

# 2011 Star ROOF SYSTEM MAJESTIC SLATE™

# EcoStar<sup>TM</sup> LLC

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***Pioneers in Sustainable Roofing***

0.0

# DRAWINGS INDEX & GENERAL INFORMATION

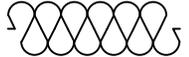
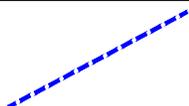


*MAJESTIC SLATE TILES*

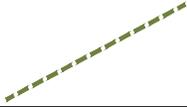


2		<b>DRAWING INDEX</b>		
DETAIL SERIES	DETAIL NO.	DESCRIPTION		
<b>EcoStar MAJESTIC (EM) SERIES DETAILS</b>			<b>3.0 ROOF SYSTEM DETAILS</b>	
	EM	3.1	STARTER COURSE TILE APPLICATION 3D VIEW	
	EM	3.2	EAVE & RAKE EDGES – 3D VIEW	
	EM	3.3	EAVE & RAKE FLASHING WITH GUTTER	
	EM	3.4	RIDGE DETAIL WITH RIDGE VENT	
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	EM	3.8	GAMBREL ROOF DETAIL AT LOWER TRANSITION OF SLOPE	
	EM	3.8.1	GENERIC DETAIL OF SHEET METAL FLASHING AT SLOPE TRANSITION	
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	EM	4.1	APRON FLASHING	
	EM	4.2	SIDE WALL FLASHING	
	EM	4.3	SECTION DETAILS OF RISING WALL – 1	
	EM	4.4	SECTION DETAILS OF RISING WALL – 2	
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			<b>5.0 ROOF PENETRATION DETAILS</b>	
	EM	5.1	VENT STACK FLASHING DETAIL – 3D VIEW	
	EM	5.2	VENT STACK FLASHING – SECTION DETAIL	
EM	5.3	VENT STACK – UNDERLAYMENT LAYOUT DETAILS		
		<b>6.0 ROOF ACCESSORIES DETAIL</b>		
EM	6.1	COPPER SNOW GUARDS DETAIL		
EM	6.2	ALUMINUM SNOW GUARDS DETAIL		
		MAJESTIC SLATE TILES		
		DRAWING INDEX - PAGE 2 OF 2		
		<b>EcoStar:</b> <b>STEEP SLOPED ROOF SYSTEMS</b>	 <b>EcoStar MAJESTIC SLATE TILES</b>  <b>EcoStar SENECA SHAKE TILES</b>	
			<b>EM</b>   0.2	

# LEGEND

	EcoStar AQUA GUARD UNDERLAYMENT		EXISTING WOOD BLOCKING
	EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT		NEW WOOD BLOCKING
	ROOF TILES (MAJESTIC SLATES) SURFACE TEXTURE SHOWN IN ELEVATION, PLAN AND 3-D VIEWS.		BATT INSULATION
	EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT		EXISTING FACE BRICK
	EcoStar GLACIER GUARD – HATCH LINES DEPICT FULLY ADHERED WITH PRESSURE ROLLER.		EXISTING CMU (CONCRETE MASONRY UNITS)
	EcoStar AQUA GUARD UNDERLAYMENT		SNOW GUARD – COPPER
	ROOF TILES (MAJESTIC SLATES) SHOWN IN CROSS-SECTION OF A DETAIL		SNOW GUARD – ALUMINUM
	PLYWOOD OR OSB (ORIENTED STRAND BOARD) WOOD DECK	<b>ABBREVIATIONS</b>	
	EXISTING CAVITY WALL INSULATION	⌀	CENTER LINE OF OBJECT
		<b>EcoStar ALL ROOF TILES PRODUCTS</b>	
		PRODUCTS LEGEND & ABBREVIATIONS - PAGE 1 OF 2	
		EM 0.3	

# LEGEND

	GAF/ELK VERSASHIELD UNDERLAYMENT	
	GAF/ELK VERSASHIELD OVER GLACIER GUARD ICE & WATER UNDERLAYMENT	
	GAF/ELK VERSASHIELD UNDERLAYMENT	
	<i>EcoStar ALL ROOF TILES PRODUCTS</i>	<b>EM0.4</b>
	PRODUCTS LEGEND & ABBREVIATIONS - PAGE 2 OF 2	

## GENERAL NOTES

### A. INTRODUCTION

- EcoStar PREPARED THE FOLLOWING DRAWINGS TO CONVENE THE DETAILING OF ROOFING PROJECTS FOR DESIGNERS & INSTALLATION FOR ROOFING CONTRACTORS. TWO SEPARATE SETS OF DETAILS ARE PREPARED BASED ON SLATE AND SHAKE ROOFS. PLEASE REQUEST THE DESIRED SET OF DETAILS FROM THE TECHNICAL STAFF OF EcoStar AT (800)211-7170 OR LOG ON [www.ecostarllc.com](http://www.ecostarllc.com).
- ON NEW CONSTRUCTION, ARCHITECTS & ENGINEERS ARE ADVISED DURING DESIGN DEVELOPMENT STAGE TO REFER TO SHEET EM 1.1 TO ENSURE THAT REQUIRED ROOF SLOPE IS ANTICIPATED AT THIS STAGE TO ACHIEVE A DESIRED TILE EXPOSURE. A MINIMUM SLOPE OF 3:12 IS RECOMMENDED TO START THE DESIGN OF ROOF DECK.
- ON EXISTING BUILDINGS, EcoStar RECOMMENDS THE OWNERS TO EMPLOY THE SERVICES OF A DESIGNER. THE USE OF WORD "DESIGNER" IN THIS DOCUMENT REPRESENTS A LICENSED ARCHITECT, A LICENSED ENGINEER AND A REGISTERED ROOF CONSULTANT. A QUALIFIED ROOFING AND A SHEET METAL CONTRACTOR AS APPROVED BY EcoStar, AND LISTED AS A "GOLD STAR AUTHORIZED APPLICATOR" (GSAA) MAY BE CONTACTED DURING THE DESIGN STAGE & DETAILING FOR CONSTRUCTION RELATED ISSUES.
- ON RE-ROOFING PROJECTS, OWNERS ARE REQUESTED TO COORDINATE WITH EcoStar, IF DESIGNER IS NOT EMPLOYED YET TO CONVENE THE DESIGNING OF PROJECT.
- ON PROJECTS, WHERE UNUSUAL DECKS EXIST, e.g., TECTUM DECK OR CATHEDRAL CEILING WITH INSULATION ABOVE THE DECK WITH OR WITHOUT VAPOR RETARDER MEMBRANES, THOSE MUST BE PROPERLY DESIGNED. THE REQUIRED FASTENER TYPES LENGTH & WARRANTY ISSUES SHOULD BE COORDINATED WITH EcoStar PRIOR TO DESIGNING & ROOFING. IN CATHEDRAL CEILINGS, CONCEALING OF PIPES, CONDUITS, SPRINKLER LINES, etc. UNDER RIGID BOARD INSULATION SHOULD ALSO BE EVALUATED PROPERLY AT EARLY STAGE.
- CARE SHOULD BE TAKEN WHEN SELECTING A QUALIFIED CONTRACTOR TO INSTALL EcoStar PRODUCTS. WHEN A GOLDSTAR WARRANTY IS REQUIRED A GOLDSTAR APPROVED APPLICATOR MUST INSTALL THE SYSTEM.
- ROOF INSTALLATIONS REQUIRING A CLASS A FIRE RATING REQUIRE THAT GAF/ELK VERSASHIELD BE USED IN ACCORDANCE WITH DRAWINGS 2.6 THROUGH 2.9, OR A MINIMUM OF 1/4" DENSDECK INSTALLED OVER ROOF SHEATHING. VERSASHIELD HAS NOT BEEN SHOWN IN DRAWINGS IN SECTION 3 AND HIGHER .

### B. DRAWINGS

- DESIGNER IS ADVISED TO EVALUATE THE EXISTING CONDITIONS OF EACH BUILDING TYPE, ITS ROOF AND SUBSTRATE MATERIALS TO PREPARE FINAL DETAILS. FOR INSTANCE, THE SHEET METAL FASCIA IS GENERALLY SHOWN FOR ALL REGIONS, BUT DESIGNER MAY REQUIRE TO ADD SHEET METAL CLIPS OR WIND CLEATS IN HIGHER WIND SPEED AREAS OR i.e., IN SNOW & FREEZING REGIONS, USE OF ADDITIONAL STRIPPING OF GLACIER GUARD AS NEEDED AT CERTAIN DETAILS. SIMILAR CHANGES MAY BE REQUIRED IN OTHER DETAILS. PLEASE, COORDINATE WITH THE TECHNICAL STAFF OF EcoStar WHERE QUESTIONS ARISE.

- THE DETAILS REPRESENT THE GENERIC & CONCEPTUAL LAYOUT OF ROOFING MATERIALS & THEIR FABRICATION. TO CLARIFY THE DETAILS. DETAILS ARE SIMPLIFIED WHILE DEPICTING LIMITED MATERIALS AS NEEDED. THESE DETAILS ARE FURTHER SUBSTANTIATED WITH ADDITIONAL SUPPORTING DETAILS IN 2D OR 3D AS NEEDED. DO NOT SCALE DRAWINGS, AS THESE DETAILS ARE NOT PRINTED ON SCALE. CONSEQUENTLY, ROOFER MUST FIELD VERIFY ALL DIMENSIONS & QUANTITIES, FOR THE ACCURACY OF COST ESTIMATE.
- THE COORDINATION OF ROOFING DETAILS WITH OTHER TRADE DETAILS IS STRONGLY RECOMMENDED TO AVOID CONFLICT DURING CONSTRUCTION, i.e., WHERE VERTICAL CLEARANCES OF CURBS, PIPES, BOTTOM SILLS OF WINDOWS OR RISING WALLS & THEIR THROUGH-WALL FLASHING EXIST.
- REFER TO SHEETS EM 2.0, EM 2.1, EM 2.6 & EM 2.7 FOR BASIC LAYOUT OF UNDERLAYMENTS AND THEIR DETAILING. THE SEQUENCE OF OVERLAPPING OF BOTH MEMBRANES MAY VARY AT DIFFERENT LOCATIONS.
- MASONRY, WOOD CARPENTRY, SHEET METAL FLASHING AND PLUMBING WORK IS NOT INCLUDED IN THE SCOPE OF THIS DOCUMENT. A GENERIC LAYOUT IS DEPICTED TO REPRESENT EcoStar PRODUCTS IN DETAILS. DESIGNER SHOULD EVALUATE AND DESIGN FINAL DETAILS ACCORDINGLY, e.g., WHILE DESIGNING GUTTER SIZES, REFER TO REGIONAL RAIN INTENSITY, SLOPE & SIZES OF ROOFS, etc..
- REFER TO S.M.A.C.N.A. HANDBOOK (LATEST EDITION) FOR SHEET METAL DETAILING AND CALCULATION OF GUTTER SIZES.

### C. COORDINATION DURING CONSTRUCTION

- GENERAL CONTRACTOR (GC) OR CONSTRUCTION MANAGER (CM) TO COORDINATE WITH ROOFER IN ADVANCE, DURING THE FABRICATION OF SUBSTRATE AREAS, i.e., DECK; WALLS; THROUGH-WALL FLASHING AND DESIRED VERTICAL/HORIZONTAL CLEARANCES FOR FLASHING ETC.. ROOFER TO INSPECT THE BUILT CONDITIONS OF SUBSTRATE IN ADVANCE, IN ORDER TO MAKE ANY NECESSARY CHANGES, WHICH ARE NOT ACCEPTABLE FOR PROPOSED ROOFING SYSTEM. ROOFER TO ENSURE THAT SUBSTRATE AREAS ARE ACCEPTABLE PRIOR TO ROOFING. REPORT ANY DEFICIENCIES OR UNACCEPTABLE CONDITIONS TO OWNER, OWNER'S REPRESENTATIVE AND EcoStar FOR CORRECTIONS IN SUBSTRATE AREAS TO ACHIEVE A QUALITY ROOFING SYSTEM.
- GC/CM TO COORDINATE WITH MECHANICAL CONTRACTOR AND ROOFER, WHERE HVAC RELATED PENETRATIONS WILL AFFECT THE NEW ROOF INSTALLATION. SEQUENCE OF CONSTRUCTION BY DIFFERENT TRADES MUST BE CLARIFIED AT THIS STAGE TO AVOID UNNECESSARY FOOT TRAFFIC/WORK ON EcoStar ROOF. EcoStar DESIRES THAT INSTALLATION OF HVAC UNITS, MASONRY WALL CLADDING, STUCCO OR E.I.F.S (EXTERIOR INSULATION FINISH SYSTEM) RELATED WORK SHOULD NOT CAUSE DAMAGE OR DETERIORATION OF NEW ROOFING SYSTEM.



MAJESTIC SLATE TILES

EcoStar GENERAL NOTES PAGE 1 OF 2

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
PAGES OR  
DETAIL(S):

EM0.6

EM 0.5

## GENERAL NOTES

3. ON PROJECTS WHERE ROOF WILL DRAIN INTO SUB-SURFACE DRAIN LINES, THERE GC/CM TO COORDINATE WITH THE ROOFER AT INITIAL CIVIL WORK AT SITE, FOR PROPER COORDINATION OF DOWN SPOUTS WITH SUBSURFACE DRAIN PIPES, SLOPES & THEIR PROPER CONNECTIONS.
4. ON PROJECTS IN FREEZING REGIONS, WHERE ROOF DRAINAGE IS DESIGNED TO DISPOSE OF WATER ON THE SURFACE, THERE DESIGNER TO ENSURE THAT ROOF DRAINAGE SYSTEM WILL NOT CAUSE ICY CONDITIONS IN THE PEDESTRIAN TRAFFIC AREAS, PARTICULARLY NEAR THE ENTRANCES.



**MAJESTIC SLATE TILES**

EcoStar GENERAL NOTES PAGE 2 OF 2

FOR APPLICABLE  
 ADDITIONAL  
 INFORMATION, SEE  
 PAGES OR  
 DETAIL(S):

EM0.5

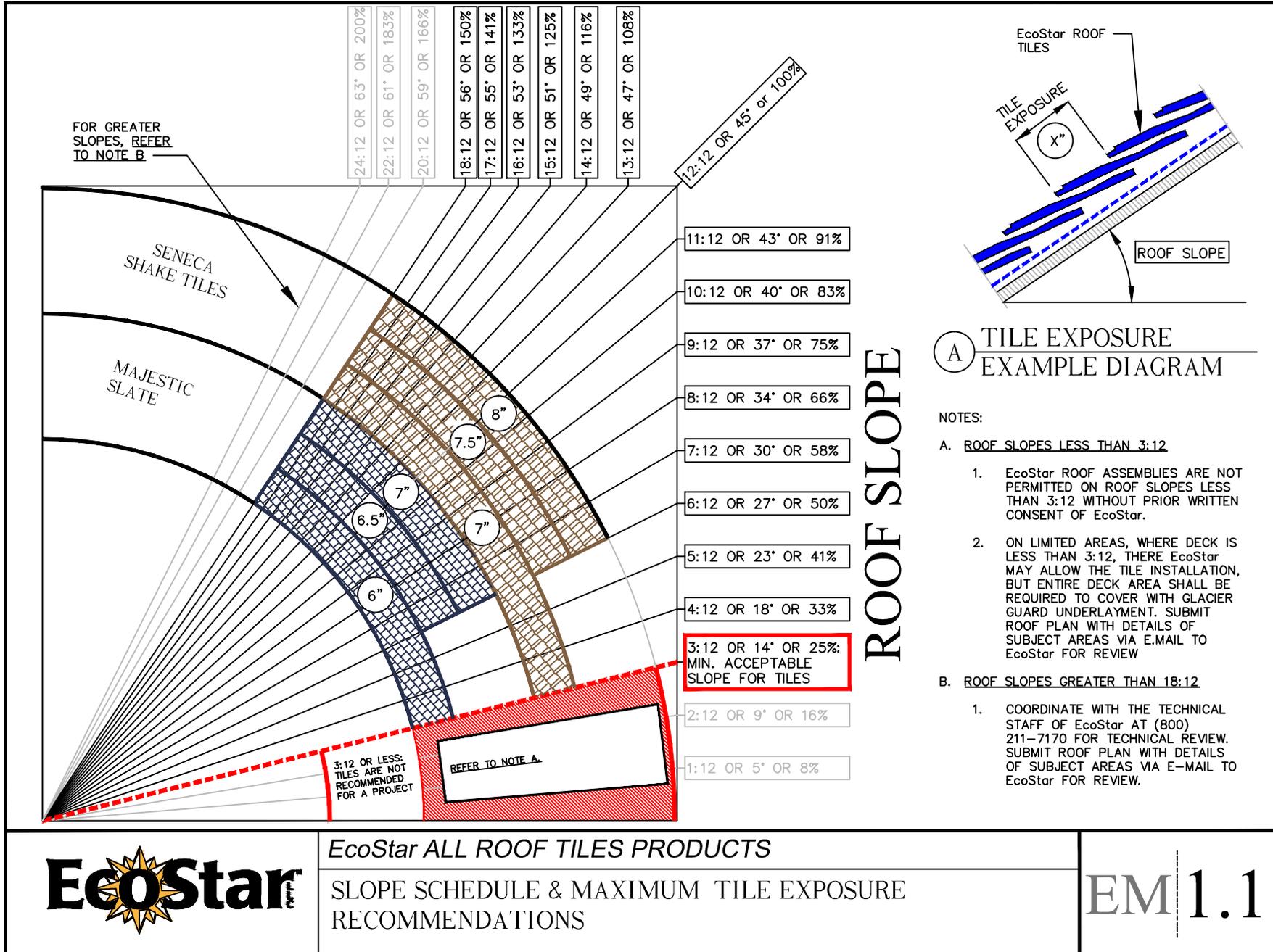
EM0.6

1.0

# DESIGN DEVELOPMENT STAGE



*MAJESTIC SLATE TILES*



EcoStar ALL ROOF TILES PRODUCTS

SLOPE SCHEDULE & MAXIMUM TILE EXPOSURE RECOMMENDATIONS

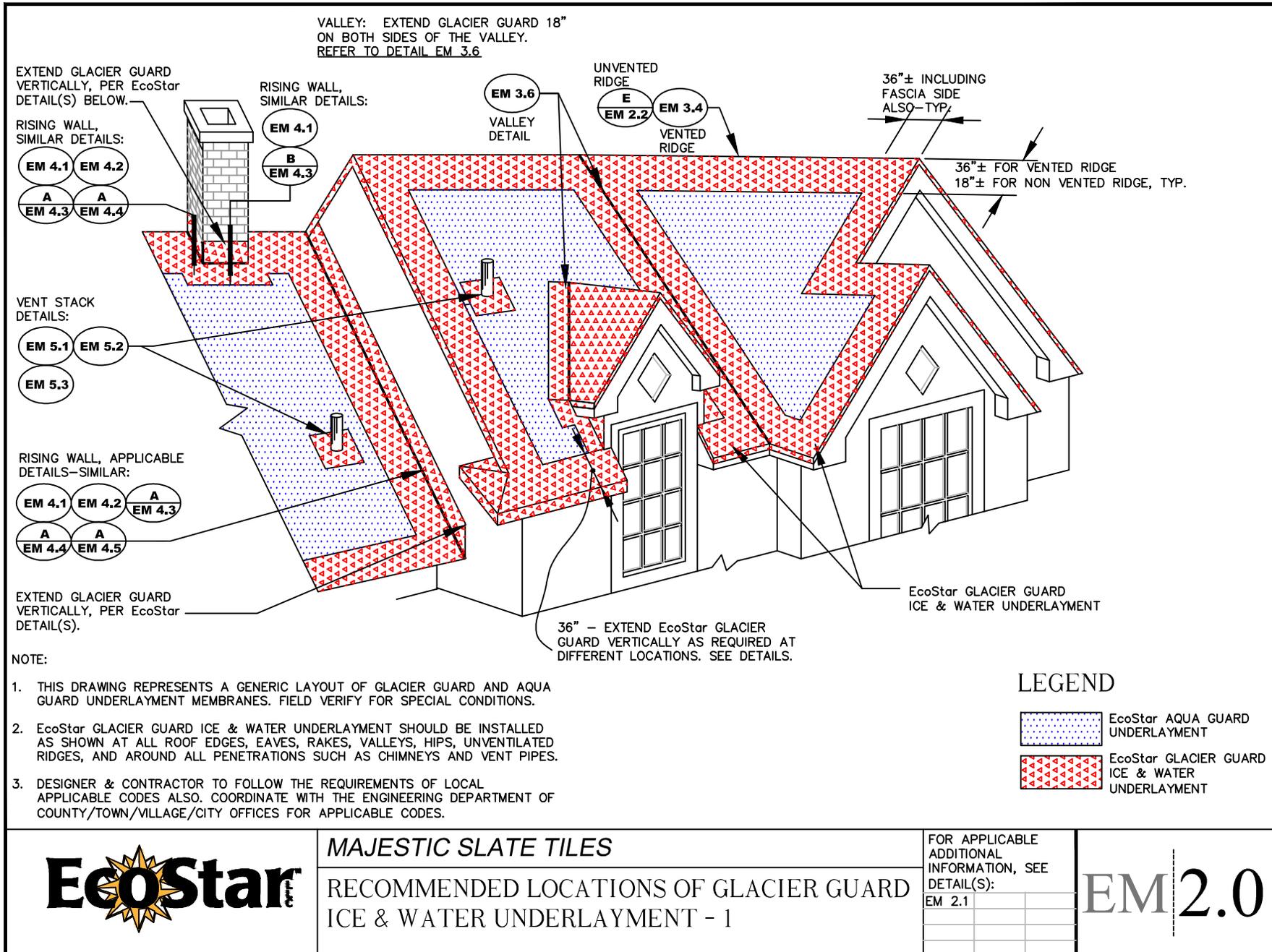
EM 1.1

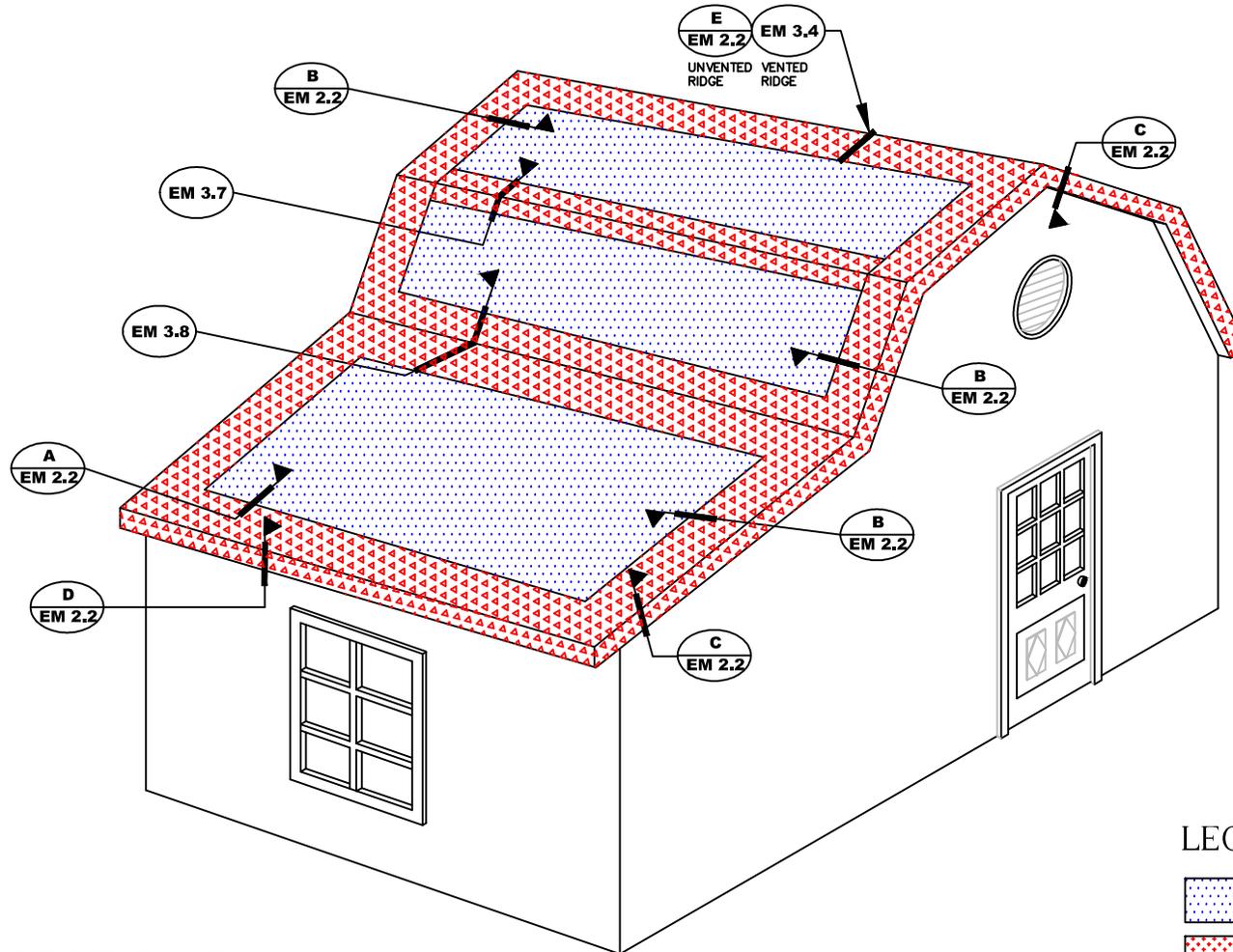
2.0

# UNDERLAYMENT LOCATIONS & GENERIC EDGE DETAILS



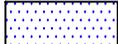
*MAJESTIC SLATE TILES*





GAMBREL ROOF

LEGEND

-  EcoStar AQUA GUARD UNDERLAYMENT
-  EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT



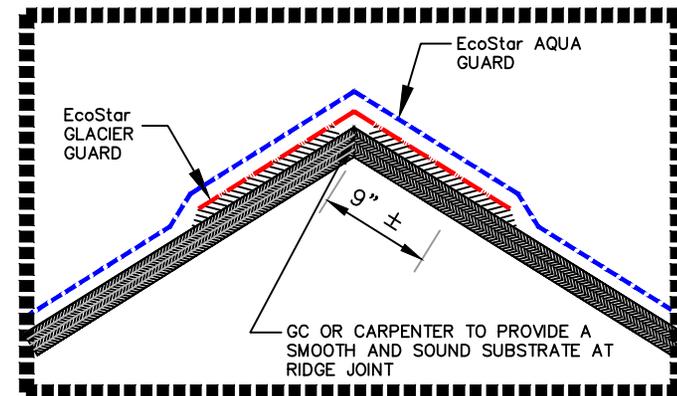
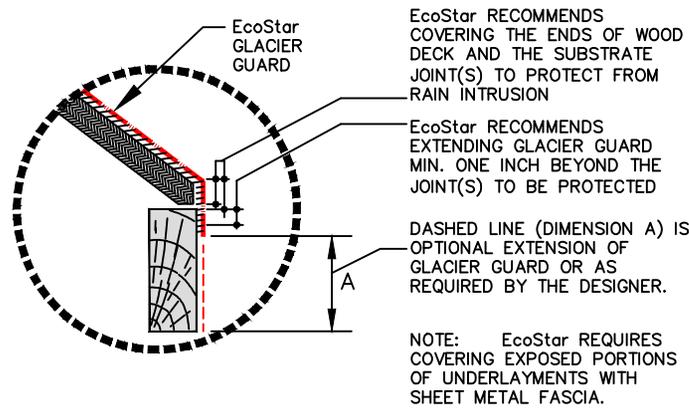
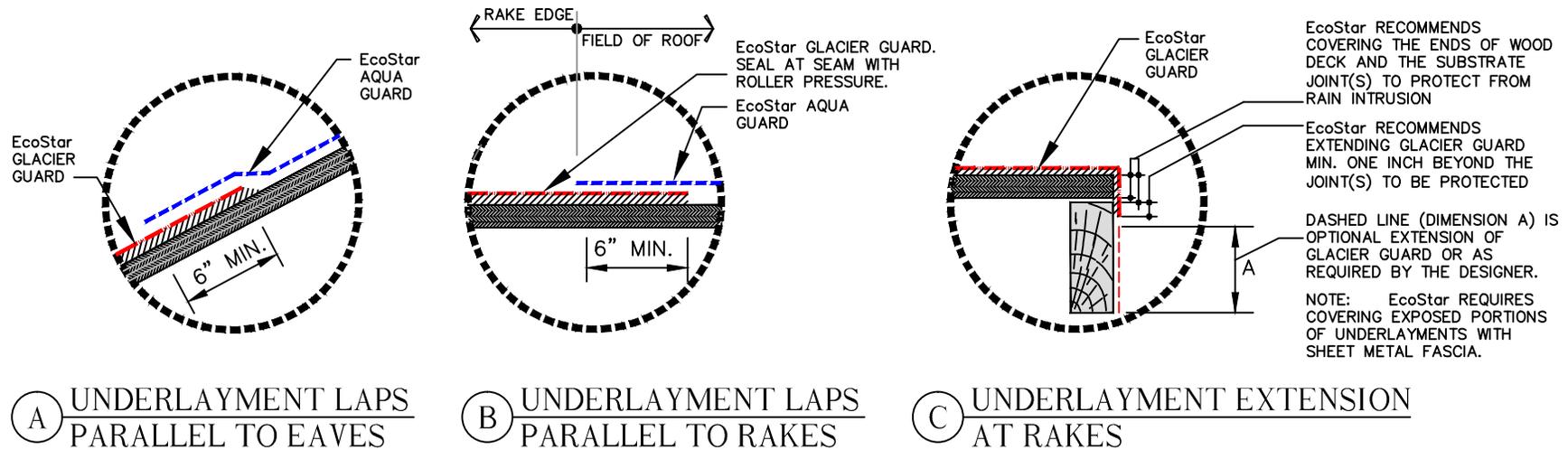
MAJESTIC SLATE TILES

RECOMMENDED LOCATIONS OF GLACIER GUARD ICE & WATER UNDERLAYMENT - 2

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.0	

EM 2.1

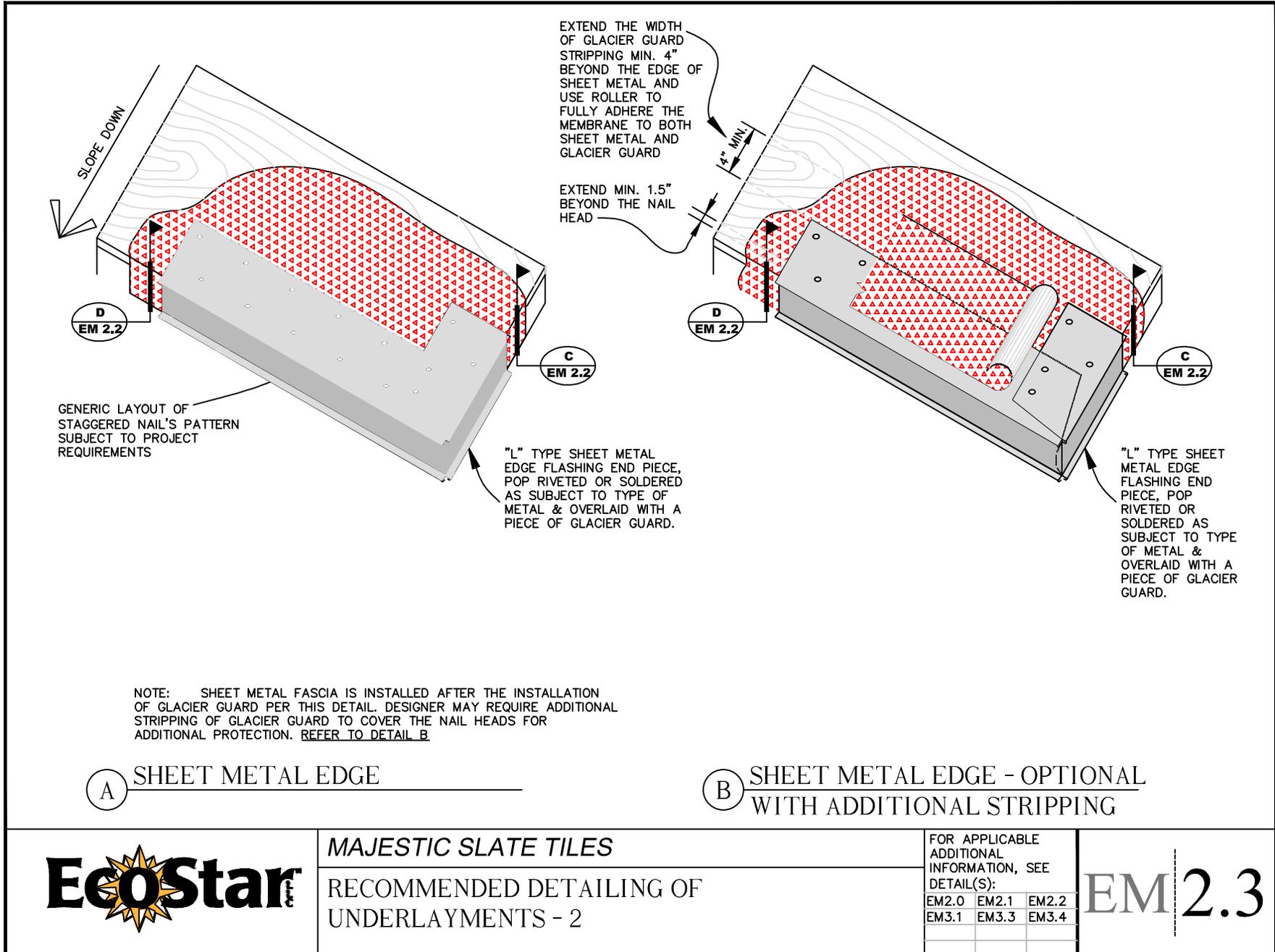


**MAJESTIC SLATE TILES**  
RECOMMENDED DETAILING OF UNDERLAYMENTS - 1

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.0	EM2.1	EM2.3
EM2.4	EM2.5	

EM 2.2

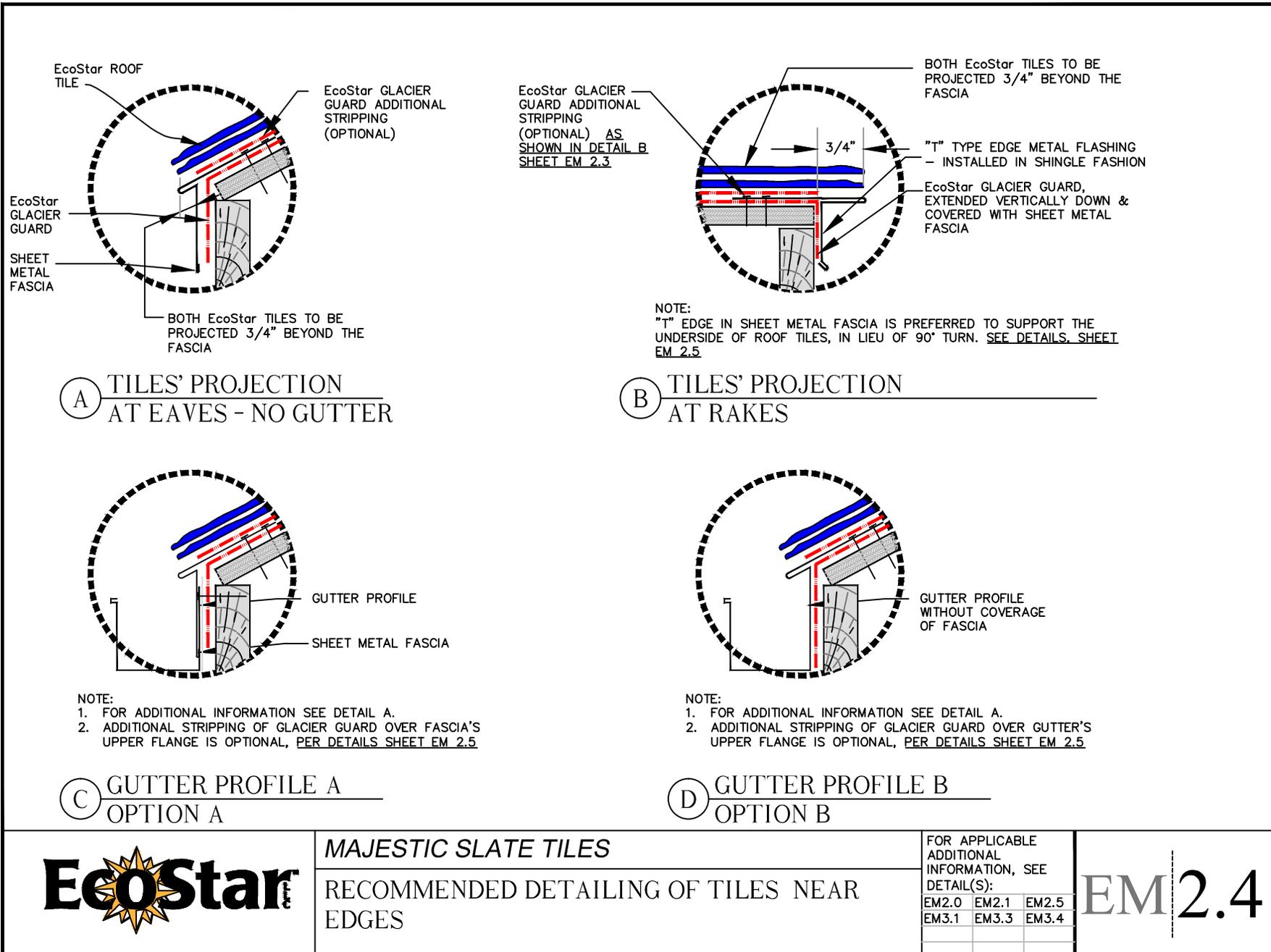


MAJESTIC SLATE TILES  
RECOMMENDED DETAILING OF  
UNDERLAYMENTS - 2

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

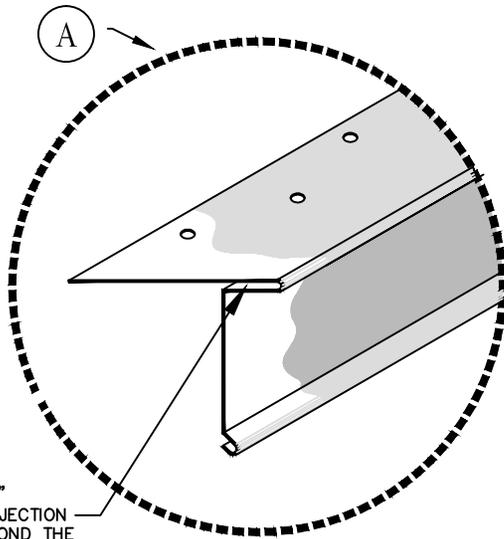
EM2.0	EM2.1	EM2.2
EM3.1	EM3.3	EM3.4

EM 2.3

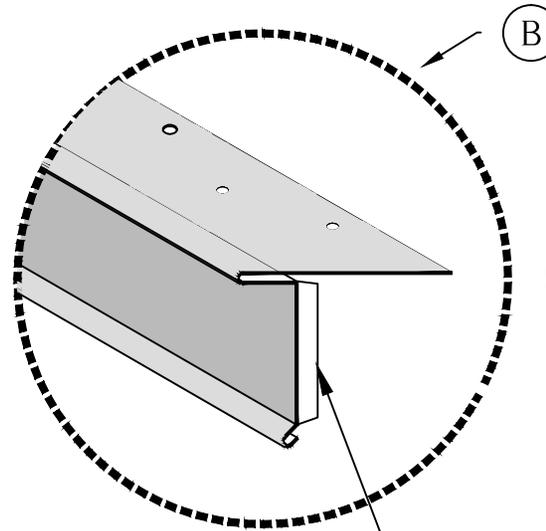


MAJESTIC SLATE TILES  
RECOMMENDED DETAILING OF TILES NEAR EDGES

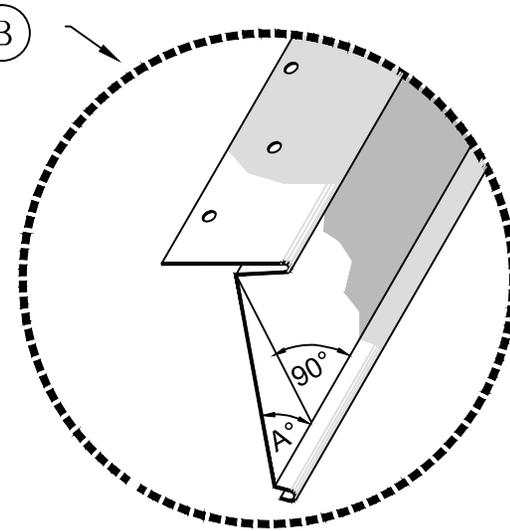
EM 2.4



3/4"  
PROJECTION  
BEYOND THE  
FACE OF  
FASCIA AT  
BOTH RAKE  
AND EAVE  
DETAILS.



CREASED CORNER FOR  
POP RIVETED CORNER



1: "T" TYPE EAVE METAL

2: "T" TYPE RAKE METAL

NOTE: DESIGNER/ROOFER TO DESIGN & FABRICATE CORNER  
ENDS PER SLOPE OF THE ROOF

NOTES:

1. ANGLE "A" IS SUBJECT TO SLOPE OF THE ROOF. CUT TO FIT THE CORNER  
JUNCTION.
2. BOTH PIECES TO BE JOINED WITH POP-RIVETED SEAM OR WELDED, DEPENDING ON  
THE TYPE OF METAL AND DETAILED DESIGN.

