DRAWINGS INDEX & GENERAL INFORMATION
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<td>GAF/ELK VERSASHIELD UNDERLayment</td>
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A. **INTRODUCTION**


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 ANTIQUATED 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 THE 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 2.7 THROUGH 2.10, OR A MINIMUM OF 1/2" 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 GWEATS 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 CURB, PIPES, BOTTOM SILLS OF WINDOWS OR RISING WALLS & THEIR THROUGH-WALL FLASHING EXIST.

4. REFER TO SHEETS ES 2.1, ES 2.2, ES 2.7 & ES 2.10 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 WALL COMPONENTS.
3. On projects where roof will drain into sub-surface drain lines, the 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.
DESIGN DEVELOPMENT STAGE
### Roof Slope

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<tr>
<th></th>
<th>3/12 up to 4/12</th>
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<td>Seneca Shake</td>
<td>7&quot;</td>
<td>7&quot;</td>
<td>7&quot;</td>
<td>7&quot; or 8&quot;</td>
</tr>
<tr>
<td>Empire Shake &amp; Shake Plus</td>
<td>7&quot; or 8&quot;</td>
<td>7&quot; or 8&quot;</td>
<td>7&quot; or 8&quot;</td>
<td>8&quot; or 9&quot;</td>
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#### A. TILE EXPOSURE EXAMPLE DIAGRAM

**NOTES:**

1. EcoStar ROOF ASSEMBLIES ARE NOT PERMITTED ON ROOF SLOPES LESS THAN 3:12 WITHOUT PRIOR WRITTEN CONSENT OF EcoStar.

2. ON LIMITED AREAS, WHERE DECK IS LESS THAN 3:12, THERE EcoStar MAY ALLOW THE TILE INSTALLATION, BUT ENTIRE DECK AREA SHALL BE REQUIRED TO BE COVERED WITH GLACIER GUARD UNDERLAYMENT. SUBMIT ROOF PLAN WITH DETAILS OF SUBJECT AREAS VIA E-MAIL TO EcoStar FOR REVIEW.
UNDERLAYMENT
LOCATIONS & GENERIC EDGE DETAILS
VALLEY: EXTEND GLACIER GUARD 18" ON BOTH SIDES OF THE VALLEY.
REFER TO DETAIL ES 3.6

VENTED RIDGE
UNVENTED RIDGE

ES 3.6
ES 3.4

36°± INCLUDING FASCIA SIDE ALSO—TYP.

36°± FOR VENTED RIDGE
18°± FOR NON VENTED RIDGE, TYP.

NOTE:
1. THIS DRAWING REPRESENTS A GENERIC LAYOUT OF GLACIER GUARD AND AQUA GUARD UNDERLAYMENT MEMBRANES. FIELD VERIFY FOR SPECIAL CONDITIONS.

2. EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT SHOULD BE INSTALLED AS SHOWN AT ALL ROOF EDGES, EAVES, RAKES, VALLEYS, HIPS, UNVENTILATED RIDGES, AND AROUND ALL PENETRATIONS SUCH AS CHIMNEYS AND VENT PIPES.

3. DESIGNER & CONTRACTOR TO FOLLOW THE REQUIREMENTS OF LOCAL APPLICABLE CODES ALSO. COORDINATE WITH THE ENGINEERING DEPARTMENT OF COUNTY/TOWN/VILLAGE/CITY OFFICES FOR APPLICABLE CODES.

