The UK screed market and its development

Andy Vincent and **Padraic McGrath** of **Cemfloor Liquid Screeds** discuss the changing technology in the UK screed market.

In the beginning, it seems, there was traditional screed; sand and cement mixed at various ratios (3:1, 4:1, 5:1, etc). Everybody knew what it was, we accepted its limitations and we programmed in order to accommodate its use. This usually meant, because the process of installing traditional screeds is quite slow, scheduling small areas of site at a time so that not too much of the building was ever unavailable for other trades.

Traditional screeds worked and to this day are still the prevalent type of screed in use in the UK. About 30 years ago there was a change introduced in the form of flowing anhydrite (gypsum) based screeds. This type of screed was already starting to enjoy rapidly growing sales in other countries and it was expected that the same would happen here. Growth did happen but it was steady rather than dramatic.

So why didn't anhydrite screeds achieve the same sales levels in the UK as in other countries? Certainly, it is true that the combination of the UK climate and the fact that UK construction programmes normally install screeds into projects at a very early stage has not favoured anhydrite, which can be vulnerable to poor drying conditions or rewetting. This could not be called a failing of the products but rather a lack of understanding of their requirements. A reputation for very slow drying was a factor and possibly the slow progress compared with other countries is simply that we tend to be reluctant to embrace new construction methods and so have not fully grasped the concept and benefits of flowing screeds. Anhydrite screeds gained a loyal following in some quarters and there are contractors who have used them for years with few problems and would not consider using anything else.

Whatever the reason for the relatively slow growth of anhydrite screeds, we reached the point about four years ago where they accounted for approximately 15% of the entire UK screed market. This compares with some other countries where anhydrite accounts for three or four times this amount or more.

Cement-based materials had been attempted in the UK before but the Achilles heel had always been shrinkage. Materials that looked extremely promising in testing always suffered from excessive shrinkage in the 'real world' to the point that they suffered severe cracking and even curling. The most promising of these products lasted only a couple of years before being withdrawn from the market and most never even got beyond a few trial months.

> "Materials that looked extremely promising in testing always suffered from excessive shrinkage in the 'real world' to the point that they suffered severe cracking and even curling."

The next 'step change' in the UK happened about four years ago with the introduction of Cemfloor, a flowing screed based on cement (CEM I or CEM II A-L/A-LL) as its main binder, fine aggregate, superplasticisers, water and a proprietary binder. The proprietary binder's main function is to reduce shrinkage of the screed and in turn greatly reduce the risk of any cracking and/or curling. Cemfloor screeds are batched in ISO 9001[1]-accredited ready-mixed concrete plants and are delivered to site ready for use.

CHEMISTRY

Cemfloor, a product of McGraths Limestone, benefitted from an impressive new chemistry developed by a French Company, Cemexa. As Cemexa's 'partner' in the UK and Ireland, McGraths was able to make use of this chemistry to manufacture the proprietary binder. By the time it was launched onto the UK market it had already impressively proven its reliability over four years in Ireland and 15 years in France, where it had also captured a large share of the market. The major selling benefits were: fast and reliable drying being the most eagerly received and from a product with minimum levels of shrinkage and cracking. Another key property is its robustness that allows use with a range of sand and cement sources without affecting performance. Currently there are three primary grades of Cemfloor screed available on the UK market, all of which have a BBA certificate:

- Cemfloor Therm CT C20F4 (compressive strength = 20MPa and flexural strength = 4MPa)
- Cemfloor Therm CT C25F5 (compressive strength = 25MPa and flexural strength = 5MPa)
- Cemfloor Therm CT C30F6 (compressive strength = 30MPa and flexural strength = 6MPa).

The technology has also been used in self-compacting concrete (SCC) to produce Cemfloor HPC. This can be used like any other SCC and its main applications are block-and-beam flooring, oversites, metal decking, residential dwelling oversite/slabs, structural toppings, domestic floors, commercial slabs such as composite deck construction (metal decking) and light industrial floors.

MARKET PRESSURES

The impressive performance no doubt accounts in part for its success in the past four years but there are underlying market pressures acting as well. There are also certainly market drivers pushing against the use of sand–cement traditional screeds and while some of these are perhaps obvious, others may be less so. Build programmes seem to get ever shorter, which plainly favours the use of faster systems. The skill required to install traditional screeds is in short supply, as seems to be the case with people who are prepared to work at such a physically demanding job. For those who do want to work in screeding, the installation of flow screeds is less physically demanding and, more importantly, carries far less risk from a health and safety point of view.

Underfloor heating sales, as a percentage of the heating market, have grown markedly recently, more than doubling during the past four years. Perhaps this is the most obvious of all the reasons for the growth of liquid screeds, since these screeds greatly improve the benefits of an underfloor heating system.

While the introduction of Cemfloor may have been a catalyst for change, nobody could have predicted all the changes during the past years. What might have been predicted is that there would be other entrants to the market and, indeed, there have been and will be more. More remarkably though, and perhaps more indicative of the underlying trend, is that during the past four years the sales of anhydrite screeds have also grown. The sales of cement-based liquid screeds have predominantly not been 'stolen' from anhydrite flowing screeds but primarily from traditional semi-dry screeds.

SALES

Over the past four years, cement-based flowing screeds have gone from zero sales in the UK to the point where they account for approximately 12–13% of the market. During the same time though, sales of anhydrite screeds have gone from 15% to approximately 21% or possibly slightly more. Taken overall, this means that the sales of flowing screeds have far more than doubled from 15% to well over 30%. This certainly is unprecedented in the 30 years or so that we have had flowing screeds and every indication is that this will continue.

It seems clear that we are, some might say at last, playing catch-up with what has happened in other countries with regard to the screed market. This means that we expect flowing screed to account for 75% of the market in a further five years' time and quite possibly sooner. This will come entirely at the expense of sand–cement screed and there is some evidence that the reduction in the use of site-mixed screeds will decline faster than for ready-to-use off-site mixed material.

These are interesting and changing times for those of us engaged in the business of screeds. C

Reference:

1. BRITISH STANDARDS INSTITUTION, BS EN ISO 9001. *Quality management systems. Requirements*. BSI, London, 2015.