

# Many home buyers fear the foundations are cracked

 By [Suzaan Jansen](#)

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Rightly so, there is a big fear among some prospective home buyers that somewhere, perhaps below the floor level and possibly hidden underground, the foundations of a home or its concrete flooring may be cracked to a dangerous degree.



This regrettably does happen in a small percentage of cases where trained professional consultants have not been involved in the design or where an inexperienced contractor is employed. A fault may then become apparent only several years later, when the foundation weakness causes one or more of the walls which it is supporting to crack.

## Causes of concrete cracking

Concrete cracking can result from the shrinkage in the material that always takes place as it cures, particularly in the first month after completion - and is especially likely to happen if the concrete is unprotected by plastic sheeting or curing compounds. Cracking can also be caused by large thermal variations, especially heat rises or, in very cold countries, where freezing water causes moisture to be sucked into the mix and then turns to ice. It can even be caused by overloading of the structural elements, or by the subsidence of the soil in the area, which then results in the concrete settling in a way which it was not designed for.

Despite there now being much information on concrete behaviour and characteristics, it still also sometimes happens that the design has not allowed for sufficient reinforcing steel, especially in horizontal components, or the incorporation of enough shrinkage/movement joints that structural engineers require in their designs to accommodate shrinkage and movement.

Sometimes the builders themselves may be responsible for the flaw because they have not vibrated the concrete properly (although it is possible to over-vibrate) while casting or have put too much water into the mix to make it more workable. This is especially likely when casting by hand (i.e. with shovels). Some builders may even try to save money by reducing the amount of cement required.

## Seek a professional's advice

The majority of cracks which cause home buyers concern are 'hairline' and do not affect the integrity of the structure. Most paint companies can supply paints which will hide such apparent blemishes. If, however, the crack is relatively wide or deep, the total replacement of the concrete will usually be essential. This will probably be an expensive exercise and can involve propping up the structure until the new concrete is not only in place but has had time to cure - at least 28 days.

If a home has been built by a contractor registered with the National Home Builders' Registration Council (NHBRC), its structure will be guaranteed for five years after its completion and the NHBRC can then exert pressure on the contractor to put matters right. If the contractor has gone out of business or proves intractable, the NHBRC has a substantial fund on which it can draw to finance the repair itself.

If a prospective home owner is worried about the integrity of the structure of the home he hopes to buy, it is worthwhile going to the extra expense of employing a structural engineering consultant to check the home. One of the big advantages of employing such professionals is that their professional indemnity insurance will cover the cost of rectification should they give a wrong diagnosis, which fortunately happens only very rarely. Employers should ask to see a copy of the engineer's professional indemnity insurance and proof that the current premium has been paid.

Where brick or block work is cracked, the removing or replacing of cracked or missing mortar can be carried out by a suitably qualified contractor, or even in some cases by a proficient DIY home owner.

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