Barrel Tile Installation Guide

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Brava Technical Support, Training, and Resources

Brava provides installation guidance for all products at https://www.bravarooftile.com/resources/

Brava Technical Support offers Online and Remote Installation Training and Installation Support for all products. Training prior to beginning installation can prevent costly delays. Please schedule training early to ensure availability. Access Online Training, View Resources, and Request Support through the Technical Support Portal at https://www.bravarooftile.com/technical-support. If you have any questions regarding Brava Roof Tile products and manufactured accessories, call 844-290-4196.

The information and instructions presented in this installation guide are based on Brava's best understanding, believed to be reliable and accurate. However, they are subject to updates and improvements as Brava and our partner installers continually gain knowledge and experience. Brava strives to offer comprehensive support and instructional materials for our Spanish-speaking community, but please note all our training, marketing, and instructional materials originate in English and are then translated into Spanish. In the event of any discrepancy between English and Spanish language materials, we encourage you to contact Brava for clarification.

La información e instrucciones presentadas en esta guía de instalación se basan en la mejor comprensión de Brava, considerada confiable y precisa. Sin embargo, están sujetas a actualizaciones y mejoras a medida que Brava y nuestros instaladores asociados continuamente adquieren conocimiento y experiencia. Brava se esfuerza por ofrecer soporte integral y materiales instructivos para nuestra comunidad de habla hispana, pero tenga en cuenta que todos nuestros materiales de capacitación, marketing e instruccionales se originan en inglés y luego se traducen al español. En caso de cualquier discrepancia entre los materiales en inglés y español, le animamos a que se ponga en contacto con Brava para aclaraciones.

1. Introduction

Brava Barrel Tile is manufactured from recycled materials and can be recycled again if the roof is ever replaced, making it sustainable and environmentally friendly.

Brava Barrel Tile has all of the qualities and beauty of traditional Barrel tiles, combined with the incredible benefits of a composite roofing material. When it comes to quality and craftsmanship, no one does it better.

Our composite roofing tiles are the perfect barrel clay tile alternative. Traditional barrel tile roof are extremely heavy and require additional structural support. Our lightweight synthetic roofing material eliminates the need for costly structural support, reduces the installation labor, and significantly decreases roof maintenance. Your new synthetic barrel roof will look amazing for a lifetime! Brava Barrel Tile is truly a revolutionary roofing product. Field tiles are the primary component of the Brava Barrel Tile roof system. These tiles are

manufactured using real Spanish and Mission barrel tiles as examples, defining color and contour. Additionally, Brava offers Eave Starters, Hip & Rake, Top Ridge, Bullnose, Ridge Closure, and optional Rake Edge accessories for best appearance at valleys and rakes. No special tools are required for installation and no additional structural support is needed. This makes our product ideal for new construction and re-roofs, for both residential and commercial projects.

1.1 Materials

Roof Components and Specifications

Spanish Barrel Field Tiles

Field Tiles are the primary component of the Brava Spanish Barrel Tile roof system and are used on all roof sections.

Eave Starter

Designed to provide eave closure and a finished appearance at the eave line. Channels between each Eave Starter allow for proper drainage.

Hip & Rake

This smaller radius trim is designed to be installed on all hips and at the rake.

Top Ridge

This larger radius trim is designed to be installed on all ridges, as it's wider design is suitable for continuous ridge vent installation and bolder look at the ridge. It may also be used on hips.

Bullnose

Designed to be the first piece of trim to start hips and ridges, the bullnose/hip starter provides a professional finished look.

Ridge Closure

Used at the ridge to close off the top of the tile and provide a finished appearance.

Rake Edge (Optional)

An alternative to Hip & Rake, this optional Rake Edge offers a smaller profile appearance.
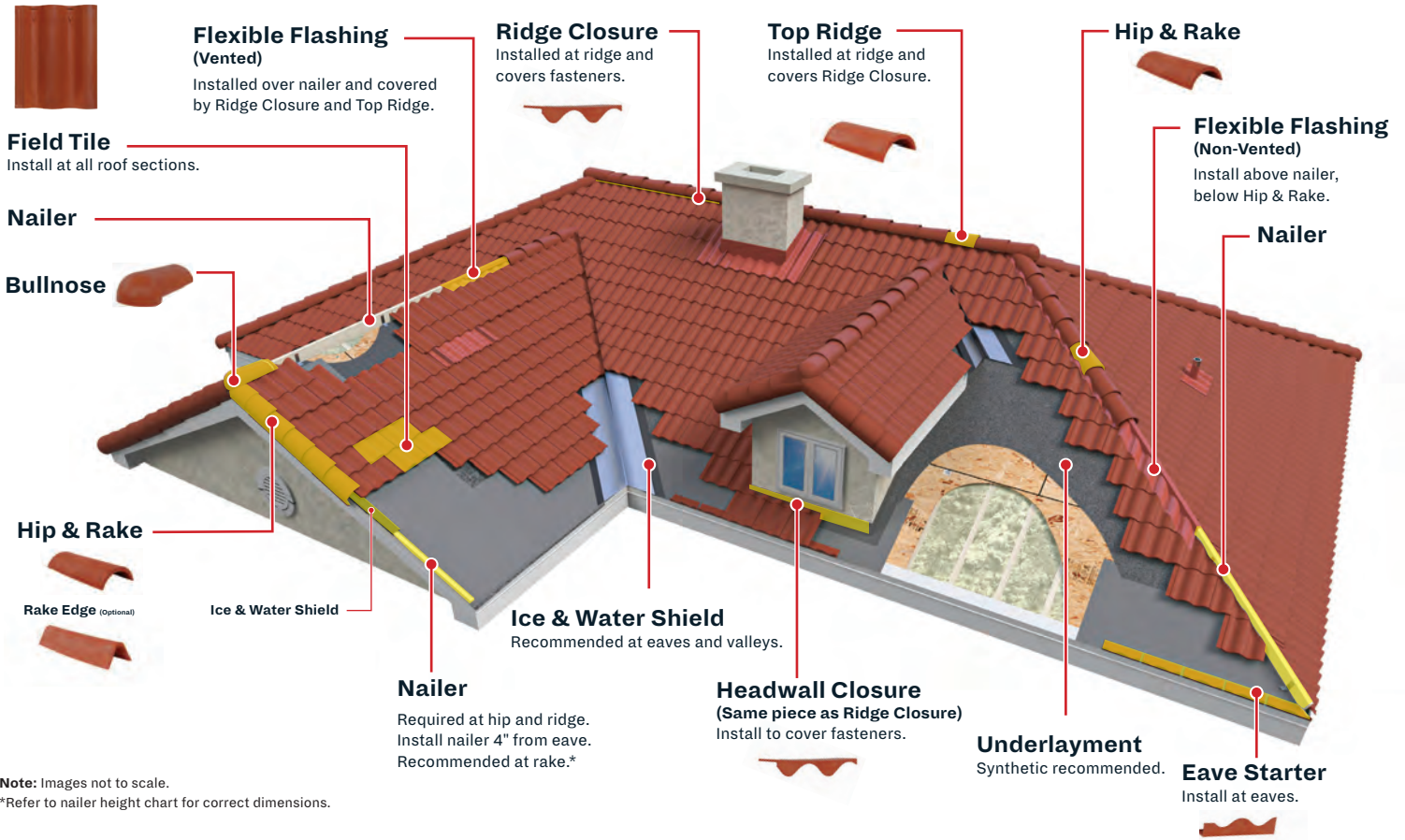
Brava Spanish Barrel Tile Specifications

Product material temperature should be above 32° F during installation.

Dimensions

Length	16.5"
Width	13"
Thickness	2.5"
Maximum Exposure	13"

Weight

Lb./Piece	2.9
Lb./Square	281
Lb./Pallet	1722

Packaging

Pieces/Bundle	10
Pieces/Square	97
Bundles/Pallet	57
Bundles/Square	9.7
Squares/Pallet	5.87

Testing & Performance *See Appendix A High Wind Installation and Appendix F – Fire Rating*

Class A Material

Weatherometer	ASTM G155
Fire Resistance	ASTM E108 Class A
Impact Resistance	UL 2218 Class 4
Wind-Driven Rain	TAS 100
Wind Uplift	TAS 125
Temperature-Cycling	ICC-ES AC07
Penetration	ICC-ES AC07

Class C Material

Weatherometer	ASTM G155
Fire Resistance	ASTM E108 Class C
Impact Resistance	UL 2218 Class 4
Wind-Driven Rain	TAS 100
Wind Uplift	TAS 125
Temperature-Cycling	ICC-ES AC07
Penetration	ICC-ES AC07

Code Compliance

Miami-Dade Approval	NOA 21-1213
Florida Building Code Approval (FBC)	FL 41880
Title 24 / Cool Roof Approval	Select Colors
International Building Code (IBC) Compliant	Yes
International Residential Code (IRC) Compliant	Yes
ICC AC07	Yes

Visit bravarooftile.com for product and testing updates.

Brava Spanish Barrel Tile Roofing System

Flexible Flashing (Vented)
Installed over nailer and covered by Ridge Closure and Top Ridge.

Ridge Closure
Installed at ridge and covers fasteners.

Top Ridge
Installed at ridge and covers Ridge Closure.

Hip & Rake

Flexible Flashing (Non-Vented)
Install above nailer, below Hip & Rake.

Field Tile
Install at all roof sections.

Nailer

Nailer

Bullnose

Hip & Rake

Rake Edge (Optional)

Ice & Water Shield

Nailer
Required at hip and ridge. Install nailer 4" from eave. Recommended at rake.*

Ice & Water Shield
Recommended at eaves and valleys.

Headwall Closure (Same piece as Ridge Closure)
Install to cover fasteners.

Underlayment
Synthetic recommended.

Eave Starter
Install at eaves.

Note: Images not to scale.
*Refer to nailer height chart for correct dimensions.

Hip & Ridge

1 Top Ridge
17" L x 10 1/2" W

2 Hip & Rake
17" L x 9" W

1.2 Safety

WARNING: Always use Safety and Personal Protective Equipment (PPE) per regional requirements and apply common safety practices when working on or around a roof.

Always keep the roof clean and free of items that can cause accidents.

WARNING: Tiles can be slippery when wet or dry.

To ensure safety and prevent gutters and downspouts from clogging, remove cuttings regularly from the roof surface.

2. Roof Preparation

2.1 Building Codes and Best Practices

Before installing Brava Barrel Tile check local building codes for roofing requirements. Brava recommends that any installers follow regional and industry best practices. This includes but is not limited to city, county, state, and country code. Weather phenomenon, common practice, aesthetic, architectural, and design requirements should be considered.

2.2 Slope

Brava Barrel Tile has a recommended minimum slope of 4:12. There is no recommended maximum slope, however, Brava Barrel Tile is designed as a roofing product and has not been extensively tested in vertical applications. When installed in extremely steep or vertical applications, special considerations may be necessary.

When installed on a 3:12 slope, a self-adhered waterproof membrane meeting ASTM D1970 (referred to as Ice & Water Shield hereafter) should be used on the entire slope. Brava considers installation on slopes lower than 3:12 to be decorative and special care should be taken regarding underlayment and waterproofing. Any section with a slope of less than 3:12 will fall outside the Brava Limited Lifetime Warranty.

- **Warranty Minimum Roof Slope – 3:12 (with Ice & Water - see Section 2.6)**

2.3 Exposure

Standard Exposure
Brava Barrel Tile can be installed at different exposures depending on application and code requirements. Ensure no fasteners are exposed on any visible surface.

The maximum installed exposure is 13" and Brava suggests a minimum exposure of 4" *(See Figure 2.3.1).*

- **Maximum Exposure: 13"**
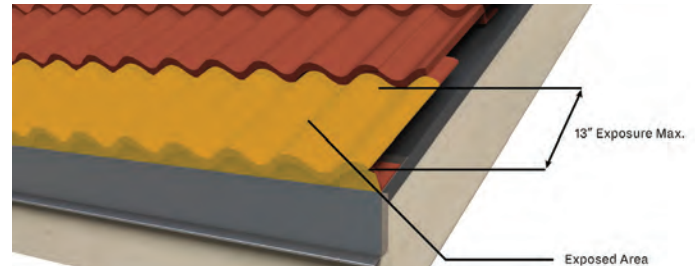- **Minimum Exposure: 4"**

Figure 2.3.1 *Exposure 13" max*

Exposure for High Wind
Some building codes specify exposure for wind uplift. Ensure code and design requirements are met.

