



Vacuum Blasting Requires Levelling for Thin Coatings

By: Robert R. Cain

There is an ever increasing popularity in using the vacuum blasting technique for concrete floor preparation. There is no question that vacuum blasting is an excellent method of preparation; it is fast, clean, relatively inexpensive, and gives a good profile for bonding. Architecturally, vacuum blasting is being specified for all types of floor coating applications, both thick and thin. It is the "profile" for bonding, however, that proves costly on many projects.

Vacuum blasting, depending on the surface being blasted, will generally leave a rough, sandpaper-like surface. This is ideal for bonding, but can create havoc for thin film coating systems. A common profile will be 20-30 mils on the concrete surface. In addition, the blasting overlap can create a "lined" appearance in the floor surface.

Another pitfall in vacuum blasted surfaces is the air release from concrete. The blasting procedure does such an outstanding job in "opening" the pores of the concrete that air release or "out-gassing" is much more common on these surfaces. As a result, the coating material, if non-breathing, will show bubbles and craters in the cured film caused from air escaping from the concrete.

Solution - use multiple prime coats and/or work at night when air temperature and concrete temperature are similar.

Applying a thin film coating system (7-10 mils) over a vacuum blasted surface can leave the owner with a very rough, uneven appearance when he was anticipating a beautiful, smooth or evenly non-skid surface. Long term maintenance and appearance are also in jeopardy due to the uneven surface. Ten (10) mils simply cannot smooth or level a 20-30 mil profile left in the concrete. Typically, it requires 25-30 mils of 100% solid epoxy to level a floor after vacuum blasting. That equates to 50 square feet per gallon of epoxy just to level the floor prior to applying the coating system. A thirty dollar a gallon epoxy spread at 50 square feet per

gallon equates to \$0.60 per square foot just for material.

For the installer, when bidding and installing a thin film system over a vacuum blasted surface, be aware that you may have to prefill the surface with up to 30 mils of epoxy prior to installing the coating system specified. This can be very costly if not included in your bid.

For the architect/specifier, when specifying a thin film coating system, be aware that up to 25-30 mils of epoxy is needed to level a floor after vacuum blasting. This should be included in the specification for bidding purposes. This will not detract from the appearance or overall performance of the project, but will enhance it.

In conclusion, it is not recommended that vacuum blasting should not be used for thin coating applications. When used, however, know the consequences and know what must be done to "smooth" the floor when needed. A vacuum blasted surface with proper levelling followed by a thin film system is an excellent coating of 20-40 mils that will show outstanding performance. There is also a variety of grit sizes that can be used to create less or more profile in the surface. Various surfaces are also harder or softer depending on age, density or type of the concrete surface. Vacuum blasting does require a certain amount of skill and the thinner the coating system applied, the greater the skill required to achieve a smooth surface.

What is the best prep for a thin (6-8 mil) coating system? In lieu of vacuum blasting, the choices remain chemical cleaning (acid etching) or mechanical grinding. Acid etching can be effective if the concrete surface is clean, unsoiled and has no curing compound. One of the better ways to mechanically grind a surface to maintain its smoothness is with a conventional terrazzo grinding machine. New diamond type stones grind much faster and can be very effective.