



## WHITE PAPER

# 8 Things to Know about Epoxy Floor Systems

May, 2007

Applying epoxy floor systems to garages is really taking off. The garage is often the largest room in a home and turning it into a more functional, lower maintenance area has become the trend. Coating the garage floor greatly improves the space, and is a lot of bang-for-the-buck. Here we've assembled some important points to know when considering the application of an epoxy system on your floor..

### 1) Floor Preparation

This is key to a good application, as poor floor preparation will lead to peeling, typically sooner than later. In the professional floor industry “mechanical preparation” is the term used to refer to the use of either a coarse industrial diamond grinder or shot blaster. These are serious machines that separate the professional from the novice. Additionally heavy sanders, edge grinders, and powerful vacuums are required to prepare a floor correctly. All of this essentially allows the preparation to get down to the raw porous concrete, into which the initial epoxy coating will be absorbed. Do-It-Yourself kits often

*These are serious  
machines that  
separate the  
professional from  
the novice.*

come with an “acid wash” floor preparation system, where acid is poured over the floor and etches the concrete in attempts to create a surface profile to which the coating will adhere. This approach often doesn't work, as the acid is not sufficient to get past dirt, oil, and sealers. Additionally, acid etching by its nature can leave residues and even moisture in the slab, which can adversely affect adhesion.

Professional floor applicators invest heavily in the proper equipment and training to do the job right. If your applicator does not practice mechanical preparation, then you are likely dealing with a novice. Ask lots of questions about this topic, as it is the most important step in the floor process.

### 2) Floor Thickness

Take this for example; the simple epoxy kit you buy from the local hardware store typically is about ~4 mils thick (a mil is 1/1000<sup>th</sup> of an inch). That's pretty thin, often referred to in the industry as “too thin to win”. Even with an entry level commercial grade

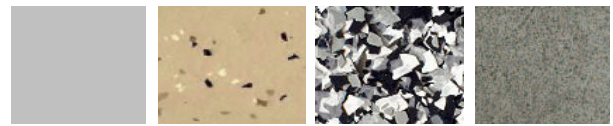
# WHITE PAPER

floor, any professional job is likely going to be up to 5 times as thick. Other more expensive floors can be closer to 40 to 60 mils thick, sometimes more. Floor thickness not only adds to the life for the floor, it also increases consistent color hide, in addition to helping minimize the appearance of concrete flaws and irregularities. Also note that DIY epoxies are often diluted in solvents or water. This makes them easier to handle and lengthens the working time, making them more forgiving to the novice. The down side is as the epoxy cures, the solvent evaporates and the floor ends up thinner than first applied. Most professionals use what are called 100% solids epoxies, meaning no solvents and no shrinkage. If your applicator cannot talk intelligently about this topic, then you may want to call someone else.

### 3) Decorative Components

Most often, three types of garage floor styles are installed: solid color, random flake system, or full broadcast. Not only do each of these have a different look, they also each have different functional properties. As a general rule, the full broadcast systems - where the decorative component such as flake or quartz completely covers the surface - do the best job of concealing existing concrete flaws or repair work. They minimize wear appearance over time, and generally just hide dirt well requiring less cleaning. These are often the thickest of the floor options and can make your whole floor look like a slab of granite for example. The random flake floors are a very traditional look, and the sparser flake pattern helps with some of the above, but not as well as the full broadcast systems. Solid color floors create a very clean contemporary style, but often are best for concrete in

very good shape as flaws are easily seen. These solid floors also require more frequent cleaning. Price varies with each of these options, with typically the full broadcast floor being more expensive. Make sure to see floor samples from your applicator so you understand the options and the costs.



### 4) UV Stability

Most epoxies, depending on how much sunlight they receive, will experience some discoloration over time. A garage that is often open direct to the sun definitely may “amber” sooner than an exercise room in your basement with no windows. Some particular colors or styles are more vulnerable than others to this issue. Although discoloration likely will not affect the adhesion, chemical resistance, or ease of cleaning properties, it can affect the appearance. One answer is epoxies that are formulated with much higher UV resistant properties, and these can last years without any issues. To eliminate of any chance of discoloration, other non-yellowing solutions are available. Most often this is done by adding a UV stable topcoat such as urethane or polyaspartic coatings. These special finish coats can be pricey, so discuss with your applicator how important UV stability is to your project, and to what degree your desired style and application is vulnerable to this. Not all applications require UV stability, but some definitely should.