CAUTION: In high wind regions such as Florida, maximum exposure may be dictated by the building department. Verify code requirements when setting exposure. Using recycled materials can cause variation in final product dimensions. Take this variation into account to ensure code exposure requirements are met. To this end, it may be necessary to set exposure lower than the code maximum in some cases. Brava recommends setting exposure to end with a full tile at the ridge *(See Appendix E – Swing Tape Method).* This will usually set a slightly lower exposure and does not require additional material. *(See Appendix A – High Wind Installation).*

2.4 Eaves, Spacing, and Sidelap

Eave Spacing

Confirm roof square before installation. Correct any out of square conditions and ensure that the eave line is straight.

Install Eave Starters and the first course of Field Tile in a straight line. Snap a chalk line from corner to corner at the eave to ensure straightness.

Correct any inconsistencies at the eave before proceeding with installation.

Snap a second chalk line 16" from the eave line to indicate the head of the first course of Field Tile.

Starting at the rightmost eave, position an Eave Starter flush with the marked line and secure with two corrosion-resistant fasteners.

Place the first Field Tile on the Eave Starter and fasten it using two corrosion-resistant fasteners, ensuring that fasteners penetrate a minimum of $^3/_4$" into the deck or completely through the deck.

Dry fit the second Eave Starter with a tile to ensure proper fit in the rain channel, mark its location, and then fasten it into place.

Continue installing Eave Starters along the eave, dry fitting with each Eave Starter/Field Tile pair and fastening tiles as you go.

CAUTION: Do not install the entire length of starters along the eave without dry fitting each pair. Not following the recommended steps may lead to misaligned courses, excessive gapping between tiles, and insufficient drainage.
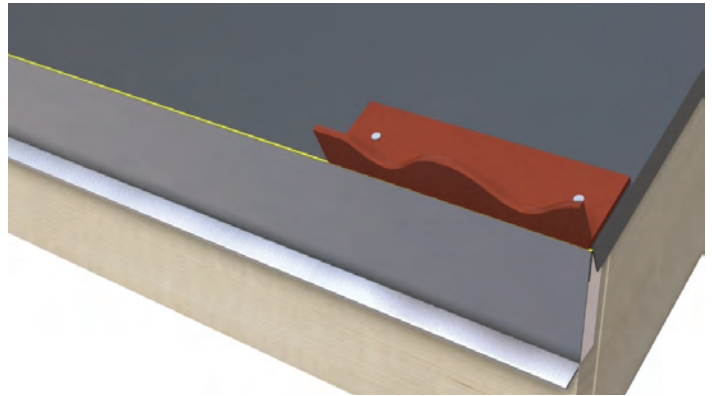
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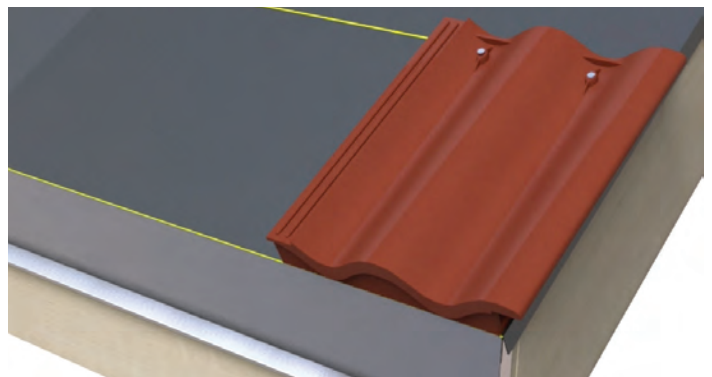
Figure 2.4.2
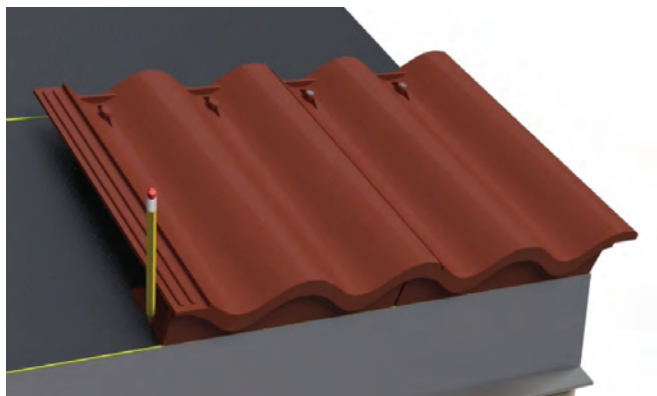
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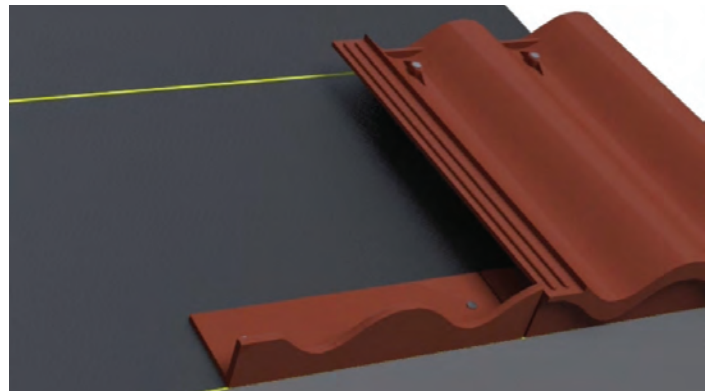
Figure 2.4.4

Eave Starter

When installing Field Tile at the eave, the two tile ribs should engage with the vertical closure section of the Eave Starter *(Figure 2.4.5)*.

Take care not to lean on Eave Starter/Field Tile pair during installation. Use the eave reference line and Field Tile line to keep the first course of tile even and straight.

Figure 2.4.5

Side Lap

Each Field Tile is manufactured with a rain channel (visible from above) on the left and a matching lap channel (visible from below) on the right. These channels are engineered to fit together to establish spacing and provide sidelap between each tile. The design includes two (2) parallel ribs on each face. These ribs meet the channels on the adjacent tile with a tolerance allowing smooth installation *(Figure 2.4.6)*.
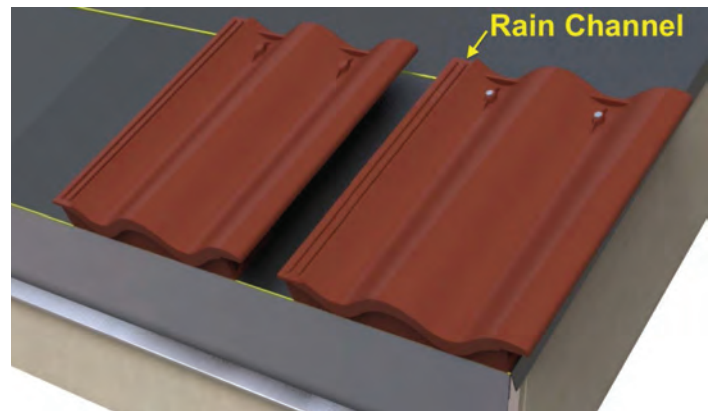
Figure 2.4.5

2.5 Roof Deck

CAUTION: Roof deck loss is one of the most common structural failures in hurricanes or high wind environments. Fastener spacing and size requirements for coastal construction are typically different than for non-coastal areas. Check your local codes. The highest uplift forces occur at roof corners, eaves, and ridge lines. Improved fasteners such as ring shank nails or screws increase the uplift resistance of the roof sheathing.

Solid Deck Sheathing
Brava recommends that tiles be installed on a smooth, flat, clean surface (OSB or plywood) with a minimum of $^{15}/_{32}$" CDX plywood or minimum $^{7}/_{16}$" Oriented Strand Board (OSB).

Plywood will provide a higher fastener head pull-through resistance and is preferable for high wind environments. Fire classification rating and wind uplift testing and certification have been completed using $^{15}/_{32}$" plywood sheathing and have not been validated with plank, spaced, or OSB sheathing. Additional testing is projected to expand certified sheathing options. Applicable codes may require plywood sheathing or a thicker roof deck. *For example, in Miami-Dade compliant counties, ≥ $^{19}/_{32}$" Plywood sheathing is required.*

Installation of Brava Barrel Tile should always be on a roof deck that complies with IBC, IRC, and any additional regional or local codes. Check with your building official to ensure deck compliance with applicable codes.

Roof Venting
Appropriate attic ventilation is a key factor in preventing moisture problems and heat buildup, which can lead to issues like mold, rot, ice dams, and decreased energy efficiency. The U.S. Federal Housing Administration (FHA) recommends a standard of 1 square foot of ventilation for every 300 square feet of attic space. This balance between intake and exhaust ventilation helps

Spanish Tile Roof System Overview

Figure 2.5.1

create a natural airflow, keeping the attic temperature closer to the outside temperature. Ensure roof venting meets industry standards and code requirements. Barrel Tile is compatible with many on and off ridge venting systems. Insufficient venting may lead to roof deck failure. Contact the roof vent manufacturer and refer to local building code when determining roof venting requirements.

> • **Minimum Plywood Deck – $^{15}/_{32}$" CDX**
>
> • **Minimum OSB Deck – $^{7}/_{16}$"**

Battens

In most cases, using a batten system will speed up and simplify installation and provide straighter courses of tile. Brava recommends but does not require the use of battens for Barrel Tile *(Figure 2.5.2)*. See *Section 3.7 Nailers and Battens* and *Appendix E – Swing Tape Method* for batten requirements and installation.

Figure 2.5.2

2.6 Underlayment

Install underlayment products according to the manufacturer's specifications and as required by applicable building code. Brava suggests finding an underlayment that matches the durability and warranty of Brava Barrel Tile. At a minimum, underlayment of not less than 30 lb. felt (ASTM D 226 Type II) should be used. When installed correctly, underlayment, flashing, and roof metal are designed to seal the roof from water intrusion. Ensure underlayment compliance with applicable codes and regional best practices. Using ASTM D1970 Ice & Water Shield for the whole roof is common and recommended in some climates. *(See Roof Venting in Section 2.5 – Roof Deck)*.

In areas where the average daily temperature in January is 25° F or lower or where ice formation is possible along the eaves causing backup of water, a minimum ASTM D1970 self-adhering membrane shall be installed from the eave edge extending to a point not less than 24" inside the exterior wall line of the building. A minimum 36" wide self-adhering membrane is required in all valleys regardless of average daily temperatures or the possibility of ice formation. Additionally, a 36" strip of Ice & Water Shield is recommended at rakes.

> • **Minimum Underlayment – 30# ASTM D226 Type II Felt**
>
> • **Recommended Underlayment – Synthetic Underlayment and Ice & Water Shield**

Low Slope Applications

When Brava Barrel Tile is installed on a 3:12 slope or lower, a ASTM D1970 self-adhered waterproof membrane (Ice & Water Shield) should be used on the entire slope.
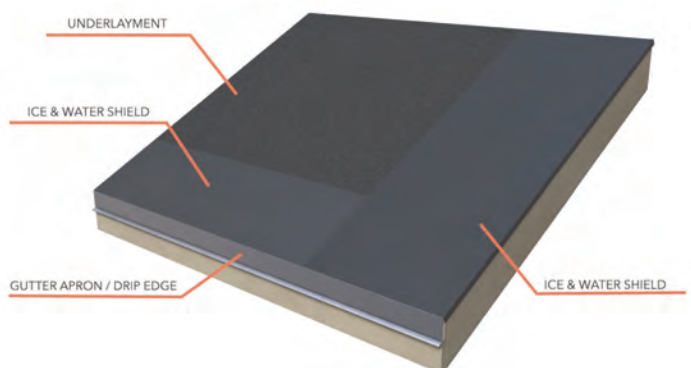
Figure 2.6.1

2.7 Fasteners

Standard Fasteners

All tiles must be installed with two corrosion-resistant fasteners of sufficient length to penetrate no less than ¾" into the deck or completely through the roof deck. Ring shank roofing nails or screws are required and should be selected based on application and code requirements. Smooth shank nails are not acceptable fasteners. Brava recommends using screws whenever high winds are typical. Always ensure fasteners are in compliance with building codes and design requirements and that corrosion protection is sufficient for regional conditions.

Figure 2.7.1 *Ring Shank Roofing Nails or Screws*

CAUTION: Fasteners should not be exposed beneath the exposure line or anywhere that is not covered and sealed.

Two (2) fasteners must be used for all full tile and for cut tile when possible. It is acceptable to fasten a cut tile with only one (1) fastener if the cut tile is less that a half piece. Use approved adhesive to prevent shifting of the tile. *(Figure 2.7.2)*.

