



Timber Pro Coatings operates a highly rigorous multi-substrate durability validation system using sophisticated testing technologies. The system evaluates both wood and concrete coatings, measuring physical resilience, chemical permanence, surface integrity, mass change, visual performance, and biological resistance under sequential environmental extremes. “We formulate coatings designed for climate resilience, with health and environmental responsibility in mind.” -Matthew Wheeler COO/CSO

### **ASTM Standard Equivalence**

The core cycle structure most closely mirrors ASTM D2898, Procedure A, historically known as the 800-inch rain test. This standard uses:

- 96 hours water exposure
- 72 hours drying at 140 °F (60 °C)
- Repeated weekly

While ASTM D2898 is widely recognized for assessing water-soluble fire-retardant coatings on wood, it does not include freezing, freeze–thaw, or rapid extreme thermal expansion. Timber Pro preserves the D2898 timing, but adds supplemental cold-shock stress as a second layer of realism, documented separately as an enhancement.

### **Supplemental Freeze–Thaw Stress (Non-ASTM Enhancement)**

To simulate failure modes beyond leaching—including microcrack expansion, coating peeling, interlayer stress, substrate frost, binder fatigue, and coatings migration dynamics—Timber Pro runs freeze–thaw cycles on coated specimens.

These cycles are not required by building code or ASTM D2898, which is why many manufacturers do not include freeze–thaw stress in their testing. Timber Pro includes them anyway as a precautionary test, with the goal of aligning results more closely to real-world conditions.

### **Extreme Scenario Simulation Capability**



Timber Pro's chamber sequencing is designed to destroy weak coatings rapidly and reveal survivable systems decisively. Timber Pro can compress multi-climate stress sequencing into short-duration simulations testing coating performance under a stacked global-extreme scenario equivalent to:

1. Florida hurricane rain exposure. thermal + hydraulic spray stress- (rain chamber)
2. Deadhorse, Prudhoe Bay, Alaska. -25 °C (-13 °F) freeze- (freeze chamber)
3. Death Valley, CA. 93.9 °C (201 °F) Immediate rapid thaw + reheating- (heat/UV chamber)

### **Scientific Validation Layers**

Before any Timber Pro formulation is commercialized, it undergoes a multi-disciplinary evidence barrage including:

- Accelerated weather chamber testing (wet/dry cycling)
- Freeze–thaw stress modules and abrasion resistance
- Microscope and absorption analysis
- Coating characteristic evaluation (hardness, gloss, haze, etc.)
- coating displacement behaviors under stress
- Preliminary customer testimonials (non-structural evidence tier)
- Internal R&D iteration when new chemistry emerges
- Third-party code-required testing when needed (ASTM E84, E119, E2768, WUI exposures, etc.)

### **Philosophy of Durability While Minimizing Chances of Harm**

The coatings industry has historically achieved extreme durability, often by prioritizing certain performance factors over human or ecological considerations. Timber Pro moves beyond that conventional tradeoff mindset and looks A.H.E.A.D.:

Adaptability, Health, Environment, Advancement, Durability.