



TIPS ON Concrete for yards & lanes

When installing concrete outside in farmyards, lanes & back-streets it is important to consider a few key points to provide durable concrete which will last for a long time.

RISK OF FROST DAMAGE

Along with heavy traffic, extreme cold temperatures are the biggest risk to damaging external concrete surfaces, particularly freeze-thaw cycles experienced during the winter. Additionally, de-icing salts used on public roads and potentially concrete greatly increase the damaging effects of freezing.

The effect of frost damage can be extensive scaling and spalling which results in the top layer of concrete coming off. This can be prevented by ensuring concrete is adequately designed, produced, placed, finished and cured.

When planning external concrete slabs please ensure the following steps are taken into account:

CHOOSE THE RIGHT MIX

STRENGTH

The British Standard for Concrete (BS8500 1-2015) recommends for external concrete:

- For Driveways & domestic traffic: PAV 1 Concrete (35n concrete with air-entrainment) or 50N
- For Heavy Duty Paving: PAV 2 Concrete (40n concrete with air-entrainment) or 50N

Note: Air-entraining mixes improves the resistance of the slab to freeze-thaw cycles. It also improves the handling characteristics of the mix and reduces any tendency towards bleeding of the fresh concrete.

However if concrete is receiving a power-floated finish air-entrained concrete must not be used; 50n concrete should be used as a substitute.

FIBRE REINFORCEMENT

It is becoming increasingly common to use BBA certified polypropylene fibres in external paving, which are added to the mix by the supplier. These help to reduce the occurrence of plastic shrinkage cracking, plastic settlement and surface deterioration.

SLUMP/WORKABILITY

Consult with concrete supplier & concrete installer to agree the workability/slump of the concrete, this will effect how much the concrete will flow and compact, the slump for external paving will generally be class S2 or S3 but always ensure the concrete installer & the concrete supplier agree on the same slump, water can be added to concrete on-site to increase slump but this will result in weaker concrete which is more likely to lead to quality issues.

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Ensure Concrete is installed correctly:

Choose a competent & experienced concrete installer and ensure to check the following before installation:

WEATHER

Ensure weather is suitable when concrete is being poured - it should not be too hot or too cold, high winds or heavy rain are also not suitable.

SLAB THICKNESS, JOINTS & REINFORCEMENT

Consider depth of concrete to be installed to ensure durability, the location and type of joints that are to be installed to reduce cracks and if reinforcement is needed to add flexural strength. If in doubt seek advice from a qualified design engineer.

FINISH & CURING

Consider and discuss finish required to surface of concrete, ensure correct mix is selected as a result and slump is agreed between supplier & installer to prevent water being added on-site.

To reach its full performance concrete must be cured adequately in the first number of hours and weeks after it is installed, this can be done by using suitable liquid curing compounds or surface coverings such as hessian sheets.

It takes 28 days for concrete to reach its full strength so in general traffic should be avoided until after this time.

IF IN DOUBT, ASK!

If you are unsure, contact a third party accredited concrete supplier, who can offer advice on any of the matters above.

DO'S & DON'TS

- ✓ **DO!** Engage with quality accredited supplier & select the correct mix for external paving; PAV 1 (C35n air entrained or 50N), or PAV 2 (40n air entrained or 50N).
- ✓ **DO!** Pick experienced & competent concrete installer and discuss the concrete mix and installation techniques.
- ✓ **DO!** Ensure slump/workability of the concrete is agreed between supplier & installer.
- ✓ **DO!** Discuss slab depth & joint placement with concrete installer & if in doubt consult an engineer.
- ✓ **DO!** Ensure plan is in place for good curing for immediately after concrete being placed.
- ✓ **DO!** Use fibres in concrete to reduce cracking & increase surface strength.
- ✗ **DON'T!** Install concrete in very cold or very hot temperatures, rainy or windy days.
- ✗ **DON'T!** Add additional water to concrete on-site - this will weaken concrete and can lead to quality issues.
- ✗ **DON'T!** Traffic concrete paving too soon - leave 28 days until it reaches full strength.
- ✗ **DON'T!** Use air entrained mixes for power-floated finishes, consult quality accredited supplier for more information.

