

CONCRETE FLOOR SYSTEMS

a guide for selecting a concrete floor coating system



YOUR COMPLETE INDUSTRIAL SOURCE

Columbia Paint & Coatings manufactures and distributes a wide variety of high performance coatings that are designed for use on concrete floors in numerous service environments and exposures. We can recommend coating systems for floors that are exposed to light foot traffic or floors that are subjected to automotive, tow motor and forklift traffic. If your particular service environment also includes exposure to chemicals, acids or petroleum products, we can recommend a system to help you achieve long-term durability and performance.

Columbia can formulate, manufacture, and distribute the highest quality coatings recommended for use on floors. However, if the floors that these coating systems are installed on are not in sound condition, have had concrete sealers or hardeners applied, or excessive moisture conditions exist, the full benefits of buying and installing the right product may not be realized.

This Floor Systems Selection Guide is designed to help you choose the right coating system for your specific and unique circumstances. Selecting the right system for your service environment is a critical component to ensuring your coating expectation will be met or exceeded.

The three keys to obtaining a long-lasting concrete floor coatings system include:

1. Proper Surface Preparation (refer to our Surface Preparation guide #999-0701).
2. Evaluation and Selection of the right coating system using the form on the back of this brochure.
3. Proper application of the system in strict accordance with manufacturers' recommendations.

If your floor is located in a chemical plant, paper or pulp mill, a fuel storage facility or another similarly corrosive or aggressive environment, please contact a Columbia Store Manager, Account Executive or our Industrial Department for more detailed specifications customized to your special needs and circumstances.

We hope you find this information to be useful and informative. For additional information or assistance with your Industrial product needs, please contact any Columbia Paint & Coatings Store Manager or Account Executive. Visit www.columbiapaint.com for the store nearest you.

Industrial Department Contact Information:
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TYPES OF FLOOR COATINGS SYSTEMS

Industrial or Polyurethane Enamels

Products such as Columbia Paint & Coatings 04-400 Series Polyurethane Enamel provide an economical, hard, durable, high gloss paint film. Single component products like 04-400 are best suited for use on light to moderate use foot traffic floors and stairwells in light commercial use buildings. Enamel floor finishes should be used in areas that will be subjected to light traffic, where frequent recoating is possible and initial product cost is of primary concern.

Epoxies

There are many types of epoxy products. Epoxies are two-component materials that, when mixed together, generate a chemical reaction. This reaction, in turn, creates a paint film that is harder, denser, more abrasion resistant and more chemically resistant than single component enamel products. Epoxy finishes require exacting preparation, mixing and application methods in order to achieve optimal performance attributes. Properly applied epoxy floor finishes provide outstanding durability and protection for the most difficult floors.

The types of epoxies most commonly used to coat concrete floors include:

Conventional Solvent Based Epoxy

These epoxies, such as Columbia Paint & Coatings 07-910 Series Polyamide Epoxy, combine economy with performance. 07-910, like most conventional, thin film epoxy products, contains approximately 60% solids by volume. While this class of product delivers the lowest material cost per square foot of all epoxy floor systems there are trade-offs. The first of these is odor at the time of application. The solvents in this type of coating may make this product unsuitable for use in occupied environments. The other reality is that the solvents in this type of epoxy may soften and lift existing coatings. Test patches are recommended to check for lifting or wrinkling of previously applied, intact coatings that are on the floor now.

Water Based Epoxy

Columbia 05-930 Industrial Water Base Epoxy is recommended for use on floors in industrial and warehouse environments. It is also ideally suited for use on residential garage floors. 05-930 contains no strong solvents so it will not lift tightly adhered existing coatings. This water based coating is low odor and non-flammable and it has excellent resistance to abrasion and a wide range of solvents and cleaning agents.

High Solids Epoxy Mastics

Epoxy mastics are solvent based and generally contain a minimum of 75% to 80% solids by volume. This makes them compatible with existing coatings and they are suitable for use in a wide range of environmental conditions. Epoxy mastics are usually specified when lifting of previous paint films is a concern or when a thicker dry material film is required or desired.

