

1050302 CONTRACTOR QUALITY CONTROL GENERAL REQUIREMENTS –  
COMPLIANCE WITH THE MATERIALS MANUAL – SECTION 11.3 METALIZING  
STRUCTURAL STEEL  
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Rudy Powell  
414-4280

Comments: (11-3-11)

The following language is Specification language, not Materials Manual language:

Section 11.3.1 – Purpose

Section 11.3.4 - General Information

Section 11.3.6 - Pre-Metalizing Meeting

Section 11-3-8 – Submittals

Section 11.3.10 – Products

Section 11.3.11 – Coating Materials

Section 11.3.12 – Surface Preparation and Metalizing Equipment

Section 11.3.13 – Personal Protective Equipment

Section 11.3.14 Waste Containers for Field Work

Section 11.3.15 – Execution

Section 11.3.16 – Shop Surface Preparation

Section 11.3.18 – Metalizing and Coating Application

Section 11.3.19 – Shipping, Storage, and Erection of Metalized Steel

Section 11.3.20 – Removal and Repair of Unsatisfactory Material

Section 11.3.21 – Final Water Cleaning

Section 11.3.22 – Inspection

**Response:**

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Heather Gilmer  
813-389-5889  
[hgilmer@tti-fss.com](mailto:hgilmer@tti-fss.com)

Comments: (4-3-12)

**1. 11.3.5.A:** Consider SSPC-QP 6 as an alternative to QP 3. It's a relatively new program specifically for thermal spray applicators. Too new (and thus too few participants in the program) to make a requirement but would be a good alternative for those who carry the certification.

**Response:**

**2. 11.3.7 REFERENCE STANDARDS B(2):** ANSI/AWS C2.18 Guide for the Protection of Steel with Thermal Sprayed Coatings of Aluminum and Zinc and Their Alloys and Composites: What is the contractual status of a “guide”? C2.18 is largely redundant with SSPC-C23.00/AWS C2.23 listed elsewhere in this section.

**Response:**

**3. 11.3.7 REFERENCE STANDARDS D:** Include SP 10, which is the default cleanliness level in CS 23.00 except for immersion service. This would include ferry ramps but not highway bridges. For comparison, note that NAVSEA does not list every exterior surface of a ship as a "critical surface"; “immersion” does not mean “occasional wetting”.

**Response:**

**4. 11.3.8 SUBMITTALS D:** Thermal spray wire is not variable like paint formulations, and there is no reason to re-certify slip coefficient for each brand. Published slip coefficients, such as those in the RCSC Guide to Design Criteria for Bolted and Riveted Joints, should be assumed in design; selecting a different brand of wire will not give better or worse results.

**Response:**

**5. 11.3.15.1 2nd paragraph:** “MESA” should be “MHSA”. Metalizer cannot be responsible for respirator fit on visitors. For proper fit, the FDOT or FDOT-contracted inspectors should have respirators designated for their personal use and fit by their employer.

**Response:**

**6. 11.3.16.4 1st paragraph:** Include SP 10, which is the default cleanliness level in CS 23.00 except for immersion service. This would include ferry ramps but not highway bridges. For comparison, note that NAVSEA does not list every exterior surface of a ship as a "critical surface"; “immersion” does not mean “occasional wetting”.

**Response:**

**7. 11.3.16.4 3rd paragraph:** CS 23.00 calls for 2.5 mils minimum.

**Response:**

**8. 11.3.18.1.2 Conditions for Application:** Metalizing and paint have different requirements for environmental conditions and should not be combined in a single section. The temperature

requirement in (1) may be appropriate for typical seal coats, but is not needed for metalizing. CS 23.00 takes "low-temperature spraying" as below freezing and even then does not prohibit spraying but requires precautions. Likewise, CS 23.00 has no absolute requirements on relative humidity (3) but merely states that shorter holding periods may be needed in high humidity.

**Response:**

**9. 11.3.18.1.4(1):** CS 23.00 includes provisions for qualifying longer holding periods. Consider including this.

**Response:**

**10. 11.3.18.1.4(3):** Appendix B of CS 23.00 mentions a window of 24 hours for aluminum and aluminum alloys. Consider allowing this window for those coatings.

**Response:**

**11. 11.3.18.1.5(3):** CS23.00 does NOT call for removal of excess metalizing. It merely calls for recording of areas where the thickness exceeds 150% of the specified maximum, and requires repair if these areas are damaged in shipping or erection. Metallizing does not have the same effect from excess thickness as does inorganic zinc primer, and sanding down excess thickness is not recommended.

**Response:**

**12. 11.3.18.1.5(4):** Thermal spray wire is not variable like paint formulations, and there is no reason to re-certify slip coefficient for each brand. Published slip coefficients, such as those in the RCSC Guide to Design Criteria for Bolted and Riveted Joints, should be assumed in design; selecting a different brand of wire will not give better or worse results.

**Response:**

**13. 11.3.18.1.5(5):** From the Journal of Protective Coatings and Linings: "When applied, the seal coat should be thin enough to flow over and penetrate the TSC and seal the pores. Because the sealer penetrates the pores, its thickness is not really measurable. Typically, the seal coat is applied at a spreading rate that results in a theoretical 1.5-mil (38-micron) dry film thickness (DFT)." Theoretical WFT & DFT can be determined by applying the sealer to a smooth companion coupon.

**Response:**

**14. 11.3.18.1.6.2 Tensile Adhesion, 2nd paragraph:** CS 23.00 also lists 700 psi for 85/15 Zn/Al.

**Response:**

**15. 11.3.18.1.6.3 Cut Test:** Should not require both cut test and adhesion test. Figure D1 of CS2 3.00 recommends the cut test for areas where the coating thickness is greater than the maximum specified.

Response:

**16. 11.3.22.1 Inspection Equipment (5):** Consider allowing the option of a profilometer in accordance with ASTM D4417 Method B.

Response:

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Debbie Toole  
414-4114

Comments: (4-3-12)

- ¶
- ¶ **11.3.7 → REFERENCE STANDARDS** ¶
- ¶ The latest edition of the following standards and regulations, are a part of this Manual. ¶
- ¶
- ¶ A. → American Society for Testing and Materials (ASTM) ¶
- ¶
- 1. → ASTM D1186, Standard Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base ¶
- ¶
- 2. → ASTM D4285, Standard Test Method for Indicating Oil or Water in Compressed Air ¶
- ¶
- 3. → ASTM D4417, Standard Test Method for Field Measurement of Surface Profile of Blast Cleaned Steel ¶
- ¶
- 4. → ASTM D4541, Standard Test Method for Pull Test of Coatings Using Portable Adhesion Testers ¶
- ¶
- ¶ D. → American Welding Society (AWS) ¶
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- 1. → ANSI/AWS A-5.33 Specification for Alloy Wires, Cores, Wires, and Ceramic Rods for Thermal Spraying ¶
- ¶

Should be B.

Response:

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