A "T" TYPE SHEET METAL FASCIA

B GENERIC VIEW OF CORNER



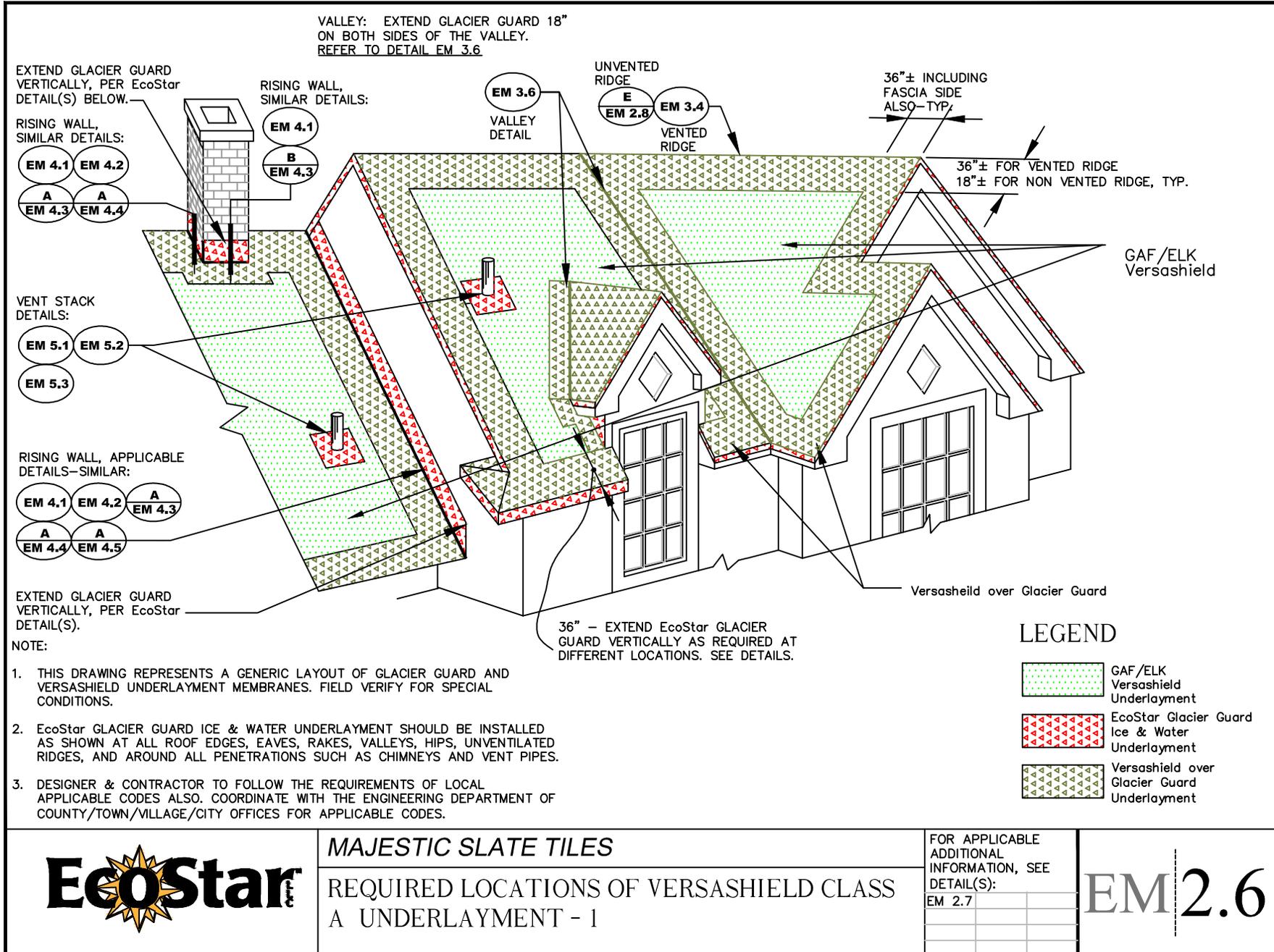
MAJESTIC SLATE TILES

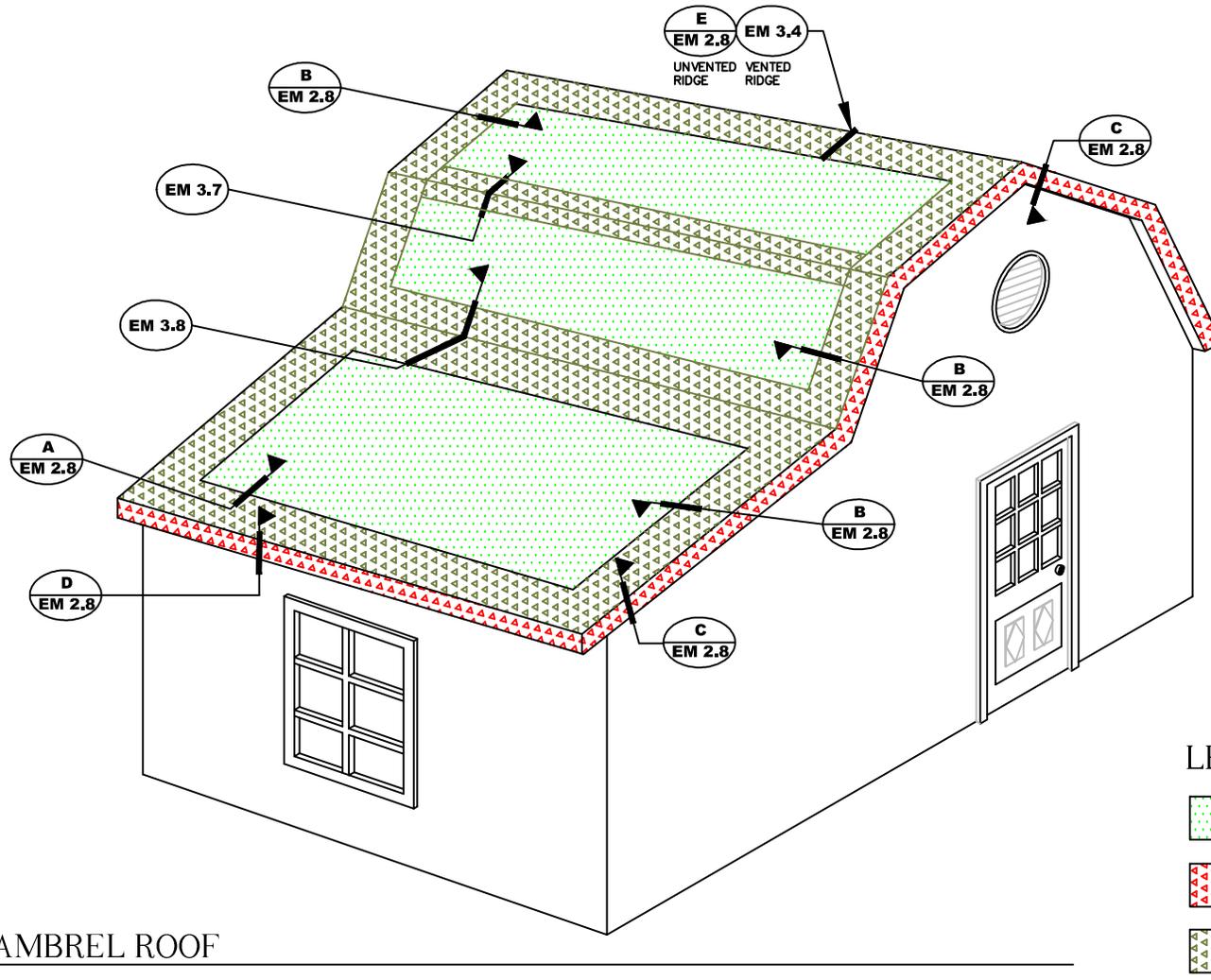
RECOMMENDED DETAILING OF SHEET METAL  
NEAR EDGES

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

EM2.2	EM2.3	EM2.4
EM3.1	EM3.2	EM3.3

EM 2.5





GAMBREL ROOF



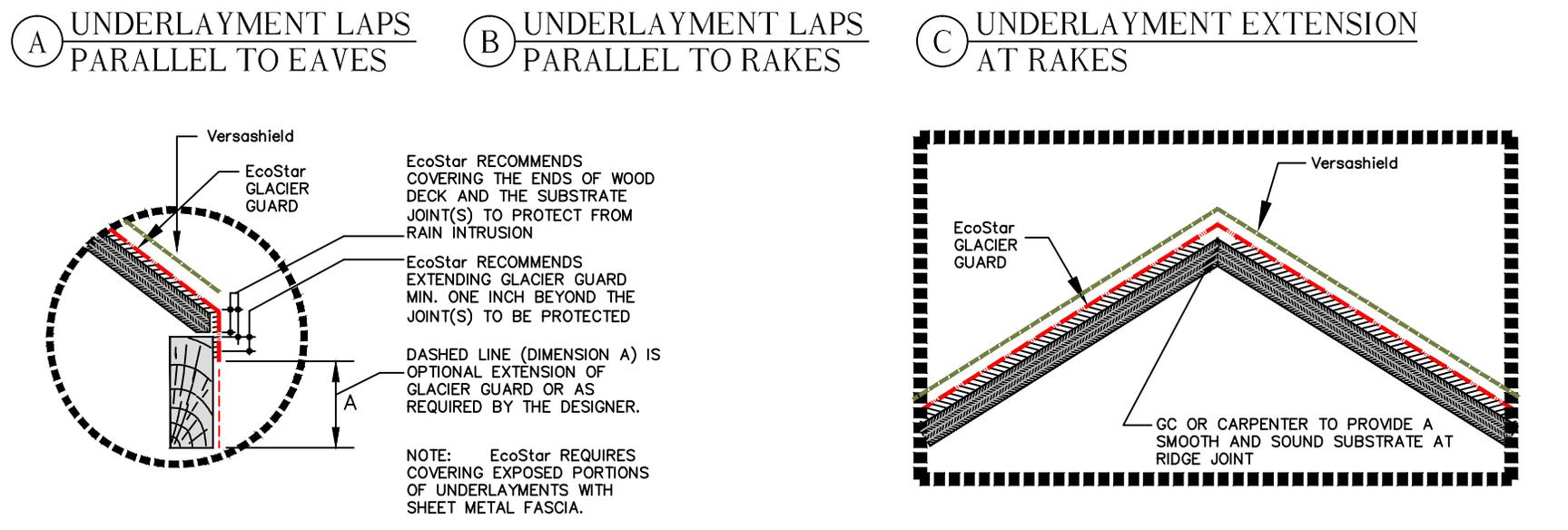
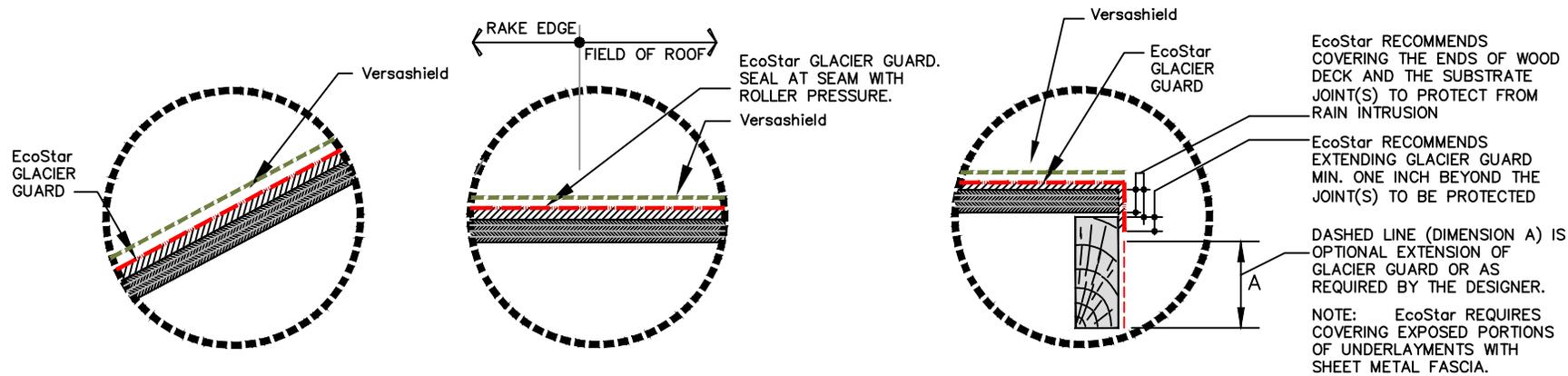
MAJESTIC SLATE TILES

REQUIRED LOCATIONS OF VERSASHIELD CLASS A UNDERLAYMENT - 2

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.6		

EM 2.7

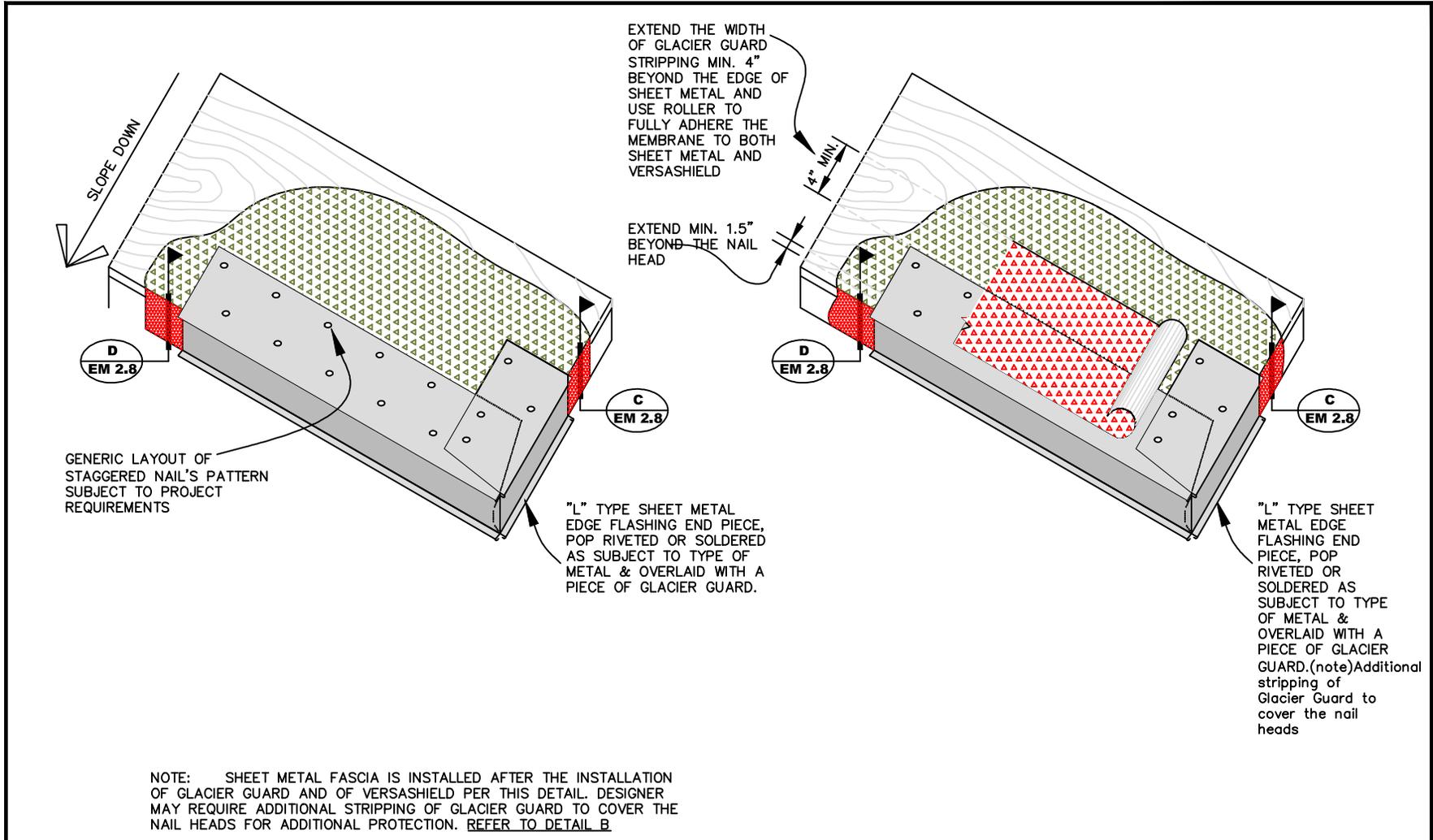


**MAJESTIC SLATE TILES**  
REQUIRED DETAILING OF CLASS A UNDERLAYMENTS - 1

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.6	EM2.7	EM2.9
EM2.4	EM2.5	

**EM 2.8**



(A) SHEET METAL EDGE

(B) SHEET METAL EDGE - OPTIONAL WITH ADDITIONAL STRIPPING



MAJESTIC SLATE TILES  
REQUIRED DETAILING OF CLASS A UNDERLAYMENTS - 2

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.6	EM2.7	EM2.8
EM3.1	EM3.3	EM3.4

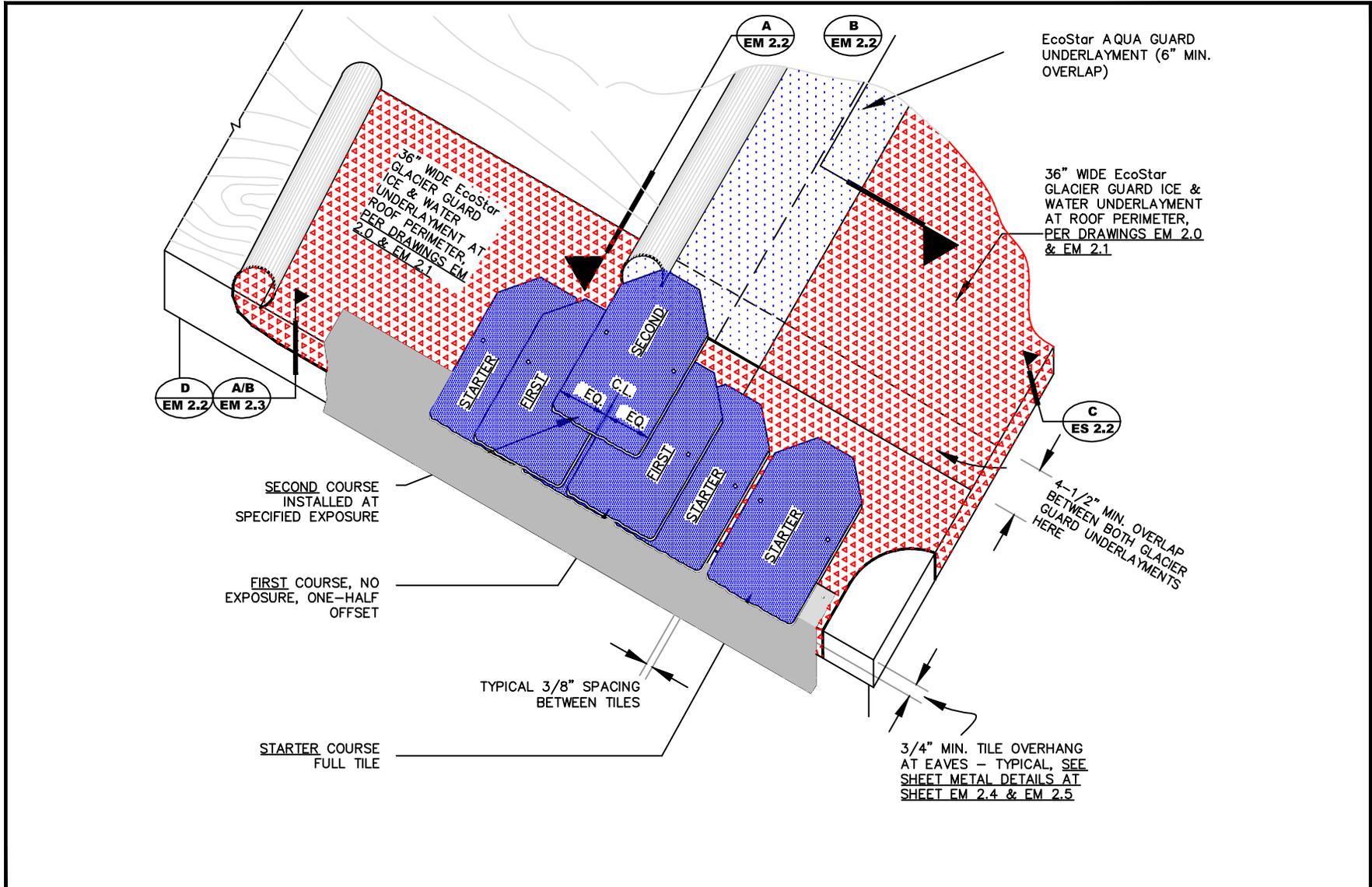
EM 2.9

3.0

# ROOF SYSTEM DETAILS



*MAJESTIC SLATE TILES*

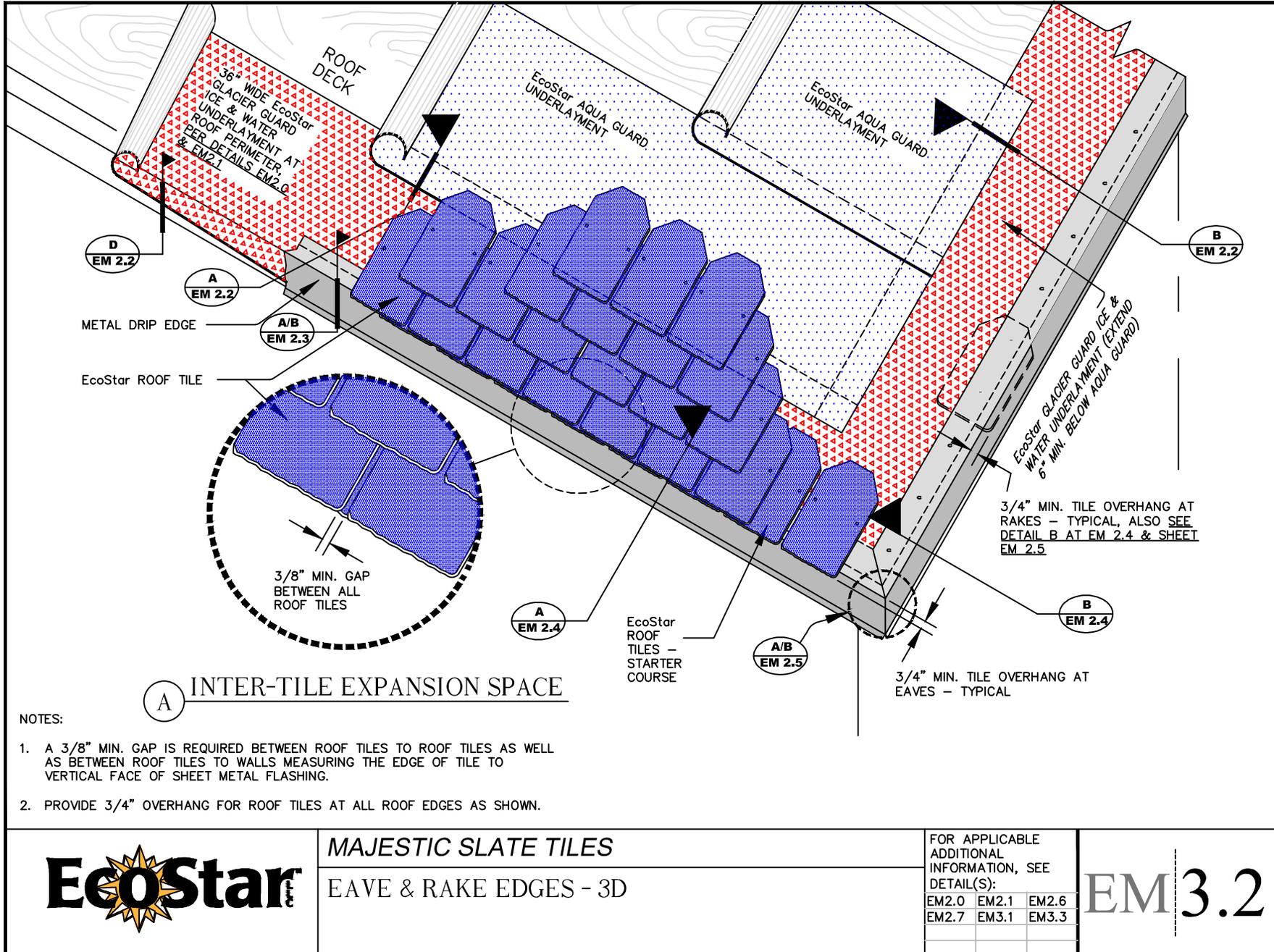


**MAJESTIC SLATE TILES**  
STARTER COURSE TILE APPLICATION 3D VIEW

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

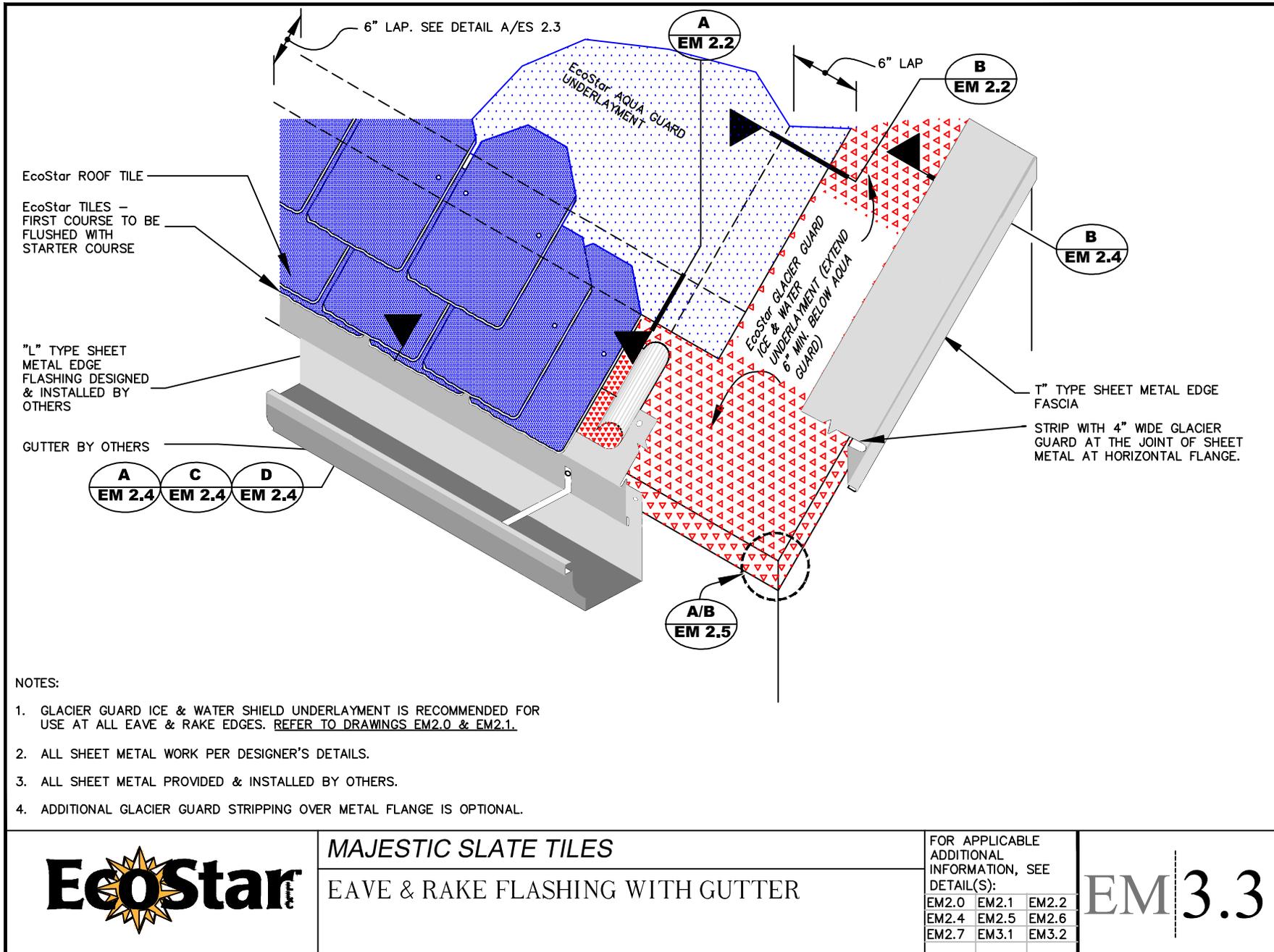
EM2.0	EM2.1	EM2.5
EM2.6	EM2.7	EM3.2
EM3.3	EM3.4	

EM 3.1

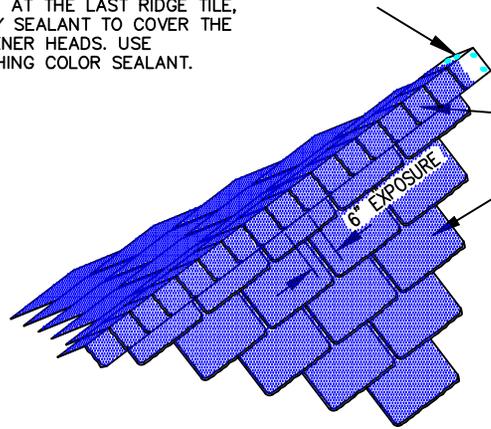


**MAJESTIC SLATE TILES**  
EAVE & RAKE EDGES - 3D

EM3.2



NOTE: AT THE LAST RIDGE TILE, APPLY SEALANT TO COVER THE FASTENER HEADS. USE MATCHING COLOR SEALANT.



EcoStar HIP & RIDGE TILE

EcoStar ROOF TILE

6" EXPOSURE

EcoStar HIP-&-RIDGE TILE IN ELEVATION BEYOND.

EcoStar HIP-&-RIDGE TILE, 6" EXPOSURE, ALIGNED WITH CENTER LINE (SEE INSET A ON THIS SHEET ALSO).

EcoStar 2-1/2" STAINLESS STEEL FASTENERS

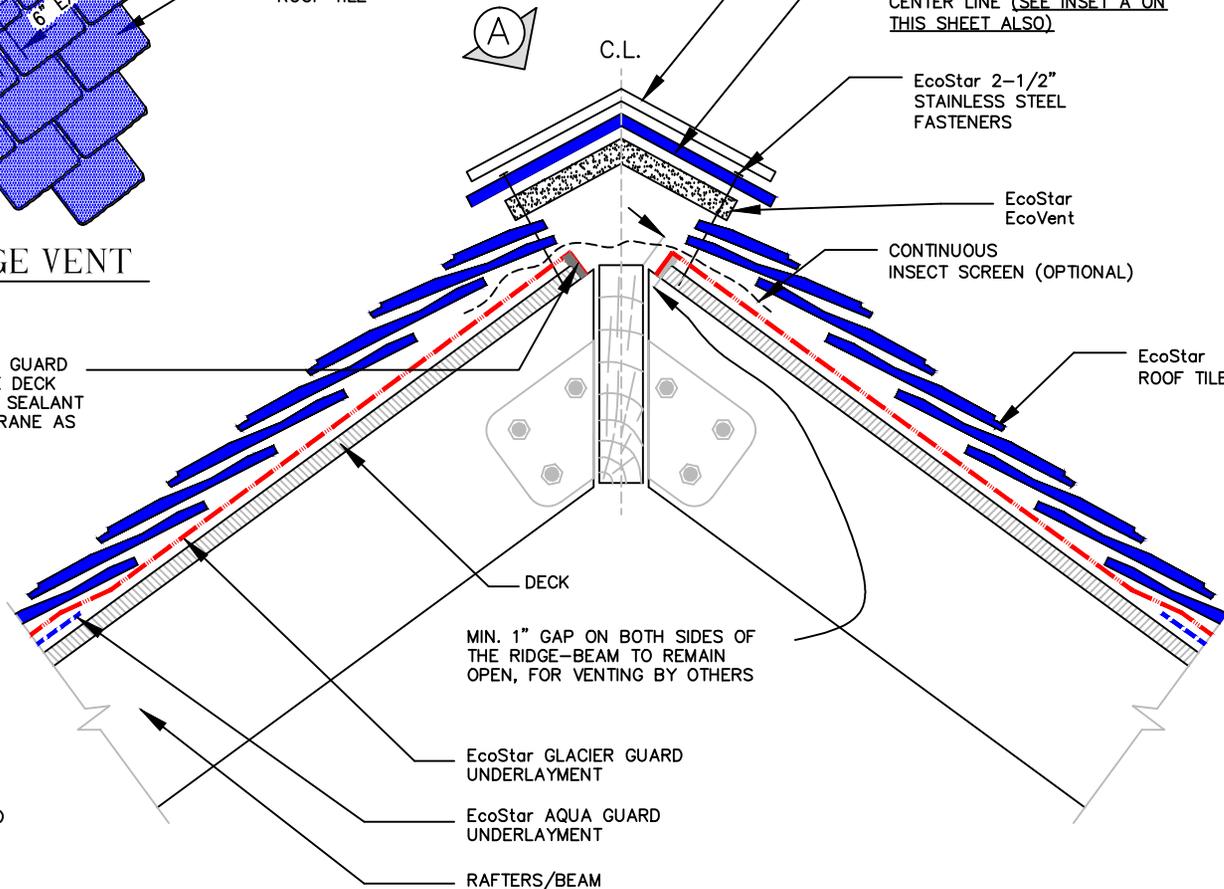
EcoStar EcoVent

CONTINUOUS INSECT SCREEN (OPTIONAL)

EcoStar ROOF TILE

**A** 3D - VIEW OF RIDGE VENT

TURN EcoStar GLACIER GUARD EDGE TO PROTECT THE DECK EDGE AT VENT. APPLY SEALANT TO ATTACH THE MEMBRANE AS NEEDED.



MIN. 1" GAP ON BOTH SIDES OF THE RIDGE-BEAM TO REMAIN OPEN, FOR VENTING BY OTHERS

EcoStar GLACIER GUARD UNDERLAYMENT

EcoStar AQUA GUARD UNDERLAYMENT

RAFTERS/BEAM

NOTES:

1. DESIGNER MAY DESIGN A MOISTURE CONTAINER SYSTEM UNDER THE RIDGE VENT AREA, WHERE IT IS DEEMED NECESSARY TO CONTAIN MOISTURE IN A PAN.
2. ROOFER TO ENSURE THAT APPROVED LENGTH FASTENERS ARE USED TO INSTALL RIDGE TILES, WHICH ARE LONGER THAN REGULAR FASTENERS. REFER TO SPECIFICATIONS.

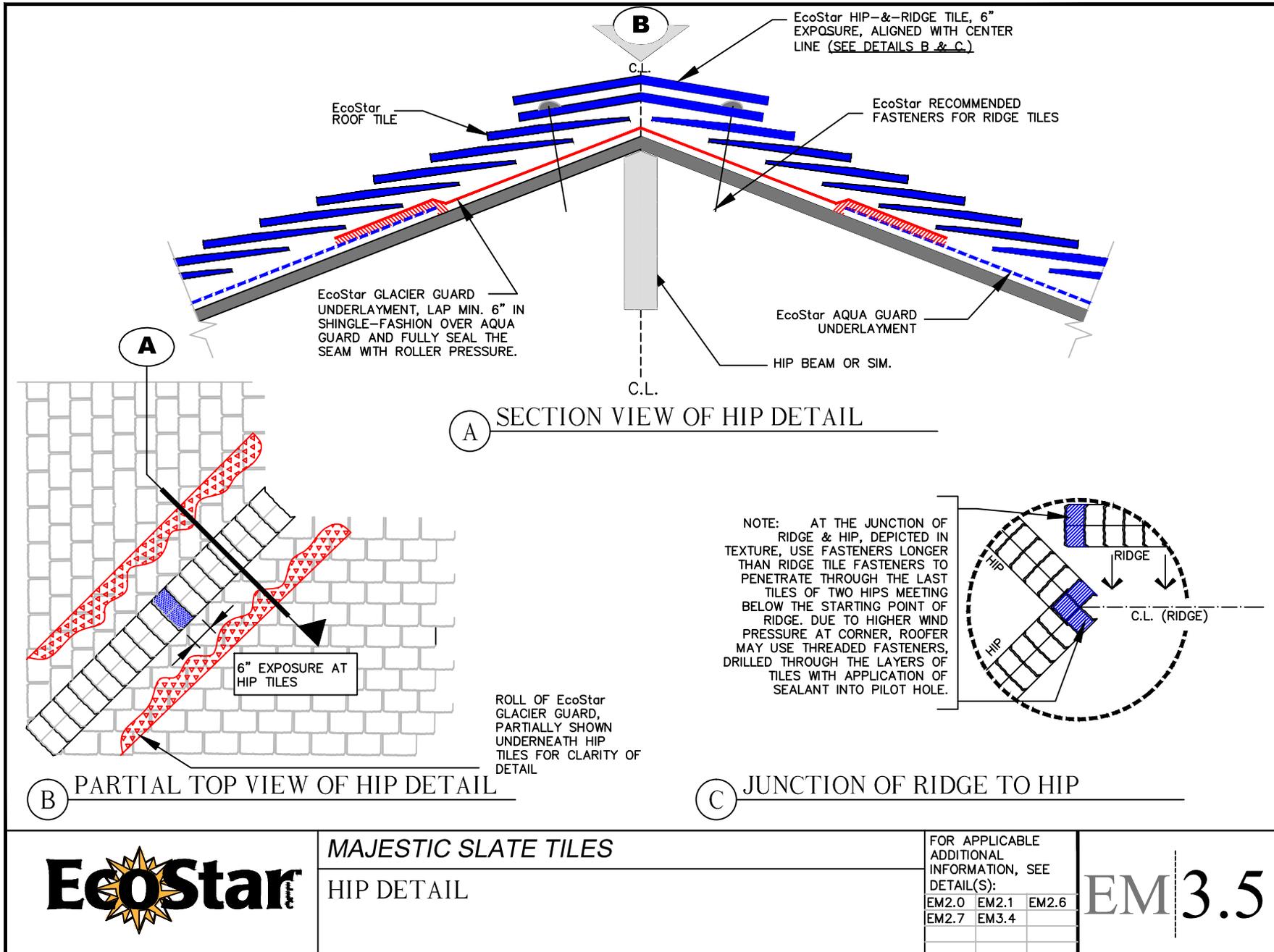


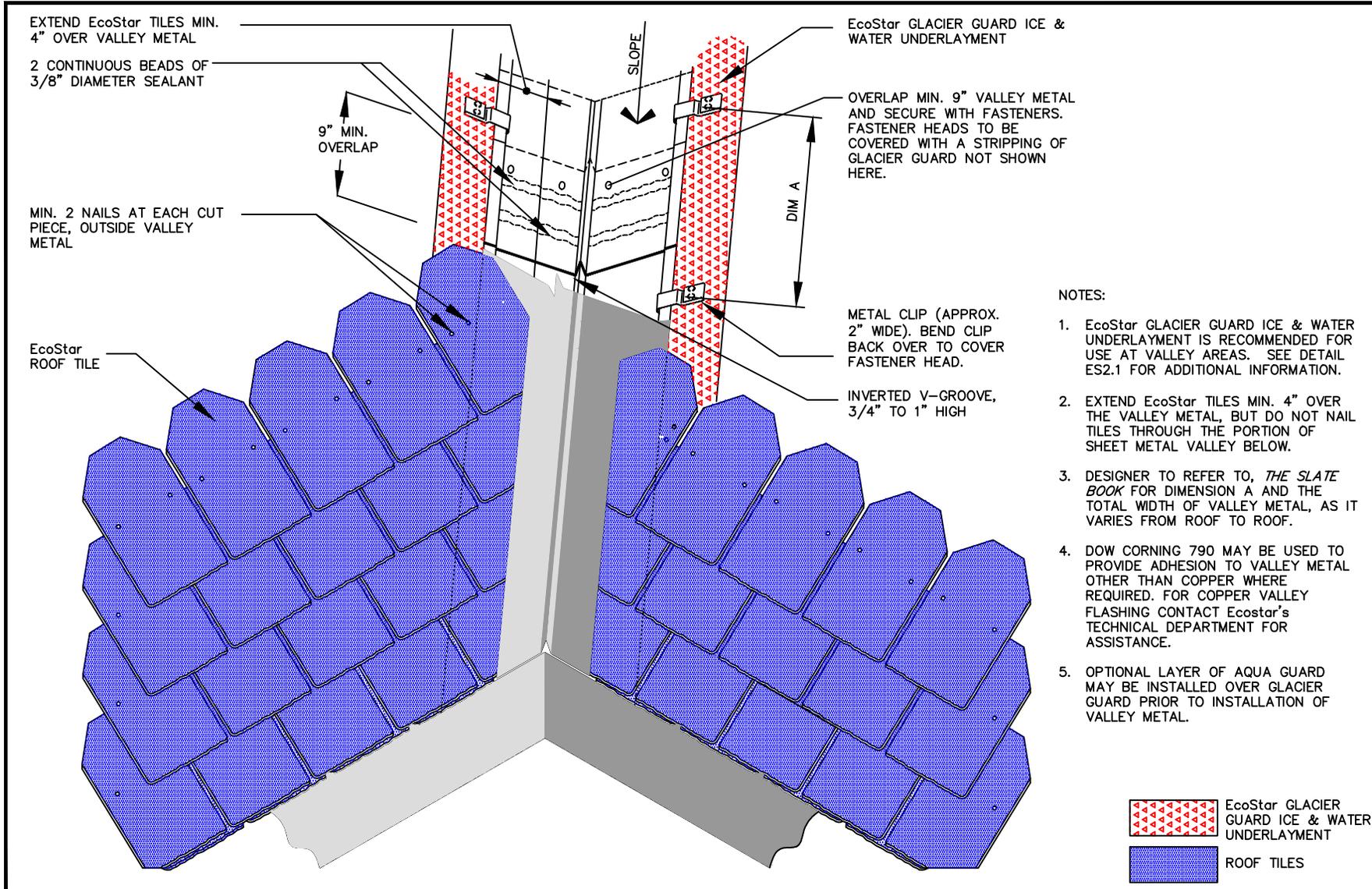
MAJESTIC SLATE TILES  
RIDGE DETAIL WITH RIDGE VENT

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.0	EM2.1	EM2.2
EM2.6	EM2.7	EM3.5

EM3.4





MAJESTIC SLATE TILES  
OPEN VALLEY FLASHING DETAIL

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

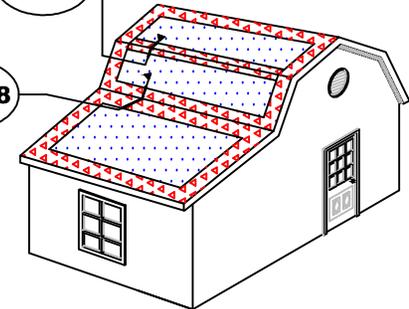
EM2.0	EM2.1	EM2.6
EM2.7		

EM3.6

NOTE: APPLICATION OF ADDITIONAL STRIPPING OF GLACIER GUARD IS RECOMMENDED IN SNOW COUNTRIES PER DETAIL A SHEET EM2.4 OR AS REQUIRED BY THE ROOF DESIGNER.

EM 3.7

EM 3.8



EM 3.1

SLOPE TRANSITION, SHEET METAL FASCIA SECURED WITH APPROVED LENGTH & TYPE OF FASTENERS.

SHEET METAL CLIP SECURED THROUGH THE TOP COURSE OF ROOF TILES WITH APPROVED LENGTH & TYPE OF FASTENERS.

CONTRACTOR TO ANTICIPATE A CONSISTENT EXPOSURE WITH ROOF

CONTINUOUS SHEET METAL CLIP

TYPICAL LAYOUT OF AQUA GUARD UNDERLAYMENT

THE FIRST ROLL OF UPPER SLOPE MAY START OVERLAPPING THE TOP OF LOWER SLOPE (OPTIONAL)

CUT TILES, IF REQUIRED, PER EcoStar APPROVED SPECIFICATIONS.