Figure 2.7.2

Standard Fasteners: Two (2) Ring Shank Roofing Nails or Two (2) Screws

Fastener Locators

Each Field Tile and accessory has preformed fastener locators. Fastener locators aid installation by marking the fastener pad and indicate the lowest level that fasteners should be installed *(Figure 2.7.3 and 2.7.4)*.

If it is necessary to place a fastener away from the locator due to installation requirements, flashing details, or valley metal, ensure that the installed tile is not damaged and that no fasteners are exposed.

Figure 2.7.3 *Fastener locators (front)*
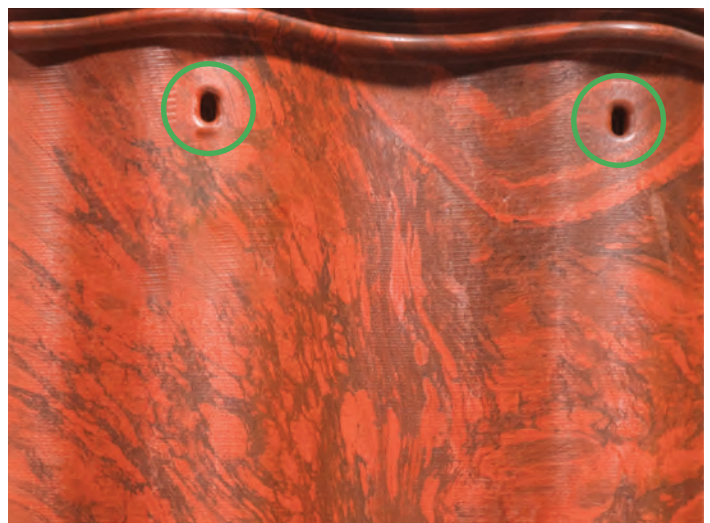
Figure 2.7.4 *Fastener locators (back)*

Fasteners for Hip & Rake, Top Ridge, and Rake Edge

Accessories Cap will need longer fasteners due to the multiple layers of material and flashing/vent under the caps. In most cases, Brava recommends 3" screws or 3" hand-drive Ring Shank Roofing Nails may also be used. Fasteners should penetrate a minimum $^3/_4$" into the deck or nailer.

Figure 2.7.5 *Exposed Fasteners*

> **Hip/Ridge Fasteners: 3" Screws or 3" Ring Shank Roofing Nails**

Fasteners for High Wind

To be eligible for Brava's highest wind warranty, install all tiles with two (2) ≥#8 x ≥ 2" corrosion resistant screws. See *Appendix A – High Wind Installation.*

> **High Wind Fasteners: Two (2) ≥#8 x ≥ 2" Screws**

Adhesives and Sealant

When required due to location or to avoid unwanted penetrations, a roofing adhesive or sealant may be used in some cases (Figure 2.7.6). Check with manufacturer for compatibility and usage guidelines.

Brava Technical Support has tested and approved OSI Quad, Geocel 3500, and MasterSeal NP1 for use with Brava Roof Systems. Given that Brava Roof Systems are manufactured using a Recycled Polymer Composite, many conventional roof sealants and adhesives may not adhere effectively. It is essential for installers to conduct a preliminary test with any adhesive or sealant on the current batch of Brava material to ensure adequate bonding and effectiveness prior to application.

Figure 2.7.6 *Seal Exposed Fasteners*

> **Approved Sealants: OSI Quad, Geocel 3500, MasterSeal NP1**

3. Getting Started

3.1 Measuring and Marking the Roof

Before installing Brava Barrel Tile Eave Starters, check for roof square and correct out of square conditions.

Chalk Lines

Eave Starters are installed at the eave edge as described in *Section 2.4 – Eaves, Spacing, and Lap*. Each Eave Starter should be installed individually after dry fitting and marking using the accompanying Field Tile. After the Eave Starters and first course of Field Tile are installed at the eave, use chalk lines to mark the roof using the desired exposure as the distance between each line. *(See Appendix E – Swing Tape Method).*

When setting exposure, check with your building official to ensure compliance with applicable codes. (*See Section 2.3 - Exposure).*

Vertical chalk lines are also recommended to maintain proper vertical alignment of the tile. One method is to lay the first three tiles at the eave course. Measure the distance of the leading edge of the third tile back to the rake edge. Then mark this measurement at the ridge and chalk a vertical line. Repeat this procedure every third tile across the roof.
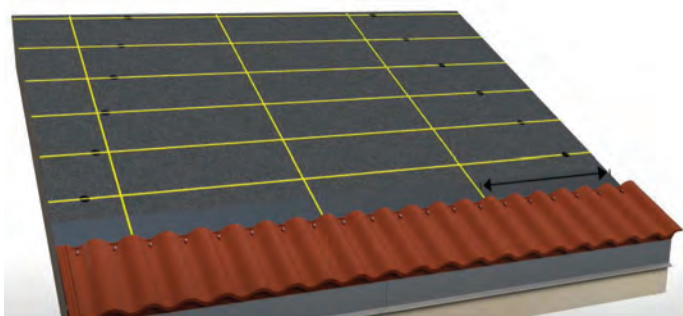
Figure 3.1.1 *Exposed Fasteners*

For best results, installing battens is recommended at this stage but not required. (*See Section 3.7 - Nailers and Battens).*

CAUTION: Do not use red or blue chalk as it can stain the tiles. Brava recommends using white marking chalk.

CAUTION: Tiles have a variance in length which is typical for barrel tile products, regardless of the material used. This variance is considered normal and within acceptable industry standards. When installing, use the top of the tile, setting on a batten or true to chalk lines, to install straight courses. Do not chase an exact exposure. Exposure may vary slightly as with traditional clay and concrete barrel tile. See figures below.

Figure 3.1.2

Figure 3.1.3

3.2 Roof Loading

For best results verify that the roof is loaded with the proper products in the correct locations using the provided jobsite packing list. Load bundles of tile and accessories on the roof – Starters at the eave, Field Tiles on the roof slopes, Hip & Rake at the hips and rakes, and Top Ridge at the ridges *(Figure 3.2.1)*.
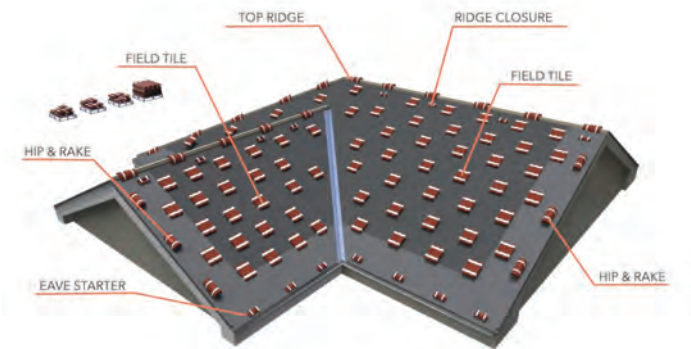
Figure 3.2.1

3.3 Color Blending

Bundles should be selected from multiple pallets during roof loading to ensure proper color blending. Color blending is recommended for both solid and variegated colors *(Figure 3.3.1)*. For best results, tiles from different bundles may be intermixed.
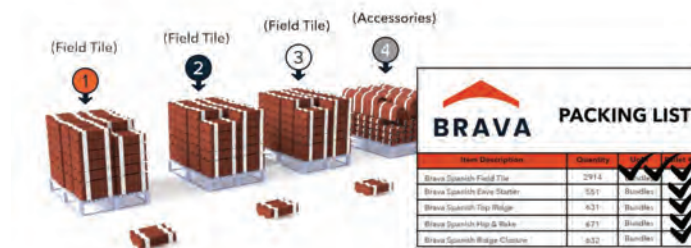
Figure 3.3.1
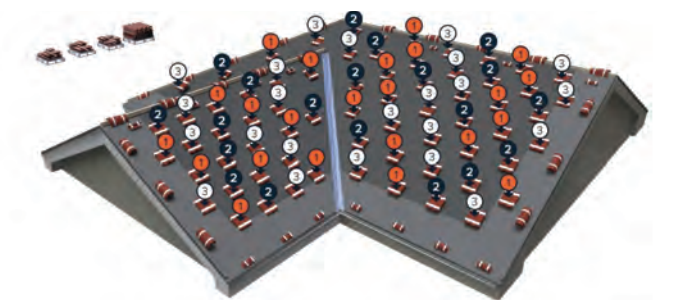
Figure 3.3.2 *Color blend from different pallets*

3.4 Material Inspection and Storage

Brava Barrel Tile and accessories should be inspected before and during installation for conformity and fit. If there are any tiles that fall outside manufacturer's specifications for dimensions, do not meet project needs, or have been damaged in shipping or storage, set them aside and do not install them.

Store materials on the pallet as shipped on a flat level surface. Pallets of material should not be stacked in a manner that deforms the tile. Cover material that will be stored for an extended period to protect it from construction site or masonry dust. Use caution during loading, unloading, and storage not to damage material with construction vehicles or loading equipment. Use appropriate safety and lifting procedures and equipment when handling pallets of material.

CAUTION: Do not install nonconforming tiles. Once a roof section is installed,replacing individual tiles may not be practical.

3.5 Flashing

Flashing should be installed by a licensed professional using industry best practices and meeting all applicable codes. Proven durable flashing materials include copper, tin, lead, galvanized or painted steel, and stainless steel. Each roof will be different but common areas which need flashing include places where the roof surface meets a wall (sidewall/headwall), valleys, penetrations, eaves, and rakes.

NOTE: When dissimilar metals are placed in contact with one another, galvanic action can result causing electro-positive metals to deteriorate. One solution for this is to place strips of lead sheeting between the two metals.

While Brava provides some common usage information regarding flashing and roof metal details, these parts of the roof assembly are not manufactured by Brava and do not fall under Brava's warranty. Refer to SMACNA resources for roof flashing recommendations

and requirements and check with your local building official to ensure compliance with applicable codes.

3.6 Valley Metal

Valley metal should be installed by a licensed professional using industry best practices. Open or Closed valleys may be used with Brava Barrel Tile and should be selected depending on building specifications, application, and the desired aesthetic. 24–26-gauge corrosion-resistant flashing is recommended. Proven durable valley metals include copper, tin, lead, galvanized or painted steel, and stainless steel. Check with your local building official to ensure compliance with applicable codes.

> **Recommended Valley Metal: 24–26-gauge corrosion resistant flashing**

Closed Valleys
For Closed Valleys, a "W" style flashing may be used with a 2 ½" center crimp. Leave a minimum $^3/_{16}$" gap between the tiles at the valley for thermal expansion *(Figure 3.6.4)*.

> **Recommended: Closed Valleys - W Metal with 2 $^1/_2$" Center Crimp**

Open Valleys
For Open Valleys, a minimum 4" opening at the top of the valley is recommended using a "Double W" style flashing with a 2 ½" center crimp. Do not place fasteners within 5" of the center line.

With an "Open Valley" design, special consideration should be given to final finish. When cut at valleys and rakes, Spanish barrel tile opening will be visible. A "Double W" flashing may be used to cover exposed openings on cut Field Tiles *(Figure 3.6.3)*.

> **Recommended: Open Valleys – Double-W Metal with 2 $^1/_2$" Crimps**

Figure 3.6.1 "W" style valley metal for open and closed valleys.
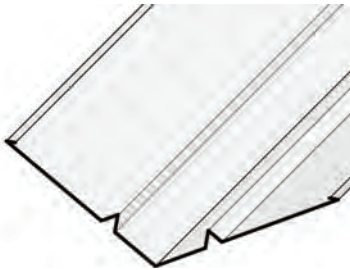
Figure 3.6.2 "Double W" style valley metal option for open valleys

Figure 3.6.4

Figure 3.6.3

3.7 Nailers and Battens

Nailers

When installing Brava Barrel Tile, nailers should be used on all hips and ridges. Nailers are recommended at the rake but are not required. Wood or metal nailers may be used when meeting code and design requirements. Use the Nailer Height Table below to select the correct height. If metal nailers are used, round down from to the lower height available.

