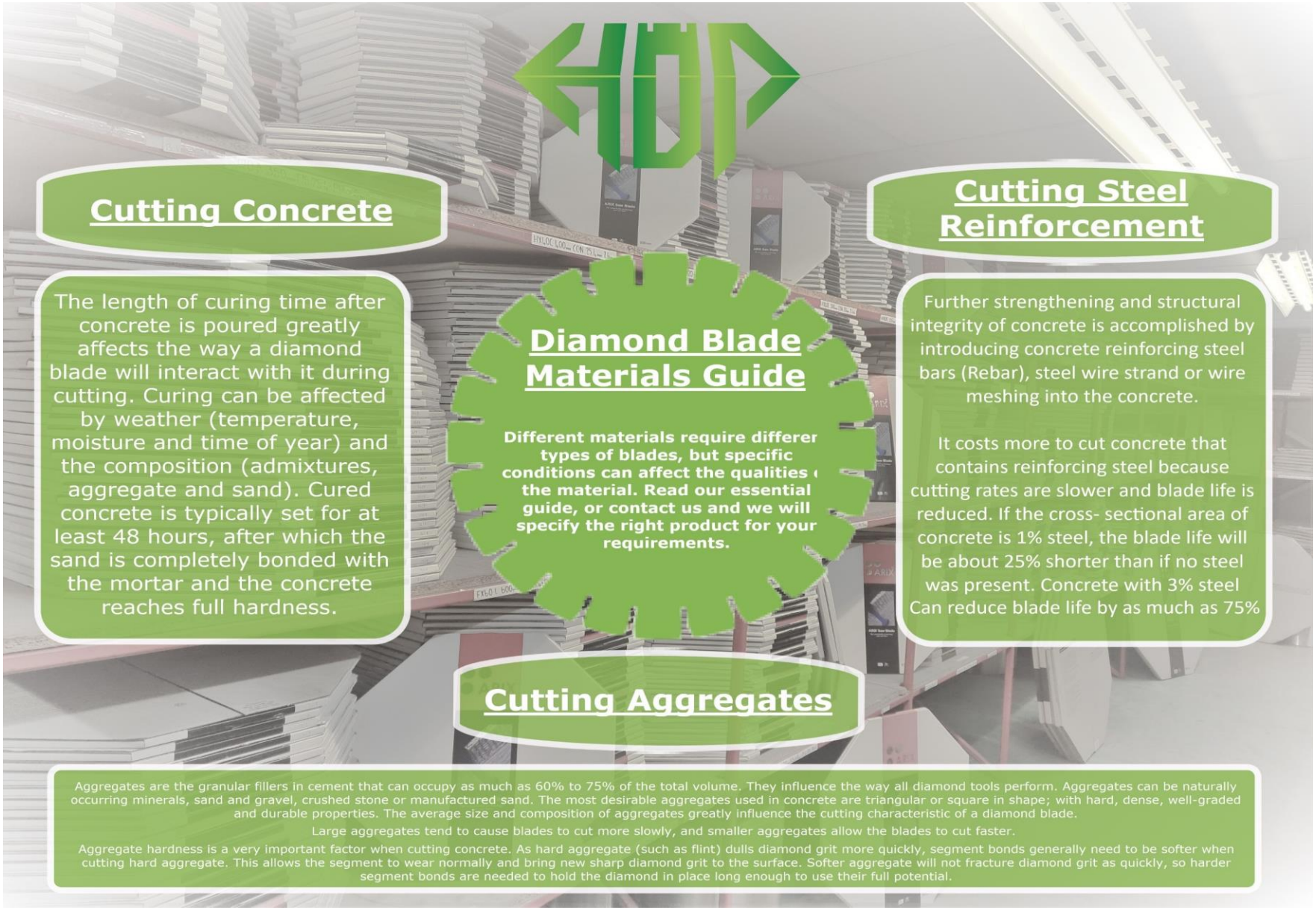


Diamond Blade Materials Guide

Different materials require differer types of blades, but specific conditions can affect the qualities the material. Read our essential guide, or contact us and we will specify the right product for your requirements.

