

TECHNICAL BULLETIN

TB-8: JOINT FILLER PROTRUSION

Joint filler protrusion is a phenomenon that occurs when concrete slabs expand and compress the joint filler, causing it to rise above the surface. This is something that occurs in both covered and uncovered floors and has been found to be not limited to particular geographies or climates. Protrusion is almost always the result of forces inherent to concrete and not a result of the filler itself.

CAUSES OF SLAB EXPANSION

Concrete slab expansion can occur for a variety of reasons. When a new concrete slab is placed, excess moisture in the floor will look for a way out of the slab, typically evaporating through the surface. This process of hydration continues to occur for months beyond the initial 28-day cure that has become the industry standard. As moisture in the concrete moves up through the slab to evaporate, the concrete will expand, causing the joints to be compressed and the filler to rise. For these same reasons, increases in humidity and rainfall or changes in temperature can also contribute to slab expansion resulting in protrusion. Ambient temperature during joint filler installation can be a concern as well. For example, if joints were filled in colder temperatures, one could expect the concrete to expand as the temperature rises, causing protrusion.

REMEDIES AND CONSIDERATIONS

Due to the nature of concrete floor construction, there is no way to predict when protrusion will occur, and there is no one-size-fits-all solution. Given enough time, protrusion will often dissipate as the slab contracts and the joints return to their original size. It is possible to shave the joint protrusion flush, but there are concerns with this approach. If the protrusion were to be shaved, and the slab contracted to its original size, the joint could now appear to be concave.

Allowing new slabs to cure as long as possible and acclimating them to the final operating temperature prior to filling can mitigate the occurrence of protrusion. Ultimately, the issue of protrusion comes down to fluctuations in temperature and moisture in the slab, and is independent of the joint filler used.