



# Armourvent<sup>®</sup> Multi application guide



**IKO**

The Shingles Expert

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## WHY VENTILATE A SHINGLE ROOF?

Unventilated shingle roofs will cause high temperatures inside. This will age the shingles much quicker and at the same time create unhealthy, moist air to live in.

Ventilating the roof will lower the temperature of both the shingle roof and the space directly underneath, leaving the roof structure unaffected and **preventing accumulation of moisture** in the attic.

Ventilating your roof will equalize the temperature of the outer and inner roof. Your roof structure will then be able to **withstand sudden temperature changes**. Especially those, which are created by thunderstorms during the summertime.

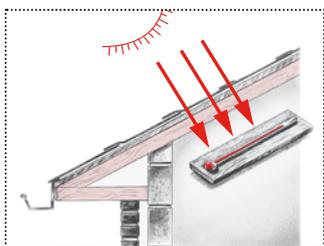
Ventilating the roof also **prevents ice dams**. Ice dams are the results of continuous freezing and thawing of snow due to escaping heat through the roof deck being backed up with frozen slush. If it occurs, water may be driven under the roof.

A “balanced system” of ventilation, which is the key to proper roof ventilation, allows heat and water vapor to escape from the roof system.

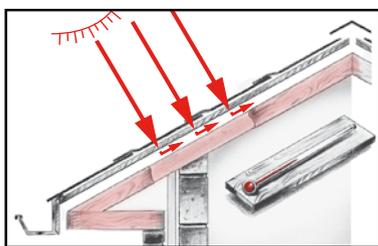
**Air must be able to circulate freely between insulation and the nailable roof deck, from the eaves to ridges.**

- extend the life of your roof
- increase your living comfort
- regulate the moisture in your house

Your dryer insulation will function better ⇒ **lower utility bills**



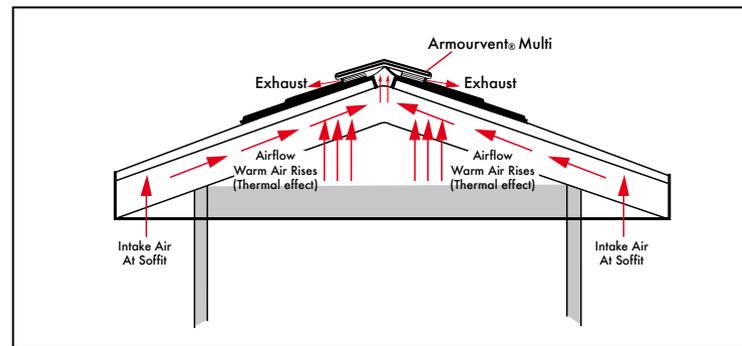
*Unventilated: high temperature inside. Without air gap between insulation and roof deck: condensation forms and the roof structure is damaged.*



*Ventilated: lower temperature inside. With air gap between insulation and roof deck: air escapes via ridge vents, leaving the roof structure unaffected.*

## A BALANCED SYSTEM: The Key to Proper Roof Ventilation

The most important factor in roof ventilation is the need for a “balanced system”. This means for every cm<sup>2</sup> of air exhausted, it must be balanced by providing the same amount of air intake at the eaves.



Providing a balanced system assures that damaging heat and moisture is being vented out of the attic, protecting the roof from premature deterioration, costly repairs.

If an attic has a properly balanced system, the airflow will move from the bottom of the attic to the top, **pushing out heat and moisture in a natural flow** using air pressure, thermal effect and diffusion.

If the system were to be unbalanced, and the Net Free Area (NFA) at the ridge is higher than at the eave, a reverse airflow can occur causing an opposite effect to what is desired. The airflow will come from the top of the house and push down toward the eaves. As a result, heat and moisture are not allowed to escape and additional air and moisture can be drawn into the home.

Recognized by builders throughout the industry, are the standards for static ventilation, as found in the requirements for proper ventilation. These requirements call for a ratio of 1:300. This means one cm<sup>2</sup> of ventilation for every 300 cm<sup>2</sup> of insulated roof area. In addition, specifications for good attic ventilation require a balanced system – 50% of the vents at the eave and 50% at the upper portion of the roof.

