....	13
High Eave / Peak.....	14
High Slope to Low Slope Transition.....	15
Valley.....	16
Pipe Boot Detail .....	17
Roof Curb Layout.....	18
Upper Roof Curb / Saddle.....	19
Curb Headwall.....	20
Curb Sidewall.....	21
Wall Opening Overview.....	22
Wall Head.....	23
Wall Sill.....	24
Wall Jamb.....	25
Wall Inside Corner.....	26
Wall Outside Corner.....	27
Trim Side Lap.....	28



# EXPOSED FASTENED GENERAL NOTES PAGE 1

## General Information

The enclosed roofing system information and details are a design aid and do not represent all conditions. The designer and end-user are responsible to review climate and environmental conditions such as marine and salt air, acid rain from volcanic activity, governing code requirements, and the building use to modify the details and specify the appropriate project specific materials.

## Slope Requirement:

Exposed Fastened roofing panels should be installed on a minimum slope of 3:12 or greater. Inquire for slopes below 3:12.

## Substrate:

Exposed Fastened roofing panels can be installed over both solid substrates and spaced purlins.

## Panel Attachment:

Review the Exposed Fasten fastener recommendations in this guide to select the correct fastener. For the attachment schedule, contact your HPM Technical Representative for proper spacing and fastener size, type, and quantities to meet the project's wind uplift (negative) load requirements. *NOTE: Concealed and exposed fasteners may be vulnerable to accelerated corrosion if not specified correctly. Consult with HPM for recommendations on appropriate fastener types.*

## Condensation, Insulation, & Ventilation:

It is the designer's responsibility to determine the need and composition of condensation control materials including insulation, vapor retarders and ventilation requirements. Metal roofing is susceptible to condensation and its control should be carefully considered. Applications over rigid insulation may require solid blocking/framing for installation of perimeter flashings and drag load fasteners.

## Cleaning and Maintenance

Minimum maintenance of ZINCALUME® Steel, whether bare or pre-painted, is required. Cleaning is recommended at least twice a year. See recommended procedures.

## Cut Edge Corrosion Protection:

Metal roofing panels and flashings have cut edges that are not as protected as the main panel surface areas which have substrate treatment and paint as a barrier. Left untreated, the effects of exposure from marine air, and acid rain from volcanic activity will cause a condition called cut edge corrosion a.k.a. 'edge creep'. The designer should specify the end user/installer field apply a product designed to seal the cut edge and protect the base metal. This treatment should be applied during the initial install and annually as regular maintenance. *See HPM's website for information about Edge Seal™, a product developed by a leading paint manufacturer specifically to protect cut edges and retard edge creep.*

## Flashings:

It is best practice to specify all flashings are the same material gauge, color, and finish as the roof panels. Where possible, flashings should be lapped away from prevailing winds. Check with an HPM Technical Representative if you intend to specify a prefinished flashing in a material different than the roof panels. The enclosed details have minimized the use of exposed fasteners where possible. The edges of flashings are shown hemmed to strengthen and minimize the exposure of cut edges. *See notes under the 'Cut Edge Corrosion Protection' section.* HPM provides standard flashing drawings as a reference in this guide and on the website. Project specific flashing drawings are generally the responsibility of the installer.

## Valleys:

Valley dimensions must be the proper width to account for slope and rain conditions. Valleys must have positive slope for drainage and be kept free of debris so that water does not back up and intrude under the panels.

## Touch-up Paint:

During installation minor scratches may occur. Most conditions can be treated with an air-dry Kynar paint pen. HPM provides paint pens in colors to match the roof panel system. Touch-up paint should always be used sparingly.

## Thermal Movement:

Panels and flashings must allow for thermal movement (expansion and contraction) of the materials, especially where long lengths are used.

## Underlayment:

Prior to installation, an underlayment material may be installed over the roof substrate. The designer should select and specify an appropriate material. The specified material must have a non-abrasive top surface that will not mar, scratch, or abrade the underside of the metal panels and flashings.

## Oil Canning:

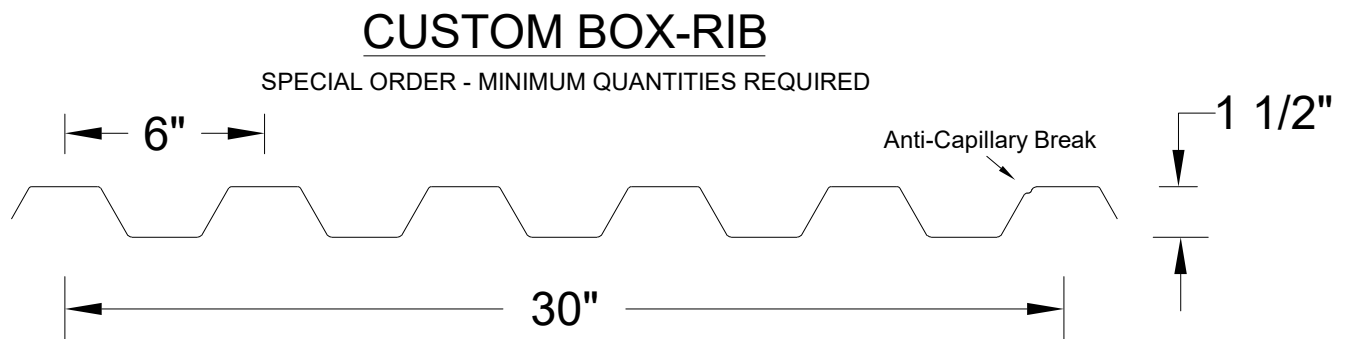
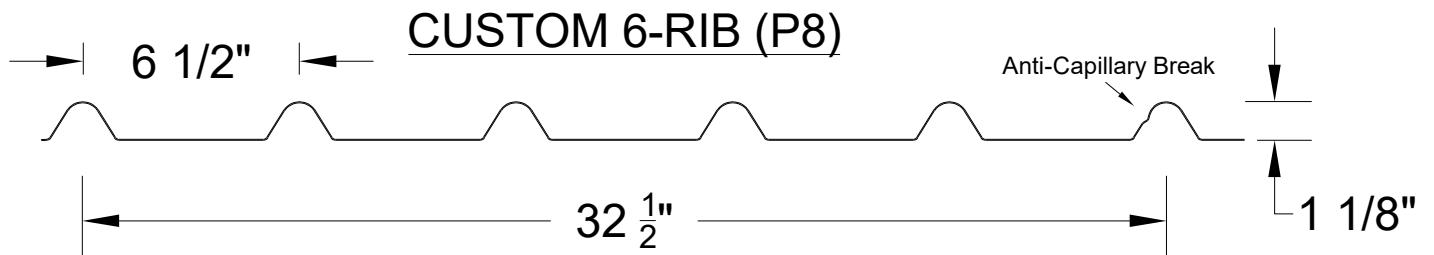
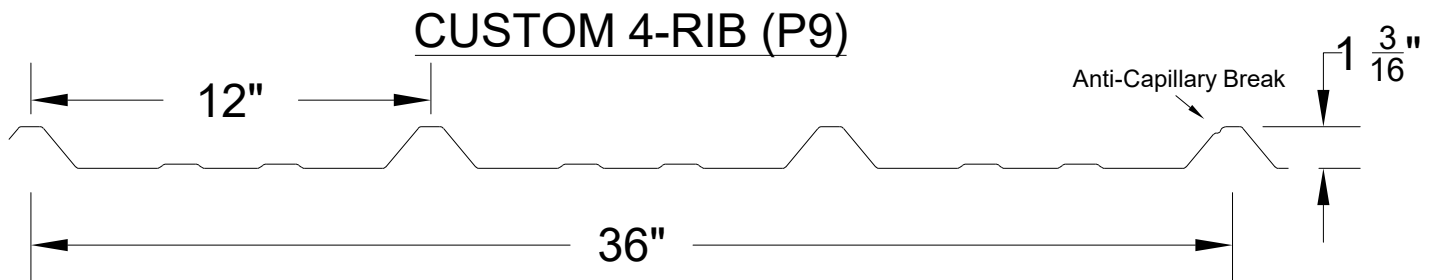
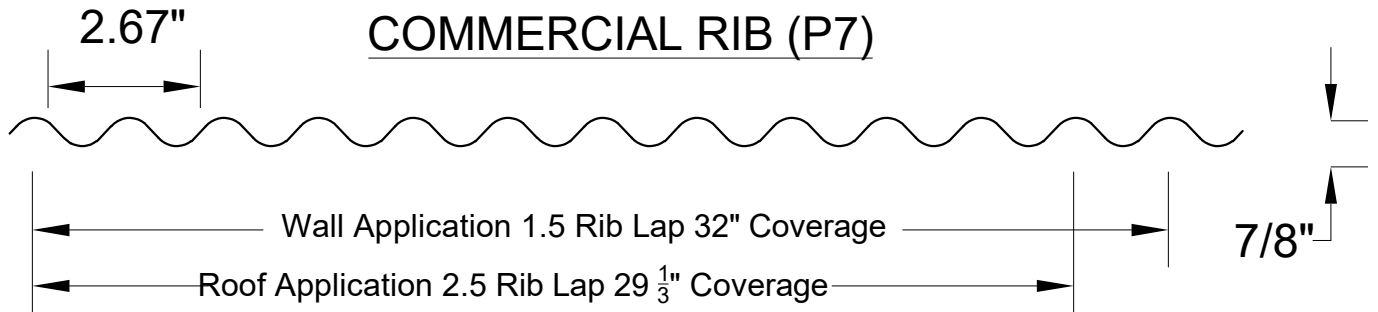
Flat metal surfaces can display waviness commonly referred to as "oil Canning". This can be caused by variations in raw material, processing variations, product handling, or variations in substrate and roofing underlayment's. Panels are available with striations, stiffening ribs, or embossments to minimize oil canning. Oil canning is a condition that occurs, not a defect and is not a cause for rejection.

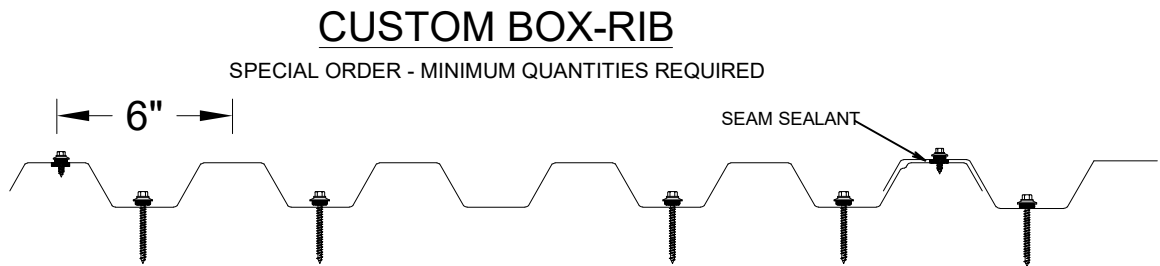
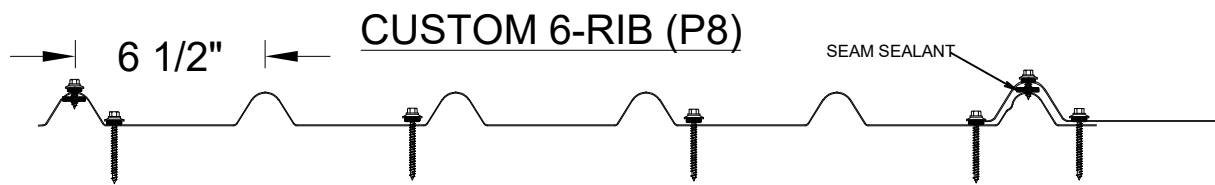
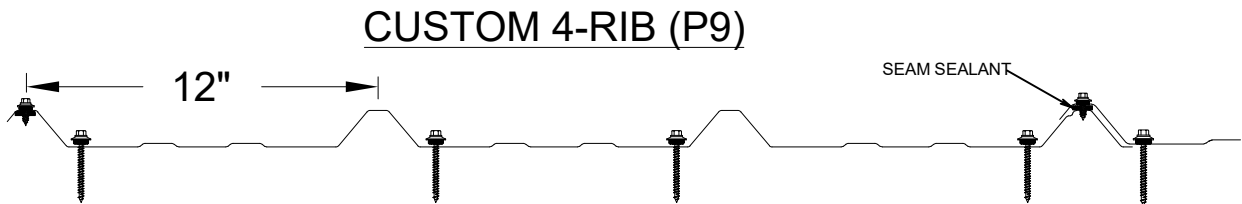
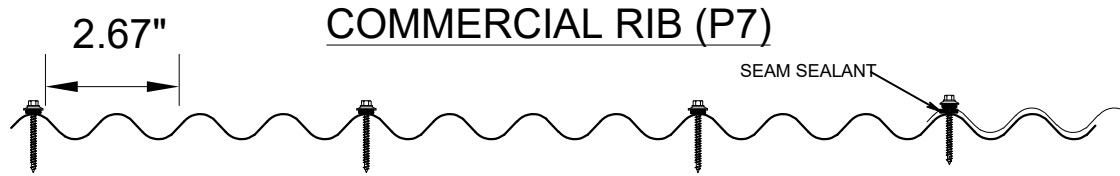
## Product Warranty:





Material options and warranties will vary based on project and site specific conditions such as severe marine, or acid rain from volcanic activity. Consult with your HPM Sales or Technical Representative to discuss the warranty options for your project.

## Technical Assistance:

Contact your HPM Sales or Technical Representative for more information and assistance when selecting a custom metal roof system.

