

# MOISTURE VAPOR EMISSION VS. HYDROSTATIC PRESSURE: KEY DIFFERENCES

## OVERVIEW

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Moisture vapor emission (MVE) and hydrostatic pressure are two distinct forms of moisture movement in concrete. They are often confused, but each presents unique risks to resinous coatings. While MVE involves vapor diffusion, hydrostatic pressure involves liquid water under force. Understanding the difference is critical to diagnosing slab issues and specifying appropriate mitigation strategies.

### **Moisture Vapor Emission**

- Vapor form; measured in lbs/1000 sq ft/24 hr.
- Caused by vapor pressure gradients.
- Slow, continuous diffusion from slab interior.
- Mitigated with moisture vapor primers or epoxy barriers.

### **Hydrostatic Pressure**

- Liquid water under mechanical pressure, measured in psi.
- Caused by elevated groundwater or external water sources.
- Force can exceed thousands of pounds per square foot.
- Cannot be controlled with standard MVE primers—requires structural correction or drainage.

### **Why Misinterpretation Causes Failures**

- MVE primers rated in “lbs” cannot resist hydrostatic pressure.
- Coatings applied over hydrostatic pressure will blister, lift, or flood.

### **Installer Guidelines**

- Use RH testing, visual inspection, and history to identify moisture type.
- Never assume high MVE equals hydrostatic pressure or vice versa.
- Confirm no direct water intrusion before coating.