Cutting Concrete

The length of curing time after concrete is poured greatly affects the way a diamond blade will interact with it during cutting. Curing can be affected by weather (temperature, moisture and time of year) and the composition (admixtures, aggregate and sand). Cured concrete is typically set for at least 48 hours, after which the sand is completely bonded with the mortar and the concrete reaches full hardness.

Cutting Steel Reinforcement

Further strengthening and structural integrity of concrete is accomplished by introducing concrete reinforcing steel bars (Rebar), steel wire strand or wire meshing into the concrete.

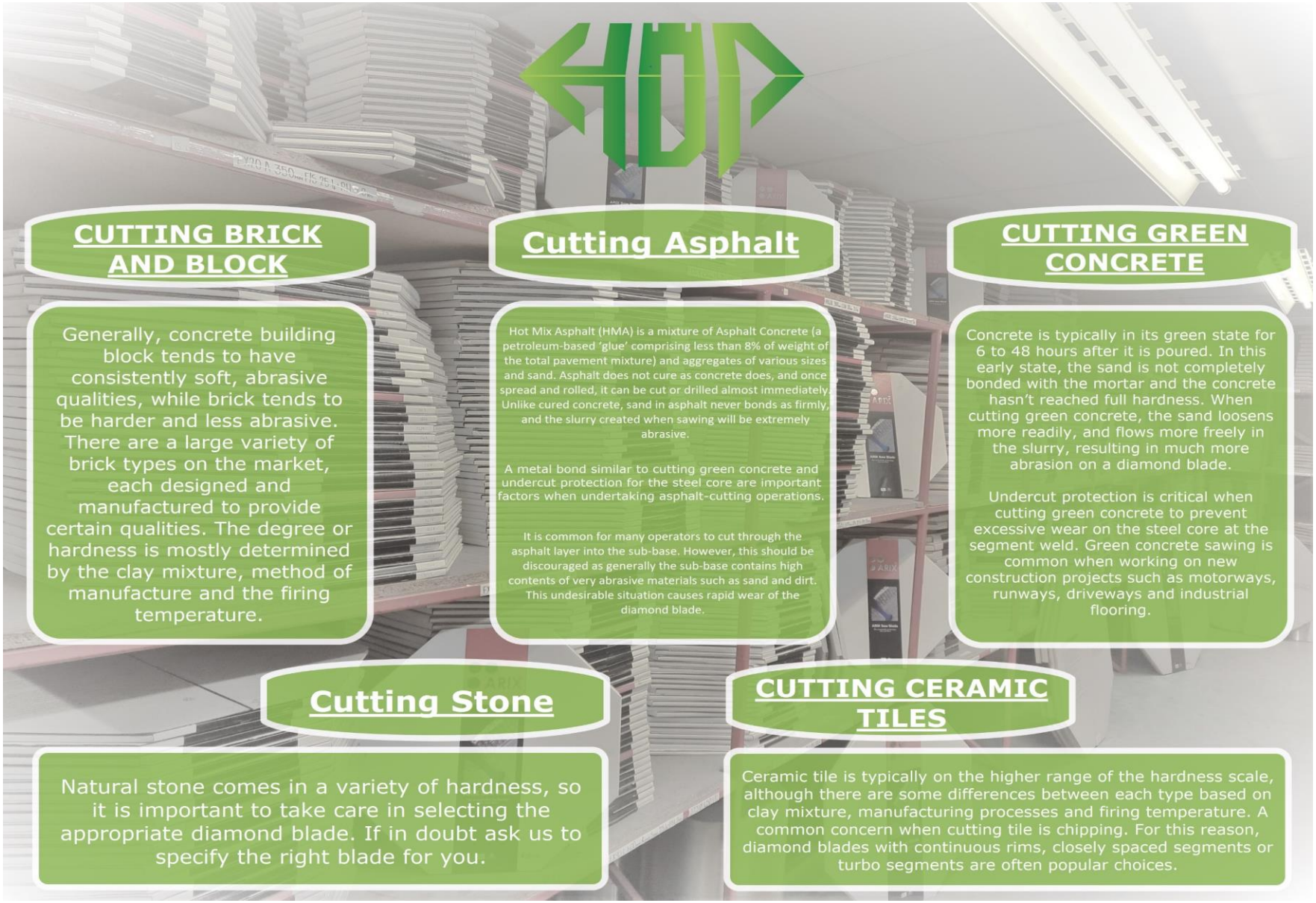
It costs more to cut concrete that contains reinforcing steel because cutting rates are slower and blade life is reduced. If the cross- sectional area of concrete is 1% steel, the blade life will be about 25% shorter than if no steel was present. Concrete with 3% steel Can reduce blade life by as much as 75%