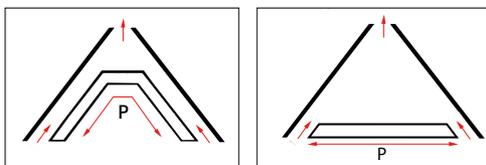
## CALCULATING THE NET FREE AREA OF VENT OPENINGS

The air gap between the insulation and the roof deck must be 4 to 6 cm.

Air should flow in from the bottom of the roof (eaves) and out through the top of the roof (ridge).

The air flow between the eaves and ridge vents must be unobstructed (by insulation or roof beams) to ensure cross-flow ventilation.

The total required net free area (NFA) of vent openings is a function of the insulated roof area (P) and the slope of the roof.



SAMPLE ROOF STRUCTURES

Roof pitch	Required NFA of vent openings
15° - 40°	$P \div 300$
41° - 85°	$P \div 600$

Ventilation should be equally divided among the number of vents at eaves and ridges.

### Example:

Roof area (P) = 120 m<sup>2</sup>

Roof pitch = 35°

NFA Armourvent® Multi = 275 cm<sup>2</sup>/linear m of vents

Total required NFA of vent openings:  $120 \div 300 = 0,4000 \text{ m}^2 = 4000 \text{ cm}^2$

Minimum linear m of vents required over total roof:  $4000 \div 275 = 14,54 \text{ m}$

Linear m of vents at ridge:  $14,54 \div 2 = 7,27 \Rightarrow 7,50 \text{ m}$

Linear m of vents at eaves:  $14,54 \div 2 = 7,27 \Rightarrow 7,50 \text{ m}$

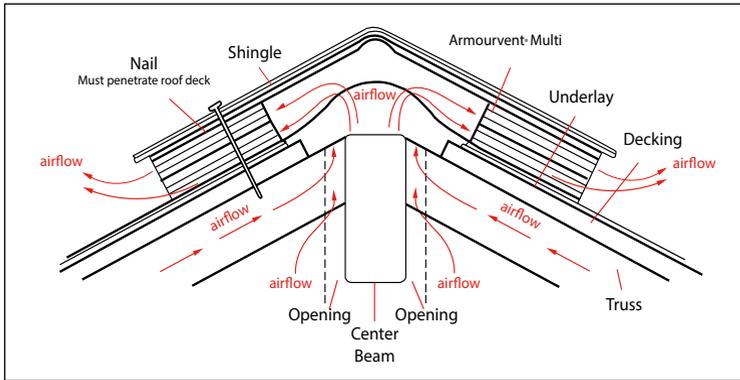
### Note:

Roofs with vapour barriers need 40% less ventilation. In certain regions (mountainous areas, the coast) special building regulations may apply.

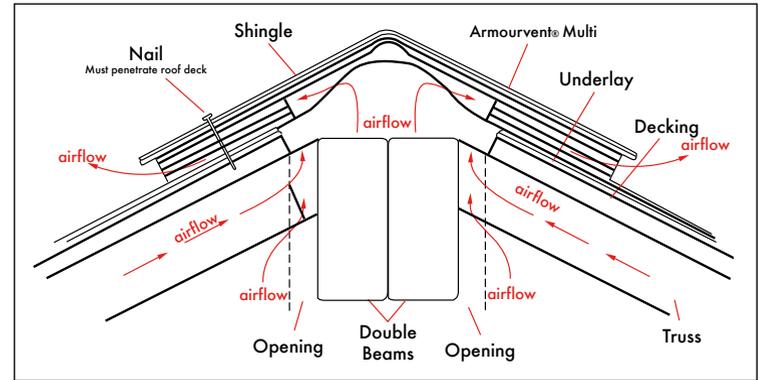
	Armourvent® Multi	Armourvent® Multi Plus
Dimensions	6 m x 22,80 cm	6 m x 28,50 cm
IKO Shingles which may be used	Monarch® Armourglass (Victorian) Superglass (-Biber)	Monarch®-Diamant Diamant DiamantShield BiberShield ArmourShield Marathon Ultra® (Cambridge Xpress)
Roof Pitches	15° - 60°	15° - 60°
NFA per linear m of vents	275 cm <sup>2</sup> /m	275 cm <sup>2</sup> /m