LEGEND

EcoStar AQUA GUARD UNDERLAYMENT
EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT

SHAKE TILES
RECOMMENDED LOCATIONS OF GLACIER GUARD ICE & WATER UNDERLAYMENT — 1

ES 2.1

2016 ECOSTAR LLC
GAMBREL ROOF

LEGEND

EcoStar AQUA GUARD UNDERLAYMENT

EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT

SHAKE TILES

RECOMMENDED LOCATIONS OF GLACIER GUARD ICE & WATER UNDERLAYMENT – 2

ES 2.2
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

SHAKE TILES
RECOMMENDED DETAILING OF UNDERLAYMENTS – 1

EcoStar

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.1  ES2.2  ES2.4
ES2.5  ES2.6
EXTEND THE WIDTH OF GLACIER GUARD STRIPPING MIN. 4" BEYOND THE EDGE OF SHEET METAL AND USE ROLLER TO FULLY ADHERE THE MEMBRANE TO BOTH SHEET METAL AND GLACIER GUARD.

EXTEND MIN. 1.5" BEYOND THE NAIL HEAD

"L" TYPE SHEET METAL EDGE FLASHING END PIECE, POP RIVETED OR SOLDERED AS SUBJECT TO TYPE OF METAL & OVERLAIWD WITH A PIECE OF GLACIER GUARD.

"L" TYPE SHEET METAL EDGE FLASHING END PIECE, POP RIVETED OR SOLDERED AS SUBJECT TO TYPE OF METAL & OVERLAIWD WITH A PIECE OF GLACIER GUARD.

NOTE: SHEET METAL FASCIA IS INSTALLED AFTER THE INSTALLATION OF GLACIER GUARD 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

SHAKE TILES

RECOMMENDED DETAILING OF UNDERLAYMENTS – 2

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

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

2016 ECOSTAR LLC
TILES’ PROJECTION AT EAVES – NO GUTTER

A

MIN. 1/2” TO AVOID WATER MIGRATION UNDER THE ROOF SYSTEM

GUTTER PROFILE
SHEET METAL FASCIA

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 2.7
3. REFER TO S.M.A.C.N.A HANDBOOK (LATEST EDITION) FOR ADDITIONAL INFORMATION FOR SHEET METAL WORK.

GUTTER PROFILE A
OPTION A

SHAKE TILES
RECOMMENDED DETAILING OF TILES NEAR EDGES

B

TILES’ PROJECTION AT RAKES

MIN. 1/2” TO AVOID WATER MIGRATION UNDER THE ROOF SYSTEM

GUTTER PROFILE WITHOUT COVERAGE OF FASCIA

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 2.7
3. REFER TO S.M.A.C.N.A HANDBOOK (LATEST EDITION) FOR ADDITIONAL INFORMATION FOR SHEET METAL WORK.

GUTTER PROFILE B
OPTION B
NOTE: DESIGNED/ROOFER TO DESIGN & FABRICATE CORNER ENDS PER SLOPE OF THE ROOF

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

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.

"T" TYPE SHEET METAL

FASCIA

GENERIC VIEW OF CORNER

"T" TYPE SHEET METAL

RECOMMENDED DETAILING OF SHEET METAL NEAR EDGES
VALLEY: EXTEND GLACIER GUARD 18" ON BOTH SIDES OF THE VALLEY. REFER TO DETAIL EM 3.6

EXTEND GLACIER GUARD VERTICALLY, PER EcoStar DETAIL(S) BELOW:

RISING WALL, SIMILAR DETAILS:
EM 4.1
EM 4.2
EM 4.3
EM 4.4

RISING WALL, APPLICABLE DETAILS—SIMILAR:
EM 4.1
EM 4.2
EM 4.3
EM 4.4
EM 4.5

VENT STACK DETAILS:
EM 5.1
EM 5.2
EM 5.3

NOTE:
1. THIS DRAWING REPRESENTS A GENERIC LAYOUT OF GLACIER GUARD AND VERSASHIELD UNDERLAYMENT MEMBRANES. FIELD VERIFY FOR SPECIAL CONDITIONS.
2. EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT SHOULD BE INSTALLED AS SHOWN AT ALL ROOF EDGES, EAVES, RAKES, VALLEYS, HIPS, UNVENTILATED RIDGES, AND AROUND ALL PENETRATIONS SUCH AS CHIMNEYS AND VENT PIPES.
3. DESIGNER & CONTRACTOR TO FOLLOW THE REQUIREMENTS OF LOCAL APPLICABLE CODES ALSO. COORDINATE WITH THE ENGINEERING DEPARTMENT OF COUNTY/TOWN/VILLAGE/CITY OFFICES FOR APPLICABLE CODES.