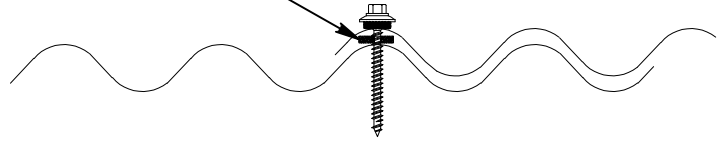




OPEN FRAMING (to steel purlins)	SOLID SUBSTRATE ( to plywood deck)	2X WOOD BLOCKING (to dimensional lumber)	LAP SCREW (light gauge to light gauge)
 <p>#12-14 x 2" #12-14 x 1 1/2" #12-14 x 1" (5/16" HWH)</p>	 <p>#9-15 x 2" #9-15 x 1" (1/4" HWH)</p>	 <p>#9-15 x 2" #9-15 x 1" (1/4" HWH)</p>	 <p>#12 x 1" Lap Screw (5/16" HWH)  #10 x 3/4" Stich Screw (1/4" HWH)</p>

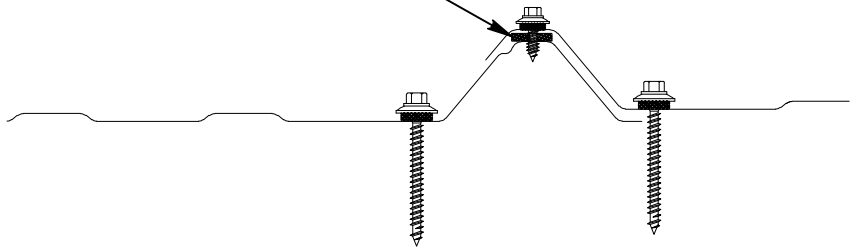
### COMMERCIAL RIB (P7)

SEAM SEALANT



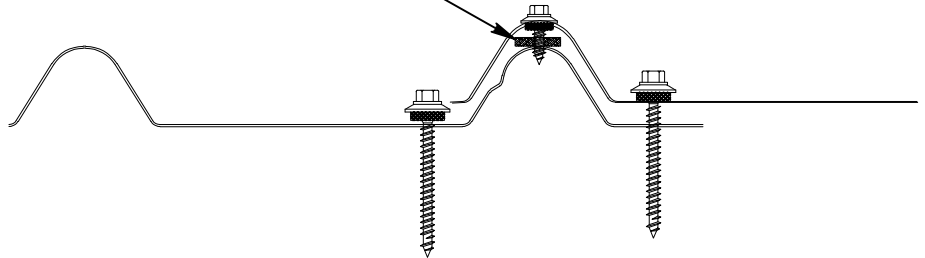
### CUSTOM 4-RIB (P9)

SEAM SEALANT



### CUSTOM 6-RIB (P8)

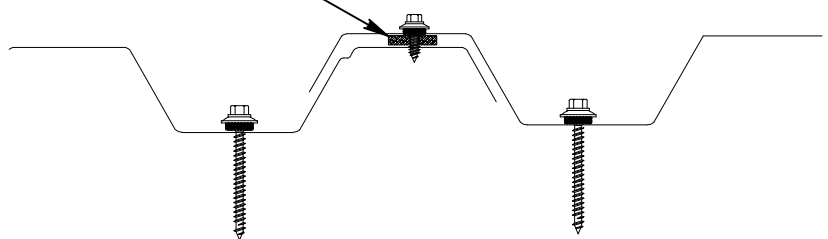
SEAM SEALANT



### CUSTOM BOX-RIB

SPECIAL ORDER - MINIMUM QUANTITIES REQUIRED

SEAM SEALANT



OPEN FRAMING  
(to steel purlins)

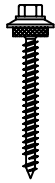
SOLID SUBSTRATE  
(to plywood deck)

2X WOOD BLOCKING  
(to dimensional lumber)

LAP SCREW  
(light gauge to light gauge)



#12-14 x 2"  
#12-14 x 1 1/2"  
#12-14 x 1"  
(5/16" HWH)



#9-15 x 2"  
#9-15 x 1"  
(1/4" HWH)

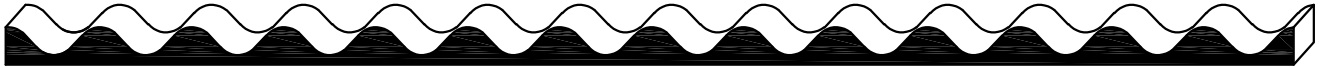


#9-15 x 2"  
#9-15 x 1"  
(1/4" HWH)



#12 x 1" Lap Screw  
(5/16" HWH)  
#10 x 3/4" Stich Screw  
(1/4" HWH)

