ROOFING MEGASTORE

Specialists in Lightweight Roofing

Issue 2 – June 2014

System Installation MANUAL

ROOFING MEGASTORE

Specialists in Lightweight Roofing

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

IKOslate Installation Manual

Contents

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

4 Design

5 Glossary



Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ
Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

About the IKO Group

IKO is a family owned company that has been committed to manufacturing quality residential and commercial roofing products since 1951. Our motto is "Setting the Standard" and that's what we do; set the standard for quality, durability and innovation.

The IKO Group is a global leader in the manufacture and supply of roofing and waterproofing products. Group headquarters are in Alberta, Canada, with production carried out at plants throughout North America and Europe.

In the UK, IKO PLC embraced some of the most respected and long-established brands in the marketplace, including Ruberoid Building Products, Permanite Engineered Roofing Systems, Permanite Asphalt, Marley Waterproofing, Hyload and IKO Single Ply.

RUBEROID BUILDING PRODUCTS
PERMANITE ENGINEERED ROOFING SYSTEMS
marley waterproofing
IKO single ply Polymeric Roofing Systems
HYLOAD Structural Waterproofing
PERMANITE ASPHALT

IKO PLC's product range includes:

- Reinforced Bituminous Membranes
- Mastic Asphalt Systems
- Monolithic Hot Melt Systems
- Polymeric Single Ply Systems
- Green Roof Systems
- Insulation Materials and Roofing Accessories
- Pitched Roof Protection Systems
- High Performance DPC & Cavity Tray Systems
- Below Ground DPMs & Tanking Systems
- Waterproofing Solutions & Compounds

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ
Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

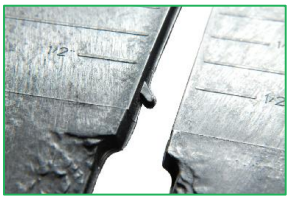
Product Description

IKOslate is a composite roof tile manufactured from mineral reinforced, 99% recycled and re-engineered materials (plastics and rubber tyres). It is also fully recyclable at end of life. IKOslate's unique structure gives it superior strength and makes it easier to handle and install. It has the same aesthetic qualities as slate because moulds of quarried slates are used to form the composite tiles. Each mould imparts different textures and patterns to the tile and its natural look is enhanced by a realistic "slate grey" finish.

IKOslate allows the experienced roofer, or contractor without extensive roofing experience, to deliver a sustainable roof with the look and feel of slate faster and more economically than previously possible. Unlike natural slate,

Installation Features and Benefits

- Can be installed using conventional power tools - tiles can be nailed down using a hammer or nail gun and can be cut with a hacksaw or jigsaw
- Approximately 80% lighter than natural slate
- Easy to carry packs with unique carry-handle straps to make loading and off-loading as convenient as possible



- Integral spacer nibs to assist with setting out the slates, ensuring a consistent gap pattern
- Cambered profile to provide additional security of fixing by introducing pre-tensioning in the completed installation

- Each slate is marked with convenient setting out lines to assist with placing of the slates
- Nail hole positions are also marked - installers may use these markings or calculate batten spacing using traditional slate fixing methods. (Refer to **Setting Out** section)

- Robust and non-brittle – less breakages and less wastage
- Safe to cut and use on site – no harmful dust created
- Any offcuts are 100% recyclable

IKOslate Crown Ridge Tiles

IKOslate Crown Ridge Tiles, which can be used in conjunction with IKO's Armourvent ridge ventilation strip, are the perfect way to finish the IKOslate roof. The Crown Ridge pieces have the same slate surface patterning as the regular IKOslates, but they have a flexible hinge which allows them to be readily formed to any ridge profile.

IKOslate Crown Ridges overlap each other as they are laid along the ridge, ensuring a weather-tight seal and helping to comply with current British Standards.

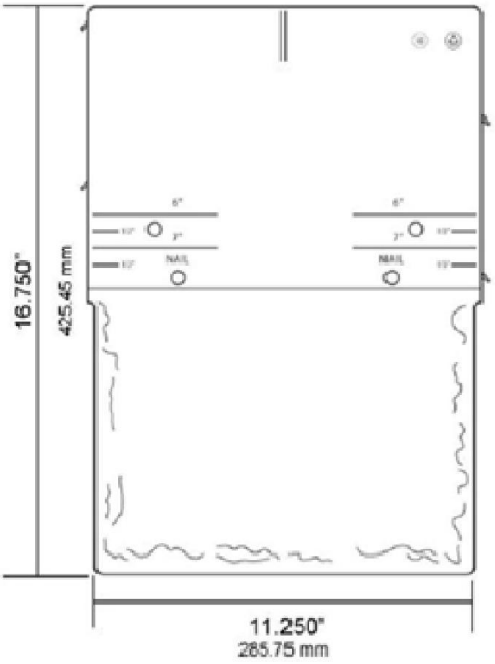
Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

