

## General information on the choice of concrete and casting technique

Concrete floors are designed according to general requirements depending on activity and load.

**The designer is always responsible** for ensuring that the calculations regarding requirements for reinforcement, choice of concrete grade and dimensioning are maintained.

In general, larger aggregate (stone size), etc. reduces the risk of cracks. Depending on the aggregate used (In Sweden = Granite), larger aggregate also results in greater resistance to wear.

Therefore, the aggregate's largest nominal particle size should be as large as possible, up to a maximum of 1/3 of the floor thickness. For aesthetic reasons, however, you may prefer to choose a smaller aggregate.

Use a concrete that is least prone to shrinkage and with a high stone content.

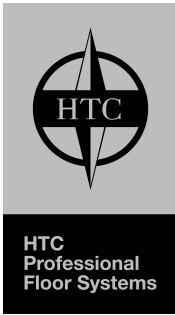
Saw up crack indications/joints of around 6 metres c/c.

Concrete reinforced with steel fibres is not suitable for finishing with HTC Superfloor™. We recommend traditional reinforcement.

Bearing in mind that beam structures without a sealing layer in uses such as multi-storey car parks are exposed to wear and tear from studded tyres, we recommend high concrete grades such as C40/50 or C50/60. In these environments, the choice of **exposure class** should also be considered. If, for example, a concrete floor is constructed as a slab on the ground, and it is expected to be exposed to salt from parked cars, exposure class XD3 is applicable. The maximum permitted wcr (water-cement ratio) according to this criterion is 0.40, which in practice represents a significantly higher strength class than is statistically necessary. This increased concrete strength also improves the minimum reinforcement that, according to BBK, is required for limiting cracks caused by force, e.g. shrinkage.

For instance, a garage floor with a large level area must have reinforcement that is as "strong" as the concrete, to be regarded as crack-distributing and thereby capable of restricting the size of shrinkage cracks. In this case, this will result in the amount of reinforcement increasing with any improvement in the concrete grade.

Colouring concrete is possible. Pigment can be mixed in the fresh concrete at the factory or can be added in the concrete mixer truck on the way to the worksite. The producer of the concrete will have more information about pigments.



## THE ENVIRONMENT INFLUENCES THE CHOICE OF CONCRETE GRADE

Because HTC Superfloor™ is a process affecting the construction concrete to give a finished floor, without any additional wearing course, it is important to take into account the activities that will take place on the floor. For similar reasons to those specified above concerning garage floors, you may wish to choose a better grade of concrete than the activity statistically requires.

A concrete grade with an wcr lower than 0.40 considerably reduces pores in the concrete and thereby provides a more "water-tight" surface, which does not absorb spillages of water or chemicals so easily. Suitable for car washes, for example. However, please note what is said above about reinforcement.

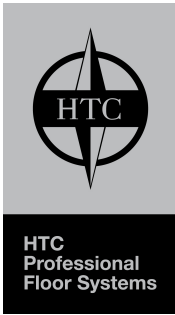
## REQUIREMENTS FOR APPEARANCE INFLUENCE THE CHOICE OF CONCRETE GRADE

Because the appearance of HTC Superfloor™ is dependent on the choice of aggregate and its exposure, aesthetic requirements can also govern the grade of the concrete. However, not to such an extent that the concrete grade will not fulfil the designer's requirements.

If concrete grade C 28/35, which is suitable for finishing to a HTC Superfloor™ is used, it is easier to grind deeper down into the concrete to expose the aggregate. If a higher concrete grade is used, it is more difficult and time-consuming to grind deep down into the concrete to expose the aggregate.

If you want a finish with small aggregate, it is best to choose a concrete grade with small aggregate, 0 - 8 mm, and a low wcr.

If you want a finish with large aggregate, you can choose a concrete with large aggregate, 0 - 8 mm/8 - 16 mm, and a higher wcr.



## OTHER THINGS TO CONSIDER

- Point out that the concrete should be rotated/mixed during transport, and for at least 5 minutes at maximum speed at the site before discharging commences. (This is to ensure that the stone fraction is distributed as evenly as possible in the concrete.)
- Hardening: Water hardening is recommended. However, not where the floor is laid on filling, insulation mats, insulation slabs etc. Alternatively, under plastic sheet. The plastic sheeting should have an overlap of at least 150 mm at joints. In very busy areas, the moisture barrier must be protected by fibreboard or similar.
- Vibration: Depending on consistency and height, over-vibration can cause the stone to sink, making it less visible in the surface.
- For laser casting: **Bear in mind!** Never transport concrete with the internal vibrator; this entails a risk of over-vibration and separation
- Do not walk on the concrete any more than necessary, in order to minimise the stones being pushed down.
- SIKA-type Crackstop artificial fibres are recommended to reduce the plastic shrinkage; they also help to maintain a more even aggregate structure in the concrete.
- Otherwise, refer to the European standard for Concrete, SS EN 206 – 1.