COMMERCIAL RIB (P7)  
INSIDE & OUTSIDE CLOSURE



CUSTOM 4-RIB (P9) OUTSIDE CLOSURE



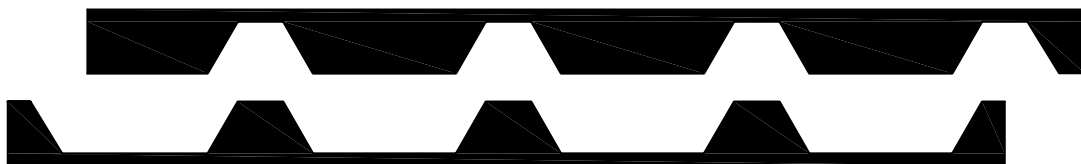
CUSTOM 4-RIB (P9) INSIDE CLOSURE

CUSTOM 6-RIB (P8) OUTSIDE CLOSURE



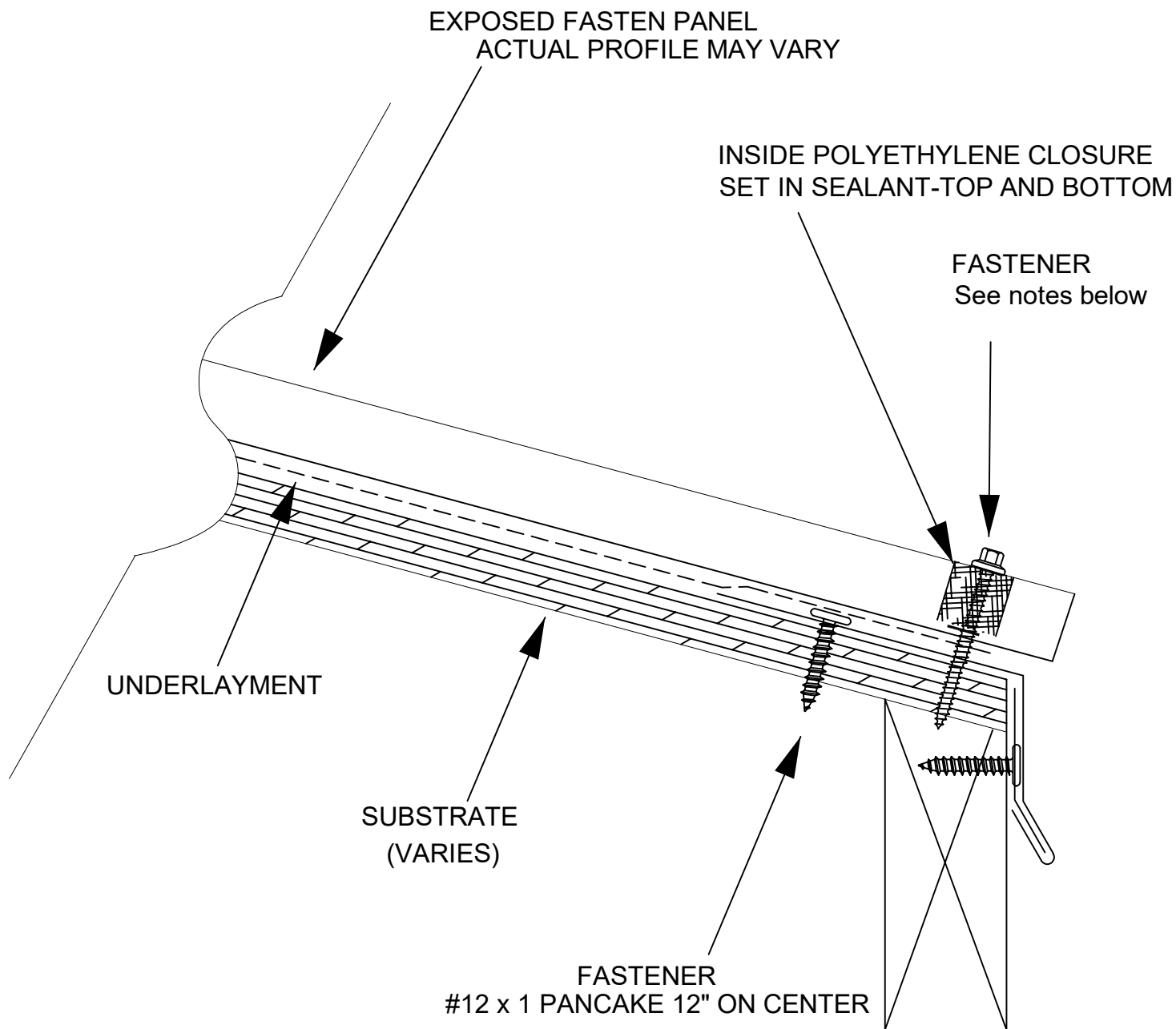
CUSTOM 6-RIB (P8) INSIDE CLOSURE

CUSTOM BOX-RIB OUTSIDE CLOSURE



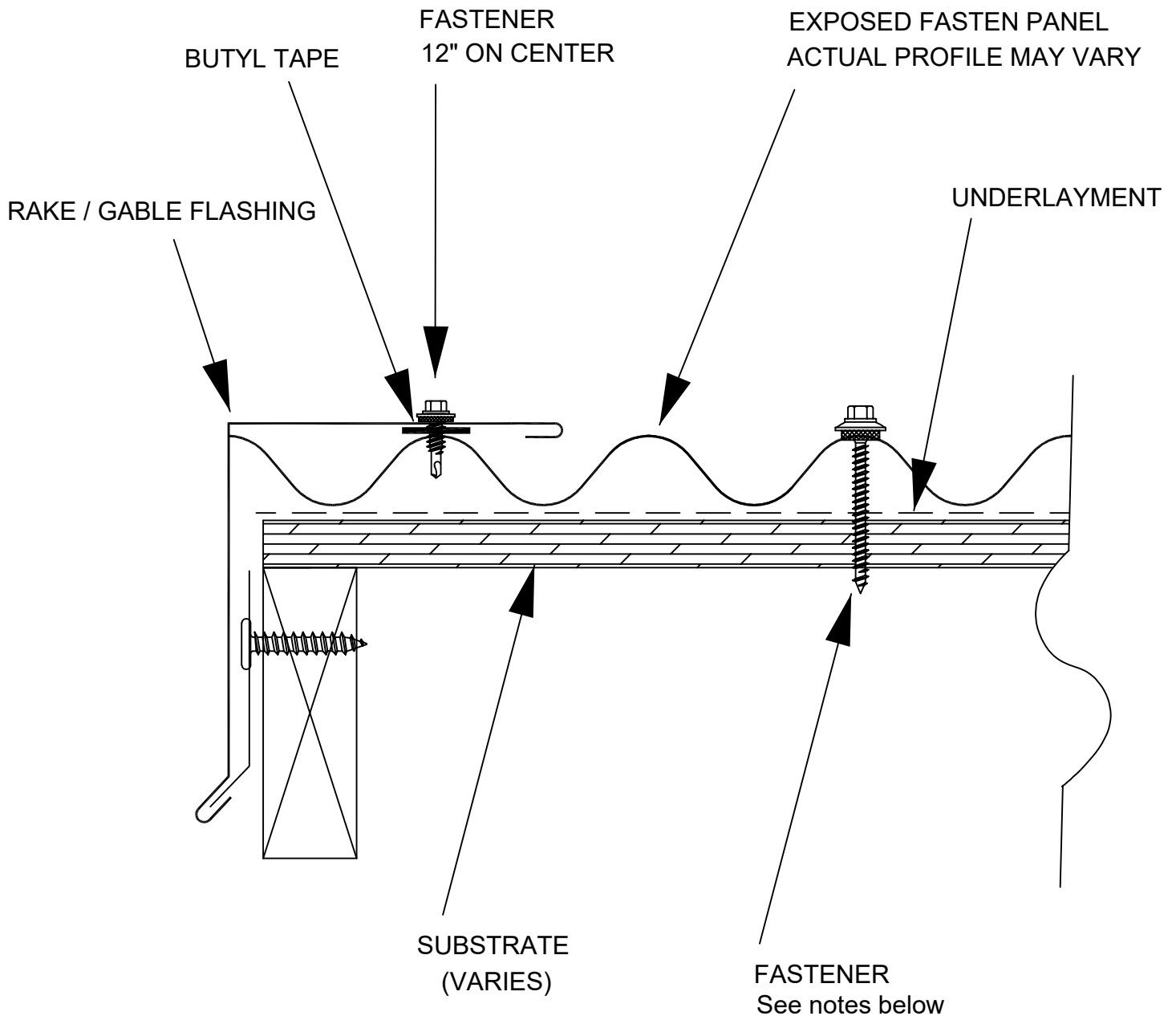
CUSTOM BOX-RIB INSIDE CLOSURE





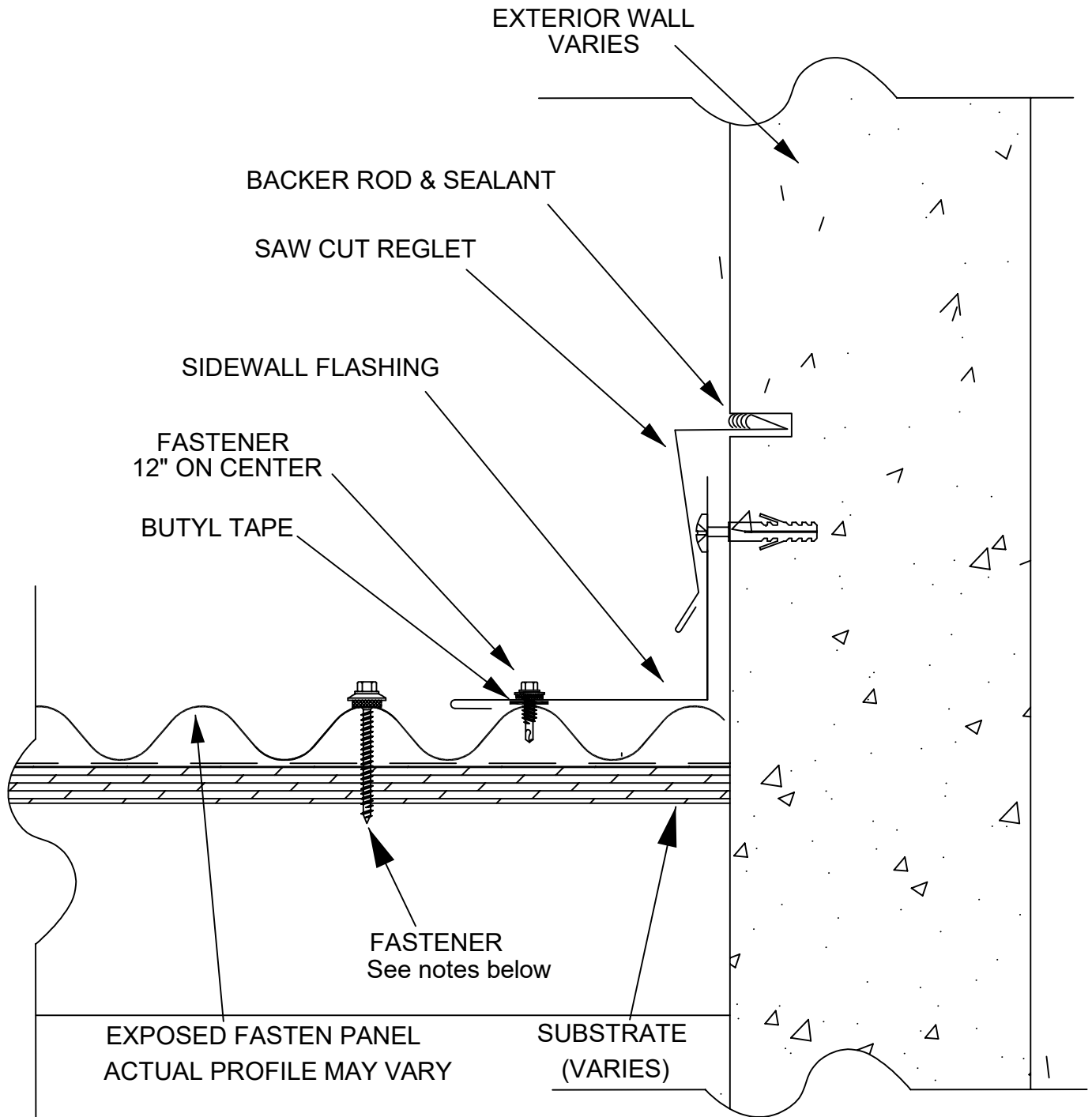
### NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



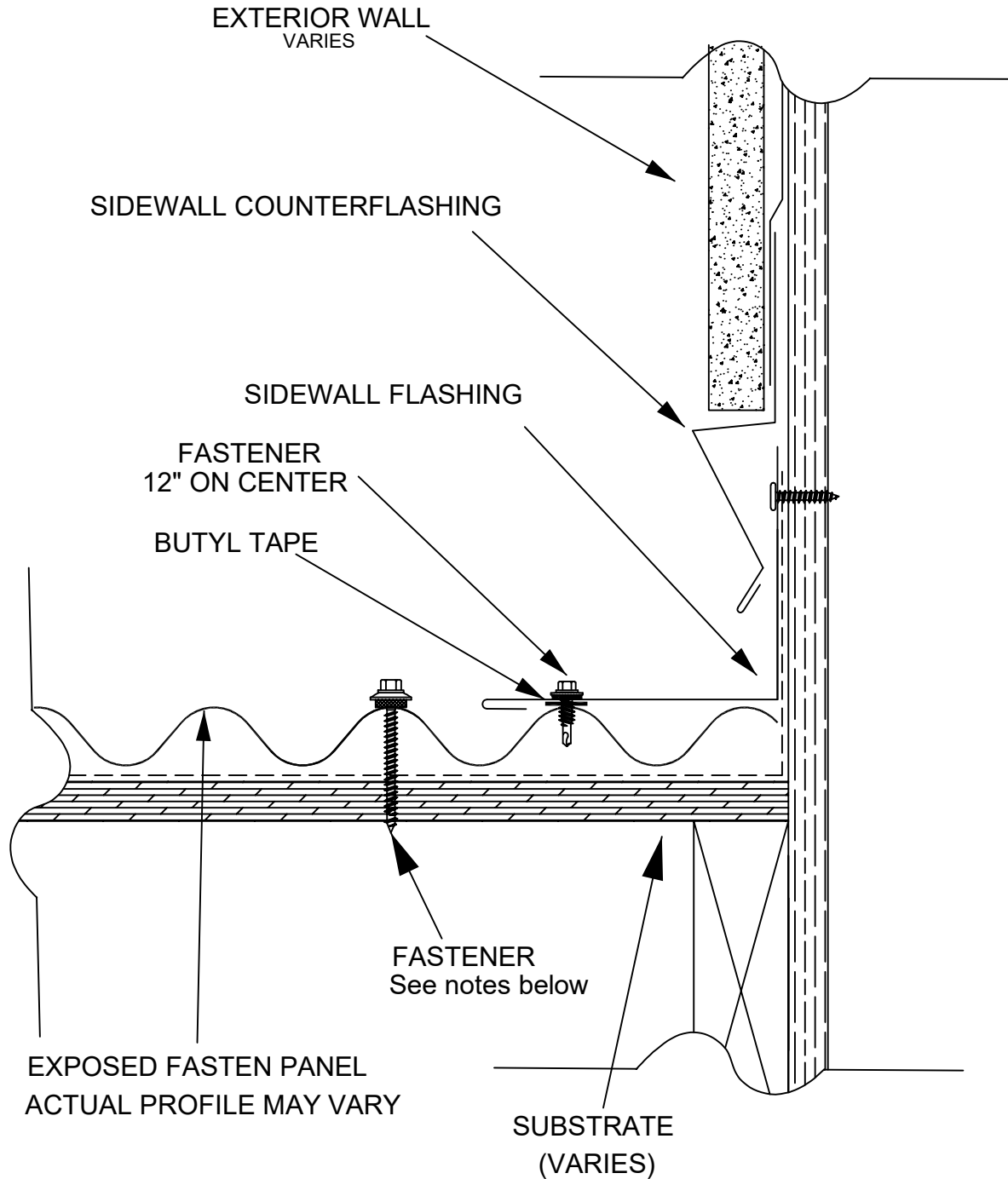
NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



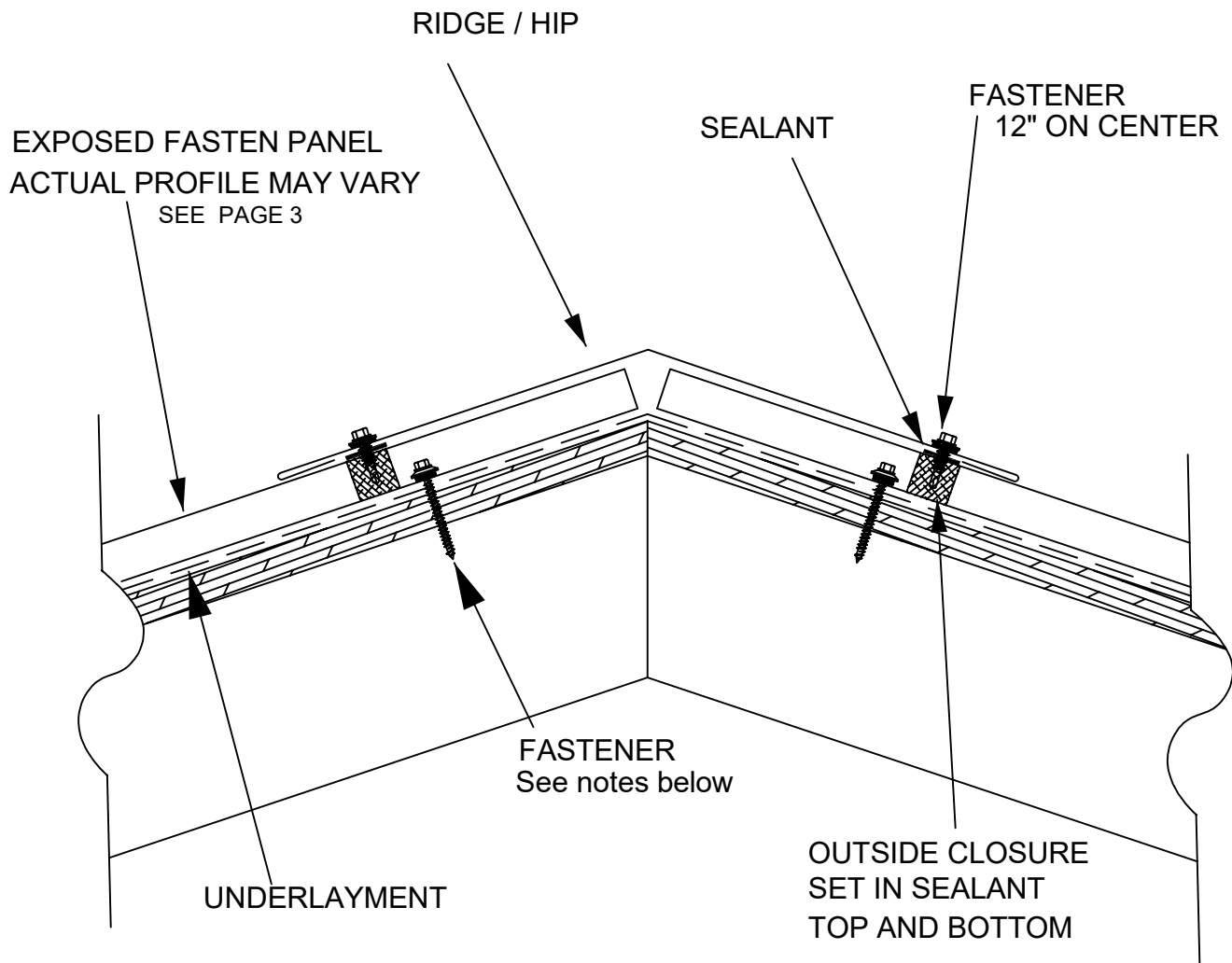
### NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



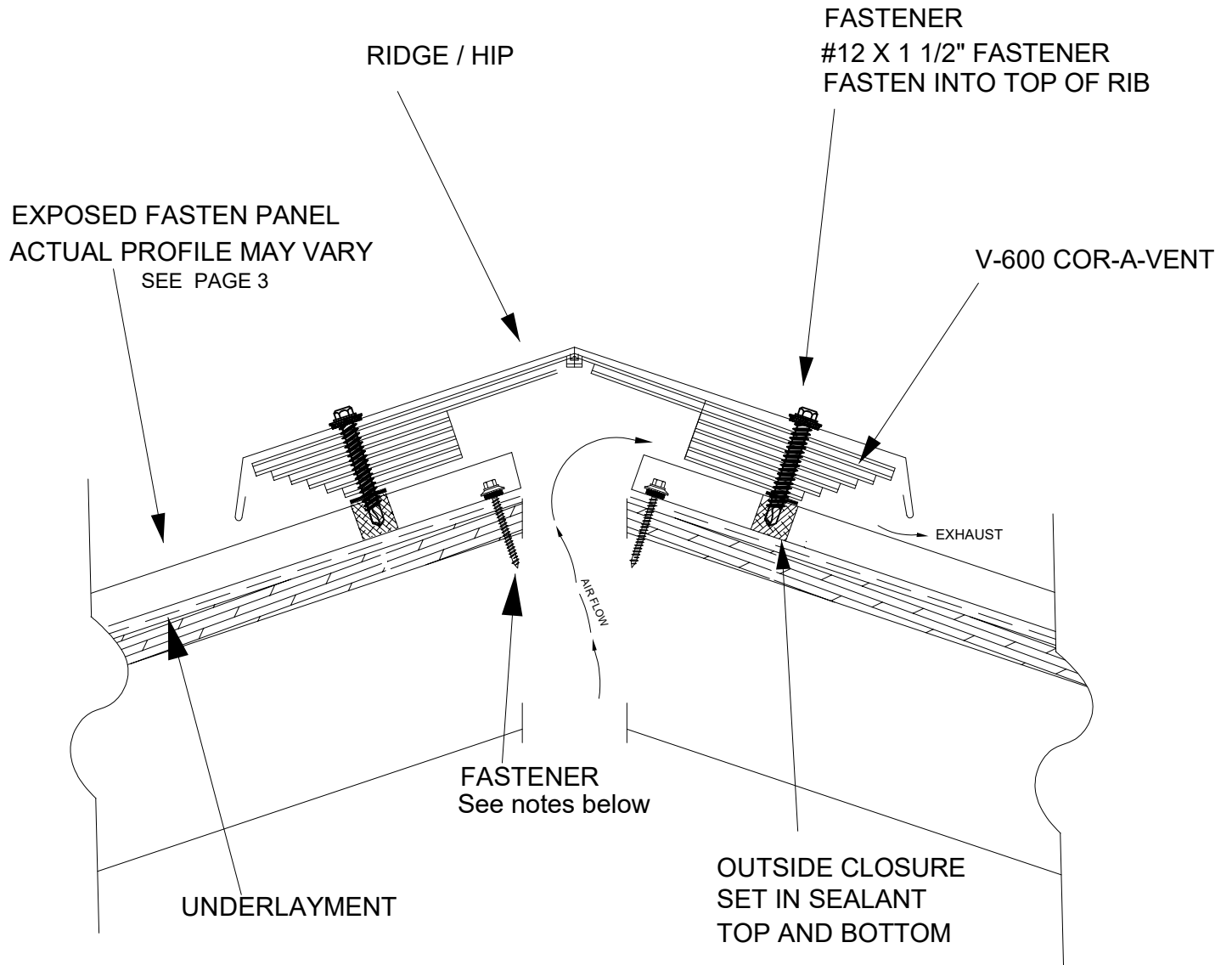
### NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



