



Old World Slate Installation Guide

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Table of Contents

1. Introduction	3
1.1 Materials	4
1.2 Safety	7
2. Roof Preparation	7
2.1 Building Codes and Best Practices	7
2.2 Slope	7
2.3 Exposure	7
2.4 Keyway, Lap, and Overhang	8
2.5 Roof Deck	10
2.6 Underlayment	11
2.7 Fasteners	12
3. Getting Started	13
3.1 Measuring and Marking the Roof	13
3.2 Roof Loading	13
3.3 Color Blending	14
3.4 Material Inspection	14
3.5 Flashing	14
3.6 Valley Metal	14

4. Brava Old World Slate Installation Instructions	16
4.1 Starter and Field Slate Installation	17
4.2 Valley and Rake Installation	18
4.3 Hip and Ridge Installation	19
4.4 Penetrations and Chimney Flashing	20
Appendices	22
Appendix A – High Wind Installation	22
Appendix B – Install Accessories	23
– Roof Vents	23
– Snow Guards	23
– Solar	23
Appendix C – Cleaning and Maintenance	23
Appendix D – Staggered Exposure	24
Appendix E – Swing Tape Method	25
Appendix F – Fire Rating	26

Brava Technical Support, Training, and Resources

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

Brava Technical Support offers In-Plant and Remote Installation Training in English and Spanish. Remote training is accessible regardless of location. Training prior to beginning installation can prevent costly delays. Please schedule training early to ensure availability. To schedule training, or if you have any questions regarding Brava Roof Tile products and manufactured accessories, call 844-290-4196 and ask for Technical Support. You can also contact us through our website at bravarooftile.com.

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 y las instrucciones presentadas en esta guía de instalación se basan en el mejor entendimiento de Brava, se consideran confiables y precisas. Sin embargo, están sujetas a actualizaciones y mejoras a medida que Brava y nuestros instaladores asociados adquieren conocimientos y experiencia continuamente. Brava se esfuerza por ofrecer un soporte integral y materiales instructivos para nuestra comunidad hispanohablante, pero tenga en cuenta que, como empresa principalmente de habla inglesa, todo nuestro entrenamiento, marketing y materiales instructivos se originan en inglés y luego se traducen al español. En caso de cualquier discrepancia entre los materiales en inglés y en español, le recomendamos que se comunique con Brava para aclaraciones y siempre consulte la versión en inglés como fuente principal.





1. Introduction

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

Brava Old World Slate has all of the true to life natural beauty and rustic textures of quarried slate, combined with the incredible benefits of a composite roofing material. When it comes to quality and craftsmanship, no one does it better. Brava Old World Slate can be installed in straight courses or in a staggered application to give it a more rugged appearance. With a 1" profile, Brava's Old World Slate polymer tile has the volume of traditional slate roof tiles with a fraction of the weight. This allows for less expensive shipping costs and ease of installation. Our Old World Slate shingles have the thickest synthetic slate roof profile available. The 1" thick profile of this product creates beautiful color exposure and an unsurpassed durability.

Using recycled materials can cause variation in

final product dimensions. These variations fall within a ½-inch manufacturing specification for all dimensions and allow for consistent installation and performance.

It is worth noting that the fit, appearance, and color of traditional quarried slate often produces visible variation. This is apparent at closer viewing angles and can be more pronounced due to slate dimensions, neither of which undermines the performance or aesthetic of the completed roof.

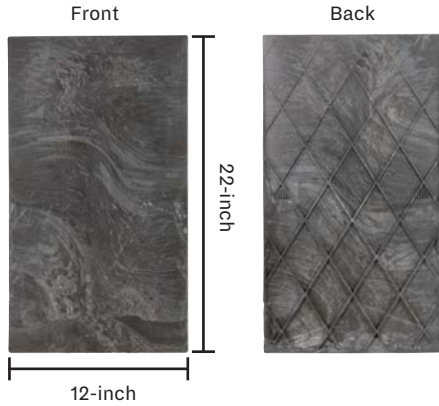
Field Slates are the primary component of the Brava Old World Slate roof system. These slates are manufactured using real slate as examples, defining texture and width. Additionally, Brava offers Starters for installation at eaves, Hip and Ridge Caps, and a Solid Slate accessory for best appearance at 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

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

Standard Field Slates (Structural Ribbing Back)



Accessory Solid Slate (12" No Structural Ribbing)



Field Slates are the primary component of the Brava Old World Slate roof system and are used on all roof sections. They use a variety of molds based on real cedar quarried slate.

This 12-inch slate is solid throughout instead of using structural ribbing on the back. This allows for a clean, solid edge when cut at rakes, valleys, and other details. Additionally, when the bottom of the Solid Slate is visible, as at rakes, no structural ribbing is exposed.

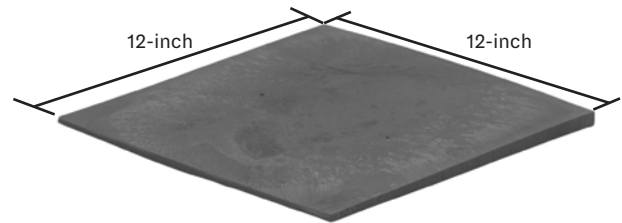
Install at valleys and rakes for the most natural aesthetic.

Low, Standard, and Steep Hip/Ridge



14" (Length) x 5 ½" (Width) x 6" (Height)

Starter



12" x 12"

This slate accessory is used on hips and ridges and can be ordered in three slope angles – Low, Standard, and Steep. Installed exposure should match Field Slate exposure with a maximum of 10 inches.

The starter is used along the eave line to provide proper installation of the first course of slates. Recommended for slope and product transitions.

Install at hip and ridge.

Install at eaves.

Low (160°), Standard (120°), Steep (90°)

Brava Old World Slate Specifications



Dimensions

Length	22"
Width	12"
Thickness	1"
Maximum Exposure	10"
Minimum Keyway	3/16"
Minimum Sidelap	1-1/2"

Weight

Lb./Piece	2.7 (12")
Lb./Square	310
Lb./Pallet	1836

Packaging

Pieces/Bundle	10
Pieces/Square	115
Pieces/Pallet	660
Bundles/Square	11.5
Squares/Pallet	5.74

