



# ARMORTAB<sup>®</sup> SUPER<sup>™</sup>

## Shingles Installation Instructions



# ARMORTAB SUPER<sup>™</sup>



Owens Corning (NYSE:OC) is making headlines as a world leader in building materials systems and composite solutions. Owens Corning is a leading global producer of residential and commercial building materials, glass-fiber reinforcements and engineered materials for composite systems.

A Fortune® 500 Company for 60 consecutive years, Owens Corning is committed to driving sustainability by delivering solutions, transforming markets and enhancing lives. Celebrating its 75th anniversary in 2013, Owens Corning is a market-leading innovator of glass-fiber technology with sales of \$5.2 billion and about 15,000 employees in 27 countries on five continents.

## I. Owens Corning Roofing Shingles

OWENS CORNING's fiberglass reinforced asphalt shingle comes in a variety of colors. Its fiberglass reinforced core mat is coated with premium weathering-grade asphalt on both sides. Color mineral granules are applied to the exposed surface for aesthetic style and fine sand is applied to the bottom to prevent adhesion between the shingles. OWENS CORNING's fiberglass reinforced asphalt shingle is lightweight, durable, mechanically stable, and easy to apply. It is non-polluting during construction and has aesthetic features in a variety of colors. It can be applied to any roof shape including rounded, arched, and inclines of over 20% (2' IN 12").

This installation guide explains how to install the Owens Corning's ARMORTAB SUPER™ five-tab shingle.

When applied in accordance with these instructions, these shingles carry the Underwriters Laboratories Class A fire resistance rating, the top rating for residential shingles. They will also meet UL wind resistance Standard 997.

OWENS CORNING's ARMORTAB SUPER™ five-tab shingle is designed to be installed on wood decks. When installing on concrete deck, special attention is required.



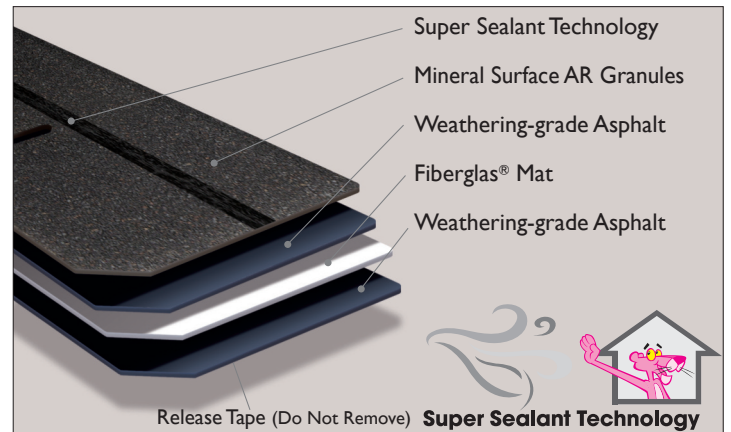
### CAUTION

#### DO NOT REMOVE THE RELEASE TAPE

The release tape on the top of the ARMORTAB SUPER™ is designed to prevent adhesion between the shingles, so please do not remove the release tape for installation.

### IMPORTANCE OF WIND PERFORMANCE

Due to geographic location, roof slope and orientation of the house on the site, it is important to choose the right roofing materials that can help protect your home. When applied in accordance with these instructions, Owens Corning's ARMORTAB SUPER™ shingles are rated for 180km/h winds performance.



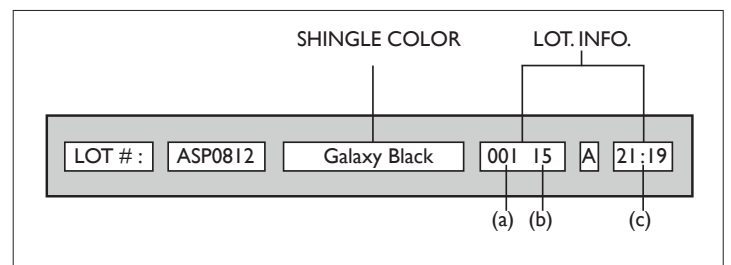
Before installing this product, check local building code for their roofing requirements. These shingles are designed for new or reroofing work over any properly built and supported roof deck having adequate nail holding capacity and a smooth surface.