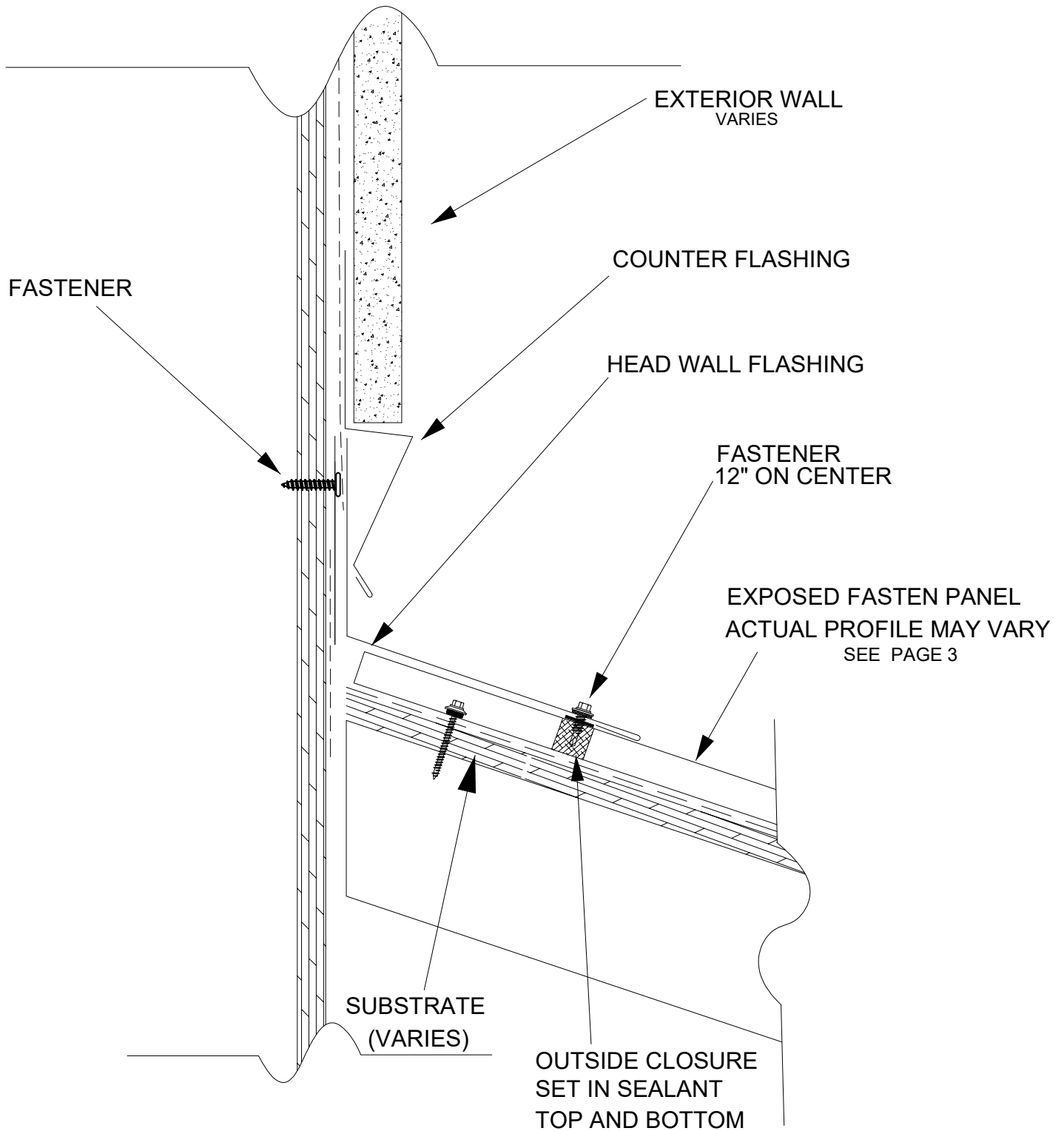
### NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



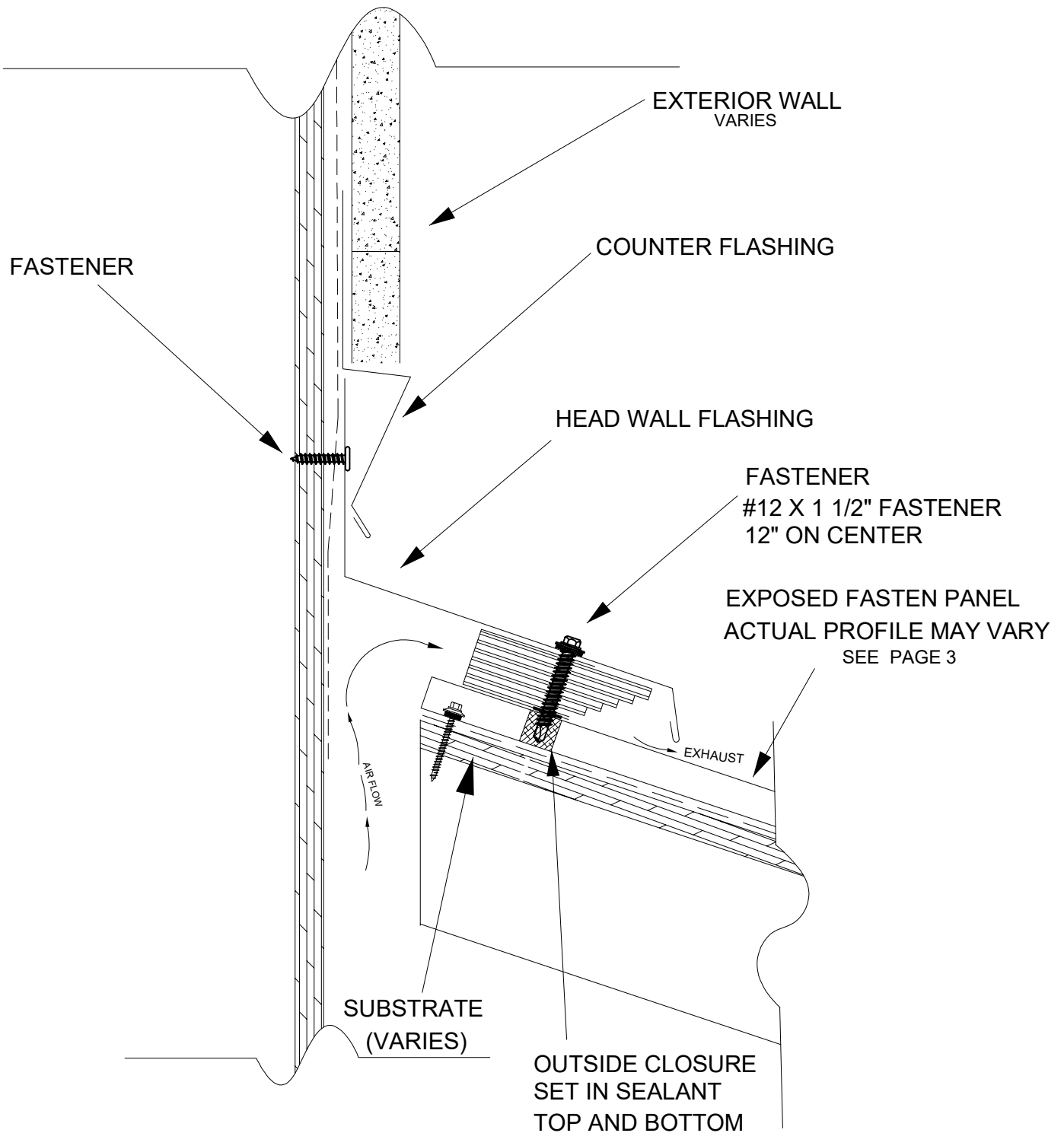
### NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



### NOTES:

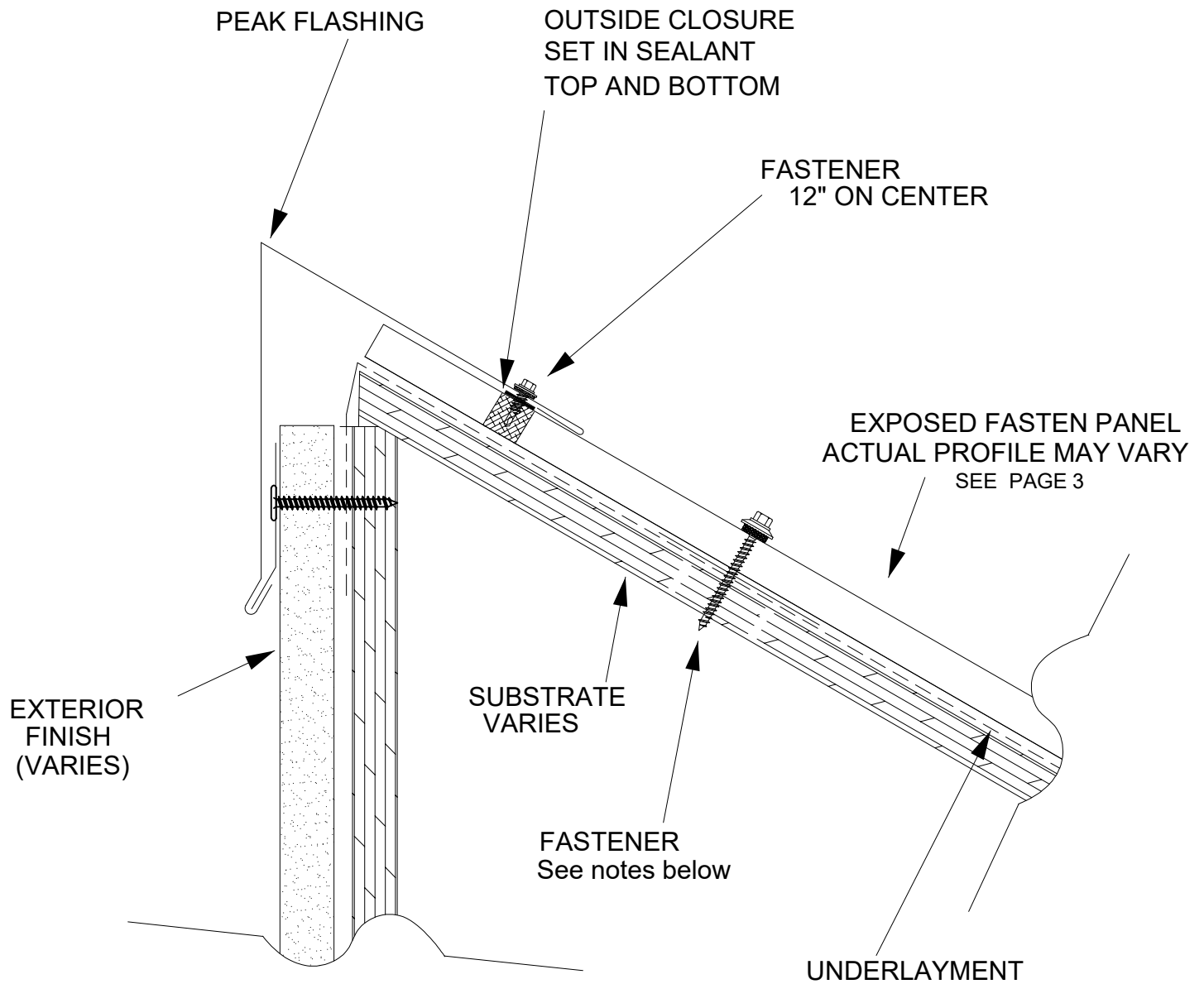
FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



### NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3

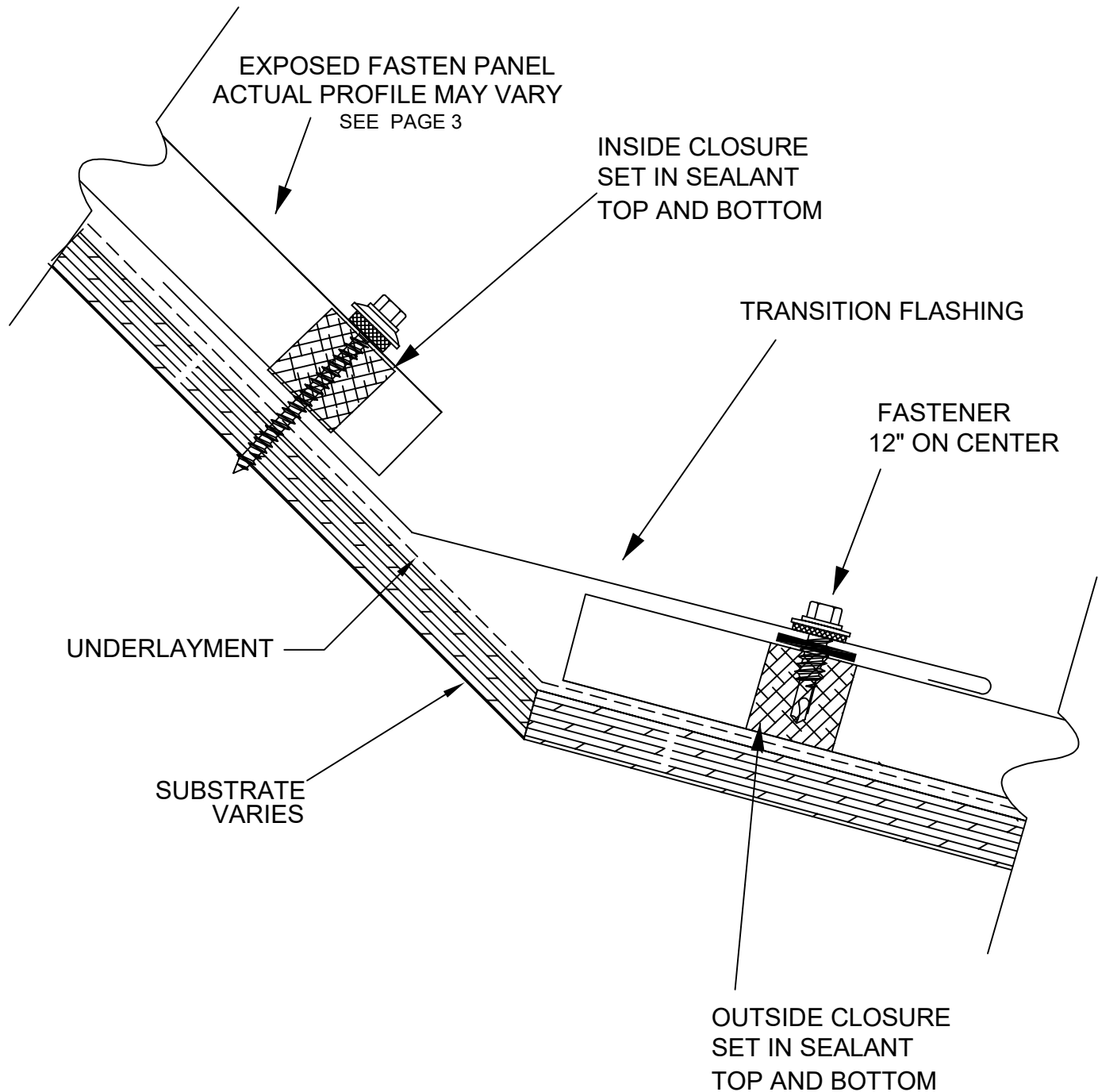




### NOTES:

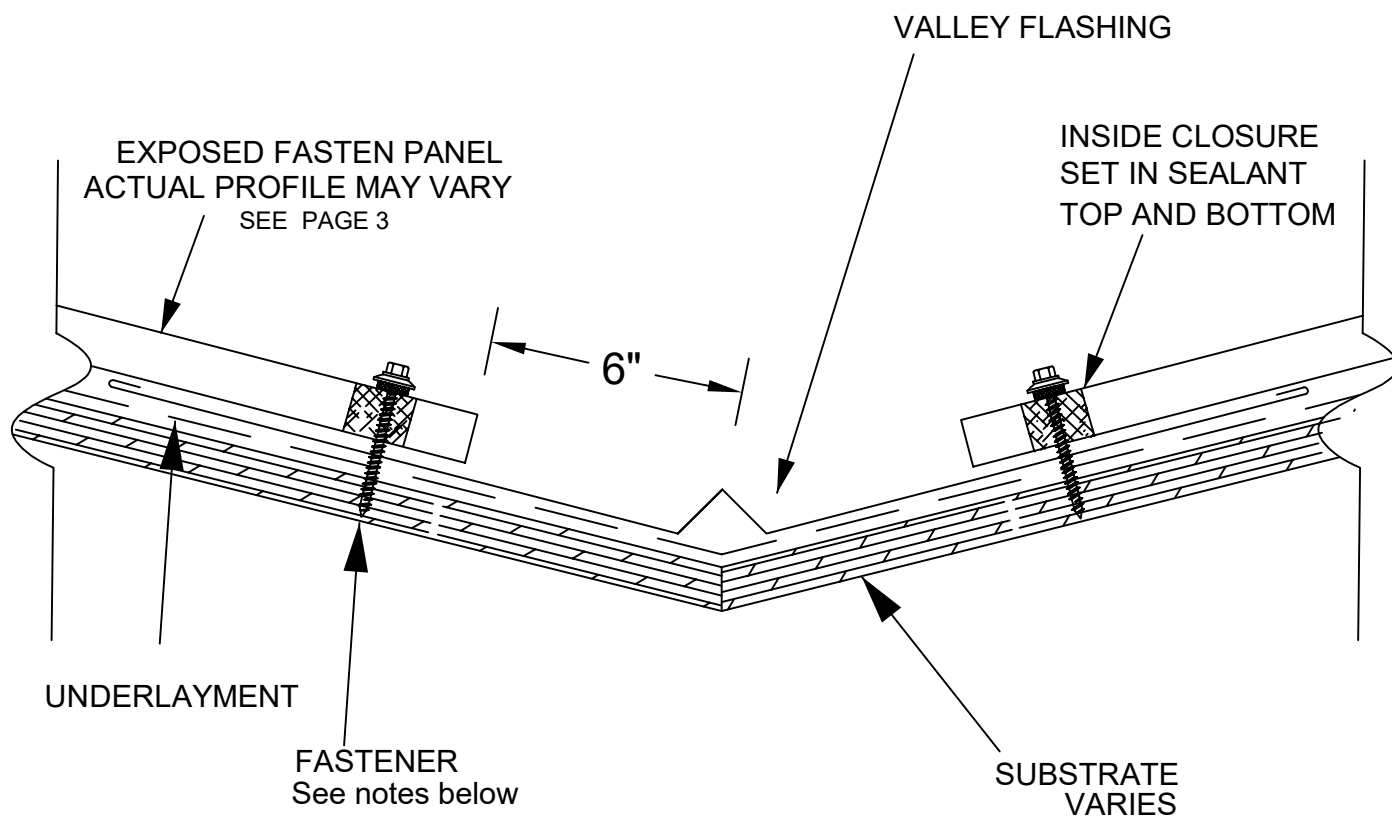
FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3

### STEEP SLOPE TO LOW SLOPE



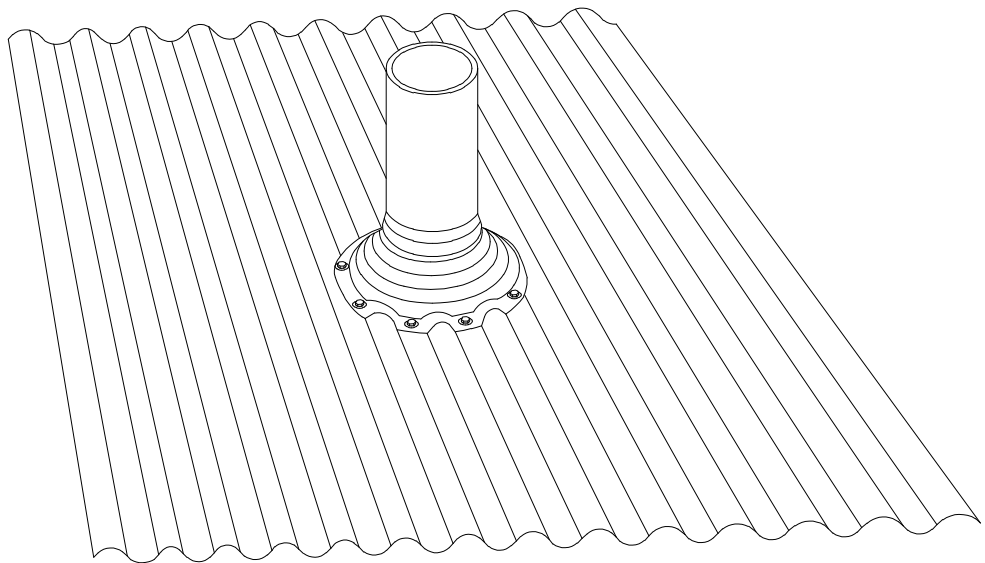
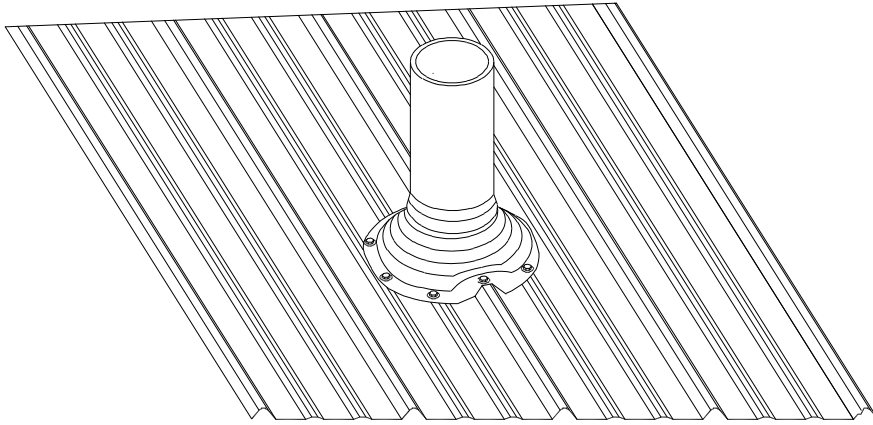
#### NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



### NOTES:

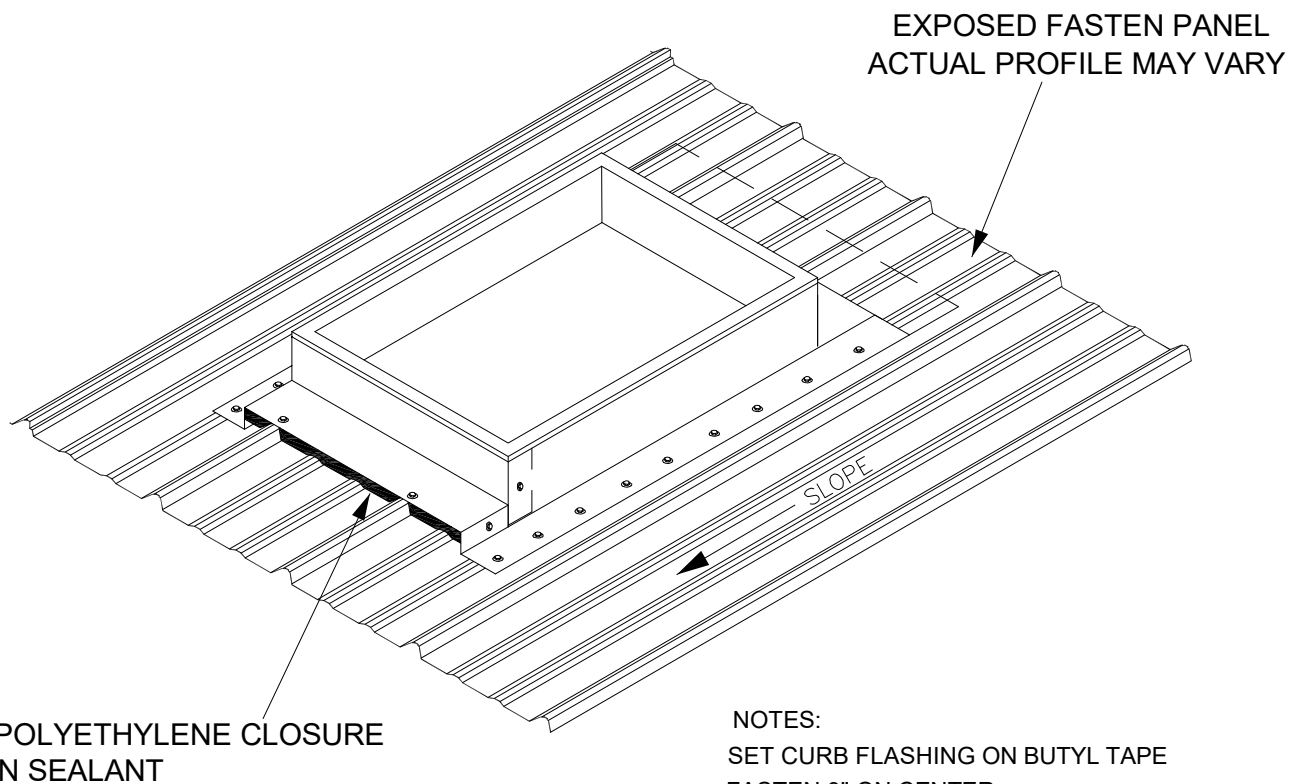
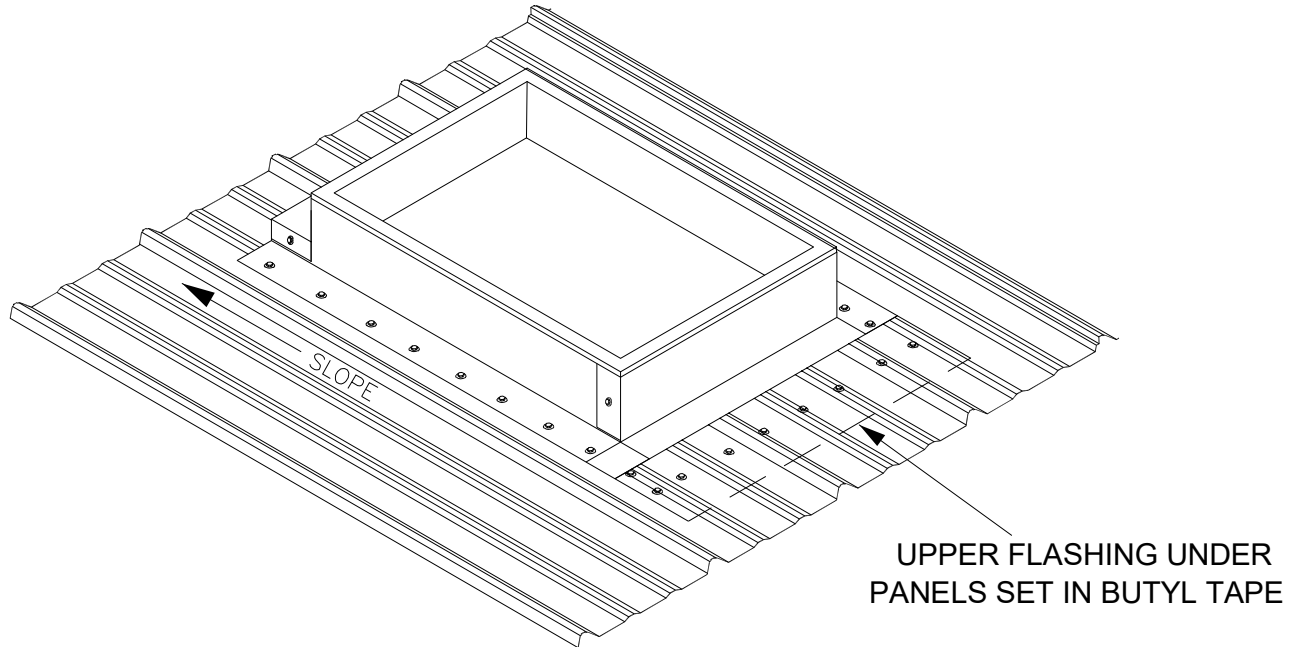
FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