LEGEND
GAF/ELK Versashield
GAF/ELK Underlayment
EcoStar Glacier Guard
EcoStar Ice & Water Underlayment
Versashield over Glacier Guard

SHAKE TILES
REQUIRED LOCATIONS OF VERSASHIELD CLASS A UNDERLAYMENT – 1

ES 2.7

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):
ES 2.8
**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**

**SHAKE TILES**

REQUIRED DETAILING OF CLASS A UNDERLAYMENTS – 1

*EcoStar Recommends covering the ends of wood deck and the substrate joint(s) to protect from rain intrusion.*

*EcoStar Recommends extending Glacier Guard min. one inch beyond the joint(s) to be protected.*

*Dashed line (dimension A) is optional extension of Glacier Guard or as required by the designer.*

*Note: EcoStar requires covering exposed portions of underlayments with sheet metal fascia.*

*Note: EcoStar requires covering exposed portions of underlayments with sheet metal fascia.*

*CC or carpenter to provide a smooth and sound substrate at ridge joint.*

*For applicable additional information, see detail(s): ES2.7, ES2.8, ES2.10, ES2.5, ES2.6*
EXTEND THE WIDTH OF GLACIER GUARD STRIPPING MIN. 4" BEYOND THE EDGE OF SHEET METAL AND USE ROLLER TO FULLY ADHERE THE MEMBRANE TO BOTH SHEET METAL AND VERSASHIELD.

EXTEND MIN. 1.5" BEYOND THE NAIL HEAD.

"L" TYPE SHEET METAL EDGE FLASHING END PIECE, POP RIVETED OR SOLDERED AS SUBJECT TO TYPE OF METAL & OVERLAID WITH A PIECE OF GLACIER GUARD.

"L" TYPE SHEET METAL EDGE FLASHING END PIECE, POP RIVETED OR SOLDERED AS SUBJECT TO TYPE OF METAL & OVERLAID WITH A PIECE OF GLACIER GUARD (NOTE) ADDITIONAL STRIPPING OF GLACIER GUARD TO COVER THE NAIL HEADS.

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

SHAKE TILES

REQUIRED DETAILING OF CLASS A UNDERLAYMENTS — 2

FOR APPlicable ADDITIONAL INFORMATION, SEE DETAIL(S):
ES2.7  ES2.8  ES2.9
ES3.1  ES3.3  ES3.4
ROOF SYSTEM DETAILS
EcoStar AQUA GUARD UNDERLAMENENT (6" MIN. OVERLAP)

38" WOE EcoStar GLACIER GUARD ICE & WATER UNDERLAMENENT AT ROOF PERIMETER, PER DRAWINGS ES 2.2 & ES 2.3

MINIMUM 2" HORIZONTAL LAP OVER ALL FASTENERS

TYPICAL 3/8" SPACING BETWEEN TILES

SECOND COURSE INSTALLED AT SPECIFIED EXPOSURE

FIRST COURSE, NO EXPOSURE, FIRST COURSE TO BE FLUSHED WITH STARTER COURSE

STARTER COURSE RANDOM WIDTH APPLICATION

TYPICAL 3/8" MINIMUM GAP BETWEEN ALL ROOF TILES

3/4" MIN. TILE OVERHANG AT EAVES - TYPICAL SEE SHEET METAL DETAILS AT SHEET ES 2.6 & ES 2.7

STARTER COURSE TILE APPLICATION 3D VIEW

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):

ES2.1 ES2.2 ES2.6
ES2.7 ES2.8
ES3.2 ES3.3 ES3.4
**INTER-TILE EXPANSION SPACE**

**SHAKE TILES**

**EAVE & RAKE EDGES – 3D**

**NOTES:**
1. A 3/8” MIN. GAP is required between roof tiles to roof tiles as well as between roof tiles to walls measuring the edge of tile to vertical face of sheet metal flashing.
2. Provide 3/4” OVERHANG for roof tiles at all roof edges as shown.
3. Minimum 2” horizontal side lap over all fasteners.