FIRST, INSTALL AN 18" WIDE ROLL OF GLACIER GUARD AS A REINFORCEMENT & CUSHION STRIP AT THE JOINT

-  EcoStar AQUA GUARD UNDERLAYMENT
-  EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT
-  ROOF TILES

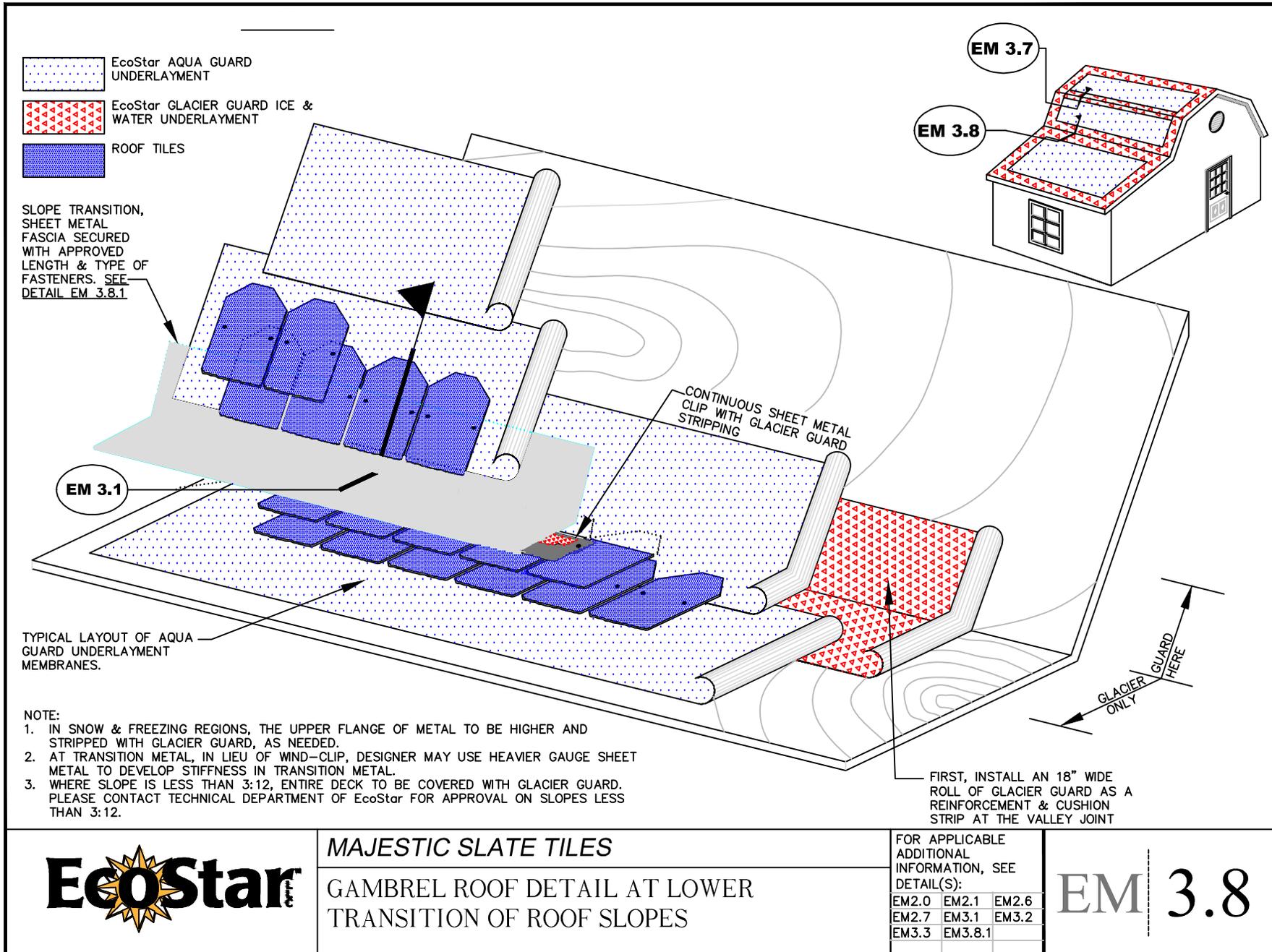


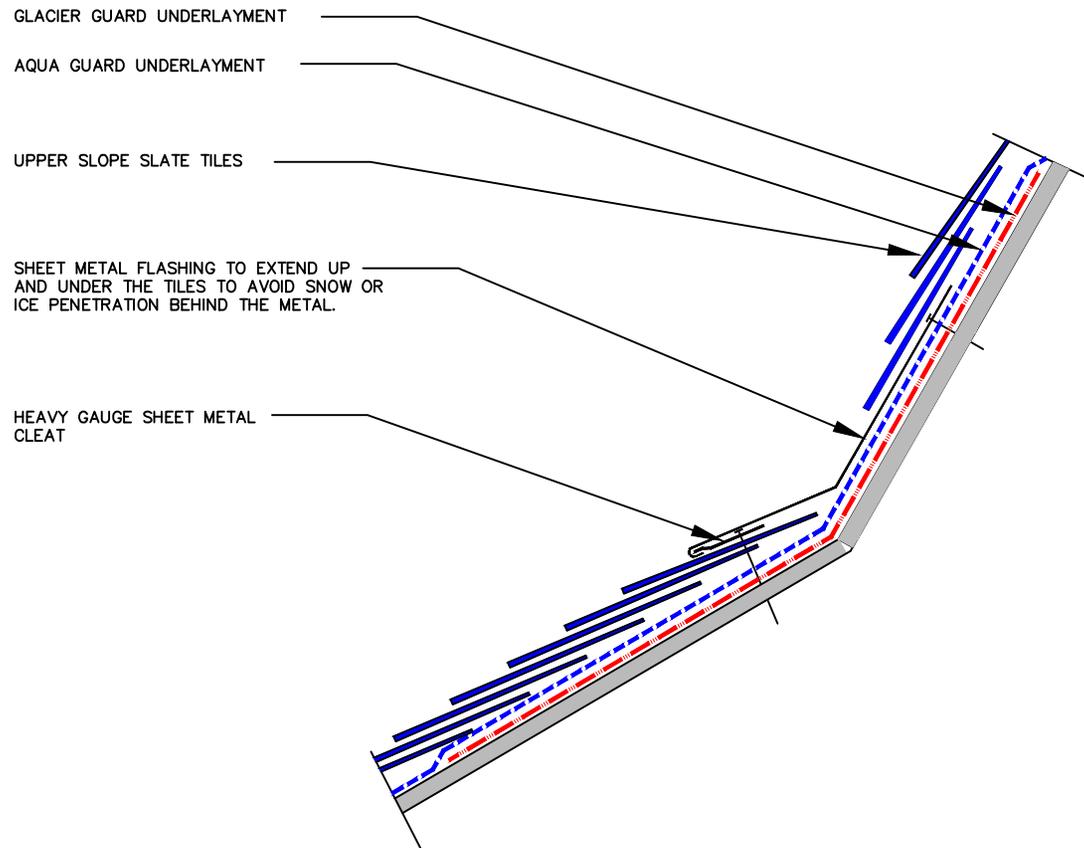
**MAJESTIC SLATE TILES**  
GAMBREL ROOF DETAIL AT UPPER TRANSITION OF ROOF SLOPES

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.0	EM2.1	EM2.6
EM2.7	EM3.1	EM3.2
EM3.3		

EM 3.7





NOTE:

1. APPLICATION OF SEALANT AT SHEET METAL FASTENER'S PILOT HOLES FOR SHEET METAL FLASHING IS SUGGESTED FOR LOW SLOPES OR AREAS, WHERE WIND-DRIVEN RAIN OR MELTING ICE MAY PENETRATE AROUND FASTENER'S LOCATIONS.



MAJESTIC SLATE TILES

GENERIC DETAIL OF SHEET METAL FLASHING AT SLOPE TRANSITION

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.2	EM2.1	EM2.6
EM2.7	EM3.8	

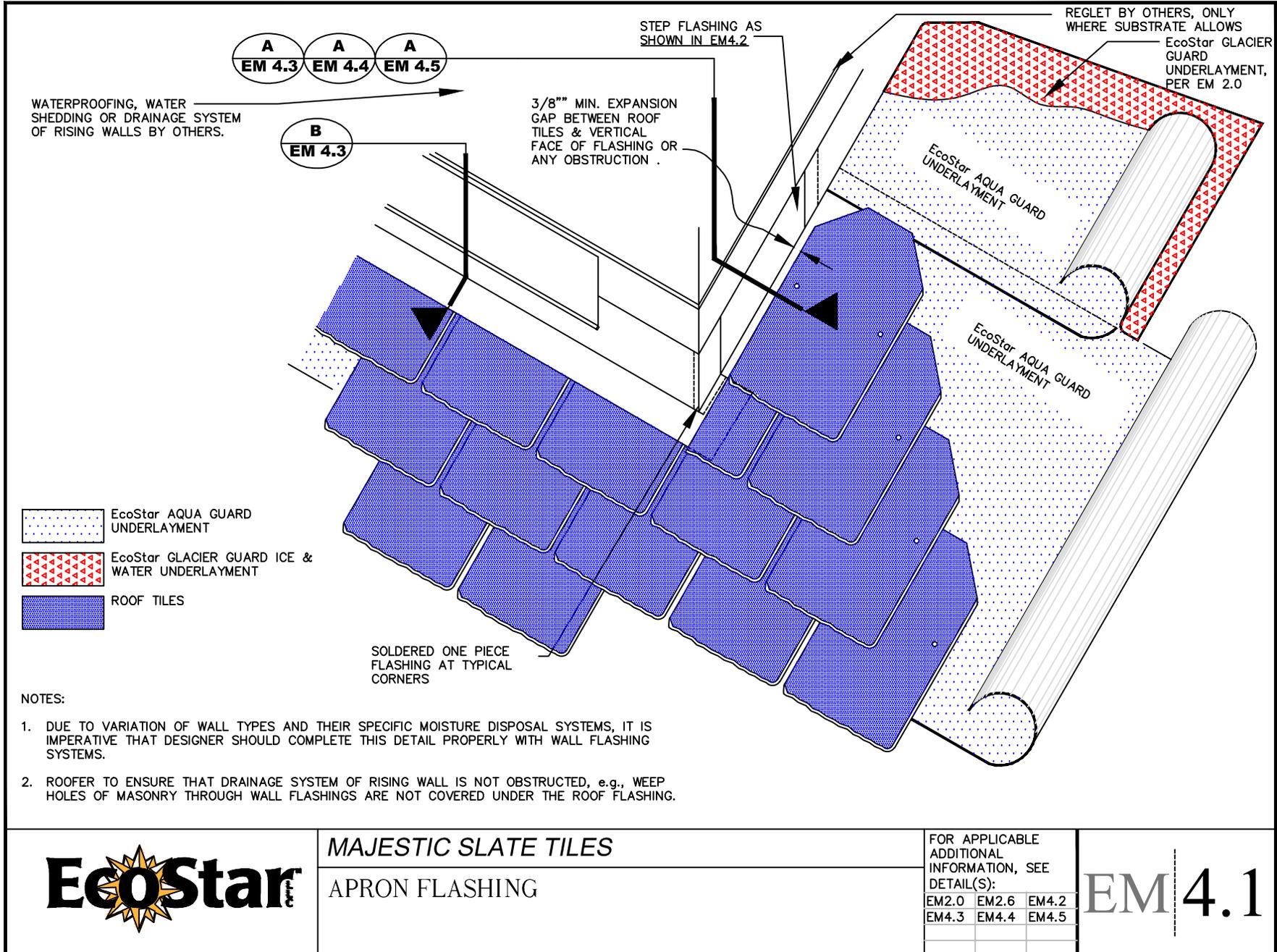
EM 3.8.1

4.0

# WALL FLASHING DETAILS



*MAJESTIC SLATE TILES*



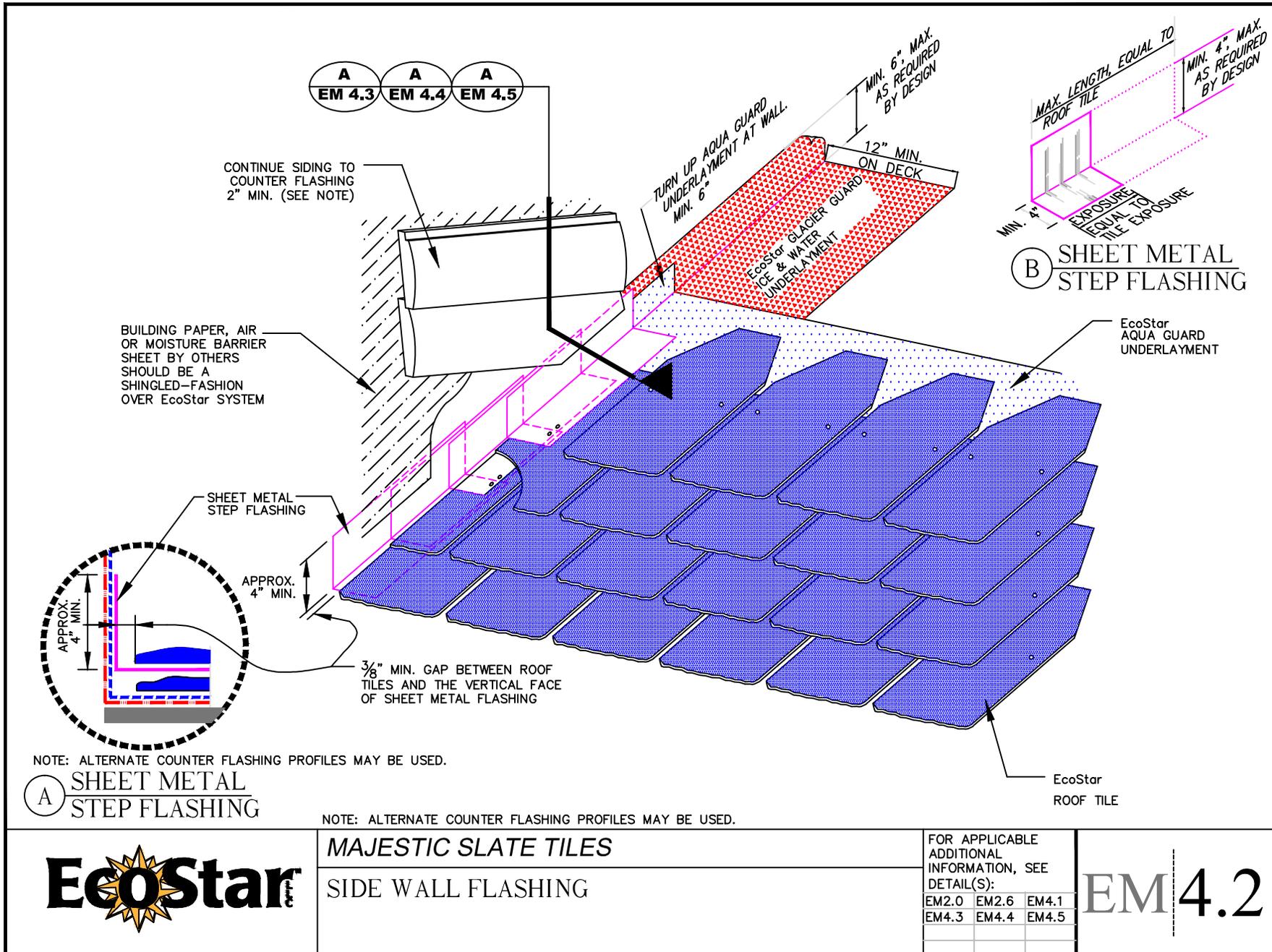
MAJESTIC SLATE TILES

APRON FLASHING

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.0	EM2.6	EM4.2
EM4.3	EM4.4	EM4.5

EM 4.1



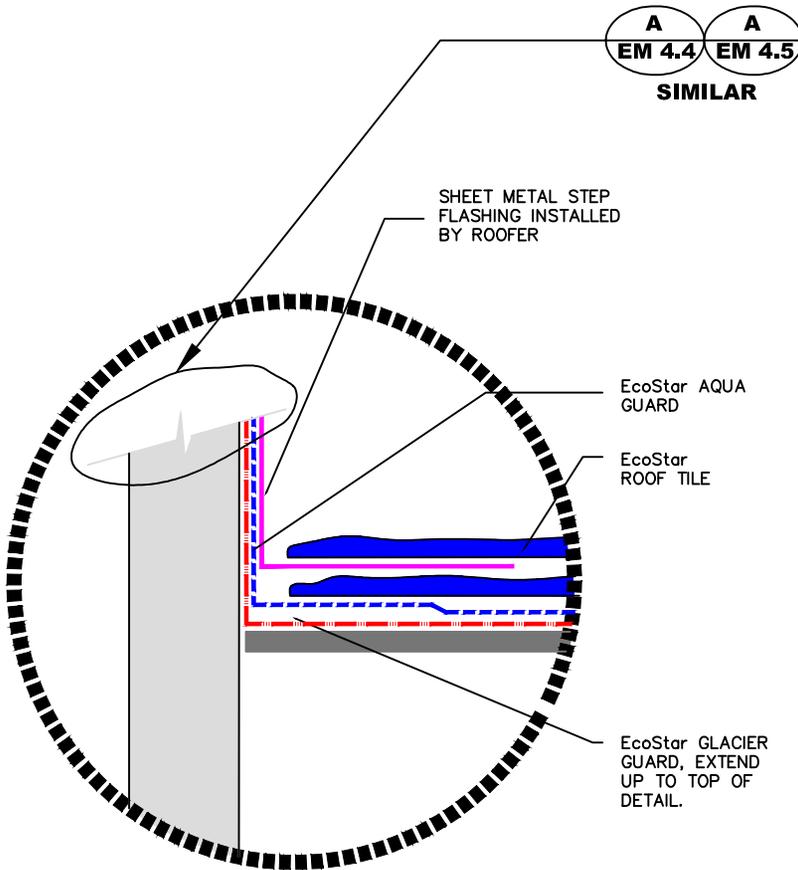
MAJESTIC SLATE TILES

SIDE WALL FLASHING

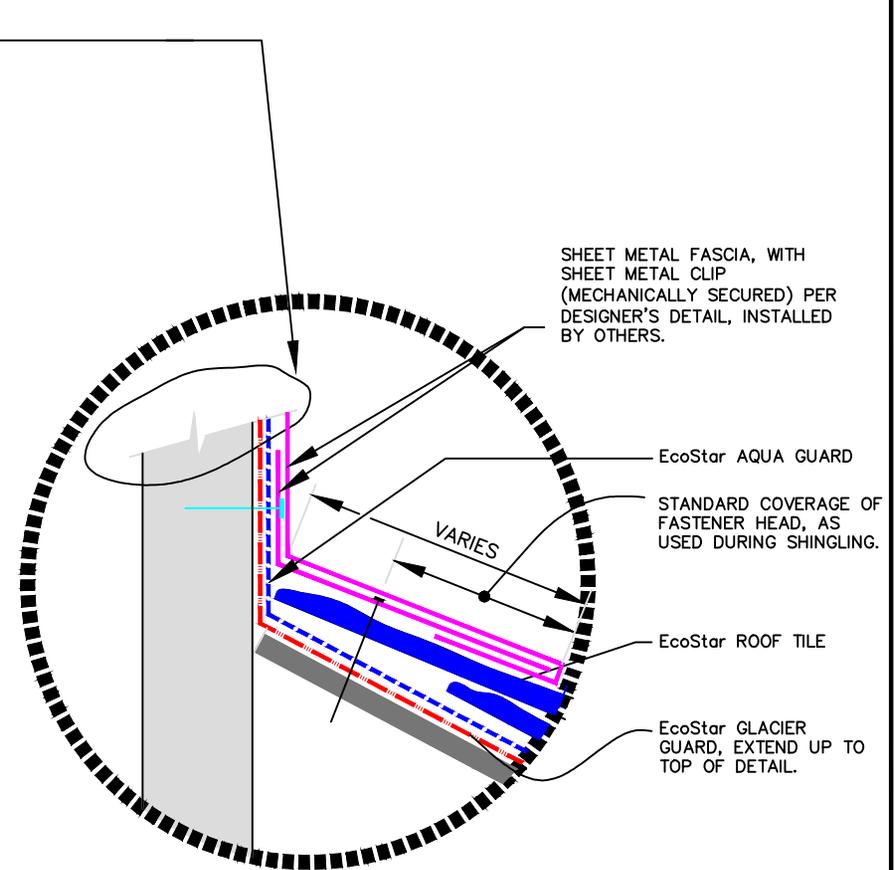
FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

EM2.0	EM2.6	EM4.1
EM4.3	EM4.4	EM4.5

EM4.2



**A** RISING SIDE-WALL FLASHING



**B** RISING WALL FLASHING AT TOP END OF ROOF

NOTE: CONTACT THE TECHNICAL STAFF OF EcoStar, WHERE A VENTING DETAIL IS REQUIRED AT THE BASE OF WALL.



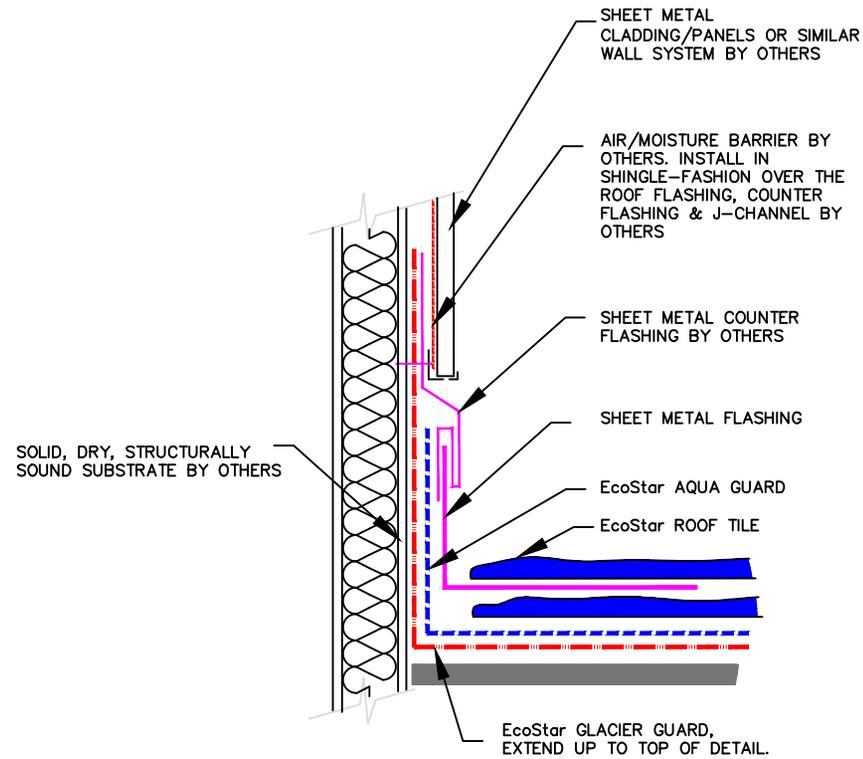
MAJESTIC SLATE TILES

SECTION DETAILS OF RISING WALL - 1

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

EM2.0	EM2.6	EM4.1
EM4.2	EM4.4	EM4.5

EM 4.3



(A) TYPE 'B' CONCEALED COUNTER FLASHING  
 WALL TYPES: SIDINGS, METAL PANELS



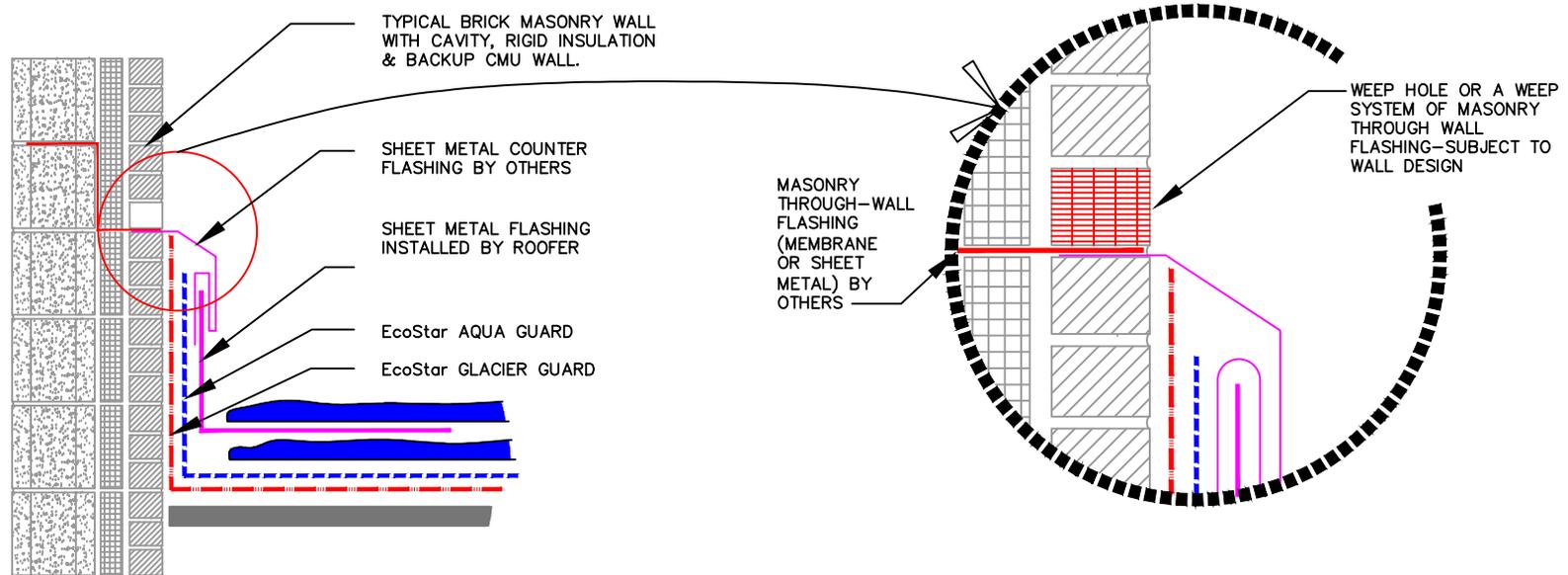
MAJESTIC SLATE TILES

SECTION DETAIL OF RISING WALL - 2

FOR APPLICABLE  
 ADDITIONAL  
 INFORMATION, SEE  
 DETAIL(S):

EM2.0	EM2.6	EM4.1
EM4.2	EM4.3	EM4.5

EM4.4



NOTE:

1. ROOFER TO ENSURE THAT NO WEEP HOLES ARE COVERED UNDER FLASHING SYSTEM, AS STEP-DOWN MASONRY WALL FLASHING SYSTEM WILL HAVE WEEP HOLES AT DIFFERENT ELEVATIONS ALONG THE BASE OF WALL.
2. ROOFING FLASHING MUST BE BRIDGED UNDER THE SHEET METAL DRIP EDGE. EXTEND GLACIER GUARD TO BOTTOM OF SHEET METAL DRIP EDGE AND COVER WITH AQUA GUARD AND SHEET METAL

**A** TYPE 'C' BRIDGING TO THROUGH-WALL FLASHING  
WALL TYPES: MASONRY WALL WITH ITS FLASHING SYSTEM



MAJESTIC SLATE TILES

SECTION DETAILS OF RISING WALL - 3

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

EM2.0	EM2.6	EM4.1
EM4.2	EM4.3	EM4.4

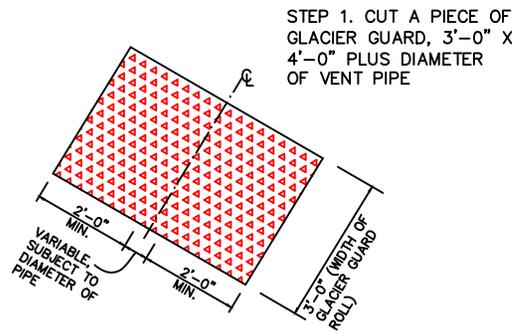
EM4.5

5.0

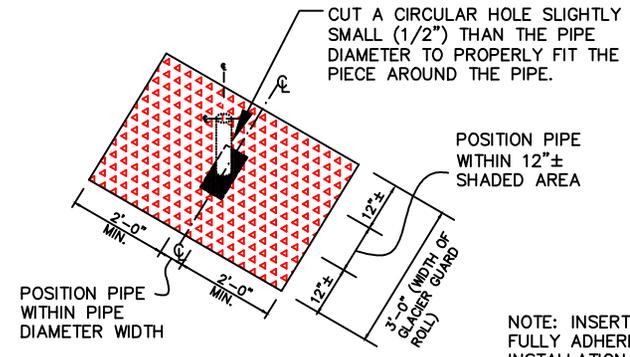
# ROOF PENETRATION DETAILS



*MAJESTIC SLATE TILES*

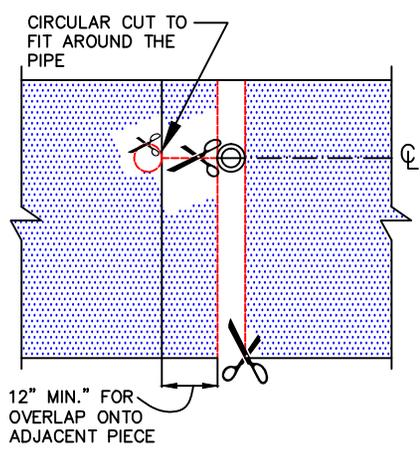


**A** STEP 1 - CUT A PIECE OF GLACIER GUARD

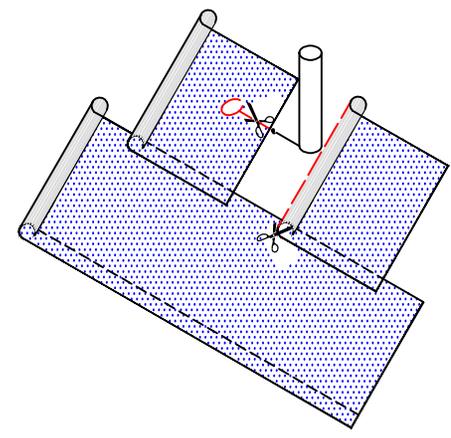


**B** STEP 2 - INSTALLATION OF PIECE

NOTE: INSERT THE PIECE OVER THE PIPE AND FULLY ADHERE TO ROOF DECK, PRIOR TO THE INSTALLATION OF AQUA GUARD UNDERLAYMENT

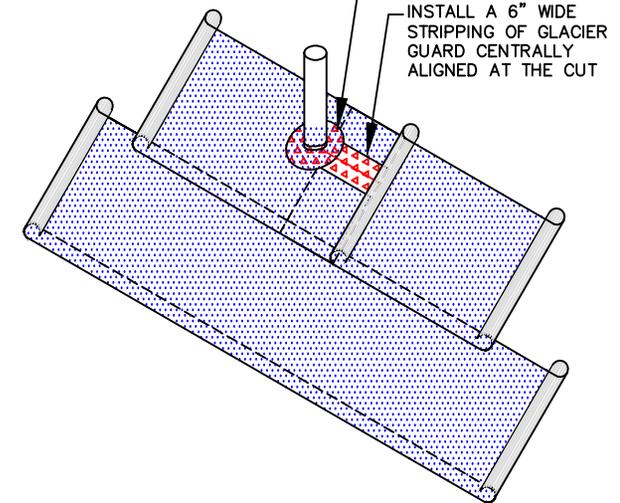


**C** STEP 3 - AQUA GUARD FABRICATION AT PIPE



**D** 3-D VIEW OF STEP 3

OPTIONAL: ADDITIONAL STRIPPING OF GLACIER GUARD AROUND THE PIPE. EXTEND MIN. 2" VERTICALLY UP. SEE DETAIL A SHEET EM 5.2.



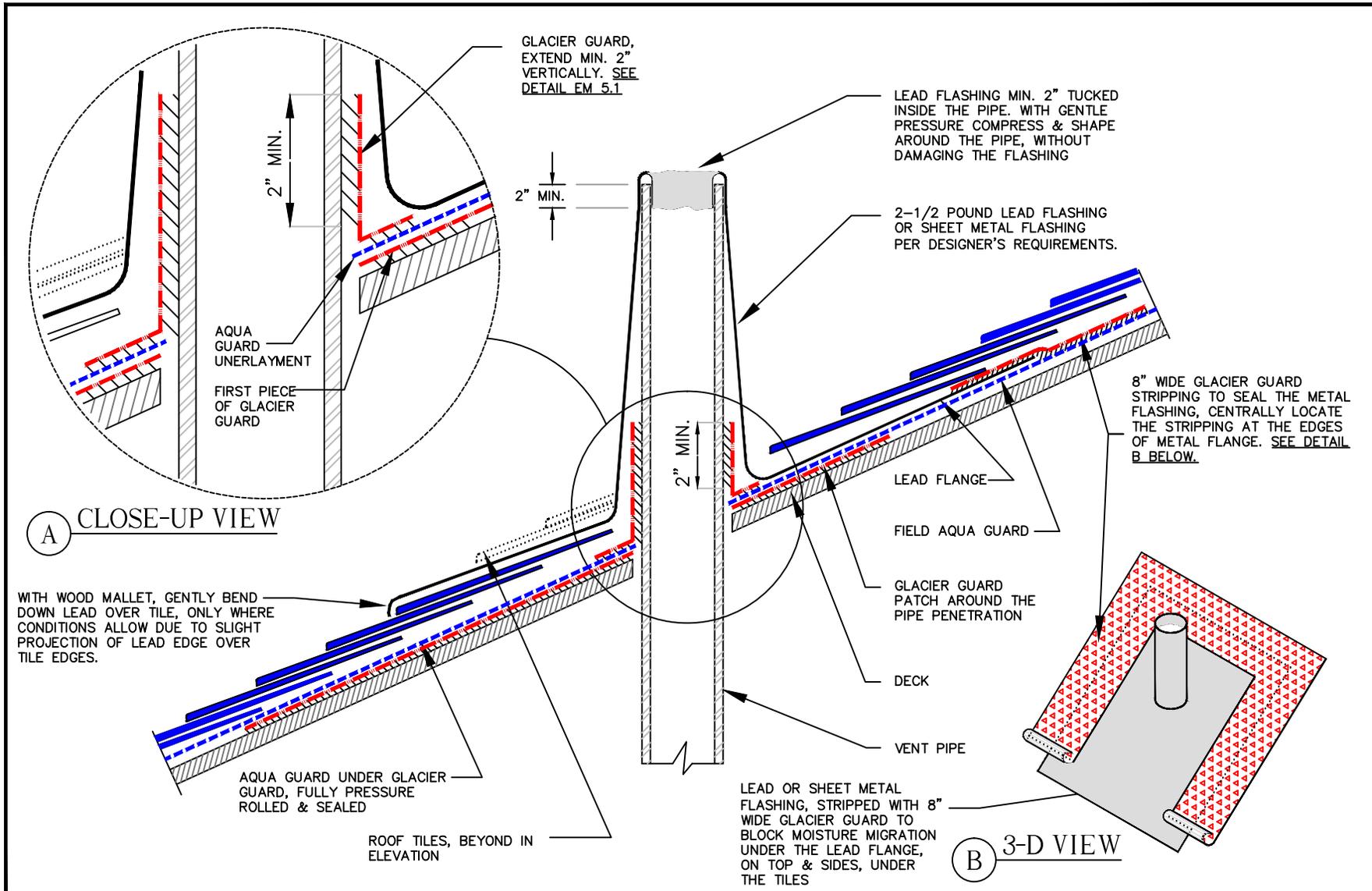
**E** STEP 4 - INSTALLATION OF AQUA GUARD & STRIPPING



MAJESTIC SLATE TILES  
VENT STACK (UNDERLAYMENT LAYOUT) PAGE 1 OF 3

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):	
EM5.2	EM5.3

EM 5.1

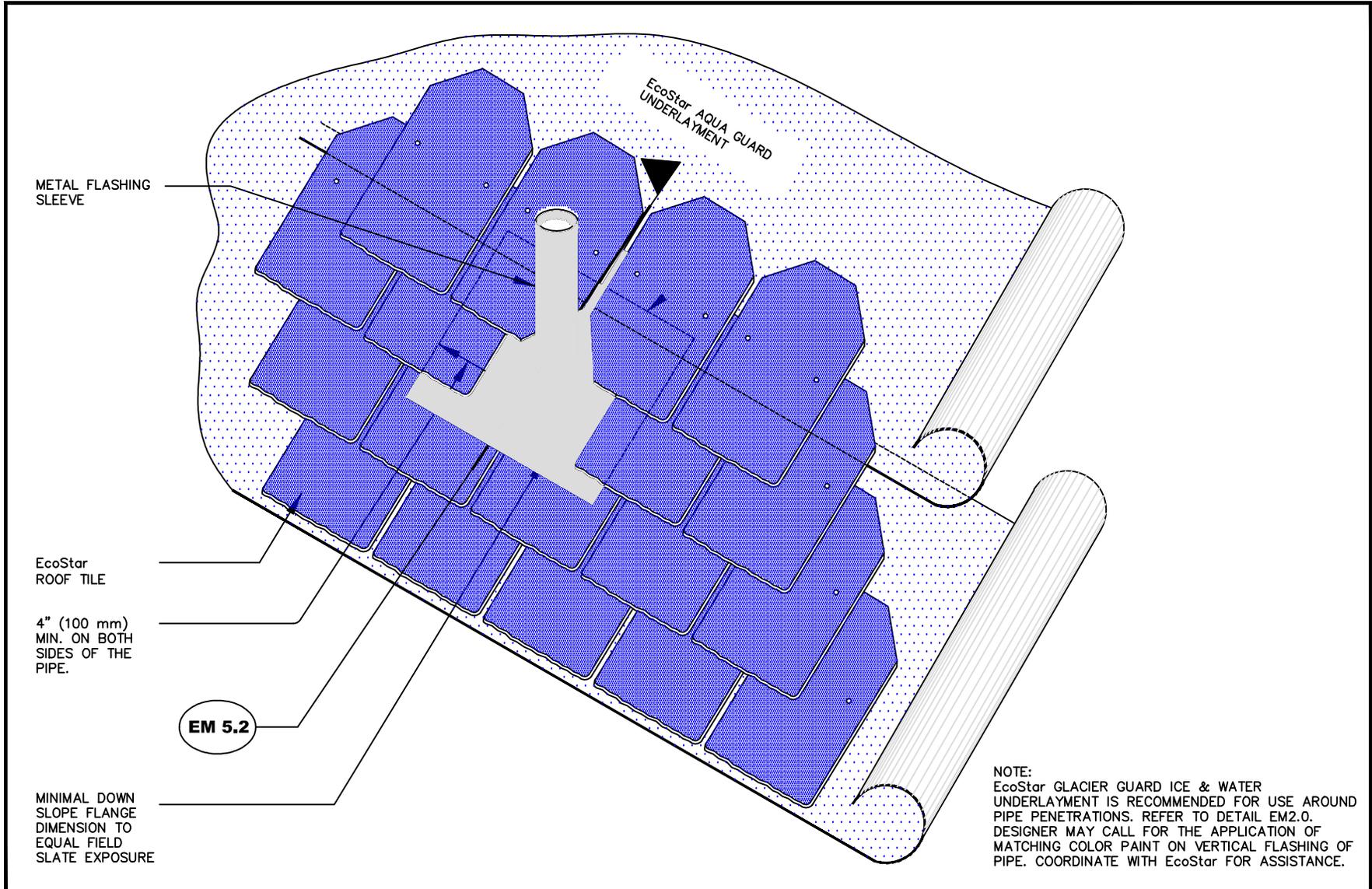


**MAJESTIC SLATE TILES**

VENT STACK (METAL FLASHING) PAGE 2 OF 3

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):  
EM5.1 EM5.3

EM 5.2



**MAJESTIC SLATE TILES**

VENT STACK (TILES 3D VIEW) PAGE 3 OF 3

FOR APPLICABLE  
 ADDITIONAL  
 INFORMATION, SEE  
 DETAIL(S):  
 EM5.1 EM5.2

**EM 5.3**

6.0

# ROOF ACCESSORIES DETAILS



*MAJESTIC SLATE TILES*





# 2011 **EcoStar** ROOF SYSTEM SENECA SHAKE TILES™



# **EcoStar**™

**Ecostar LLC**  
42 Edgewood Dr.  
Holland ,NY 14080 USA  
1-800-211-7170  
www.ecostarllc.com

0.0

# DRAWINGS INDEX & GENERAL INFORMATION



*SENECA SHAKE TILES*

1		DRAWING INDEX		
DETAIL SERIES	DETAIL NO.	DESCRIPTION		
EcoStar SENECA (ES) SERIES DETAILS		<b>0.0 DRAWINGS INDEX &amp; GENERAL INFORMATION</b>		
	ES 0.1	DRAWING INDEX – PAGE 1		
	ES 0.2	DRAWING INDEX – PAGE 2		
	ES 0.3	PRODUCTS LEGEND – PAGE 1 OF 2		
	ES 0.4	PRODUCTS LEGEND – PAGE 2 OF 2		
	ES 0.5	EcoStar GENERAL NOTES – PAGE 1 OF 2		
	ES 0.6	EcoStar GENERAL NOTES – PAGE 2 OF 2		
			<b>1.0 DESIGN DEVELOPMENT STAGE</b>	
	ES 1.1	SLOPE SCHEDULE & TILE EXPOSURE RECOMMENDATIONS		
			<b>2.0 UNDERLAYMENT LOCATIONS &amp; GENERIC EDGE DETAILS</b>	
	ES 2.0	RECOMMENDED LOCATIONS OF AQUA GUARD & GLACIER GUARD UNDERLAYMENTS – 1		
	ES 2.1	RECOMMENDED LOCATIONS OF AQUA GUARD & GLACIER GUARD UNDERLAYMENTS – 2		
	ES 2.2	RECOMMENDED DETAILING OF UNDERLAYMENTS – 1		
	ES 2.3	RECOMMENDED DETAILING OF UNDERLAYMENTS – 2		
	ES 2.4	RECOMMENDED DETAILING OF TILES NEAR EDGES		
	ES 2.5	RECOMMENDED DETAILING OF SHEET METAL NEAR EDGES		
	ES 2.6	RECOMMENDED LOCATIONS OF VERSASHIELD CLASS A UNDERLAYMENTS – 1		
	ES 2.7	RECOMMENDED LOCATIONS OF VERSASHIELD CLASS A UNDERLAYMENTS – 2		
	ES 2.8	RECOMMENDED DETAILING OF CLASS A UNDERLAYMENTS – 1		
	ES 2.9	RECOMMENDED DETAILING OF CLASS A UNDERLAYMENTS – 2		
			<b>3.0 ROOF SYSTEM DETAILS</b>	
	ES 3.1	STARTER COURSE TILE APPLICATION 3D VIEW		
			SENECA SHAKE TILES	
			DRAWING INDEX - PAGE 1 OF 2	
			<b>EcoStar:</b> STEEP SLOPED ROOF SYSTEMS   EcoStar SENECA SHAKE TILES  EcoStar MAJESTIC SLATE TILES	
			EcoStar SENECA <b>ES 0.1</b>	