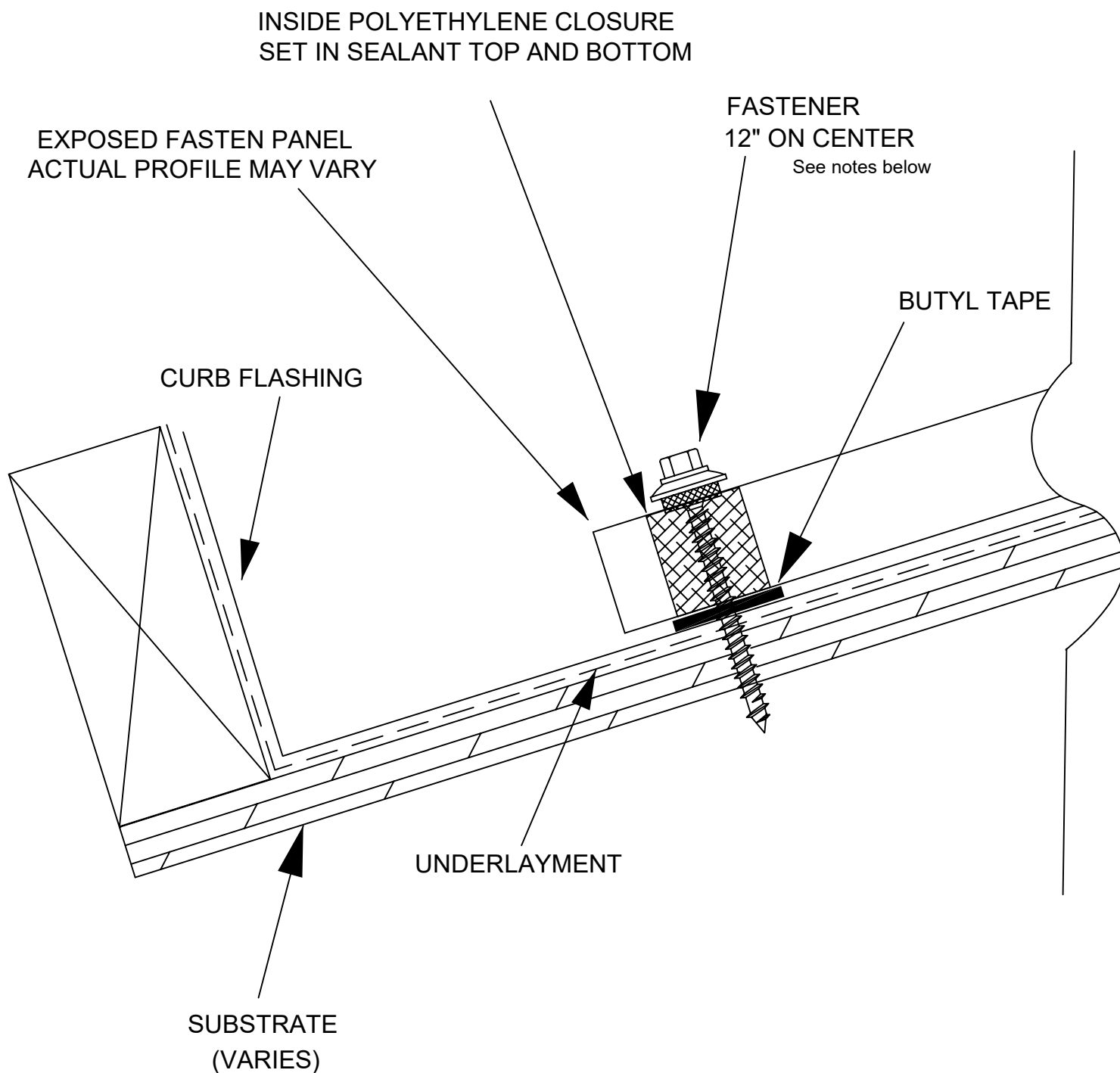
NOTES:

1. SUBSTRATE TO BE CUT 1" LARGER THAN PIPE BOOT BASE / FASTENERS TO ATTACH TO PANEL NOT SUBSTRATE.
2. HOLE IN PANEL TO BE 1" LARGER THAN PIPE TO ALLOW FOR THERMAL MOVEMENT.
3. BOOT SET IN BUTYL TAPE FASTEN BASE TO PANEL 1 1/2" O.C.

PIPE BOOTS MAY HAVE ROUND OR SQUARE BASE

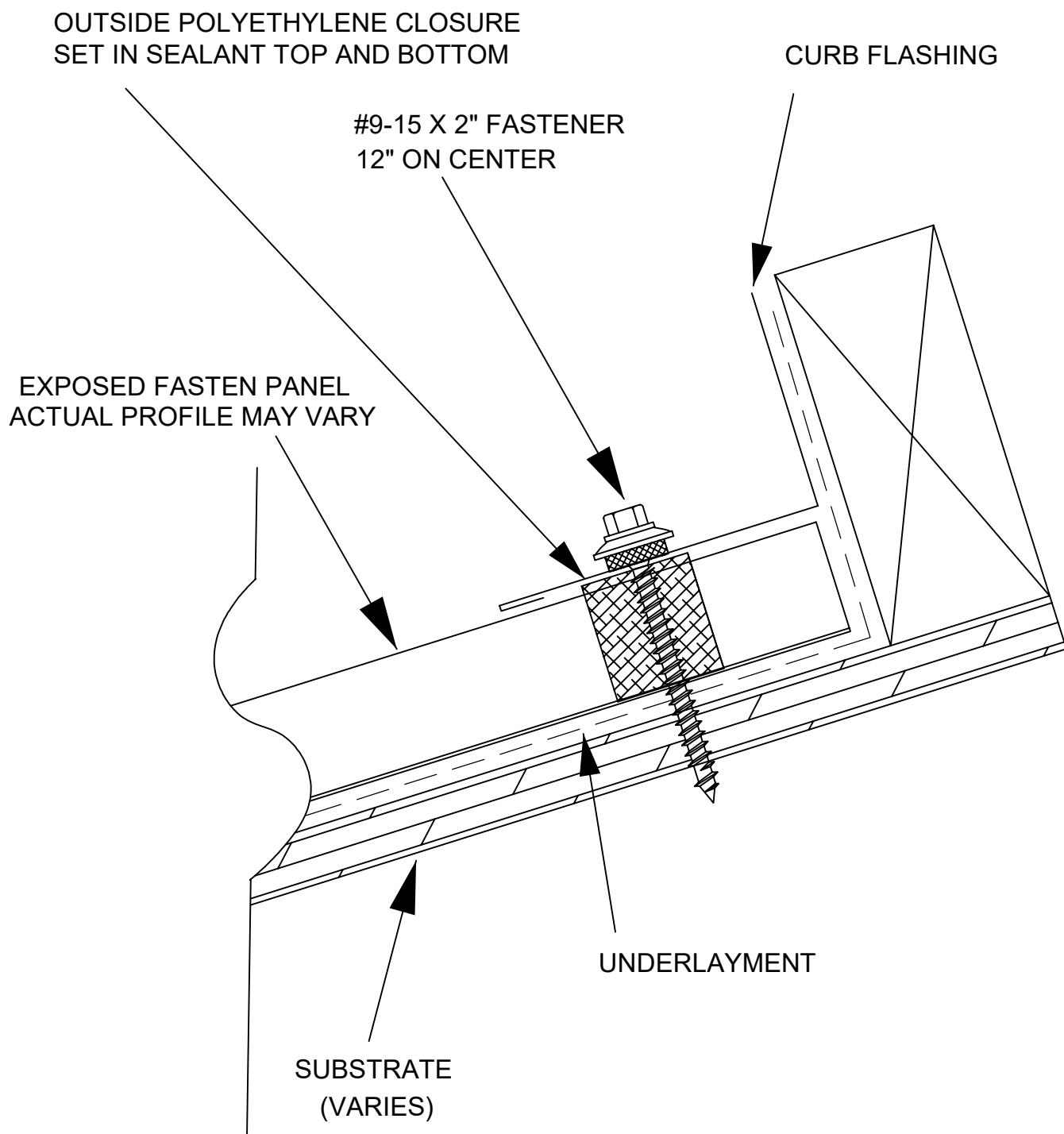


NOTES:  
SET CURB FLASHING ON BUTYL TAPE  
FASTEN 3" ON CENTER  
CURBS OVER 30" REQUIRE CRICKET/ DIVERTER

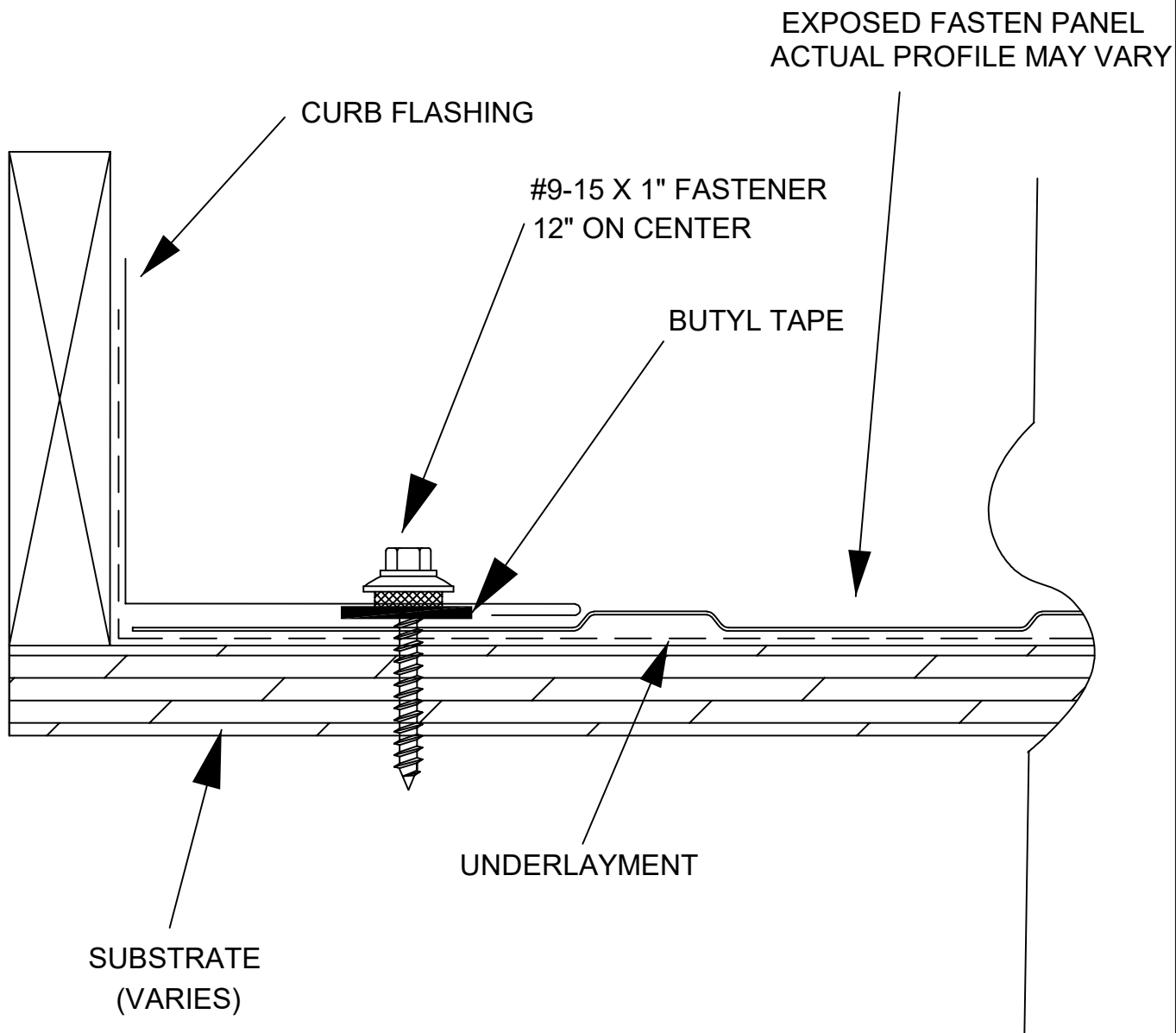


NOTES:

