

## Dehumidification and Drying Concrete: Hurrying Up the Wait



In flooring applications, either finished concrete or applied flooring, there is always a "hurry up and wait" element – wanting to move ahead but knowing that **rushing too quickly** may result in a flooring failure or flooring problem. Meeting concrete and flooring specifications can seem to be a luxury that is not always available to the contractor on a tight schedule.

Dehumidification is one of the processes often used to try to encourage a concrete slab to dry more quickly in order to reach the installation point. The basic concept is simple: reduce the dew point of the air surrounding the slab so that more of the latent moisture within the slab can evaporate out through the slab surface. In the building industry, there are several common approaches to dehumidification: condensation dehumidification, heating (or drying) dehumidification, and desiccant drying.

Desiccant-based dehumidifiers use a chemical attraction to remove moisture from the air. Humid air is moved across a desiccant material that binds and holds the moisture. A hot air stream is then used to release the moisture from the desiccant and vent it away from the slab's environment. The dried desiccant then absorbs more moisture and releases it again through heating in a continuous process. This process is not influenced by external weather so can be used year round as long as the concrete slab can be isolated from weather conditions.

The condensation process uses cooling-based dehumidifiers which cool air, effectively dropping the dew point so that moisture can be collected and drawn away. By contrast, dehumidification uses heated air to raise the dew point of the surrounding air, allowing it to absorb more moisture from the slab surface. The saturated air is then circulated, either through a collection system, or to the outside air where it releases the excess moisture as it cools. It should be noted here that most installed HVAC systems are not capable of removing the amount of moisture emitted through the drying process of a concrete slab. While it may be possible to raise or lower the ambient temperatures through the HVAC system, dehumidification must actively remove the excess moisture from the structure. If the moisture is simply moved around within the walls, excess moisture can cause mold growth or equipment deterioration over time.

The real key to successful dehumidification is to have the concrete slab completely enclosed so that the moisture removed during the process is not re-introduced to the slab environment. Either the slab must be enclosed in service-ready indoor conditions, or a vapor barrier must be erected around it for outdoor conditions. Accurate **relative humidity (RH) testing** lets you accurately track the movement of moisture out of the slab. Once the slab has reached the desired RH levels and the finish or flooring is applied, the concrete will be optimally able to sustain a quality finish that will last for years.

Wagner Meters can help you accurately test the RH so you can track the moisture out of the slab during the dehumidification process. Wagner offers a variety of high quality **moisture meters for concrete** that can verify the moisture content level.