Brava Spanish Barrel Tile Nailer Height		
Slope	Ridge Nailer	Hip Nailer
2:12	$4\,^3/_4$"	$4\,^5/_8$"
3:12	$4\,^1/_2$"	$4\,^3/_8$"
4:12	$4\,^1/_4$"	$4\,^1/_4$"
5:12	$4\,^1/_8$"	4"
6:12	4"	$3\,^7/_8$"
7:12	$3\,^7/_8$"	$3\,^5/_8$"
8:12	$3\,^3/_4$"	$3\,^1/_2$"
9:12	$3\,^5/_8$"	$3\,^1/_4$"
10:12	$3\,^3/_8$"	$3\,^1/_8$"
11:12	$3\,^1/_4$"	3"
12:12	$3\,^1/_8$"	$2\,^7/_8$"
13:12	3"	$2\,^3/_4$"
14:12	3"	$2\,^5/_8$"
15:12	3"	$2\,^5/_8$"
16:12	3"	$2\,^5/_8$"

Nailer Installation

Nailers should be installed with brackets or fasteners at no more than 24" on center spacing. Nailers installed at a hip should be cut back 4" from the eave for best fit and aesthetic *(Figure 3.7.1)*.
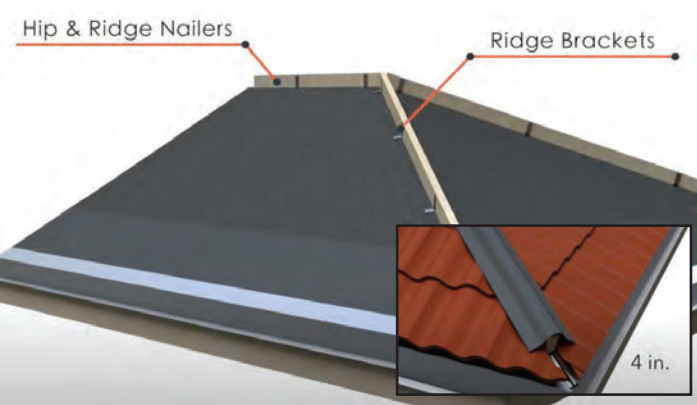
Figure 3.7.1

At rakes, nominal 2" x 2" treated lumber is usually appropriate. If a batten system is used, the rake nailer should match the height of the batten system *(Figure 3.7.2)*.
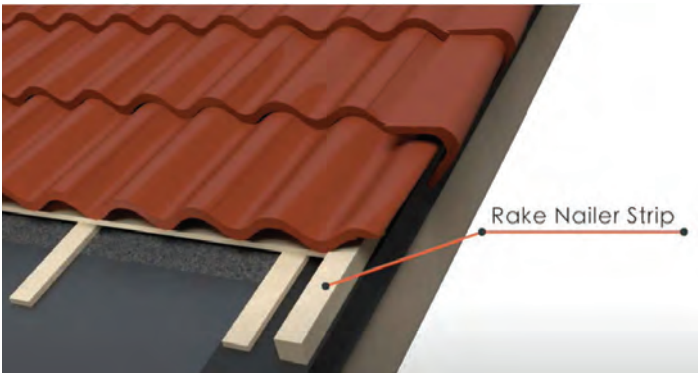
Figure 3.7.2

Battens

Battens are not required for Brava Barrel Tile but are highly recommended as they facilitate straight and even courses and allow for quicker installations.

Battens should be no less than nominal 1" x 2" treated lumber or other code approved products. Battens should be no more than 4' long with a minimum ½" gap between battens for drainage. Alternatively, longer battens may be used when installed with ¼" decay-resistant risers installed at each fastener location to allow drainage beneath the battens. Some synthetic and engineered battens are available with built in drainage and may be used if meeting code requirements *(Figure 3.7.3)*.
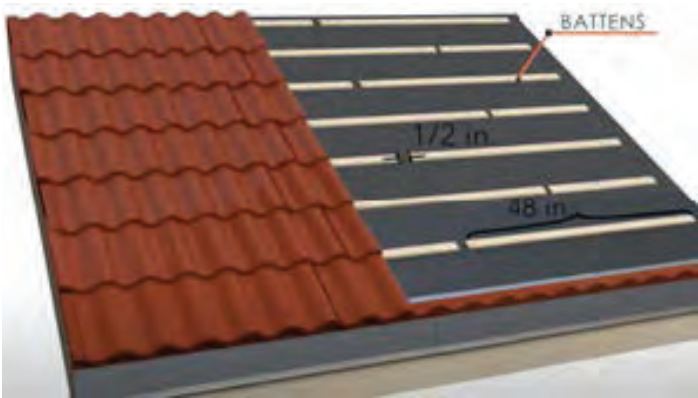
Figure 3.7.3

Batten Installation

To install battens, use the swing tape method to determine desired exposure. Installation of first course batten is optional. Eave Starters should be installed flush to the eave line. Measure up from first course to begin chalking lines. (*See Appendix E - Swing Tape Method).* Install Battens at chalked lines.

4. Brava Spanish Barrel Tile Installation Instructions

Before installing Brava Spanish Barrel Tile, check local building codes for roofing requirements. Brava Spanish Barrel Tile must be installed to a minimum $^{15}/_{32}$" CDX plywood deck or equivalent. Material temperature should be above 32° Fahrenheit during installation. Ensure appropriate flashing, Ice & Water Shield and underlayment meet warranty minimums, regional best practices, and applicable code. Verify material quantity, product specification conformity, and color blending while checking packing list and loading the roof. Always check for roof square and plumb and correct any out of square conditions. Please review Sections 1, 2, and 3 of this guide before beginning.

Keys to Success

- **Confirm/Correct Roof Square**
- **Chalk Lines for Eave Starters and Field Tile**
- **Dry Fit Eave Starters and First Course (See section 2.4)**
- **Install to Chalk Lines not for Exposure**
- **2 Fasteners per Tile**
- **≥ $^3/_4$" Fastener Penetration**
- **≤ 13" Exposure**
- **Correct Nailer Height at Hip/Ridge**
- **No Exposed Fasteners**
- **Use Battens (optional)**
- **Use Nailers for rakes (optional)**

Watch our installation instruction videos at https://www.youtube.com/c/BravarooftileUSA

- Brava Spanish Tile Installation Video Series – English

- Brava Spanish Tile Installation Video Series – Espanol
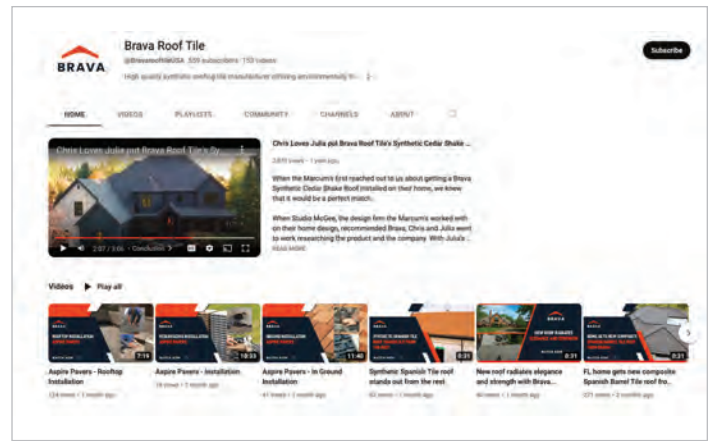
Visit our website Resources page for additional installation materials, instructional videos, and this guide in Spanish. https://www.bravarooftile.com/resources/.
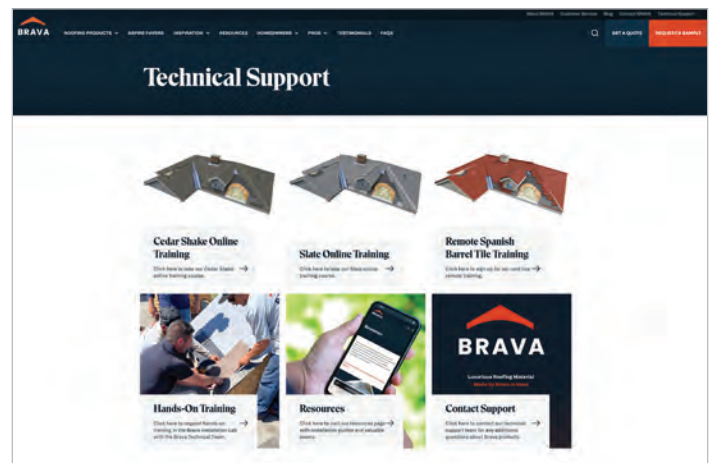
Visit the Brava Technical Support Portal to Access Training, View Resources, and Request Support at https://www.bravarooftile.com/technicalsupport/. Brava Technical Support offers Online and Remote Technical Support Training and Project Support. If you have any questions regarding Brava Roof Tile products and manufactured accessories, call 844-290-4196.

4.1 Starter and Field Tile Installation

1 **Before Installation,** Check the Roof Square and correct any out-of-square conditions.
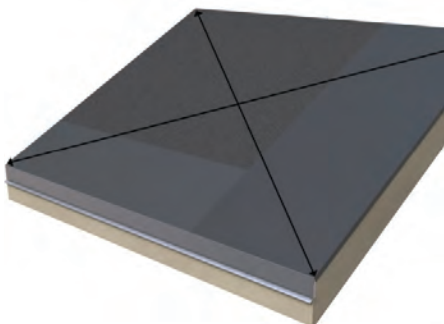
Figure 4.1.1

2 **Install Hip and Ridge Nailers (required) and Rake Nailers (optional).** before Field Tile Installation. (*See Section 3.7 – Nailers and Battens*).
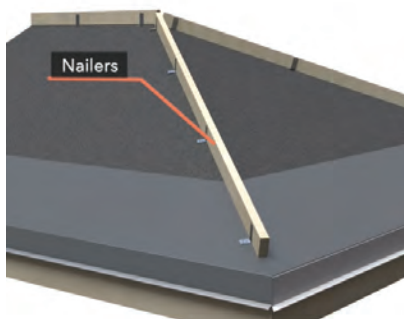
Figure 4.1.2

3 **Snap a Chalk Line at the Eave from corner to corner.** Correct any eave inconsistencies before starting. Eave Starters must be installed to a straight line for correct installation of the Field Tile. (*See Section 2.4 – Eaves, Spacing, and Sidelap*).
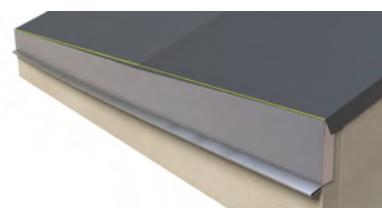
Figure 4.1.3

4 **Snap a Chalk Line 16" up from the eave line** for the head of the first course of Field Tile.
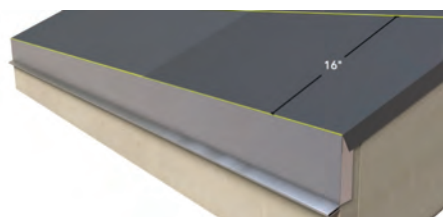
Figure 4.1.4

5 **Install the First Course of Field Tile with Eave Starters aligned to the eave reference line.** Each Field Tile/Eave Starter pair should be installed together.

DO NOT install Eave Starters without dry fitting and installing Field Tile. Fasten Field Tiles, Eave Starters, and Accessories with corrosion-resistant screws or ring shank roofing nails of sufficient length to penetrate $3/4$" into or completely through the deck.

See Section 2.4 – Eaves, Spacing, and Sidelap.

5a **Install the first Eave Starter** aligned to the eave reference line.
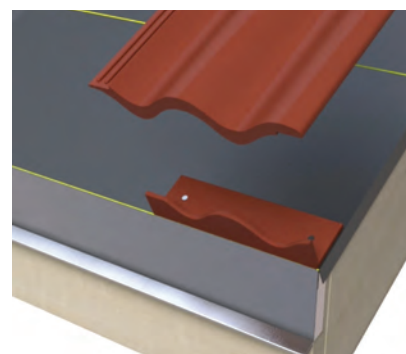
Figure 4.1.5

5b **Install the first Field Tile –** Ribs underneath the Field Tile should engage with the vertical closure section of the Eave Starter.