The manufacturer will not be responsible for problems resulting from any deviation from the recommended application instructions and the following precautions:

**Roof Top Loading:** Lay shingle bundles flat.  
Do not bend over the ridge.

Please store the product in a dry and cool place under 45°C (113°F) out of contact with heavy rain and strong sunlight. Color mineral granules applied on the surface of shingle may vary depending on their production lot and manufacturing plant. We recommend using shingles for one project that are produced in the same lot within 60 days of each other. Please do not mix products from different manufacturing plants.

FIG 1



The manufacturing information (LOT Numbers) such as manufacturing plant and date is printed on the side of the package.

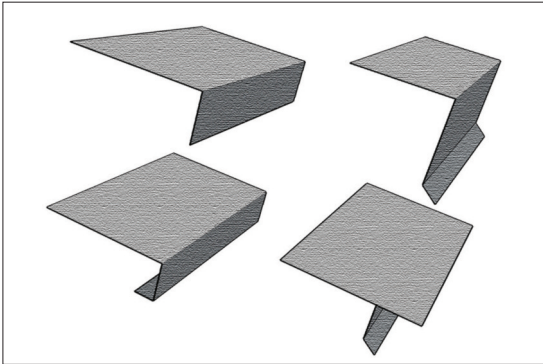
The lot information number above indicates the production date and time in accordance with the western calendar.

The first three digits (a) refer to the production date based on a 365 day calendar. The next two digits (b) refer to the production year, and the following four digits (c) refer to the production time.

The shingle bundle above is the color Galaxy Black, produced on January 1st, 2015 at 9:19 p.m.



FIG 2

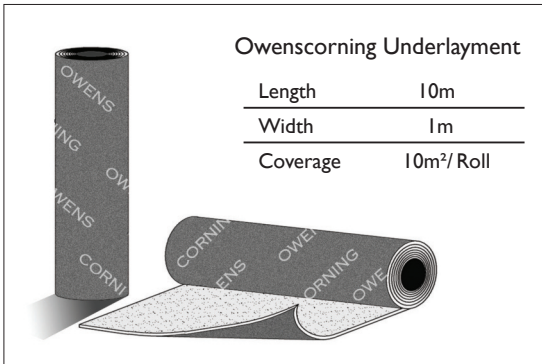


## 2. Accessories & Other Materials

### Metal Drip Edges

Except unique situations, we recommend using appropriate metal flashing on KS D 5201 (copper, copper alloy sheet and strip) for all eaves.

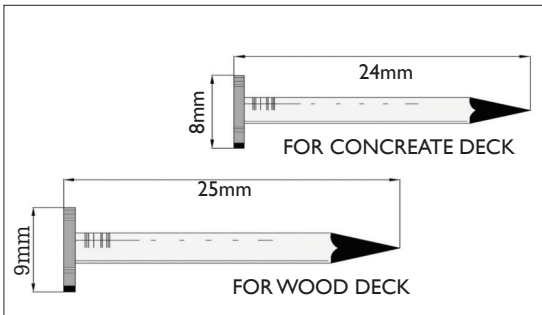
FIG 2-1



### UNDERLAYMENT

We recommend using OWENS CORNING BM Korea's UnderGUARD PRO SHEET, as an underlayment that is compliant with KS F 4917 (improved asphalt underlayment: standards of the waterproof construction in a variety of structures).

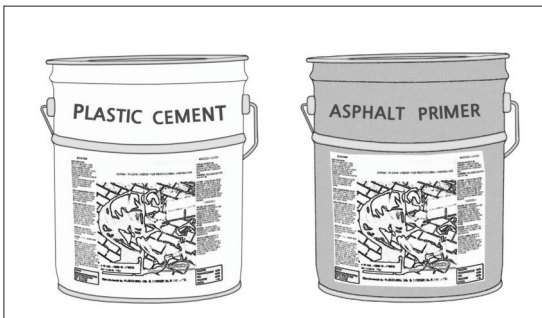
FIG 2-2



### SHINGLE NAIL

- Nails that are driven through the asphalt shingle into concrete must be concrete nails specified for fixing shingles that are anti-rust, longer than 24mm (0.94") and more than 8mm (0.31") in head diameter.
- Nails that are driven through the asphalt shingle into wood must be stainless steel, galvanized or aluminum that are anti-rust, longer than 25mm (0.98") and more than 9mm (0.35") in head diameter.
- Nails that are driven through copper flashing into the above materials must be used according to instructions above and used with anti-rust washers that are more than 10mm (0.39") in diameter, and around 0.5mm (0.02") thick.
- Nails must be driven deeper than 19mm (0.74") below the bottom layer.