---

**EcoStar AQUA GUARD UNDERLayment**

**EcoStar GLACIER GUARD ICE & WATER UNDERLayment**

**ROOF TILES**
6" LAP. SEE DETAIL A/ES 2.4

EcoStar ROOF TILE
EcoStar TILES — FIRST COURSE TO BE FLUSHED WITH STARTER COURSE

"L" TYPE SHEET METAL EDGE FLASHING DESIGNED & INSTALLED BY OTHERS

GUTTER BY OTHERS

MINIMUM 2" HORIZONTAL LAP OVER ALL FASTENERS

TYPICAL 3/8" MINIMUM GAP BETWEEN ALL ROOF TILES

NOTES:
1. GLACIER GUARD ICE & WATER SHIELD UNDERLayment IS RECOMMENDED FOR USE AT ALL EAVE & RAKE EDGES. REFER TO DRAWINGS ES2.2 & ES2.3.

2. ALL SHEET METAL WORK PER DESIGNER’S DETAILS.

3. ALL SHEET METAL PROVIDED & INSTALLED BY OTHERS.

4. ADDITIONAL GLACIER GUARD STRIPPING OVER METAL FLANGE IS OPTIONAL.

EcoStar AQUA GUARD UNDERLayment
EcoStar GLACIER GUARD ICE & WATER UNDERLayment
ROOF TILES

EAVe & RAKE FLASHING WITH GUTTER

ES 3.3
Plan View of Ridge

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.

Notes:

Shake Tiles

Ridge Detail with Ridge Vent

EcoStar Hip & Ridge Tiles

EcoStar Glacier Guard, Partially Shown Underneath Tiles for Clarity of Detail

EcoStar AQUA Guard Underlayment

EcoStar Glacier Guard Underlayment

Rafter/Beam

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 2-1/3" Stainless Steel Fasteners

EcoStar 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.

Continuous Insect Screen (Optional)

Plan View of Ridge

ES3.4

For Applicable Additional Information, See Details:

ES2.1  ES2.2  ES2.3
ES2.7  ES2.8  ES3.5
SHAKE TILES

HIP DETAIL

EcoStar

ES 3.5
Notes:

1. EcoStar Glacier Guard Ice & Water Underlayment is recommended for use at valley areas. See detail ES2.0 for additional information.

2. Extend EcoStar Tiles minimum 4" over the valley metal, but do not nail tiles through the portion of sheet metal valley below.

3. Designer to refer to the slate book for dimension A and the total width of valley metal as it varies from roof to roof.

4. Dow Corning 780 may be used to provide adhesion to valley metal other than copper where required. For copper valley flashing contact EcoStar's technical department for assistance.

5. Optional layer of aqua guard may be installed over glacier guard prior to installation of valley metal.

6. Minimum 2" horizontal side lap required over all tile fasteners.
NOTE: APPLICATION OF ADDITIONAL STRIPPING OF GLACIER GUARD IS RECOMMENDED IN SNOW COUNTRIES PER DETAIL A SHEET ES2.8 OR AS REQUIRED BY THE ROOF DESIGNER.

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

CONTRACTOR TO ANTICIPATE A CONSISTENT EXPOSURE WITH ROOF

CONTINUOUS SHEET METAL CLIP

TYPICAL LAYOUT OF AQUA GUARD UNDERLAMENT

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

FIRST, INSTALL AN 18" WIDE ROLL OF GLACIER GUARD AS A REINFORCEMENT & CUSHION STRIP AT THE JOINT
MINIMUM 2" HORIZONTAL LAP OVER ALL FASTENERS

TYPICAL 3/8" MINIMUM GAP BETWEEN ALL ROOF TILES

SLOPE TRANSITION, SHEET METAL FASCIA SECURED WITH APPROVED LENGTH & TYPE OF FASTENERS. SEE DETAIL ES 3.8.1

TYPICAL LAYOUT OF AQUA GUARD UNDERLayment MEMBRANES.