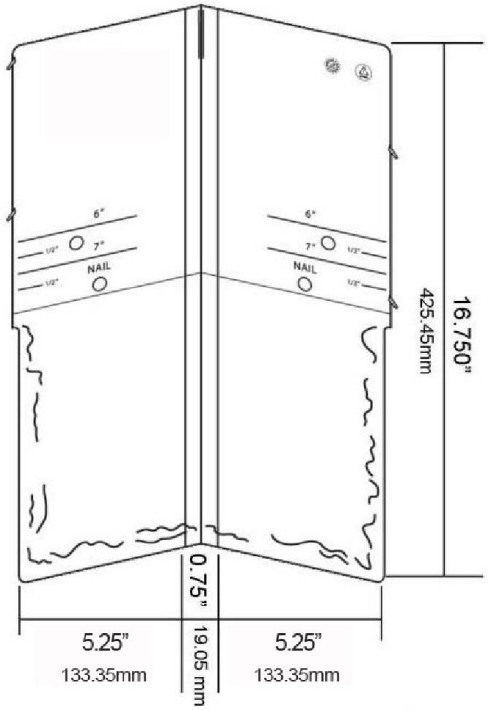
Dimensions and Weights

	IKOslate Main Tiles	IKOslate Crown Ridge Tiles
Individual Slate Size	425.45mm x 285.75mm	425.45mm long
Thickness	7.0mm (including texture)	6.4mm (including texture)
Weight per Slate	0.57kg	0.45kg
Slates per Bundle	27	20
Weight per Bundle	15.5kg	9.0kg

IKOslate Main Tiles



IKOslate Crown Ridge Tiles



Storage Guidelines

The product should be stored flat, and when on pallets should not be double-stacked. IKOslates can withstand extremes of temperature for both hot and cold climatic conditions, but for long term storage it is recommended that they be stored at temperatures above 0°c.

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Tools and Equipment

IKOslates can be cut and shaped using hand tools such as utility knife or hand saw. Power saws may also be used. Please pay attention to the appropriate safety precautions for the equipment in use.

When using a utility knife to cut the materials, deep score the textured side of the slate along the desired line of cut, and then snap the slate backwards and forwards along the cut line until it snaps.

Pad-saws are useful for cutting out more intricate shapes.

Underlays

BS5534 recommends the use of underlay membranes beneath a slate or tile covering. Various types are available, but we would recommend the use of IKO's *Rubershield* or *Ultimo HS* vapour permeable membranes or *IKO bituminous under-slating* (manufactured to the 1F specification under the former BS747). Further details of requirements for under-slating membranes are available in BS5534.

Fixing

Aluminium clout nails, copper or stainless steel nails may be used. Minimum length should be not less than 38mm x 3.0mm.

Battens should be of treated timber, minimum 25 x 50mm (for rafter spacing up to 600mm)
Note that IKOslates are positioned with the head of the slate in line with the top edge of the batten (not seated on half of the batten as with natural slates). This arrangement allows for the IKOslates to be fixed at four points, as the head of the slate is additionally secured by the fixing of the overlying slate.

Since IKOslates are fixed at multiple points, cut pieces can still be fixed securely with at least two nails and so there is no requirement for the traditional 'slate-and-a-half' item. It is recommended, however, that cut pieces less than half of the width of the slate should not be used.

IKOslates have pre-determined nail marker positions but installers can choose their own nail positions if required. Attention should be paid, however, to ensuring that slates have suitable side-laps beyond the nail position.

Pitch

IKOslates are suitable for installation on felt-and-batten roofs with pitches from 22.5° - 90°.
They can be installed on fully boarded roofs down to 18°.

Laps/Gauge

Gauge (batten spacing) is calculated from the size of a slate and the required head-lap.
The head lap is derived from the pitch of the roof and its exposure area according to a UK rain-fall map which is provided in BS5534, and reproduced here for reference.

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ
Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

UK Rainfall / Exposure Map (as provided in BS5534)

Key

Exposure zone	Approximate driving rain (l/m² per spell)
☐	<56.5
▒	⩾56.5

NOTE Derived from BS 8104:1992 and BRE 262 [4].

Figure 2 — Categories of exposure to driving rain

<56.5 l/m2 = Moderate exposure
>56.5 l/m2 = Severe exposure

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

For convenience, the following charts can be referred to for the required laps, batten spacing, side laps, slate quantities and overall weights.

Moderate Exposure				
Pitch (°)	**Lap (mm)**	**Batten Spacing (mm)**	**No Slates Per m2**	**Weight (kg/m2)**
45	55	186	19	10.8
40	60	183	19	10.8
35	67	180	19	10.8
30	77	175	20	11.4
27.5	84	171	20	11.4
25	92	167	21	11.9
22.5	100	163	21	11.9

Severe Exposure				
Pitch (°)	**Lap (mm)**	**Batten Spacing (mm)**	**No Slates Per m2**	**Weight (kg/m2)**
45	70	178	20	11.4
40	76	175	20	11.4
35	85	170	21	11.9
30	98	164	21	11.9
27.5	106	160	22	12.5
25	116	155	22	12.5
22.5	128	149	23	13.1

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Boarded Roofs

These instructions apply generally to felt and batten type roofing, but IKOslates can be installed on solid board decking using similar principles along with traditional slate installation techniques.

Boarded roofs should have an under-slating membrane installed prior to the application of the IKOslates. This may be a vapour permeable or non-vapour permeable type, but attention should be paid to any requirements for ventilation beneath the timber boarding for both warm and cold roof constructions.

Boarded roofs should be of a minimum 18mm thickness to provide adequate structural support and sufficient thickness of material for the slate nails.