FIG 2-3



### SHINGLE CEMENT

- The shingle adhesive must be applied to areas with surface temperatures under 60°C (140°F). Damages such as blistering on the shingle surface may be caused if used in extreme temperatures or used excessively.

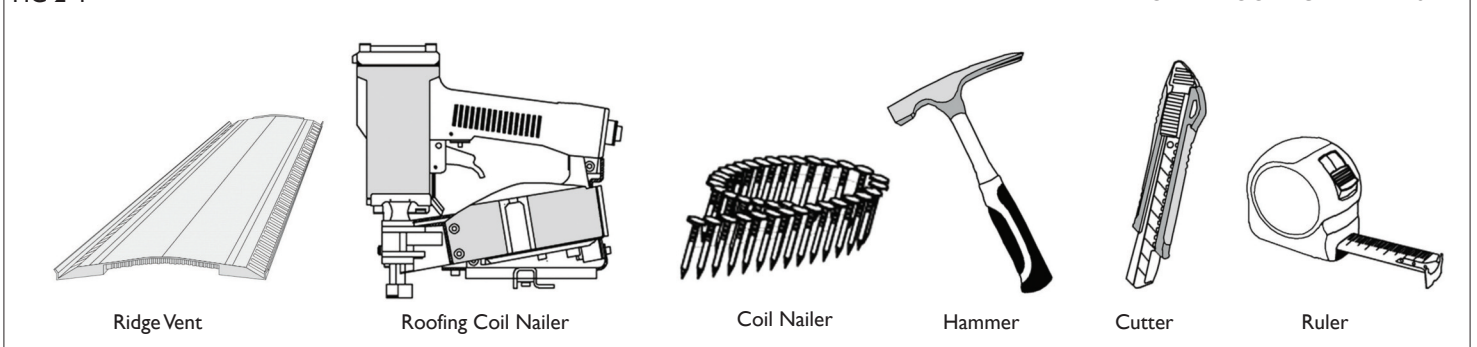
We recommend using shingle adhesives that are compliant with ASTM D4586 Type 2. (Asbestos-Free).

### ASPHALT PRIMER

- We recommend asphalt primers that are compliant with KS M 2270 (Standards of moisture-proof and waterproof primers on the surfaces of concrete and stone structures).

FIG 2-4

### OTHER ROOFING MATERIALS





### 3. DECK PREPARATION

The roof deck surface must be level to ensure the quality of the entire exterior. For waterproofing and stability, poor quality plastering with divots or cracks need to be smoothed. Plaster and dry surface are required to comply with relevant roof building standards. Protrusions such as roof vents, eaves, and angular parts where the roof and wall intersect must be plastered around precisely and smoothly to facilitate the application of the asphalt shingles and copper flashing. Any construction, including following construction of asphalt shingles, which may contaminate the installed asphalt shingle must be completed first.

#### Wood Deck

When laying shingles, while making butt joints with more than 3 sheets of underlayment consecutively, roughly 2-4mm longitudinal expansion joints must be installed for every 2 underlayment to correspond to temperature variations. Ensure that butt areas are firmly fixed without gaps.

#### Concrete Deck

A leveling mortar trowelled finish is required for concrete decks.