NOTE:
1. IN SNOW & FREEZING REGIONS, THE UPPER FLANGE OF METAL TO BE HIGHER AND STRIPPED WITH GLACIER GUARD, AS NEEDED.
2. AT TRANSITION METAL, IN LIEU OF WIND-CLIP, DESIGNER MAY USE HEAVIER GAUGE SHEET METAL TO DEVELOP STIFFNESS IN TRANSITION METAL.
3. WHERE SLOPE IS LESS THAN 3:12, ENTIRE DECK TO BE COVERED WITH GLACIER GUARD. PLEASE CONTACT TECHNICAL DEPARTMENT OF EcoStar FOR APPROVAL ON SLOPES LESS THAN 3:12.

ES 3.1

ES 3.8.1

ES 3.7

ES 3.8

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

SHAKE TILES

GAMBREL ROOF DETAIL AT LOWER TRANSITION OF ROOF SLOPES

EcoStar AQUA GUARD UNDERLayment

EcoStar GLACIER GUARD
ICE & WATER UNDERLayment
ROOF TILES

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S): ES3.1 ES3.2 ES3.3 ES3.8
**SHAKE TILES**

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

**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.
WALL FLASHING DETAILS
NOTES:

1. DUE TO VARIATION OF WALL TYPES AND THEIR SPECIFIC MOISTURE DISPOSAL SYSTEMS, IT IS IMPERATIVE THAT DESIGNER SHOULD COMPLETE THIS DETAIL PROPERLY WITH WALL FLASHING SYSTEMS.

2. ROOFER TO ENSURE THAT DRAINAGE SYSTEM OF RISING WALL IS NOT OBSTRUCTED, e.g., WEEP HOLES OF MASONRY THROUGH WALL FLASHINGS ARE NOT COVERED UNDER THE ROOF FLASHING.

EcoStar GLACIER GUARD UNDERLAYMENT
EcoStar AQUA GUARD UNDERLAYMENT
ROOF TILES

SHAKE TILES
APRON FLASHING
A
ES 4.3 ES 4.4 ES 4.5

CONTINUE SIDING TO COUNTER FLASHING 2" MIN. (SEE NOTE)

BUILDING PAPER, AIR OR MOISTURE BARRIER SHEET BY OTHERS SHOULD BE A SHINGLED-FASHION OVER EcoStar SYSTEM

A
SHEET METAL STEP FLASHING

APPROX. 4" MIN.

3/8" MIN. GAP BETWEEN ROOF TILES AND THE VERTICAL FACE OF SHEET METAL FLASHING

NOTE: ALTERNATE COUNTER FLASHING PROFILES MAY BE USED.

NOTE: ALTERNATE COUNTER FLASHING PROFILES MAY BE USED.

SHAKE TILES
SIDE WALL FLASHING

EcoStar AQUA GUARD UNDERLAYMENT
EcoStar AQUAGUARD ICE & WATER UNDERLAYMENT

EcoStar ROOF TILE

TYPICAL BRICK MASRY WALL WITH CAVITY, RIGID INSULATION & BACKUP CMU WALL.

