

# CRAZY PAVING

CEMENTING AND SETTING IN MORTAR



## INTRODUCTION

Crazy paving consists of tiles with irregular, natural shapes, usually with natural edges (individual tiles may have broken, raw-broken or sawn edges). The surface is natural. Crazy paving has many different applications, both outdoors and indoors. Garden paths, patios, chimneys, walls, floors, fireplaces, roofs and drives are just some of the areas where crazy paving is often used.

The tiles are sorted into different size and thickness ranges. Tiles sorted for regular thickness can also be supplied. There are a number of things to remember before starting work. The size and thickness of the tiles are very important factors with regard to the load to which they will be subjected and also the foundation on which they are to be laid. The tiles are shaped by breaking/guillotining/cutting edges and corners. The degree of breaking and therefore the amount of waste depends on how narrow the joints are to be. The narrower the joints, the more waste.

## SELECTING THICKNESS AND SIZE OF CRAZY PAVING

For vertical surfaces, such as cladding chimneys and walls, tiles as thin as 5mm can be used. For areas that are to be walked on, thickness of 10 mm or more will do. If the area is intended to support vehicles (normal cars), the thickness should be in the range 30-40 mm as a minimum. The groundwork is essential for a good result (well compacted ground and with a full coverage between the material and ground).



TOOLS FOR SHAPING CRAZY PAVING TILES

- Ball face hammer
- Stone shaping knife
- Scoring knife
- Bolster chisel
- Angle-grinder with diamond blade
- Ruler
- Chalk

På bildet fra venstre til høyre: skiferkniv, kulehammer, meisel, risser.

## INSTRUCTIONS:

### PREPARATION

The surface to which the tile cement is to be applied must be stable and levelled and have good adhesion. Concrete and cement products must have hardened sufficiently (a rule-of-thumb is 1 week per cm of concrete, depending on temperature).

The finished stone surface must have a sufficient fall to prevent pooling. A cement-based membrane will prevent both water leakage into the underlying structure and protect against salt and calcium efflorescence. This will inhibit the uptake of moisture from the ground, which is one of the main causes of calcium precipitation. A membrane will also be flexible and therefore help to even out shrinkage and temperature movement between stone and substrate.

Follow the manufacturer's instructions for use of the membrane, cement, grout and waterproofing. Ask our dealers for help and advice with selecting products.

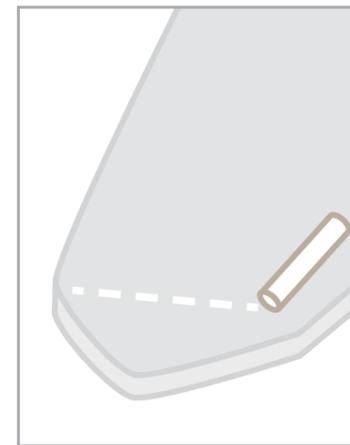
1. First unload the tiles from the pallet and spread them out to get an overall view.
2. Plan the lay-out so that you use the various thickness to achieve the required fall. Use the thickest tiles at the lowest points to avoid having to use so much cement/mortar to build them up.
3. Identify which tiles fit together best **before** you start shaping them.

### SHAPING CRAZY PAVING TILES – APPLIES TO ALL STONE TYPES

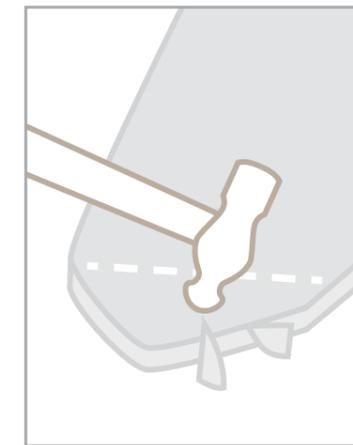
#### Method 1 – Angle grinder

1. An angle grinder with a diamond blade is one way in which to divide up stones.
2. You do not need to cut through the stones full thickness You only need to cut about half-way through it, and then you can break it.