2		DRAWING INDEX		
DETAIL SERIES	DETAIL NO.	DESCRIPTION		
EcoStar SENECA (ES) SERIES DETAILS	ES 3.2	EAVE & RAKE EDGES – 3D VIEW		
	ES 3.3	EAVE & RAKE FLASHING WITH GUTTER		
	ES 3.4	RIDGE DETAIL WITH RIDGE VENT		
	ES 3.5	HIP DETAIL		
	ES 3.6	OPEN VALLEY FLASHING DETAIL		
	ES 3.7	GAMBREL ROOF DETAIL AT UPPER TRANSITION OF SLOPE		
	ES 3.8	GAMBREL ROOF DETAIL AT LOWER TRANSITION OF SLOPE		
	ES 3.8.1	GENERIC DETAIL OF SHEET METAL FLASHING AT SLOPE TRANSITION		
			<b>4.0 WALL FLASHING DETAILS</b>	
	ES 4.1	APRON FLASHING		
	ES 4.2	SIDE WALL FLASHING		
	ES 4.3	SECTION DETAILS OF RISING WALL – 1		
	ES 4.4	SECTION DETAILS OF RISING WALL – 2		
	ES 4.5	SECTION DETAILS OF RISING WALL – 3		
		<b>5.0 ROOF PENETRATION DETAILS</b>		
ES 5.1	VENT STACK FLASHING DETAIL – 3D VIEW			
ES 5.2	VENT STACK FLASHING – SECTION DETAIL			
ES 5.3	VENT STACK – UNDERLAYMENT LAYOUT DETAILS			
		<b>6.0 ROOF ACCESSORIES DETAIL</b>		
ES 6.1	COPPER SNOW GUARDS DETAIL			
ES 6.2	ALUMINUM SNOW GUARDS DETAIL			
ES 6.3	TYPICAL LAYOUT OF EcoStar SNOW GUARDS			

**EcoStar:**  
STEEP SLOPED ROOF SYSTEMS

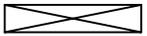
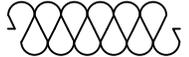
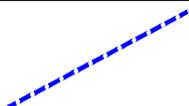
 EcoStar SENECA SHAKE TILES  
 EcoStar MAJESTIC SLATE TILES



SENECA SHAKE TILES  
DRAWING INDEX - PAGE 2 OF 2

EcoStar SENECA  
**ES 0.2**

# LEGEND

	EcoStar AQUA GUARD UNDERLAYMENT		EXISTING WOOD BLOCKING
	EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT		NEW WOOD BLOCKING
	ROOF TILES (SENECA SHAKE TILES) SURFACE TEXTURE SHOWN IN ELEVATION, PLAN AND 3-D VIEWS.		BATT INSULATION
	EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT		FACE BRICK
	EcoStar GLACIER GUARD – HATCH LINES DEPICT FULLY ADHERED WITH PRESSURE ROLLER.		CMU (CONCRETE MASONRY UNITS)
	EcoStar AQUA GUARD UNDERLAYMENT		SNOW GUARD – COPPER (DEPICTED RED ON COLORED DRAWING)
	ROOF TILES (SENECA SHAKE TILES) SHOWN IN CROSS-SECTION OF A DETAIL		SNOW GUARD – ALUMINUM (DEPICTED GRAY ON COLORED DRAWINGS)
	PLYWOOD OR OSB (ORIENTED STRAND BOARD) WOOD DECK	<b>ABBREVIATIONS</b>	
	CAVITY WALL INSULATION	⊕	CENTER LINE OF OBJECT
		<b>EcoStar ALL ROOF TILES PRODUCTS</b>	
		<b>PRODUCTS LEGEND &amp; ABBREVIATIONS</b>	
		EcoStar SENECA	
		<b>ES 0.3</b>	
		© 2011 ECOSTAR LLC	
		www.eurokrov.ru	
		Тел. (495) 725-04-55	

# LEGEND

	GAF/ELK VERSASHIELD UNDERLAYMENT	
	GAF/ELK VERSASHIELD OVER GLACIER GUARD ICE & WATER UNDERLAYMENT	
	GAF/ELK VERSASHIELD UNDERLAYMENT	
	EcoStar ALL ROOF TILES PRODUCTS PRODUCTS LEGEND & ABBREVIATIONS - PAGE 2 OF 2	EcoStar SENECA <b>ES 0.4</b>

## GENERAL NOTES

### A. INTRODUCTION

1. EcoStar PREPARED THE FOLLOWING DRAWINGS TO CONVENE THE DETAILING OF ROOFING PROJECTS FOR DESIGNERS & INSTALLATION FOR ROOFING CONTRACTORS. TWO SEPARATE SETS OF DETAILS ARE PREPARED BASED ON SENECA SHAKE AND SLATE ROOFS. PLEASE REQUEST THE DESIRED SET OF DETAILS FROM THE TECHNICAL STAFF OF EcoStar AT (800)211-7170 OR LOG ON [www.ecostarllc.com](http://www.ecostarllc.com) .
2. ON NEW CONSTRUCTION, ARCHITECTS & ENGINEERS ARE ADVISED DURING DESIGN DEVELOPMENT STAGE TO REFER TO SHEET ES 1.1 TO ENSURE THAT REQUIRED ROOF SLOPE IS ANTICIPATED AT THIS STAGE TO ACHIEVE A DESIRED TILE EXPOSURE. A MINIMUM SLOPE OF 3:12 IS RECOMMENDED TO PROCEED WITH THE DESIGN OF ROOF DECK.
3. ON EXISTING BUILDINGS, EcoStar RECOMMENDS THE OWNERS TO EMPLOY THE SERVICES OF A DESIGNER. THE USE OF WORD "DESIGNER" IN THIS DOCUMENT REPRESENTS A LICENSED ARCHITECT, A LICENSED ENGINEER AND A REGISTERED ROOF CONSULTANT. A QUALIFIED ROOFING AND A SHEET METAL CONTRACTOR AS APPROVED BY EcoStar AND LISTED AS A "GOLD STAR AUTHORIZED APPLICATOR" (GSAA) MAY BE CONTACTED DURING THE DESIGN STAGE & DETAILING FOR CONSTRUCTION RELATED ISSUES.
4. ON RE-ROOFING PROJECTS, OWNERS ARE REQUESTED TO COORDINATE WITH EcoStar, IF DESIGNER IS NOT EMPLOYED YET TO CONVENE THE DESIGNING OF PROJECT.
5. ON PROJECTS, WHERE UNUSUAL DECKS EXIST, e.g., TECTUM DECK OR CATHEDRAL CEILING WITH INSULATION ABOVE THE DECK WITH OR WITHOUT VAPOR RETARDER MEMBRANES, THOSE MUST BE PROPERLY DESIGNED. THE REQUIRED FASTENER TYPES, LENGTH & WARRANTY ISSUES SHOULD BE COORDINATED WITH EcoStar PRIOR TO DESIGNING & ROOFING. IN CATHEDRAL CEILINGS, CONCEALING OF PIPES, CONDUITS, SPRINKLER LINES, etc. UNDER RIGID BOARD INSULATION SHOULD ALSO BE EVALUATED PROPERLY AT EARLY STAGE.
6. CARE SHOULD BE TAKEN WHEN SELECTING A QUALIFIED CONTRACTOR TO INSTALL EcoStar PRODUCTS. WHEN A GOLDSTAR WARRANTY IS REQUIRED A GOLDSTAR APPROVED APPLICATOR MUST INSTALL THE SYSTEM.
7. ROOF INSTALLATIONS REQUIRING A CLASS A FIRE RATING REQUIRE THAT GAF/ELK VERSASHIELD BE USED IN ACCORDANCE WITH DRAWINGS 2.6 THROUGH 2.9, OR A MINIMUM OF 1/4" DENSDECK INSTALLED OVER ROOF SHEATHING. VERSASHIELD HAS NOT BEEN SHOWN IN DRAWINGS IN SECTION 3 AND HIGHER .

### B. DRAWINGS

1. DESIGNER IS ADVISED TO EVALUATE THE EXISTING CONDITIONS OF EACH BUILDING TYPE, ITS ROOF AND SUBSTRATE MATERIALS TO PREPARE FINAL DETAILS. FOR INSTANCE, THE SHEET METAL FASCIA IS GENERICALLY SHOWN FOR ALL REGIONS, BUT DESIGNER MAY REQUIRE TO ADD SHEET METAL CLIPS OR WIND CLEATS IN HIGHER WIND SPEED AREAS OR i.e., IN SNOW & FREEZING REGIONS, USE OF ADDITIONAL STRIPPING OF GLACIER GUARD AS NEEDED AT CERTAIN DETAILS. SIMILAR CHANGES MAY BE REQUIRED IN OTHER DETAILS. PLEASE, COORDINATE WITH THE TECHNICAL STAFF OF EcoStar WHERE QUESTIONS ARISE.

2. THE DETAILS REPRESENT THE GENERIC & CONCEPTUAL LAYOUT OF ROOFING MATERIALS TO CLARIFY THE FABRICATION OF DETAILS. ALSO, DETAILS ARE SIMPLIFIED WHILE DEPICTING LIMITED MATERIALS AS NEEDED. SOME DETAILS ARE FURTHER SUBSTANTIATED WITH ADDITIONAL SUPPORTING DETAILS IN 2D OR 3D AS NEEDED. DO NOT SCALE DRAWINGS, AS THESE DETAILS ARE NOT PRINTED ON SCALE. CONSEQUENTLY, ROOFER MUST FIELD VERIFY ALL DIMENSIONS & QUANTITIES, FOR THE ACCURACY OF COST ESTIMATE.
3. THE COORDINATION OF ROOFING DETAILS WITH OTHER TRADE DETAILS IS STRONGLY RECOMMENDED TO AVOID CONFLICT DURING CONSTRUCTION, i.e., WHERE VERTICAL CLEARANCES OF CURBS, PIPES, BOTTOM SILLS OF WINDOWS OR RISING WALLS & THEIR THROUGH-WALL FLASHING EXIST.
4. REFER TO SHEETS ES 2.0 , ES 2.1 , ES 2.6 & ES 2.9 FOR BASIC LAYOUT OF UNDERLAYMENTS AND THEIR DETAILING. THE SEQUENCE OF OVERLAPPING OF BOTH MEMBRANES MAY VARY AT DIFFERENT LOCATIONS.
5. MASONRY, WOOD CARPENTRY, SHEET METAL FLASHING AND PLUMBING WORK IS NOT INCLUDED IN THE SCOPE OF THIS DOCUMENT. A GENERIC LAYOUT IS DEPICTED TO REPRESENT EcoStar PRODUCTS IN DETAILS. DESIGNER SHOULD EVALUATE AND DESIGN FINAL DETAILS ACCORDINGLY, e.g., WHILE DESIGNING GUTTER SIZES, REFER TO REGIONAL RAIN INTENSITY, SLOPE & SIZES OF ROOFS, etc..
6. REFER TO S.M.A.C.N.A. HANDBOOK (LATEST EDITION) FOR SHEET METAL DETAILING AND CALCULATION OF GUTTER SIZES.

### C. COORDINATION DURING CONSTRUCTION

1. GENERAL CONTRACTOR (GC) OR CONSTRUCTION MANAGER (CM) TO COORDINATE WITH ROOFER IN ADVANCE, DURING THE FABRICATION OF SUBSTRATE AREAS, i.e., DECK; WALLS; THROUGH-WALL FLASHING AND DESIRED VERTICAL/HORIZONTAL CLEARANCES FOR FLASHING ETC.. ROOFER TO INSPECT THE BUILT CONDITIONS OF SUBSTRATE IN ADVANCE, IN ORDER TO MAKE ANY NECESSARY CHANGES, WHICH ARE NOT ACCEPTABLE FOR PROPOSED ROOFING SYSTEM. ROOFER TO ENSURE THAT SUBSTRATE AREAS ARE ACCEPTABLE PRIOR TO ROOFING. REPORT ANY DEFICIENCIES OR UNACCEPTABLE CONDITIONS TO OWNER, OWNER'S REPRESENTATIVE AND EcoStar FOR CORRECTIONS IN SUBSTRATE AREAS TO ACHIEVE A QUALITY ROOFING SYSTEM.
2. GC/CM TO COORDINATE WITH MECHANICAL CONTRACTOR AND ROOFER, WHERE HVAC RELATED PENETRATIONS WILL AFFECT THE NEW ROOF INSTALLATION. SEQUENCE OF CONSTRUCTION BY DIFFERENT TRADES MUST BE CLARIFIED AT THIS STAGE TO AVOID UNNECESSARY FOOT TRAFFIC/WORK ON EcoStar ROOF. EcoStar DESIRES THAT INSTALLATION OF HVAC UNITS, MASONRY WALL CLADDING, STUCCO OR E.I.F.S (EXTERIOR INSULATION FINISH SYSTEM) RELATED WORK MAY BE INSTALLED, PRIOR TO ROOFING WORK TO AVOID ANY DAMAGES TO ROOF. COORDINATE, WITH OWNER/ARCHITECT, WHERE ROOF MUST BE INSTALLED PRIOR TO VERTICAL WALL COMPONENTS.



SENECA SHAKE TILES

EcoStar GENERAL NOTES PAGE 1 OF 2

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
PAGES OR  
DETAIL(S):

ES0.6

EcoStar SENECA

ES 0.5

## GENERAL NOTES

3. ON PROJECTS WHERE ROOF WILL DRAIN INTO SUB-SURFACE DRAIN LINES, THERE GC/CM TO COORDINATE WITH THE ROOFER AT INITIAL CIVIL WORK AT SITE, FOR PROPER COORDINATION OF DOWN SPOUTS WITH SUBSURFACE DRAIN PIPES, SLOPES & THEIR PROPER CONNECTIONS.
4. ON PROJECTS IN FREEZING REGIONS, WHERE ROOF DRAINAGE IS DESIGNED TO DISPOSE OF WATER ON THE SURFACE, THERE DESIGNER TO ENSURE THAT ROOF DRAINAGE SYSTEM WILL NOT CAUSE ICY CONDITIONS IN THE PEDESTRIAN TRAFFIC AREAS, PARTICULARLY NEAR THE ENTRANCES.



**SENECA SHAKE TILES**

EcoStar GENERAL NOTES PAGE 2 OF 2

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
PAGES OR  
DETAIL(S):

ES0.5	

EcoStar SENECA

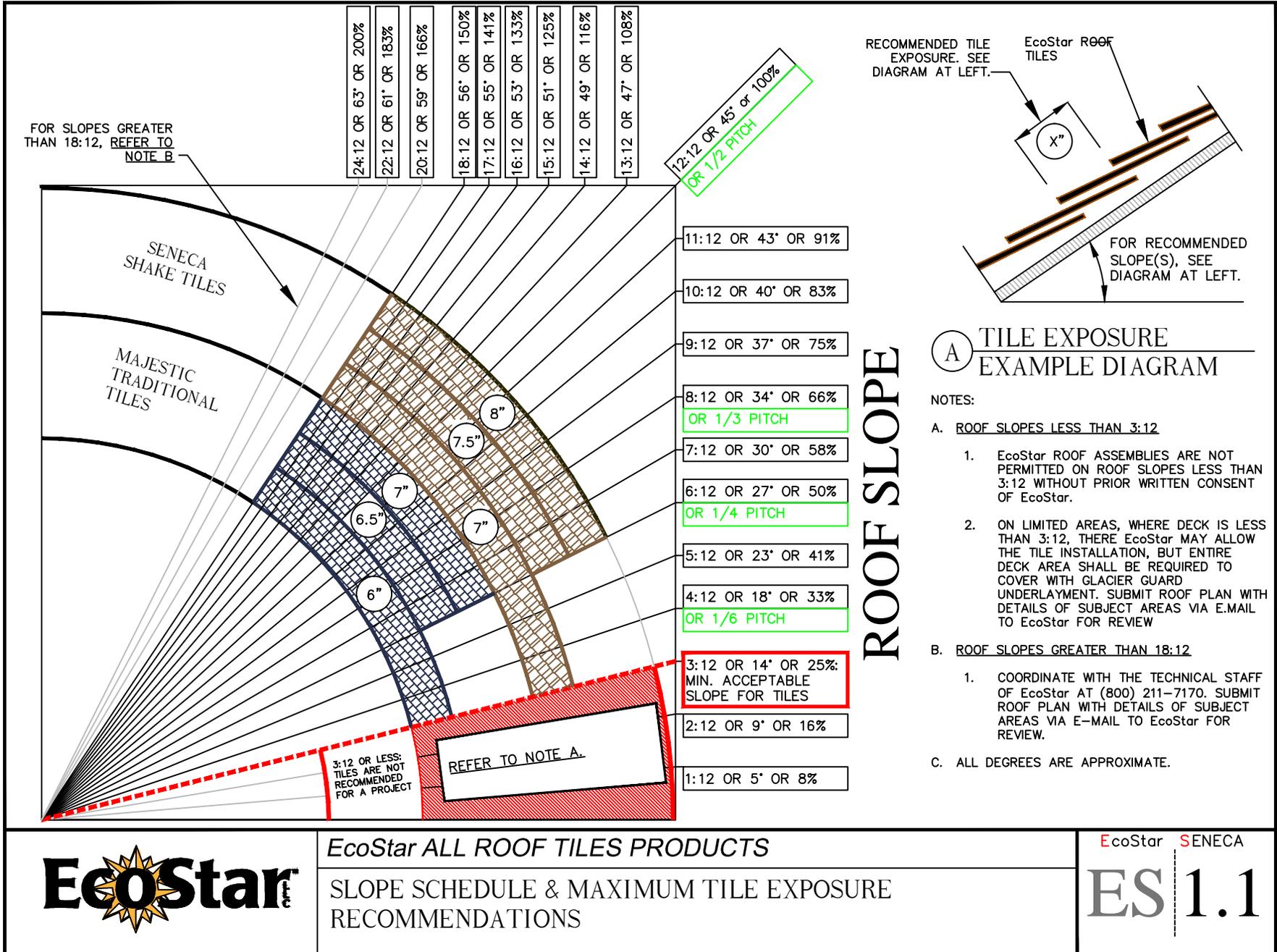
**ES 0.6**

1.0

# DESIGN DEVELOPMENT STAGE



*SENECA SHAKE TILES*



EcoStar ALL ROOF TILES PRODUCTS

SLOPE SCHEDULE & MAXIMUM TILE EXPOSURE RECOMMENDATIONS

EcoStar SENECA

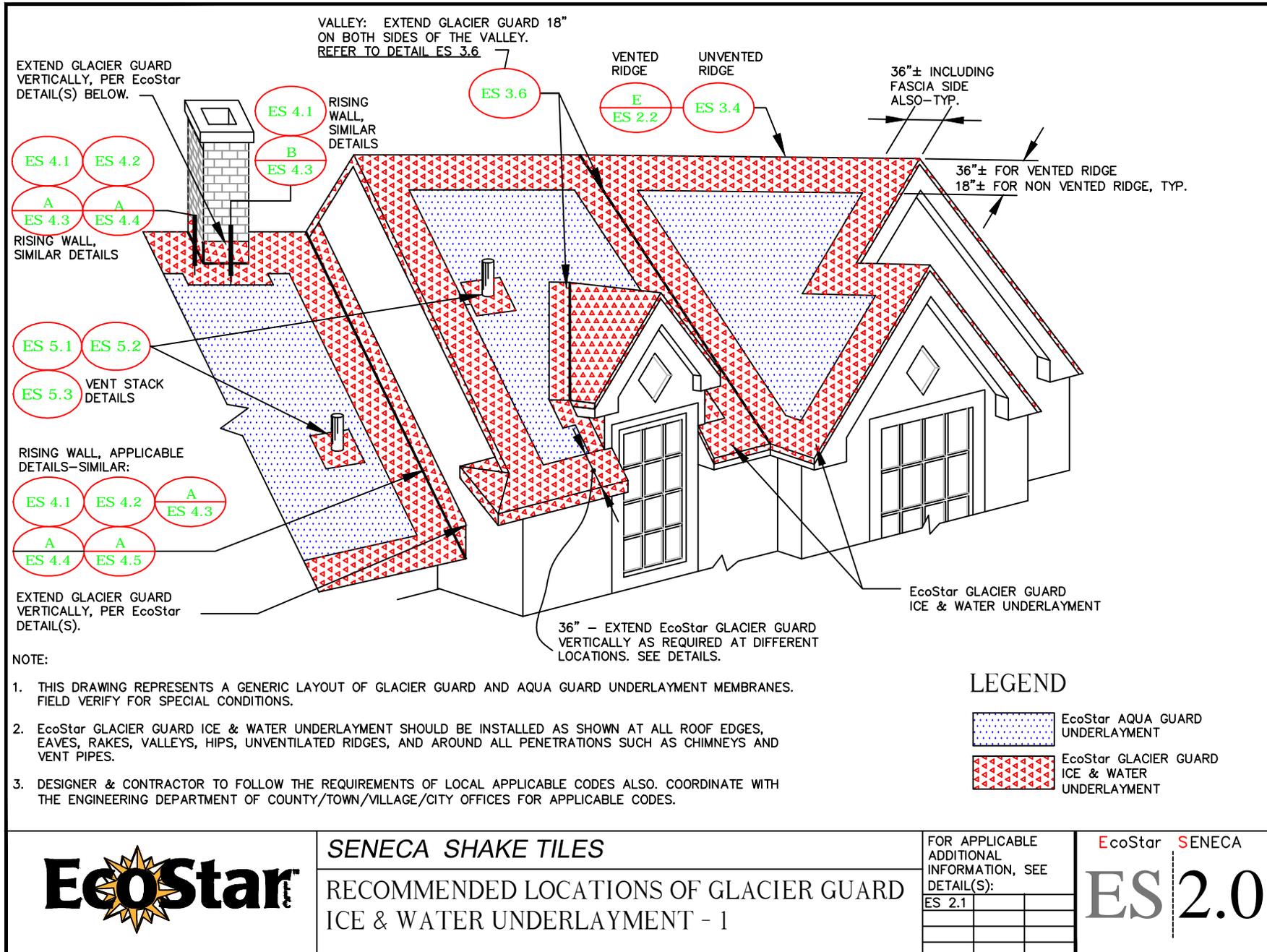
ES 1.1

2.0

# UNDERLAYMENT LOCATIONS & GENERIC EDGE DETAILS

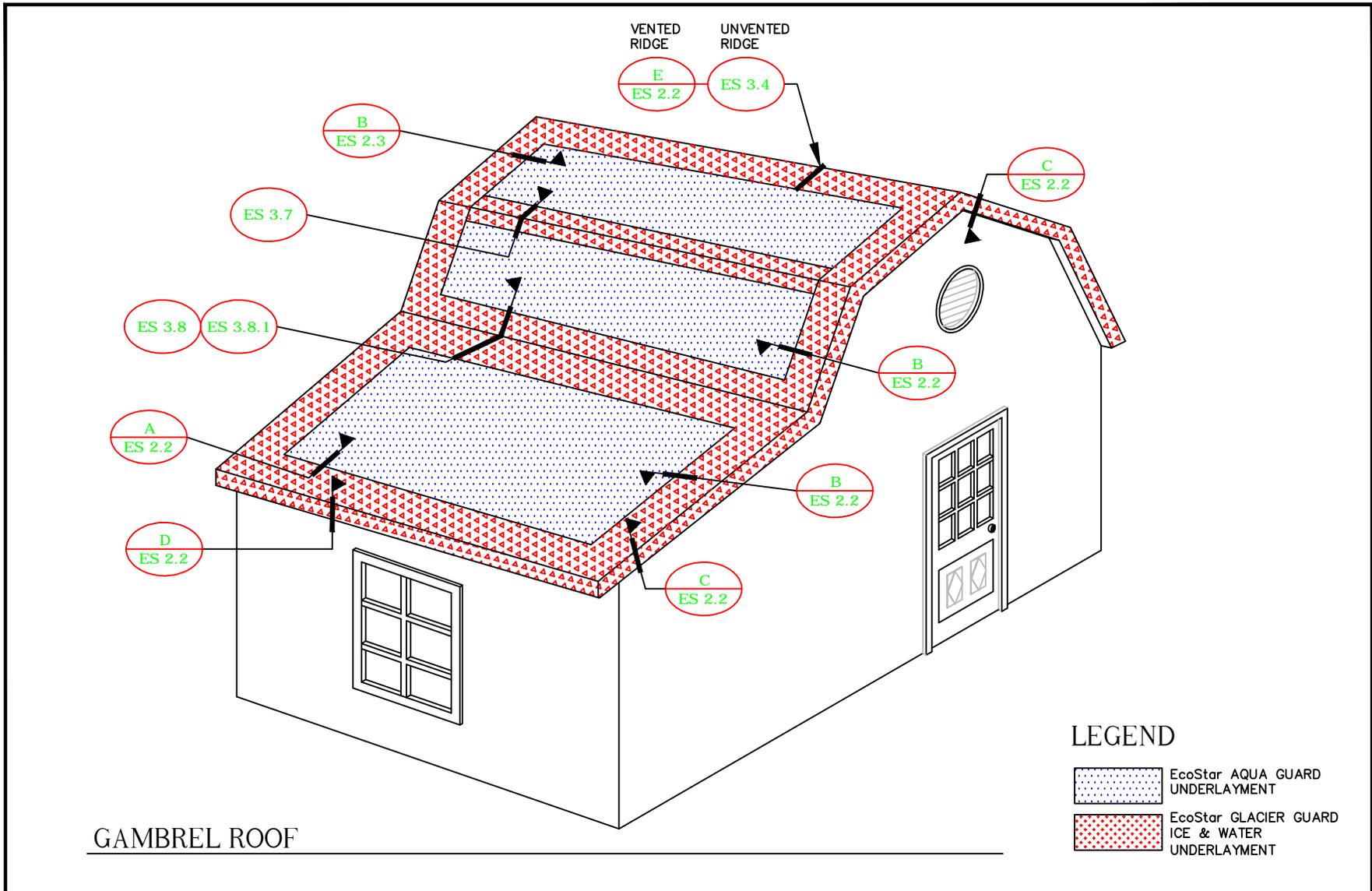


*SENECA SHAKE TILES*



SENECA SHAKE TILES

RECOMMENDED LOCATIONS OF GLACIER GUARD ICE & WATER UNDERLAYMENT - 1



GAMBREL ROOF

LEGEND

-  EcoStar AQUA GUARD UNDERLAYMENT
-  EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT



SENECA SHAKE TILES

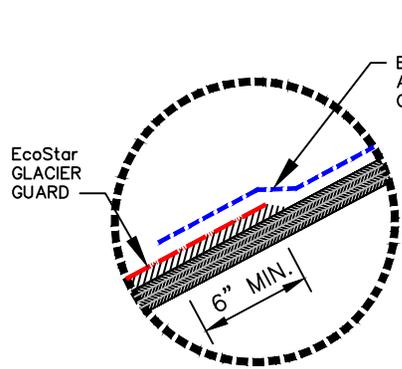
RECOMMENDED LOCATIONS OF GLACIER GUARD ICE & WATER UNDERLAYMENT - 2

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

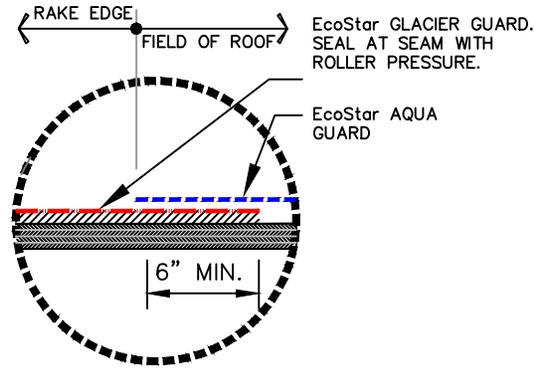
ES2.0		

EcoStar SENECA

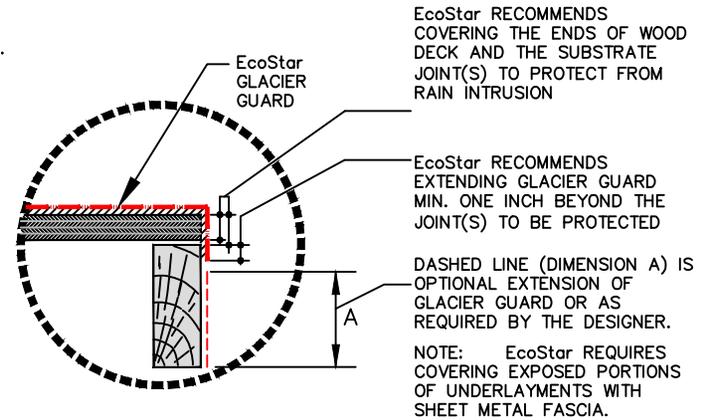
ES 2.1



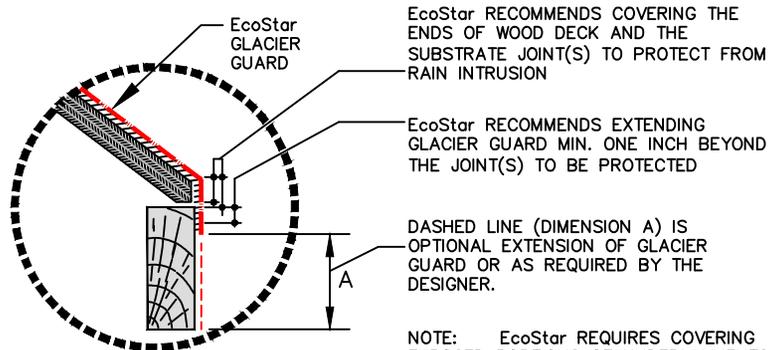
**A** UNDERLAYMENT LAPS  
PARALLEL TO EAVES



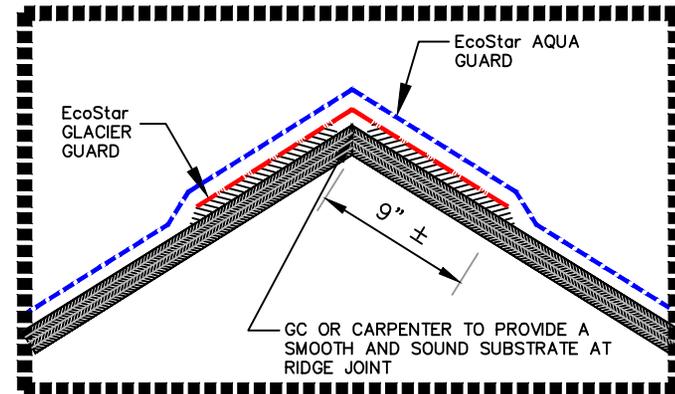
**B** UNDERLAYMENT LAPS  
PARALLEL TO RAKES



**C** UNDERLAYMENT EXTENSION  
AT RAKES



**D** UNDERLAYMENT EXTENSION  
AT EAVE



**E** SOLID OR UNVENTED RIDGE



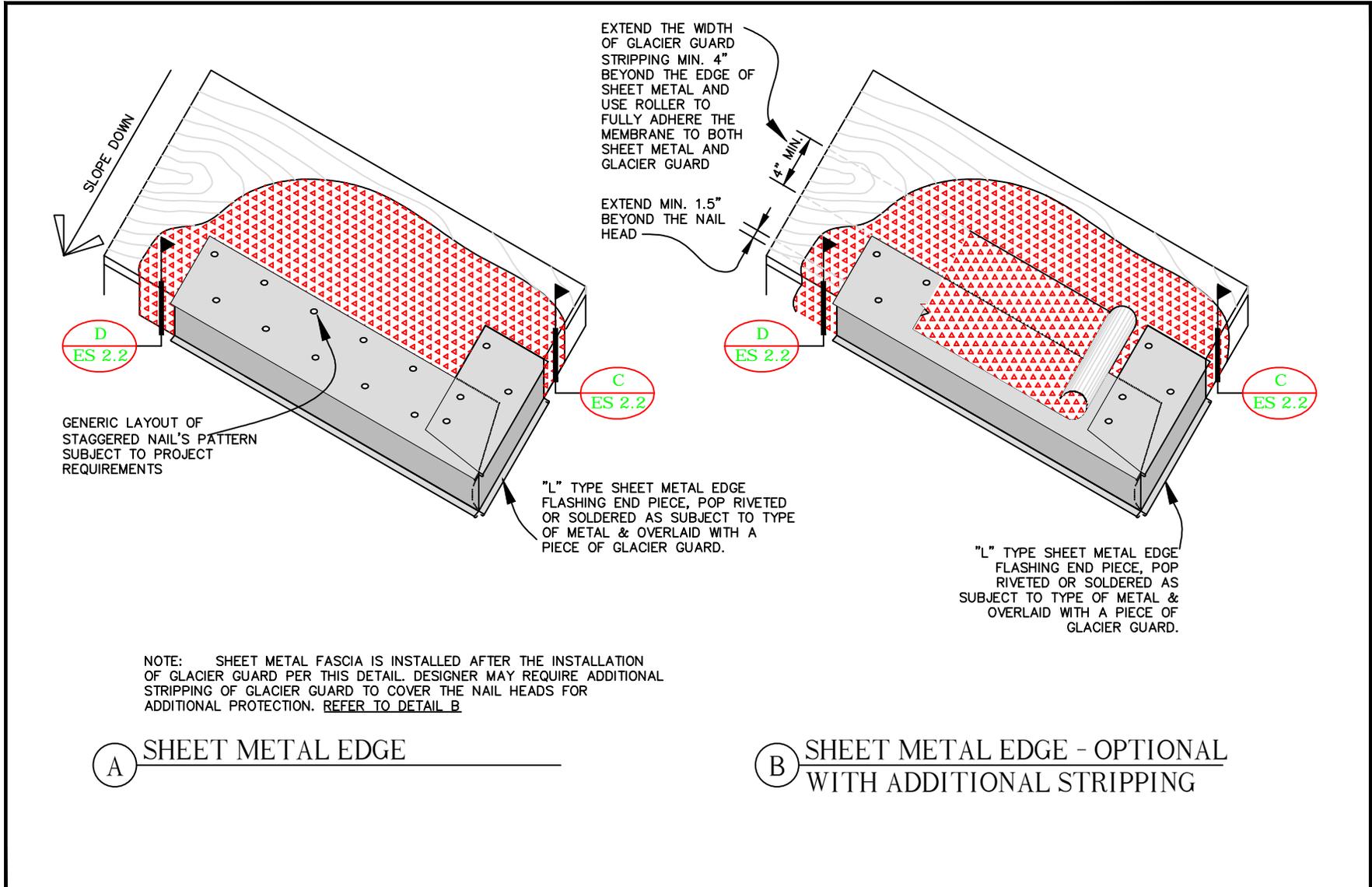
**SENECA SHAKE TILES**  
RECOMMENDED DETAILING OF  
UNDERLAYMENTS - 1

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

ES2.0	ES2.1	ES2.3
ES2.4	ES2.5	

EcoStar SENECA

**ES 2.2**



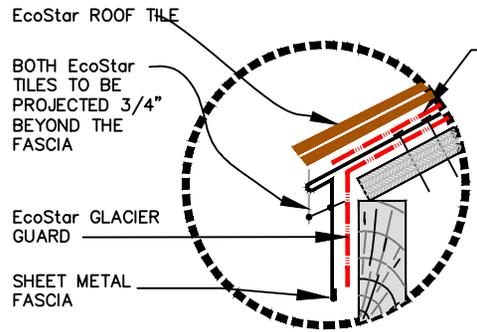
**SENECA SHAKE TILES**  
RECOMMENDED DETAILING OF  
UNDERLAYMENTS - 2

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

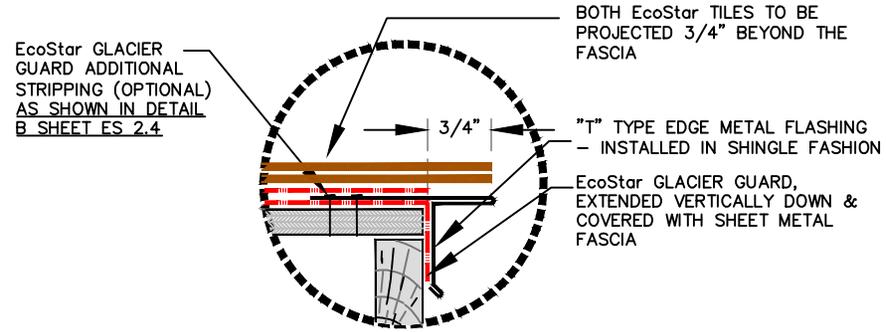
ES2.0	ES2.1	ES2.2
ES3.1	ES3.3	ES3.4

EcoStar SENECA

**ES 2.3**

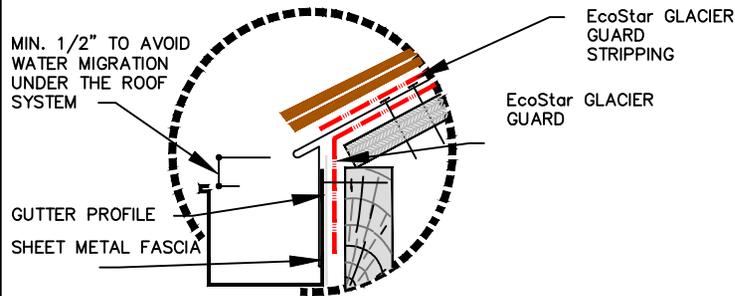


**A** TILES' PROJECTION AT EAVES - NO GUTTER

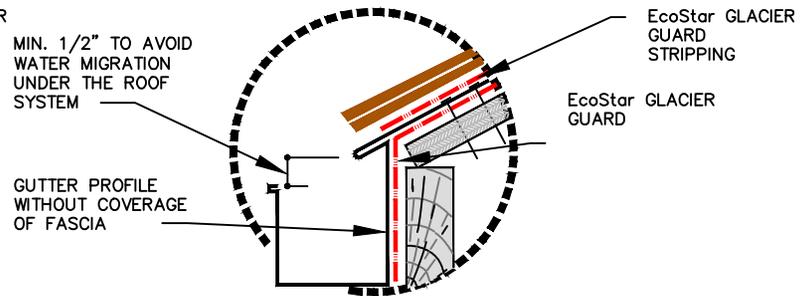


**B** TILES' PROJECTION AT RAKES

NOTE:  
"T" EDGE IN SHEET METAL FASCIA IS PREFERRED TO SUPPORT THE UNDERSIDE OF ROOF TILES, IN LIEU OF 90° TURN. SEE DETAILS, SHEET ES 2.6



**C** GUTTER PROFILE A OPTION A



**D** GUTTER PROFILE B OPTION B

- NOTE:
1. FOR ADDITIONAL INFORMATION SEE DETAIL A.
  2. ADDITIONAL STRIPPING OF GLACIER GUARD OVER FASCIA'S UPPER FLANGE IS OPTIONAL, PER DETAILS SHEET ES 2.6
  3. REFER TO S.M.A.C.N.A HANDBOOK (LATEST EDITION) FOR ADDITIONAL INFORMATION FOR SHEET METAL WORK.

- NOTE:
1. FOR ADDITIONAL INFORMATION SEE DETAIL A.
  2. ADDITIONAL STRIPPING OF GLACIER GUARD OVER GUTTER'S UPPER FLANGE IS OPTIONAL, PER DETAIL(S) SHEET ES 2.6
  3. REFER TO S.M.A.C.N.A HANDBOOK (LATEST EDITION) FOR ADDITIONAL INFORMATION FOR SHEET METAL WORK.



SENECA SHAKE TILES

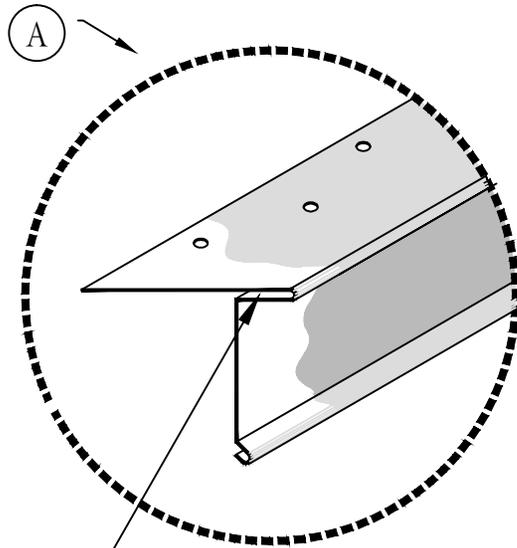
RECOMMENDED DETAILING OF TILES NEAR EDGES

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

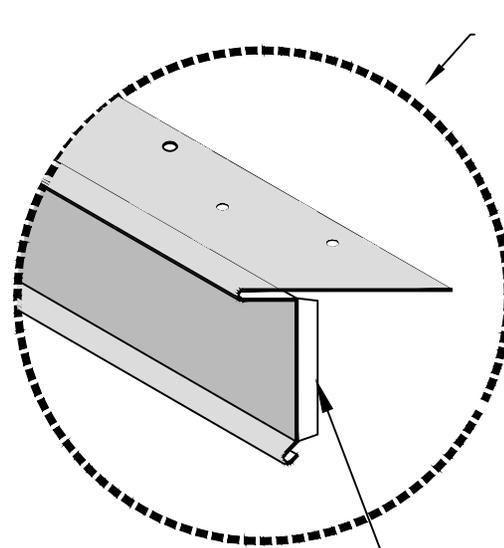
ES2.0	ES2.1	ES2.5
ES3.1	ES3.3	ES3.4

EcoStar SENECA

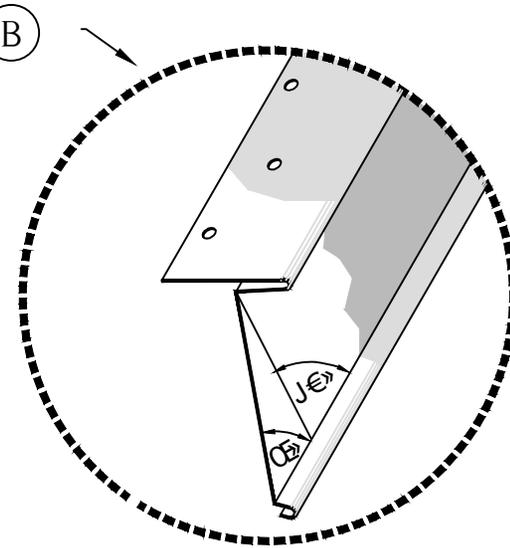
ES 2.4



3/4" PROJECTION BEYOND THE FACE OF FASCIA AT BOTH RAKE AND EAVE DETAILS.



CREASED CORNER FOR POP RIVETED CORNER



NOTE: DESIGNER/ROOFER TO DESIGN & FABRICATE CORNER ENDS PER SLOPE OF THE ROOF

1: "T" TYPE EAVE METAL

2: "T" TYPE RAKE METAL

NOTES:

1. ANGLE "A" IS SUBJECT TO SLOPE OF THE ROOF. CUT TO FIT THE CORNER JUNCTION.
2. BOTH PIECES TO BE JOINED WITH POP-RIVETED SEAM OR WELDED, DEPENDING ON THE TYPE OF METAL AND DETAILED DESIGN.
3. REFER TO S.M.A.C.N.A HANDBOOK (LATEST EDITION) FOR ADDITIONAL INFORMATION FOR SHEET METAL WORK.