Two-part Acrylic Aliphatic Polyurethanes

These urethanes are used as a top coat over epoxies or can also be used as stand-alone 2 coat floor systems. Two-part urethanes cure to a tough, durable, more chemically resistant surface than epoxies. The chemical cross-linking mechanism in urethane products makes them more resistant to staining or softening than epoxies when the floor comes under chemical attack. Two-part urethanes are the top coat of choice in the most demanding applications like airplane hangar floors, and also provide superior exterior weathering abilities and excellent color and gloss retention when exposed to ultra violet light conditions.

About Your Concrete Floor

There are many types of concrete floors. In most cases warehouse floors, floors in commercial buildings, and residential garage floors, the concrete is poured in large sections, troweled smooth, and then a clear, moisture retarding coating is sprayed onto the surface. This moisture retarder slows down the curing of the new concrete. The slower the water evaporates out of the concrete mix the harder the slab cures out. The more smooth and dense the finish is on concrete floors, the harder it is to get good adhesion with a film forming coating system. In some cases it is recommended that a floor be scarified or abrasive blasted to break through the curing sealer. There is another benefit to these methods of mechanically preparing concrete for painting. The weakest part of any smooth troweled concrete slab is the very top layer of the concrete, the walking surface. This is the result of water bringing the smallest particles in the concrete mix to the surface as the concrete is troweled smooth. These "fines" are called laitance and the laitance has the lowest compressive strength found anywhere in the slab. Grinding or abrasive blasting breaks through the sealer and also removes the concrete laitance, exposing the underlying higher integrity, higher compressive strength concrete. Using a "floor profiler", also know as a scarifier, to mechanically prepare the floor prior to painting, is your best means of ensuring a successful coating application. The majority of Columbia Paint & Coatings stores have floor scarifiers, known as Rust-Oleum Grind N' Go machines, available for rental use.

Here is an example of one of our most frequently recommended floor coating systems.

For light to moderate use – foot traffic, rubber wheel hand cart

	1 st Coat	2 nd Coat	3 rd Coat
Good	04-400 thinned	04-400 unthinned	
Better	07-910 or 05-930 thinned	07-910 or 05-930 unthinned	
Best	Rust-Oleum 9100 Thinned	Rust-Oleum 9100 Un-Thinned	Rust-Oleum 3300 Urethane

This is just one example. If you would like a customized floor coating system recommendation tailored to your specific needs, your intended use, and your own expectations, Columbia Paint & Coatings has a free service available. Please turn to the back page of this systems guide for more information.



YOUR COMPLETE INDUSTRIAL SOURCE

Floor Coating System Evaluation Form

Return completed form to your local Columbia Paint & Coatings store or fax to 509-535-3421, attention: Industrial Products Department.

Date: _____ Company: _____

Project Name: _____

Your Name: _____ email: _____

Daytime Telephone Number (incl. area code): _____

Mailing Address: _____

Please complete this form with as much information as possible -

1. Primary reason for painting the floor: _____

2. Describe area to be coated: _____

3. Size of floor area to be coated: (total square feet) _____

Please circle all that is applicable -

4. Type of floor: Concrete Wood Other _____
If concrete: New Old Worn Spalled Pitted Cracked

Cracks: Large Small Hairline

On Grade: Yes No

Vapor Barrier: Yes No Unknown

Contamination: (describe) _____

5. Existing coating: (describe type and condition) _____

6. Traffic conditions: Foot Light Wheeled Heavy Wheeled Other

7. Extreme Abrasion: Yes No

8. High Impact or Dropping: Yes No

9. Will the floor have any regular exposure to chemicals? Yes No

If Yes, please name chemical types and % of strength: _____

10. Who will apply the coating? Prof. Painter Flooring Contractor Maint. Staff Homeowner Other

Desired Color: _____ Gloss Semi Gloss

What are your expectations of the coating system? _____

RETURN COMPLETED FORM TO YOUR LOCAL COLUMBIA PAINT & COATINGS STORE OR FAX TO 509-535-3421, ATTENTION: INDUSTRIAL PRODUCTS DEPARTMENT.

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