# INSTALLATION OF IKO ARMOURVENT® MULTI

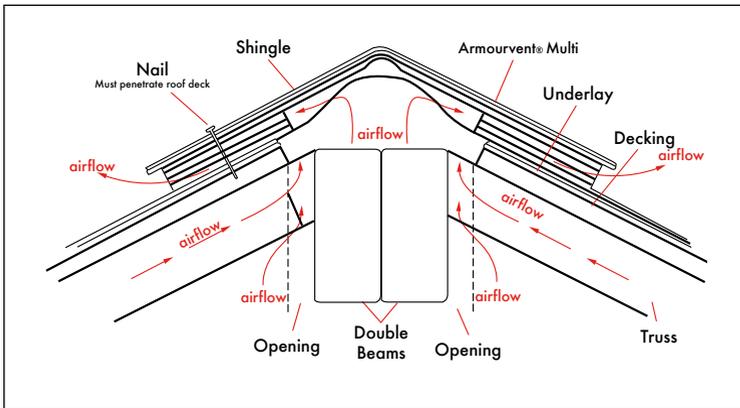
Detail:  
IKO Armourvent® Multi on ridge application (rafter)



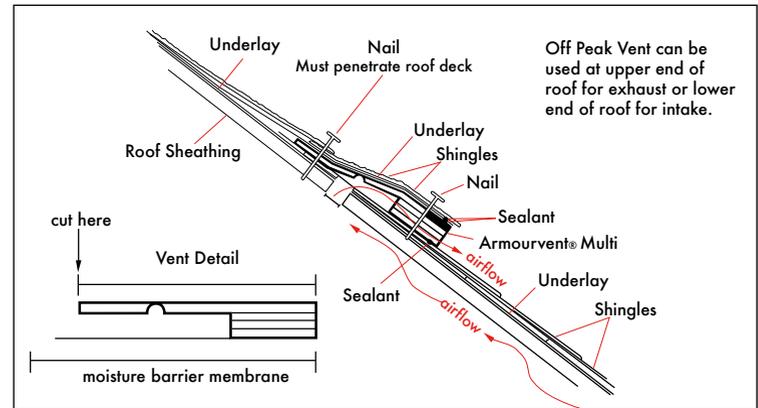
Detail:  
IKO Armourvent® Multi on ridge application (double beam)



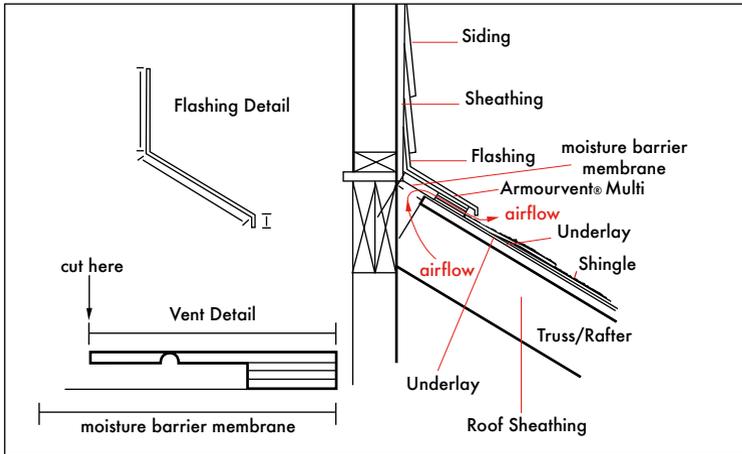
Detail:  
IKO Armourvent® Multi on ridge application (single beam)



