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# The Expert >>

## 6th Article - Maintenance of joints in floors - a problem area? >>

Although joints create potentially the biggest problems in floors, with a basic understanding of why we have joints, how they work and with timely and effective maintenance, they can be relatively problem free. This is not the same as saying that they are maintenance free!

I explained in the last article that concrete shrinks and that we require joints so that this shrinkage can take place, thereby reducing the risk of cracking in the floor. Note the words "reduce the risk of" it is difficult to eliminate that risk completely.

There are two basic types of joints, with somewhat different maintenance requirements. The first are the formed joints, usually found at the end of a day's concrete pour and also known as day joints or construction joints. Second are the induced joints, created by saw cutting part way through the slab.

Formed joints start out life with no gap, unless the designer has mistakenly specified an expansion joint. Sawn (induced) joints have a gap of 4 - 5 mm at the outset, this gap is at the surface only, and lower down in the slab there should be a crack. In theory, all joints should open by about 2 mm. In practice, some do not open at all, some sawn joints can open by up to 5 mm - giving a 10 mm gap, and formed joints can open up to give a 20 mm gap.

An important aspect to remember is that the

drying of the floor is a slow process. We cannot be precise but it takes anything from one to two years to be completed, depending on the conditions in the building. In this article, I will talk in terms of two years and the joints will therefore become progressively wider over this time. This creates a dilemma because any work done to the joints in these first two years including the original construction, can only be considered as temporary.

The primary maintenance requirement is to prevent damage to the edges of the joints. These edges are particularly vulnerable to the impact of the small hard wheels of pallet trucks and wheeled cages. Reach trucks and turret trucks can also cause some damage while counterbalance trucks with their larger and softer tyres tend to cause little damage. As the damage is caused by impact of the wheels against the corner of the joint, it is easy to see that the wider the gaps at the joints, the more likely they are to be damaged.

As the objective is to prevent damage to the joint edges, we need to fill the gap with a material that is hard enough to support the truck wheels to prevent them dropping and striking the edge of the joint. At the same time this material needs to be soft enough to expand as the joint opens without breaking away or debonding from the sides. Of course the reality of physics is that hard



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materials do not stretch and stretchy materials are not hard, so filling joints is something of a compromise. There are many materials or systems on the market some with exaggerated claims in terms of performance. An example is a sponge insert that has little more substance than a draft excluder!

*Next edition - Sealants for joints and joint repairs.*

**Face Consultants**

Contact: Tony Hulett

Tel: 07989 708514

W: [www.face-consultants.com](http://www.face-consultants.com)



COGRI GROUP

**Dene House, North Road, Kirkburton Huddersfield, West Yorkshire, HD8 0RW.**

**Telephone: 01484 600090 Facsimile: 01484 600095**

**Email: [info@face-consultants.com](mailto:info@face-consultants.com)**

**Web: [www.face-consultants.com](http://www.face-consultants.com)**