



## VENTILATION GUIDE FOR INTUMESCENT COATING

### IT IS VERY IMPORTANT TO HAVE PROPER VENTILATION DURING APPLICATION AND CURING

Ventilation is critical for proper application and curing of intumescent coating. Below are some of the best practices in the industry when applying latex coatings such as intumescent coating.

**Failure to comply with ventilation guidelines may affect the adhesion of coating.**

**The Drying and Curing Process:** Water Based intumescent coating add water to the work space as water will be evaporated into the airspace as the coating dry's and cures. The need to create a negative pressure in the enclosed area ensures the humid air that contains the evaporated water are evacuated to the exterior unoccupied area and not being forced into the occupied/living area or job area. The drying and curing time of water-based coating is longer than simply "dry to touch" and may take **48-72** hours for initial drying. Water Based intumescent coatings has not cured until all liquids have completely evaporated. Once fully cured coating becomes a durable and inert fire protective finish.

### Impact of Temperature and Humidity When Applying and Curing

Proper ambient air, substrate, coating temperatures, and low humidity are necessary for the adhesion and curing. Lower temperatures or higher humidity will prevent coating from curing properly and may lead to blistering and delamination.



The use of space heaters or other heating sources is necessary in colder temperatures to ensure the application area is maintained within specified temperatures found on the application guide. Do not use combustion source heaters, commonly referred to as "Salamanders" as these units add a significant amount of moisture as a byproduct of the combustion process. Indirect heaters or electric element forced air are ideal for maintaining temperature and aiding in the control of excess humidity. **Temperatures must be maintained above 50°F (10°C) for the duration of the application and curing process.**

### Relative Humidity vs. Humidity

**Absolute humidity** is the water content of air. **Relative humidity**, expressed as a percent, measures the current absolute humidity relative to the maximum for that temperature. Temperature will affect the Relative Humidity. Warm air is less dense, and therefore the molecules are further spread apart, allowing more moisture between them. Cooler air causes the molecules to draw closer together limiting the amount of water the air can hold. The air acts like a sponge and absorbs water through the process of evaporation, which is how coatings cure.

Handheld Hygrometers like the one pictured here are ideal for monitoring Relative Humidity (RH). Ensure you monitor levels throughout the application process and adjust airflows as needed to keep the RH within specified limits. In certain cases this may continue for several days following application. **RH must be maintained below 85% for the duration of the application and curing process**



- 1) **Ventilation or air exchange is critical in unvented areas, areas with limited air movement, or if humidity is 65% or higher.**
- 2) **If above 65%, then fans must be used to circulate air.** It is required to maintain at least 0.3 air changes per hour in application area for 48-72 hours following application.
- 3) Installer must measure temperature and humidity for the duration of the application and initial curing. Results shall be recorded on the daily work report. Daily work reports can be downloaded at [www.painttoprotect.com](http://www.painttoprotect.com) or by calling IFTI at 949.975.8588

## Required

- Apply coating when temperatures are above 10°C (50°F), Ideal conditions are 16°C-32°C (62°F to 90°F) and 65% Relative Humidity. **If temperatures are below 10°C (50°F) or when humidity is above 85% or temperature is within 5°C of dew point CONTACT IFTI for detailed application instructions.**
- Do not use propane or kerosene heaters to heat a closed space.
- Inspect the substrate to ensure it is dry, clean, and secured. Use a moisture meter to ensure that substrate moisture level is below 19%.
- For large jobs use an “exhaust” blower at one end of the enclosed space and run a hose to the exterior of the building for removing stale air, ensure large volume air output to maintain a negative pressure in the application area compared to the surrounding area.
- Air flow must be across the area coating was applied and not directly on it.
- Place a filter over the exhaust hose to avoid spreading overspray and make sure air is still moving
- **If the relative humidity is greater than 85% at the end of spraying and cross ventilation is not drastically reducing it, then a mechanical industrial dehumidifier is required.**
- **It is very important to maintain air exchange. Installer must avoid sealing up a work space at night with no active air exchange as it may dramatically affect curing and adhesion. Special attention and details should be given to areas that do not have HVAC systems or passive ventilation. Contact IFTI for application instructions in unconditioned spaces, areas of high humidity or cold storage buildings.**

