Thataway Again, an Evaluation of an Anti-Graffiti Coating for Outdoor Painted Steel Sculpture

This sculpture Thataway Again is an outdoor painted steel sculpture by Canadian artist Henry Saxe. Thataway Again is enjoyed by many students, faculty and residents on a regular basis as it is located in a high traffic area.

Introduction

As sculptures in urban areas begin to deteriorate they can attract vandalism. A recent research project conducted by Laurence Gagné in 2014, on outdoor art conservation, identified graffiti vandalism as an extensive and pervasive issue impacting outdoor public art. Regular maintenance and quick removal of graffiti are recommendations for limiting further graffiti applications.

This sculpture last received maintenance in 1992. To assist with maintaining the sculpture in optimal condition, the application of an anti-graffiti, anti-soiling coating was explored. The application involved removal of all previous coatings and the application of an anti-graffiti coating. The graffiti was applied on the PSS 20 coating and on the primed metal without an anti-graffiti coating. Graffiti removal was undertaken with the PSS 20 manufacturer’s recommendations for water and a pressure washer at 20 bar. Surfaces were examined with optical microscopy to evaluate possible abrasion of the paint surface and penetration of graffiti materials.

Surrogates

The surrogates were measured with a Spectrophotometer (Konica Minolta CM-700d portable spectrophotometer with an 8-mm target mask), capable of D65, CIELAB 1976 measurements, consistent with ASTM Standard Practice for Determination of Graffiti Resistance D6578/D6578M – 13. Gloss meter measurements were taken using a BYK Gardner Model 4520 Tri-Gloss Portable Gloss Meter, on both the coated portion and the uncoated portion of all of the surrogates. The gloss meter measurements can differentiate small changes in gloss reflectance. The gloss meter was critical to determining if PSS 20 created a noticeable gloss change when applied to a primed metal substrate, and how the gloss levels changed over the 3 and 10 year accelerated aging periods.

Results

The surface of both coated and uncoated substrates exhibit greater gloss after removal of the graffiti. These measurements exhibit less variation over the course of time.

Graffiti removal could have further abraded the surface of the surrogates causing higher gloss measurements. Thinning of the primer on a metal substrate could allow for higher reflectance from the underlying metal substrate contributing to the elevated gloss readings.

Conclusion

It was hypothesized that graffiti removal would be less over time. Optical microscopy was used to examine the surrogate surfaces. Unaged, three years of aging and ten years of aging were monitored with the assumption that there would be declining performance in the PSS 20. The results would indicate that the opposite occurred. The surrogates which had been aged to equal ten years had less graffiti residue after removal as seen in figure 7.

The colour change and gloss change observed in the unaged samples was minimized over time. As the primer layer aged, the uncoated surrogates allowed for more graffiti to be removed. The ten year surrogates out performed with primer layer 8 and 10 yr.

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