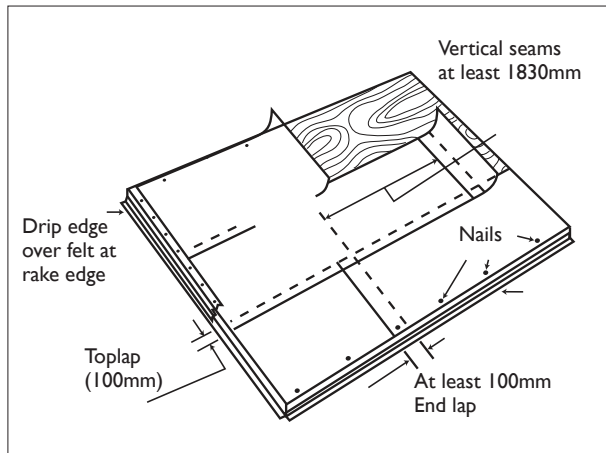
#### Primer Application

After cleaning the deck sufficiently, 0.4l (13.5oz) of primer needs to be applied per 1m<sup>2</sup> (10.7ft<sup>2</sup>) with a brush or roller over the entire installation surface. After the primer has been applied a curing time is required for volatile liquids such as solvents to evaporate before shingles are installed. Shingles may be damaged if installed within 24 hours of primer application.

### 4. UNDERLAYMENT APPLICATION

To prevent damages caused by heavy rain or condensation, use of an underlayment is essential on low slope areas, eaves, roof valleys, chimneys, dormers, vents, etc.

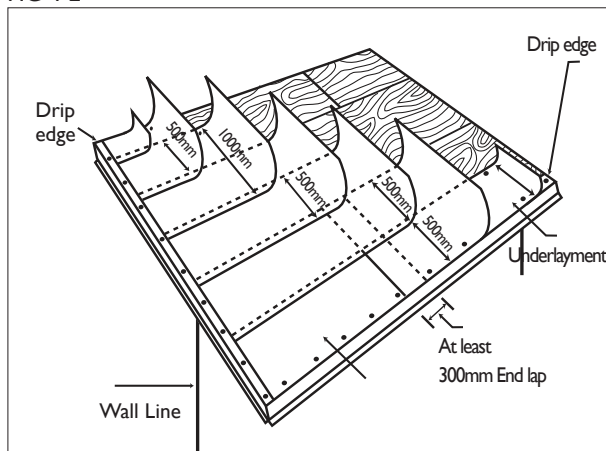
FIG 4-1



#### 4-1. Underlayment Application for Standard Slope Decks

- Apply underlayment on metal drip edges of eaves, use at least 1 fastener per 2m (6.56ft) to hold in place. When laying consecutive underlayment sheets, overlap the bottom by 100mm (3.93", baseline). For continuous horizontal application, overlap by roughly 100mm (3.93"), Apply metal drip edge over underlayment at the rake.

FIG 4-2



#### 4-2. Underlayment Application for Low Slope Decks

- Overlap underlayment sheets by 500mm (19.68") of each stage for low slope decks. Apply 500mm (19.68") starter strip of underlayment over metal drip edges at eaves. Use at least 1 fastener per 2m (6.56ft) to hold in place. Use 1m (3.28ft) strip of underlayment for remaining courses.
- Overlap each sheet with butts staggered vertical 500mm (19.68") for low slope decks. For continuous horizontal application, overlap sheets by 2m (6.56ft). Apply metal drip edge over underlayment at the rake.





## 5. METAL DRIP EDGE APPLICATION

### 5-1. Construction of Finishing Flashing on Eaves and Gable

- The material and distance of nails to secure flashing must be applied differently by distinguishing between plywood and concrete according to blueprint, as well as between general construction areas and high wind areas.
- Nails must be used with washers. Washers, around the head nail, copper cut and joint area must be sealed.
- Ensure that nails are driven about 50mm~75mm (1.96"~2.95") in from the eaves.

