

Assembly Instructions

Light Oppdal quartzite

MINERA
SKIFER

A well-laid slate roof with slate from Norway is practically eternal and usually lasts longer than the actual lifespan of the building. Light Oppdal tiles are solid Norwegian rock that does not weather, and it is therefore very common for old slate roofs to be reused on new buildings. Flagstone slate roofing is very suitable for roofs with a roof angle $> 22^\circ$ and on mountain cabins as well as modern homes.

SLATE ROOF

TECHNICAL DATA

Geology:	Scandinavian metamorphic rock, 750 million years old
Quartz content:	46 %
Flexural strength:	44,8 MPa
Water absorption:	0,2 weight %
Unit weight:	2700 kg/m ³ (1 m ² roof w/overlap, T: 20 - 30 mm = ca 100 kg)



LOW CARBON FOOTPRINT



FROST PROOF



MAINTENANCE-FREE



REUSABLE



SALT/ACID-PROOF



SLATE PRODUCT

Slate type:	Light Oppdal quartzite
Surfaces:	Natural
Edges:	Natural broken edge
Format:	Medium flagstones (2 - 5 pcs per m ²) or large flagstones (1 - 2 pcs per m ²)

CALCULATION OF SLATE QUANTITIES

You need to allow for 50-70 % more slate in addition to the area on the roof to account for overlaps and adjustments. The scrap from the adjustment is neat to use as e.g. slate gravel bark in flower beds or as a drainage border around the house.

CHOICE OF FORMAT (SIZE)

The most common size to use is large flagstones with a thickness of 20 - 30 mm. The visual expression of a finished roof will vary depending on the size of the slabs. Using medium sized flagstones involves slightly more fitting and drilling/screwing.

WEIGHT

The slate's specific weight is 2700 kg/m³. For example, 1 m² of slate roof with a thickness of 20 - 30 mm installed with 50 % overlap will weigh approx. 100 kg.

$2700 \text{ kg/m}^3 \times 1 \text{ m}^2 \times 0,025 \text{ m} \times 1,50 \text{ (overlap)}$
 $= 101 \text{ kg/m}^2$

ROOF ANGLE

A roof angle of min. 22° is recommended. In places exposed to heavy rain etc., the roof angle should be slightly steeper (up to 34°).

CONSTRUCTION

a. Roof underlay

For dimensioning roof underlay, please refer to NBI building detail sheet 544.102: Roofing with roof slates.

b. Loop distance

The loops should be at least 20 - 25 mm thick to provide a good aeration and drainage effect. Loops are usually nailed in the rafters and the most used distance between loops is then CC 60 cm.

c. Dimensions of battens

The dimension of the battens should be minimum 23 x 98 mm. You could easily use thicker and wider battens, preferably

30 mm x 148 mm, as this makes it easier to avoid the risk of certain slate screws being placed outside the battens. The lower battens on the roof should have a slate thickness that is higher than the others.

d. Distance between battens

Regardless of whether you use battens with a width of 98 mm or 148 mm, the distance between the battens should be no greater than approx. 100 - 125 mm. This is because there is no fixed pattern on where the slate screws are placed, so wide battens with a small distance between them will make the roofing easier.



Roofing felt

Loop, 20 - 25 mm

Batten, minimum 23 x 98 mm



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Oppdal Skifer



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SLATE ASSEMBLY (ROOFING)

ADJUSTING THE SLATE SLABS

Flagstones have varying shapes and sizes, and you should therefore expect to make a significant amount of adjustments. This is also part of what makes each individual roof completely unique. Lys Oppdal slate is very easy to adapt, either with a slate knife, ball hammer or hammer and chisel.

The most rational laying principle is similar to the one used for laying square slates, i.e. whereby most slabs are adjusted to form a square and where a fairly straight edge is used on the lowest slabs, which also face the rafters.

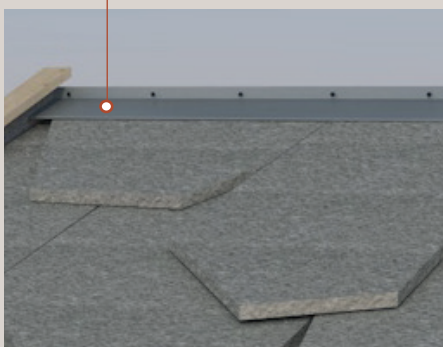
FIXING THE SLATE IN PLACE

Holes for the screws are drilled at the top of the roof as the installation progresses. Use 6 mm acid-proof screws 6 mm x length adapted to the stone thickness and battening dimensions. You will need screws of several lengths depending on where you place the holes on the slabs. It is important to make sure that the screws are not too long so that they don't go through the batten and into the roof underlay.

RIDGE FITTINGS

The traditional method is to finish with a higher ridge stone on one roof surface, creating an overlap that covers the ridge. Ridge fittings in metal are also used on slate roofs, as gutters, snow traps, etc., already break with the old style where only slate is visible. The ridge fitting is attached to a wooden batten (48x98 mm) on the ridge. The fitting itself must be pre-adjusted in the same profile as the batten it is going to cover.

Ridge cap in steel



SNOW TRAP

The snow traps are attached to the battens at the same time as the slate is installed, and in exactly the same way as on roofs with other tile types.