## 5) Non-Skid Surface

Note that any style of epoxy floor – solid, random flake, full broadcast – can have any surface texture you want, from smooth and glossy to aggressive. It all depends if non-skid is applied, what coarseness the non-skid is, and how the topcoats are applied. In garages, most often a good solid non-skid is applied to the system. A balance is done to achieve a safe texture, while still being able to clean easily. A different texture might be required for a porch, or a basement, or a retail store, etc. Ask your applicator to show you examples of different texture options, and see what they recommend for your application. If your applicator has a showroom, you may be able to actually walk on, feel, and test brooming off different surfaces.

## 6) Wear & Finish Retention

Any floor, including epoxy systems, will wear over time. To what degree will depend on the type and intensity of the wear. To minimize the affect of wear over time, the typical solution in the coating industry is to apply a high wear topcoat. Actually, these are often the same as those mentioned above for achieving UV stability, and include special urethanes or polyaspartic coatings. These are much harder than epoxy and have more chemical resistance, so scratches and potentially even certain stains will occur at a much slower pace. For example, when your floor is finished with a plain epoxy it will often have a even glossy finish throughout. However, after a while you may lose some of that sheen especially where cars are going in and out and where you commonly walk. This is more so with solid or random flake floors than full broadcast systems. It is

unlikely that the adhesion or other functional properties will be affected, but it is more an appearance issue. Applying a high wear topcoat will greatly reduce this, and you will keep a consistent finish for much longer. Again, these types of special topcoats add expense to the project, so discuss with your applicator your expected wear and the cost associated with these finish coats.

## 7) Garage Details

Quality contractors will want the whole floor looking as good as possible when they are done, so when the homeowner looks at it they simply just say “wow”. In this regards, ask your contractor how they address several appearance items often found in garages. These can include treatment of wooden or concrete steps, control joints, concrete base around the room, drains, and outside thresholds. The condition and presence of each of these varies greatly from one garage to another, so there isn't one answer. But a good contractor will discuss available options and decide with you the best course of action. The main slab may have a perfectly applied coating, but without also addressing these other items, the “wow factor” may be completely lost.



## 8) Realistic Expectations

Ideally all concrete slabs to be coated would be brand new, perfectly flat, with no sealer, no previous coating, a vapor barrier underneath, with no pitting or cracks. This of course is not the case, so you should have realistic expectations of the outcome. If significant repair is required, filling cracks and pits or missing chunks of concrete, it may not be possible to completely conceal this work. It depends on the degree of flaws. Certain floor styles do a better job than others of hiding this. Your contractor should address these issues and communicate with you regarding the likely outcome. Note that most concrete slabs are inherently uneven, so this can affect how wet epoxy, decorative component, and non-skid settle on the floor. Some inconsistencies likely will be present but should not be easily noticed, unless advised otherwise regarding a certain issue. A rule of thumb in the coatings industry is when standing at the outside threshold during the day with inside garage lights on, one should see a continuous and uniform appearance. If standing in the back looking out with reflective light coming in, likely more concrete flaws, repair work, or even application inconsistencies will be more noticeable, but unfortunately complete elimination of these is rarely possible. Also talk with your contractor about the warranty they offer. This may differ depending on the type of floor purchased and slab condition, but make sure they stand behind what you are purchasing. Try to be on the same page with your contractor to minimize any surprises.

## Summary

There are a lot of folks out there saying they install epoxy floors, but really haven't committed to the tools, product, and training to do them properly. It's likely your painter, handyman, or hair dresser's brother-in-law is not equipped adequately to complete a quality installation. Taking a little time to review your contractor's qualifications and knowledge of applying professional grade floors will payoff greatly.

As with most purchases, you're going to have some options. Definitely make sure your applicator knows what they are doing and is preparing your floor correctly. Then consider the style floor you want and your budget. With epoxy floors, even lower price point systems (for example a 2 coat random flake 15 mil epoxy floor) are excellent floors for long lasting adhesion, ease of cleaning, chemical resistance, and non-skid safety. If those are your main concerns then that floor is a great option, for not a lot of money. If you have a larger budget and have more specific aesthetic interests, in addition to higher expectations for wear appearance and UV protection, then go with that.

Educate yourself on the fundamentals outlined here, then purchase what you feel best suites your needs and budget. You can't go wrong if you know what you are getting. ~A.S.~

**Amazing Space, Inc.** has been in business since 1987 and has installed hundreds of garage floors of all types, in addition to doing commercial projects such as restaurants, retail stores, fire stations, auto centers, and warehouses. We have a strong commitment to quality, professionalism, and customer service.