ASTM B117 – The Salt Spray Test

The salt spray (or salt fog) test is a standardized and popular corrosion test method, used to check corrosion resistance of the test material at an elevated temperature. The test procedure is quick, relatively inexpensive, well standardized and reasonably repeatable. DECRA uses the ASTM B117 salt spray test to verify the anti-corrosive properties of its base sheet steel used to manufacture both DECRA roof panels and accessory components. The current ASTM version for the salt spray test is ASTM B117-19: **Standard Practice for Operating Salt Spray (Fog) Apparatus**.

Salt spray testing is an accelerated corrosion test that produces a corrosive attack to coated samples in order to evaluate the suitability of the coating for use as a protective finish – in DECRA's case, the test was verifying the performance of the steel anti-corrosive aluminum/zinc hot dip alloy protective coating.

In the most recent DECRA salt spray testing (4th quarter, 2019), three DECRA roof panel specimens were prepared for testing. The coating on each sample was scored with a sharp blade diagonally across the test specimen roof panel to expose the base metal.

The test specimen roof panels were then mounted inside the salt spray test chamber and subjected to 1,000 hours of salt spray at a chamber temperature range of 92-97 degrees F. The salt solution was prepared to 5 parts by mass of sodium chloride (salt) in 95 parts of water (a 5% salt solution). The solution pH remained in a neutral range of 6.5 to 7.2.

Upon completion of the 1,000 hours salt spray exposure, the samples were removed from the test chamber, gently washed under running water, and immediately dried. Each test roof panel specimen was inspected for corrosive undercutting of the film from the scored lines. The DECRA test roof panel specimens each scored a maximum 10 rating; a 'pass' rating must be greater or equal to a 7 rating. All DECRA roof panel test specimens passed the 1,000-hour salt spray test procedure without destructive corrosive (rust or other corrosion oxides) action.

DECRA roof panel fasteners are subjected to the same corrosion resistance salt spray test procedure. After 1,000 hours of salt spray chamber exposure, the fastener head cannot exhibit any red rust. In fact, DECRA roof panel fasteners then test in-chamber an additional 500 hours – and still do not exhibit any sign of red rust corrosion at the end of a 1,500-hour exposure in the salt spray test chamber.

Summary

DECRA Metal Roofs claim long life performance in all climate zones – verified by successful lab test procedures that support long life exterior exposure, backed by DECRA's substantial warranty protection. DECRA delivers 'peace-of-mind' for all home and building owners that care to protect their investment with a long life, attractive stone coated metal roof system solution.