Figure 4.1.6

5c **Dry fit the next Field Tile on the next Eave Starter** and position the pair, fitting it with the previously installed Field Tile/Eave Starter pair and the chalk lines. Mark the location and Fasten the Eave Starter.
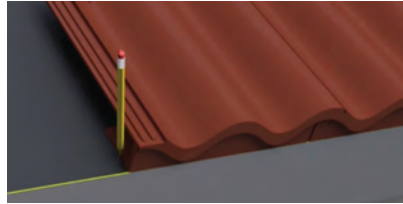
Figure 4.1.7
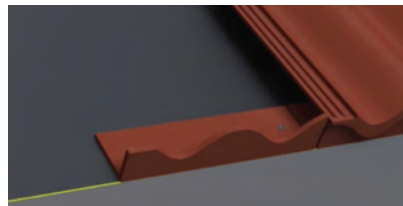
Figure 4.1.8

5d **Install the Field Tile.** Repeat process of installing each Eave Starter/Field Tile pair.
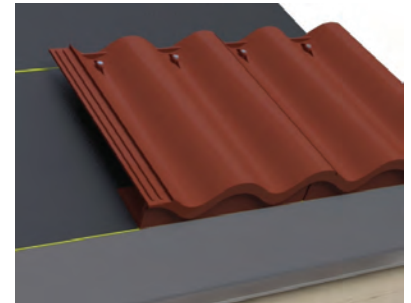
Figure 4.1.9

6 **Snap Horizontal and Vertical Chalk Lines** using the specified exposure for the project not to exceed 13". Or use the Swing Tape Method to end at the ridge with a full tile. (*Section 3.1 – Measuring and Marking the Roof)* and *(Appendix E – Swing Tape Method).*
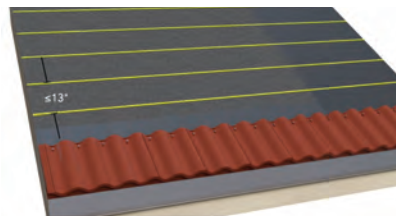
Figure 4.1.10
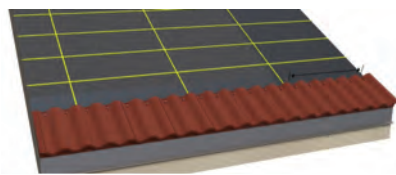
Figure 4.1.11

7 **Optional – Install Battens** Battens should be a weather-resistant material meeting application and code requirements. Allow for drainage between battens using ≤ 48" battens with a ≥ $1/2$" gap between each. (*See Section 3.7 – Nailers and Battens).*
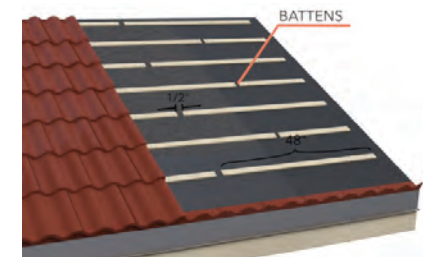
Figure 4.1.12

4.1 Starter and Field Tile Installation (continued)

8 **Install Field Tile courses from right to left using chalk lines or battens to maintain straight courses.** Keep the top of the tiles aligned with the batten or chalk line.

Figure 4.1.12

9 **To install with an Offset Seam** dry fit the first tile of every other course at the rake with half of the tile overhanging. Mark the tile and cut it before installing, alternating between full and half tiles up the rake edge.
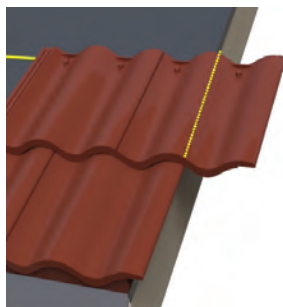
Figure 4.1.13

10 **Ensure exposure meets code and application requirements** and is no greater than 13". (*See Section 2.3 – Exposure*)

Figure 4.1.14

4.2 Valley and Rake Installation

When it is necessary to cut tiles and accessories at valleys, rakes, and other details, make straight even cuts. When possible, place the factory edge to the outside.

Valley Installation

At Valleys, install underlayment, a 36" strip of ASTM D1970 Ice & Water Shield and Metal Valley Flashing according to building code, industry best practices, and design specifications. Flashing should extend 11" in each direction from the valley centerline for slopes 4:12 or greater and 14" in each direction for slopes less than 4:12 *(Figure 4.2.1)*.

Figure 4.2.1

Nailers

Rake Installation

Nailers are recommended at the rake and should be cut to size depending on application. Nominal 2" x 2" lumber is usually appropriate but, height may vary depending on roof design and layout. *(Figure 4.2.3)*
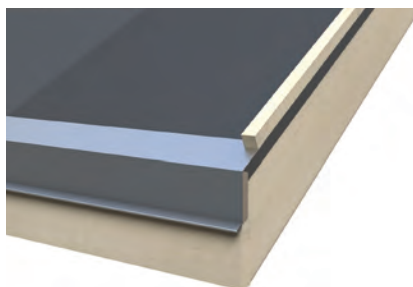
Figure 4.2.2 *Rake Nailers*
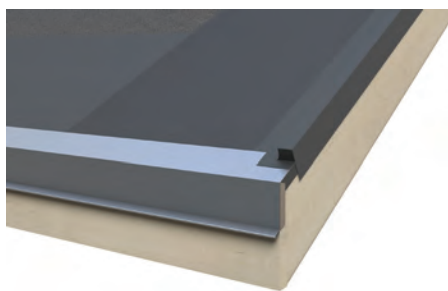
Figure 4.2.3

Closed Valleys

For Closed Valleys, use a "W" style flashing with a minimum 2 ½" center crimp.
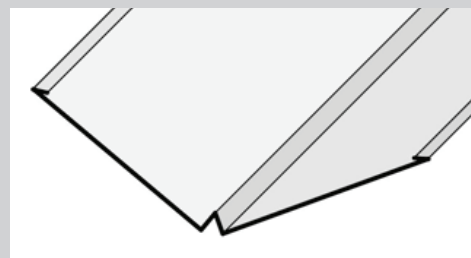
Note: Closed Valleys are the most common and recommended in most cases.

Open Valleys

For Open Valleys, use a "Double W" Style flashing with minimum 2 ½" crimps.
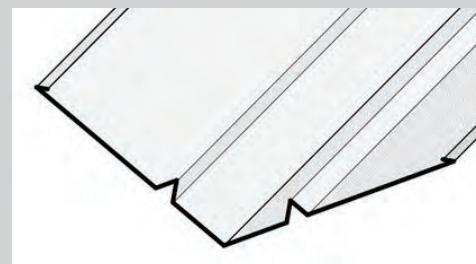
Tile Installation at Valleys

Cut Tiles before they are installed, dry fitting and marking to for an even line up the valley. Install Field Tile along the crimps leaving a minimum $^3/_{16}$" gap between the tiles and crimp(s) for expansion.

4.2 Valley and Rake Installation (continued)

Rake Installation

1 **Dry Fit and Mark Hip & Rake.** Measure the overhang and mark the distance from the top of the Hip & Rake piece.

Figure 4.3.1

2 **Cut the first Hip & Rake.** Ensure the factory edge is flush with the visible face of the first course of Field Tile.

Figure 4.3.2

Figure 4.3.3

3 **Alternative installation methods.** Start with full Hip & Rake or use optional Rake Edge.
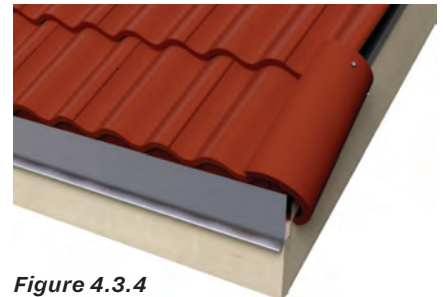
Figure 4.3.4
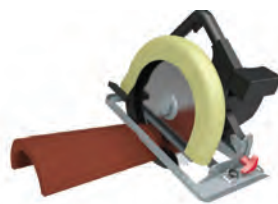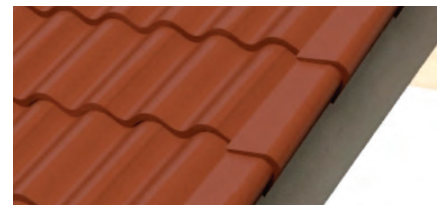
Figure 4.3.5

4 **Fasten with 2 fasteners.** Use two fasteners, one in the fascia board and one in the nailer (or roof deck) as shown in *Figure 4.3.6*. In high-wind regions, an extra fastener may be added at the lower end of the Hip & Rake, as depicted in *Figure 4.3.7*.
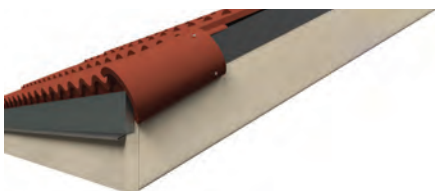
Figure 4.3.6

Figure 4.3.7

5 **Install Full Hip & Rake Pieces.** Proceed up the remaining rake using fasteners and sealant.

Figure 4.3.8

Note: If a rake nailer is not used, the top fastener must be a minimum 4 $\frac{1}{2}$" length to meet penetration requirements. Screws are recommended for all accessory installations for best installation experience.

Figure 4.3.9

6 **Ridges and Transitions.** Miter the Hip & Rake, Top Ridge, and Bullnose at ridges and transitions to complete the installation.

Figure 4.3.10
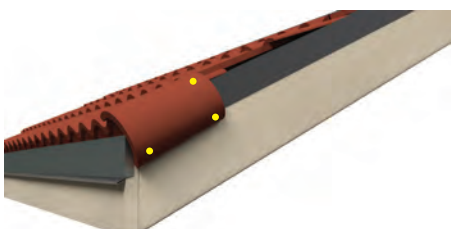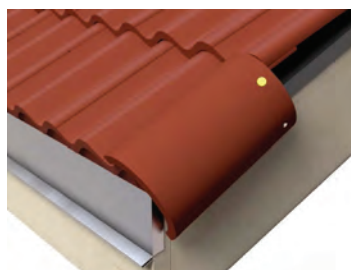
4.3 Hip and Ridge Installation

1 **Determine Nailer height** for hips and ridges from the nailer height chart. Rip wood nailers to the specified height, or select the nearest shorter manufactured metal nailer size. (*See Section 3.7 – Nailers and Battens).* Miter nailers at intersections for optimal fastener hold.
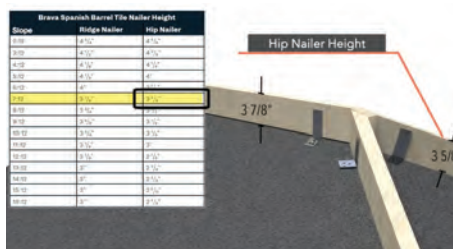
Figure 4.4.1

2 **Install Hip and Ridge Nailers** using code-approved wood or metal hip and ridge nailers, fastened at a maximum of 24" o.c., holding hip nailers back 4" from outside corners. Nailers should be installed before Field Tile installation.
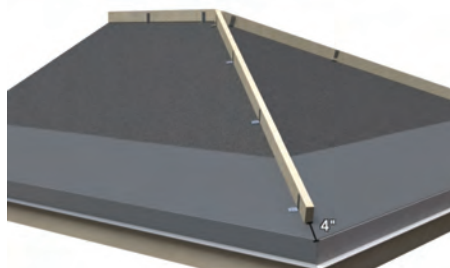
Figure 4.4.2

3 **Trim Field Tiles, leaving a $^3/_{16}$"** gap at the hip and ridge nailers for expansion and contraction.
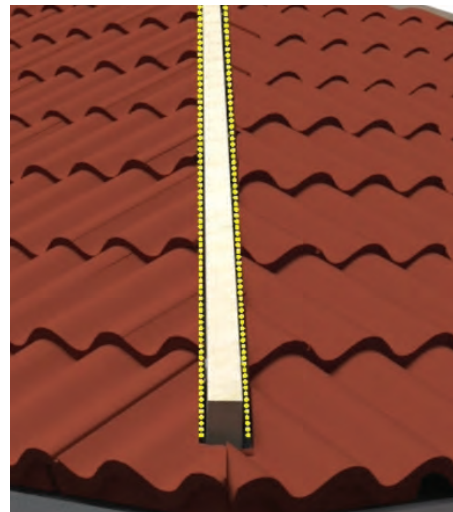
Figure 4.4.3

4 **Install a UV-resistant flashing** over the hip nailers and any unvented ridge nailers. Flashing should extend at least 3" over the tile in each direction and conform to the tiles. If venting at the ridge, a ridge vent may be installed according to the manufacturer's guidance.
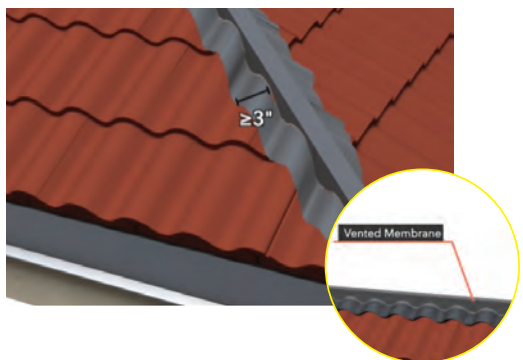
Figure 4.4.4