Cutting Aggregates

Aggregates are the granular fillers in cement that can occupy as much as 60% to 75% of the total volume. They influence the way all diamond tools perform. Aggregates can be naturally occurring minerals, sand and gravel, crushed stone or manufactured sand. The most desirable aggregates used in concrete are triangular or square in shape; with hard, dense, well-graded and durable properties. The average size and composition of aggregates greatly influence the cutting characteristic of a diamond blade.

Large aggregates tend to cause blades to cut more slowly, and smaller aggregates allow the blades to cut faster.

Aggregate hardness is a very important factor when cutting concrete. As hard aggregate (such as flint) dulls diamond grit more quickly, segment bonds generally need to be softer when cutting hard aggregate. This allows the segment to wear normally and bring new sharp diamond grit to the surface. Softer aggregate will not fracture diamond grit as quickly, so harder segment bonds are needed to hold the diamond in place long enough to use their full potential.



CUTTING BRICK AND BLOCK

Generally, concrete building block tends to have consistently soft, abrasive qualities, while brick tends to be harder and less abrasive. There are a large variety of brick types on the market, each designed and manufactured to provide certain qualities. The degree or hardness is mostly determined by the clay mixture, method of manufacture and the firing temperature.

Cutting Asphalt

Hot Mix Asphalt (HMA) is a mixture of Asphalt Concrete (a petroleum-based 'glue' comprising less than 8% of weight of the total pavement mixture) and aggregates of various sizes and sand. Asphalt does not cure as concrete does, and once spread and rolled, it can be cut or drilled almost immediately. Unlike cured concrete, sand in asphalt never bonds as firmly, and the slurry created when sawing will be extremely abrasive.

A metal bond similar to cutting green concrete and undercut protection for the steel core are important factors when undertaking asphalt-cutting operations.

It is common for many operators to cut through the asphalt layer into the sub-base. However, this should be discouraged as generally the sub-base contains high contents of very abrasive materials such as sand and dirt. This undesirable situation causes rapid wear of the diamond blade.

CUTTING GREEN CONCRETE

Concrete is typically in its green state for 6 to 48 hours after it is poured. In this early state, the sand is not completely bonded with the mortar and the concrete hasn't reached full hardness. When cutting green concrete, the sand loosens more readily, and flows more freely in the slurry, resulting in much more abrasion on a diamond blade.

Undercut protection is critical when cutting green concrete to prevent excessive wear on the steel core at the segment weld. Green concrete sawing is common when working on new construction projects such as motorways, runways, driveways and industrial flooring.

Cutting Stone

Natural stone comes in a variety of hardness, so it is important to take care in selecting the appropriate diamond blade. If in doubt ask us to specify the right blade for you.

CUTTING CERAMIC TILES

Ceramic tile is typically on the higher range of the hardness scale, although there are some differences between each type based on clay mixture, manufacturing processes and firing temperature. A common concern when cutting tile is chipping. For this reason, diamond blades with continuous rims, closely spaced segments or turbo segments are often popular choices.