FACTORS AFFECTING DRYING RATE OF ARCHITECTURAL LATEX PAINTS

These factors can be additive.

A. Weather/Air Conditions

1. **Humidity:** high relative humidity (moisture content of the air) retards evaporation of liquids from the paint; relative humidity over about 90% can cause extremely slow drying
2. **Temperature:** low temperatures impede evaporation of liquids from paint; significant slowing of dry is generally observed with temperatures below about 60^{o} F. Painting in direct sunshine can dramatically increase paint temperature (and thus speed of dry) if the paint is a dark color, which absorbs heat from the sunshine.
3. **Wind:** air movement speeds drying because fresh air passing over a wet paint helps liquids in the paint to evaporate; dry times are generally specified assuming little or no air movement

B. Application

1. Application of the paint in a **thick film** will retard drying
2. If the **paint is cold** during application, it causes it to go on heavy and thus increases dry time

C. Surface Characteristics

1. All else being equal, paint on a **porous surface** will dry more quickly than it will on a sealed surface because some of the liquid is absorbed by the surface
2. A **warm or hot surface will** contribute to speed of dry

D. The Paint Composition

1. Factors contributing to **high film-build**
   - **high viscosity**: high thickener content or high solids content
   - **nature of the thickener** used in making the paint
2. Factors that **hold onto water** longer
   - **nature of the binder:** vinyl-acrylic latex dry more slowly than all-acrylic or styrene acrylic types, all else being equal
   - **nature of the thickener:** cellulosic types may hold onto water more so than do some synthetic thickeners
3. **Solids content:** at equal wet spread rate and all else being equal, a lower solids paint takes longer to dry than a higher solids paint because there is more liquid to evaporate