4a **Flashing and ridge vents may be painted** to match the tile if compatible and consistent with the manufacturer's guidance.
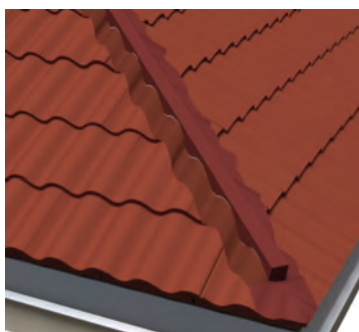
Figure 4.4.5

4b **At intersections, ensure a minimum lap of 4" of vented and unvented flashing** or comply with the flashing manufacturer's guidance, whichever is greater.
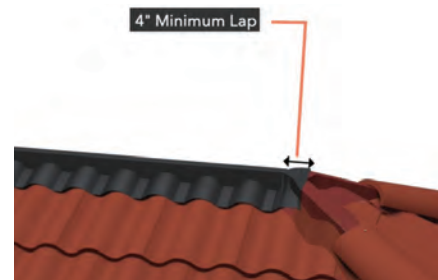
Figure 4.4.6

4.3 Hip and Ridge Installation (Continued)

5 **Begin Hips with a Bullnose** trimmed for the desired fit.
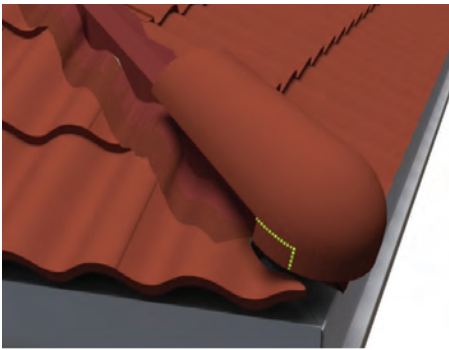
Figure 4.4.7

6 **Install the Bullnose and Hip & Rake** up the hip using corrosion-resistant fasteners at the locators. Match the exposure of the Field Tile with a maximum exposure of 13".
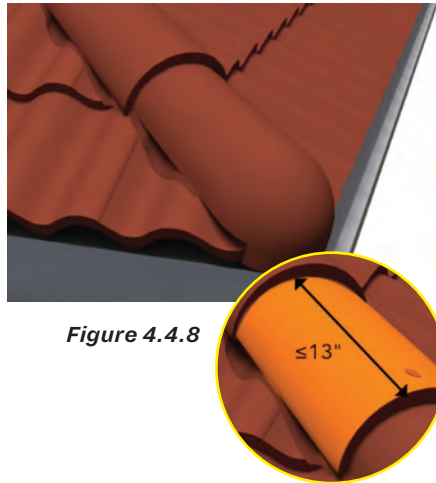

Figure 4.4.8

7 **Install Ridge Closures,** placing fasteners 1 $\frac{1}{4}$" from the top edge into the high side of the barrel. Avoid exposed fasteners.
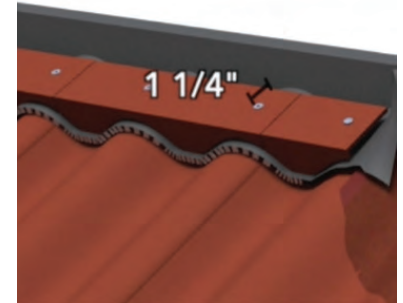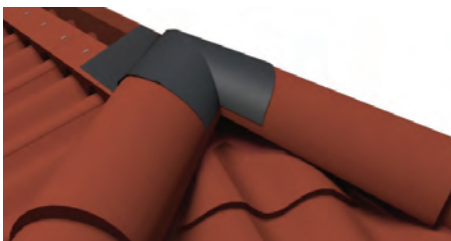

Figure 4.4.9

8 **Miter/Trim Hip & Rake** and Top Ridge at joints and intersections. Seal with flashing at the joint and paint to match if desired.
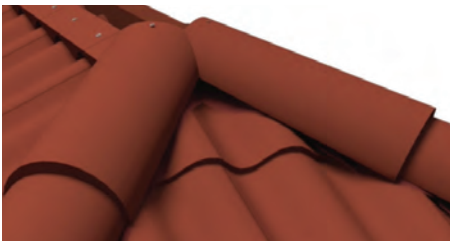
Figure 4.4.10

Figure 4.4.11

9 **Begin Ridges with a Bullnose or Top Ridge** trimmed for the desired fit and appearance.
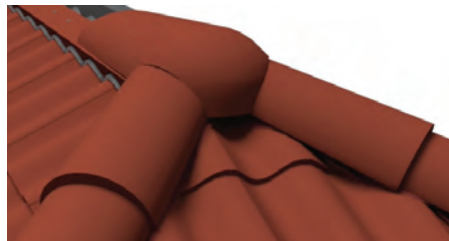
Figure 4.4.12

Figure 4.4.13

10 **Install Bullnose and Top Ridge** using corrosion-resistant fasteners at the locators. Match the exposure of the Field Tile and Hip & Rake with a maximum exposure of 13".
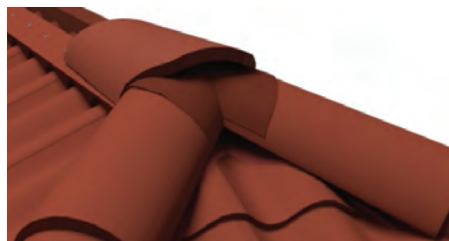

Figure 4.4.14

Note: 3" screws are recommended for best performance and installation experience. Screws or ring shank roofing nails may be used, ensuring fastener type and length meet application and code requirements. Fasteners should penetrate a minimum of $\frac{3}{4}$" into the nailer.

Avoid exposed fasteners when possible. In high wind areas or for desired appearance, an additional fastener may be used at the lower end of the Hip & Rake or Top Ridge. Use a color-matched sealant over any exposed fasteners.

4.4 Penetrations and Chimney Flashing

Flashing should be installed by a licensed professional using industry best practices and meeting all applicable codes. (*See Section 3.5 Flashing*).

Installation at Penetrations
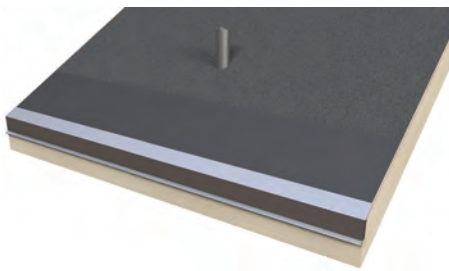
1 **Waterproof all penetrations** with Ice & Water Shield.

Figure 4.4.1

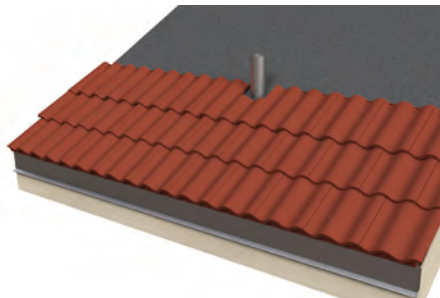**2** **Install tiles** below and up to the penetration.

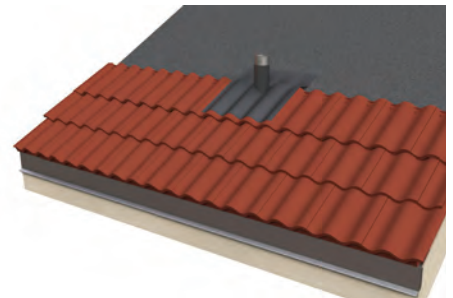*Figure 4.4.2*

3 **Install a flashing sleeve** over the penetration.

Figure 4.4.3

4 **Cut tiles to fit neatly around penetration and fasten.** Ensure no exposed fasteners.

Figure 4.4.4

Do not place fasteners within 5" of the penetration.

5 **Install next course of tiles** over the flashing sleeve.

Figure 4.4.5

6 **Continue installing** following courses.

Figure 4.4.6

4.4 Penetrations and Chimney Flashing

Refer to SMACNA and other Tile Roofing Installation flashing resources and consult a roofing professional familiar with regional code and environmental best practices for all flashing installations.

Installation at Chimneys

1 **Cut and Fit Lead/Flexible Flashing at the base of the chimney:** Measure the chimney base perimeter. Cut flashing to size, ensuring it extends at least 4" up the chimney and at least 6" onto the roof. Cut the flashing into sections to fit each side of the chimney as shown in *Figure 4.4.7*.

Install Pan Flashing and Cricket (as required): Fasten the pan flashing, starting from the bottom. If step flashing is used, overlap each piece by at least 3". Avoid attaching the flashing directly to the chimney to allow for thermal movement. as depicted in *Figure 4.4.8*.

Apply Counter Flashing according to code and industry best practices. Insert the counter flashing into a reglet cut above the base flashing and secure. Ensure the top of the counter flashing fits snugly into the reglet cut and seal.
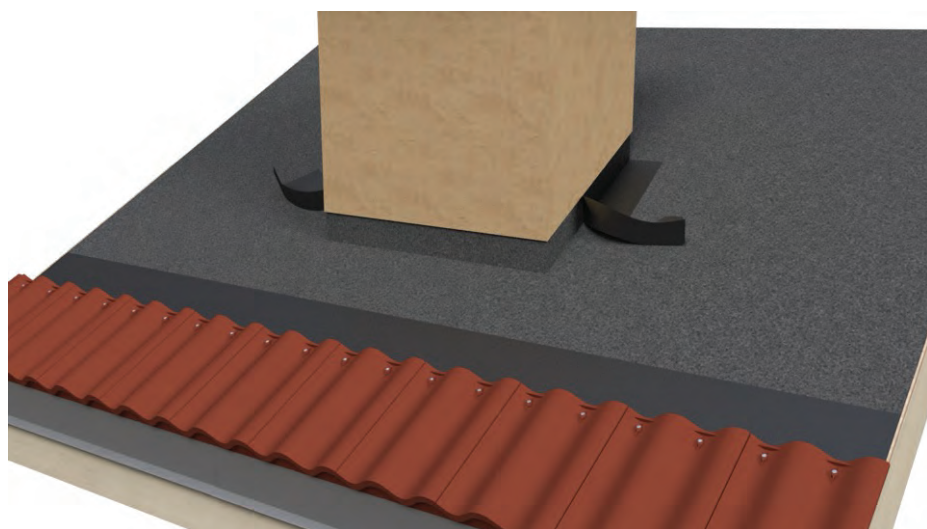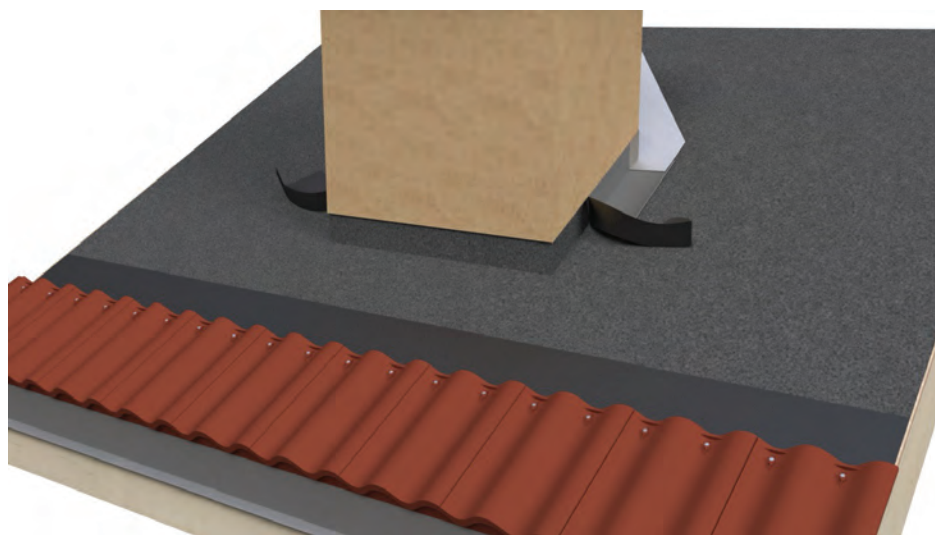

Figure 4.4.7

Figure 4.4.8

4.4 Penetrations and Chimney Flashing

Refer to SMACNA resources and consult a roofing professional familiar with regional code and environmental best practices for all flashing installations.

Installation at Chimneys

(2) **Seal the Flashing:** Use an approved roofing sealant to seal the edges of both the base and counter flashing, focusing on overlaps and corners. Verify the sealant's compatibility with your flashing materials as shown in *Figure 4.4.9.*

Install Field Tile and Ridge Closures up to the Chimney.