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

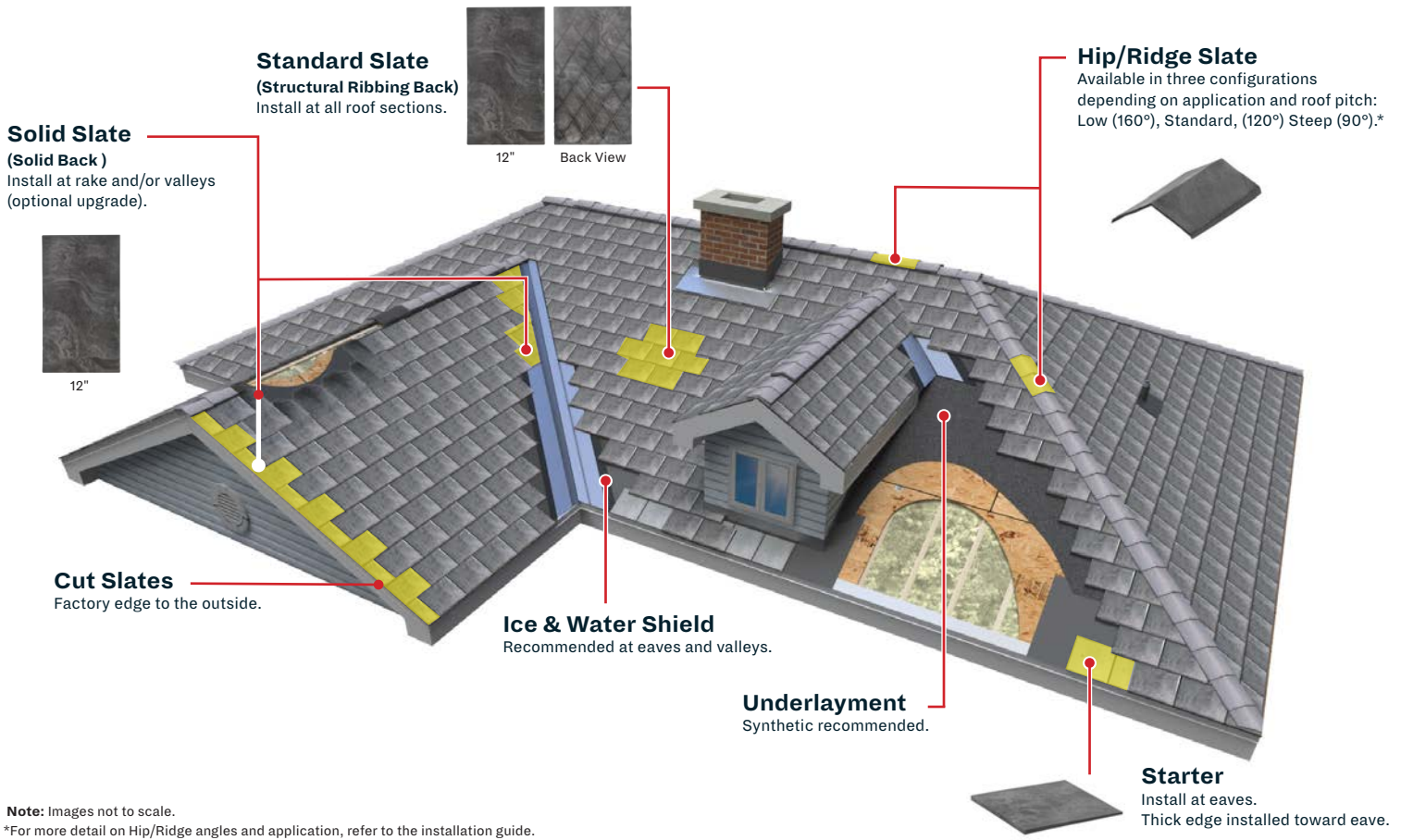
Weatherometer	ASTM G155
Fire Resistance	ASTM E108 Class C
Impact Resistance	UL 2218 Class 4
Wind-Driven Rain	TAS 100
Wind Uplift	TAS 125
Temperature-Cycling	ICC-ES AC07
Penetration	ICC-ES AC07

Code Compliance

Miami-Dade Approved	NOA 21-1213
Florida Building Code Approval (FBC)	FL 41880
TDI Approval	RC-12
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 any product and testing updates.

Brava Old World Slate Roofing System



Hip & Ridge

Follow the chart below to determine correct hip and ridge cap for the slope of your project installation.



Low (160°) - Steep (90°)



<p>1 Ridge Cap Low: 4:12 or lower Standard: 5:12 – 10:12 Steep: 11:12 or higher</p>	<p>2 Hip Cap Low: 5:12 or lower Standard: 6:12 – 14:12 Steep: 15:12 or higher</p>
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Note: Recommendations are for symmetrical Hip/Ridge only. For example, a 5:12 slope meeting a 5:12 slope. Calculate angle for asymmetric Hip/Ridge, or contact Brava Technical Support. For example, a 5:12 slope meeting an 11:12 slope.

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: Slates can be slick 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 Old World Slate check local building codes for roofing requirements. Additionally, Brava recommends that any installer follow regional and industry best practices. This includes but is not limited to city, county, state, and country code. Additionally, weather phenomenon, common practice, and aesthetic, architectural, and design requirements should be considered.

2.2 Slope

Brava Old World Slate has a recommended minimum slope of 4:12. There is no recommended maximum slope, however, Brava Old World Slate 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 or lower, a self-adhered waterproof membrane (commonly referred to as Ice & Water Shield) 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 50-Year Limited Warranty.

- Recommended Minimum Roof Slope – 4:12
- Warranty Minimum Roof Slope – 3:12 (with Ice & Water - see Section 2.6)

2.3 Exposure

Standard Exposure

Brava Old World Slate can be installed at different exposures depending on application and code requirements. Ensure no fasteners are exposed between slates or on any visible surface. The maximum installed exposure is 10-inches and Brava suggests a minimum exposure of 4-inches. See Appendix D for Staggered Exposure Installation.

- Maximum Exposure: 10-inches
- Minimum Exposure: 4-inches

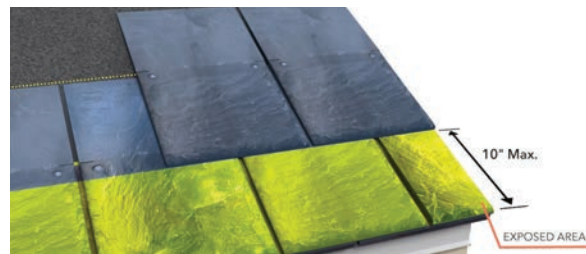


Figure 2.3.1 Exposure 10-inches max

Exposure Guidelines

All Field Slates and Solid Slates are manufactured with preformed exposure guidelines to set the maximum exposure. These horizontal lines indicate where to place the slate relative to the top of the previous course or slates. If setting less than 10-inch exposure, do not use guidelines to set exposure.

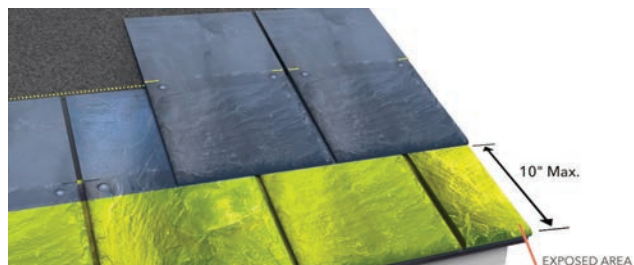


Figure 2.3.2 Exposure Guidelines flush with top of slate

Exposure for High Wind

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

See Appendix A – High Wind Installation

2.4 Keyway, Lap, and Overhang

Keyway Spacing

Brava requires a minimum of $\frac{3}{16}$ -inch spacing between all Field Slates, Solid Slates, and Starters. This is required due to normal thermal expansion and contraction during daily and seasonal temperature cycles. Installation without this minimum may negatively effect appearance and will void warranty coverage. Using a recommended $\frac{3}{8}$ -inch keyway spacing will ensure compliance with this standard.

- Warranty Minimum Keyway: $\frac{3}{16}$ -inches
- Recommended Keyway: $\frac{3}{8}$ -inches

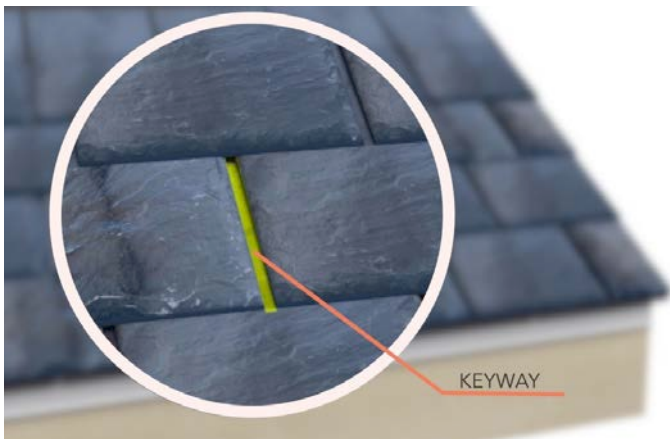


Figure 2.4.1

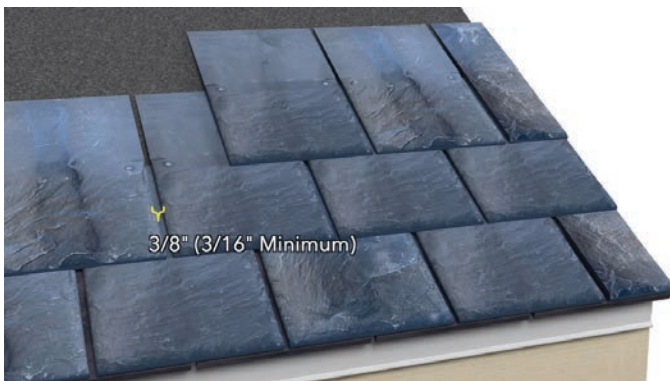


Figure 2.4.2

Sidelap

When installing Brava Old World Slate, ensure a sidelap of at least $1\frac{1}{2}$ -inches for all Field Slates, Solid Slates, and Starters. This allows water to shed as designed and covers fasteners on the previous course of slates. Use an offset layout to ensure sidelap and no exposed fasteners in the keyway.

