

## Concrete Floors – Why Paint Them?

**1.3.1**

### Why Paint Concrete Floors?

Concrete finds itself used extensively in construction. Its functionality and performance, strength and durability have seen it used more extensively in both residential and commercial construction. The very high compressive strength of concrete, along with its durability and dimensional stability (it won't warp or rot) makes concrete an excellent flooring material. But unpainted concrete does have drawbacks, all of which can be overcome by the application of a protective coating system.

#### To rectify Shortcomings of Existing Concrete

The look and aesthetics of raw concrete are not always appealing; even where the raw, "industrial" concrete look had been desired and specified, the final appearance of concrete is often not what the architect or designer expected, as the surface is often blighted with stains, streaks and marks from curing compounds, form oils, release agents, mortar smears and site damage and wear-and-tear.

Imperfections arising from blowholes, honeycombing and on-site damage affect not only the aesthetics, but also the integrity of the concrete itself, and will require filling and patching.

#### To Prevent Spalling

When concrete is fresh, it is very highly alkaline. This alkalinity protects reinforcing steel from rapidly corroding. Unfortunately, uncoated concrete readily **absorbs moisture** and **carbon dioxide**, which in turn **neutralise** the concrete, **lowering its alkalinity** and thus allowing steel to **corrode**. When steel corrodes, the iron oxide corrosion products occupy up to eight times the original volume of steel, creating stress in the concrete. Whilst compressive strength of concrete is very high, its flexural strength is relatively weak, and so the concrete cracks around the reinforcing steel.

Painting concrete with appropriate products will **prevent the neutralisation process** from occurring, by protecting the concrete's naturally high alkalinity.

#### To Increase Aesthetics

From an aesthetic point of view, painting a floor in an attractive colour may add light, a feeling of space, warmth or elegance.

Coating a floor in a pleasing finish may also lift morale. It will most certainly make you feel differently about a space. In fact paint and coatings in general are one of the cheapest means of changing how you might feel about a certain space.

#### To Resist Chemical Attack

Concrete is susceptible to chemical attack by a wide range of chemicals. Not only do acids readily eat into concrete (and most foodstuffs and beverages are slightly to moderately acidic), but there are many seemingly benign chemicals, such as sugar, that react readily with concrete to completely break down the concrete's integrity, causing catastrophic failure.



Rust stains on concrete



Repair patch showing laitance



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### To Increase Safety

Unpainted concrete generally has a low light reflectance value, absorbing light energy and emitting little. The application of a smooth, light-coloured floor coating increases the light reflectance value of the floor and increases lighting efficiency and improving visibility, creating a brighter, safer working environment.

Factory floor areas can be identified using colour. Yellow identifies safety zones, green identifies safety and first aid areas and blue identifies protective clothing areas for example. For more information, refer to Dulux<sup>®</sup> Protective Coatings Tech Note 5.4.1.



### To Increase Practicality

The natural porosity of even well-cured “high strength” concrete allows the absorption of liquids and adhesion of stains and dust, creating an unsightly appearance. Unpainted concrete also presents great difficulties around cleaning and maintenance.

Poorly cured concrete (which most concrete happens to be) harbours and generates dust on the surface, which continues for the life of the floor or until the surface is sealed. So, from a practical point of view, painting a floor keeps it from generating its own dust as well as preventing dust accumulating in its pores. Concrete dust can contaminate food, beverages, pharmaceutical supplies, electronic equipment, and other goods, rendering them useless. Dust can also damage such things as expensive artwork. Dust is often responsible for “shop-soiled” goods and blemishes on packaging, reducing their sale price.



Oil stain and laitance on concrete

A suitable floor coating will also prevent the ingress of liquids. The porous nature of unpainted concrete makes complete removal of spills (and any associated odours) impossible.

Sealing the porous surface and filling the profile of the concrete floor creates a smooth, easily cleaned and maintained floor - dirt is easily removed by broom, mop or vacuum.

In fact, coating a floor in many cases is a mandatory requirement for work-place hygiene.

### To Improve Property Value

All the reasons above combine to present a property of greater value.

An attractive environment with easily cleaned floors increase both productivity and resale value of the property.

And now that it is possible to choose easy-to-use waterborne epoxy coatings such as **Dulux<sup>®</sup> Luxafloor<sup>®</sup> ECO<sub>2</sub>**, what better way to increase your property value than painting your floor!



For more information, please contact the Dulux Protective Coatings Technical Consultant in your state.