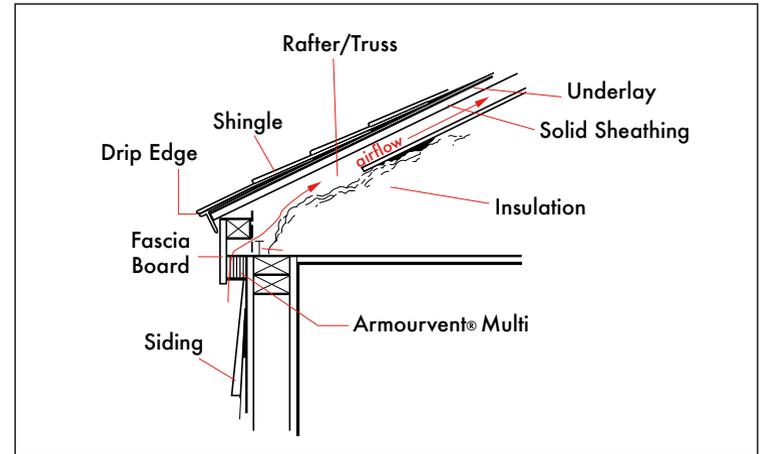
Detail:  
IKO Armourvent® Multi off peak application (intake or outlet)



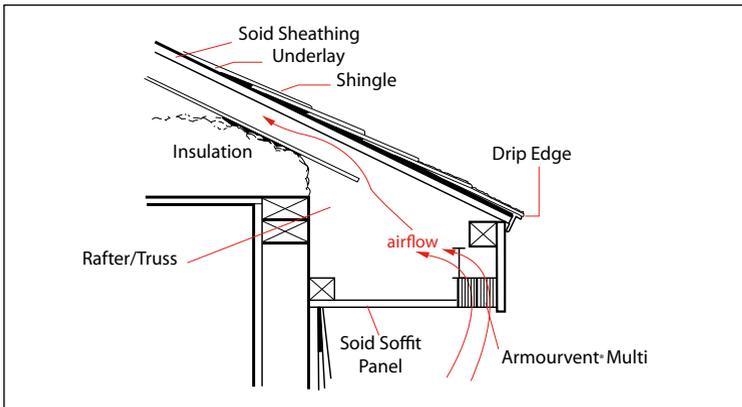
Detail:  
IKO Armourvent® Multi shed roof application



Detail:  
IKO Armourvent® Multi eave application (narrow overhang)



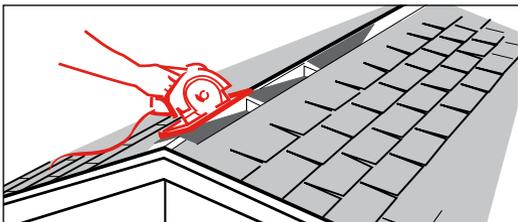
Detail:  
IKO Armourvent® Multi eave application (wide overhang)



## RIDGE VENT INSTALLATION INSTRUCTIONS

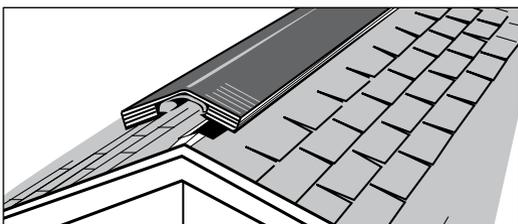
The length of slot cut along the roof ridge controls the amount of ventilation. Remember, for a very attractive roofline, it is recommended that IKO Armourvents® Multi are installed along the entire ridge of the roof.

### 1 / Ridge slot preparation



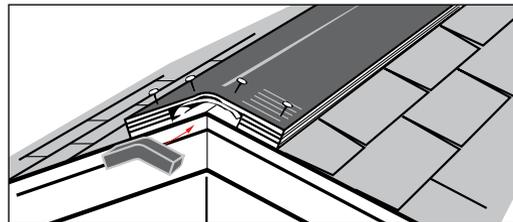
Cut a 5 cm slot (2,5 cm on each side of ridge) along the ridge(s). For a roof with a centre beam, a 9 cm slot should be cut (4,5 cm on each side of the ridge). A minimum of 15 cm must be left uncut on each end of the ridge. Once the slot is cut and any overlapping shingles covering the ridge are trimmed and removed, the ridge is ready for vent installation.