Figure 4.4.9

Install an Apron Flashing and conform the Lead/ Flexible Flashing to the tiles: For the sections where flashing must lap over the barrel tiles, ensure the flashing extends far enough to cover the top of tiles or closures by at least 3" as depicted in *Figure 4.4.10.*
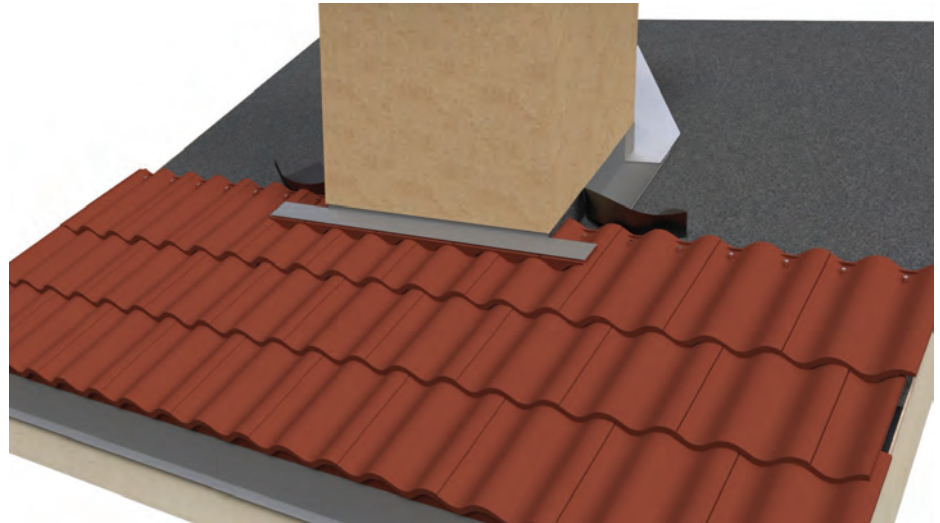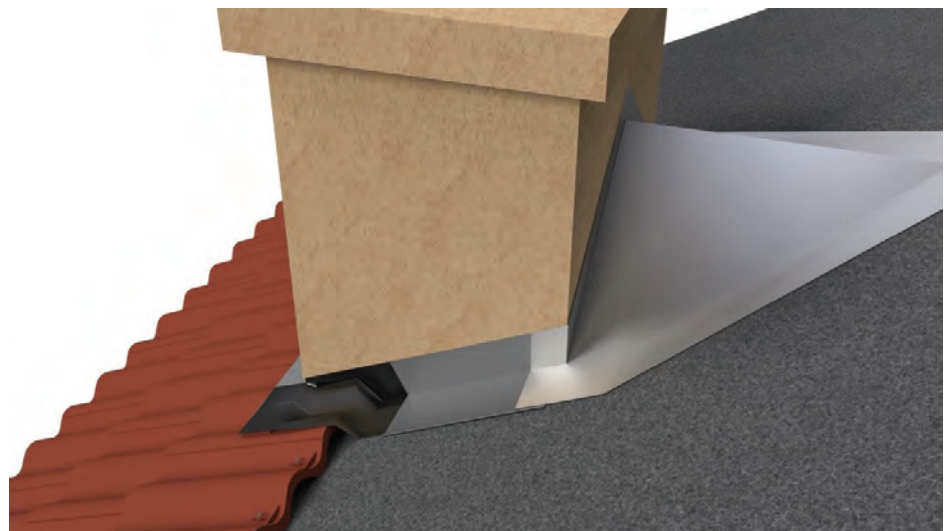

Figure 4.4.10

4.4 Penetrations and Chimney Flashing

Refer to SMACNA resources and consult a roofing professional familiar with regional code and environmental best practices for all flashing installations.

Installation at Chimneys

3 **Install Barrel Tiles Around the Chimney:** Fit the barrel tiles around the chimney, cutting them as necessary to ensure a proper fit.

Ensure Proper Overlap of Flashing and Tiles: Where the flashing laps over the tiles, ensure there is adequate overlap. This overlap should be sealed with approved sealant to secure the flashing and ensure it remains watertight.

Final Inspection and Sealing: Conduct a thorough inspection of the flashing and tile installation to ensure all parts are securely fastened and sealed. Pay special attention to any areas that may be susceptible to water penetration and apply additional sealant as needed.
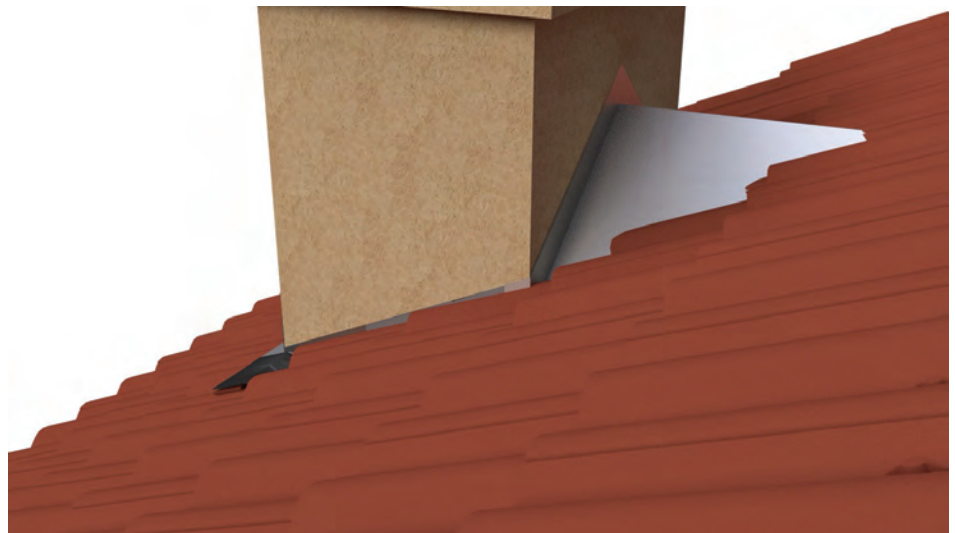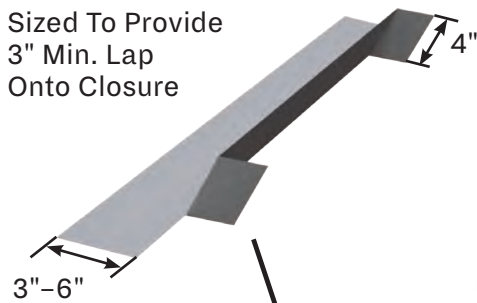

Figure 4.4.10
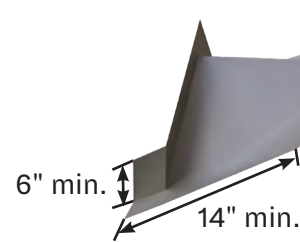
4.4 Penetrations and Chimney Flashing

Brava Barrel Tile Chimney / Penetration Flashing – Pan Type

Apron Flashing
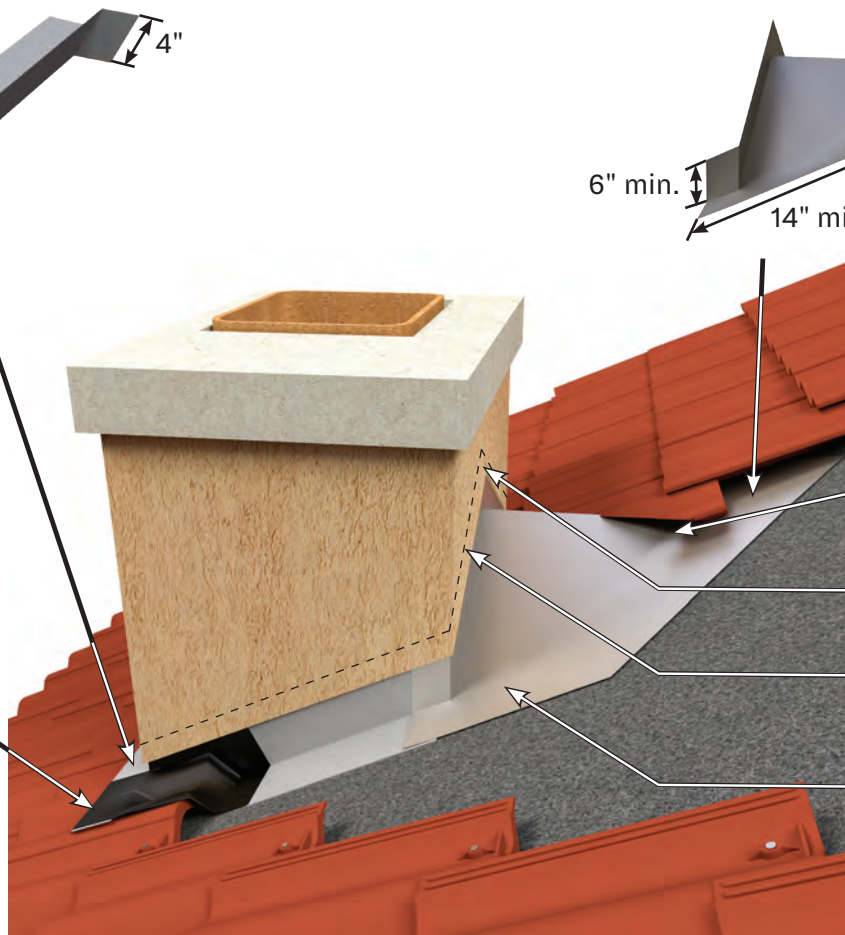
Sized To Provide
3" Min. Lap
Onto Closure

4"

3"–6"

Cricket Flashing

6" min.

14" min.

Closures
Support Apron
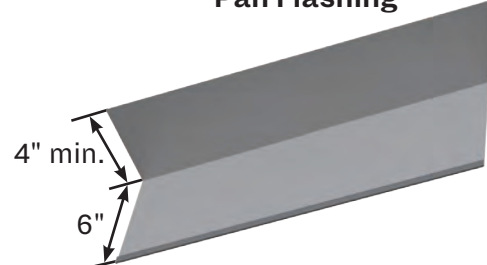Flashing

Trim
Overlaying
Tiles At Cricket

Minimum 3"
Above Apex

Counterflashing /
Reglet

Cricket Flashing
Extend Upper End
Of Flashing 6" Min
Beyond First
Course Of Tile

Flexible or Lead Transition Flashing

4" min.

6"

Pan Flashing

4" min.

6"

1. Chimney and Penetration flashing dimensions may vary according to local weather conditions, chimney size and location, slope of the roof, and other factors.

2. Dimensions shown are recommended minimums and are intended to be approximate to allow for reasonable tolerances due to field conditions and area practices. Verify code compliance and regional industry best practices

3. A backer or saddle flashing may be used for chimneys and penetrations less than 30" in width.

4. A diverter or cricket flashing is required for chimneys and penetrations greater than 30" in width.

5. Self-adhered underlayment (ASTM D1970) should be installed around penetrations and turn up the chimney/penetration wall a minimum of 4".
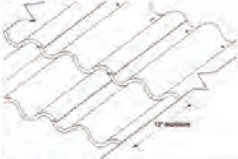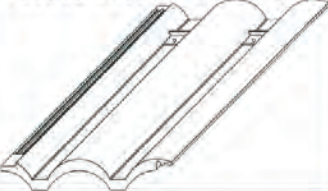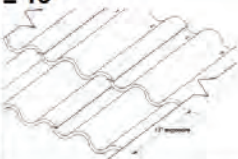
Appendices

Appendix A – High Wind Installation

Use the table below to determine installation requirements and associated wind warranty eligibility. Warranty eligibility requires meeting all published installation instructions. To register your warranty and view the full document, go to https://www.bravarooftile.com/customer-service/.

Building Code requirements may be different than warranty requirements.

Ensure compliance with applicable codes prior to installation.

CAUTION: In high wind regions such as Florida, maximum exposure may be dictated by the building department. Verify code requirements when setting exposure. Using recycled materials can cause variation in final product dimensions. Take this variation into account to ensure code exposure requirements are met. To this end, it may be necessary to set exposure lower than the code maximum in some cases. Brava recommends setting exposure to end with a full tile at the ridge *(See Appendix E – Swing Tape Method)*. This will usually set a slightly lower exposure and does not require additional material.