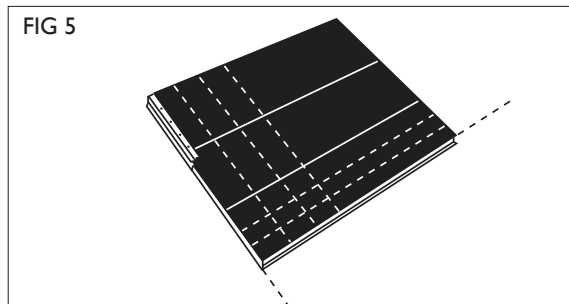
### 5-2. Construction of Finishing Flashing for Protrusions Such As Vent Pipes on the Roof

- Flashing runs up around protrusions on the roof at least 200mm (7.87"), and can be adjusted depending on the amount and flow of rain.
- When protrusions are on concrete or galvanized nails with anti-rust metal washers must be used to hold in place. Washers and around the head nails must be sealed. The edge of flashing must be driven into the V-cut grooves on the wall, and filled with the sealant to fix firmly.
- When protrusions are on a Sheet Molding Compound (SMC) or Fiberglass Reinforced Plastic (FRP), anti-rust screws must be driven into flashing. The edge of flashing must be sealed with silicone to prevent seepage of water into the building.
- To prevent seepage of water into the building, install gutters with standing seam flashing at the bottom of shingles.

### 5-3. Chalk Lines

When laying out the application of Owens Corning's ARMORTAB SUPER™ shingles, vertical chalk lines must be snapped. These chalk lines will be spaced as follows: From the rake edge, measure 15 1/2 inches and snap a chalk line. From the rake edge again, measure 27 1/2 inches and snap a second chalk line, and once more from the rake edge, measure 39 1/2 inches and snap a third and final chalk line. This will be the layout for installing the shingles offset pattern. See Fig. 5

FIG 5



## 6. Shingle Application

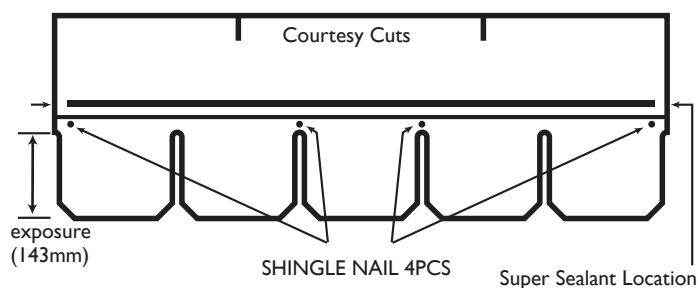
### 6-1. FASTENING INSTRUCTION

Fasteners (shingle nails) must be placed in the following areas; nail line fastening area where is 160mm above the bottom edge of shingle tab, and both left and right side-end of shingle from 25mm apart.

shingle side view



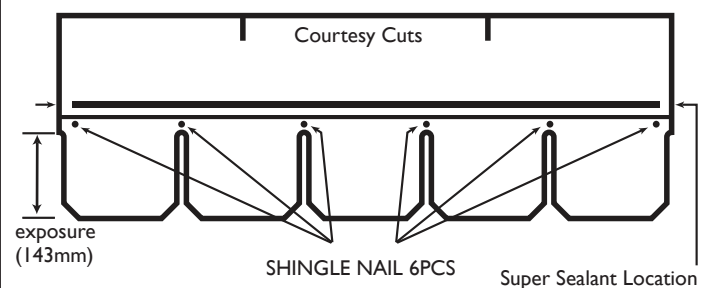
FIG 6-1



### 4pcs Fastening Application

- Use four fasteners (shingle nails) in normal wind areas.

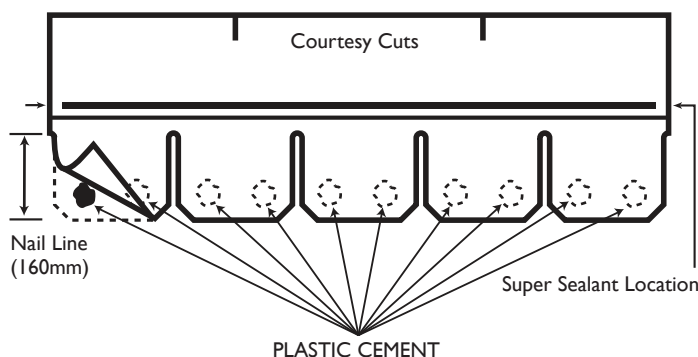
FIG 6-2



### 6pcs Fastening Application

- Use six fasteners (shingle nails) for mansard roof construction.