### 2 / Vent placement on ridge



Roll out and place the IKO Armourvent® Multi along the entire length of slot also covering the 15 cm minimum uncut ridge on both ends. Secure at the lead edge, inserting the end cap. Pull the vent tight and secure at about 3 m. Pull the rest of the vent tight and secure, inserting the end cap. Multiple lengths of vent can be joined by butting the sections tightly together. We require applying bitumious mastic to the shingles, before installing the vent on the ridge. This sealant should fill any voids between the bottom of the vent and the surface of the shingle.

### 3 / End cap installation



Install end caps. Pull apart a pre-cut section of the foam end cap found with the IKO Armourvent® Multi. Use a utility knife, to make a cut in the moisture barrier membrane 1,5 cm on each side, back from the end of the section.

Use Bitumious mastic, coat both sides of the moisture barrier membrane between the foam end cap and the vent underside for a tight seal. Attach vent in the corners to the roof and nail vent and end caps in place to roof deck. Drive two nails through the vent and foam end cap to hold foam in place on the ends of the ridge only. Nails should penetrate the wood roof deck at least 1,5 cm.

### 4 / Ridge shingle installation

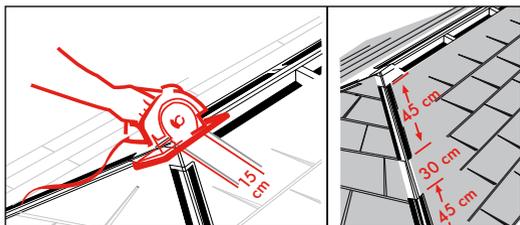


Nail ridge shingles with roofing nails in a common overlapping pattern. Nails should penetrate the wood roof deck at least 1,5 cm. The vent has been installed properly if the bottom of the vent is flat on the roof and the peak is slightly rounded.

# HIP VENT INSTALLATION INSTRUCTIONS

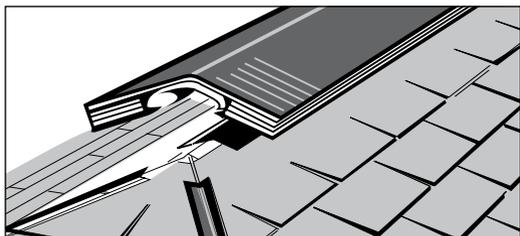
The length of slot cut along the roof ridge controls the amount of ventilation. Remember, for a very attractive roofline, it is recommended that IKO Armourvent® Multi are installed along the entire ridge of the roof.

## 1 / Hip slot preparation



To maintain structural integrity, one continuous slot is not recommended on hip applications. Start ventilation preparation by leaving 15 cm of hip uncut from where the ridge and hip meet. Cut a 9 cm width slot for ventilation (4,5 cm on each side of the hip). Hip slot should be 45 cm in length, spaced with a 30 cm uncut area between each 45 cm opening. The slot for ventilation should not be cut any lower than 1/3 of the roof to maintain a balanced ventilation system.

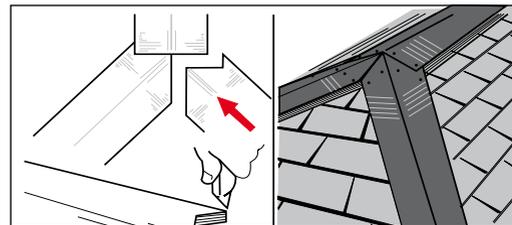
## 2 / Vent placement on ridge



Roll out and place the IKO Armourvent® Multi along the entire length of slot also covering the 15 cm minimum uncut ridge on both ends. Secure at the lead edge, inserting the end cap.

Pull the vent tight and secure at about 3 m. Pull the rest of the vent tight and secure, inserting the end cap. Multiple lengths of vent can be joined by butting the sections tightly together. We require applying bitumious mastic to the shingles, before installing the vent on the ridge. This sealant should fill any voids between the bottom of the vent and the surface of the shingle.