Felt & Batten Roofs

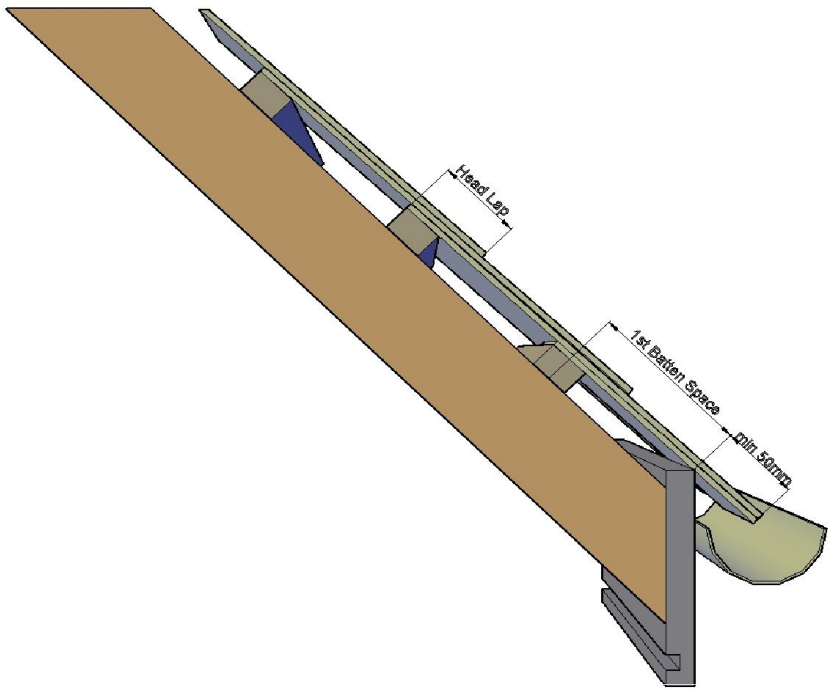
Set out the battens in accordance with the charts above (or by separate calculation if required).

The slates have marker lines embossed on the surface to assist with setting out. The rows highlighted in the charts show the laps and batten gauges which are indicated on the slate surface.

The location of the first batten up from the lower edge of the roof (eave) will be dependent upon the amount of slate over-hang beyond the fascia, which is recommended to be 50mm.

The position of the first batten can then be determined according the following diagram, and is equivalent to;

(Batten gauge + Head lap) – 50mm



Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ
Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Eaves

Ensure that there is a tilt fillet or raised fascia edge to support the lower edge of the bottom course of slates.

The first course of IKOslates, or starter course, will be formed from part slates of a length determined from the above diagram, i.e. allowing for an over-hang into the gutter (50mm suggested) and a length measured to the top edge of the first batten.

Nail this slate with its top edge flush with the top edge of the batten. The first course of full slates will lie over the starter course, with their lower edges flush with each other. The first course of full slates are nailed to the fist batten, through the head of the starter course slates below, thereby providing four fixing points to the starter course slates (two at end of row part slates)

The spacer nibs on the sides of IKOslates ensure consistent gaps between slates.

Subsequent courses of IKOslates are then nailed to the installed battens in the traditional slate & tile staggered arrangement. Alternate courses will start with a half slate to provide the staggered pattern.