FIG 6-3



## ROOF/SHINGLE CEMENT

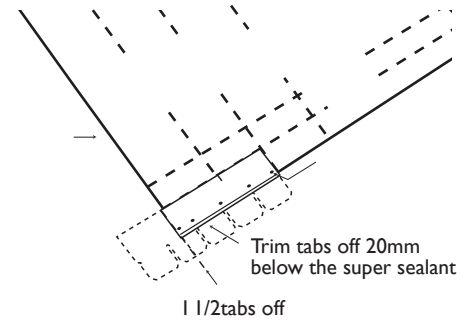
- For slopes exceeding 60 degree or 21 inches per foot, use six fasteners (shingle nails) and four spots of asphalt plastic cement per shingle.
- Apply immediately; one diameter spot of asphalt plastic cement under each shingle tab.
- Center asphalt plastic cement 2 up from bottom edge of shingle tab. (where required must meet ASTM D-4586 Type I or II Asbestos Free)



## 6-2. STARTER COURSE

- When making starter strips using three-tab shingles, trim tabs off (20mm below the Super sealant) so sealant can seal along the eave's edge. Then apply adhesive 3mm (0.11") thick at the bottom, around 30mm (1.18") away from the eave edge.

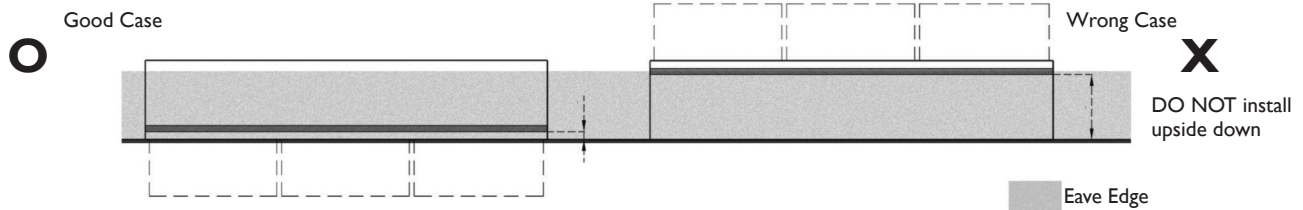
FIG 6-4



### CAUTION

When installing three-tab shingle starter strips, please trim tabs off before installation and do not install upside down the starter strips to ensure its wind performance.

FIG 6-5



## 6-3. FIRST COURSE

- Lay all first course shingles butted on starter strips. Apply plastic cement to both exposed areas and unexposed butts for shingles used for the first course. For adhesives, follow the same instruction with the starter strips application but add adhesive to the exposed areas. Fasten securely according to nail line instructions. (refer to 6-1 Shingle Fastening)

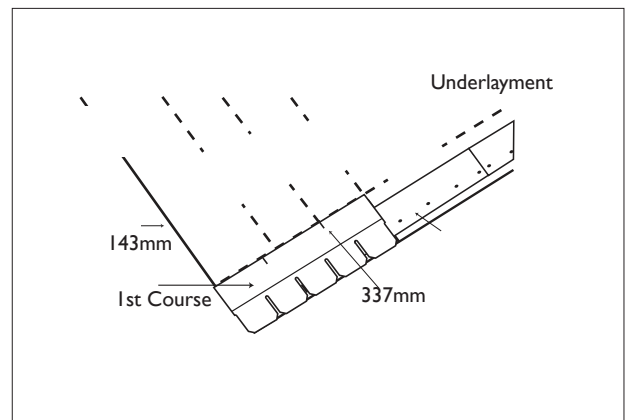


### CAUTION

- To aid in shingle alignment, it is recommended that chalk lines be snapped on the exposed surface of the underlayment prior to shingle application and must assure the bottom side of end joints are aligned. Please note that vertical length of unexposed butted areas may vary depending on the manufacturing process, but the vertical length of the exposed surface of the shingle must be consistent.

- A blister may form on the surface if excessive adhesive is applied to areas with surface temperatures over 60°C (140°F). Blistering may occur if adhesives are used that are not compliant with specifications.