FASTENERS VARY DUE TO SUBSTRATE  
FASTEN TOP OF RIB FOR COMMERCIAL RIB  
FASTEN IN PAN FOR ALL OTHERS - PAGE 3



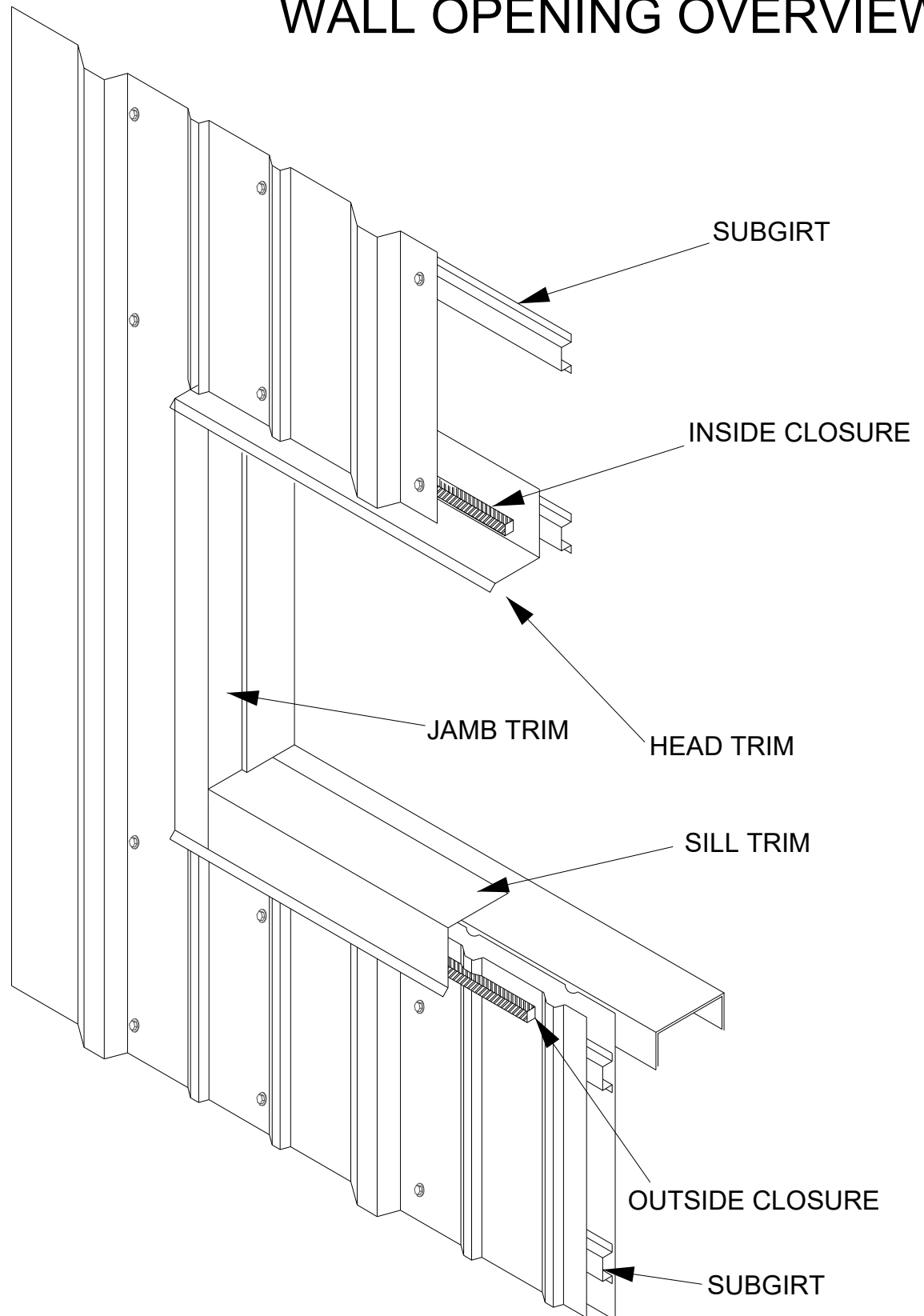
NOTES:  
FASTENERS VARY DUE TO SUBSTRATE



NOTES:  
FASTENERS VARY DUE TO SUBSTRATE

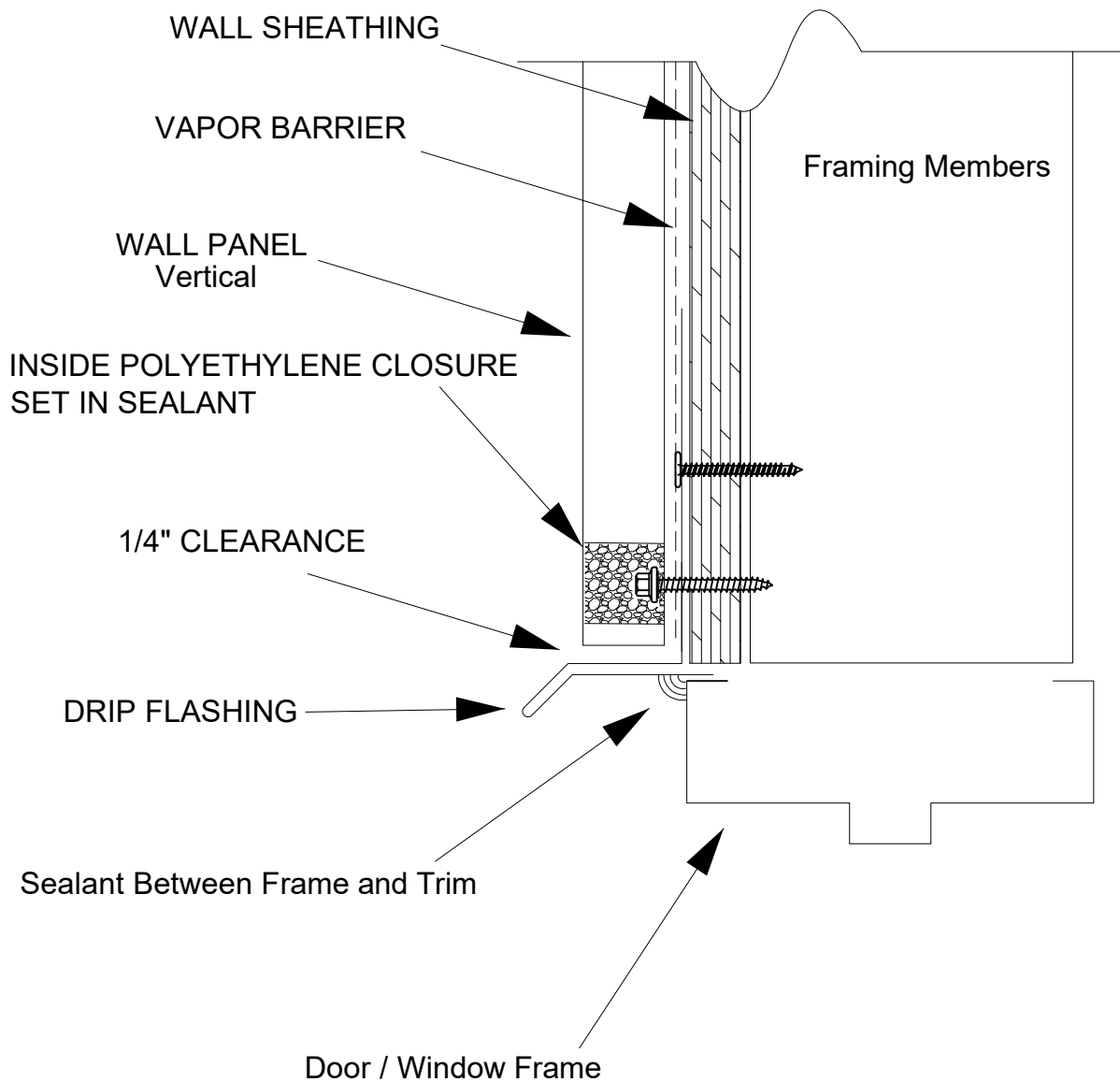


## WALL OPENING OVERVIEW



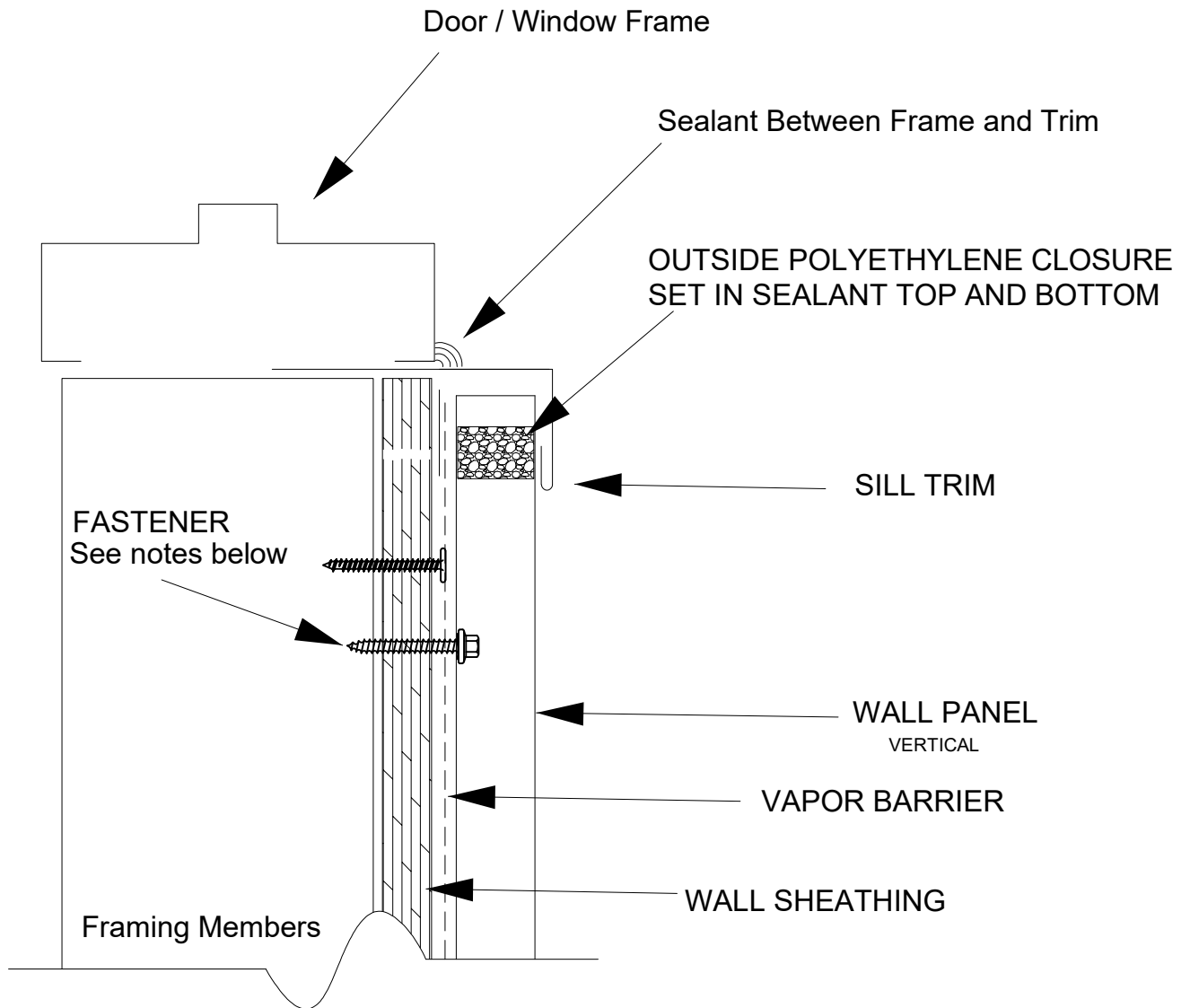
NOTES:  
FASTENERS VARY DUE TO SUBSTRATE

## WALL DETAIL



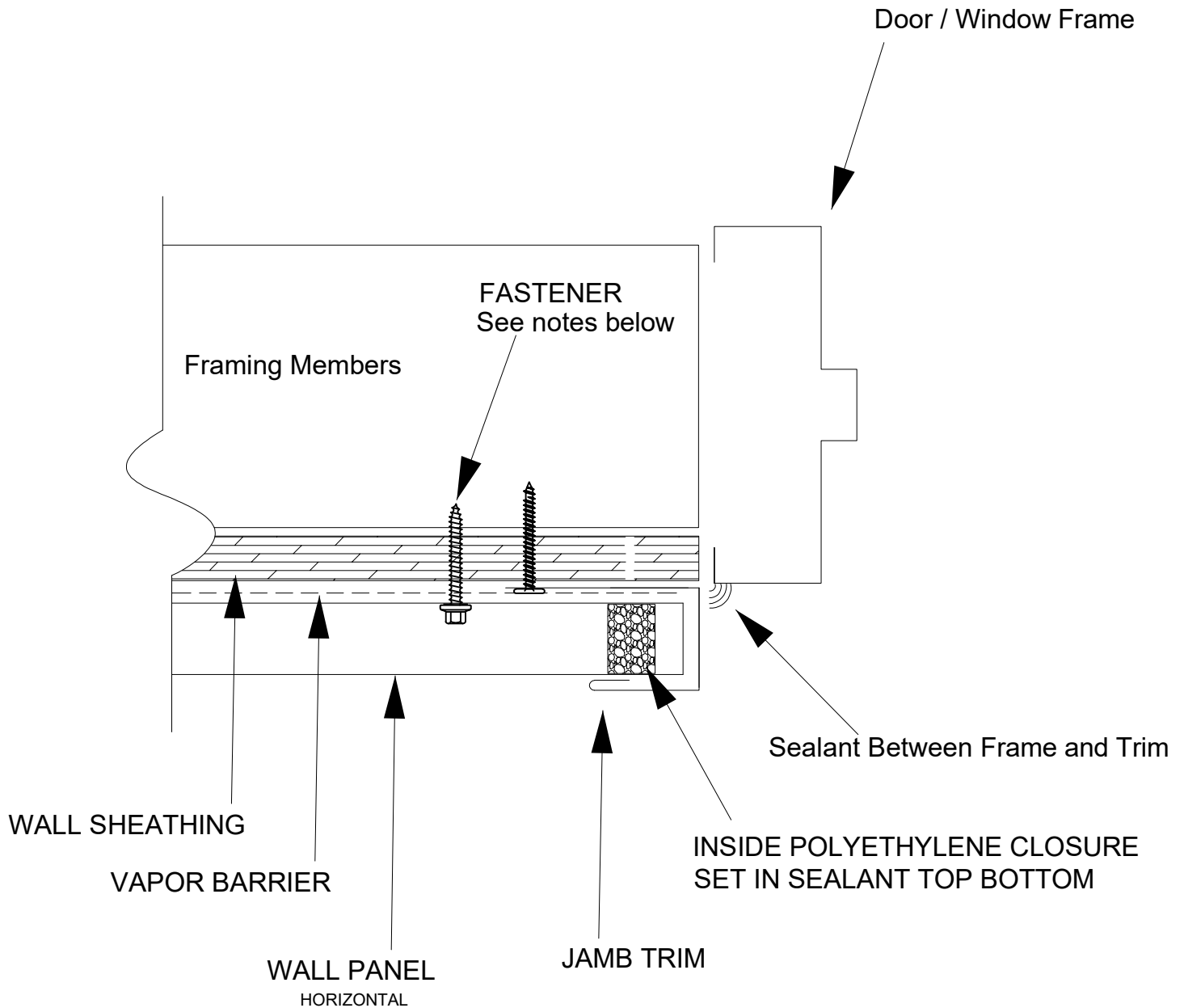
NOTES:  
FASTENERS VARY DUE TO SUBSTRATE