Barrel Tile – Wind Warranty Matrix

Brava Spanish Barrel Tile / Brava Mission Barrel Tile		Fastener Requirements*	Maximum Exposure	Warranty Eligibility
	STANDARD	(2) 0.120" x ≥ 2" Ring Shank Roofing Nails	≤ 13"	110 mph
	RECOMMENDED	(2) #8 x ≥ 2" Screws — High Wind Installation	≤ 13"	130 mph

* Fasteners must be of sufficient length to penetrate $\frac{3}{4}$" into the sheathing or completely through the sheathing. When a fastener gauge or length is specified, a longer or larger fastener may be acceptable depending on code, application, or availability. Brava requires two (2) fasteners per tile for all roofing products. Screw drive head type may vary.

Appendix B – Install Accessories

Any accessories or products used in conjunction with Brava Barrel Tile should be installed according to the manufacturer's guidelines and in compliance with the applicable code and industry/regional best practice. Brava Barrel Tile, underlayment, and flashing should remain intact and undamaged. Consult a roofing professional to ensure the completed roof system remains sound and watertight. For questions on specific applications, contact your Brava Technical Support Specialist.

Roof Vents

When installed according to manufacturer's specifications, many common roof and ridge vents are compatible with Brava Spanish Barrel Tile. Vents may be installed and used as with other barrel tile products. Ridge vents, and off ridge vents are available *(See Section 2.5 – Roof Decking)*.

CAUTION: Insufficient venting may lead to roof deck failure. Consult vent manufacturer and building code for attic venting requirements.

Snow Guards

Due to the nonporous surface of the tile, snow may slide off easily. The need for snow guards will increase in areas with above average snowfall. Follow the snow guard manufacturer's installation guidelines and use correct spacing. Check with your building official to ensure compliance with applicable codes. Installation of Snow Guards should be during tile installation in most cases.

Solar

Follow the manufacturer's guidelines for installation of any solar mounts or equipment and check with your building official to ensure compliance with applicable codes. Solar mounts should be installed during installation of Brava Barrel Tile. Retrofit installation of these systems has limitations.

CAUTION: Installing additional systems and fasteners into a roof system increases the risk of leaks. Ensure all accessories and fasteners are sealed.

Appendix C – Cleaning and Maintenance

Due to construction dust and other environmental factors, cleaning may be necessary to maintain color and aesthetic.

Masonry Dust: Cutting of concrete, stone, masonry, brick, and other jobsite materials may leave a layer of fine dust on building materials stored on site or installed. This dust can affect the appearance of Brava Roof Tile. Keep stored materials covered and remove any dust appropriately after the work is completed.

Evaporation Residue: In high altitude and very dry conditions, the Residue of Evaporation (ROE) from rain can accumulate and cleaning may be desired to restore original color.

Cleaning: Consult with a professional and take appropriate safety precautions when working on or around a roof. Brava recommends the use of soapy water with a mild detergent and a cloth, brush, or push broom with soft or medium bristles. Simple Green, diluted to manufacturer's specifications, has been tested and approved by Brava Technical Support. If necessary, a power washer may be used at a low pressure setting, angling the spray down the slope of the roof, while ensuring that the nozzle is not too close to the roof.

What to avoid:
• High pressure washers or close contact with spray nozzles
• Acid based cleaners
• Cleaners not recommended for plastics
• Strong abrasives

Maintenance and Foot Traffic: Avoid walking on the roof whenever possible. Excessive or careless roof traffic may cause damage. When maintenance or other needs require accessing the roof, use caution as it can be slick when wet or dry.

CAUTION: Do not use high pressure washers, snow blowers, heaters, or other power equipment on the roof.

If you have a specific maintenance question, contact Brava at (844) 290-4196.
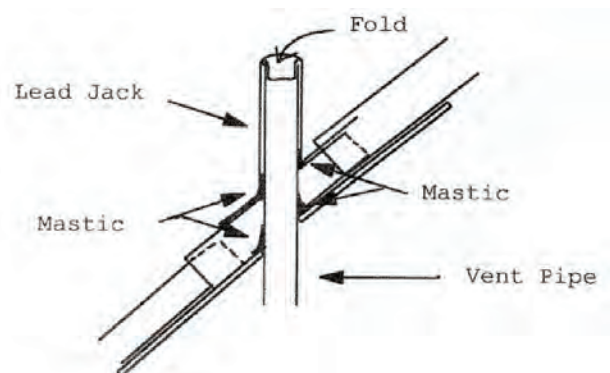
Appendix D — Drawings & Details

Alternate Ridge Closure Installation

If desired, flashing or ridge vent may be adhered to the installed Ridge Closure instead of to the tile before the Ridge Closure is installed.
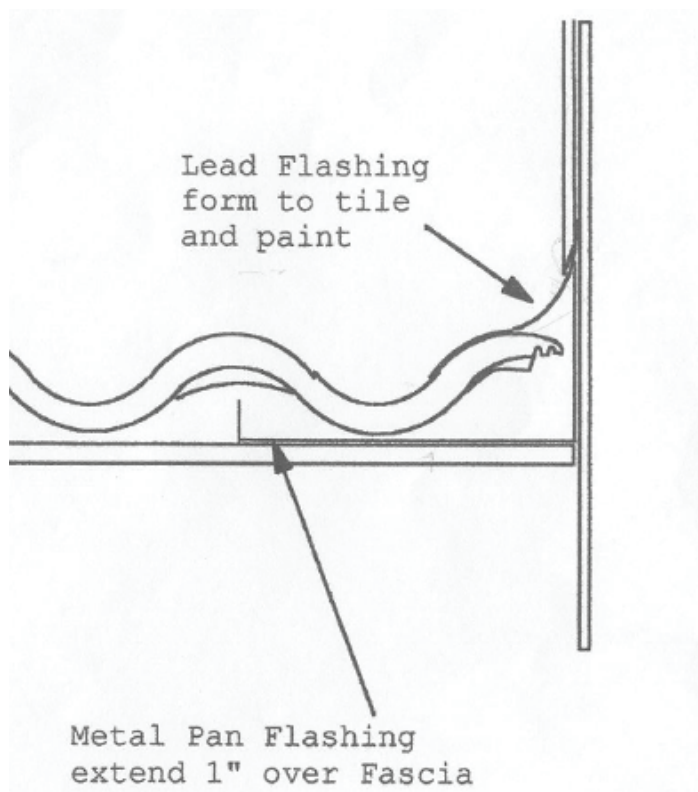
Flashing may be painted to match if consistent with the manufacturer's guidance.
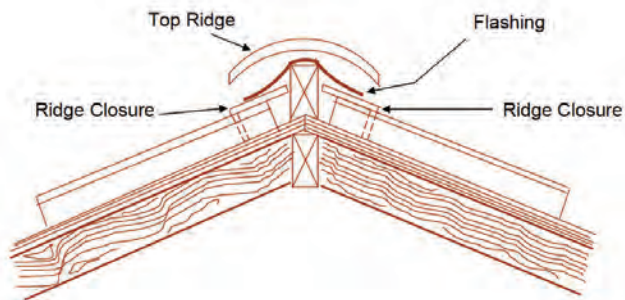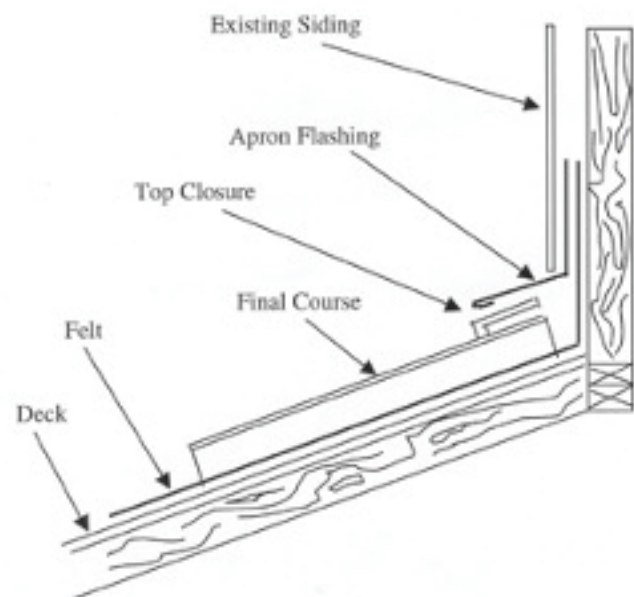

Vent Pipe Cross Section

Sidewall Cross Section

Head Wall Cross Section

Appendix E – Swing Tape Method

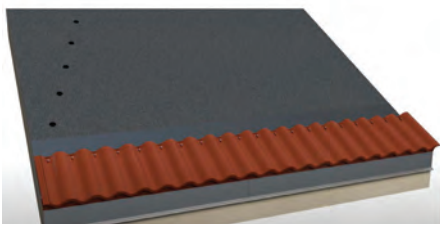**1** **Install Eave Starters and first course of Field Tile to set bottom line.**

Figure E.1

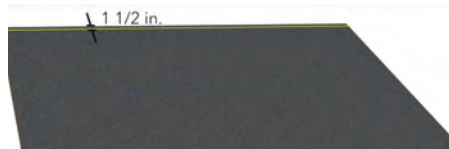**2** **Snap a line 1 ½-inches from the ridge.**

Figure E.2 Snap a line 1 ½- inches from the ridge as illustrated.

3 **Mark maximum acceptable exposure on tape measure.** Maximum exposure is 13" for Brava Spanish Barrel Tile but may be further restricted by application and code requirements. For this example, mark the tape at every 13" interval. 13", 26", 39", etc.

Figure E.3 See Section 2.3 for more information on exposure.

4 **Using a layout tape or a marked tape measure, measure straight to the ridgeline.** Swing the tape to the left or right until a mark aligns with the top row chalk line.

If using layout tape, fasten the tape. If using a marked tape measure, mark the underlayment at each mark on the tape measure.
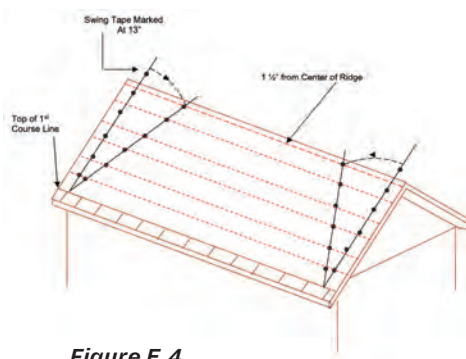

Figure E.4

5 **Repeat this process at the other end of the roof.**

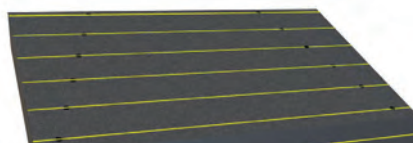*Figure E.5 Repeat process and mark the other end of the roof.*

Figure E.6

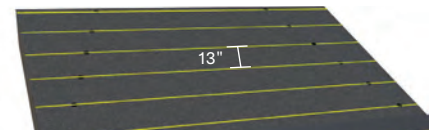**6** **Snap lines between the arrows or marks on the underlayment.**

Figure E.7 Allowable (13") vs Set (12.85") exposure example.

NOTE: *The measurements used in this section are used as an example. Desired exposure should be set based on product specifications, aesthetic preference, design requirements, and applicable code.*

Alternative Measuring Method

An alternative method is to measure the distance of the slope, divide by the maximum desired/required exposure, and determine the number of courses. This number then can be divided out of the total inches of the roof slope to determine the exposure setting to complete with a full tile.

Begin by completing steps 1 and 2 of the swing tape method. Measure from the starter course line to the ridge line in inches to determine Slope Distance. Divide the Slope Distance by the Maximum Exposure and round up to the nearest whole number to determine the number of Courses needed. Then divide the Slope Distance by the number of Courses needed. This will give you the Set Exposure at which to chalk lines. Use the chart below if the decimal inches are not simple fractions.

Decimal Inches	Fractional Inches
.125-inches	$1/8$-inches
.25-inches	$1/4$-inches
.375-inches	$3/8$-inches
.5-inches	$1/2$-inches
.625-inches	$5/8$-inches
.75-inches	$3/4$-inches
.875-inches	$7/8$-inches

Appendix F – Fire Rating

All Brava Spanish Barrel Tile has been tested meet an ASTM Class C fire rating.

If a Class A rating is not required, standard underlayment may be used. (See *Section 2.6 Underlayment).*

Some Brava Spanish Barrel Tile has been manufactured to achieve an ASTM E108 Class A fire rating when installed over VersaShield Fire Resistant underlayment. This will be indicated by the symbol as shown in Figure F.1.

All underlayment, including fire or radiant barriers, should be installed in accordance with the product manufacturer's instructions. Check with your building official for fire rating requirements and compliance with applicable codes.

Figure F.1 Symbol shows Class A material

Notes

Notes

BRAVA

Barrel Tile Installation Guide

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