FIG 6-6



## 6-4. Subsequent COURSE

When subsequent course is continued from the first course on the upper side, overlap the first Next course by 165mm on the side, and place them so their top edge is butted against the bottom edge of the next course of existing shingles. The start line must be started 15~20mm below the adhesive strip of the previous course to prevent exposure of shingle nails. Nails must be driven according to the same instruction as the first course.

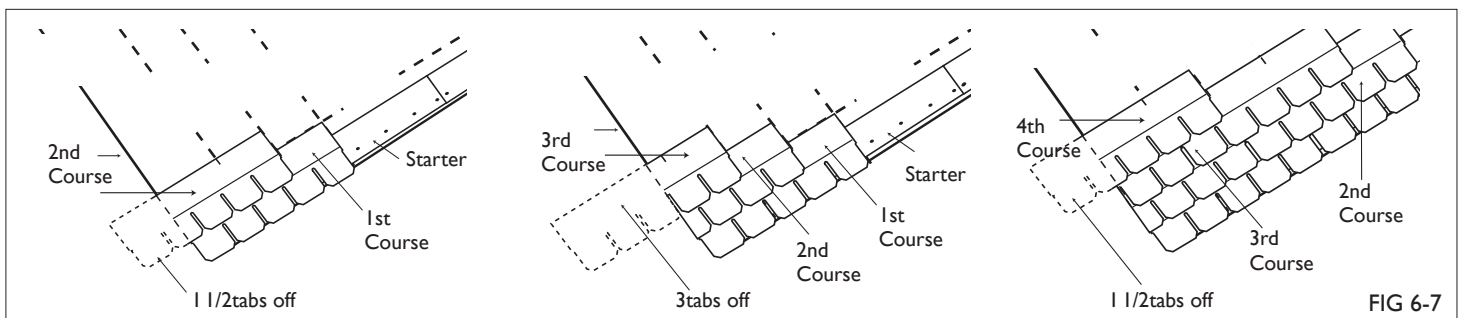


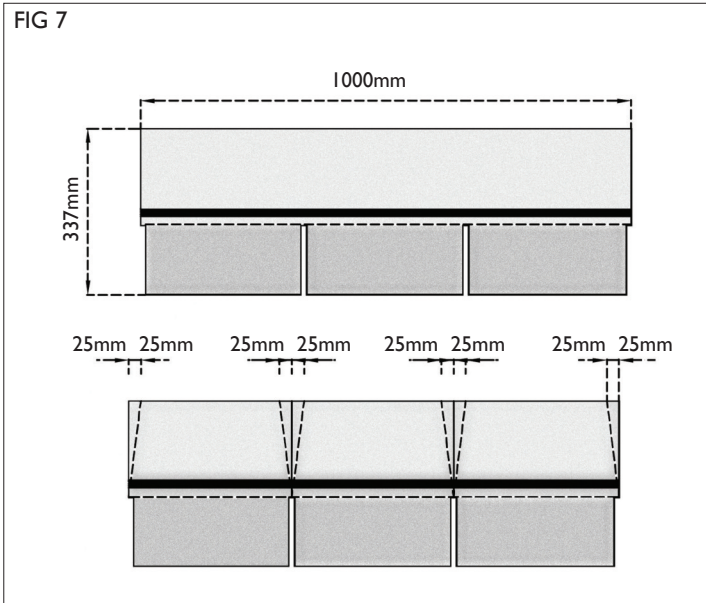
FIG 6-7



## 7. Recommended Installation Manual

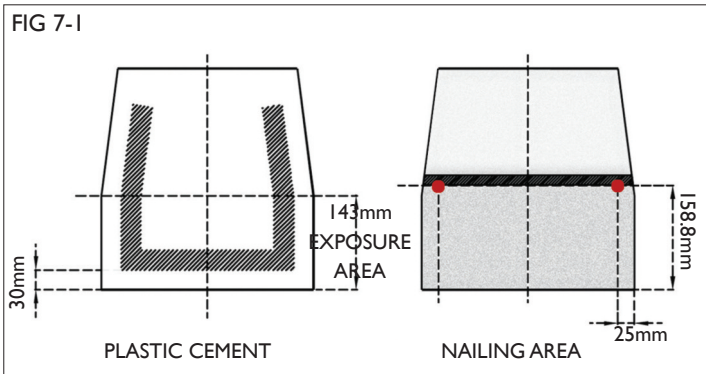
### 7-1. Hip & Ridge Application

FIG 7



- While applying Hip & Ridge, either use the specified shingle (Hip & Ridge) or make one by cutting a classic shingle into three pieces as above and cutting butts from the back side as shown in the figure above.

