

Virginia Slate

C O M P A N Y

Understanding Natural Slate



Slate deposits are found in various locations around the world. The metamorphic rock is formed by millions of years of heat and compression. The variety of minerals in the ground give the slate distinct color, texture, and uniformity.



For hundreds of years people have used slate as a sheltering stone. Structures dating back to the Roman times are still standing in the hills of Spain. These structures have been protected by slate and will continue to be for generations to come.



Producing natural roofing slate is an arduous task. The vein of hard quality slate must be identified. Quarriers will harvest the stone from this point in order to produce hard material suitable for a roof. In Vermont slate vein may range in color from gray, green, and purple. Thus producing numerous distinct products from one source.

Note: In most areas that slate is found, gold, copper, and even kyanite are usually found close.



The material is either blasted or sawn out of the ground depending on the site and set-up of the vein.

When heated slate works well for light-weight aggregate. The sedimentary layers expand under high heat, creating one of the key ingredients in some cinder blocks.



The large sections of rock are taken out of the quarry to be processed. The final **roofing** product will only be approximately 2-5% of the harvested stone. The rest of the material may be used for flooring, landscaping, structural stone, and crushed stone for construction.



Each stone is cut down into square sections. Larger sections may be harder to split but they may also be cut down in size later.



The blocks are passed on to a splitter. Most all blocks are hand split (although mechanical splitters are available). A chisel and hammer separate the block into individual tiles or "chips". In the United States the average thickness for roofing slate is 1/4"-3/8"; in some parts of Europe thinner slate is more valued, ranging from 1/8"- 1/4".



After being split into "chips" the slate is cut to size with the chamfered edges. The detail on the edges of slate will give the roof an unique look, synonymous to natural slate.



Holes are also punched in the slate at the factory. Punching holes from the back of the slate will leave a recessed area for the nail head when installing the slate.



Before the slate is sent out each slate is "sounded" (sounding— tapping each slate for a solid ring, slate with a hairline fracture will not produce a solid ring sound).

Installing Natural Roofing Slate



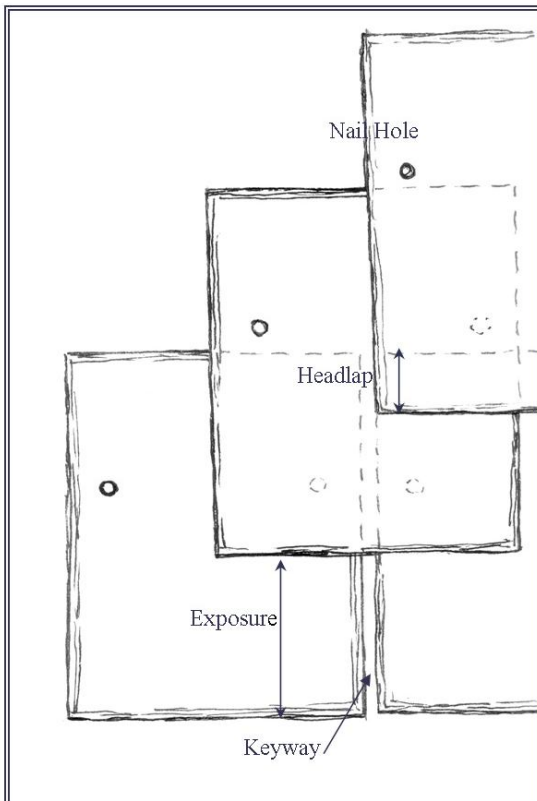
The simple premise behind installing natural slate is an overlapping system. This helps protect the structure and shed water, the beauty of a slate roof is secondary to its protection.



Slate is installed from the bottom of the roof deck to the top. The first row of slate should be laid with either a cant strip or a starter row of slate. A starter slate provides the first course of slate with the height needed to lay flat.



When installing natural roofing slate, no matter the product, be sure to **pull from all pallets** for a uniform blend on the roof. Slate is a natural product and will have some variations in tone, some products will vary dramatically



The area of slate that is triple overlapped is called **Headlap**. This is paramount on a natural slate roof. Headlap requirements per the IBC 2012

| SLOPE | HEADLAP (inches) |
|----------------------|------------------|
| 4:12 < slope < 8:12 | 4 |
| 8:12 < slope < 20:12 | 3 |
| slope \geq 20:12 | 2 |

IBC 2012- Slate Shingles 1507.7

When slate is installed the area between the slate is called the *keyway*. This space helps in facilitating water removal as well as visually adding depth to the structure.



Slate is measured by Length x width in inches. There are over 60 standard sizes in the United States of roofing slate. Slate is then sold in units referred to as *squares*. A square of slate is a 10'x10' area of finished roofing. The smaller the slate the more pieces per square.

| Size of slate in inches | Pieces per Square | Exposure with 3" headlap | Size of slate in inches | Pieces per Square | Exposure with 3" headlap |
|-------------------------|-------------------|--------------------------|-------------------------|-------------------|--------------------------|
| 24x14 | 98 | 10 1/2" | 16x10 | 221 | 6 1/2" |
| 24x12 | 114 | 10 1/2" | 16x9 | 246 | 6 1/2" |
| 22x12 | 126 | 9 1/2" | 16x8 | 277 | 6 1/2" |
| 22x11 | 138 | 9 1/2" | 14x12 | 219 | 5 1/2" |
| 20x12 | 141 | 8 1/2" | 14x11 | 240 | 5 1/2" |
| 20x11 | 154 | 8 1/2" | 14x10 | 261 | 5 1/2" |
| 20x10 | 170 | 8 1/2" | 14x9 | 291 | 5 1/2" |
| 18x12 | 160 | 7 1/2" | 14x8 | 327 | 5 1/2" |
| 18x11 | 175 | 7 1/2" | 14x7 | 374 | 5 1/2" |
| 18x10 | 192 | 7 1/2" | 12x10 | 320 | 4 1/2" |
| 18x9 | 213 | 7 1/2" | 12x9 | 356 | 4 1/2" |
| 16x12 | 185 | 6 1/2" | 12x8 | 400 | 4 1/2" |

When deciding on the right size of slate for a job, remember to consider the proportion of slate to the size of the structure, how cut-up the roof planes are, and the style of structure and roof.



Create a structure that will last for generations.