A "T" TYPE SHEET METAL FASCIA

B GENERIC VIEW OF CORNER



SENECA SHAKE TILES

RECOMMENDED DETAILING OF SHEET METAL NEAR EDGES

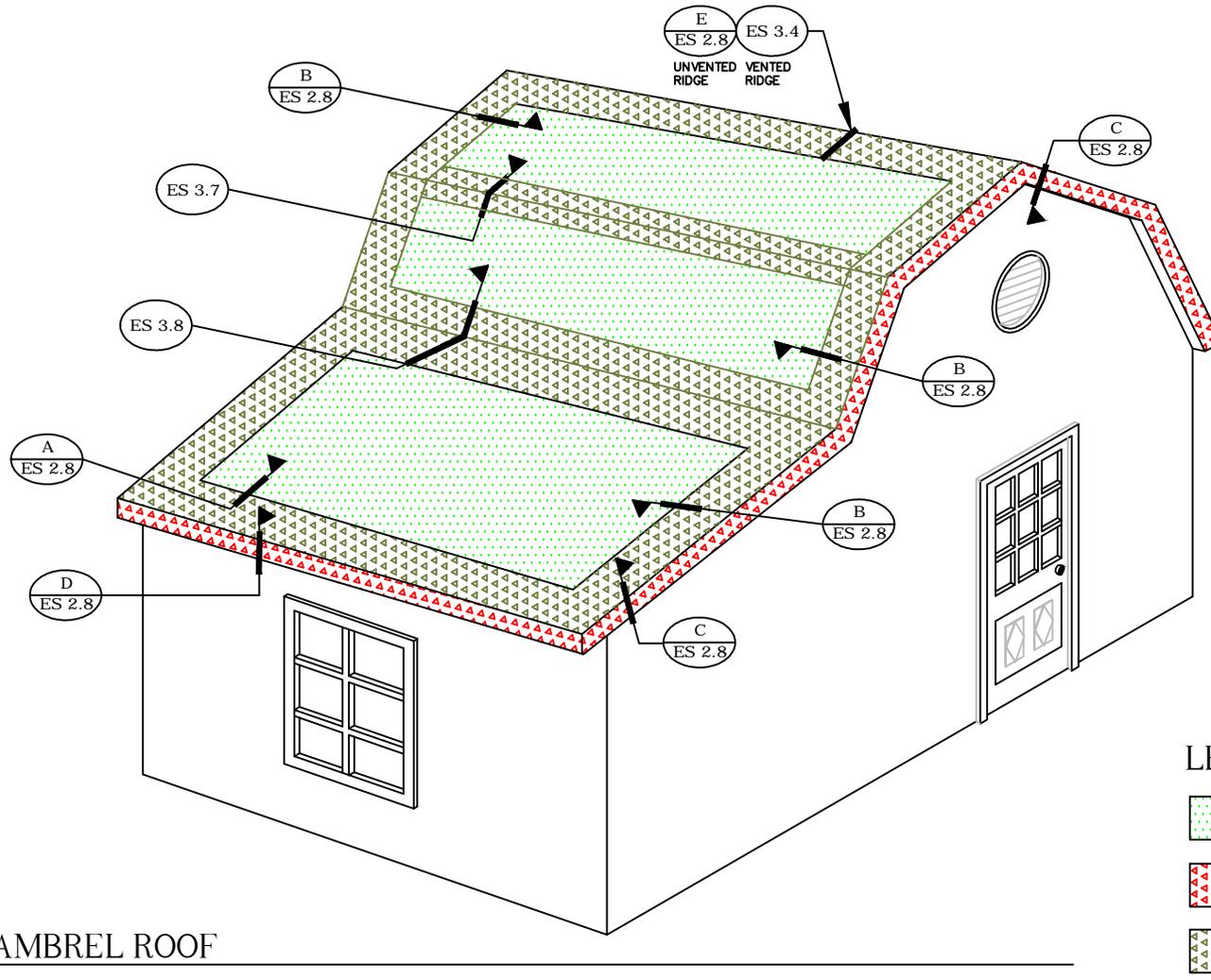
FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.2	ES2.3	ES2.4
ES3.1	ES3.2	ES3.3

EcoStar SENECA

ES 2.5





**SENECA SHAKE TILES**

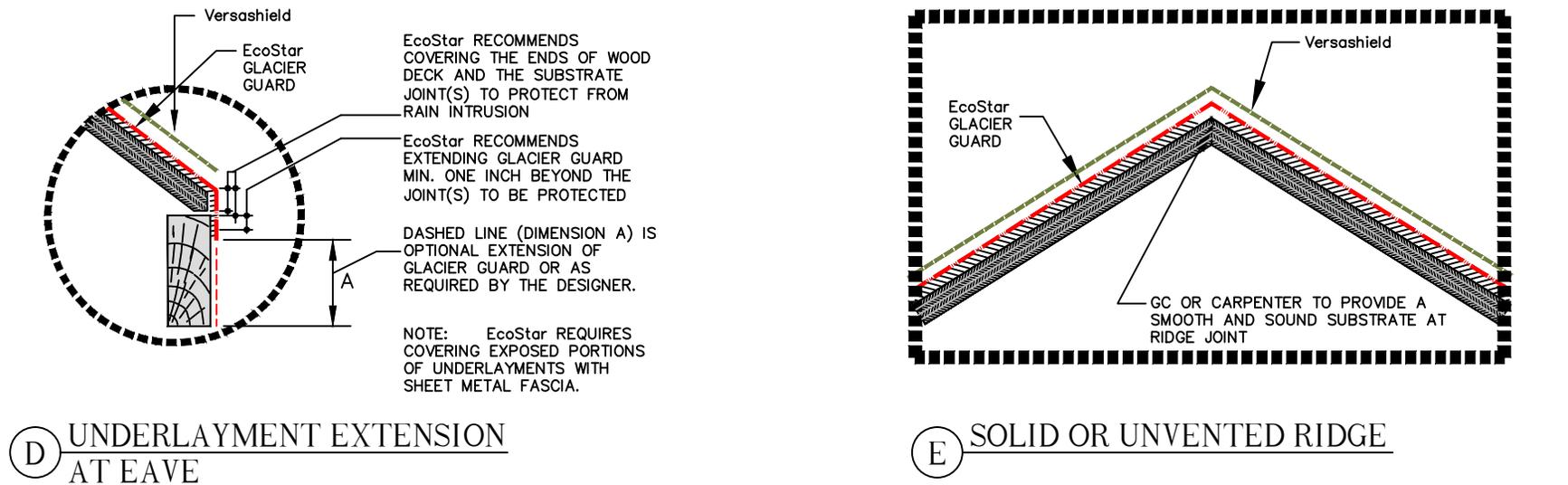
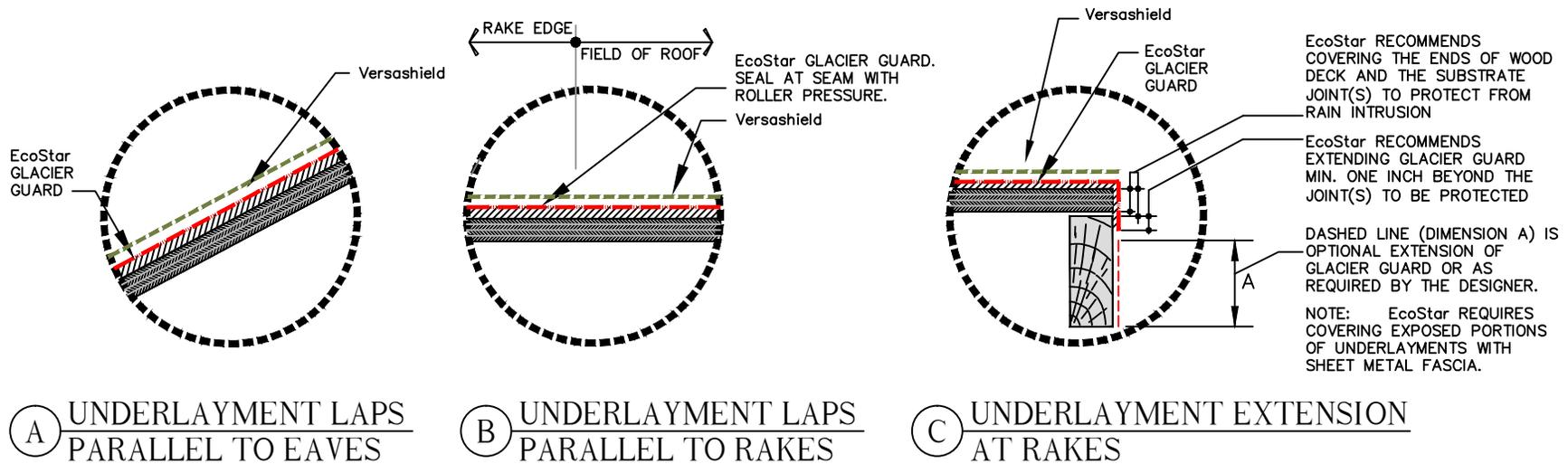
REQUIRED LOCATIONS OF VERSASHIELD CLASS A UNDERLAYMENT - 2

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.6			

EcoStar SENECA

**ES 2.7**



**SENECA SHAKE TILES**

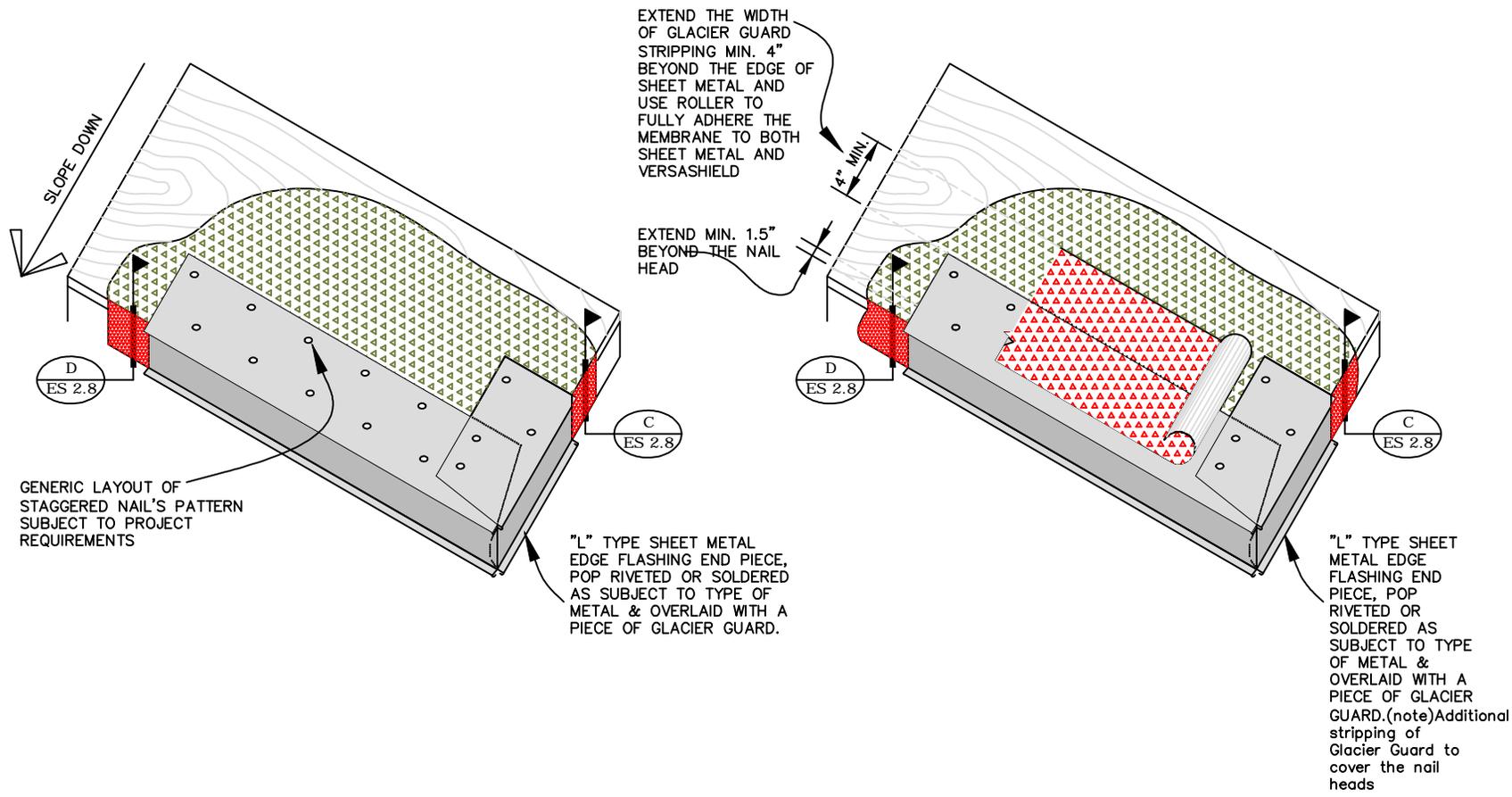
**REQUIRED DETAILING OF CLASS A UNDERLAYMENTS - 1**

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.4	ES2.5	ES2.6
ES2.7	ES2.9	

EcoStar SENECA

**ES 2.8**



NOTE: SHEET METAL FASCIA IS INSTALLED AFTER THE INSTALLATION OF GLACIER GUARD AND OF VERSASHIELD PER THIS DETAIL. DESIGNER MAY REQUIRE ADDITIONAL STRIPPING OF GLACIER GUARD TO COVER THE NAIL HEADS FOR ADDITIONAL PROTECTION. REFER TO DETAIL B

**A** SHEET METAL EDGE

**B** SHEET METAL EDGE - OPTIONAL WITH ADDITIONAL STRIPPING



SENECA SHAKE TILES

REQUIRED DETAILING OF CLASS A UNDERLAYMENTS - 2

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.6	ES2.7	ES2.8
ES3.1	ES3.3	ES3.4

EcoStar SENECA

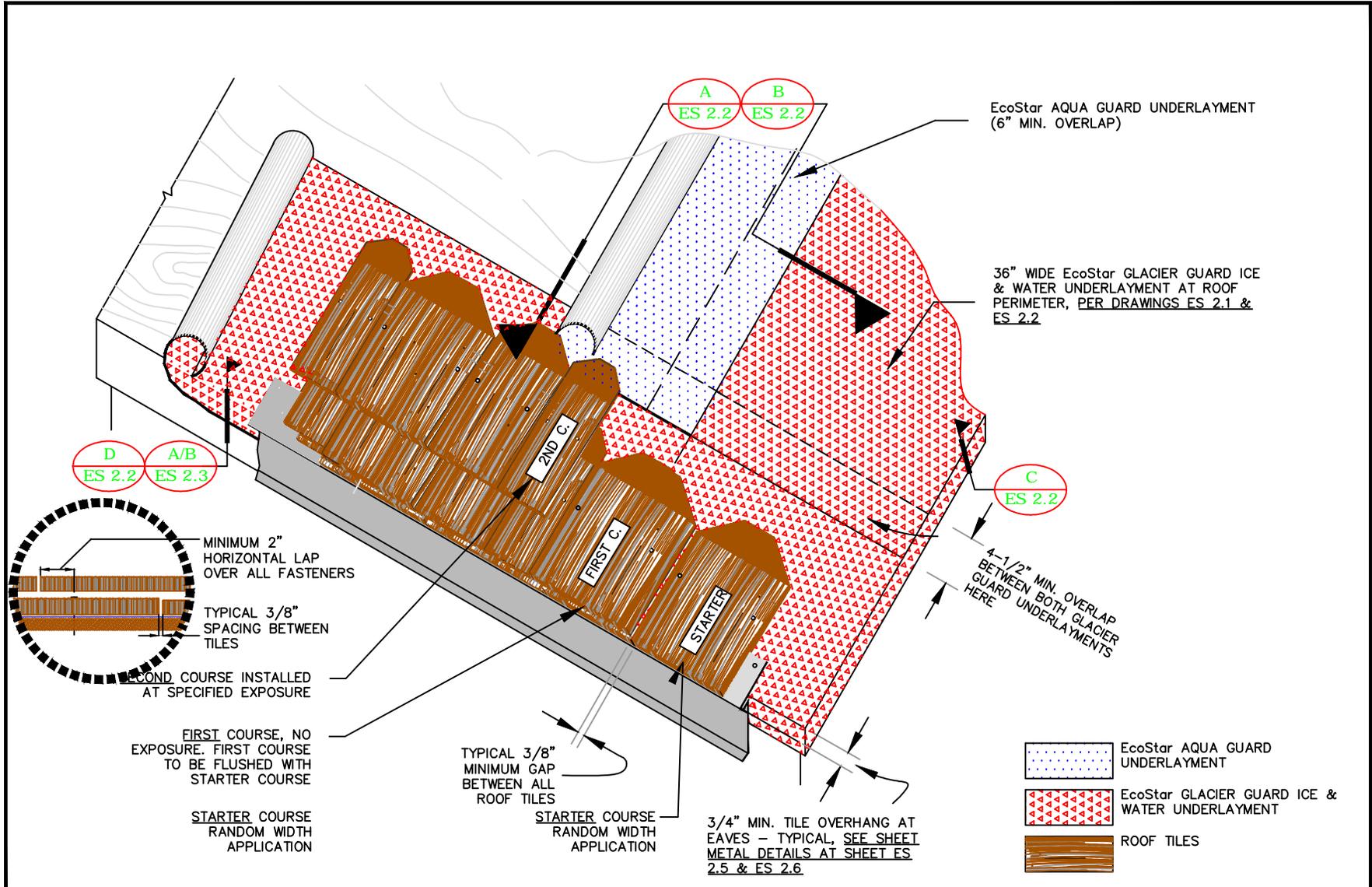
ES 2.9

3.0

# ROOF SYSTEM DETAILS



*SENECA SHAKE TILES*



**SENECA SHAKE TILES**

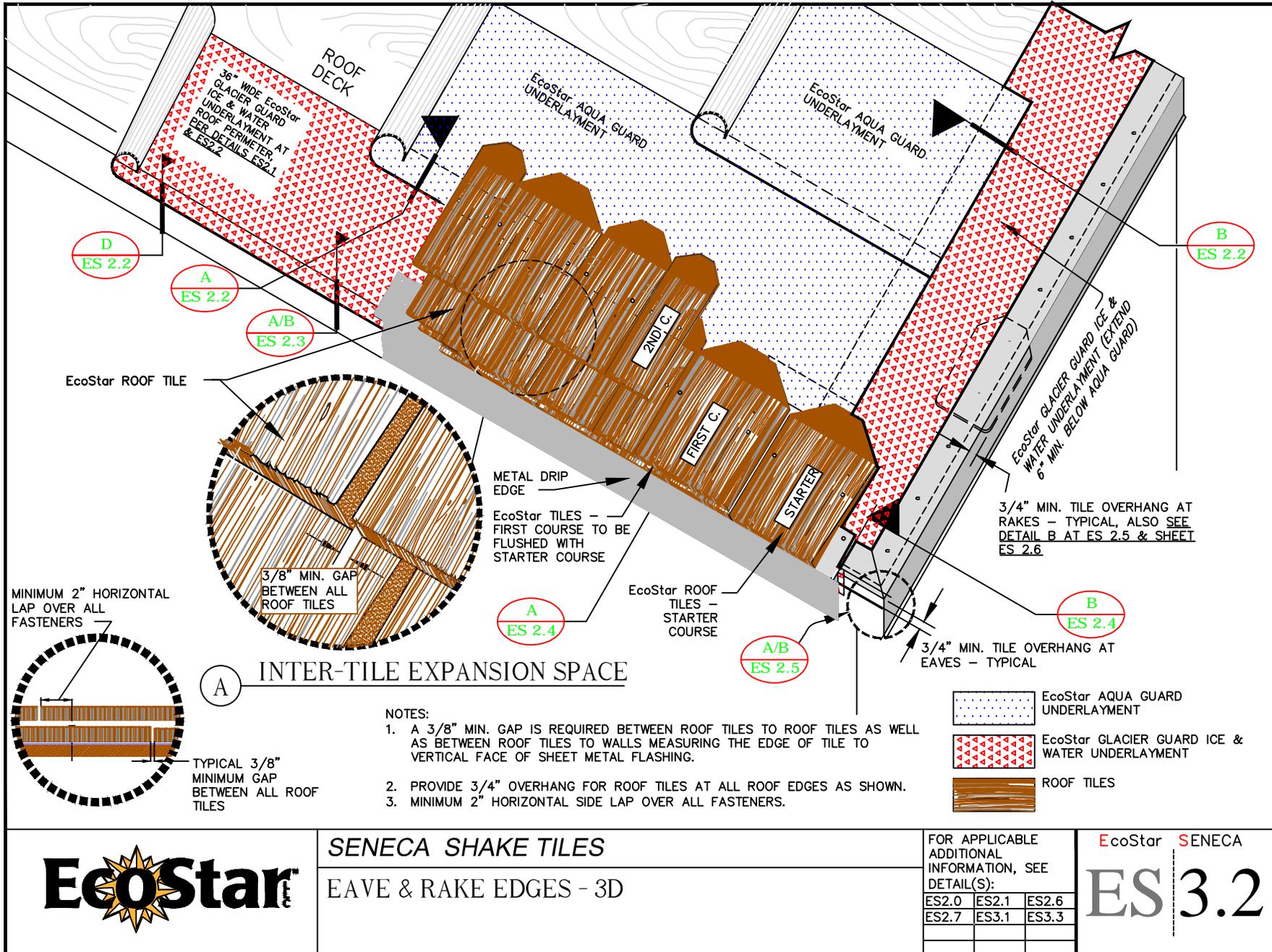
**STARTER COURSE TILE APPLICATION 3D VIEW**

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.0	ES2.1	ES2.5
ES2.6	ES2.7	
ES3.2	ES3.3	ES3.4

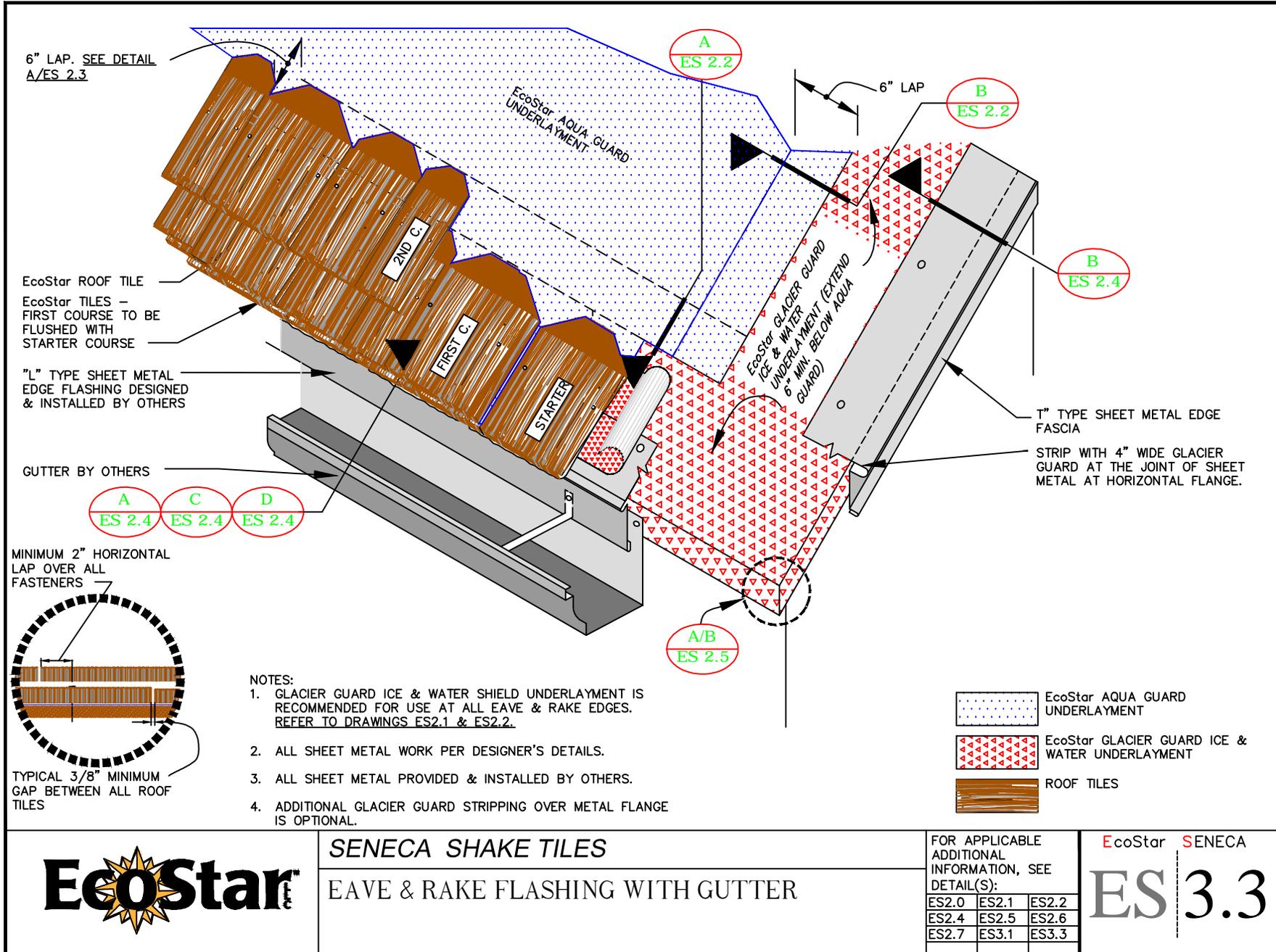
EcoStar SENECA

**ES 3.1**



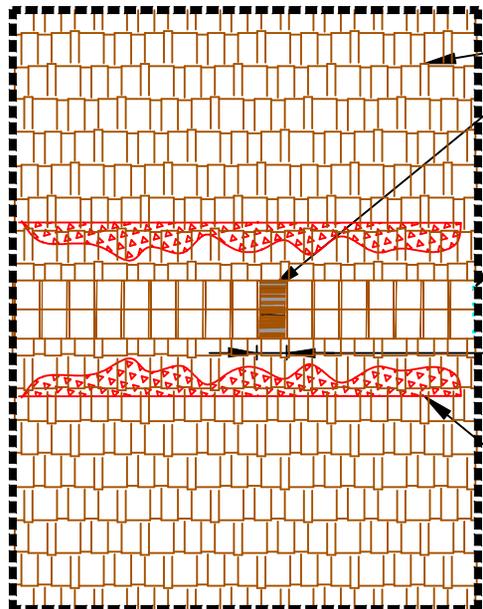
**SENECA SHAKE TILES**  
EAVE & RAKE EDGES - 3D

EcoStar **SENECA**  
**ES 3.2**



**SENECA SHAKE TILES**  
EAVE & RAKE FLASHING WITH GUTTER

EcoStar SENECA  
**ES 3.3**



EcoStar ROOF TILES

EcoStar HIP & RIDGE TILES

AT THE LAST RIDGE TILE, APPLY SEALANT TO COVER THE FASTENER HEADS. USE MATCHING COLOR SEALANT, AND SEAL IT THOROUGHLY.

6" EXPOSURE, TYP.

EcoStar GLACIER GUARD, PARTIALLY SHOWN UNDERNEATH TILES FOR CLARITY OF DETAIL

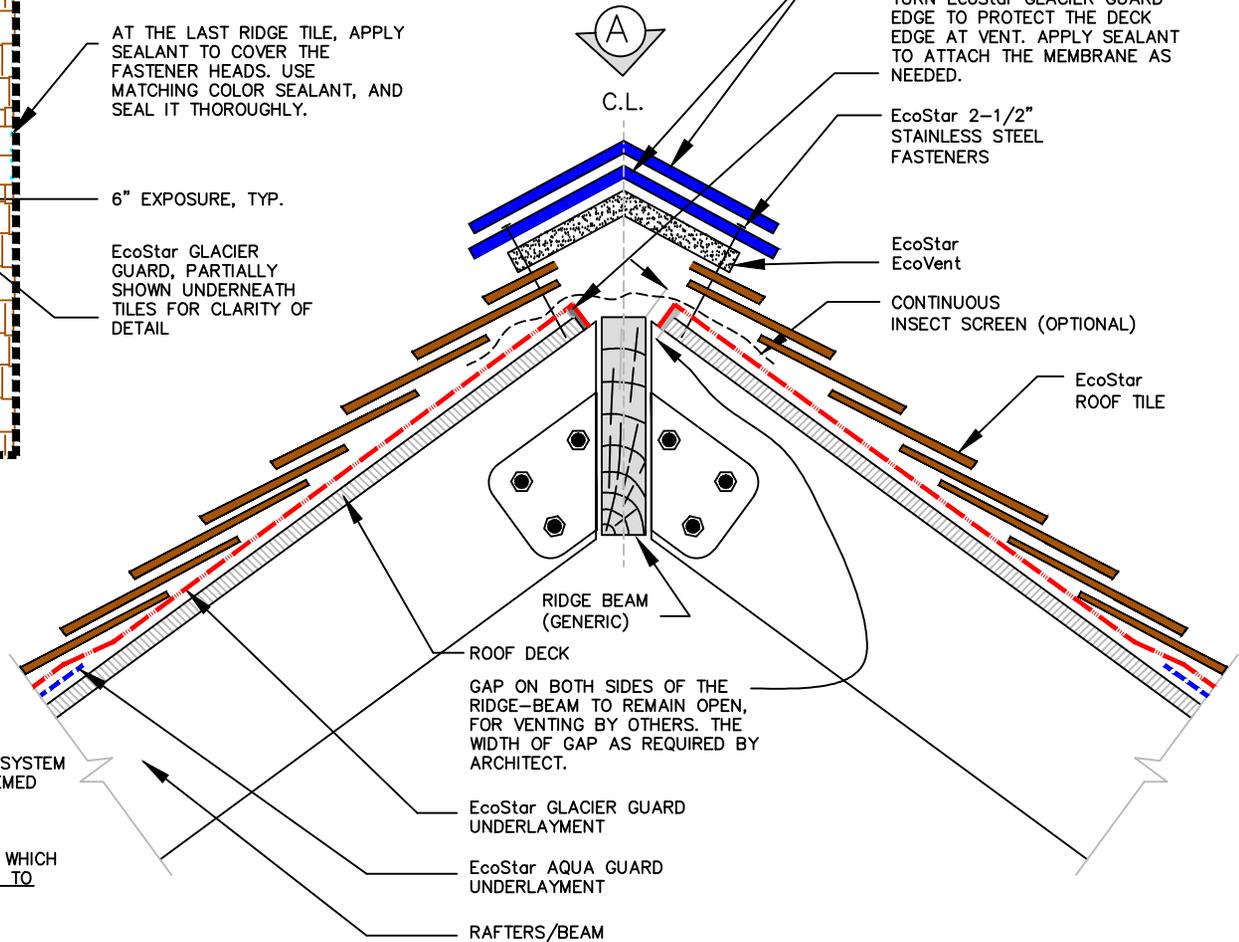
EcoStar SENECA HIP-&-RIDGE TILES, 6" EXPOSURE, ALIGNED WITH CENTER LINE (SEE INSET A ON THIS SHEET ALSO)

TURN EcoStar GLACIER GUARD EDGE TO PROTECT THE DECK EDGE AT VENT. APPLY SEALANT TO ATTACH THE MEMBRANE AS NEEDED.

EcoStar 2-1/2" STAINLESS STEEL FASTENERS

EcoStar EcoVent

CONTINUOUS INSECT SCREEN (OPTIONAL)



RIDGE BEAM (GENERIC)

ROOF DECK

GAP ON BOTH SIDES OF THE RIDGE-BEAM TO REMAIN OPEN, FOR VENTING BY OTHERS. THE WIDTH OF GAP AS REQUIRED BY ARCHITECT.

EcoStar GLACIER GUARD UNDERLAYMENT

EcoStar AQUA GUARD UNDERLAYMENT

RAFTERS/BEAM

A PLAN VIEW OF RIDGE

NOTES:

1. DESIGNER MAY DESIGN A MOISTURE CONTAINER SYSTEM UNDER THE RIDGE VENT AREA, WHERE IT IS DEEMED NECESSARY TO CONTAIN MOISTURE IN A PAN.
2. ROOFER TO ENSURE THAT APPROVED LENGTH FASTENERS ARE USED TO INSTALL RIDGE TILES, WHICH ARE LONGER THAN REGULAR FASTENERS. REFER TO SPECIFICATIONS.



SENECA SHAKE TILES

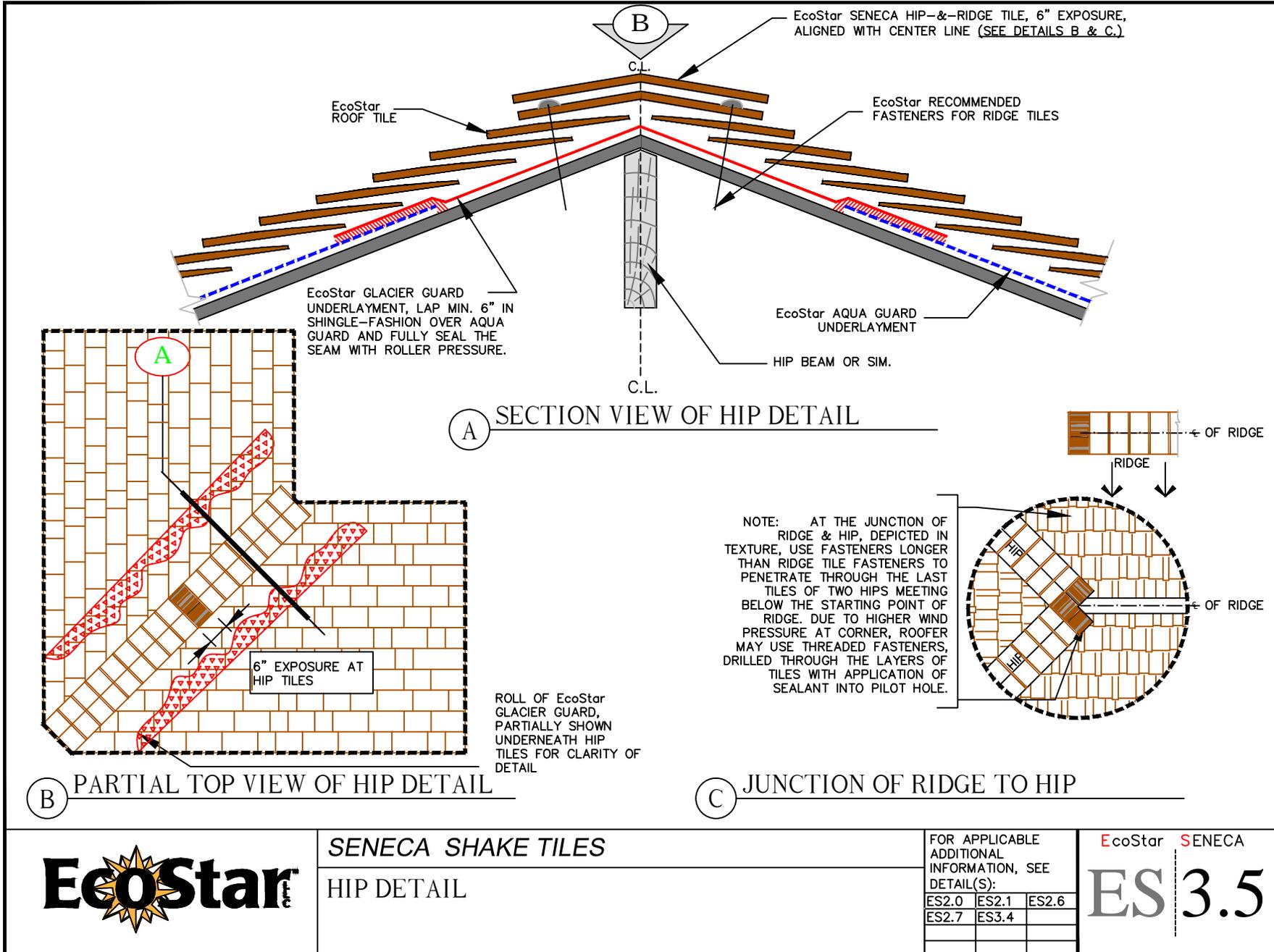
RIDGE DETAIL WITH RIDGE VENT

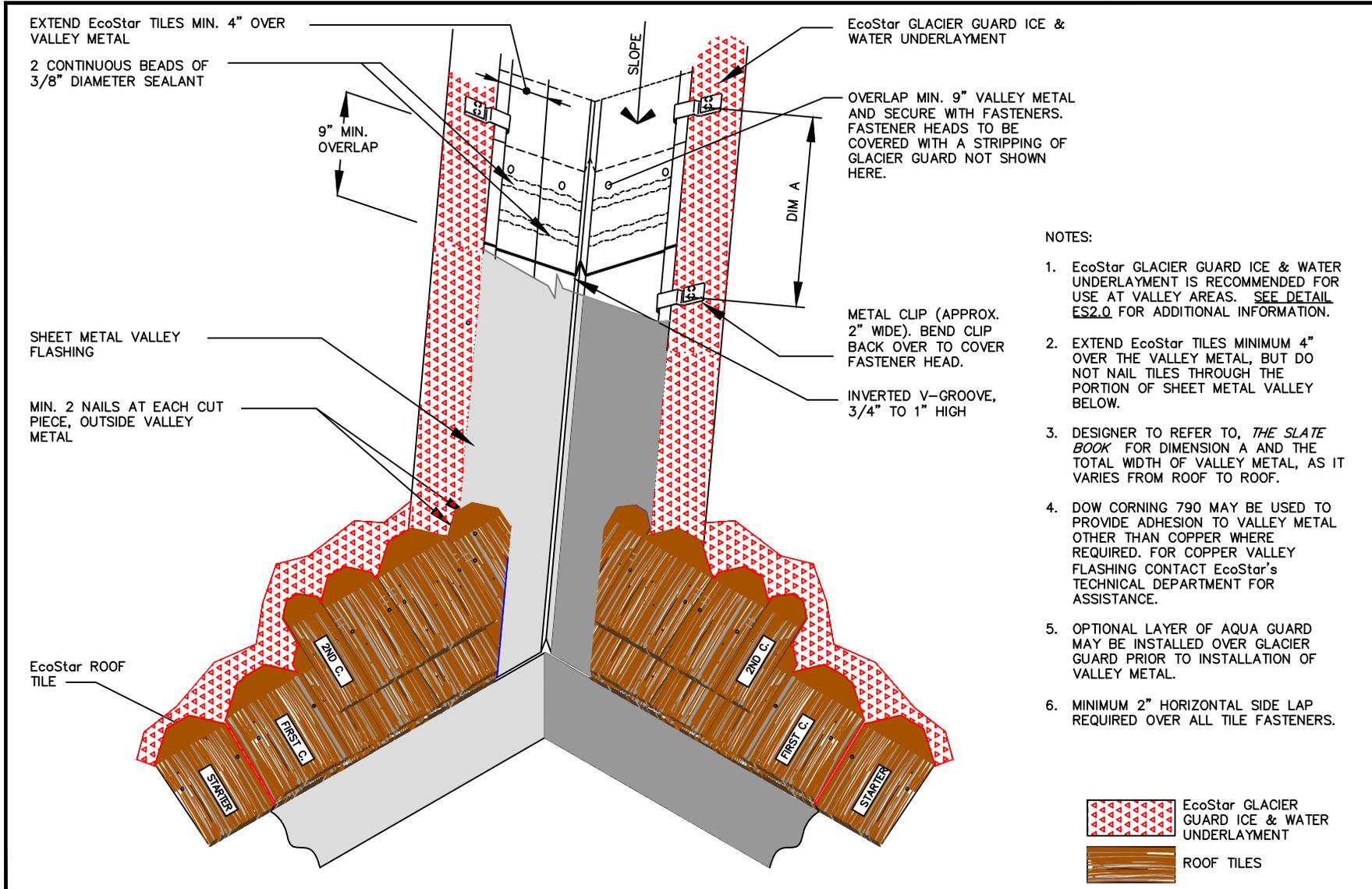
FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.0	ES2.1	ES2.2
ES2.6	ES2.7	ES3.5

EcoStar SENECA

ES 3.4





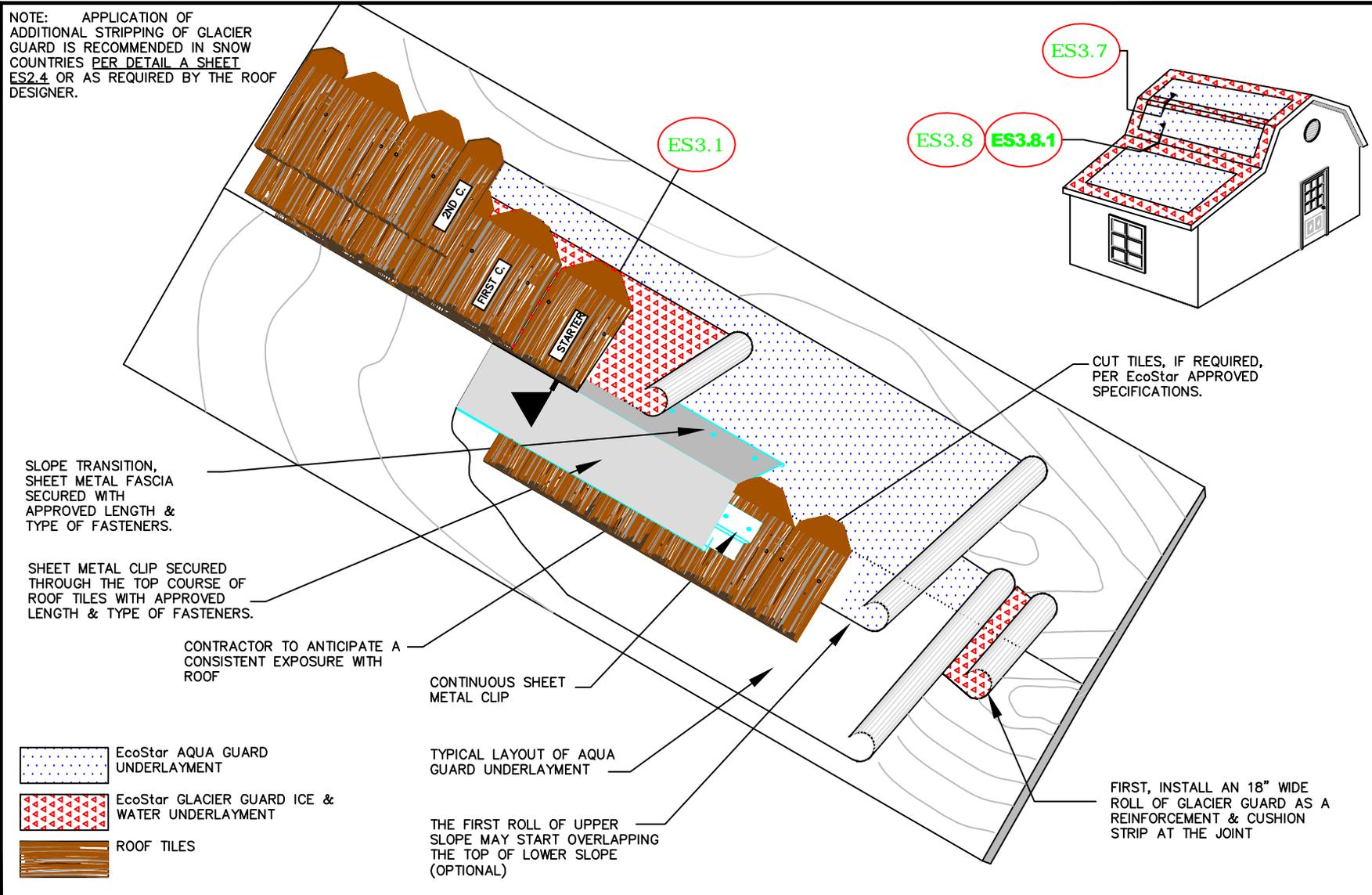
SENECA SHAKE TILES  
OPEN VALLEY FLASHING DETAIL

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.0	ES2.1	ES2.6
ES2.7		

EcoStar SENECA  
**ES 3.6**

NOTE: APPLICATION OF ADDITIONAL STRIPPING OF GLACIER GUARD IS RECOMMENDED IN SNOW COUNTRIES PER DETAIL A SHEET ES2.4 OR AS REQUIRED BY THE ROOF DESIGNER.