FIG 7-1



- Apply plastic cement 3mm (0.11") thick on the bottom, about 300mm (11.81") away from the edge of exposed part as shown in the Fig 7-1.

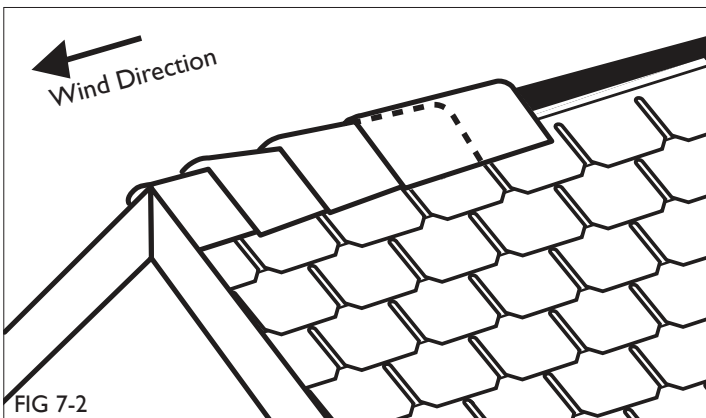


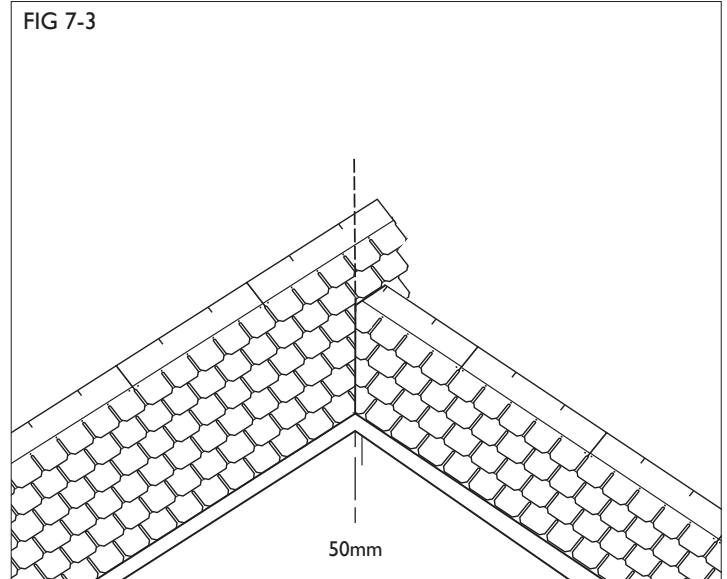
FIG 7-2

- When applying ridge, ensure that they overlap so that the outer edge is exposed as 133mm (5.23") with the consideration of wind direction. Position nails 160mm (6.29") away from the edge of exposed parts and 25mm (0.98") away from the end of both the left and the right. (Refer to Fig 7-2)

### 7-2. Valley Construction

A valley where shingles adjoined is recommended according to the following instruction:

FIG 7-3



- Shingles adjoining the valley 'A' must be folded accordingly along the valley centerline. Shingle nails must be applied on the correct position (200mm or 7.87" from the centerline), and additional shingle nails must be applied on the upper edge to reinforce the shingle.
- Shingles adjoining the valley 'B' must be cut 500mm (19.68") from the valley centerline (Refer to Fig5.4 chalk line). Shingle nails must be applied on the correct position.
- Depending on the building structure and roof shape, plastic cement or finishing flashing may be installed.



### CAUTION

Roof surface may be slippery, especially when wet or icy. Use a fall protection system when installing. Wear rubber-soled shoes. Walk with care.

Falling Hazard : Secure area below work and materials on roof. Unsecured materials may slide on roof. Place on level plane or secure to prevent sliding. Wear a hard hat.