#### Method 2 – Ball face hammer and chisel/stone shaping knife



1. Use chalk to mark out the area to be broken off.
2. Make sure the stone is well supported, e.g. on a pile of sand.
3. Use a ball face hammer (use a large one with thicker stone). The thicker the stone is, the rougher treatment it can take.



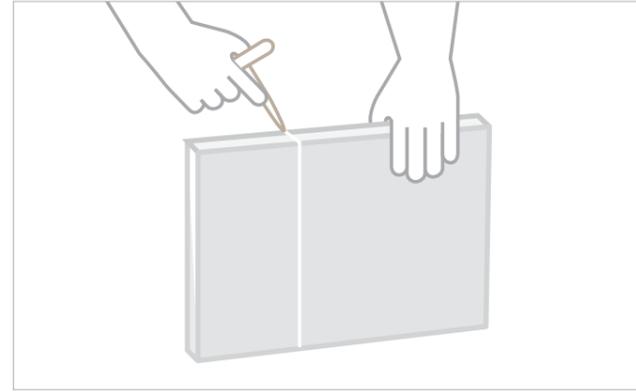
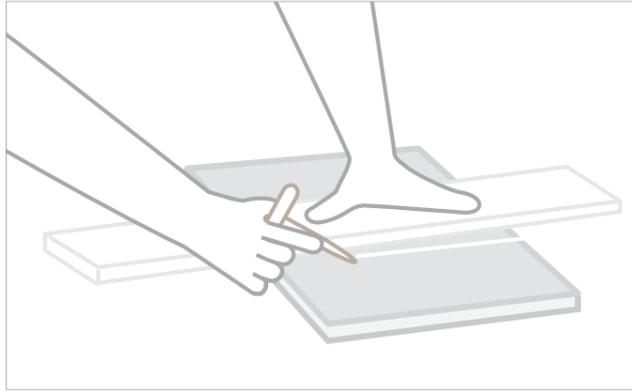
4. Using the ball part of the hammer, strike the edge to be broken towards the underside of the tile. Do not remove too much at a time, but move in from the edge gradually. The result will be a rather rough edge that gradually slopes inwards.
5. If a smoother edge is required, work on the edge using the other side of the hammer (the butt end).



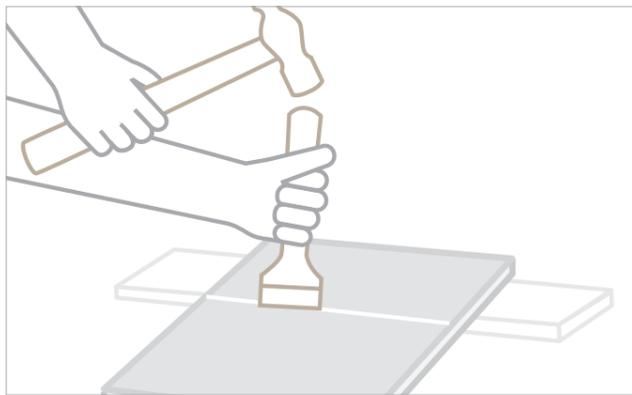
6. For an even smoother edge, use a stone knife/chisel.

SHAPING CRAZY PAVING TILES – ONLY APPLIES TO OPPDAL QUARTZITE

Oppdal quartzite has the distinctive characteristic that it can be scored and broken in the same way as glass, producing a straight edge (broken) that looks more natural compared with a cut edge.