- Minimum Sidelap - $1\frac{1}{2}$ -inches

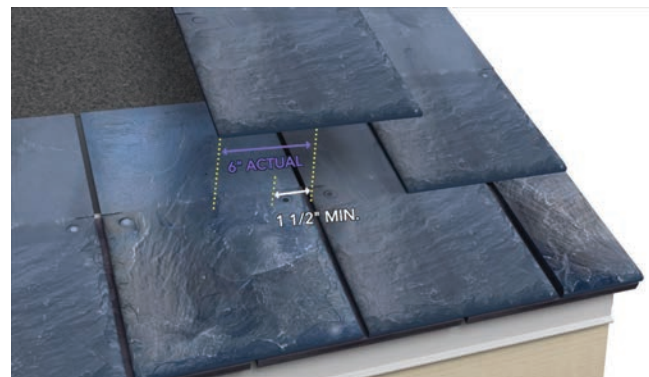


Figure 2.4.3

Brava Old World Slate is designed to be installed with an offset layout pattern. Standard layout is a 6-inch offset putting each consecutive course at the midpoint of the previous course of slate. Start each course with a full slate or half slate at the rake and use the preformed center marks to maintain proper spacing.

- Standard Offset - 6 inches

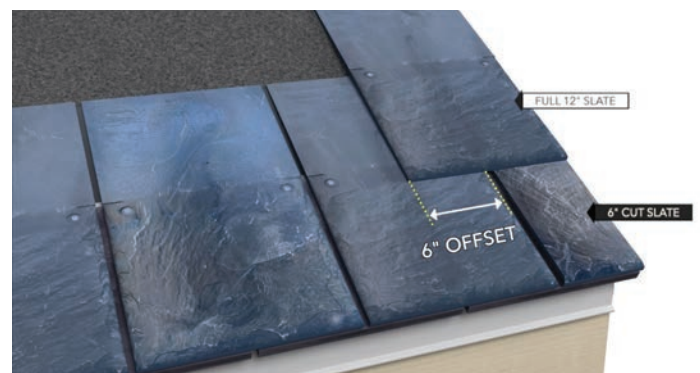


Figure 2.4.4 Standard Layout with 6-inch Offset

Lap

Field Slates and Solid Slates are 22-inches long with the fastener locator at 11-inches from top and bottom. A maximum installed exposure of 10-inches ensures all fasteners are covered.

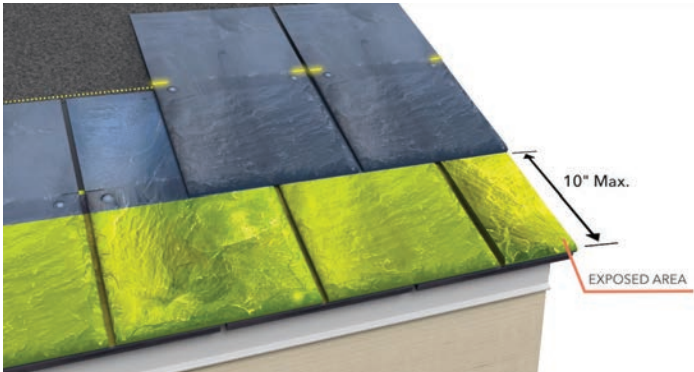


Figure 2.4.5

Each slate also has preformed guidelines to set the maximum exposure.

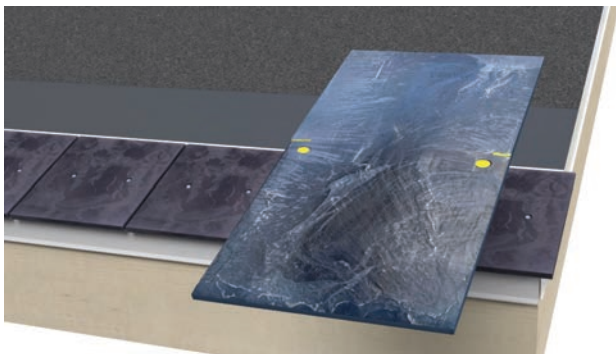


Figure 2.4.6

Ensure exposure is ≤ 10 -inches and use fastener locators to maintain ≥ 12 -inch lap from course to course. This will create a ≥ 2 -inch lap of each 3rd course.

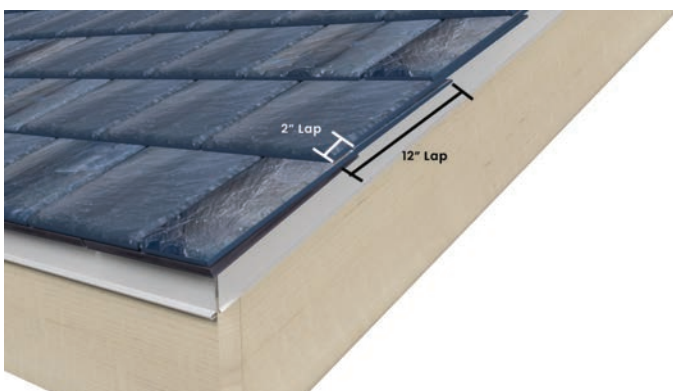


Figure 2.4.7

Overhang

Starters and Field Slate should be installed with a 1/2-inch eave overhang and a 1-inch rake overhang. Slates at the eave should be installed flush with the Starters. This overhang is specified from the edge of the fascia board and is not extended from the edge metal.

• Eave Overhang: 1/2-inches

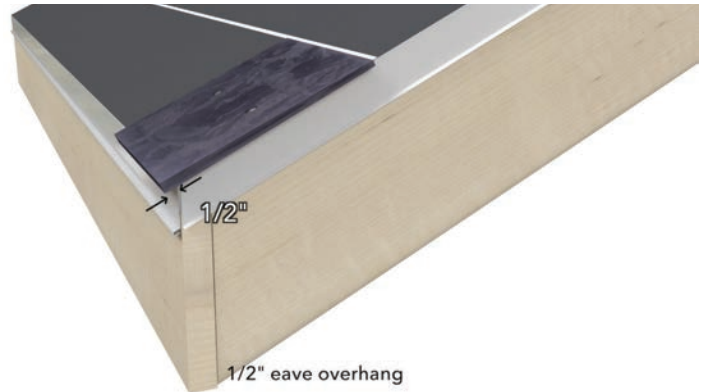


Figure 2.4.8

• Rake Overhang: 1-inch



Figure 2.4.9

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 slates be installed on a smooth, flat, clean surface (OSB or plywood)

with a minimum of $1\frac{5}{32}$ -inch CDX plywood or minimum $\frac{7}{16}$ -inch Oriented Strand Board (OSB). Plywood will provide a higher fastener head pull-through resistance and is preferable for high wind environments. Installation of Brava Old World Slate 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. Ensure roof venting meets industry standards and code requirements.