SENECA SHAKE TILES

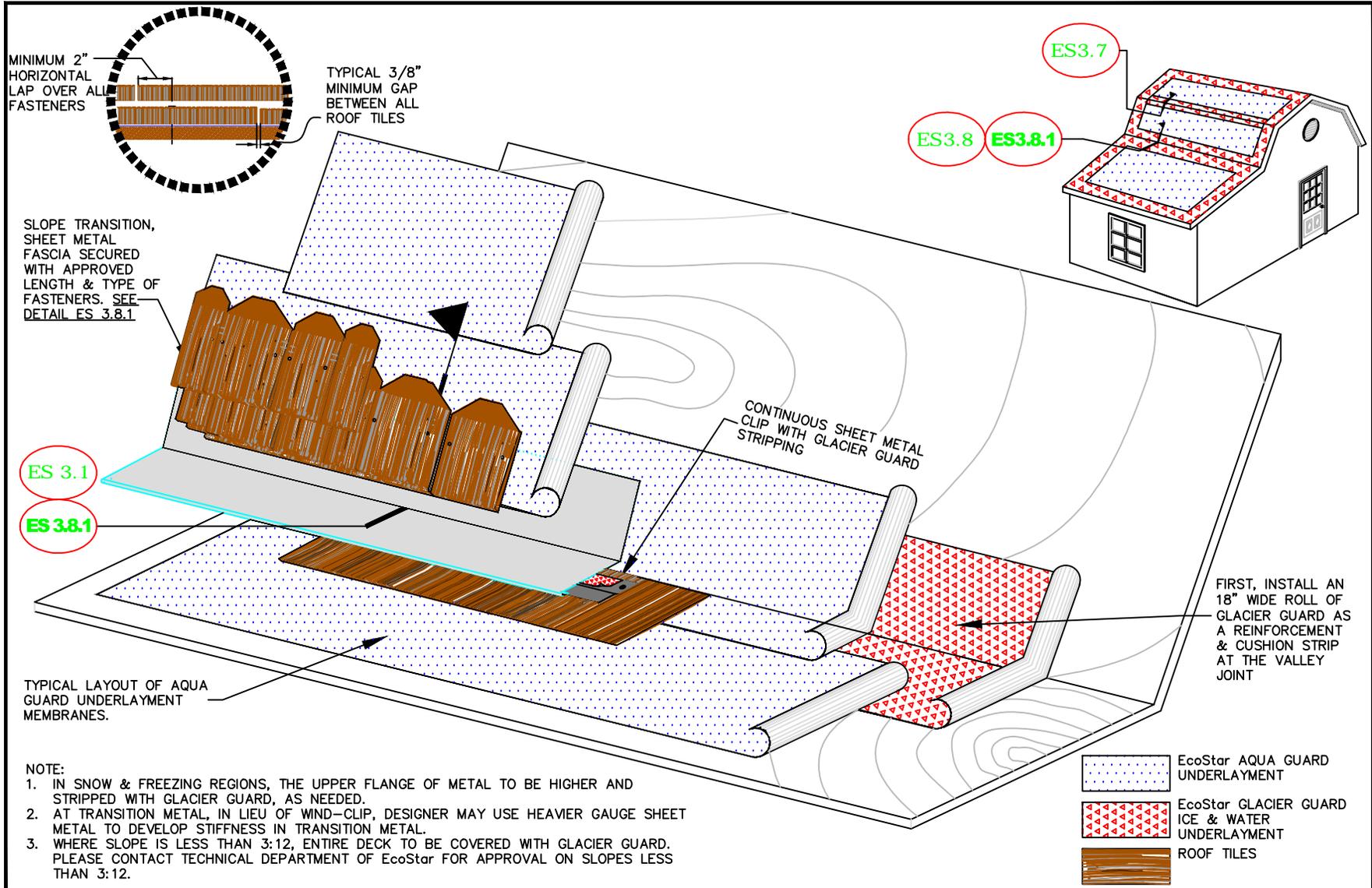
GAMBREL ROOF DETAIL AT UPPER TRANSITION OF ROOF SLOPES

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.0	ES2.1	ES2.6
ES2.7	ES3.1	ES3.2
ES3.3		

EcoStar SENECA

ES 3.7



SENECA SHAKE TILES

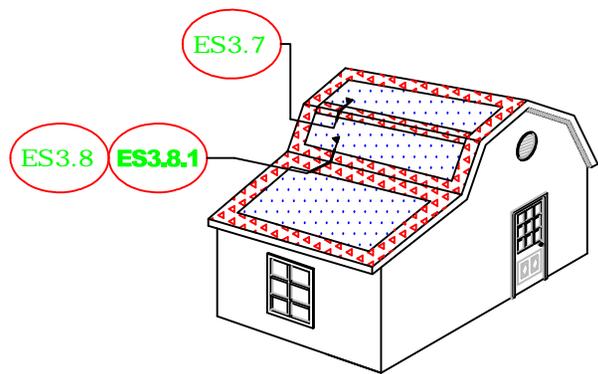
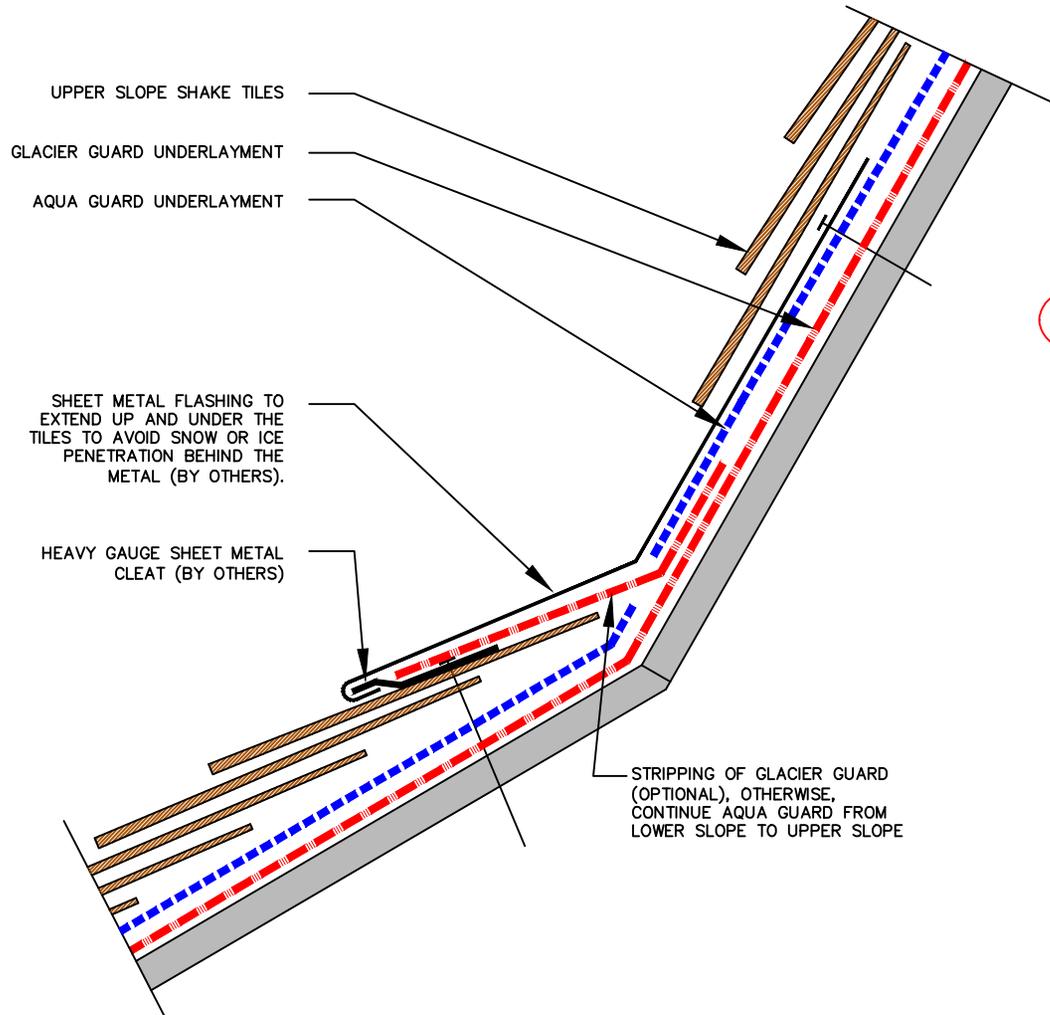
GAMBREL ROOF DETAIL AT LOWER TRANSITION OF ROOF SLOPES

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.0	ES2.1	ES2.6
ES2.7	ES3.1	ES3.2
ES3.3	ES3.8.1	

EcoStar SENECA

ES 3.8



NOTE:  
1. APPLICATION OF SEALANT AT SHEET METAL FASTENER'S PILOT HOLES FOR SHEET METAL FLASHING IS SUGGESTED FOR LOW SLOPES OR AREAS, WHERE WIND-DRIVEN RAIN OR MELTING ICE MAY PENETRATE AROUND FASTENER'S LOCATIONS.



**SENECA SHAKE TILES**

**GENERIC DETAIL OF SHEET METAL FLASHING AT SLOPE TRANSITION**

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.0	ES2.1	ES2.6
ES2.7	ES3.8	

EcoStar SENECA

**ES 3.8.1**

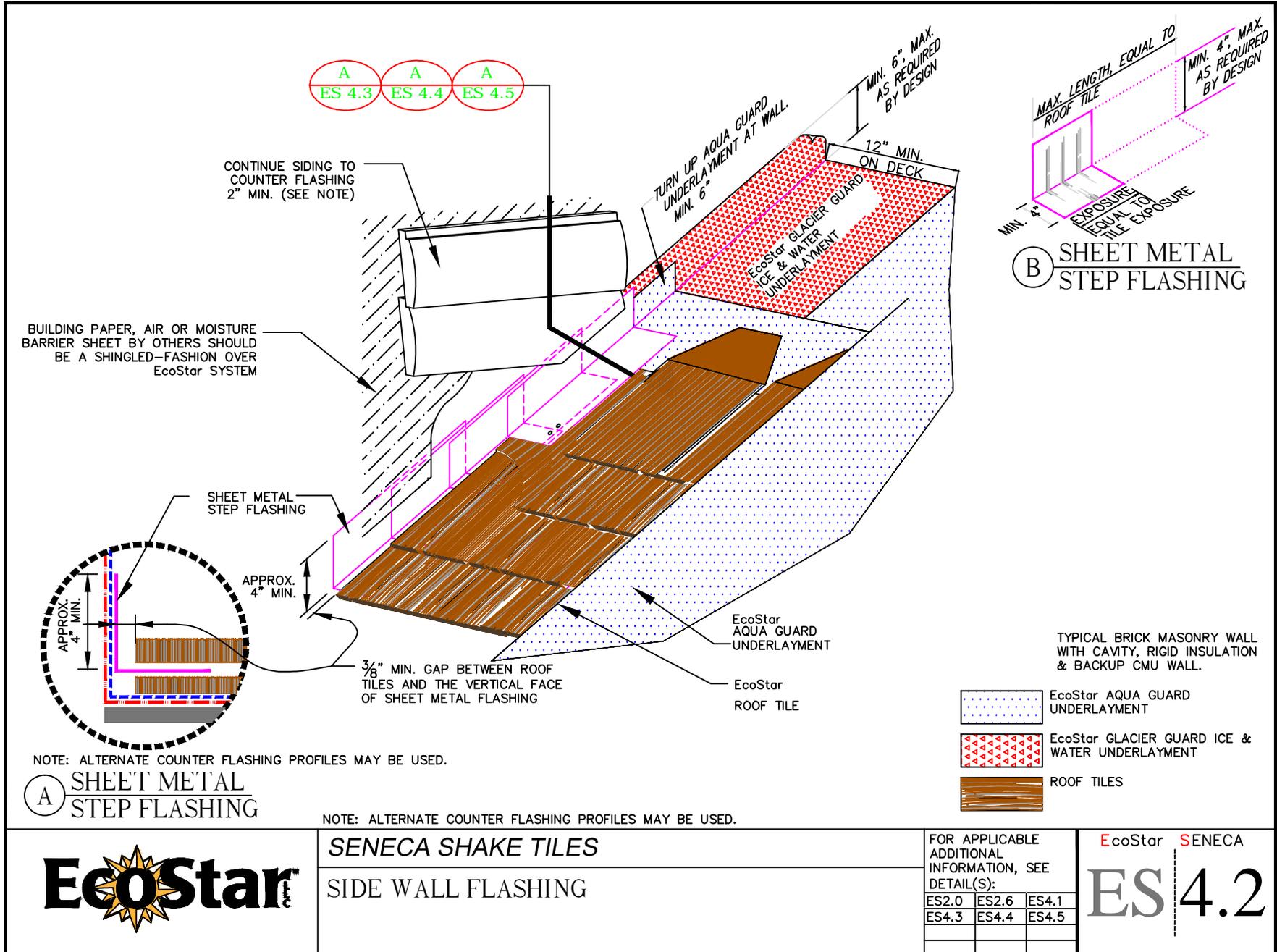
4.0

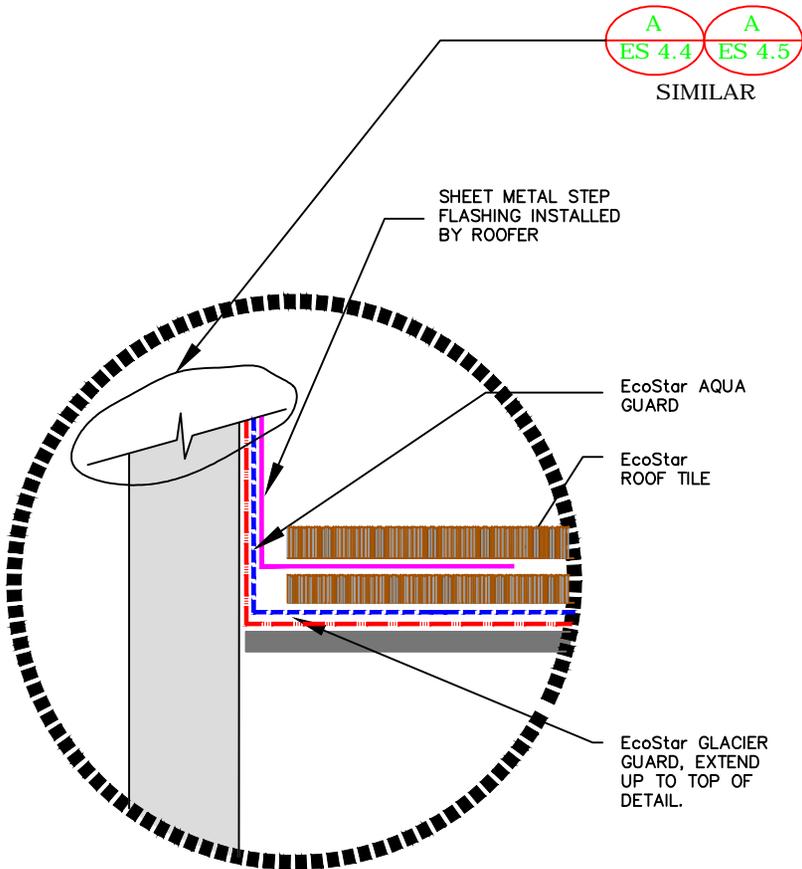
# WALL FLASHING DETAILS



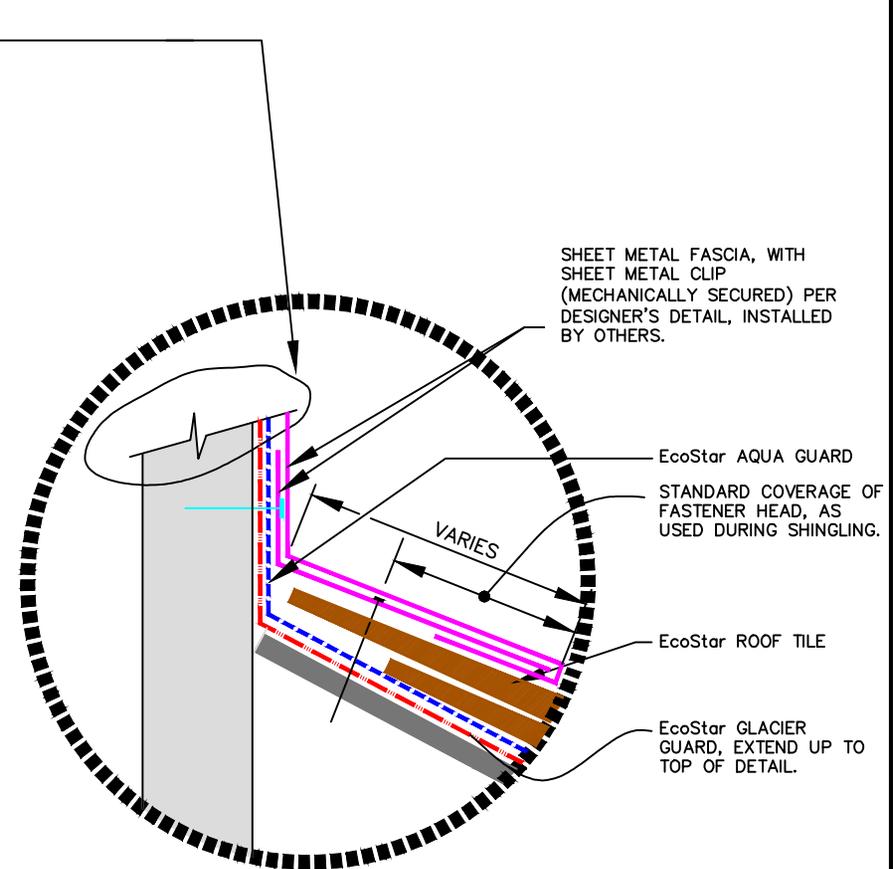
*SENECA SHAKE TILES*







**A** RISING SIDE-WALL FLASHING



**B** RISING WALL FLASHING AT TOP END OF ROOF

NOTE: CONTACT THE TECHNICAL STAFF OF EcoStar, WHERE A VENTING DETAIL IS REQUIRED AT THE BASE OF WALL.



SENECA SHAKE TILES

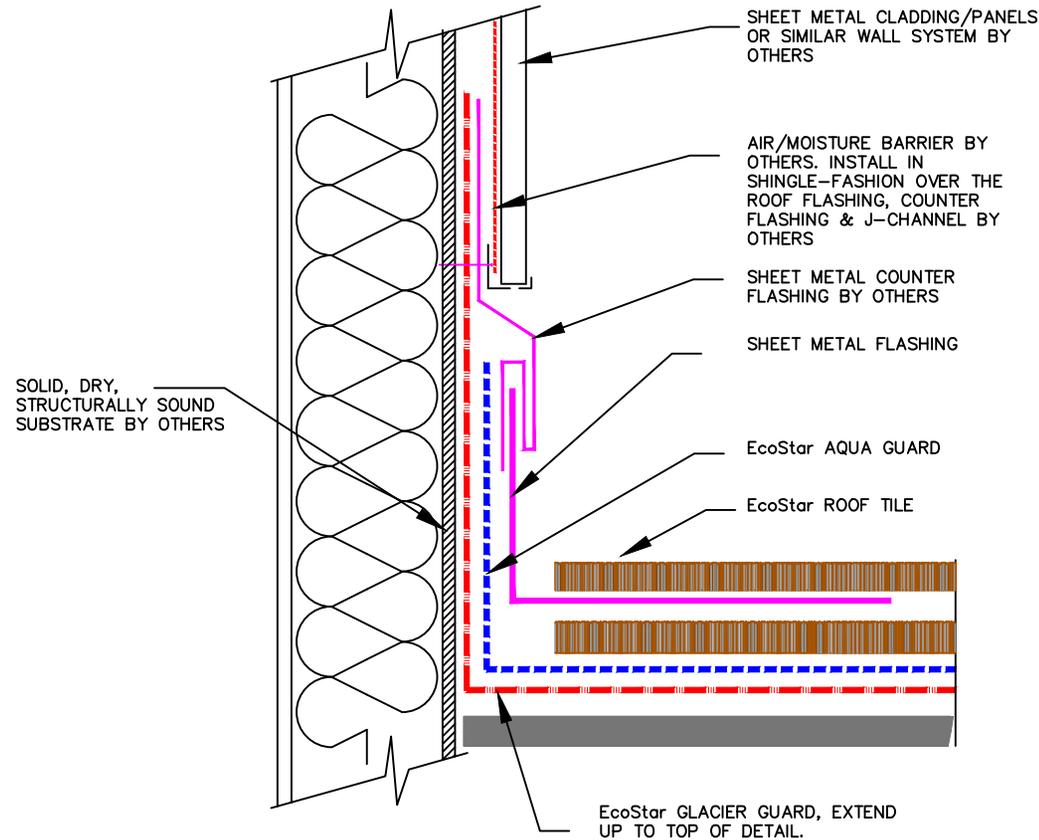
SECTION DETAILS OF RISING WALL - 1

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.0	ES2.6	ES4.1
ES4.2	ES4.4	ES4.5

EcoStar SENECA

ES 4.3



**A** TYPE 'B' CONCEALED COUNTER FLASHING  
WALL TYPES: SIDINGS, METAL PANELS



**SENECA SHAKE TILES**

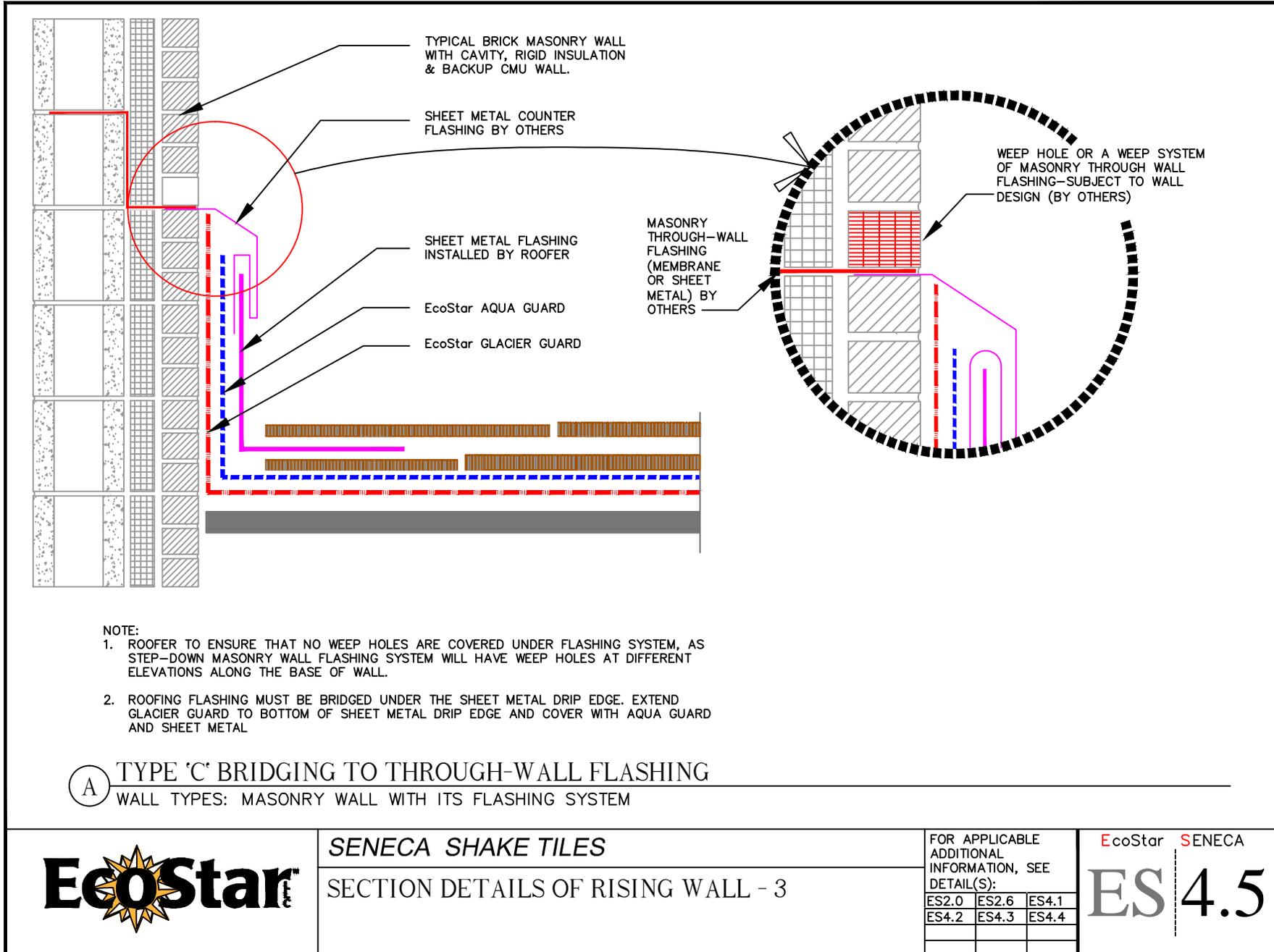
SECTION DETAIL OF RISING WALL - 2

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

ES2.0	ES2.6	ES4.1
ES4.2	ES4.3	ES4.5

EcoStar SENECA

**ES 4.4**



SENECA SHAKE TILES

SECTION DETAILS OF RISING WALL - 3

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.0	ES2.6	ES4.1
ES4.2	ES4.3	ES4.4

EcoStar SENECA

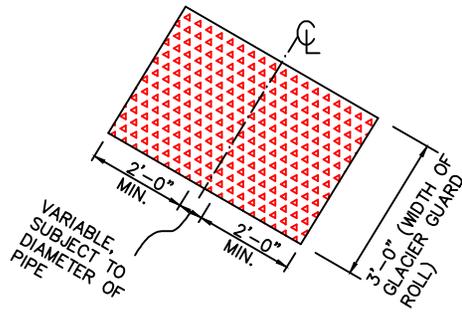
ES 4.5

5.0

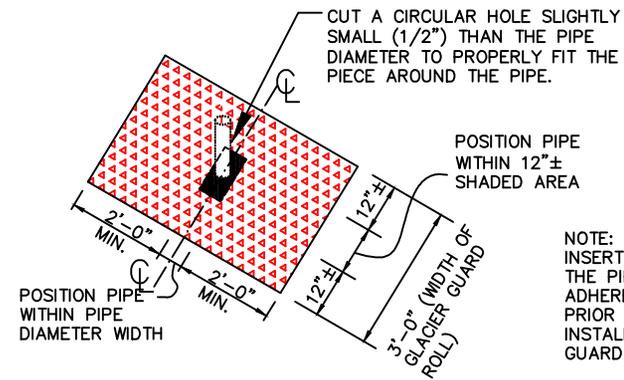
# ROOF PENETRATION DETAILS



*SENECA SHAKE TILES*



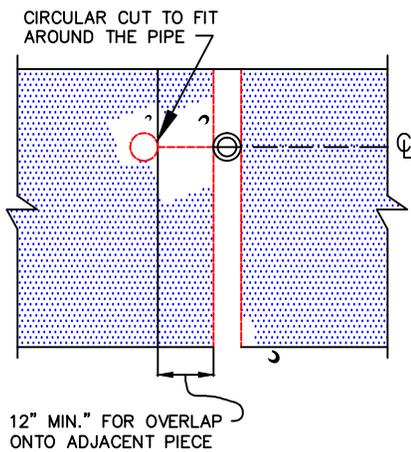
STEP 1.  
CUT A PIECE OF GLACIER  
GUARD, 3'-0" X 4'-0"  
PLUS DIAMETER OF VENT  
PIPE



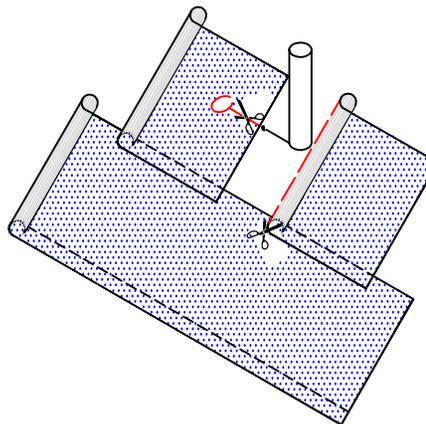
NOTE:  
INSERT THE PIECE OVER  
THE PIPE AND FULLY  
ADHERE TO ROOF DECK,  
PRIOR TO THE  
INSTALLATION OF AQUA  
GUARD UNDERLAYMENT

**A** STEP 1 - CUT A PIECE OF GLACIER GUARD

**B** STEP 2 - INSTALLATION OF PIECE

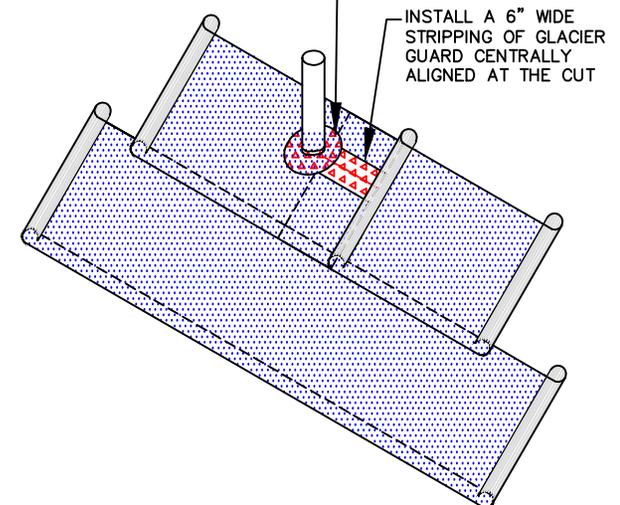


**C** STEP 3 - AQUA GUARD FABRICATION AT PIPE



**D** 3-D VIEW OF STEP 3

OPTIONAL: ADDITIONAL STRIPPING OF  
GLACIER GUARD AROUND THE PIPE.  
EXTEND MIN. 2" VERTICALLY UP. SEE  
DETAIL A SHEET ES.5.2.



**E** STEP 4 - INSTALLATION OF AQUA GUARD & STRIPPING



SENECA SHAKE TILES

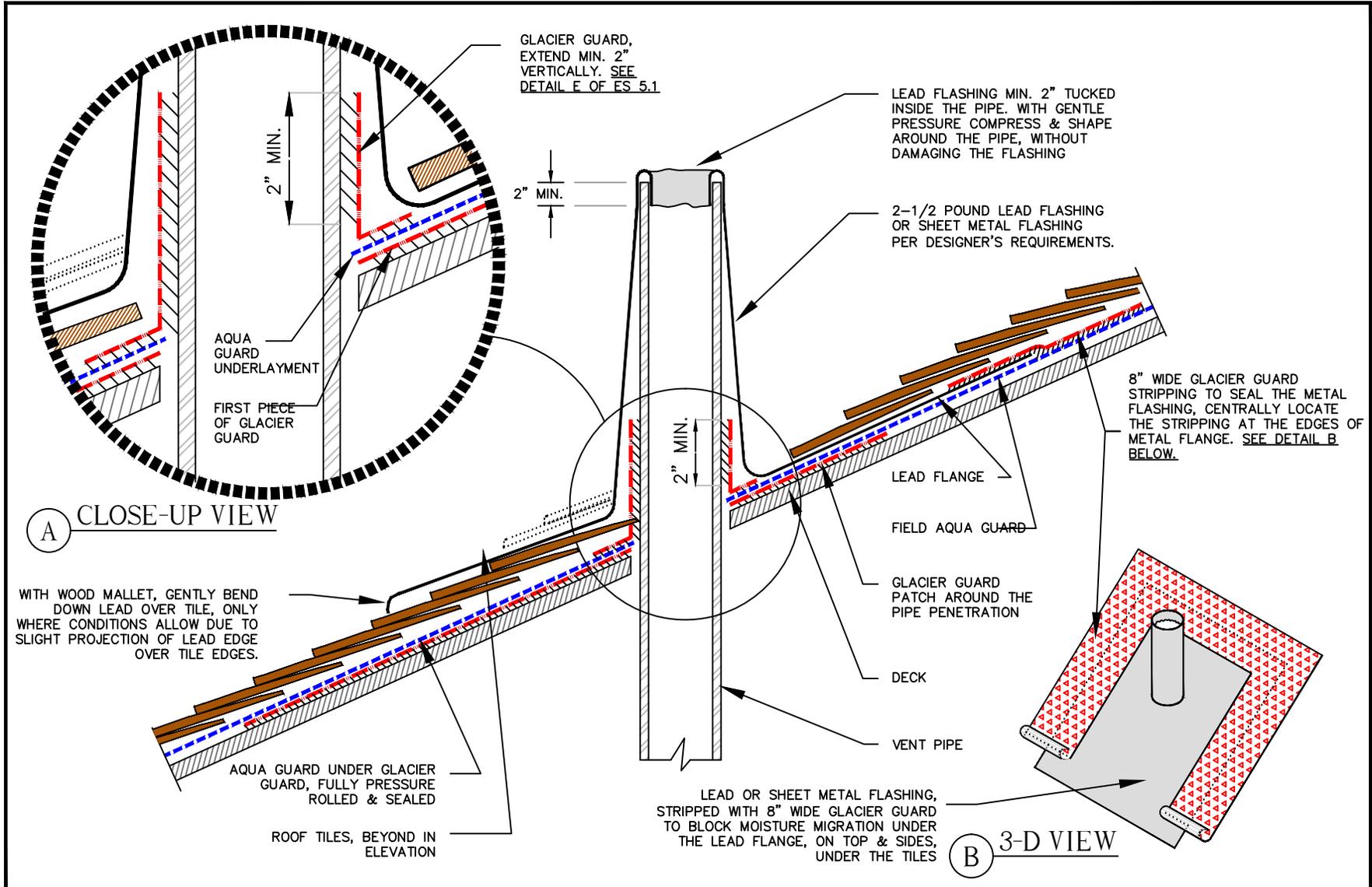
VENT STACK (UNDERLAYMENT LAYOUT) PAGE 1  
OF 3

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):

ES5.2	ES5.3

EcoStar SENECA

ES 5.1



**SENECA SHAKE TILES**

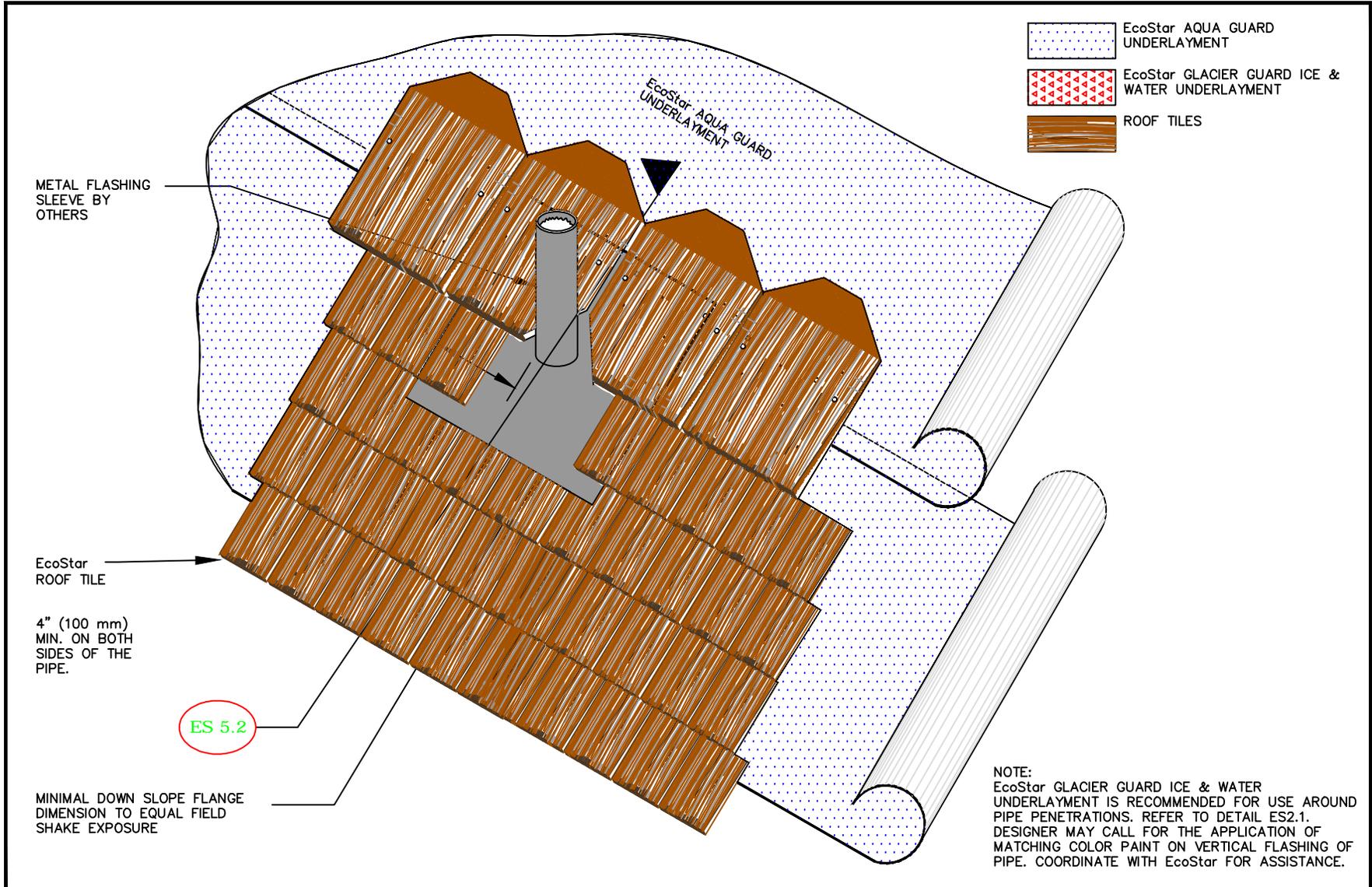
VENT STACK (METAL FLASHING) PAGE 2 OF 3

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES5.1	ES5.3

EcoStar SENECA

**ES 5.2**



SENECA SHAKE TILES

VENT STACK (TILES 3D VIEW) PAGE 3 OF 3

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES5.1	ES5.2

EcoStar SENECA

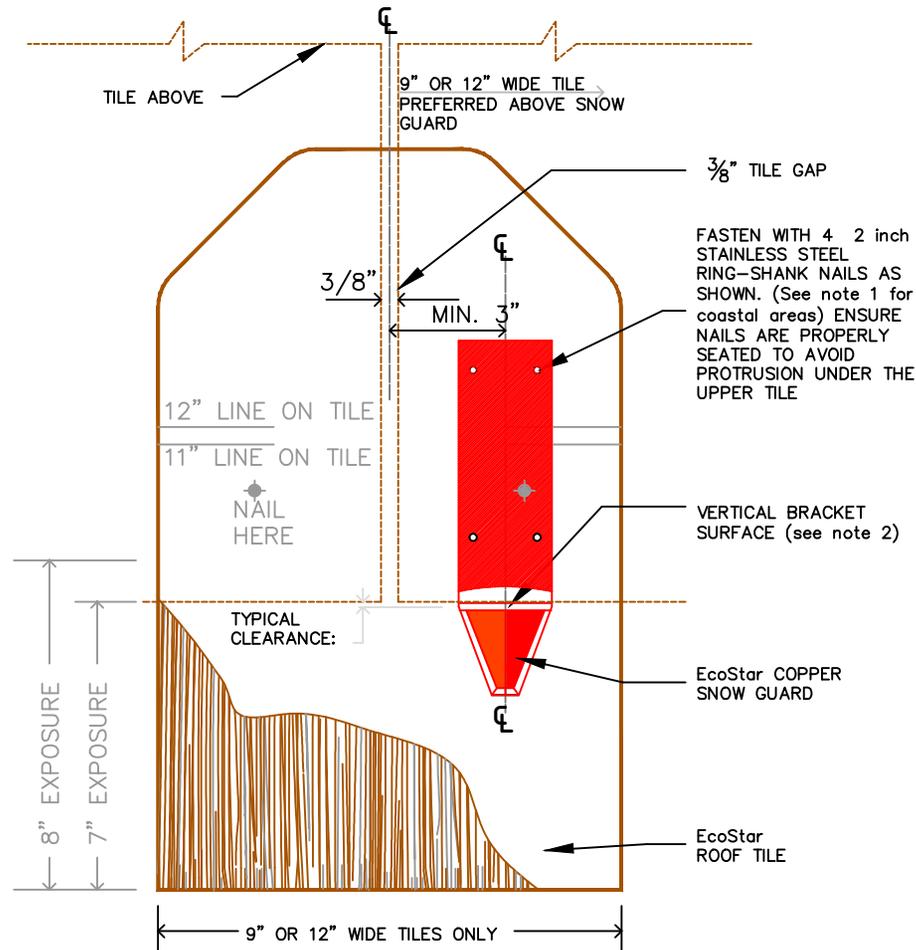
ES 5.3

6.0

# ROOF ACCESSORIES DETAILS



*SENECA SHAKE TILES*



NOTES:

1. EcoStar APPROVED NAILS MUST BE USED WITH THE EcoStar SNOW GUARD BRACKET TO ENSURE PROPER ATTACHMENT OF THE SNOW GUARD BRACKET. IN COASTAL AREAS (within 15 miles of a saltwater coastline) USE COPPER RING-SHANK NAILS FOR THE ATTACHMENT OF COPPER SNOW GUARDS.
2. ENSURE THE SNOW GUARD BRACKET IS LOW ENOUGH ON THE ROOF TILE TO ACCOMMODATE THE NEXT ROW OF TILES ABOVE IT. THE BOTTOM EDGE OF THE NEXT ROW OF TILES MUST BE NO CLOSER THAN 1/2" TO THE TOP OF THE VERTICAL BRACKET SURFACE.
3. PLACE THE SNOW GUARD BRACKET SO AS NOT TO BE DIRECTLY IN LINE WITH THE SPACE BETWEEN THE TILES ABOVE.
4. THE LOCATION AND NUMBER OF SNOW GUARDS IS DETERMINED BY THE SPECIFICS OF THE ROOF DESIGN AND PROJECT GEOGRAPHIC LOCATION. REFER TO LAYOUT CALCULATOR ON THE WEB SITE FOR JOB SPECIFIC LAYOUTS.
5. ADJUST THE LOCATION OF EcoStar SNOW GUARD, AS THE EXPOSURE CHANGES WITH THE ROOF SLOPE.