## WALL DETAIL



NOTES:  
FASTENERS VARY DUE TO SUBSTRATE

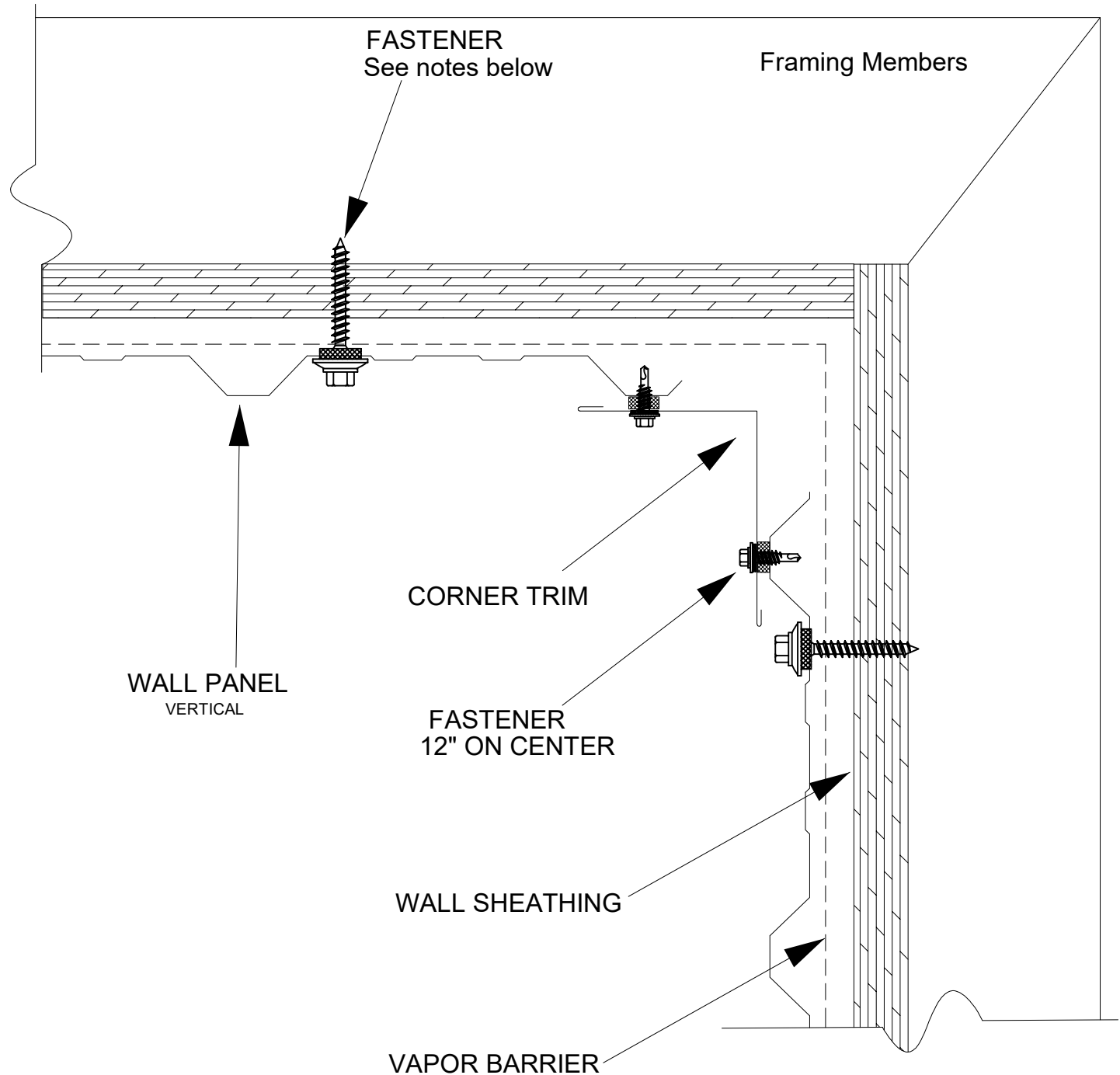
## WALL DETAIL



### NOTES:

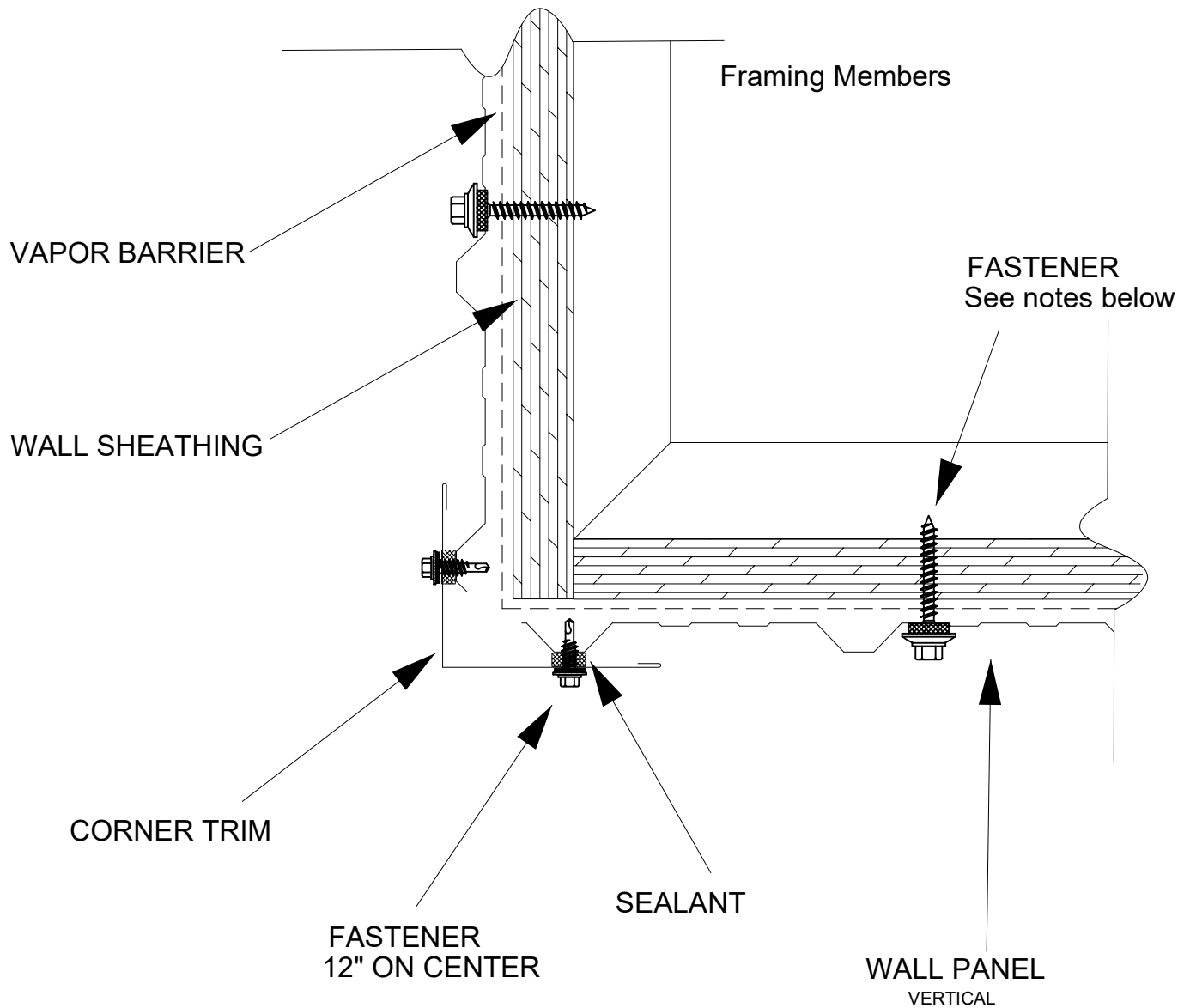
FASTENERS VARY DUE TO SUBSTRATE

WALL DETAIL

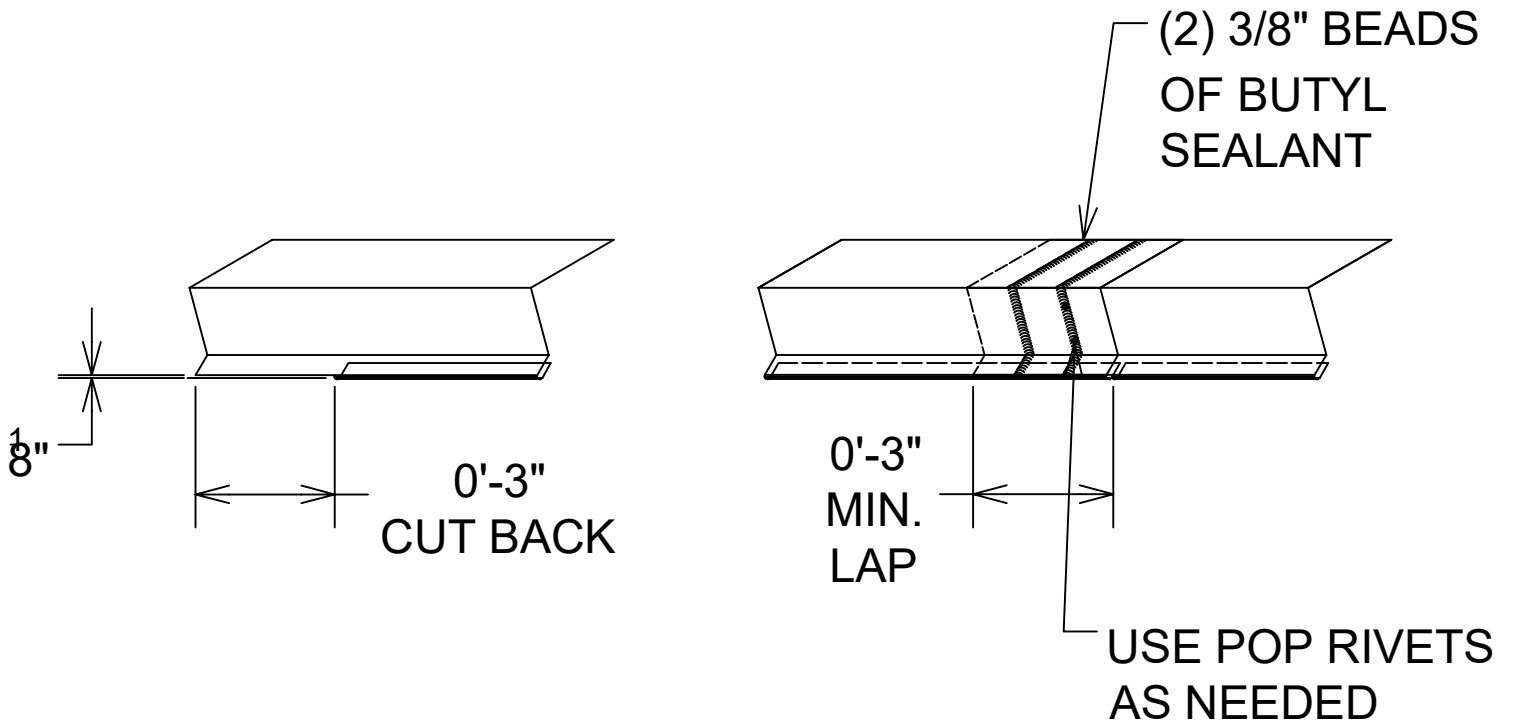


NOTES:  
FASTENERS VARY DUE TO SUBSTRATE

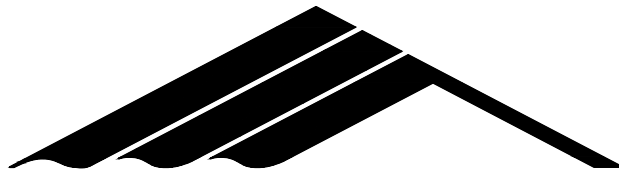
## WALL DETAIL



NOTES:  
FASTENERS VARY DUE TO SUBSTRATE



NOTES:  
ALL TRIMS REQUIRE A 3" LAP EXCEPT  
VALLEY TRIM WHICH REQUIRES A 9" LAP



## HPM CUSTOM METAL ROOFING

Kapolei, Hawaii  
Campbell Industrial Park  
91-302 Hanua Street  
Kapolei, HI 96707  
Phone: (808) 682-8560 Toll  
Free: (877) 841-7633 Fax:  
(808) 682-8565  
Email: [oahu@hpmhawaii.com](mailto:oahu@hpmhawaii.com)

Kea'au, Hawaii  
Shipman Industrial Park  
16-166 Melekahiwa Street  
Keaau, HI 96749  
Phone: (808) 966-5660  
Toll Free: (800) 317-4161  
Fax: (808) 966-5672

Website: <http://hpmhawaii.com/custom-metal-roofing/> All Rights Reserved.

COPYRIGHT © 2016 Hawaii Planing Mill, Ltd.  
All rights reserved. The plans herein are the  
copyright of Hawaii Planing Mill, Ltd. These plans  
shall not be reproduced, in whole or in part,  
including any copying or preparation of derivative  
reproduction. Any reproduction shall be done in  
accordance with the terms and conditions of the  
license authorizing such reproduction.