- Minimum Plywood Deck – $1\frac{5}{32}$ -inch CDX
- Minimum Deck OSB – $\frac{7}{16}$ -inch

Old World Slate Roofing System Overview

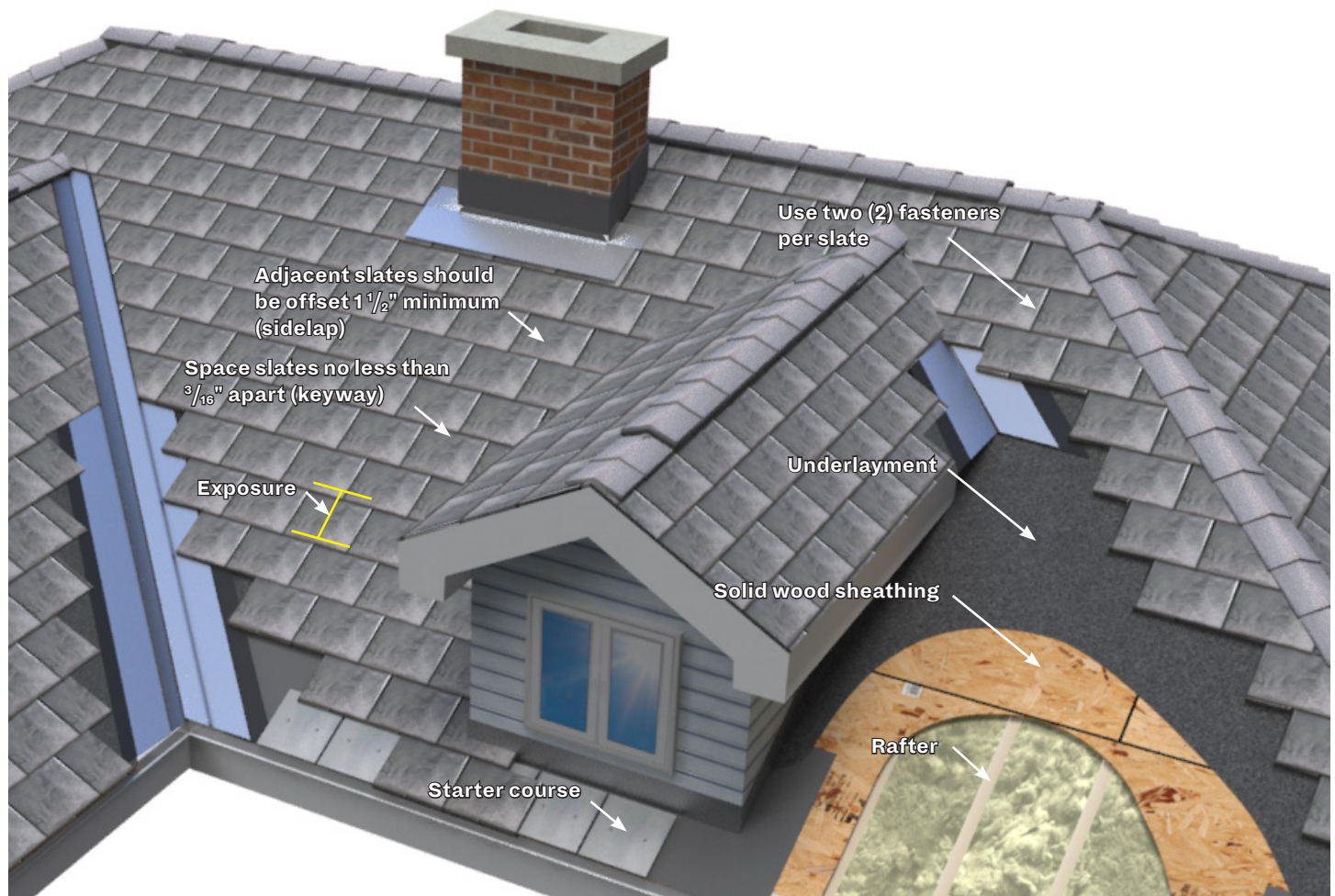


Figure 2.5.1

Spaced Sheathing Deck

Brava Old World Slate may be installed on spaced sheathing with the following considerations.

- 1x6 inch boards spaced on centers equal to the desired slate exposure. For example, if the desired exposure is 10-inches, the 1x6 inch boards would be installed at 10-inches on center.
- Spaced boards must be placed to leave no more than a 3 ½-inch gap between boards. For example, if 1x4 inch boards are used, additional boards should be installed between each set to meet this requirement.
- A solid deck is recommended in areas where high wind and wind-driven rain/snow are common.
- Roofing felt system interlay between the slate courses is required when installed on spaced sheathing.

2.6 Underlayment

Standard Application

Install underlayment products according to the manufacturer's specifications and as required by applicable building code. Brava recommends using a synthetic underlayment and suggests finding an underlayment that matches the durability and 50-year limited warranty of Brava Old World Slate. At a minimum, underlayment of not less than

30 lb. felt (ASTM D 226 Type II) should be used. Brava Old World Slate is designed to form a watershed roof assembly. When installed correctly, underlayment, flashing, and roof metal are designed to seal the roof from water incursion. Check with your local building official to ensure underlayment compliance with applicable codes.

At eaves, Brava recommends that Ice & Water Shield extend no less than 36-inches inside the plate line. Additionally, a 36-inch or greater strip of Ice & Water Shield is recommended in valleys and at rakes.

All Brava Old World Slate is tested as Class A when installed over SOLARHIDE-SRW, or equivalent fire barrier.*

- **Minimum Underlayment – 30# ASTM D226 Type II Felt**
- **Recommended Underlayment – Synthetic Underlayment and Ice & Water Shield**
- **Underlayment for Class A Fire Rating – ECO CHIEF SOLARHIDE-SRW or equivalent***

Low Slope Applications

When Brava Old World Slate is installed on a 3:12 slope or lower, a self-adhered waterproof membrane (Ice & Water Shield) should be used on the entire slope.

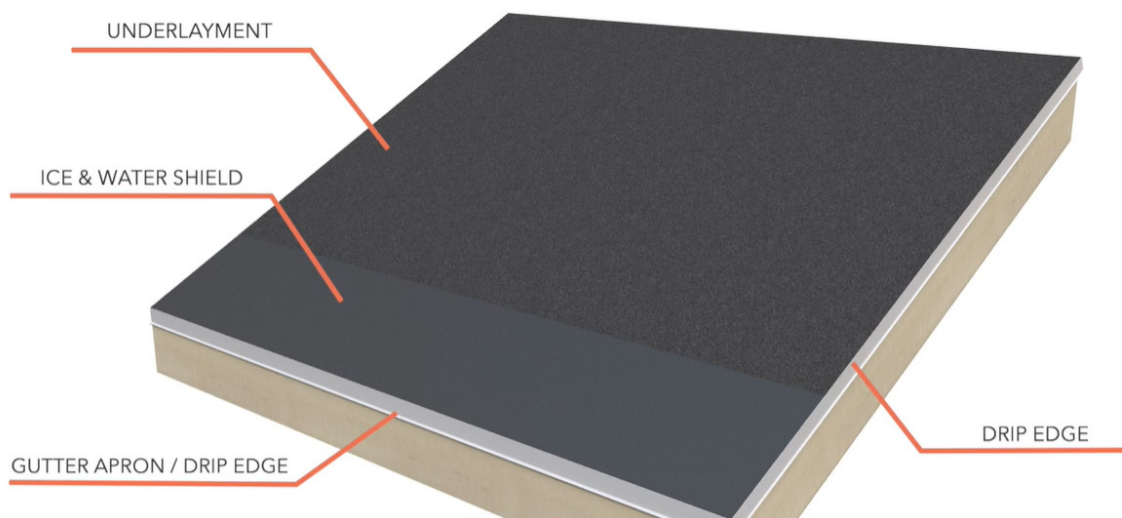


Figure 2.6.1

*See Appendix F – Fire Rating.

2.7 Fasteners

Standard Fasteners

All slates should be installed with two corrosion resistant fasteners of sufficient length to penetrate no less than $\frac{3}{4}$ -inches into the deck or completely through the roof deck. Ring shank roofing nails or screws may be used depending on application and code requirements. 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.

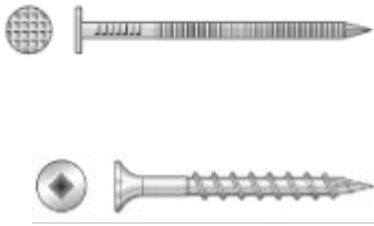


Figure 2.7.1 Ring Shank Roofing Nails or Screws

CAUTION: Fasteners should not be exposed in the keyway gap between slates, beneath the exposure line, or anywhere that is not covered and sealed.

$1\frac{3}{4}$ -inch Collated Ring Shank Roofing Nails may be used while ensuring building code and penetration requirements are met.