## 3 / Hip and ridge vent transition



Using a utility knife to trim the end of IKO Armourvent® Multi. Insert the foam end cap under the IKO Armourvent® Multi where it is at full width. Fasten vent for hip at point where it meets ridge. Roll out or place the vent all of the way down the hip, covering 2 pre-laid cap shingles at the bottom of the hip. Go back over hip vents and fasten at 10 cm intervals.

If the Armourvent® Multi is not being run the entire length of the hip, use the cap shingles to create a transition. Use sealant to fill any void left between the shingles and the remaining top layer of the vent. Be sure to apply roofing sealant to any spaces left by cap shingle used for transition. If 2 or more sections of IKO Armourvent® Multi are being joined together, an end cap MUST be installed into each end of the joining sections. Repeat on all hips.

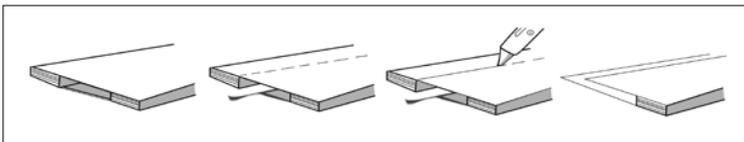
## 4 / Hip and ridge shingle installation

Apply the shingles to the hip and then to the ridge. Nail hip shingles with roofing nails in a common overlapping pattern. Nails should penetrate the wood roof deck at least 1,5 cm. It is important when installing this vent that you maintain the pitch of the roof. The vent has been installed properly if the bottom of the vent is flat on the roof and the peak is slightly rounded.

# OFF PEAK VENT INSTALLATION INSTRUCTIONS

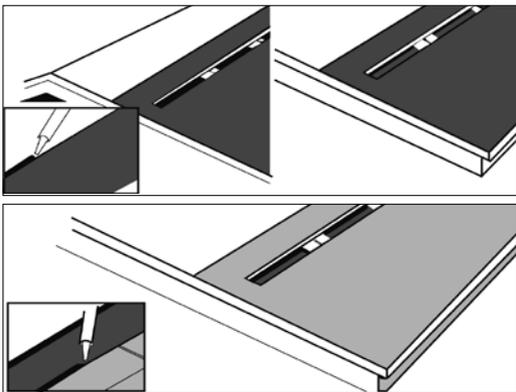
## 1 / Vent preparation

Using IKO Armourvent® Multi Plus, peel 7,5 cm of the moisture barrier membrane away from one entire side of the vent. Using a utility knife, cut off 7,5 cm of the corrugated air return at one entire side of the vent.



## 2 / Ridge exhaust/lower intake

Cut a horizontal 2 cm slot in the deck where the desired ventilation is needed. A minimum of 15 cm must be left uncut on each end of the slot. Install an underlay onto the deck and trim underlay from slot opening. Caulk edge of underlay.



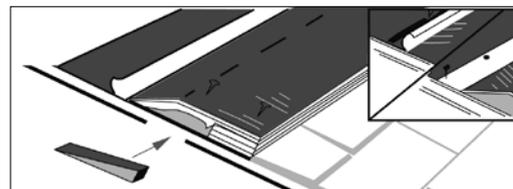
## 3 / Shingle installation

Install shingles, bitumious mastic the top edge of shingles and trim shingles from slot opening.

## 4 / Vent installation

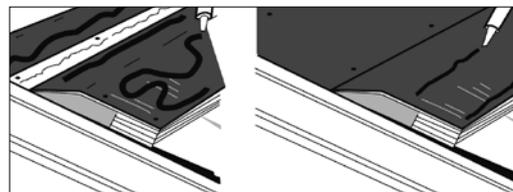
Install IKO Armourvent® Multi Plus along the slot opening with the remaining 7,5 cm corrugated air return placed approximately 2,5 cm below the ventilation slot. Nail down the roll, starting with the lead edge, middle and other end through the 7,5 cm air return.

Be sure the moisture barrier membrane is pulled tight and lay a bead of bitumious mastic, 11,5 cm above the slot, below the moisture barrier membrane. Nail through the plastic cap and moisture barrier membrane into the deck. Install foam end caps.