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):
ES2.1 ES2.7 ES4.1
ES4.3 ES4.4 ES4.5

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A RISING SIDE–WALL FLASHING

B RISING WALL FLASHING AT TOP END OF ROOF

SHAKE TILES
SECTION DETAILS OF RISING WALL — 1

ES 4.3

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):
ES 2.1  ES 2.7  ES 4.1
ES 4.2  ES 4.4  ES 4.5

NOTE: CONTACT THE TECHNICAL STAFF OF EcoStar, WHERE A VENTING DETAIL IS REQUIRED AT THE BASE OF WALL.
Type "B" Concealed Counter Flushing

Sheet metal cladding/panels or similar wall system by others

Air/moisture barrier by others. Install in shingle-fashion over the roof flashing, counter flashing & J-channel by others

Sheet metal counter flashing by others

Sheet metal flashing

EcoStar AQUA GUARD

EcoStar ROOF TILE

EcoStar GLACIER GUARD, extend up to top of detail.

Solid, dry, structurally sound substrate by others

SHAKE TILES
SECTION DETAIL OF RISING WALL – 2

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):
ES2.1  ES2.7  ES4.1
ES4.2  ES4.3  ES4.5
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

SHAKE TILES
SECTION DETAILS OF RISING WALL — 3

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):
ES2.1  ES2.7  ES4.1
ES4.2  ES4.3  ES4.4
5.0
ROOF PENETRATION DETAILS

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

**STEP 2**
INSTALLATION OF PIECE

**STEP 3**
AQUA GUARD FABRICATION AT PIPE

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

CIRCULAR CUT TO FIT AROUND THE PIPE

12" MIN. FOR OVERLAP ONTO ADJACENT PIECE

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

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

INSTALL A 6" WIDE STRIPPING OF GLACIER GUARD CENTRALLY ALIGNED AT THE CUT
GLACIER GUARD, EXTEND MIN. 2" VERTICALLY. SEE DETAIL E OF ES 5.1

LEAD FLASHING MIN. 2" TUCKED INSIDE THE PIPE, WITH GENTLE PRESSURE COMPRESS & SHAPE AROUND THE PIPE, WITHOUT DAMAGING THE FLASHING

2-1/2 POUND LEAD FLASHING OR SHEET METAL FLASHING PER DESIGNER'S REQUIREMENTS.

AQUA GUARD UNDERLayment

FIRST PIECE OF GLACIER GUARD

WITH WOOD WALET, GENTLY BEND DOWN LEAD OVER TILE, ONLY WHERE CONDITIONS ALLOW DUE TO SLIGHT PROJECTION OF LEAD EDGE OVER TILE EDGES.

LEAD OR SHEET METAL FLASHING, STRIPPED WITH 8" WIDE GLACIER GUARD TO BLOCK MOISTURE MIGRATION UNDER THE LEAD FLANGE, ON TOP & SIDES, UNDER THE TILES

AQUA GUARD UNDER GLACIER GUARD, FULLY PRESSURE ROLLED & SEALED

FIELD AQUA GUARD

ALUMINUM VENT PIPE

8" WIDE GLACIER GUARD STRIPPING TO SEAL THE METAL FLASHING, CENTRALLY LOCATE THE STRIPPING AT THE EDGES OF METAL FLANGE. SEE DETAIL B BELOW.

LEAD FLANGE

GLACIER GUARD PATCH AROUND THE PIPE PENETRATION

DECK

CLOSE UP VIEW

VENT STACK (METAL FLASHING) PAGE 2 OF 3
METAL FLASHING SLEEVE BY OTHERS

4" (100 mm) MIN. ON BOTH SIDES OF THE PIPE.

MINIMAL DOWN SLOPE FLANGE DIMENSION TO EQUAL FIELD SHAKE EXPOSURE

NOTE:
EcoStar GLACIER GUARD ICE & WATER UNDERLAYMENT IS RECOMMENDED FOR USE AROUND PIPE PENETRATIONS. REFER TO DETAIL ES2.1. DESIGNER MAY CALL FOR THE APPLICATION OF MATCHING COLOR PAINT ON VERTICAL FLASHING OF PIPE. COORDINATE WITH EcoStar FOR ASSISTANCE.

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

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

FOR APPLICABLE ADDITIONAL INFORMATION, SEE DETAIL(S):
ES5.1 ES5.2