

TB-6: JOINT FILL PREPARATION

Properly prepared joint sidewalls are crucial to the adhesion, durability, and long-term performance of a semi rigid joint filler. The purpose of a semi rigid joint filler is to provide protection to the vulnerable joint edges from heavy transitional loads moving over the joint. To accomplish this, the joint must be filled completely and there must be good adhesion to the joint sidewall. If preparation is insufficient, and adhesion is not good, then you can expect the joint filler to have a higher incidence of separation and even push down. Excessive separation and push down leaves the joint shoulder exposed to impact from traffic making it more prone to spalling and deterioration.

In this bulletin we will discuss why joint sidewall preparation is so important, the equipment necessary to complete this task and some common examples of poor preparation.

INADEQUATE METHODS

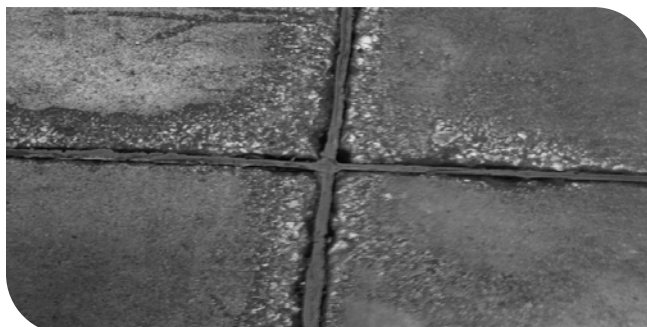
It is worthwhile to briefly mention some common examples of inadequate joint sidewall preparation. One of the more common tools installers tend to utilize is a 5 in 1 tool or screwdriver to clean out the joint. The issue here is that this method does not profile the joint sidewall and will also leave a substantial amount of dust and debris in the joint which will block adhesion to the joint walls. We are also asked from time to time about the use of wire wheel brushes for joint preparation. Although the brushes do a better job than a screwdriver or 5 in 1 tool, they do little to properly abrade and profile the joint sidewall. Some also try to simply vacuum the joints on new construction projects believing this is adequate joint preparation.



New construction joints being prepared using a vacuum



5-in-1 tool being used for joint preparation



Sidewall deterioration and spalling due to adhesion failure

This approach will end in joint filler failure as the joint filler will bond to the slurry in the joints left from the early entry saws. The lack of sidewall bond will ultimately lead to depressing and failing under heavy transitional loads. Once this occurs the joint shoulders are no longer protected and will deteriorate quickly with heavy traffic.

BEST PRACTICES

The keys to proper joint sidewall preparation are proper tools and equipment. A walk behind dustless saw and high CFM vacuum with HEPA filter are required (please refer to joint saw manufacturer for minimum CFM recommendation for OSHA compliance). The saw should be adjusted to the full depth of the joint and then run through the joint, contacting both sidewalls. If the blade being used is narrower than the joint itself, then two passes with the saw should be made to ensure there is contact with both sides.

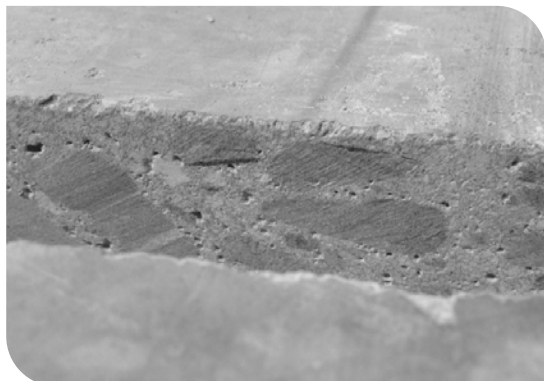
NOTE: It is always necessary to run a diamond blade on a cleanout saw through the joint prior to filling joints, even on new construction jobsites.

Before filling joints, the joint should be free from any slurry, dust, or debris and each joint side wall should be profiled with a diamond saw blade exposing fresh uncontaminated concrete. It is imperative to remove all previously installed joint filler or floor coatings from the joint sidewall on renovation projects before installing new semi rigid joint fillers. Vacuum maintenance is often overlooked. Without proper suction from the vacuum, the joint side walls will remain contaminated by a thin layer of dust acting as a bond breaker. It is always recommended to vacuum the joints again after cleaning the joints with the joint saw.

A properly prepared joint sidewall will allow the joint filler to form a better bond with the substrate and extend the service life of the joint filler.



Properly prepared joint sidewalls



Properly prepared joint sidewalls - close up view

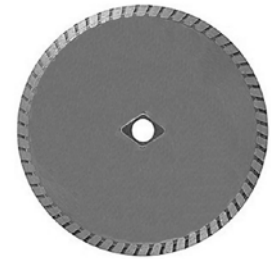
JOINT FILL PREPARATION - SAW BLADES

Traditionally, standard segmented or turbo rimmed diamond blades have been used for sidewall profiling. However, there are blades designed specifically for this purpose.

Many of these blades incorporate vacuum braised diamond grits into the blade which allow it to more aggressively profile the joint sidewall. Some blades are also made in wider widths, which allow proper preparation in a single pass. If there is an existing filler or material in the joint, these blades can also be used to remove those materials, again making sure that both sidewalls are clean.



Segmented Blade



Turbo Rim Blade



Material Removal Blade