A EcoStar SNOW GUARD POSITIONING

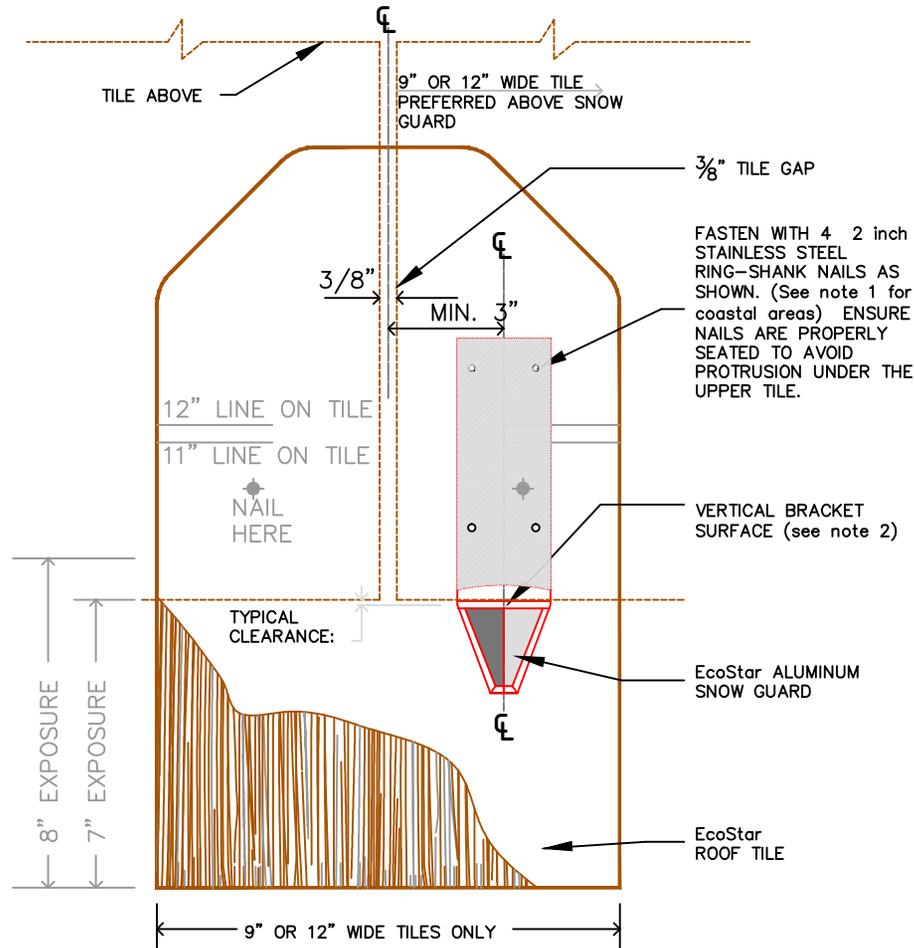


SENECA SHAKE TILES  
COPPER SNOW GUARDS LAYOUT

FOR APPLICABLE  
ADDITIONAL  
INFORMATION, SEE  
DETAIL(S):


EcoStar SENECA

ES 6.1



NOTES:

1. EcoStar APPROVED NAILS MUST BE USED WITH THE EcoStar SNOW GUARD TO ENSURE PROPER ATTACHMENT OF THE SNOW GUARD BRACKET. IN COASTAL AREAS (within 15 miles of a saltwater coastline) USE ALUMINUM RING-SHANK NAILS FOR THE ATTACHMENT OF ALUMINUM SNOW GUARDS.
2. ENSURE THE SNOW GUARD BRACKET IS LOW ENOUGH ON THE ROOF TILE TO ACCOMMODATE THE NEXT ROW OF TILES ABOVE IT. THE BOTTOM EDGE OF THE NEXT ROW OF TILES MUST BE NO CLOSER THAN 1/2" TO THE TOP OF THE VERTICAL BRACKET SURFACE.
3. PLACE THE SNOW GUARD BRACKET SO AS NOT TO BE DIRECTLY IN LINE WITH THE SPACE BETWEEN THE TILES ABOVE.
4. THE LOCATION AND NUMBER OF SNOW GUARDS IS DETERMINED BY THE SPECIFICS OF THE ROOF DESIGN AND PROJECT GEOGRAPHIC LOCATION. REFER TO LAYOUT CALCULATOR ON THE WEB SITE FOR JOB SPECIFIC LAYOUTS.
5. ADJUST THE LOCATION OF EcoStar SNOW GUARD, AS THE EXPOSURE CHANGES WITH THE ROOF SLOPE.

A EcoStar SNOW GUARD POSITIONING



SENECA SHAKE TILES

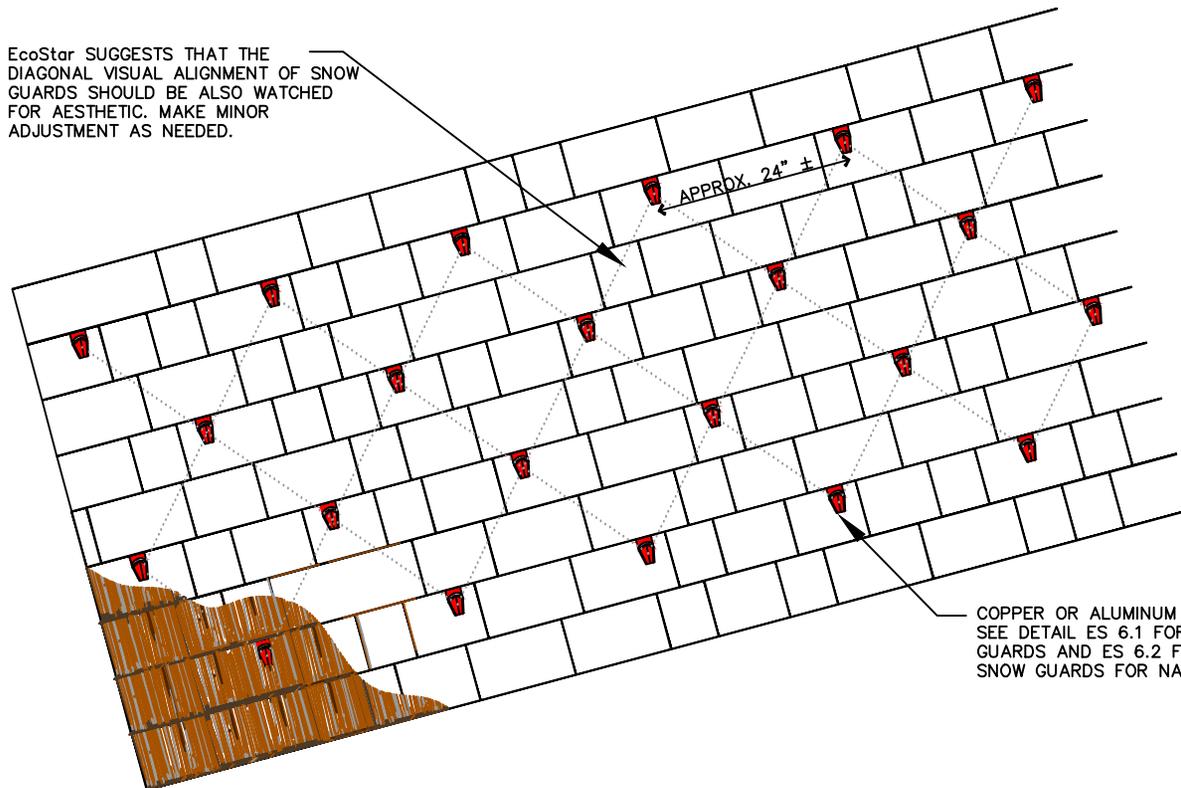
ALUMINUM KYNAR FINISH SNOW GUARDS LAYOUT

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):


EcoStar SENECA

ES 6.2

EcoStar SUGGESTS THAT THE DIAGONAL VISUAL ALIGNMENT OF SNOW GUARDS SHOULD BE ALSO WATCHED FOR AESTHETIC. MAKE MINOR ADJUSTMENT AS NEEDED.



COPPER OR ALUMINUM SNOW GUARDS. SEE DETAIL ES 6.1 FOR COPPER SNOW GUARDS AND ES 6.2 FOR ALUMINUM SNOW GUARDS FOR NAIL TYPES.

NOTES:

1. DO NOT INSTALL SNOW GUARDS AT FIRST COURSE OF TILES. THE INSTALLATION OF SNOW GUARDS MAY BE STARTED FROM 2ND COURSE.
2. ANTICIPATE THE USE OF TILE SIZES, IN ORDER TO ACHIEVE BETTER COVERAGE ABOVE THE LINE OF EACH SNOW GUARD. THE JOINT BETWEEN UPPER TWO TILES RIGHT ABOVE SNOW GUARD SHOULD BE MIN. 3", AS NOTED ON DRAWINGS, ES 6.1 & ES 6.2.
3. THE LENGTH, TYPE AND NAILING PATTERN OF NAILS MUST BE REVIEWED AND APPROVED BY THE ARCHITECT.
4. NAILS' WITHDRAWAL RESISTANCE MUST BE VERIFIED PRIOR TO START OF PROJECT AND SHOULD BE COORDINATED WITH THE ARCHITECT.



SENECA SHAKE TILES

TYPICAL LAYOUT OF EcoStar SNOW GUARDS

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES6.1	ES6.2	

EcoStar SENECA

ES 6.3

# EMPIRE SLATE™

This installation guide is written and provided for the use of professional roofing applicators and EcoStar™ Gold Star Authorized Applicators. Contact the technical department for information on warranty availability and the requirements and benefits of the Gold Star program.

**SPECIAL NOTE: Empire Slate™ has been tested and listed by Underwriters Laboratories as a Class A, and as a Class C, roofing material (UL 790). Empire Slate has been tested and listed by Underwriters Laboratories as a Class 4 impact resistance product (UL 2218). To maintain the requirements of these tests and their listings the roof system must be installed exactly as stated in this installation guide.**

## WARRANTIES\*

EcoStar warrants this product to be free of manufactured defects at the time of shipment from EcoStar's factory. EcoStar will at its option either supply new product or pay the reasonable cost of replacement products found to be defective hereunder.

**EcoStar's limited warranties are the only warranties extended by EcoStar with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. EcoStar specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever.**

The dollar value of EcoStar's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the EcoStar material in question.

## SHADE VARIATION

**All tiles come with a shade variation.** This shade variation will occur from pallet to pallet and within individual pallets. Application of the product should not begin until **ALL** material has been delivered to the project site. Because of this shade variation the applicator must take precautions to insure that the various shades of the product are properly blended. Tiles must be taken from different pallets and bundles to guarantee consistency in application. Natural weathering will produce further shade variations, even in tiles appearing to be identical in color when new.

**NOTE:** EcoStar will not be responsible for the improper blending or application of the product.

\* See [www.ecostarllc.com](http://www.ecostarllc.com) for available warranties.

## Polymeric Slate Tile Roof System

### TEMPERATURE

It is recommended that the tiles not be stored in temperatures lower than 45° F since cold tiles will cause difficulty with the installation. If tiles have been stored in temperatures below 45° F, they must be restored to a temperature above 45° F before installation. The tiles will expand and contract with temperature variations. If the tiles are applied while cold, special precautions must be taken to insure a quality looking application. Proper spacing must be maintained throughout the project. For assistance with installations below 45° F please contact the technical department.

### SUBSTRATE

The tiles should only be installed on a minimum of 1/2" plywood decking, 7/16" OSB or minimum 3/4" tongue and groove decking with end gaps not exceeding 1/4". Contact the technical department for approved alternatives. Under all circumstances existing roof materials must be removed down to the deck, prior to installation.

### SLOPE

The tiles are not recommended for slopes less than 3/12. If this is desired, contact the technical department for review. On roof slopes less than 6/12, the tiles must be installed with a maximum 6" exposure. On roof slopes of 6/12 or greater, the tiles may be installed with a 6", 6 1/2" or 7" exposure.

### UNDERLAYMENT

**Glacier Guard™** or equal must be applied to all eaves, rake edges, hips, valleys, ridges and protrusions. If a Class C roof system has been specified, cover the remaining exposed deck with **Aqua Guard™** or equal. If a Class A roof has been specified, **GP Gypsum Corporation DensDeck®** roof board may be used, or **Elk VersaShield®** underlayment. If **VersaShield** is used, it must be applied over the entire roof deck, after the installation of the **Glacier Guard. Gold Star Warranty\*** requires the use of the above mentioned EcoStar specified products.

### FASTENERS

Stainless Steel Ring Shank roofing nails are recommended for application of the tiles. **Gold Star Warranty\*** application requires the use of **EcoStar Ring Shank Fasteners**. Hand drive and pneumatic coil nails are available.

### FLASHING MATERIAL

EcoStar recommends that flashing be either copper or stainless steel. Flashing metal, however, is not covered by any EcoStar warranty. Like materials should be used when fastening metal flashings.

### SEALANTS

If local codes require the use of a shingle sealant, the only material approved for use with EcoStar tiles is Dow Corning 790 silicone sealant.

# INSTALLATION GUIDE



# Empire Slate Installation Guide

## INSTALLATION STEP

EcoStar makes every effort to maintain the quality and consistency of all products, however, shade variations will occur within all tile products.

**Due to these shade variations it is extremely important that all members of the installation crew be aware of the fact that tiles must be blended between bundles and pallets.** The entire lot of material must be blended evenly in rotation until all material is used. EcoStar recommends that a member of the crew be assigned the responsibility of blending tiles and insuring that no shade patterning or blotching occurs. This can best be accomplished by blending all tiles before beginning installation, and by making periodic inspections of the roof from the ground.

**Empire Slate** tiles are designed and manufactured to duplicate the look of natural slate.

1. Install **Glacier Guard** in all valleys, eaves, rake edges, hips, ridges and protrusions. **Gold Star Warranty\*** application requires the use of **Glacier Guard**.

2. Install a minimum of 30 lb. felt over the remaining area of the deck surface. If a Class C roof is required, the 30 lb. felt or equal must be UL listed. **Gold Star Warranty\*** application requires the use of **EcoStar Aqua Guard** underlayment for a Class C roof system. If a Class A roof is required, install **Elk VersaShield®** or equivalent over the entire deck including areas already covered by the **Glacier Guard**. **Gold Star Warranty\*** application requires the use of **Elk VersaShield®** for a Class A roof system.

3. Install metal edging at eaves and rake edges. Any corrosion resistant metal edging is acceptable. Copper and stainless steel are recommended. It should be noted that all EcoStar Warranties do NOT cover metal flashing.

**Note:** When using copper and stainless steel flashing material the appropriate corresponding nails should be used.

4. A critical step is **BENDING**. Every tile that is installed must be bent in a downward arch before applying it to the roof deck. Whatever position the tile is in when fastened to the roof deck, is the position it will maintain. It is recommended that each member of the installation crew be instructed on how to bend the tile to insure that it lies flat when fastened to the roof deck. While grabbing the top of the tile (textured side up) with the right hand and the bottom edge of the tile with the left hand, bend the tile in a downward motion until the tile maintains arch. The tiles must be curved under when installing.

5. Beginning at the eave edge, install a starter row of tiles with two nails per tile (in location shown on tiles). 1-1/2" long stainless steel ring shank roofing nails are recommended. **Gold Star Warranty\*** application requires the use of **EcoStar Ring Shank Fasteners**.

6. If a pneumatic nailer is utilized for application of the tiles, care should be taken to determine that the proper pressure and depth setting is being used. Nails can be over driven causing tiles to lift diminishing the quality of the installation.

7. The initial layer of tiles becomes the starter row. This layer will be completely covered by the next row to be installed. The starter row may be installed either front side up or back side up. When the first course of tile is installed, tiles must be offset half a tile to cover the nails from the previous row.

**EMPIRE SLATE IS NOT RECOMMENDED FOR SLOPES LESS THAN 3/12. ON ROOFS LESS THAN 6/12 AND GREATER THAN 3/12, EMPIRE SLATE MUST BE INSTALLED WITH A MAXIMUM EXPOSURE OF 6". ON ROOFS 6/12 OR GREATER EMPIRE SLATE TILES MAY BE INSTALLED WITH EITHER A 6", 6 1/2" OR 7" EXPOSURE.**

PLEASE REMEMBER TO BEND AND



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8. **CAUTION:** Do not install the tiles with an upward curl. Whatever position the tile is in when fastened to the roof deck, it will maintain that position. It is required that each member of the installation crew be instructed on how to bend the tile manually to insure that it lies flat when fastened to the roof deck.

9. As the tiles are installed up the roof, the tile must be cut at rake edges, valleys and projections. The tiles may be cut using a straight edge and a utility or roofing knife. Once the tile has been scored with a knife it can be snapped along the scored line.

10. As the tiles are installed up the roof slope, it is recommended that lines be snapped both horizontally and vertically. The horizontal lines will keep the tiles looking straight and uniform. The vertical lines will keep the space between the tiles in line from row to row. **DO NOT USE RED CHALK. Red chalk will stain the tiles.**

11. **CAUTION:** As the tiles are installed up the slope of the roof, the installation should be constantly checked from the ground to ensure there is no patterning developing and proper blending is occurring. **Gold Star Warranty\*** application requires that the Authorized Applicator correct any blending problems prior to issuance of the warranty.

12. Continue to install the tiles up the roof slope. Be sure to place the nails directly in the position noted on the tiles. Stainless steel ring shank nails are recommended. **Gold Star Warranty\*** application requires the use of **EcoStar Ring Shank Fasteners**. A minimum of 3/8" is required between tiles and between tiles and protrusions.

When using pneumatic nailing equipment, frequently check both the depth and pressure setting, so nails are not over driven, causing tiles to lift. Lifted tiles will diminish the aesthetic appearance of the finished roof system. The nail should not dent the tile.

For 10" **Empire Slate** tiles, there are two ways to install: 1) the entire project is 10" tile and the installation is the same as the current 12" specification or 2) for a 10"/12" blend, mix the two sizes together for desired random width look. Take caution when installing to ensure enough coverage past nail heads of previous course.

**Tiles can be slippery when wet, caution should be exhibited with early morning dew and after rain. EcoStar suggests the use of toe boards, OSHA approved harnesses and safety equipment at all times.**

13. When all tiles have been applied to the roof slopes, the pre-formed **Empire Slate Hip & Ridge** tiles are applied to all hips and ridges. **Empire Slate Hip & Ridge tiles are always installed with a 6" exposure** with two 2" or 2.5" nails per tile. The use of ridge vent will require 2.5" nails. Before installing the **Empire Slate Hip & Ridge** tiles at the ridge, roof venting should be installed. Ridge venting systems are highly recommended. Mushroom cap style vents may be used, but ridge venting provides better venting and improves the aesthetic appearance of the roof system. The **Gold Star Warranty\*** covers **EcoStar EcoVent** if used.

14. As work progresses up roof slopes care should be taken to minimize traffic over completed areas of the roof. The tiles will show any mud or dirt tracked across them. This will cause aesthetic issues with the completed appearance of the roof. It is the responsibility of applicator or building owner to remove this mud or dirt. A mild detergent should be used in combination with a bucket of water to remove the mud or dirt. Clean water can then be used to finish the cleaning process. Do not use any chemicals or solvents without first checking with the EcoStar technical department. **EcoStar is not responsible for the cleaning of any tiles.**

\*See [www.ecostarllc.com](http://www.ecostarllc.com) for available warranties.

**PRODUCT IDENTIFICATION**

This area provides identification of the product and a toll free contact telephone number for questions or assistance with the product and installation.

**IMPORTANT INFORMATION**

This area of the tile provides pertinent information about installation and the need to use a trained applicator to install the product.

**QUALITY INFORMATION** on back side

This area of the tile is used by the production department to denote the date the part was manufactured. This allows tracking of quality by production time. This information may be found on the front or back of the tile.

**INSTALLATION MEASUREMENT**

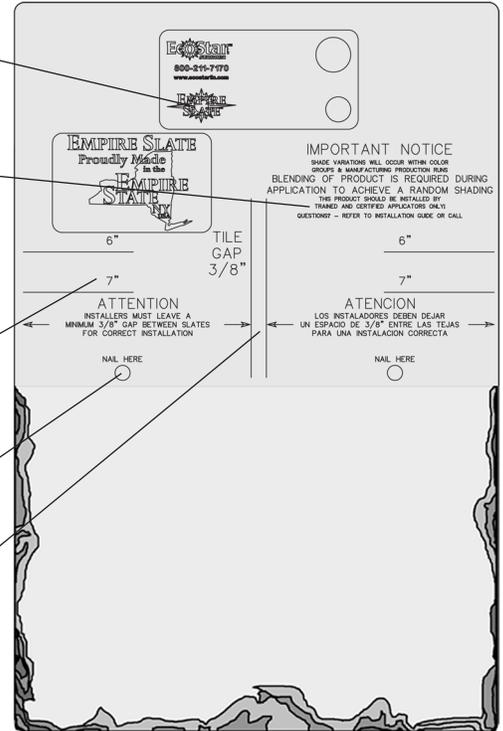
Two marks are molded into every tile. When these marks are placed in alignment with the top edge of the previous row of tiles, proper tile exposure is provided automatically.

**TILE FASTENING**

Molded into each tile is a fastener locator. This assists during installation for proper positioning of the fastener.

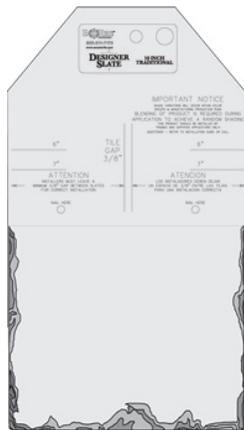
**GAP**

During installation the tiles must be placed a minimum of 3/8" apart. Tiles must never be installed directly adjacent to each other. This area of the tile states this in both English and Spanish.



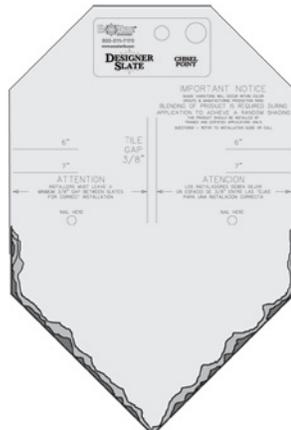
**Empire Slate – 12" Traditional**  
*12" wide x 18" long*

**Designer Slate**



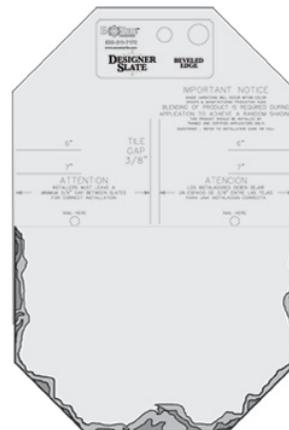
**Empire Slate 10" Traditional**

*10" wide x 18" long*



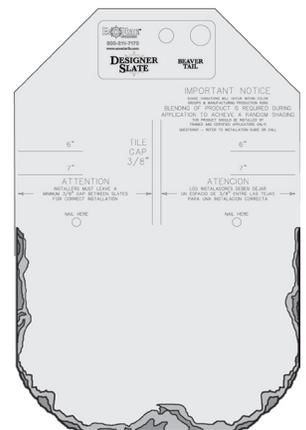
**Empire Slate Chisel Point**

*12" wide x 18" long*



**Empire Slate Beveled Edge**

*12" wide x 18" long*



**Empire Slate Beaver Tail**

*12" wide x 18" long*



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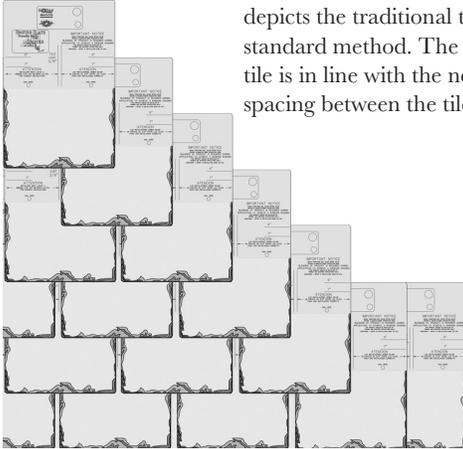
VersaShield is a registered trademark of GAF-Elk. DensDeck is a trademark of Georgia Pacific Corporation.

P/N-606000 ECO-EMPIRE SLATE INSTALL GUIDE. This installation guide, effective 03/25/2013 supersedes all previous versions.



## Empire Slate Traditional Design

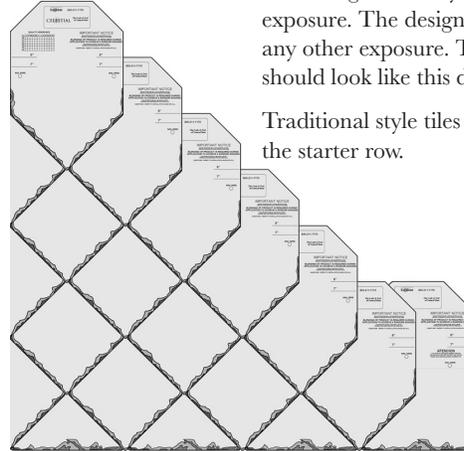
**Standard Installation:** This drawing depicts the traditional tile installed in the standard method. The bottom edge of each tile is in line with the next and the vertical spacing between the tiles is in line.



## Empire Slate Chisel Point Design

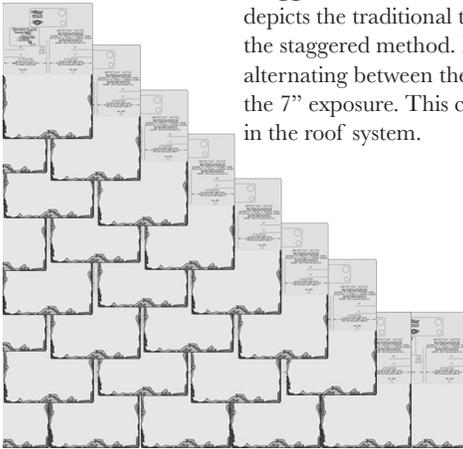
This design can only be put down using a 6" exposure. The design will not accommodate any other exposure. The installed product should look like this drawing.

Traditional style tiles must be used as the starter row.



## Empire Traditional Design

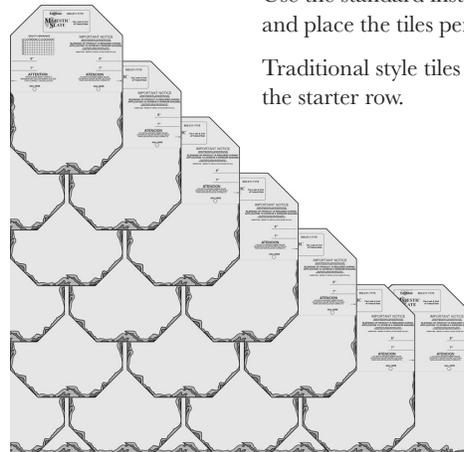
**Staggered Installation:** This drawing depicts the traditional tile installed using the staggered method. Each tile is installed alternating between the 6" exposure and the 7" exposure. This creates more texture in the roof system.



## Empire Slate Beveled Edge Design

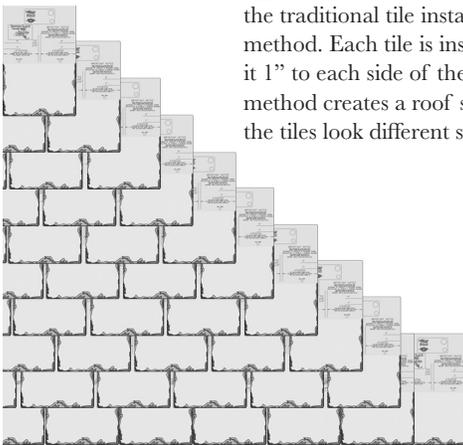
Use the standard installation methods and place the tiles per this drawing.

Traditional style tiles must be used as the starter row.



## Empire Slate Traditional Design

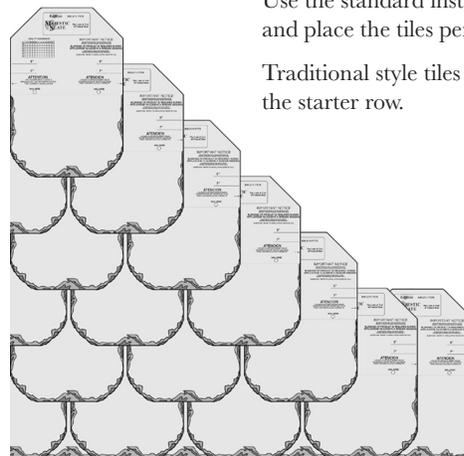
**Offset Installation:** This drawing depicts the traditional tile installed using the offset method. Each tile is installed by moving it 1" to each side of the center line. This method creates a roof system that makes the tiles look different sizes.



## Empire Slate Beaver Tail Design

Use the standard installation methods and place the tiles per this drawing.

Traditional style tiles must be used as the starter row.



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P/N-606000 ECO-EMPIRE SLATE INSTALL GUIDE. This installation guide, effective 03/25/2013 supersedes all previous versions.



## Polymeric Slate Tile Roof System

# INSTALLATION GUIDE

This installation guide is written and provided for the use of professional roofing applicators and EcoStar™ Gold Star Authorized Applicators. Contact the technical department for information on warranty availability and the requirements and benefits of the Gold Star program.

**SPECIAL NOTE: Majestic Slate™ is made in two different formulations, one formula has been tested and listed by Underwriters Laboratories as a Class C roofing material and the other formulation has been tested and listed as a Class A roofing material (UL 790). Please make sure of the type of material being installed since the method of installation is critical for the listing. Majestic Slate has been tested and listed by Underwriters Laboratories as a Class 4 impact resistance product (UL 2218). To maintain the requirements of these tests and their listings the roof system must be installed exactly as stated in this installation guide.**

### WARRANTIES\*

EcoStar warrants this product to be free of manufactured defects at the time of shipment from EcoStar's factory. EcoStar will at its option either supply new product or pay the reasonable cost of replacement products found to be defective hereunder.

**EcoStar's limited warranties are the only warranties extended by EcoStar with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. EcoStar specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever.**

The dollar value of EcoStar's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the EcoStar material in question.

### SHADE VARIATION

**All tiles come with a shade variation.** This shade variation will occur from pallet to pallet and within individual pallets. Application of the product should not begin until **ALL** material has been delivered to the project site. Because of this shade variation the applicator must take precautions to insure that the various shades of the product are properly blended. Tiles must be taken from different pallets and bundles to guarantee consistency in application. Natural weathering will produce further shade variations, even in tiles appearing to be identical in color when new.

**NOTE:** EcoStar will not be responsible for the improper blending or application of the product.

\* See [www.ecostarllc.com](http://www.ecostarllc.com) for available warranties.

### TEMPERATURE

It is recommended that the tiles not be stored in temperatures lower than 45° F since cold tiles will cause difficulty with the installation. If tiles have been stored in temperatures below 45° F, they must be restored to a temperature above 45° F before installation. The tiles will expand and contract with temperature variations. If the tiles are applied while cold, special precautions must be taken to insure a quality looking application. Proper spacing must be maintained throughout the project. For assistance with installations below 45° F please contact the technical department.

### SUBSTRATE

The tiles should only be installed on a minimum of 1/2" plywood decking, 7/16" OSB or minimum 3/4" tongue and groove decking with end gaps not exceeding 1/4". Contact the technical department for approved alternatives. Under all circumstances existing roof materials must be removed down to the deck, prior to installation.

### SLOPE

The tiles are not recommended for slopes less than 3/12. If this is desired, contact the technical department for review. On roof slopes less than 6/12, the tiles must be installed with a maximum 6" exposure. On roof slopes of 6/12 or greater, the tiles may be installed with a 6", 6 1/2" or 7" exposure.

### UNDERLAYMENT

**Glacier Guard™** or equal must be applied to all eaves, rake edges, hips, valleys, ridges and protrusions. If a Class C roof system has been specified, cover the remaining exposed deck with **Aqua Guard™** or equal. If a Class A roof has been specified, **GP Gypsum Corporation's DensDeck®** roof board may be used, or **Elk's VersaShield®** underlayment. If **VersaShield** is used, it must be applied over the entire roof deck, after the installation of the **Glacier Guard. Gold Star Warranty\*** requires the use of the above mentioned EcoStar specified products.

### FASTENERS

Stainless Steel Ring Shank roofing nails are recommended for application of the tiles. **Gold Star Warranty\*** application requires the use of **EcoStar Ring Shank Fasteners**. Hand drive and pneumatic coil nails are available.

### FLASHING MATERIAL

EcoStar recommends that flashing be either copper or stainless steel. Flashing metal, however, is not covered by any EcoStar warranty. Like materials should be used when fastening metal flashings.

### SEALANTS

If local codes require the use of a shingle sealant, the only material approved for use with EcoStar tiles is Dow Corning 790 silicone sealant.



# Majestic Slate Installation Guide

## INSTALLATION STEPS

EcoStar makes every effort to maintain the quality and consistency of all products, however, shade variations will occur within all tile products.

**Due to these shade variations it is extremely important that all members of the installation crew be aware of the fact that tiles must be blended between bundles and pallets.** The entire lot of material must be blended evenly in rotation until all material is used. EcoStar recommends that a member of the crew be assigned the responsibility of blending tiles and insuring that no shade patterning or blotching occurs. This can best be accomplished by blending all tiles before installation, and by making periodic inspections of the roof from the ground.

**Majestic Slate** tiles are designed and manufactured to duplicate the look of natural slate.

1. Install **Glacier Guard** in all valleys, eaves, rake edges, hips, ridges and protrusions. **Gold Star Warranty\*** application requires the use of **Glacier Guard**.

2. Install a minimum of 30 lb. felt over the remaining area of the deck surface. If a Class C roof is required, the 30 lb. felt or equal must be UL Listed. **Gold Star Warranty\*** application requires the use of **EcoStar's Aqua Guard** underlayment for a Class C roof system. If a Class A roof is required install **Elk's VersaShield®** or equivalent over the entire deck including areas already covered by the **Glacier Guard**. **Gold Star Warranty\*** application requires the use of **Elk's VersaShield®** for a Class A roof system.

3. Install metal edging at eaves and rake edges. Any corrosion resistant metal edging is acceptable. Copper and stainless steel are recommended. It should be noted that all EcoStar Warranties do NOT cover metal flashing.

**Note:** When using copper and stainless steel flashing material the appropriate corresponding nails should be used.

4. A critical step is **BENDING**. Every tile that is installed must be bent in a downward arch before applying it to the roof deck. Whatever position the tile is in when fastened to the roof deck, is the position it will maintain. It is recommended that each member of the installation crew be instructed on how to bend the tile to insure that it lies flat when fastened to the roof deck. While grabbing the top of the tile (textured side up) with the right hand and the bottom edge of the tile with the left hand, bend the tile in a downward motion until the tile maintains arch. The tiles must be curved under when installing.

5. Beginning at the eave edge, install a starter row of tiles with two nails per tile (in location shown on tiles). 1-1/2" long stainless steel ring shank roofing nails are recommended. **Gold Star Warranty\*** application requires the use of **EcoStar Ring Shank Fasteners**.

6. If a pneumatic nailer is utilized for application of the tiles, care should be taken to determine that the proper pressure and depth setting is being used. Nails can be over driven causing tiles to lift and diminish the quality of the installation.

7. The initial layer of tiles becomes the starter row. This layer will be completely covered by the next row to be installed. The starter row may be installed either front side up or back side up. When the first course of tile is installed, tiles must be offset half a tile to cover the nails from the previous row.

**MAJESTIC SLATE IS NOT RECOMMENDED FOR SLOPES LESS THAN 3/12. ON ROOFS LESS THAN 6/12 AND GREATER THAN 3/12, MAJESTIC SLATE MUST BE INSTALLED WITH A MAXIMUM EXPOSURE OF 6". ON ROOFS 6/12 OR GREATER MAJESTIC SLATE TILES MAY BE INSTALLED WITH EITHER A 6", 6 1/2" OR 7" EXPOSURE.**

PLEASE REMEMBER TO BEND AND



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8. **CAUTION:** Do not install the tiles with an upward curl. Whatever position the tile is in when fastened to the roof deck, it will maintain that position. It is required that each member of the installation crew be instructed on how to bend the tile manually to insure that it lies flat when fastened to the roof deck.

9. As the tiles are installed up the roof, the tile must be cut at rake edges, valleys and projections. The tiles may be cut using a straight edge and a utility or roofing knife. Once the tile has been scored with a knife it can be snapped along the scored line.

10. As the tiles are installed up the roof slope, it is recommended that lines be snapped both horizontally and vertically. The horizontal lines will keep the tiles looking straight and uniform. The vertical lines will keep the space between the tiles in line from row to row. **DO NOT USE RED CHALK. Red chalk will stain the tiles.**

11. **CAUTION:** As the tiles are installed up the slope of the roof, the installation should be constantly checked from the ground to ensure there is no patterning developing and proper blending is occurring. **Gold Star Warranty\*** application requires that the Authorized Applicator correct any blending problems prior to issuance of the warranty.

12. Continue to install the tiles up the roof slope. Be sure to place the nails directly in the position noted on the tiles. Stainless steel ring shank nails are recommended. **Gold Star Warranty\*** application requires the use of **EcoStar Rink Shank Fasteners**. A minimum of 3/8" is required between tiles and between tiles and protrusions.

When using pneumatic nailing equipment, frequently check both the depth and pressure setting, so nails are not over driven, causing tiles to lift. Lifted tiles will diminish the aesthetic appearance of the finished roof system. The nail should not dent the tile.

For 10" Majestic Slate tiles, there are two ways to install: 1) the entire project is 10" tile and the installation is the same as the current 12" specification or 2) for a 10"/12" blend, mix the two sizes together for desired random width look. Take caution when installing to ensure enough coverage past nail heads of previous course.

**Tiles can be slippery when wet, caution should be exhibited with early morning dew and after rain. EcoStar suggests the use of toe boards, OSHA approved harnesses and safety equipment at all times.**

13. When all tiles have been applied to the roof slopes, the pre-formed **Majestic Slate Hip & Ridge** tiles are applied to all hips and ridges. **Majestic Slate Hip & Ridge tiles are always installed with a 6" exposure** with two 2" or 2.5" nails per tile. The use of ridge vent will require 2.5" nails. Before installing the **Majestic Slate Hip & Ridge** tiles at the ridge, roof venting should be installed. Ridge venting systems are highly recommended. Mushroom cap style vents may be used, but ridge venting provides better venting and improves the aesthetic appearance of the roof system. **Gold Star Warranty\*** covers **EcoStar EcoVent** if used.

14. As work progresses up roof slopes care should be taken to minimize traffic over completed areas of the roof. The tiles will show any mud or dirt tracked across them. This will cause aesthetic issues with the completed appearance of the roof. It is the responsibility of applicator or building owner to remove this mud or dirt. A mild detergent should be used in combination with a bucket of water to remove the mud or dirt. Clean water can then be used to finish the cleaning process. Do not use any chemicals or solvents without first checking with the EcoStar technical department. **EcoStar is not responsible for the cleaning of any tiles.**

\* See [www.ecostarllc.com](http://www.ecostarllc.com) for available warranties.

**PRODUCT IDENTIFICATION**

This area provides identification of the product and a toll free contact telephone number for questions or assistance with the product and installation.

**IMPORTANT INFORMATION**

This area of the tile provides pertinent information about installation and the need to use a trained applicator to install the product.

**QUALITY INFORMATION**

This area of the tile is used by the production department to denote the date the part was manufactured. This allows tracking of quality by production time. This information may be found on the front or back of the tile.

**INSTALLATION MEASUREMENT**

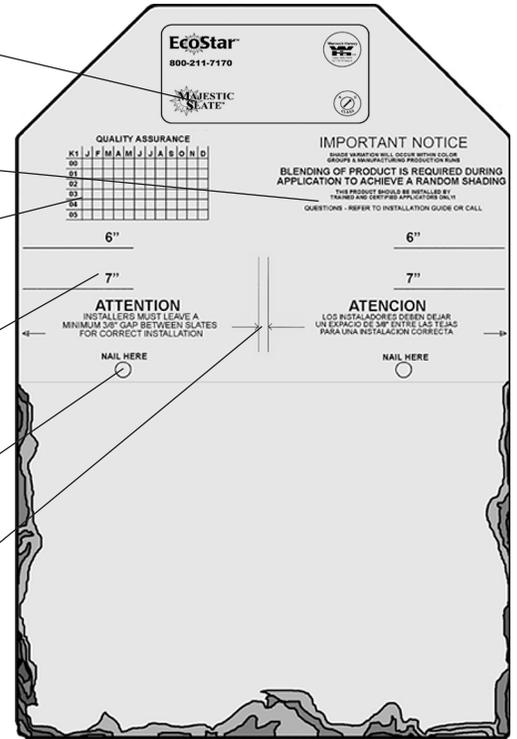
Two marks are molded into every tile. When these marks are placed in alignment with the top edge of the previous row of tiles, proper tile exposure is provided automatically.

**TILE FASTENING**

Molded into each tile is a fastener locator. This assists during installation for proper positioning of the fastener.

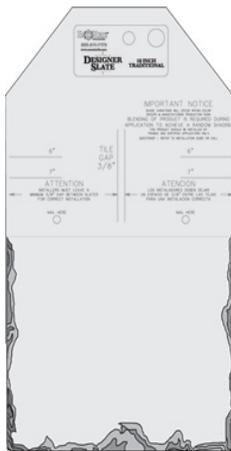
**GAP**

During installation the tiles must be placed a minimum of 3/8" apart. Tiles must never be installed directly adjacent to each other. This area of the tile states this in both English and Spanish.