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Ridges

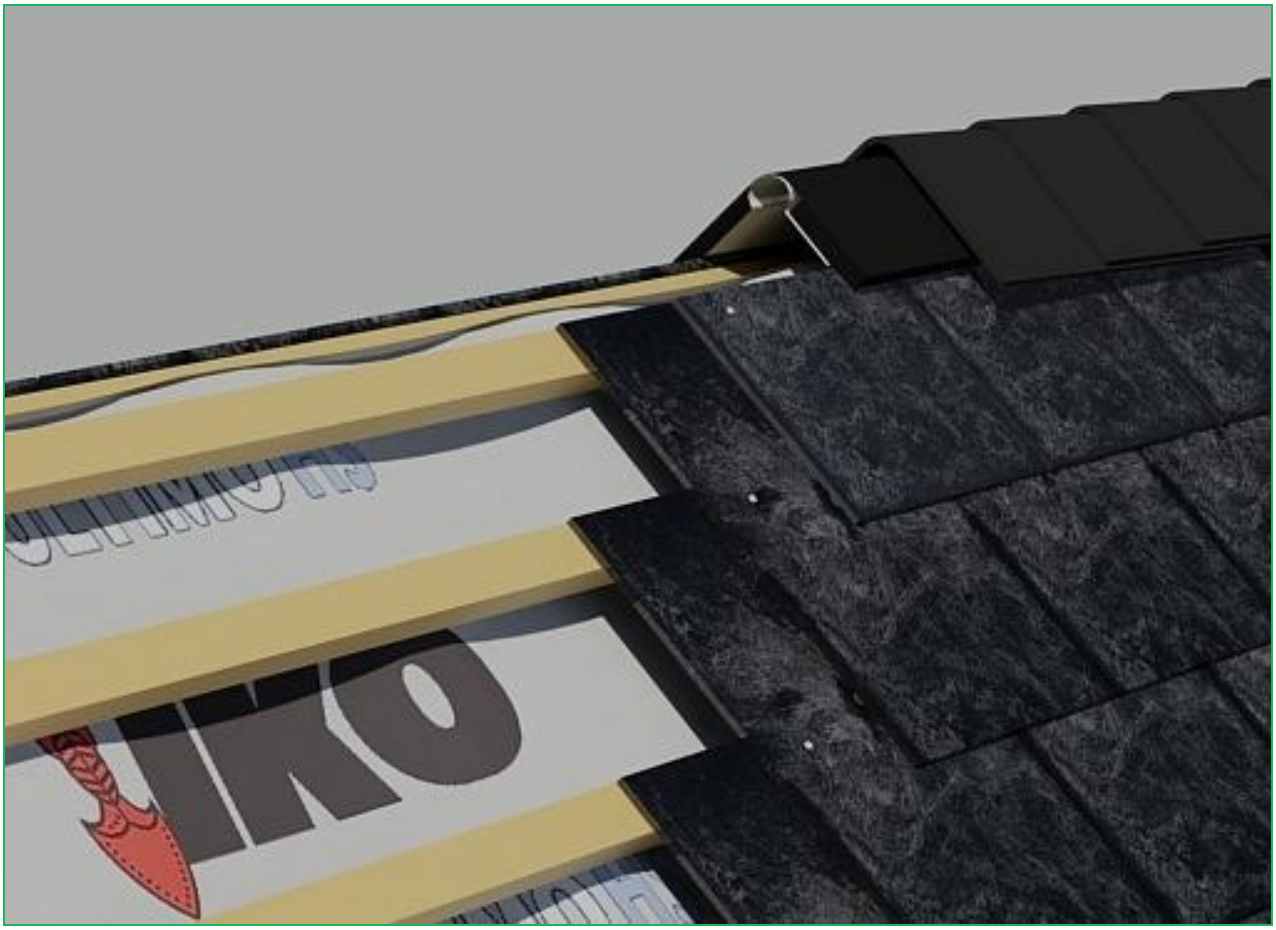
Underlay – If roof void ventilation is required there should be a gap of 25mm between the underlay sheets on either side of the ridge to allow for the ventilation. If no roof void ventilation is required the underlay sheets on each pitch should overlap each other at the ridge by 150mm minimum. (Note that even if there is no requirement for roof void ventilation, the batten space may still need to be ventilated at the eaves and ridge. This will normally require the inclusion of counter-battens).

The upper two courses of slates at the ridge will usually be part slates, with the final course being fixed to an additional batten placed with a shorter gauge according to the exact dimension to the ridge. This will ensure that the appropriate lap is maintained up to the top of the roof.

Ridges can then be finished with IKOslate Crown Ridge pieces, in conjunction with Armourvent ridge ventilation roll if required, or with proprietary clay or concrete ridge termination pieces, which should be mechanically fixed to the structure. A Code 6 lead capping can also be applied, using lead straps fixed to the top batten.

Where IKOslate Crown Ridges are being used with Armourvent, longer nails will be required to pass through the additional thickness of material.

Note: Alternatively IKOslate can be installed in conjunction with other proprietary dry fix ridge capping systems.



Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

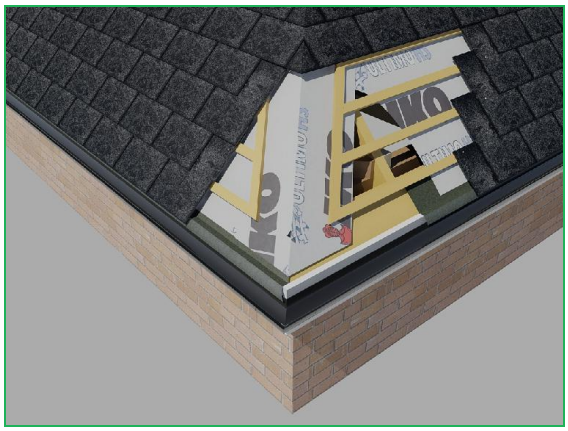
Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

