# Shot Blasting Tips



For the painting or flooring contractor hired to apply or repair a coating on a concrete floor, the range of tools and possible techniques available for surface preparation can be extensive. Surface preparation methods can include anything from detergent scrubbing to acid etching to mechanical abrasion. Proper surface preparation is critical to a successful and long lasting coating job, and the key to preventing call backs. This article provides an overview of one of the most commonly specified surface preparation methods used on concrete floors: shot blasting. Tips for how to select the most appropriate surface preparation method (or methods) for a job are offered.

## SHOT BLASTING

Typically, shot blasting is one of the cleanest and fastest methods of mechanical abrasion. In addition to a "typical" coating job (if there truly is one), shot blasting can also be used for floors in sensitive areas that are otherwise "off limits" to other methods. Food preparation or manufacturing areas, clean rooms, working around sensitive inventory or machinery, or simply areas where chemical-free, dustless methods are required are all candidates for shot blasting. The recycling wheel blast technology found in most shot blasters works by throwing steel shot or grit at a high velocity onto the surface being cleaned (such as the concrete floor). This is achieved through centrifugal force by a wheel with removable paddle type blades that revolve at a high speed. Abrasive travels along the radial length of the blade and is thrown at a high velocity in a predetermined and adjustable direction. Once the abrasive impacts the surface, it dislodges the coating and/or debris, thereby cleaning the surface. The abrasive and debris rebound into a reclaim chamber where it is recycled. The reusable abrasive is separated from the dust and debris and is transported into a storage hopper for recirculation. Air flow transports the dust and debris through a hose to a dust collector.

### Tips for achieving a successfully shot blasted floor:

1. Remove chewing gum, sticky adhesives or other soft materials from the floor that will prevent the surface from being evenly shot blasted.
2. If a floor is soaked with grease or oil, clean it first with an industrial detergent. If not cleaned first, the heat generated during the shot blasting process will bring the oil to the surface.
3. Make sure the surface is dry. A shot blaster will not work properly on a wet floor.
4. Shot blast a small test area first to ensure that the desired result is achieved.
5. Plan the travel route for your shot blaster so that you achieve a consistent pattern over the entire surface.
6. Use the smallest steel shot size possible that still provides the desired results. Smaller shot provides better coverage and higher production.
7. Monitor the level of the shot in the hopper. Keeping the hopper full will help achieve a more consistent blast pattern.
8. Vary the travel speed of the machine as needed to address areas of softer or harder concrete.

### Common shot blasting mistakes:

1. Stopping a blast machine with the control valve open, which can cause the machine to blast deeply into the substrate.
2. Using the wrong shot size.
3. Incomplete removal of curing compounds and laitance layer due to too light a blast.
4. Attempting to remove too much material at once, clogging the storage hopper and vacuum filters.
5. Poor planning of travel route, resulting in overlapping or crooked passes.

## HOW TO PICK A SURFACE PREPARATION METHOD

Several types of surface preparation methods can be used to prepare a concrete floor. While there may be no single "right" method, most jobs do have characteristics that can point you towards a method (or in some case a combination of methods) that will provide better results than others.

1. Look at what coatings, if any, are on the surface now. The thickness and nature of the coating can help determine the type of equipment needed for surface preparation. Rubbery or sticky coatings for example, call for scarification or grinding with special abrasive disks.

2. Consider the type of coating that will be applied to the prepared floor. Thin coatings and sealers are not appropriate over a floor that requires moderate to heavy shot blasting or scarification. Concrete grinding is typically more appropriate for situations requiring the use of thin coat or staining products.

3. Ask your coating manufacturer for recommendations. Many manufacturers specify the method of surface preparation that is most applicable for their coatings.

4. Perform a test patch, in a variety of locations on the slab if needed, to help determine if one surface preparation method performs better than another.

5. Consider a mix of tool types to address the specific needs of the floor and to address the type of coating or surface that is being removed. Scarification followed by shot blasting or a combination of light shot blasting in open areas and hand grinding for corners and edges, are two possibilities. In many restoration projects, it is very common to use several types of surface preparation tools.

For more information on concrete surface preparation, consult industry organizations such as

ASCC: American Society of Concrete Contractors. Telephone 314-962-0210 or www.ascconline.org

ICRI: International Concrete Repair Institute. Telephone 847-827-0830 or www.icri.org.

SSPC: Society for Protective Coatings. Telephone 877-281-7772 or www.sspc.org