Figure 2.7.2

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

Fastener Locators

Each Starter, Slate, and accessory has preformed fastener locators. Fastener locators aid installation by marking the fastener pad (see Figure 2.7.3) and indicate the lowest level that fasteners should be installed.

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

Fasteners may be moved slightly up and out from the fastener locator to allow correct sidelap, keyway, and fastener coverage. When possible, Brava recommends placing fasteners so they will penetrate through the fastener pad seen on the back of the slate.



Figure 2.7.3 Fastener pads (back)

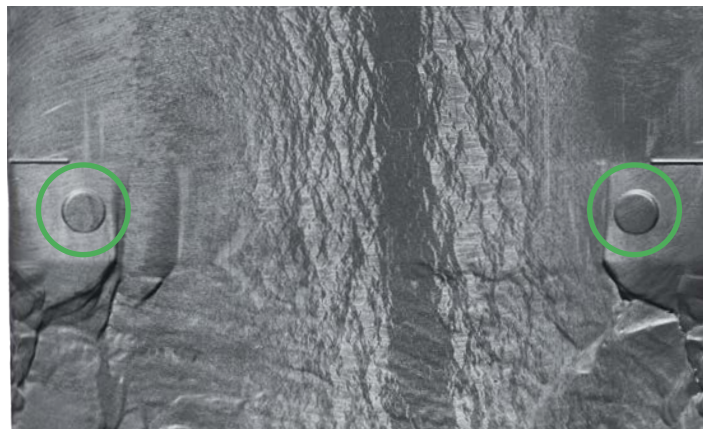


Figure 2.7.4 Fastener locators (front)

CAUTION: Install fasteners no lower than the fastener locators and ensure no exposed fasteners.

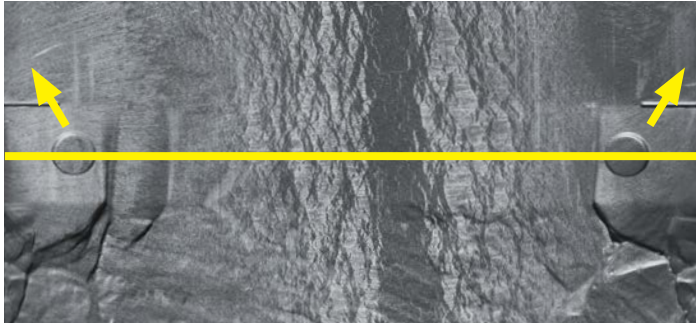


Figure 2.7.5 Fastener Locator Line

CAUTION: Fasteners should not be exposed in the keyway between slates, or anywhere that is not covered and sealed.

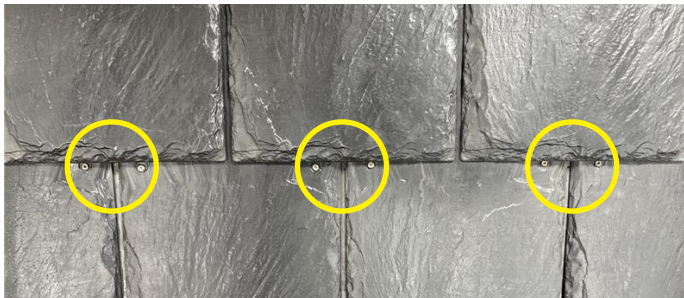


Figure 2.7.6 Exposed Fasteners

Fasteners for Hip/Ridge Cap

Hip/Ridge Cap will need longer fasteners due to the multiple layers of material and flashing/vent under the cap. In most cases, Brava recommends 3-inch screws or 3-inch hand-drive Ring Shank Roofing Nails may also be used.

Hip/Ridge Fastener: Two (2) 3-inch Screws or Two (2) 3-inch Ring Shank Roofing Nails

Fasteners for High Wind

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

**High Wind Fasteners:
Two (2) #8 x ≥ 2-inch Screws**

Adhesives

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

3. Getting Started

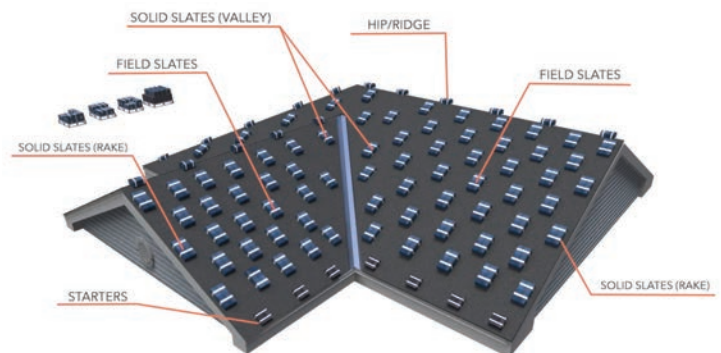
3.1 Measuring and Marking the Roof

Before installing Brava Old World Slate Starters, chalk a line to set a 1/2-inch overhang at the eave. This line will be about 11 1/2-inches from the eave. From that mark, each course may be chalked using the desired exposure as the distance between each line. For example, if using the maximum exposure of 10-inches, snap lines 10-inches apart beginning at the starter line. When setting exposure, check with your building official to ensure compliance with applicable codes. See Appendix E – Swing Tape Method.

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

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 slates and accessories on the roof – Starters at the eave, Field Slates on the roof slopes, Solid Slates at the rakes and valleys, and Hip/Ridge Cap at the hips and ridges.*



***NOTE:** Accessory Solid Slates are recommended for use at valleys, rakes, and in other special cases such as turrets. If selected, ensure that these do not get mixed with regular Field Slates.

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. For best results, slates from different bundles may be intermixed.

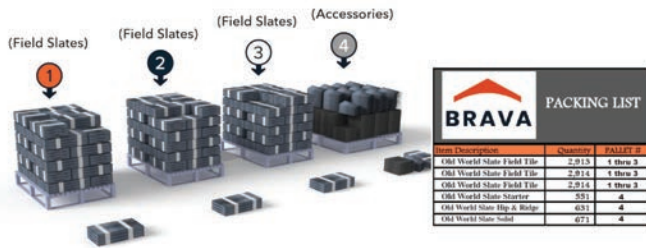


Figure 3.3.1 Blend bundles from different pallets



Figure 3.3.2 Color blend from different pallets

3.4 Material Inspection

Brava Old World Slate and accessories should be inspected before and during installation for conformity and fit. If there are any slates 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.

CAUTION: Do not install nonconforming slates. Once a roof section is installed, replacing an individual slate is not recommended.

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 50-year limited warranty. Please ask a roofing professional 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 Old World Slate 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.



Figure 3.6.1 Valley metal

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

Open Valleys

For Open Valleys, a minimum 4-inch opening at the top of the valley is recommended using Solid Slates with a “W” style flashing and 1-inch center crimp. Do not place fasteners within 5-inches of the center line.

With an “Open Valley” design, special consideration should be given to using the optional Solid Slate accessory at the valley. When cut, Field Slate’s structural ribbing may be visible. Solid Slates are designed with a solid back and allow for clean lines and best appearance at cut edges. Alternatively, if Solid Slates are not used with 1 1/2-inch crimps, a “Double W” flashing may be used to cover exposed structural ribbing on cut Field Slates.

**Open Valley ≥ 4-inch Opening
W-Style Center Crimp - 1-inch
Double W-Style Crimp - 1 1/2-inch**

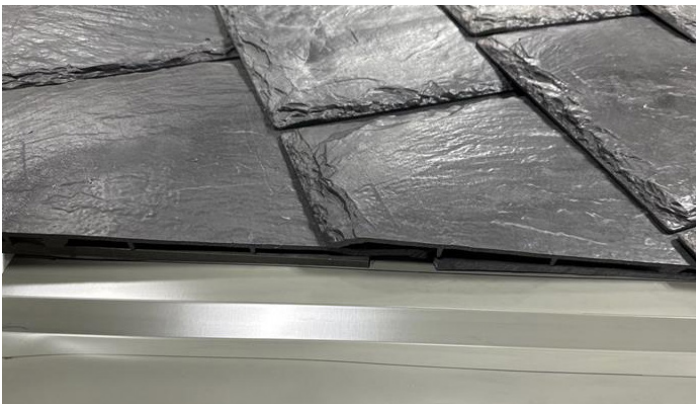


Figure 3.6.2 Open valley without accessory Solid Slates



Figure 3.6.3 Open valley with accessory Solid Slates

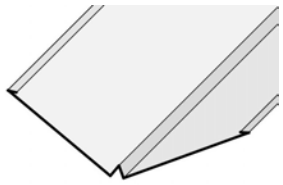


Figure 3.6.4 “W” style valley metal for open and closed valleys

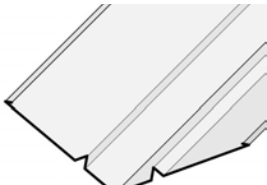


Figure 3.6.5 “Double W” style valley metal option for open valleys



Figure 3.6.6 Open Valley Example with minimum 1-inch center crimp

Closed Valleys

For Closed Valleys, a “W” style flashing may be used with a 1 1/2-inch center crimp. Leave a minimum 3/16-inch gap between the slates at the valley for thermal expansion.

