



Doyle Dickerson Terrazzo Case Study

MOISTURE MITIGATION



Why Moisture is a Problem?

Moisture-related issues are a headache for many construction projects. For many decorative floor coverings such as epoxy terrazzo, these floors are sensitive to moisture and can either bubble, swell or blister during construction or after the floor is installed.

Many construction projects go without having a moisture-related problem. It is normally when projects are fast-tracked or when water accidentally mixes with the concrete during or after construction that an issue arises.

As a result, the presence of moisture can have devastating effects such as prolonged construction

schedules and project costs. Without handling the issue, you can expect one of the following consequences:

- Debonding of the floor
- Discoloration of the floor, altering the floor's appearance
- Safety Hazards involving the the spread of moisture into the working atmosphere
- Growth of mold and mildew, leading to poor indoor air quality, odors and allergic reactions
- Deterioration of construction materials
- Corrosion of any item attached or embedded into the floor.

The best way to solve this issue to keep the concrete slab relatively dry, avoiding water at all cost.

Test. Test. Test

The best thing for anyone planning to install a floor covering is to become educated about installation methods, including moisture-related issues. Flooring installers should bring up the issue during the planning state.

No matter the age or location of a concrete slab, always start off a project by testing moisture levels prior to installing a terrazzo floor.

Moisture can affect slabs above or below the ground level, thus it is advised to check to make sure that humidity levels are subpar and meet the recommended levels to install terrazzo.

For terrazzo floors, the NTMA recommends you follow a terrazzo manufacturer's requirements for quantitative moisture tests according to ASTM F1869, *Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride* or F2170, *Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes*. You can also test moisture levels using qualitative comparative

methods such as plastic test sheets (ASTM D44263) or electronic moisture meters; however, should not be used as a final measurement prior to the floor installation.

ASTM F1869 measures the moisture vapor emission rate in terms of pounds of water per day per 1,000 square feet of a floor area. For most resilient floor covers like terrazzo, it is ideal to have this rate at less than 3 pounds per day per 1,000 square feet of the installation.

Before you test for moisture levels, it is important to have the room at the expected temperature and humidity levels. If the room is at an uneven temperature, wait 48 hours until the room is well-conditioned for a moisture reading.

When testing moisture levels, check moisture emission from within the slab and moisture level movement from the slab. When in doubt, retest the moisture levels for confirm the rate of emission.

What Causes Moisture to Form?

Many people may believe that water is the leading source of most moisture-related problems in flooring. However, while water can cause problems itself, it is vapors that must be watched out for. Vapors is a gas that can move

through a concrete slab and into the air stream. This causes floors to become disruptive, and affects the overall indoor quality. Bad air quality can have long-term negative effects on the health of a building's occupants; therefore, it is important to take care of any moisture-related problems right away so a building and its people remain healthy.

Moisture sources can be either natural or artificial. Before developing a design to combat moisture levels, you must first understand where moisture is coming from.

Examples of natural moisture sources are precipitation, dew point, ambient humidity, capillary rise, and subpar vapor.

Examples of artificial moisture sources are spills, ventilation, building uses, curing water, concrete batch water, and irrigation.

In fact, concrete transmits more vapor when the air humidity is low due to the levels of concentration present.

To prevent moisture issues, it is best to keep a concrete slab away from a wet environment. This can be done through waterproofing, setting up perimeter drainage and embedding a vapor retarder, a sheet used to restrict the flow of moisture vapor, beneath the concrete slab. This should serve to manage moisture levels throughout the building's

construction. After the project is finished, regular maintenance is recommended to ensure the floors retains its overall performance and appearance.

Moisture Mitigation System

A moisture mitigation system is an option to prevent moisture from mitigating up and into the flooring system. There are many products available to use, with a two-part 100% solids epoxy system being a common product in many commercial applications. When concrete slabs take time to dry, a moisture mitigation system can keep a project on schedule and lessen the chance of having a wet slab. If project timeliness is important to you or you don't want to face the risk of having moisture-related issues later on, ask you terrazzo contractor for a recommended moisture mitigation product to use for your floor installation.

Once a moisture mitigation product is selected, make sure the concrete slab is strong enough, clean, dry and contaminant free before applying. You want to make sure a good bond is formed between the concrete slab and the moisture mitigation system.

Unsure how to test a concrete floor for contaminants? Scrap the floor to see if a powder is produced.

If a powder is present, then you can prepare the surface by either methods of shot blasting or grinding. Afterwards, you can clean the floor then apply the moisture mitigation system. If a powder is not present, then it means no contaminants are present as well and you can begin applying the product.

When applying a moisture mitigation system, it is important to follow a manufacturer's instructions step-by-step. When in doubt, ask the manufacturer for help. Always become educated about your product before use.

Apply the moisture mitigation system evenly across the floor. Allow for the product to cure which may take a few days depending on the manufacturer's instructions. Once the product is cured, you will want to check for any discrepancies in the floor like air bubbles or pin holes.

Allow time for the moisture mitigation system to dry as well. Once dry, the moisture in the slab should be under control. Installers can now begin the process of adding a beautiful terrazzo floor on top of the coat of moisture mitigation.

In conclusion, it is best to consider the longterm impacts of moisture as it can derail projects if fast-tracked and become rather costly as well.

Always test for moistures prior to installation. This will allow your terrazzo floor installation to run ■





Doyle Dickerson Terrazzo, Inc.
1709 University Commercial Place
Charlotte, NC 28213

704.921.4940
info@doyledickersonterrazzo.com
www.doyledickersonterrazzo.com

© Copyright 2017 Doyle Dickerson Terrazzo, Inc.
All Rights Reserved