Field Metalizing of a Steel Beam Bridge

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Field Metalizing Protective Coatings

Metalizing structural steel to provide corrosion protection has been well established in the industry when applied in the fabrication shop on new structural steel. This project attempts to determine the cost effectiveness of applying a field metalized coating on an existing steel bridge to replace a failing paint system in Hardwick, VT for Br. 1 on VT 16.

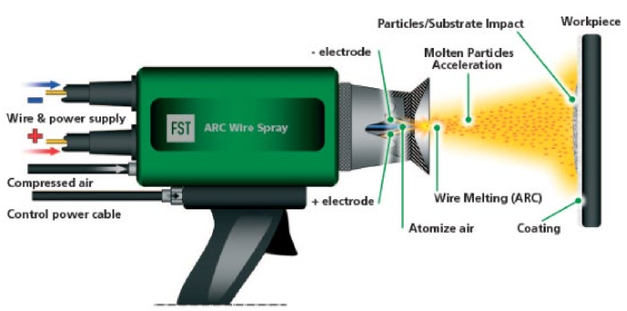
Hardwick VT 16 Br. 1

Steel Framing Plan

Failing paint system on bottom flange

What is Metalizing?

Metalizing is the process of thermal spaying molten zinc on a prepared abrasively blasted surface. Metalizing creates an impermeable, non-porous, abrasion resistant and well-bonded, corrosion resistant coating for steel.



Thermal Spray Gun

Metalizing Compared to Painting

Metalizing offers several advantages over painting that make it an attractive alternative for protective coatings on steel bridge structures.

- Application is completed with one coat versus three for most paint systems
- There is no drying or cure time
- Service life of at least 2 times that of paint systems
- No volatile organic compound (VOC) emissions
- Wide range of application temperatures allowed
- Extends application season which is a benefit in Vermont

New Haven, VT, Br. 10
Metalized in the Shop

Bid Award, Construction and Conclusions

Hardwick VT 16 Br. 1 Bid Award: Tri-State Painting, Inc. - $464,840
Construction: Scheduled for August 30 – October 30, 2020
Conclusion: The low bid on this project is very close to the expected cost to paint, therefore, we may pursue more field metalizing projects pending completion, acceptance and performance of this coating.

Acknowledgments

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References

American Galvanizers Association
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Thermal Spray Guns
https://www.thermalspraygun.com/thermal-spray-guns/