Closed Valley Center Crimp - 1 1/2-inch



Figure 3.6.7 Closed valley example with minimum 1 1/2-inch center crimp

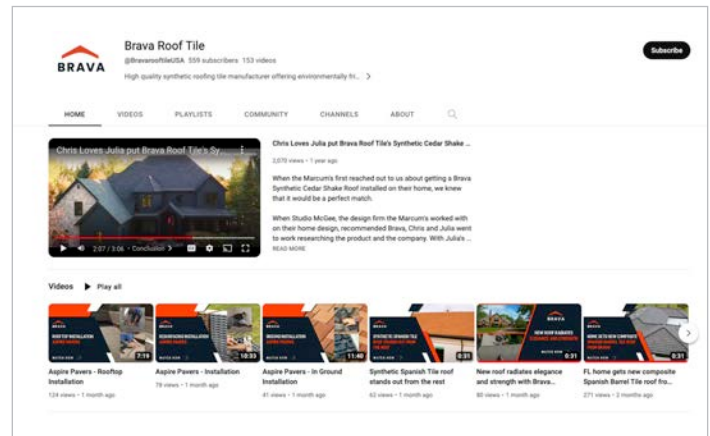
4. Brava Old World Slate Installation Instructions

Before installing Brava Old World Slate, check local building codes for roofing requirements. Brava Old World Slate must be installed to a minimum $15/32$ -inch CDX plywood deck or equivalent. Material temperature should be above 32° Fahrenheit during installation. Ensure appropriate flashing, Ice & Water Shield and underlayment meet minimums and applicable code. Ensure materials required, product specification conformity, and color blending while checking packing list and loading the roof. Always check for roof square and plumb and correct for any significant out of square conditions. Please review Sections 1, 2, and 3 of this guide before beginning.

Keys to Success

- Chalk Lines
- $1/2$ -inch eave overhang
- 1-inch rake overhang
- $\geq 3/4$ -inch fastener penetration
- $\geq 3/16$ -inch keyway spacing
- $\geq 1 1/2$ -inch side lap
- ≤ 10 -inch exposure
- No Exposed Fasteners
- Solid Slates at rakes and valleys (Recommended)

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



- [Brava Old World Slate Installation Video Series – English](#)
- [Brava Old World Slate Installation Video Series – Espanol](#)

Visit our website Resources page for additional installation materials, instructional videos, and this manual in Spanish.

<https://www.bravarooftile.com/resources/>.

Brava Technical Support offers In-Plant and Remote Installation Training in English and Spanish. To schedule training, or if you have any questions regarding Brava Roof Tile products and manufactured accessories, call 844-290-4196 and ask for Technical Support. You can also contact us through our website at bravarooftile.com.



4.1 Starter and Field Slate Installation

- 1 Snap chalk lines** to ensure straight courses. Snap lines for the Starter course and each consecutive course of slates. See Section 3.1 (Measuring and Marking the Roof).



Figure 4.1.1

- 2 Install starter course** with a $\frac{1}{2}$ -inch eave overhang and a 1-inch rake overhang. See Section 2.4 (Keyway, Lap, and Overhang).

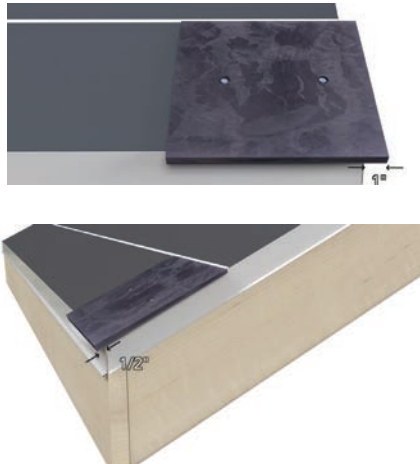


Figure 4.1.2

- 3 Use Two Fasteners** for each Starter, Slate, and Accessory. Ensure $\geq \frac{3}{4}$ -inch fastener penetration or completely through the deck. See Section 2.7 (Fasteners).

Ensure no exposed fasteners.



Figure 4.1.3



Figure 4.1.4

- 4 Space Starters and Field Slates** to allow for thermal expansion. Brava recommends $\frac{3}{8}$ -inches keyway between each slate with a minimum $\geq \frac{3}{16}$ -inch keyway. See Section 2.4 (Keyway, Lap, and Overhang).

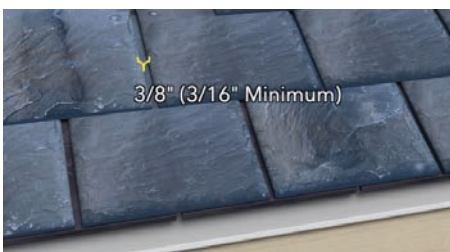


Figure 4.1.5

- 5 Install Field Slate** first course flush with the Starter course Use an offset layout to ensure a $\geq 1\frac{1}{2}$ -inch sidelap for all slates and accessories. See Section 2.4 (Keyway, Lap, and Overhang).

Standard Offset is 6-inches course to course.

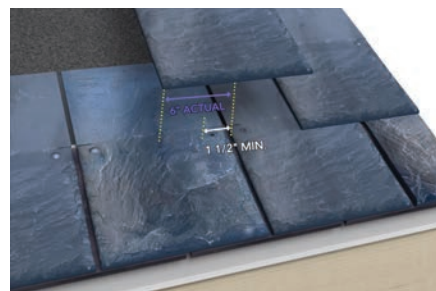


Figure 4.1.6

- 6 Continue installing Field Slates** using chalk lines* and guidelines to maintain ≤ 10 -inch exposure and straight courses. See Section 2.3 (Exposure).

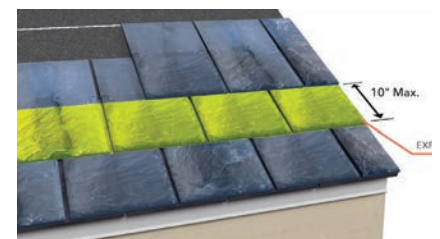


Figure 4.1.7

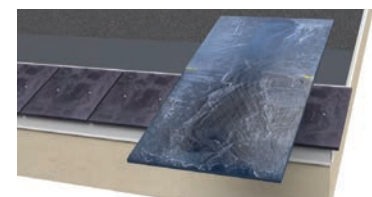
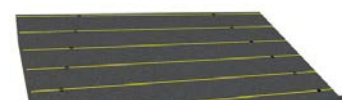


Figure 4.1.8

***NOTE:** For best results chalk lines should be snapped for the head of each slate course and exposure should be verified regularly throughout installation.



4.2 Valley and Rake Installation

When it is necessary to cut slates at valleys, rakes, and other details, make straight even cuts and place the factory edge to the outside. At rake edge, install Starters and Slates with a 1-inch overhang. See *Section 2.4 (Keyway, Lap, and Overhang)*.

For the most natural aesthetic, Brava recommends using the Solid Slate accessory at valleys and rakes. This will allow for a solid edge when the slate is cut (*Figure 3.6.3*), and no structural ribbing will be exposed when the underside of the slate is visible (*Figure 4.2.3*).

