



Surface Finish

*– How to: Exposed Aggregate
Finish*

ARMCON
CERTAINTY IN CONCRETE

Surface Finish – How to: Exposed Aggregate Finish

TOP TIPS

- Trial mixes should be used to finalise a mix design suitable for an exposed aggregate finish
- The final mix design should also produce a durable concrete which conforms to the required compressive strength class
- Always check the time limitations of the retarding agents/chemicals to ensure a good finish.
- Use a suitable stone to get the maximum exposed aggregate affect
- Proper placing and compaction of the concrete will aid in achieving the desired finish.

Overview

When producing concrete that requires a high quality or special surface finish, it is important to ensure that the mould, the concrete, the placing and compaction are all done to a consistently high standard.

In general there are three main types of surface finish; the first is called as 'struck' this is a plain smooth finish which is directly produced by the mould walls, the second are textured surfaces which can be called 'profiled' or 'board-marked' finishes and these take their profile directly from the liners or mould walls and the final finish is an indirect surface which takes its profile from further work after the mould is removed.

The pre-cast paving slab produced by a mould like the one shown on the right will have five plain finish sides with the sixth face being an unformed face which can be levelled after the slab has been poured.



The slab produced by this mould is slightly different from the first example; this mould gives four plain formed sides and also a profiled side which is given by the bottom face of the mould. The slab will again have an unformed side which can be finished once the slab is poured.





The slab produced here has a special finish applied to the bottom form face. The finish seen here is an exposed aggregate type, this effect can be achieved in several way but with the same result.

Achieving the Exposed Aggregate Finish

The exposed aggregate type finish will typically expose the coarse aggregate in the concrete and this is done by the removal of the cement & mortar from the surface above.



Due to the unreliable distribution of coarse aggregate in normal concretes, it is important to use a gap-graded aggregate in the mix which must also be specially prescribed. A typical mix used in creating an exposed aggregate finish will contain a larger proportion of coarse aggregate, however this will give difficulty with the handling and placement of the concrete so special consideration should be given to these problems to help reduce the potential problems presented by a high coarse aggregate content concrete.

A common method of exposing the coarse aggregate is to use a surface retarder, which is applied to the appropriate face of the mould, which will prevent the cement it is in contact with from curing. When the product is removed from the mould the uncured cement and mortar can then be taken off either by brushing or washing, this will then reveal the desired finish.

The timing involved with this type of finish is crucial to its success as some retarders will only delay the curing process while the surface is still in the mould and others will have an effect time frame to delay curing before allowing the concrete to fully harden.

It is also possible to remove surface mortar from hardened concrete by using an abrasive blasting technique; this can either be a stream of compressed air that carries grit or a high pressure water jet both systems are applied directly to the surface requiring treatment.