1. Score a line where the stone is to be broken approx. 1-2mm into the surface on the side of the stone that will be facing upwards. Use a scoring knife or similar. The score line should be some way in from the edge, equivalent to twice the thickness of the stone. E.g.: if the stone is 30mm thick, the score line should be at least 60mm in from the edge.
2. Transfer the score line to the underside of the stone. It is important to do this accurately so that the lines end up directly opposite each other. You do not need to make the score line on the underside very deep – **you only need to make a mark.**

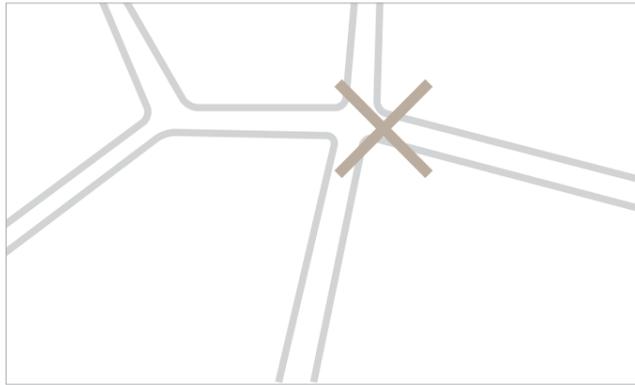


3. Using a hammer and a bolster chisel, strike repeatedly (gently but firmly) along the score line until it breaks off.

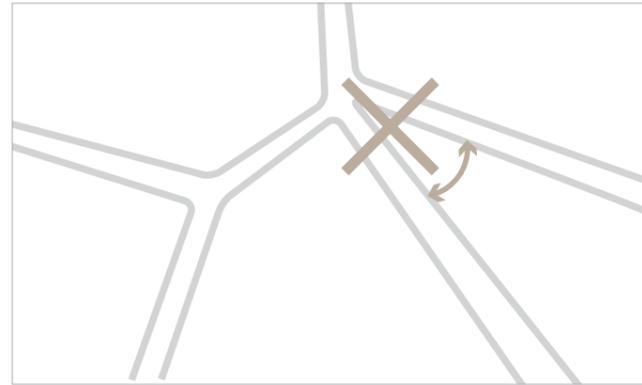


LAYING CRAZY PAVING TILES

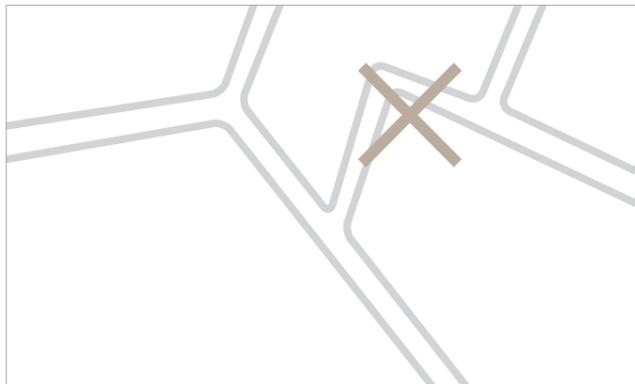
6 good tips to bear in mind for the most natural-looking results where desired:



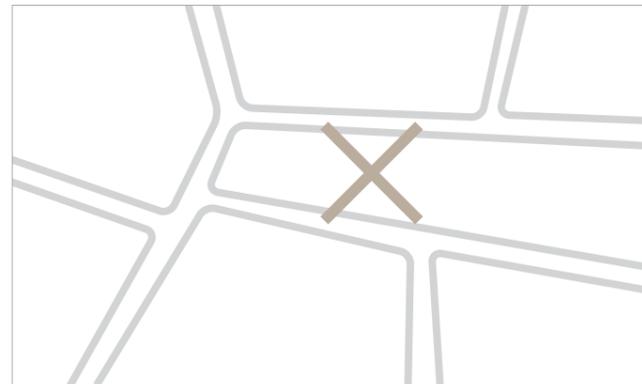
No "intersecting" joins with four tiles meeting to form a cross.