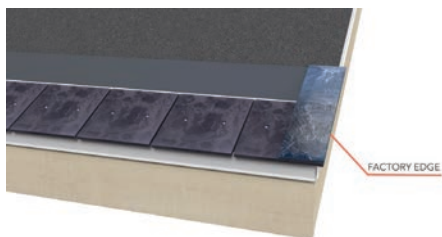


Figure 4.2.1

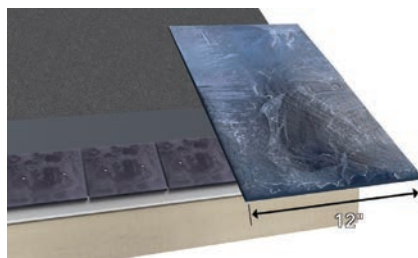


Figure 4.2.2



Figure 4.2.3 (Solid Slate at rake)

At rakes and eaves, a D-Style flashing may be used to conceal structural ribbing on standard Field Slates. See *Figure 4.2.4*.

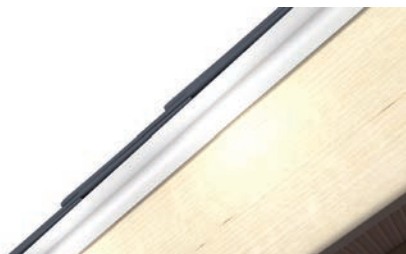


Figure 4.2.4

At valleys, Brava recommends a 36-inch strip of Ice and Water Shield. Ensure compliance with project and code requirements.

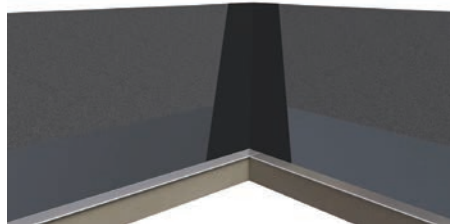


Figure 4.2.5

Code compliant flashing should extend 10-inches from the center crimp on either side for slopes of 4:12 and up or 14-inches for slopes of 3:12 and below.

Do not place fasteners within 5-inches of the center crimp. See *Section 3.6 Valley Metal*

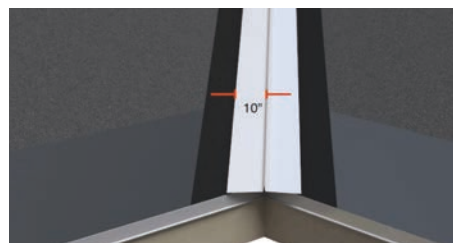


Figure 4.2.6

For Open Valleys, a “W” style valley metal may be used with a 1-inch center crimp. For best appearance at cut edges, use accessory Solid Slates.



Figure 4.2.7

If Solid Slates are not used, a Double “W” valley metal, with 1 1/2-inch crimps, may be used to conceal cut edges.

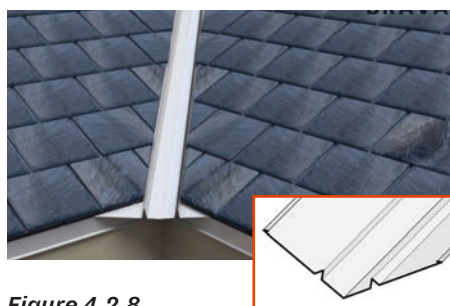


Figure 4.2.8

For Closed Valleys, a “W” style valley metal may be used with a 1 1/2-inch center crimp and slates cut along the center crimp leaving a 3/16-inch gap for expansion.



Figure 4.2.9

4.3 Hip and Ridge Installation

- 1 **Trim slates evenly and tightly at the hip and ridge.** Left and right side should be cut the same distance from (minimum 3/16-inch) hip or ridge to allow for uniform installation. Brava Recommends a 3/8-inch gap with a 3/16-inch minimum gap for expansion.

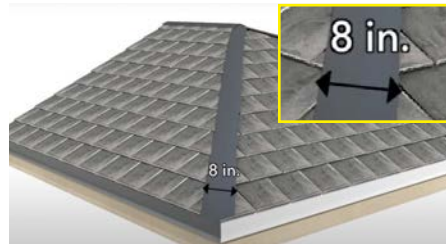


Figure 4.3.1

- 2 **Install an 8-inch-wide strip of Self-Adhering Membrane** over the center of the hip and any unvented sections of ridge.

Applicable ridge vents may be installed at this time. Alternatively, a flexible flashing may be used.

Figure 4.3.2



- 3 **Brava offers varied Hip/Ridge Cap angles to enable proper fit.** Check packing lists and load correct angles to each hip or ridge.

See Section 1.1 - Materials



Figure 4.3.3

- 4 **Install (1) Ridge or (2) Hip Caps** using correct angles.



<p>1 Ridge Cap Low: 4:12 or lower Standard: 5:12 – 10:12 Steep: 11:12 or higher</p>	<p>2 Hip Cap Low: 5:12 or lower Standard: 6:12 – 14:12 Steep: 15:12 or higher</p>
--	--

Note: Recommendations are for symmetrical Hip/Ridge only. For example, a 5:12 slope meeting a 5:12 slope. Calculate angle for asymmetric hip/ridge.

Figure 4.3.4

- 5 **Install Hip/Ridge Caps with two fasteners** at the formed fastener locators penetrating $\geq 3/4$ -inches into the deck or completely through the deck.



Figure 4.3.5

- 6 **Match Hip/Ridge exposure to Field Slate exposure ≤ 10 -inches.**



Figure 4.3.6

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.

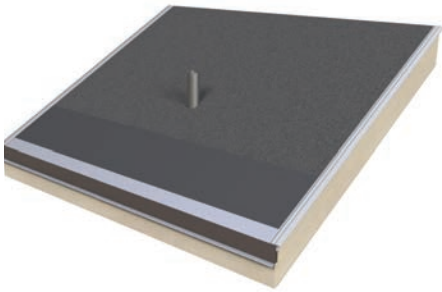


Figure 4.4.1

- 2 **Install slates** below and up to the penetration.

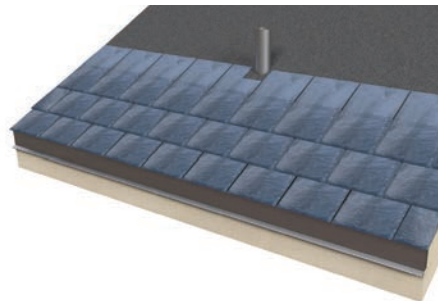


Figure 4.4.2

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

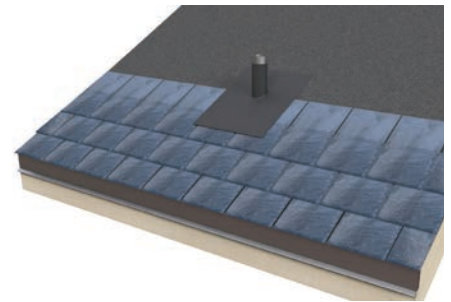


Figure 4.4.3

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

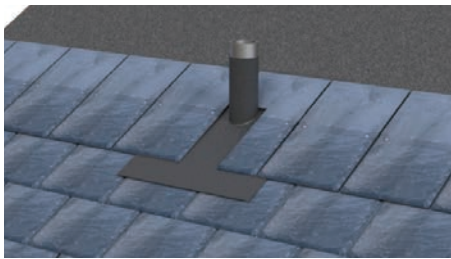


Figure 4.4.4

- 5 **Install next course of slates over the flashing sleeve.**

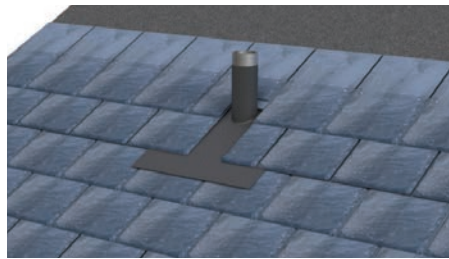


Figure 4.4.5

- 6 **Continue installing** following courses.



Figure 4.4.6

Do not place fasteners within 5 inches of the penetration.