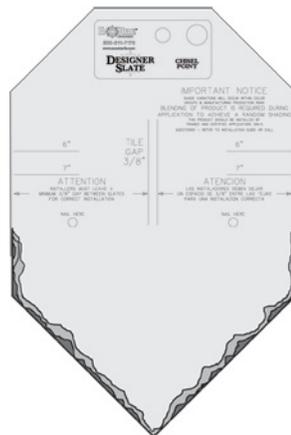


**Majestic Slate – 12" Traditional**  
**12" wide x 18" long**

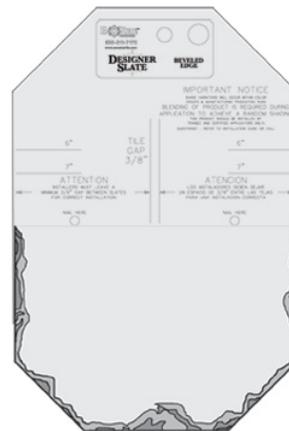
**Designer Slate**



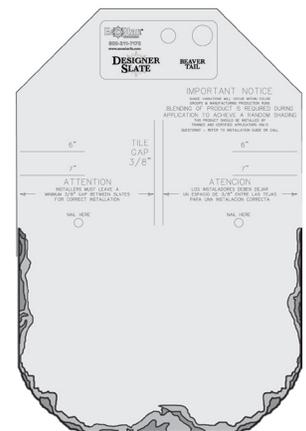
**Majestic Slate**  
**10" Traditional**  
*10" wide x 18" long*



**Majestic Slate**  
**Chisel Point**  
*12" wide x 18" long*



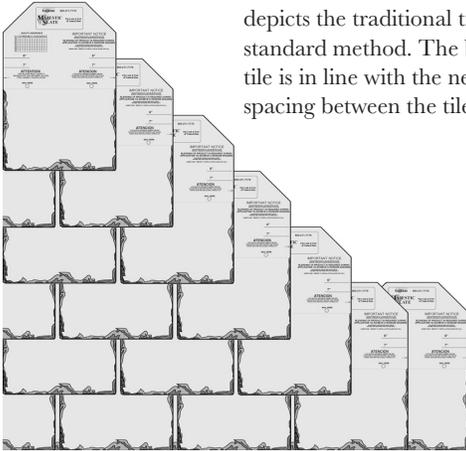
**Majestic Slate**  
**Beveled Edge**  
*12" wide x 18" long*



**Majestic Slate**  
**Beaver Tail**  
*12" wide x 18" long*

## Majestic Slate Traditional Design

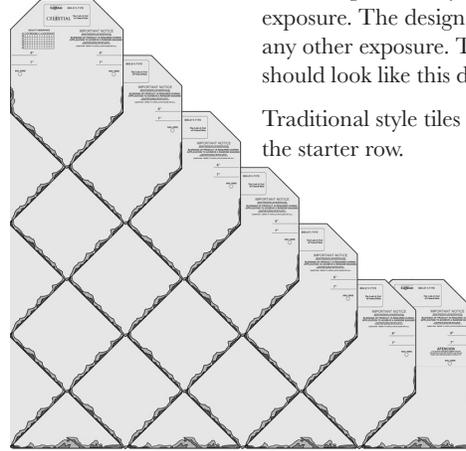
**Standard Installation:** This drawing depicts the traditional tile installed in the standard method. The bottom edge of each tile is in line with the next and the vertical spacing between the tiles is in line.



## Majestic Slate Chisel Point Design

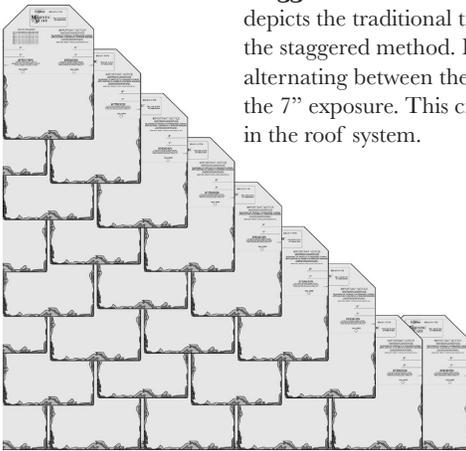
This design can only be put down using a 6" exposure. The design will not accommodate any other exposure. The installed product should look like this drawing.

Traditional style tiles must be used as the starter row.



## Majestic Traditional Design

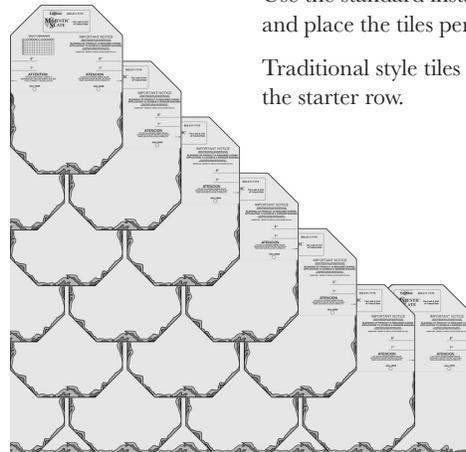
**Staggered Installation:** This drawing depicts the traditional tile installed using the staggered method. Each tile is installed alternating between the 6" exposure and the 7" exposure. This creates more texture in the roof system.



## Majestic Slate Beveled Edge Design

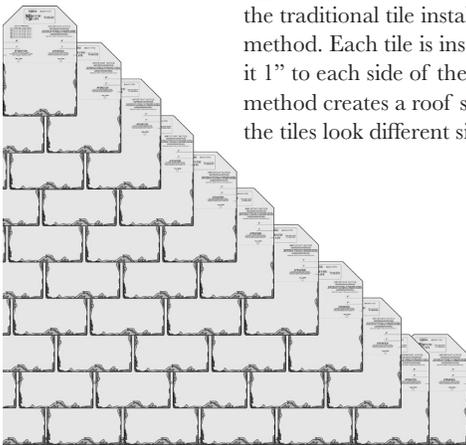
Use the standard installation methods and place the tiles per this drawing.

Traditional style tiles must be used as the starter row.



## Majestic Slate Traditional Design

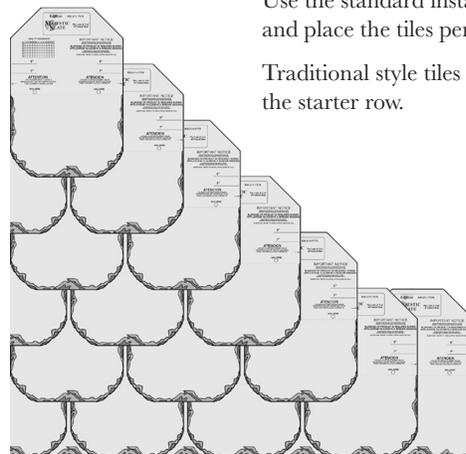
**Offset Installation:** This drawing depicts the traditional tile installed using the offset method. Each tile is installed by moving it 1" to each side of the center line. This method creates a roof system that makes the tiles look different sizes.



## Majestic Slate Beaver Tail Design

Use the standard installation methods and place the tiles per this drawing.

Traditional style tiles must be used as the starter row.



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VersaShield is a registered trademark of GAF-Elk. DensDeck is a trademark of Georgia Pacific Corporation.

P/N-602695 ECO-MAJESTIC SLATE INSTALL GUIDE. This installation guide, effective 03/25/13 supersedes all previous versions.



## Polymeric Shake Tile Roof System

# INSTALLATION GUIDE

This installation guide is written and provided for the use of professional roofing applicators and EcoStar™ Gold Star Authorized Applicators. Contact the technical department for information on warranty availability and the requirements and benefits of the Gold Star program.

**SPECIAL NOTE: Seneca Shake™ is made in two different formulations, one formula has been tested and listed by Underwriters Laboratories as a Class C roofing material and the other formula has been tested and listed as a Class A roofing material (UL 790). Please make sure of the type of material being installed since the method of installation is critical for the listing. Seneca Shake has been tested and listed by Underwriters Laboratories as a Class 4 impact resistance product (UL 2218). To maintain the requirements of these tests and their listings the roof system must be installed exactly as stated in this installation guide.**

### WARRANTIES\*

EcoStar warrants this product to be free of manufactured defects at the time of shipment from EcoStar's factory. EcoStar will at its option either supply new product or pay the reasonable cost of replacement products found to be defective hereunder.

**EcoStar's limited warranties are the only warranties extended by EcoStar with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. EcoStar specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever.**

The dollar value of EcoStar's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the EcoStar material in question.

### SHADE VARIATION

**All tiles come with a shade variation.** This shade variation will occur from pallet to pallet and within individual pallets. Application of the product should not begin until **ALL** material has been delivered to the project site. Because of this shade variation the applicator must take precautions to insure that the various shades of the product are properly blended. Tiles must be taken from different pallets and bundles to guarantee consistency in application. Natural weathering will produce further shade variations, even in tiles appearing to be identical in color when new.

**NOTE:** EcoStar will not be responsible for the improper blending or application of the product.

\* See [www.ecostarllc.com](http://www.ecostarllc.com) for available warranties.

### TEMPERATURE

It is recommended that the tiles not be stored in temperatures lower than 45° F since cold tiles will cause difficulty with the installation. If tiles have been stored in temperatures below 45° F, they must be restored to a temperature above 45° F before installation. The tiles will expand and contract with temperature variations. If the tiles are applied while cold, special precautions must be taken to insure a quality looking application. Proper spacing must be maintained throughout the project. For assistance with installations below 45° F please contact the technical department.

### SUBSTRATE

The tiles should only be installed on a minimum of 1/2" plywood decking, 7/16" OSB or minimum 3/4" tongue and groove decking with end gaps not exceeding 1/4". Contact the technical department for approved alternatives. Under all circumstances existing roof materials must be removed down to the deck, prior to installation.

### SLOPE

The tiles are not recommended for slopes less than 3/12. If this is desired, contact the technical department for review. On roof slopes less than 6/12, the tiles must be installed with a maximum 7" exposure. On roof slopes of 6/12 or greater, the tiles may be installed with a 7", 7 1/2" or 8" exposure.

### UNDERLAYMENT

**Glacier Guard™** or equal must be applied to all eaves, rake edges, hips, valleys, ridges and protrusions. If a Class C roof system has been specified, cover the remaining exposed deck with **Aqua Guard™** or equal. If a Class A roof has been specified, **GP Gypsum Corporation's DensDeck®** roof board may be used, or **Elk's VersaShield®** underlayment. If **VersaShield** is used, it must be applied over the entire roof deck, after the installation of the **Glacier Guard**. **Gold Star Warranty\*** requires the use of the above mentioned EcoStar specified products.

### FASTENERS

Stainless Steel Ring Shank roofing nails are recommended for application of the tiles. **Gold Star Warranty\*** application requires the use of **EcoStar Ring Shank Fasteners**. Hand drive and pneumatic coil nails are available.

### FLASHING MATERIAL

EcoStar recommends that flashing be either copper or stainless steel. Flashing metal, however, is not covered by any EcoStar warranty. Like materials should be used when fastening metal flashings.

### SEALANTS

If local codes require the use of a shingle sealant, the only material approved for use with EcoStar tiles is Dow Corning 790 silicone sealant.



# Seneca Shake & Seneca Plus

## INSTALLATION STEPS

EcoStar makes every effort to maintain the quality and consistency of all products, however, shade variations will occur within all tile products.

**Due to these shade variations it is extremely important that all members of the installation crew be aware of the fact that tiles must be blended between bundles and pallets.** The entire lot of material must be blended evenly in rotation until all material is used. EcoStar recommends that a member of the crew be assigned the responsibility of blending tiles and insuring that no shade patterning or blotching occurs. This can best be accomplished by blending all tiles before installation, and by making periodic inspections of the roof from the ground.

**Seneca Shake** tiles are designed and manufactured to duplicate the look of natural wood shakes.

1. Install **Glacier Guard** in all valleys, eaves, rake edges, hips, ridges and protrusions. **Gold Star Warranty\*** application requires the use of **Glacier Guard**.

2. Install a minimum of 30 lb. felt over the remaining area of the deck surface. If a Class C roof is required, the 30 lb. felt or equal must be UL Listed. **Gold Star Warranty\*** application requires the use of **EcoStar's Aqua Guard** underlayment for a Class C roof system. If a Class A roof is required install **Elk's VersaShield®** or equivalent over the entire deck including areas already covered by the **Glacier Guard**. **Gold Star Warranty\*** application requires the use of **Elk's VersaShield®** for a Class A roof system.

3. Install metal edging at eaves and rake edges. Any corrosion resistant metal edging is acceptable. Copper and stainless steel are recommended. It should be noted that all EcoStar Warranties do NOT cover metal flashing.

**Note:** When using copper and stainless steel flashing material the appropriate corresponding nails should be used.

4. A critical step is **BENDING**. Every tile that is installed must be bent in a downward arch before applying it to the roof deck. Whatever position the tile is in when fastened to the roof deck, is the position it will maintain. It is recommended that each member of the installation crew be instructed on how to bend the tile to insure that it lies flat when fastened to the roof deck. While grabbing the top of the tile (textured side up) with the right hand and the bottom edge of the tile with the left hand, bend the tile in a downward motion until the tile maintains arch. The tiles must be curved under when installing.

5. Beginning at the eave edge, install a starter row of tiles with two nails per tile (in location shown on tiles). 1-1/2" long stainless steel ring shank roofing nails are recommended. **Gold Star Warranty\*** application requires the use of **EcoStar Ring Shank Fasteners**.

6. If a pneumatic nailer is utilized for application of the tiles, care should be taken to determine that the proper pressure and depth setting is being used. Nails can be over driven causing tiles to lift and diminish the quality of the installation.

7. The initial layer of tiles becomes the starter row. This layer will be completely covered by the next row to be installed. When installing Seneca Plus tiles, Seneca Shake tiles must be used for the starter row. When the first course of tile is installed, tiles must be offset to cover the nails from the previous row.

**SENECA SHAKE IS NOT RECOMMENDED FOR SLOPES LESS THAN 3/12. ON ROOFS LESS THAN 6/12 AND GREATER THAN 3/12, SENECA SHAKE MUST BE INSTALLED WITH A MAXIMUM EXPOSURE OF 7". ON ROOFS 6/12 OR GREATER SENECA SHAKE TILES MAY BE INSTALLED WITH EITHER A 7", 7 1/2" OR 8" EXPOSURE.**

PLEASE REMEMBER TO BEND AND



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8. **CAUTION:** Do not install the tiles with an upward curl. Whatever position the tile is in when fastened to the roof deck, it will maintain that position. It is required that each member of the installation crew be instructed on how to bend the tile manually to insure that it lies flat when fastened to the roof deck.

9. As the tiles are installed up the roof, the tile must be cut at rake edges, valleys and protrusions. The tiles may be cut using a straight edge and a utility or roofing knife. Once the tile has been scored with a knife it can be snapped along the scored line. Seneca Plus tiles require the use of a saw to cut.

10. As the tiles are installed up the roof slope, it is recommended that lines be snapped horizontally. The horizontal lines will keep the tiles looking straight and uniform. **DO NOT USE RED CHALK. Red chalk will stain the tiles.**

11. **CAUTION:** As the tiles are installed up the slope of the roof, the installation should be constantly checked from the ground to ensure there is no patterning developing and proper blending is occurring. **Gold Star Warranty\*** application requires that the Authorized Applicator correct any blending problems prior to issuance of the warranty.

12. Continue to install the tiles up the roof slope. Be sure to place the nails directly in the position noted on the tiles. Stainless steel ring shank nails are recommended. **Gold Star Warranty\*** application requires the use of **EcoStar Rink Shank Fasteners**. A minimum of 3/8" is required between tiles and between tiles and protrusions.

When using pneumatic nailing equipment, frequently check both the depth and pressure setting, so nails are not over driven, causing tiles to lift. Lifted tiles will diminish the aesthetic appearance of the finished roof system. The nail should not dent the tile.

**Tiles can be slippery when wet, caution should be exhibited with early morning dew and after rain. EcoStar suggests the use of toe boards, OSHA approved harnesses and safety equipment at all times.**

13. When all tiles have been applied to the roof slopes, the pre-formed **Seneca Shake Hip & Ridge** tiles are applied to all hips and ridges. **Seneca Shake Hip & Ridge tiles are always installed with a 6" exposure** with two 2" or 2.5" nails per tile. The use of ridge vent will require 2.5" nails. Before installing the **Seneca Shake Hip & Ridge** tiles at the ridge, roof venting should be installed. Ridge venting systems are highly recommended. Mushroom cap style vents may be used, but ridge venting provides better venting and improves the aesthetic appearance of the roof system. **Gold Star Warranty\*** covers **EcoStar EcoVent** if used.

14. As work progresses up roof slopes care should be taken to minimize traffic over completed areas of the roof. The tiles will show any mud or dirt tracked across them. This will cause aesthetic issues with the completed appearance of the roof. It is the responsibility of applicator or building owner to remove this mud or dirt. A mild detergent should be used in combination with a bucket of water to remove the mud or dirt. Clean water can then be used to finish the cleaning process. Do not use any chemicals or solvents without first checking with the EcoStar technical department. **EcoStar is not responsible for the cleaning of any tiles.**

\* See [www.ecostarllc.com](http://www.ecostarllc.com) for available warranties.

**PRODUCT IDENTIFICATION**

This area provides identification of the product and a toll-free contact telephone number for questions or assistance with the product and installation.

**QUALITY INFORMATION**

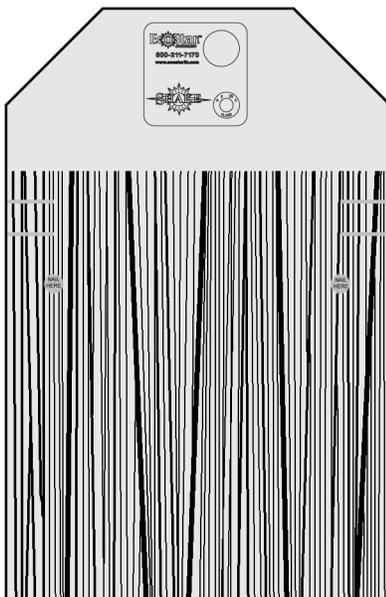
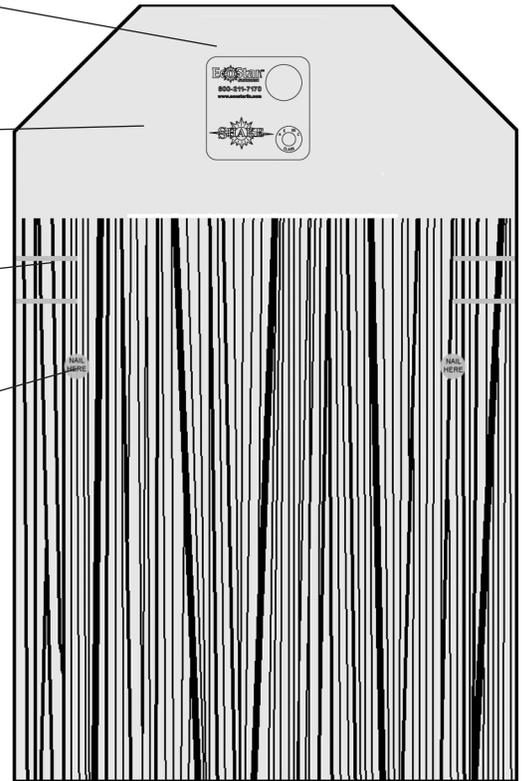
This area of the tile is used by the production department to denote the date the part was manufactured. This allows tracking of quality by production time.

**INSTALLATION MEASUREMENT**

Two marks are molded into every tile. When these marks are placed in alignment with the top edge of the previous row of tiles, proper tile exposure is provided automatically.

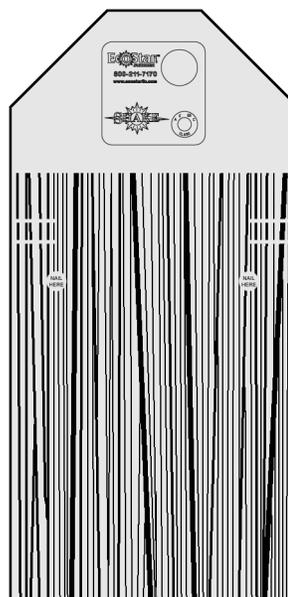
**TILE FASTENING**

Molded into each tile is a fastener locator. This assists during installation for proper positioning of the fastener. Each bundle of Seneca Shake contains all three sizes of tile in 8 different surface textures. When installing the tiles, care needs to be taken to ensure that no pattern is created by the repetition of tiles.



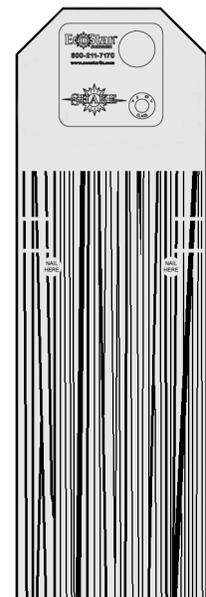
**Seneca Shake**

*12" wide x 19" long x 3/8" nominal*



**Seneca Shake**

*9" wide x 19" long x 3/8" nominal*



**Seneca Shake**

*6" wide x 19" long x 3/8" nominal*



**Seneca Plus**

*12" wide x 19" long x 3/4" nominal*



**Seneca Plus**

*9" wide x 19" long x 3/4" nominal*



**Seneca Plus**

*6" wide x 19" long x 3/4" nominal*

# Seneca Shake & Seneca Plus Installation Guide

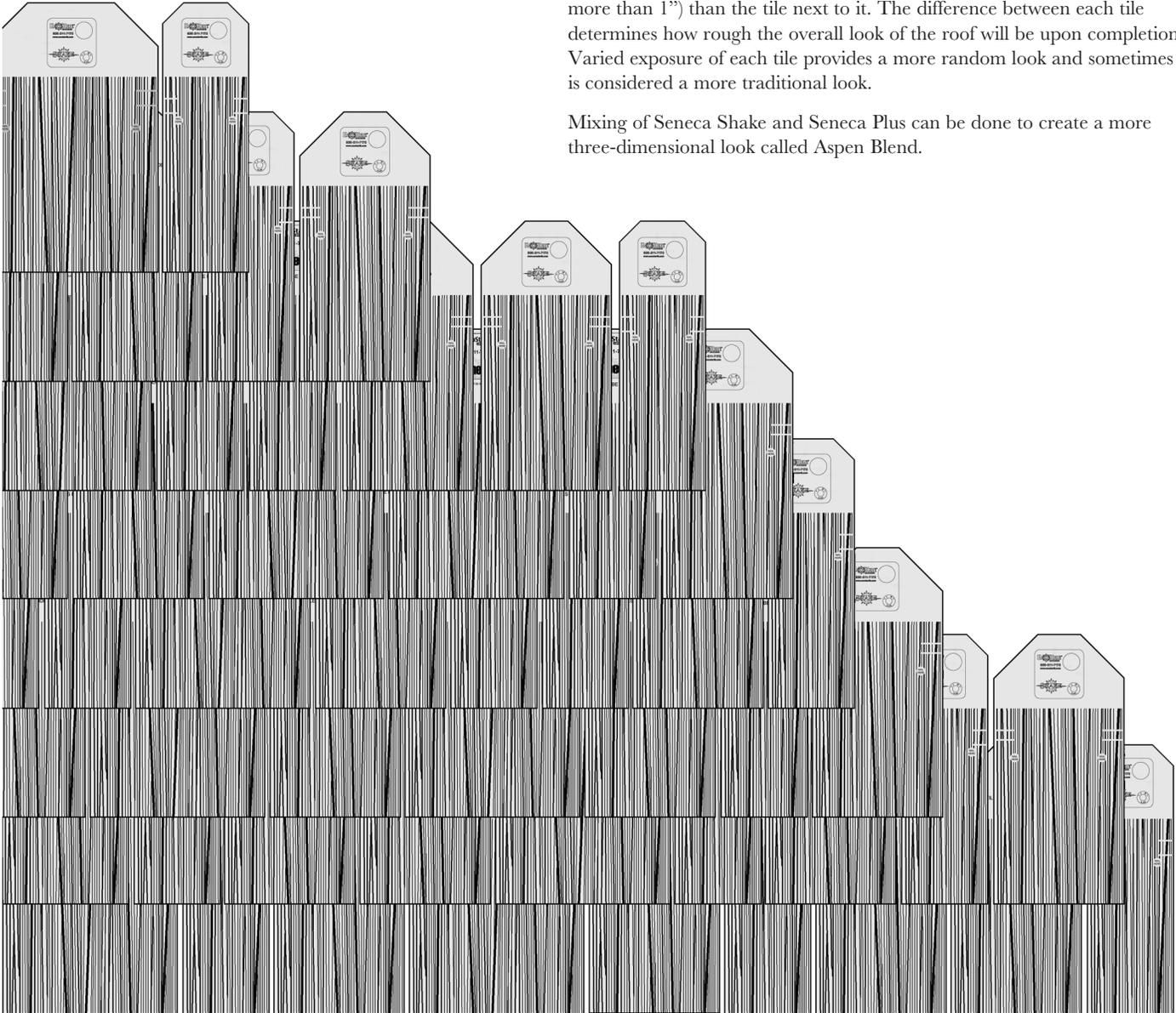
## SPECIAL NOTE

There are a variety of installation styles used with natural wood shakes. The same is true of Seneca Shake tiles and Seneca Plus tiles.

The drawing shows tiles being installed in a perfect or royal method. This method places the bottom of each tile in a straight line. This method sometimes uses straight edges to maintain the line. Use this method of installation when a contemporary look is required.

Another method is to allow each tile to be slightly higher or lower (never more than 1") than the tile next to it. The difference between each tile determines how rough the overall look of the roof will be upon completion. Varied exposure of each tile provides a more random look and sometimes is considered a more traditional look.

Mixing of Seneca Shake and Seneca Plus can be done to create a more three-dimensional look called Aspen Blend.



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VersaShield is a registered trademark of GAF-Elk. DensDeck is a trademark of Georgia Pacific Corporation.

P/N-602698 ECO-SENECA SHAKE INSTALL GUIDE. This installation guide, effective 03/25/13 supersedes all previous versions.



PLEASE REMEMBER TO BEND AND BLEND



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Polymeric Shake Tile Roof System

INSTALLATION GUIDE

This installation guide is written and provided for the use of professional roofing applicators and EcoStar™ Gold Star Authorized Applicators.

SPECIAL NOTE: Empire Shake™ has been tested and listed with Underwriters Laboratories as a Class A and a Class C roofing material (UL 790).

WARRANTIES

EcoStar warrants this product to be free of manufactured defects at the time of shipment from EcoStar's factory.

EcoStar's limited warranties are the only warranties extended by EcoStar with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose.

The dollar value of EcoStar's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the EcoStar material in question.

COLOR VARIATION

All tiles come with a shade variation. This shade variation will occur differently from pallet to pallet and within individual pallets.

NOTE: EcoStar will not be responsible for the improper blending or application of the product.

TEMPERATURE

It is recommended that the tiles not be stored in temperatures lower than 45° F since cold tiles will cause difficulty with the installation.

SUBSTRATE

The tiles should only be installed on a minimum of 1/2" plywood decking, minimum 7/16" OSB or minimum 3/4" tongue and groove decking with end gaps not exceeding 1/4".

SLOPE

The tiles are not recommended for slopes less than 3/12. If lower slopes are desired, contact the technical department for review.

UNDERLAYMENT

Glacier Guard™ or equal must be applied to all eaves, rake edges, hips, valleys, ridges and protrusions.

FASTENERS

Stainless steel ring shank roofing nails are recommended for application of the tiles. Gold Star Warranty\* application requires the use of EcoStar Stainless Steel Ring Shank Fasteners.

FLASHING MATERIAL

EcoStar recommends that flashing be either copper or stainless steel. Flashing metal, however, is not covered by any EcoStar warranty.

SEALANTS

If local codes require the use of a shingle sealant, the only material approved for use with EcoStar tiles is Dow Corning 790 silicone sealant.

\*See www.ecostarllc.com for available warranties



# Empire Shake & Empire Shake Plus

## INSTALLATION STEPS

EcoStar makes every effort to maintain the quality and consistency of all products, however, shade variations will occur within all tile products.

**Due to these shade variations it is extremely important that all members of the installation crew be aware of the fact that tiles must be blended between bundles and pallets.** The entire lot of material must be blended evenly in rotation until all material is used. EcoStar recommends that a member of the crew be assigned the responsibility of blending tiles and insuring that no shade patterning or blotching occurs. This can best be accomplished by blending all tiles before installation, and by making periodic inspections of the roof from the ground.

**Empire Shake** tiles are designed and manufactured to duplicate the look of natural wood shakes.

1. Install **Glacier Guard** in all valleys, eaves, rake edges, hips, ridges and protrusions. **Gold Star Warranty\*** application requires the use of **Glacier Guard**.

2. Install a minimum of 30 lb. felt over the remaining area of the deck surface. If a Class C roof is required, the 30 lb. felt or equal must be UL Listed. **Gold Star Warranty\*** application requires the use of **EcoStar's Aqua Guard** underlayment for a Class C roof system. If a Class A roof is required install **Elk's VersaShield®** or equivalent over the entire deck including areas already covered by the **Glacier Guard**. **Gold Star Warranty\*** application requires the use of **Elk's VersaShield®** for a Class A roof system.

3. Install metal edging at eaves and rake edges. Any corrosion resistant metal edging is acceptable. Copper and stainless steel are recommended. It should be noted that all EcoStar Warranties do NOT cover metal flashing.

**Note:** When using copper and stainless steel flashing material the appropriate corresponding nails should be used.

4. A critical step is **BENDING**. Every tile that is installed must be bent in a downward arch before applying it to the roof deck. Whatever position the tile is in when fastened to the roof deck, is the position it will maintain. It is recommended that each member of the installation crew be instructed on how to bend the tile to insure that it lies flat when fastened to the roof deck. While grabbing the top of the tile (textured side up) with the right hand and the bottom edge of the tile with the left hand, bend the tile in a downward motion until the tile maintains arch. The tiles must be curved under when installing.

5. Beginning at the eave edge, install a starter row of tiles with two nails per tile (in location shown on tiles). 1-1/2" long stainless steel ring shank roofing nails are recommended. **Gold Star Warranty\*** application requires the use of **EcoStar Ring Shank Fasteners**.

6. If a pneumatic nailer is utilized for application of the tiles, care should be taken to determine that the proper pressure and depth setting is being used. Nails can be over driven causing tiles to lift and diminish the quality of the installation.

7. The initial layer of tiles becomes the starter row. This layer will be completely covered by the next row to be installed. When installing Empire Shake Plus tiles, Empire Shake tiles must be used for the starter row. When the first course of tile is installed, tiles must be offset to cover the nails from the previous row.

**EMPIRE SHAKE IS NOT RECOMMENDED FOR SLOPES LESS THAN 3/12. ON ROOFS LESS THAN 6/12 AND GREATER THAN 3/12, EMPIRE SHAKE MUST BE INSTALLED WITH A MAXIMUM EXPOSURE OF 7". ON ROOFS 6/12 OR GREATER EMPIRE SHAKE TILES MAY BE INSTALLED WITH EITHER A 7", 7 1/2" OR 8" EXPOSURE.**

PLEASE REMEMBER TO BEND AND



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8. **CAUTION:** Do not install the tiles with an upward curl. Whatever position the tile is in when fastened to the roof deck, it will maintain that position. It is required that each member of the installation crew be instructed on how to bend the tile manually to insure that it lies flat when fastened to the roof deck.

9. As the tiles are installed up the roof, the tile must be cut at rake edges, valleys and protrusions. The tiles may be cut using a straight edge and a utility or roofing knife. Once the tile has been scored with a knife it can be snapped along the scored line. Empire Shake Plus tiles require the use of a saw to cut.

10. As the tiles are installed up the roof slope, it is recommended that lines be snapped horizontally. The horizontal lines will keep the tiles looking straight and uniform. **DO NOT USE RED CHALK. Red chalk will stain the tiles.**

11. **CAUTION:** As the tiles are installed up the slope of the roof, the installation should be constantly checked from the ground to ensure there is no patterning developing and proper blending is occurring. **Gold Star Warranty\*** application requires that the Authorized Applicator correct any blending problems prior to issuance of the warranty.

12. Continue to install the tiles up the roof slope. Be sure to place the nails directly in the position noted on the tiles. Stainless steel ring shank nails are recommended. **Gold Star Warranty\*** application requires the use of **EcoStar Rink Shank Fasteners**. A minimum of 3/8" is required between tiles and between tiles and protrusions.

When using pneumatic nailing equipment, frequently check both the depth and pressure setting, so nails are not over driven, causing tiles to lift. Lifted tiles will diminish the aesthetic appearance of the finished roof system. The nail should not dent the tile.

**Tiles can be slippery when wet, caution should be exhibited with early morning dew and after rain. EcoStar suggests the use of toe boards, OSHA approved harnesses and safety equipment at all times.**

13. When all tiles have been applied to the roof slopes, the pre-formed **Empire Shake Hip & Ridge** tiles are applied to all hips and ridges. **Empire Shake Hip & Ridge tiles are always installed with a 6" exposure** with two 2" or 2.5" nails per tile. The use of ridge vent will require 2.5" nails. Before installing the **Empire Shake Hip & Ridge** tiles at the ridge, roof venting should be installed. Ridge venting systems are highly recommended. Mushroom cap style vents may be used, but ridge venting provides better venting and improves the aesthetic appearance of the roof system. **Gold Star Warranty\*** covers **EcoStar EcoVent** if used.

14. As work progresses up roof slopes care should be taken to minimize traffic over completed areas of the roof. The tiles will show any mud or dirt tracked across them. This will cause aesthetic issues with the completed appearance of the roof. It is the responsibility of applicator or building owner to remove this mud or dirt. A mild detergent should be used in combination with a bucket of water to remove the mud or dirt. Clean water can then be used to finish the cleaning process. Do not use any chemicals or solvents without first checking with the EcoStar technical department. **EcoStar is not responsible for the cleaning of any tiles.**

\* See [www.ecostarllc.com](http://www.ecostarllc.com) for available warranties.

**PRODUCT IDENTIFICATION**

This area provides identification of the product and a toll-free contact telephone number for questions or assistance with the product and installation.

**QUALITY INFORMATION**

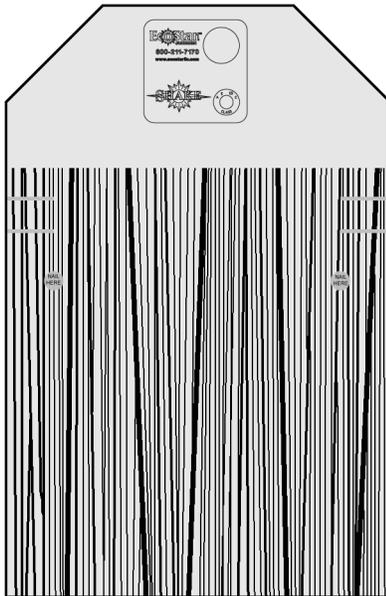
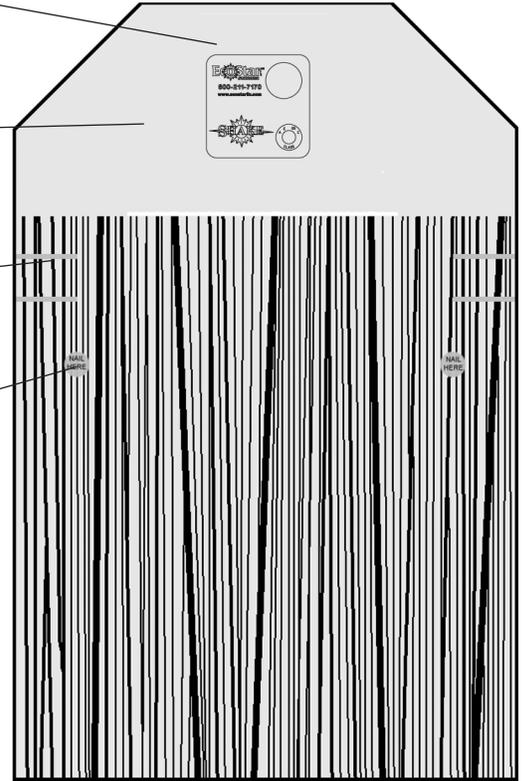
This area of the tile is used by the production department to denote the date the part was manufactured. This allows tracking of quality by production time.

**INSTALLATION MEASUREMENT**

Two marks are molded into every tile. When these marks are placed in alignment with the top edge of the previous row of tiles, proper tile exposure is provided automatically.

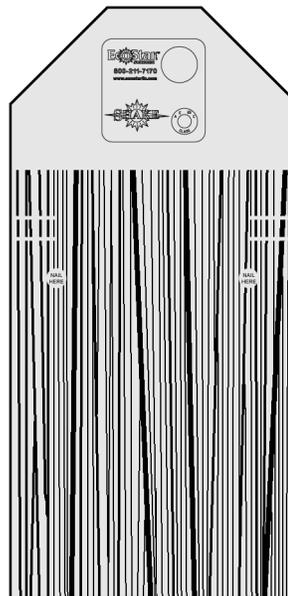
**TILE FASTENING**

Molded into each tile is a fastener locator. This assists during installation for proper positioning of the fastener. Each bundle of Empire Shake contains all three sizes of tile in 8 different surface textures. When installing the tiles, care needs to be taken to ensure that no pattern is created by the repetition of tiles.



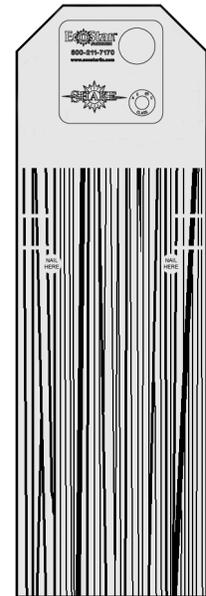
**Empire Shake**

*12" wide x 19" long x 3/8" nominal*



**Empire Shake**

*9" wide x 19" long x 3/8" nominal*



**Empire Shake**

*6" wide x 19" long x 3/8" nominal*

**Empire Shake Plus**

*12" wide x 19" long x 3/4" nominal*

**Empire Shake Plus**

*9" wide x 19" long x 3/4" nominal*

**Empire Shake Plus**

*6" wide x 19" long x 3/4" nominal*

# Empire Shake & Empire Shake Plus Installation Guide

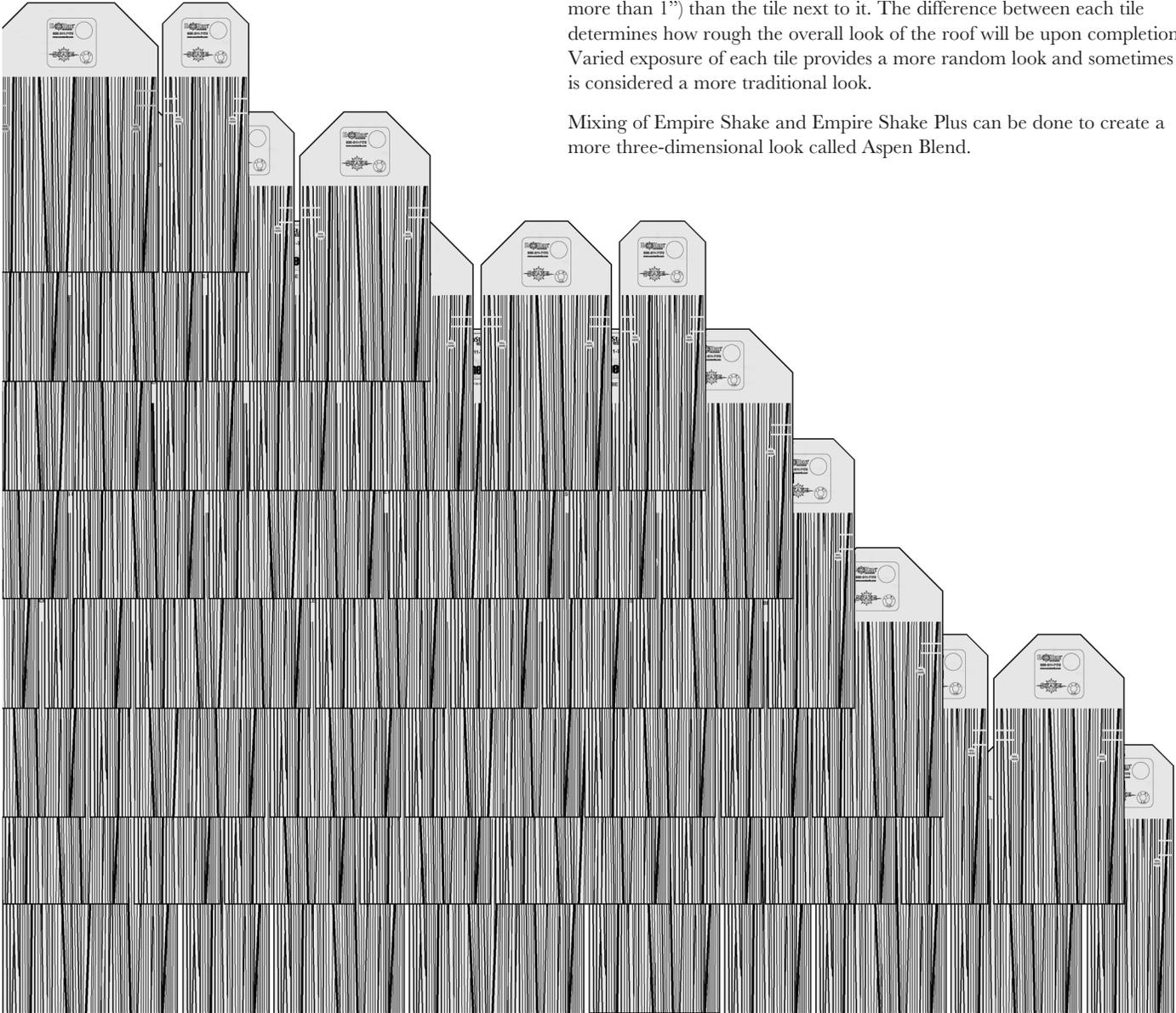
## SPECIAL NOTE

There are a variety of installation styles used with natural wood shakes. The same is true of Empire Shake tiles and Empire Shake Plus tiles.

The drawing shows tiles being installed in a perfect or royal method. This method places the bottom of each tile in a straight line. This method sometimes uses straight edges to maintain the line. Use this method of installation when a contemporary look is required.

Another method is to allow each tile to be slightly higher or lower (never more than 1") than the tile next to it. The difference between each tile determines how rough the overall look of the roof will be upon completion. Varied exposure of each tile provides a more random look and sometimes is considered a more traditional look.

Mixing of Empire Shake and Empire Shake Plus can be done to create a more three-dimensional look called Aspen Blend.



  
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