

WHEN MOISTURE IS TORTURE !

In this column, we will share with you regularly our experience on major application areas where usage of dehumidification is both extensive and essential.

Concrete Coatings

Moisture Related Problems

Concrete coatings, today, are becoming very popular and are being applied at an increasing rate in various applications to prevent corrosion.



Concrete itself is considered a **corrosion resistant material** and is often applied over steel. **However, due to its reactive**

characteristics, it requires protection from many common conditions found in the Industrial and marine areas, throughout the world. Thus, coatings are needed to provide this protection. However, applying coating to concrete is more complex and difficult than other surfaces. There are some physical and chemical properties of concrete that have a direct bearing on coatings. Some of them include excess moisture, cracking, alkalinity, freezing and thawing, porosity and soluble salts, corrosion of steel in concrete and reactive aggregates.

Effect of Excess Moisture on Cement Coatings

Concrete gains its strength due to the presence of the water molecules inside. To achieve proper strength and bonding the concrete has to be hydrated to around 70 % before drying is started. It takes around 28 days for concrete to hydrate to this level. However, it would take around **six months for the concrete (6" thick) to dry before coating can be applied.** This can lead to eventual delay in projects. In addition, moisture has severe effect in the performance and life of the coating. It inhibits initial cure and coating adhesion. When moisture travels to surface and tries to escape after coating has been applied it causes fish eye or bubbling on the coating.

Excess Moisture in concrete has caused many coating failures, disrupting building operations necessitating expensive repairs !

Hence, it is important to remove this excess moisture from concrete within a reasonable period.

The Solution !!

The various techniques available to remove the excess moisture from concrete include ventilation, heating and dehumidification. **Ventilation and heating, are often used in conjunction with the most effective and quickest methods of moisture removal i.e. dehumidification.** Dehumidification involves lowering the dew point of the air surrounding the concrete so that the water starts to migrate from concrete to the dry air surrounding it. However, depending on the amount of moisture

in concrete, location and concrete type, a judicious mix of the three can be used for quick drying.

Bry-Air Desiccant Dehumidifier is the most economical and reliable method of concrete drying as it removes moisture from the air, through a process of continuous physical adsorption, and can effectively maintain the humidity conditions required as it is capable of maintaining RH as low as 1% or even lower at a constant level, regardless of ambient conditions.



– Ask for a free copy of the technical paper “Concrete Coatings - Moisture Related Problems” presented at NACE* seminar.

A complete Environmental Control Solution in a single package

Bry-Air Fluted Large Bed Dehumidifiers - **FLB Series**

Air-conditioning alone is not enough !

Air-conditioning controls temperature and provides cooling for comfort. However, humidity control for industrial applications is more precise and stringent.

Application data, norms and thumb rules of commercial air-conditioning, therefore, are not always applicable in industries. The simplest and most economical way of achieving the desired conditions is by combination of cooling and dehumidification.

Packaged for convenience

The Bry-Air FLB series dehumidifiers provide precise environmental control for any industrial application.

Bry-Air FLBs incorporates the high performance, ECODRY metal silicate fluted desiccant synthesized rotor and can be designed, engineered and packaged

Bry-Air is an application engineering company known for its expertise in providing "solutions" for moisture/humidity. Environmental control in industry calls for control of parameters like humidity, temperature, dust, etc.

with:

- Pre and / or after-cooling coils
- Bye-pass ducting and mixing chamber
- Volume controls and filter elements
- Upgraded fan for total system air

The FLBs are individually designed for each specific applications, manufactured ground up to meet your exact specifications. The customized and yet standardized approach provides single source responsibility and assures a lower installation costs, eliminating the need of

fabrication at site.

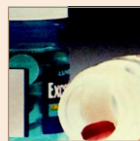
The Bry-Air Dehumidifiers produce a specific amount of dry air at a temperature and dewpoint specified for your application. By utilizing after cooling they are

especially useful in critical and difficult applications, which require a volume of very dry air at a sub-freezing dew point and low dry bulb temperature. Final drying of air is achieved by a process of continual physical adsorption - the simplest and most direct method of humidity control.



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