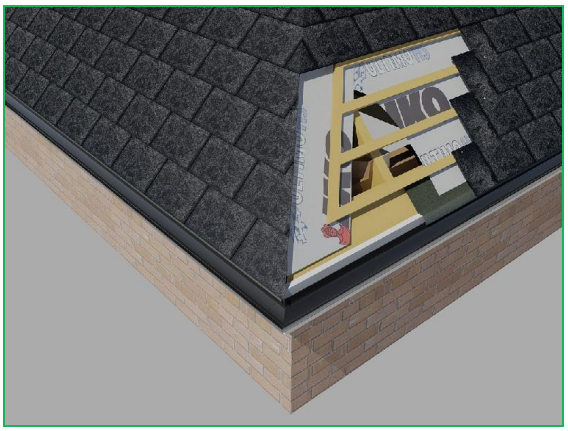
Hips

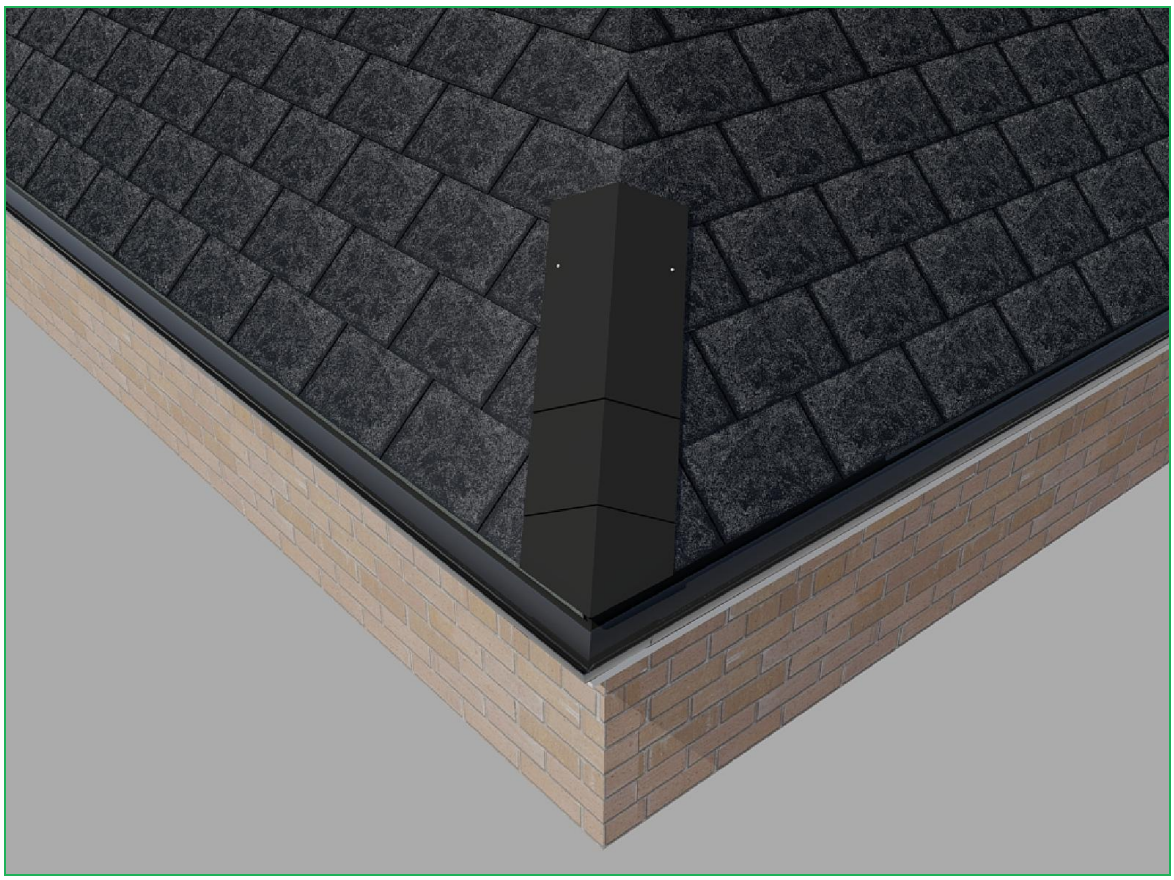
Underlay – provide an additional 600mm wide piece of underlay along the length of the hip, from eave to ridge, overlapping the standard underlay on either side of the ridge.

Hips should be formed using additional battens running up the roof parallel to the hip rafter, and on either side of it. These hip battens provide additional fixing points for the cut slates which abut the hip, and also for the IKOslate Crown Ridges which can be used to terminate the ridge slating.

Alternatively, a closed mitred hip can be formed using lead soakers interleaved with the IKOslates. Please refer to the Lead Sheet Association for further details of this arrangement.







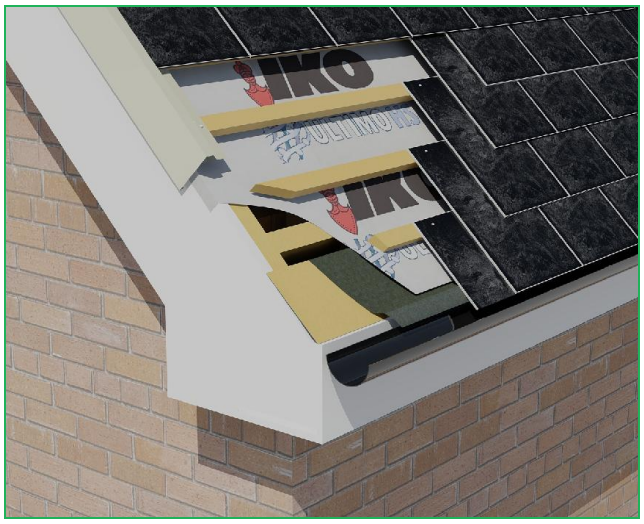
Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Verges

IKOslates can be finished with an open end at verges, but it is recommended that a dry fixed edge trim is used, as these have the advantage of providing mechanical restraint against wind uplift at the roof edge. Proprietary universal trims are available for this purpose.

Verge trims are normally nailed to the batten ends and the slates inserted into an edge socket which restrains them in place. Proprietary cloaking trims can be used to close off the batten ends beneath the verge trim if necessary.



Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Valleys

Valleys may be of an open or closed design.

Open valley – IKOflash, Code 4 lead or proprietary valley troughs may be used to provide the waterproof lining to the valley.