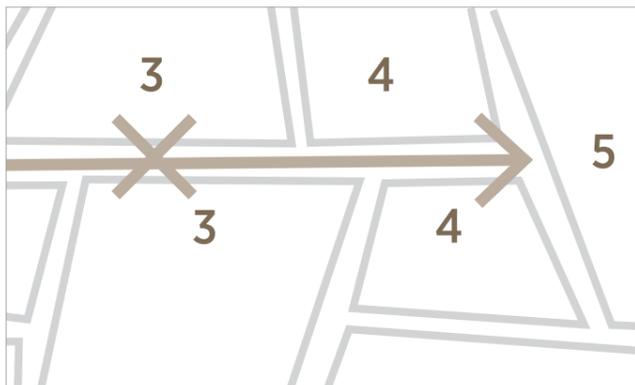
Angles at corners should be greater than 45 degrees.



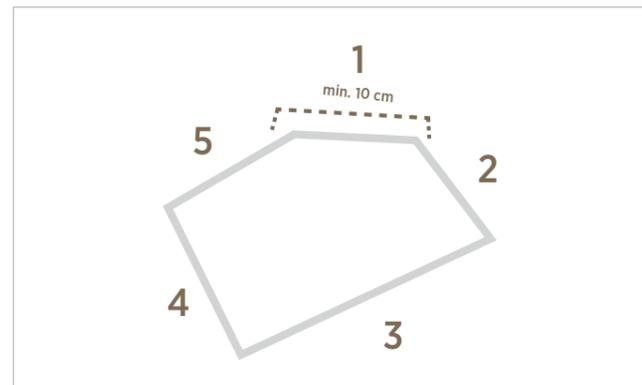
Avoid ressing one tile into another.



Avoid long narrow tiles.



No continuous joints (one joint should not cross more than three transverse joints.)



Not too many sides with parallel sides.

EXAMPLES OF DIFFERENT FINAL RESULTS BASED ON DESIRED DEGREE OF SHAPING.



Roughly shaped for a rustic look.



Worked to produce a rigid look.



LAYING

1. Start by laying stones in one corner, moving in waves out from the corner.
2. Make sure that the substrate and the underneath of the tiles are both clean and free from dust.
3. When laying crazy paving over fairly large areas, it is a good idea to do the shaping and cementing in stages. Shape the tiles for a fairly small area first, then mark/number the tiles before removing them, cleaning the substrate and then cementing the tiles into place.
4. Apply the cement using a trowel or a curved, notched spatula (recommended when applying cement outdoors).
5. Use double cement application, i.e. apply cement to both the back of the tiles and the substrate. 100% cement application underneath the tiles is important, especially outdoors to prevent water collecting in the cavities which could then cause frost heave.
6. Once the entire area has been laid, fill the joints with an appropriate grout (there are special products for use with natural stone).
7. Thoroughly wash the tiles several times after grouting. Change the water frequently. Inadequate washing will result in a disfiguring grout haze.
8. You should consider treating the newly laid paving with an impregnating agent to prevent staining with fat, etc. Be sure to choose the right product. The wrong product can ruin the look of the stone. It takes just a few quick and really easy steps to keep the stone tiles looking good for a generation.

## CEMENTING CRAZY PAVING

It is best to start with the thickest tiles first. This is the best way of ensuring that there is sufficient space under the tiles for the cement, which would be a risk if you started with the thinnest tiles.

Crazy paving tiles of a graded, regular thickness can be supplied. In most cases though the tiles are of varying thickness, e.g. 1-2 cm. It is important to choose the right cement for the varying thickness of the cement layer. A dealer can advise you on this. Do not start cementing until the substrate has hardened properly.

Apply the cement to the floor using a trowel or a notched cement spatula. Where the tiles are of varying thickness, it is best to use a notched spatula with large teeth. For best adhesion, it is important that both the material and the surface is cleaned. Apply adhesive on both the back of the material and the substrate (double bonding) to achieve full coverage of the cement. This is especially important for outdoor installation. A failure of full coverage will give a risk of breakage of the material in cold conditions, due to frost.

Adjust the tiles so that they are flush with those already laid. Use a water level or a ruler to check that the completed floor is flat and level. There must be compliance with normal building requirements for elastic joints, correct falls on bathroom flooring, membranes in wet rooms and such like. Complicated details or where incorrect installation may result in major consequences, the work should be left to a professional.