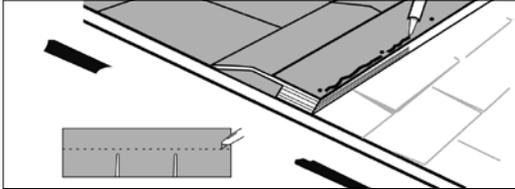
## 5 / Bitumious mastic

Lay a bead of bitumious mastic on front edge of IKO Armourvent® Multi Plus. Bitumious mastic on top and behind the vent. Install an underlay on top of vent (a minimum of 40 cm). Install underlay from the vent to the ridge. Lay a bead of IKO Shingle Stick® front edge of underlay.



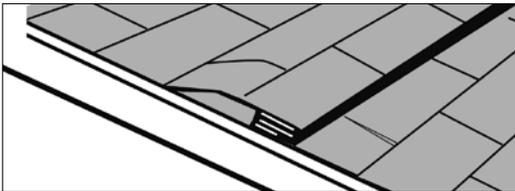
## 6 / Tabs removal

Using a utility knife, remove tabs from shingles.  
Nail this starterstrip. Nails should penetrate the wood roof deck at least a 1,5 cm.  
Lay a bead of Bitumious mastic on the front edge of the starterstrip.



## 7 / Shingle installation

Install a minimum of one course of shingles, lapped on top of starterstrip, over vent.



### **IKO Armourvent® Multi is multi-functional**

- › 2 sizes available for all types of IKO shingles
- › Can be used for a wide variety of sloped roofs
- › Can be used for ridge, hip, soffit and off peak ventilation