4mm plywood valley boards of suitable width should be installed in the valley with 50mm wide timber battens running up the full length of the valley on either side of the boards. Dress an additional 600mm wide piece of under-slating membrane across the valley prior to installing the valley lining material. IKOslates should extend at least 100mm over the valley trough sides.

Closed valley – These are formed by laying the sates tight into the valley, and inter-leaving them with non-ferrous metal soakers (e.g. Code 4 lead) or IKOflash. Please refer to the Lead Sheet Association for further details of this arrangement.

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Abutments

Cover flashings will be required at all abutment upstands, using non-ferrous metals (e.g. lead) or IKOflash.

The under-slating membrane should be turned up the face of the abutment wall before installation of the battens.

At pitched abutments, stepped flashings are preferable, using IKOflash or Code 4 lead soakers interleaved with the slates, and with similar cover flashings dressed over them. Please refer to the Lead Sheet Association for further details of this arrangement.

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

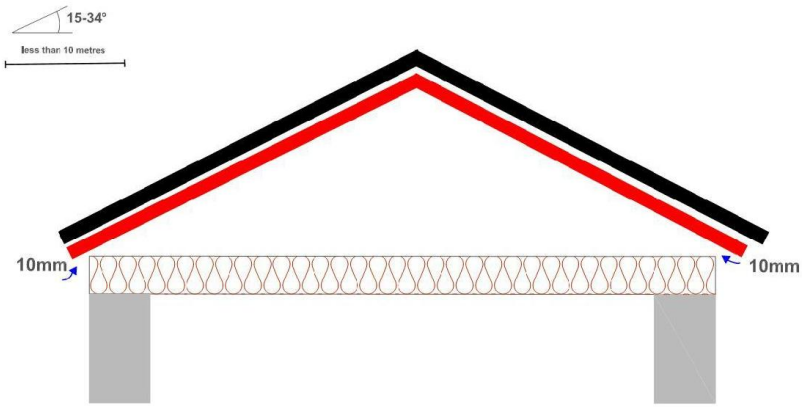
Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Ventilation

Ventilation of **IKOslate** roof coverings may be achieved either through the use of universal ridge pieces together with proprietary ridge ventilation systems, or through the use of **IKOslate Crown Ridges** in combination with **IKO Armourvent**. **Armourvent** is IKO's patented ridge ventilation system, which is rolled out along the ridge and secured in place by the subsequent fixing of the IKO Crown ridge pieces. It provides more than the minimum stipulated levels of ventilation for a pitched roof at ridge level.

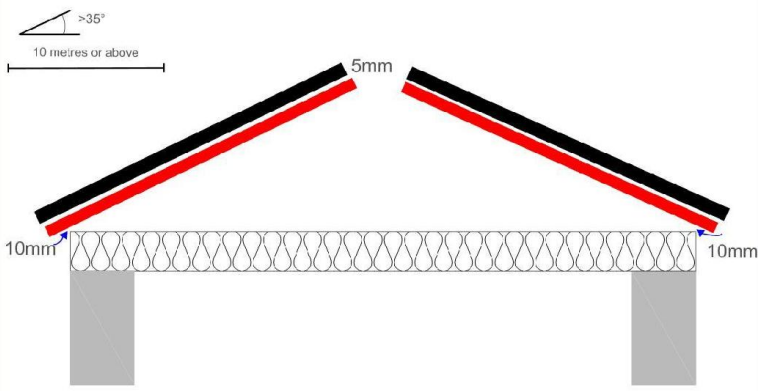
Control of condensation is essential with all pitched roofs. There are various ways of achieving satisfactory condensation control, and adequate ventilation is an important factor. BS 5250 gives comprehensive guidance, but the following advice is intended to draw attention to the relevant principles.

Cold Roof with Impermeable Underlay



Roof span < 10 metres
Roof pitch < than 35°,

10mm eaves ventilation required.



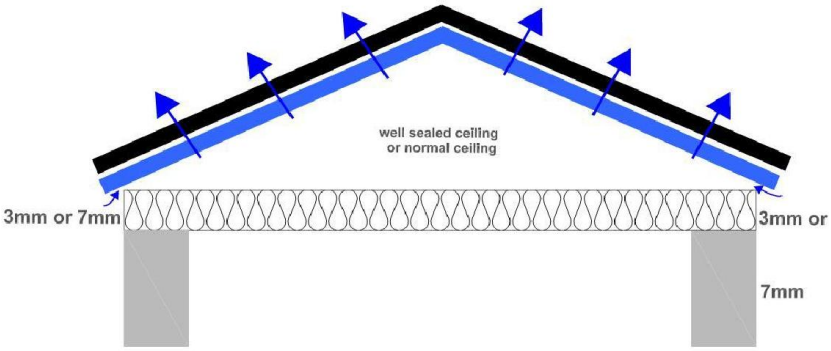
Roof span > 10 metres
Roof pitch > 35°

10mm eaves ventilation is required together with 5mm ridge vent.