Installation at Chimneys

- 1 **Install Field Slates** up to the base of the chimney.



Figure 4.4.7

- 2 **Install Apron Flashing** so it extends around the chimney and fasten at upper ends.



Figure 4.4.8

- 3 **Install 6-inch minimum counter-flashing** and fasten at upper corner.



Figure 4.4.9

- 4 **Install next course of Field Slates.**

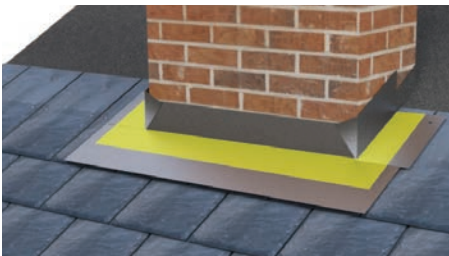


Figure 4.4.10

Do not place fasteners within 5 inches of the chimney.

- 5 **Continue installing slate courses and Step Flashings.** Step flashings should overlap no less than 2-inches and extend under slates a minimum of 6-inches.



Figure 4.4.11

- 6 **Install preformed metal Cricket** as required and install counter-flashing into sawcut reglets.

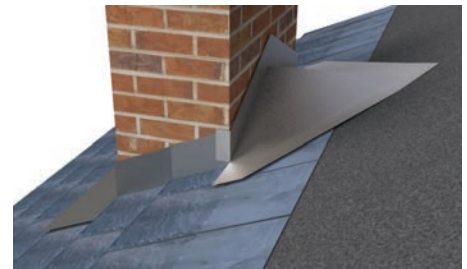


Figure 4.4.13



Figure 4.4.12



Figure 4.4.14

Appendices

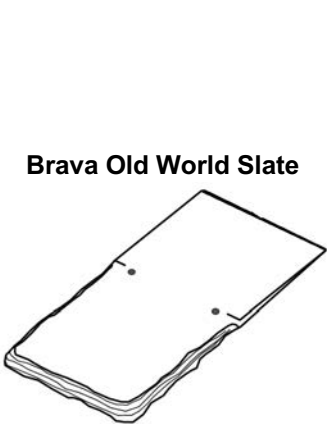


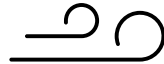




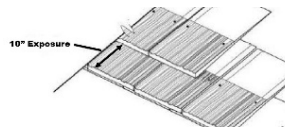

Appendix A – High Wind Installation

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 slate at the ridge (*See Appendix E – Swing Tape Method*). This will usually set a slightly lower exposure and does not require additional material.

Brava Old World Slate – Wind Warranty Matrix				
 <p>Brava Old World Slate</p>		Fastener Requirements*	Maximum Exposure	Warranty Eligibility
	STANDARD	<p>(2) 0.120" x ≥ 1 3/4" Ring Shank Roofing Nails</p> 	<p>≤ 10"</p> 	<p>80 MPH</p> 
	ALTERNATE	<p>(2) 0.120" x ≥ 1 3/4" Ring Shank Roofing Nails</p> 	<p>≤ 8"</p> 	<p>110 MPH</p> 
	RECOMMENDED	<p>(2) #8 x ≥ 2" Screws</p>  <p>High Wind Installation</p>	<p>≤ 10"</p> 	<p>130 mph</p> 

* Fasteners must be of sufficient length to penetrate 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.

Figure A.1

Appendix B – Install Accessories

Any accessories or products used in conjunction with Brava Old World Slate should be installed according to the manufacturer's guidelines and in compliance with the applicable code and industry best practice. Brava Old World Slate, underlayment, and flashing should remain intact and undamaged. Consult a roofing professional to ensure the final installation is 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 Old World Slate. Vents may be installed and used as with cedar shake, quarried slate, and composition roofs. Insufficient venting may lead to roof deck failure. Consult vent manufacturer and building code for attic venting requirements.

Snow Guards

Due to the textured surface of the slates, snow may slide off easily. The need for snow guards will increase in areas with above average snowfall. Be sure to follow the snow guard manufacturer's installation guidelines for installation and correct spacing and check with your building official to ensure compliance with applicable codes.

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. Mounts and Brackets may be installed and used as with cedar shake, slate, and composition roofs. Snow guards and Solar mounts should be installed during installation of Brava Old World Slate. 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 – Staggered Exposure

Slates may be installed with varied exposures to produce a staggered look if desired. Staggered installation is accomplished by choosing two (2) or more exposures and alternating or randomizing those exposures throughout the installation. Depending on the desired aesthetic, choose a subtle or more pronounced variation. An example of a subtle variation would be to use alternating exposures of 9 and 10-inches. Ensure that maximum exposure does not exceed 10-inches or code requirements whichever is less.



Figure D.1

Appendix E – Swing Tape Method

- 1 Snap a line for the starter course.** Determine course placement with $\frac{1}{2}$ -inch overhang and snap a line to place head of the Starter. This should be about 11 $\frac{1}{2}$ -inches from the eave.

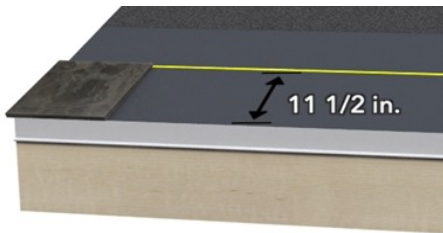


Figure E.1 Use Starter to snap chalk line for $\frac{1}{2}$ -inch overhang at the eave.

- 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.

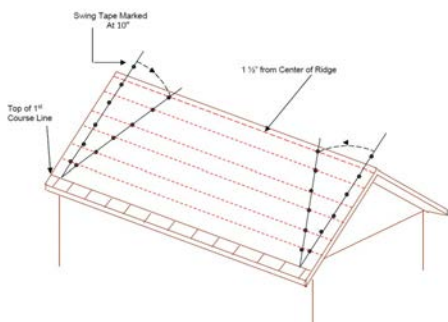


Figure E.4

- 2 Snap a line 1 $\frac{1}{2}$ -inches from the ridge.**

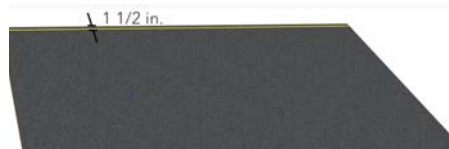


Figure E.2 Snap a line 1 $\frac{1}{2}$ -inches from the ridge as illustrated.

- 5 Repeat this process and mark the other end of the roof.**



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

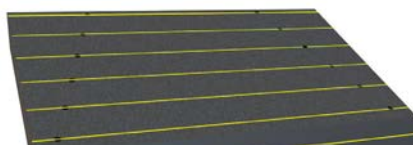


Figure E.6

- 3 Mark maximum acceptable exposure on tape measure.**

Maximum exposure is 10-inches for Brava Old World Slate but may be further restricted by application and code requirements. For this example, mark the tape at every 10-inch interval. 10, 20, 30, etc.



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

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



Figure E.7 Allowable (10-inches) vs Set (9.738-inches) 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.

Appendix F – Fire Rating

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 slate.

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	$\frac{1}{8}$ -inches
.25-inches	$\frac{1}{4}$ -inches
.375-inches	$\frac{3}{8}$ -inches
.5-inches	$\frac{1}{2}$ -inches
.625-inches	$\frac{5}{8}$ -inches
.75-inches	$\frac{3}{4}$ -inches
.875-inches	$\frac{7}{8}$ -inches

All Brava Old World Slate may be installed as a Class A system when over SOLARHIDE-SRW, or equivalent fire barrier underlayment.

If Field Slate is marked as ASTM E108 Class C, and a Class A rating is required, it must be installed over an approved fire barrier such as SOLARHIDE-SRW. If a Class A rating is not required, standard underlayment may be used. *See Section 2.6 Underlayment.*

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.

Some Brava Old World Slate has been manufactured to achieve an ASTM E108 Class A fire rating when installed over standard underlayment. This will be indicated by the symbol as shown in Figure F.1. The standalone (with standard underlayment) fire rating will be marked on all field slates.



Figure F.1 Symbol shows standalone Class A material



BRAVA

Old World Slate Installation Guide

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