



TREADWELL™

Guide to Floor Selection

Comparing different types of floor coatings

Introduction

If you are tasked with picking a flooring system for a commercial location, the good news is there are a tremendous number of choices. The bad news is... There are tremendous numbers of flooring system choices.

Coatings

Ceramic Tile

Hardwood

VCT

Sheet goods

Carpet

Usually, some of these choices are ruled out by the equipment present at the commercial site. But, far too often, choices are made without evaluating the total requirements of the flooring system.

In retail, services, non-profit, production and light industrial locations, almost all facilities have some areas that will benefit by the protective and decorative nature of polymer floor coatings. These polymer floor coatings often include epoxies, urethanes and urethane cements.

Purpose for Installing Floor Coating Systems

Floor coatings are used for one or more of the following purposes:

To provide a decorative finish.

To provide a cleanable, sanitizable finish.

To protect concrete from exposure to process chemicals and chemical solutions that would otherwise attack the concrete surface.

To protect concrete from exposure to abrasion, wear, erosion or other physical mechanisms of abuse and deterioration.

To prevent leakage of water through cracks or other breaches in concrete slabs into areas beneath the slabs.

To contain and/or direct process solutions or other materials to drain systems.

Purpose of this Guide

This guide will help the reader to become more knowledgeable about:

- Critical factors to evaluate when considering a floor coating system
 - Types of commercial floor coatings systems available
 - Selecting the appropriate coating system by application
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Evaluating Flooring Criteria

While not all inclusive, the seven items below typically are the primary drivers for selecting one polymer coating system over another.

Surface Condition

Maintainability

Texture

Chemical Resistance

Scratch Resistance

UV Resistance

Aesthetics

These criteria should be discussed and evaluated for each area to receive coatings. While a common appearance may be desired for an entire facility, the area to area (room to room) specifics may necessitate the use of different materials for each area.

Improper material selection often results in coating failures or in the failure to achieve the desired results.

Surface Condition

The concrete slab's level of flatness, porosity, smoothness and structural integrity will all impact what type of chemical systems are applicable.

A highly cracked or spalled floor may require special epoxy, urethane or polyuria repair materials prior to coating.

A slab with high porosity may require a primer or additional layers.

A highly sloped floor may not allow coatings that sag or where pigments may run or pool.

A slab requiring expensive preparation or repair may not allow thinner coatings to hide those conditions.

The bond strength of a polymer floor coating is also dependent upon the floor surface being properly prepared prior to the coatings application. While there are many ways to “prepare” the concrete surface, the process that is used must ensure that it adequately removes loose materials, imparts a sufficient concrete surface profile (CSP 2 or better) and opens the pores of the concrete.

Texture

Polymer flooring systems can be constructed to create a variety of textures ranging from very rough to extremely smooth. This texture will impact the slip wet and dry resistance, ADA and OSHA slip resistance compliance, ease of cleaning and impact of items coming in contact with the surface.

While some coating systems have a natural texture due to the media bonded between chemical layers, nearly all can be further modified by the introduction of sand, quartz or aluminum oxide into the topmost coatings. Aluminum oxide is available in very large sizes (16 grit) to extremely fine (240 grit). Some “high wear” systems utilize tabular aluminum to create surfaces that mimic that of an emery board or very fine sand paper.

Maintainability

Most polymer flooring systems do not require waxing or polishing. They can be easily cleaned with mechanical equipment (auto scrubbers) while leaving no traces of spills or streaks.

No coating lasts forever and wear may occur in heavily trafficked areas. But unlike paints, most professionally installed floor coating systems have a thick enough top layer of the coatings to allow them to be mechanically abraded (sanded). Once properly prepared, a new protective layer of coating can be applied to the existing system.

While the need for this rejuvenation may not occur for many years, once it is needed, it will not require the large investment of replacing the entire system (which is more typical of DIY kits and floor paints).

For minor amounts of dulling or scratches, new developments in special polymer waxes allow for simple janitorial processes to keep the high sheen and further elongate the time period before new coatings are required.

Chemical Resistance

A coating system should be comprised of at least one, if not more, layers of chemicals that can resist the chemical exposure conditions. The types and concentration of chemicals and the anticipated maximum exposure times must be considered when selecting the construct of a chemical system. While many polymers can tolerate short term or splash spill exposures, long term or full immersion environments typically require Novolac polymers or specialty “containment” systems that are beyond the scope of this guide.

Wear Resistance

A floor coating takes a lot of abuse from wheel and foot traffic, dropped items and moving of materials & equipment.

The flooring coatings should be selected for their ability to withstand abrasion and impact. High wear patterns or greater impact resistance calls for greater thickness and higher density systems. Specialty topcoats may be required to withstand the abrasives present or to accommodate more rigorous surface cleaning.

UV Resistance

Commercial sites may or may not have windows, but often have a fair amount of lighting installed. A good floor coating system must be able to withstand periodic or continuous exposure to ultraviolet (UV) light. UV resistance is important not just for the look, but also the longevity of the polymer flooring system.

Most epoxies do not have high UV resistance, which is why most decorative floor coatings make use of urethane or polyurea based technologies, as these chemicals have UV inhibitors or are UV stable (do not yellow from exposure).

Over a prolonged period of time, coatings impacted by UV exposure will begin to break down or chalk. Ultimately, the entire system can fail, if the system is not properly maintained or rejuvenated.

Some lighting, such as sodium vapor, may require special considerations during installation to negate their impact.




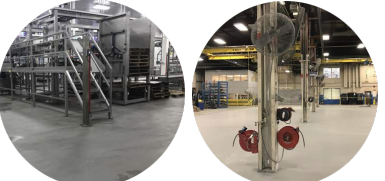

Aesthetics

In retail, offices or showroom environments, the decorative nature of a floor coating system is often paramount. In more industrial applications, aesthetics usually is often the last factor to consider.

Aesthetics are very subjective, so the wide variety of coating systems accommodates a wide selection of personal tastes.

While there is no one right answer for selecting a decorative floor coating, the following are popular choices:

Floor Coating Systems Comparison

	System	Characteristics
	Solid Color	<ul style="list-style-type: none"> • Available in many colors • Typically the least costly • Highly reflective, clean room look
	Decorative Flake	<ul style="list-style-type: none"> • Available hundreds of combinations • Hides dirt and debris • Easy to maintain • Great combination of durability and value
	Decorative Quartz	<ul style="list-style-type: none"> • Available hundreds of combinations • Hides dirt and debris • Slip resistant • Great impact resistance
	Industrial Epoxy	<ul style="list-style-type: none"> • Available in many colors • Good combination of durability and value • High impact and abrasion resistance
	Cementitious Urethane	<ul style="list-style-type: none"> • Heavy duty industrial floor • Resistant to thermal shock, impact & chemicals • Great for food processing environments

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