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

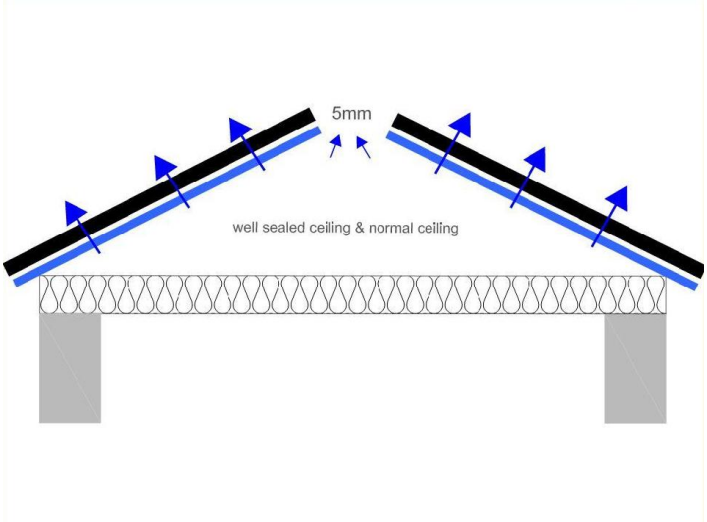
Cold Roof with Vapour Permeable Underlay



Well-sealed ceiling - 3mm eaves ventilation required.

Normal ceiling - 7mm eaves ventilation required.

(Use 10mm proprietary eaves ventilation system)

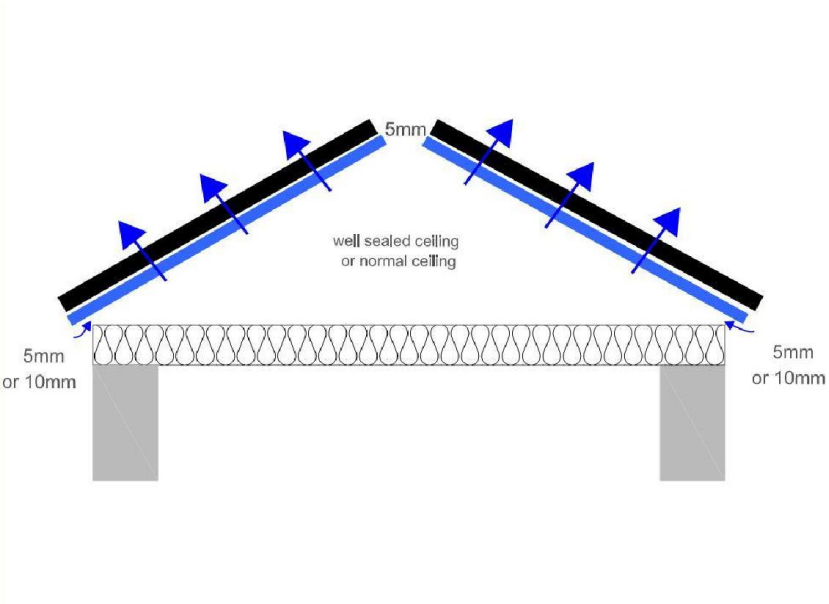


Alternatively, **5mm ridge ventilation with** either well-sealed ceiling or normal ceiling.

(Note: As from 1st January 2011 NHBC Standards require that where a vapour permeable underlay is installed without eaves to eaves ventilation high level ventilation equivalent to a continuous opening of 5mm must be provided. This requirement does not apply to vapour permeable underlays that are third party assessed as being vapour and air permeable.)

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

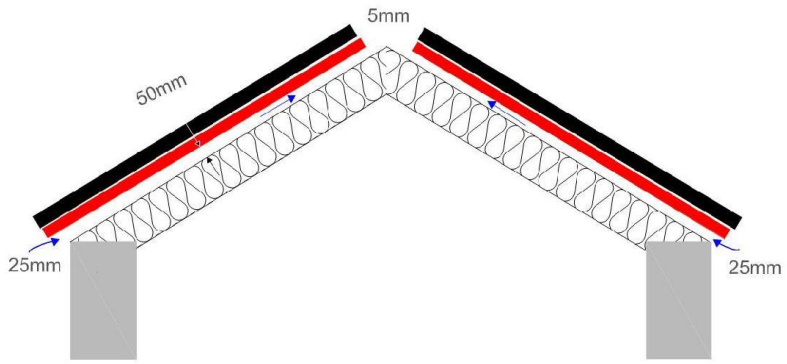


Buildings larger than dwellings:

Well-sealed ceiling; 5mm eaves ventilation required

Normal ceiling; 10mm eaves ventilation plus 5mm ridge ventilation.

Warm Roof with Impermeable Underlay



A well sealed ceiling and vapour control layer should be installed.

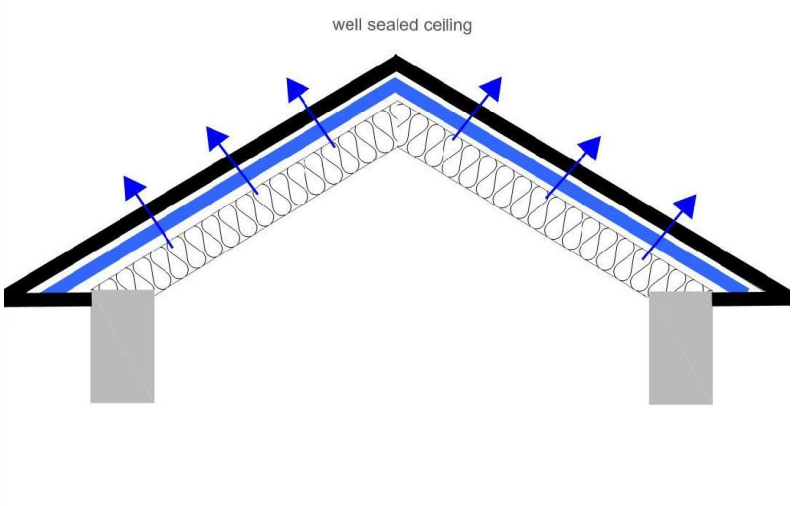
50mm gap between the underlay and insulation.

