# Slate Roofing System

The structure must be built up of a self-supporting roof underneath the slate roof. On the top flanges (top roof beams), we recommend wooden roof sheathing. On top of this a diffusion-proof foil. The underlying roof must be completely waterproof to withstand water and moisture. Wind and rain, and the capillary effect between the stones will transport water and moisture onto the underlying roof. If ventilation is needed this should be placed underneath the wooden roof sheathing, (for example when there are insulated living areas/rooms up against the roof). On top of the diffusion-proof foil, there must be vertical timber battens placed in the slope direction of the roof to provide adequate ventilation and drainage. The recommended minimum dimension is 48 x 23 mm, these should be fixed directly above each top flange that supports the roof. The sideways center to center distance should be maximum 600 mm. On top of these the horizontal timber battens is placed, these should have a minimum dimension of 98 x 36 mm. The horizontal battens should be fixed sufficiently to the roof. The length of the screws must be of a dimension which secures a permanent fixation into the top flanges (top roof beams) lying underneath the wooden roof sheathing. The "vertical" and horizontal battens should be made of pressure-impregnated wood in class AB.

Roofing system made from a system of 2 different standard stones A and B
(Buildt on repetitions of A = 1 pcs 120x80cm and B = 2 pcs 60x80cm)
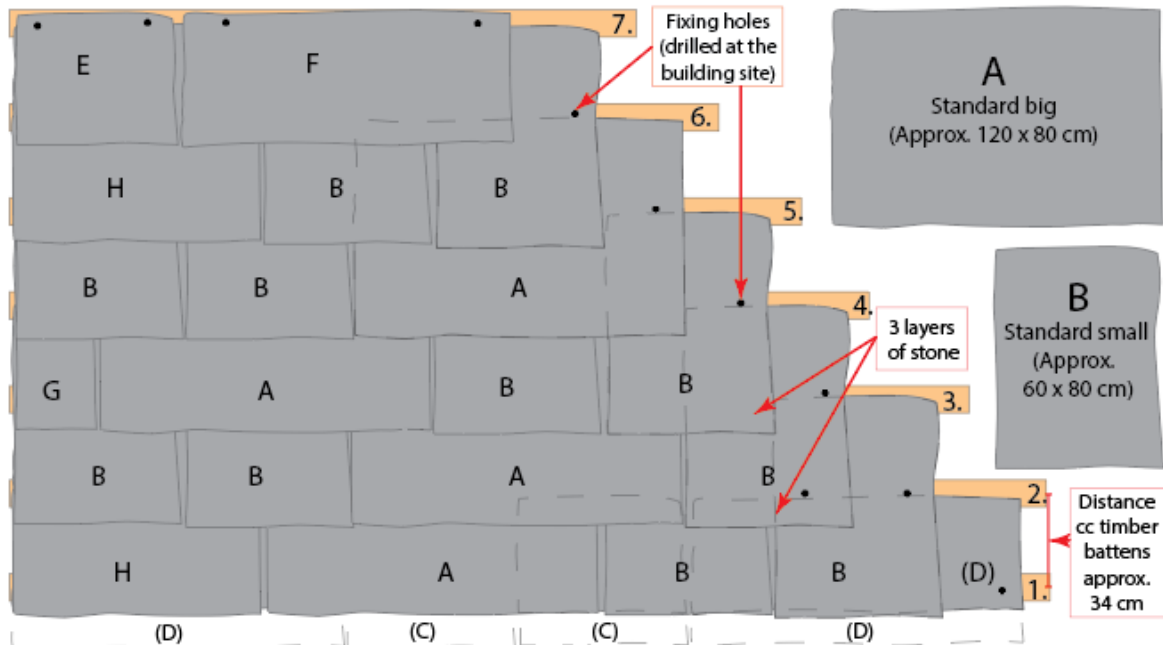
Starter stones at the bottom (C and D hidden by overlying stones) and finnishing stones at the top (E and F visible), (made from the standard stones A and B at the building site):
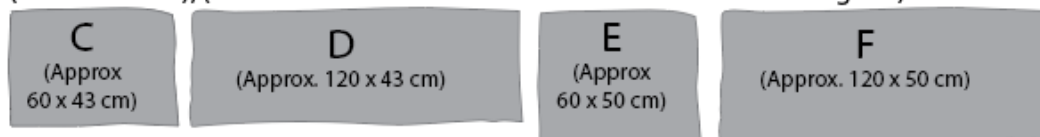
Starter end finishing stones for the left or right gable, (made from the standard stones A and B at the building site):
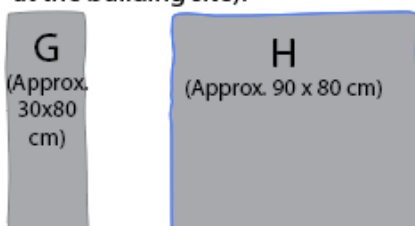
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In the drawing (se previous page) there is used a center to center (cc) distance on the horizontal timber battens (1.-7.) of 340 mm. When each top edge of the stones is resting against the center of the batten above this, it gives a minimum overlay of approximately 100 mm (at the areas where there are 3 layers of stones). The fixing holes must be drilled right above the center and clear the top edge of the underlying stones. Drilling the fixing holes is done using an adequate Rotary Hammer with SDS plus. The visible surfaces will be approx. 335 mm high on each row. The lover edge of the starter stones must be lifted to match the slope of the overlying stones. To achieve this one must lift the stones by placing a batten underneath which is adjusted to give the right slope (on top of the 1. batten) this must approx. match the thickness of the stones in the area. We recommend placing the overlying stone to verify an optimal slope of the starter stones. The starter stones must be placed approx. 20-30 mm below the lower edge of the first (1.) batten to facilitate a drip nose. (the distance between the first to battens (1.- 2.) can be adjusted to achieve this. For fixation of the slates we recommend stainless steel screws of good quality. The length of these should be a bit shorter than two times the thickness of the stone plus the battens (eg. Stone thickness of 20 mm and batten thickness 36 mm, (2 x 20 mm + 36 mm = 76 mm) gives a max screw length of 75 mm.

The distance between the last two battens (6.- 7.) can be decreased for visible appearance or to adjust the total length from the bottom to the top of the roof. To achieve this the last row with standard stones (A and B) must be cut down in size, to a measurement where the top edge is resting approx. on the center of the last batten (7.), this also applies for edge (gable) stones (G and H) if there is any of these in the row. The finishing stones then also must bee cut down in size (approx. same cut off at the top edge on E and F as of the stones in the underlying row).

The cc distance to be used on the horizontal battens can be adjusted downwards to match the length of the roof from bottom to top. We do not recommend increasing it above 340 mm, as this may decrease the overlay to a critical level, (increased flow of water onto the underlying roof). If one chooses to decrease the distance between the battens, the visible surface will decrease and the total need for stones will increase. The individual cc distance in the area between the second battens from top and bottom (between battens 2 to 6 in the drawing) should be approx. the same. The best approach is to start with the distance from the bottom to the top of the roof surface and then calculate an appropriate center distance for the battens. Remember to keep in mind the recommended max cc distance of 340 mm, and the adjustments to be made at the start (if any) and at the top of the roof (larger room for adaptions between the last to battens).

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