### SETTING IN MORTAR

Setting in mortar can be done on a compressed layer of aggregate, rough-cast concrete slab or on a screeded concrete slab. Concrete slabs must be properly hardened. Lay double layers of plastic onto concrete slabs in order to take up any movement. Large areas must be divided up using elastic settlement joints. Each slab should usually be no more than 40 m<sup>2</sup>. It must also be ensured that the floor is not firmly held in place between walls, in corners and around columns. Substrates must be well drained.

Lay the mortar in thicknesses of 30-50 mm. Mix the mortar to the consistency of moist soil and compress well. Apply a layer of cement or special adhesive to the laying surface and the underside of the tile. Knock the tile into place using a rubber mallet.

### GROUTING

Joins can be grouted once the cement has sufficiently hardened, though no sooner than after 24 hours at normal temperature conditions.

In the case of Oppdal crazy paving, the most commonly used filler is a cement-coloured grout. If you wish to make a feature of the crazy paving pattern, use a darker coloured grout. A light or dark-coloured grout can also be used with Otta phyllite, which is a black or rust-coloured stone.

Grouting is done using a grouting sponge or a joint-filling trowel. Make sure the joins are completely filled and that when washing down after grouting, you start carefully so that the grout is not pressed in.

A cement-based grout will adhere better to a broken edge than to a sawn edge.

### CLEANING AFTER GROUTING

Wash using a sponge and clean water. A bucket on casters and a sponge attached to a board will make the work easier. Carefully wipe the sponge diagonally over the joins. Repeat the washing process until the surface of the stone is clean and free from cement haze.

If you have not managed to get the surface clean the first time, you can wash it using an acid detergent the next day. After washing using an acid detergent, rinse thoroughly using clean water in order to neutralise the surface. Natural stone dealers stock detergents of this kind.

### IMPREGNATING

Most people who lay tiles on interior floors also apply impregnation of one kind or another. There are three main principles for impregnation:

- Natural soap with a high fat content
- Acrylic-based
- Water-based or solvent-based

Before impregnating, cement grout, stains and dirt from the construction phase must first be removed. The floor must be clean and dry. Underfloor heating must not be switched on. Your natural stone dealer can provide advice on selecting impregnating agents and maintenance.

Dilute natural soap with plenty of hot water and apply to the stone tiles. To obtain a surface to which dirt and stains do not readily adhere, it is advisable to polish the surface after it has dried. Use a weak solution of the same soap for daily maintenance. This product is environmentally friendly. If required, the floor can be scrubbed using a primary cleaning agent, and natural soap re-applied.

Acrylic-based impregnating agents are applied in two or three thin coats. If you want a smoother and more shiny surface, you can apply another coat. One drawback is that acrylic impregnation becomes most worn where it is subjected to the heaviest footfall. The acrylic can be removed and re-applied if necessary. Daily maintenance is carried out using soap from the same supplier. This way you can be sure that the products are compatible.

Impregnation using a water-based or solvent-based impregnating agent containing silane results in little or no change in the appearance of the stone. The agent provides effective protection against fat stains. It is often used successfully on kitchen worktops. Changing your mind is not really an option as it is difficult to remove.

### IN CASE OF ACCIDENT

Stains can adhere to the stone just like any other natural stone products, even if it has been impregnated and well maintained. Removing the stain quickly significantly reduces the risk. Fat is probably the most common cause of staining. Many types of stains can be removed by applying a paste to the stain. Once this paste has dried out, scrape most of it off. Finally wash off the residue. The paste is very effective and can be obtained from most natural stone dealers.

Substances that contain oils, such as white spirit and similar, should not be used. Applying white spirit to a small stain will only result in a larger stain.

Rust marks can be removed using a dilute acid.

Always remember to follow the instructions and use gloves and protective goggles where these are called for.

# CONTACT

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