25mm eaves ventilation and 5mm ridge ventilation is required.

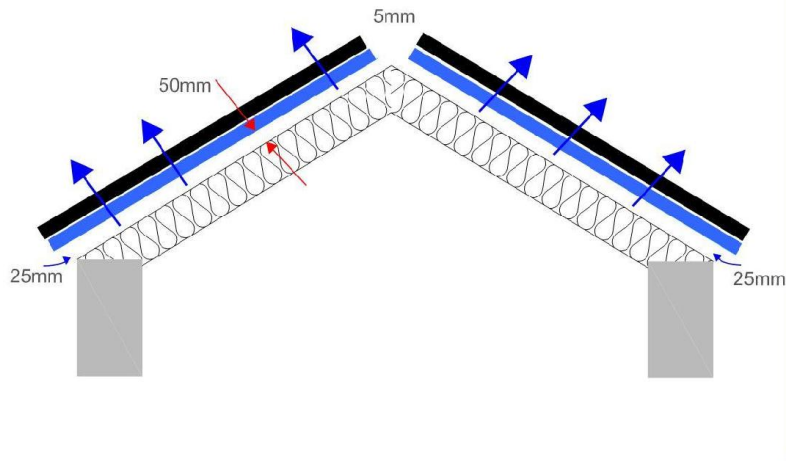
Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

Warm Roof with Vapour Permeable Underlay



Well sealed ceiling and vapour control layer:
No ventilation required.



Normal ceiling:
25mm eaves ventilation and
5mm ridge ventilation required.

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ
Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

DEFINITIONS

Ventilated roof void - One which allows the passage of air flow through it via ventilation openings.

Un-ventilated roof void - Roof void which has no openings to the outside air, but which allows water vapour escape via diffusion through a membrane.

Eaves ventilation - An air gap for ventilation, provided at the eaves, either behind or over the fascia (if present). If there is a soffit board under the fascia, ventilation may be provided via a continuous grille-strip or a series of individual vents.

Ridge ventilation - An air gap for ventilation at or near the ridge to allow a flow of air into or out of the upper part of the roof void. May be provided through a continuous gap along the ridge (in combination with a dry fix ridge system for example) or a series of tile vents parallel to the ridge line.

Cold roof - Thermal insulation is placed at ceiling level, such that the roof void above is cold.

Warm roof - Thermal insulation is laid between and/or above the rafters leaving either no gap, or only a small gap, above the insulation. Normally used to create a habitable room in the roof space.

Impermeable underlay (Non-breather) - An impermeable underlay - also referred to as 'high resistance' (HR) - allows little or no passage of water vapour through the membrane. (An impermeable underlay is defined as having vapour resistance greater than 0.25 MN s/g).

Vapour permeable underlay (Breather membrane) - A vapour permeable underlay - also referred to as 'low resistance' (LR) - allows the passage of water vapour through the membrane. (A vapour permeable underlay is defined as having a vapour resistance less than 0.25 MN s/g).

Vapour control layer - A vapour control layer (VCL) is designed to prevent the passage of water vapour through a structure such as a ceiling.

Vapour check - A vapour check is designed to resist (as opposed to 'preventing')the passage of water vapour through a structure such as a ceiling. A less effective form of vapour control.

Well sealed ceiling - A well sealed ceiling is designed to limit the passage of air (and consequently water vapour) through its structure by avoiding construction gaps, particularly at wall/ceiling junctions and those around pipe and cable penetrations. Loft access hatches must not be located in rooms where large amounts of moisture may be generated, such as kitchens and bathrooms.

Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk

5. Glossary

Boarded roof/Sarking - (Typically in traditional Scottish construction). Solid boards fixed over rafters. May be timber plank, sheet board such as plywood, or SIPS panels. If timber planks are used, laid with gap's not less than 2mm, in conjunction with a vapour permeable membrane, then the general design principles associated with breather membranes can be applied.

Batten-space ventilation - Roof coverings which are relatively air-tight will impede air movement through the void between the slate/tiles and the underlay. In this situation one of the following options is required

- Roof void ventilation should be provided as for an impermeable underlay.
- Batten space ventilation is required; ie 25mm gap at eaves and 5 mm gap at ridge, with minimum 25mm deep counter-battens.

Batten gauge - The spacing of tile/slate battens up the slope of roof

Single-lap - Slates or tiles which overlap with the next course below.

Double lap - Slates or tiles which have each alternate course overlapping.

Counter-battens - Timber battens laid perpendicular to, and underneath the slate battens, to allow air-flow and/or water drainage to the eaves.



Roofing Megastore Ltd,
Banbury, Oxfordshire, OX16 4RZ

Telephone: 01295 565565
E-mail: sales@roofingmegastore.co.uk