### **IKO Armourvent® Multi can be applied very quickly**

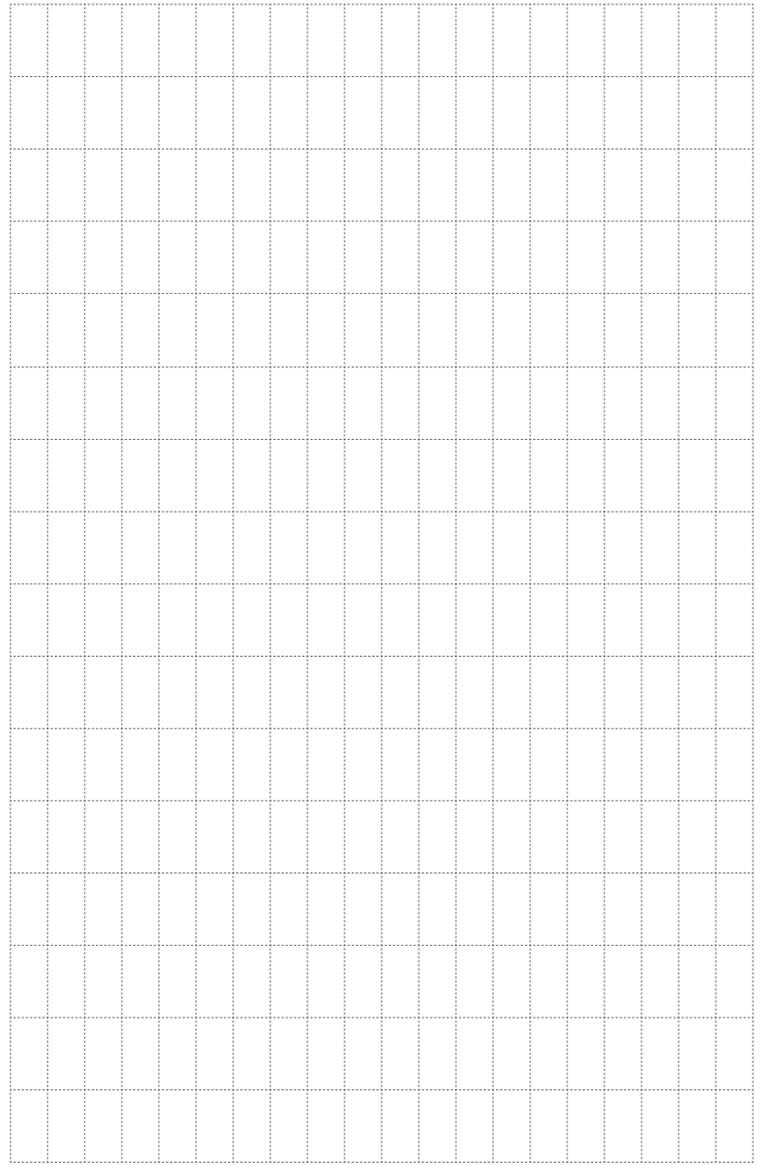
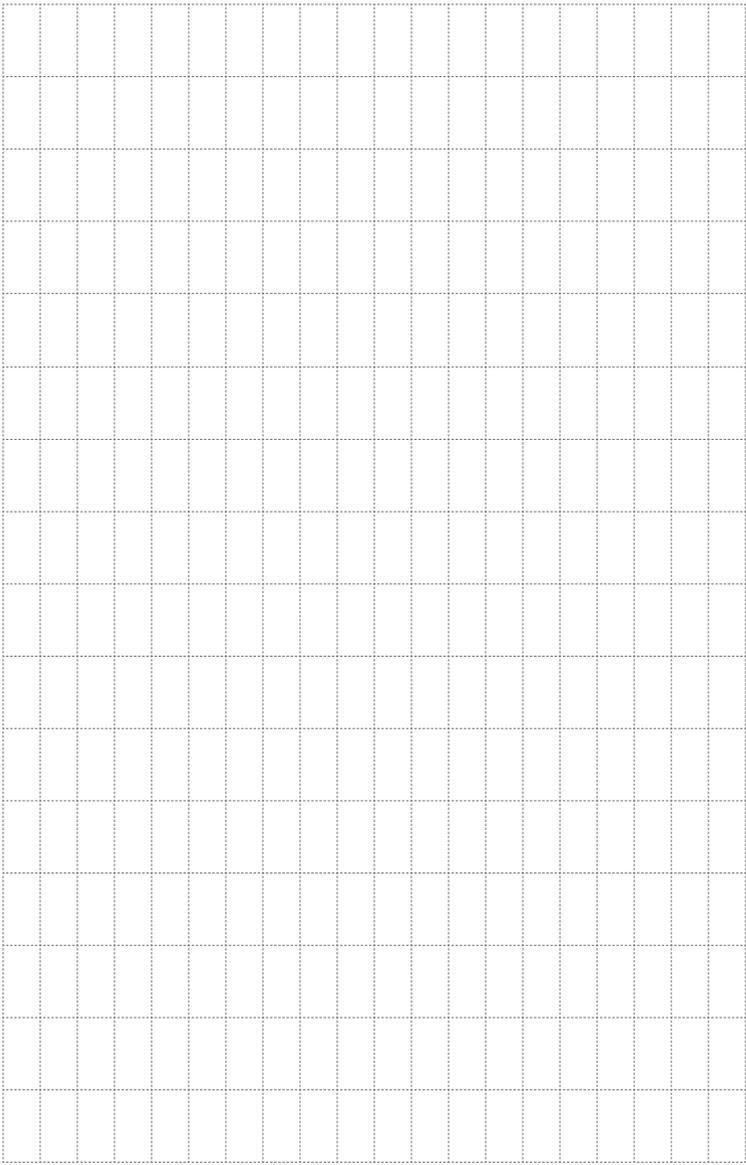
- › Rolls can be cut to any desired length
- › Easy to handle
- › No special tools are required
- › Easy fastening method
- › One pass application

### **IKO Armourvent® Multi is cost efficient**

- › Less openings have to be made
- › Very fast application

### **IKO Armourvent® Multi is a highly solid material**

- › Does not crush when nailed





**Notice:**

The information on this publication is subject to change without notice. IKO assumes no responsibility for errors that may appear on this publication.

**Warning:**

Check local building codes, safety precautions and law procedures that may apply to your particular situation.

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