



Standard Guide for Assessing the Condition of Aged Coatings on Steel Surfaces¹

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1. Scope

1.1 This guide describes general procedures for conducting a detailed assessment of the condition of aged coatings on steel structures and the extent of rust breakthrough of the coated surface. Additional assessment may be required to support coating failure analyses or other job specific needs.

1.2 This guide does not address the problem of determining the structural condition of a steel substrate. It provides procedures to determine the percent of the surface rusted, but not the severity, condition, or cause of such rusting.

NOTE 1—A more comprehensive condition assessment procedure, Practice F 1133, based upon two sets of visual standards, one for level and one for extent of deterioration, has been developed for determining the condition of coatings on ship hulls.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 610 Test Method for Evaluating Degree of Rusting on Painted Steel Surfaces²
- D 660 Test Method for Evaluating Degree of Checking of Exterior Paints³
- D 714 Test Method for Evaluating Degree of Blistering of Paints³
- D 1186 Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base³
- D 3359 Test Methods for Measuring Adhesion by Tape Test³
- D 4214 Test Methods for Evaluating Degree of Chalking of Exterior Paint Films³
- D 4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers²

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² *Annual Book of ASTM Standards*, Vol 06.02.

³ *Annual Book of ASTM Standards*, Vol 06.01.

D 5702 Practice for Field Sampling of Coating Films for Analysis of Heavy Metals²

F 1133 Practice for Inspecting the Coating System of a Ship's Underwater Hull and Boottop During Drydocking⁴

2.2 *Steel Structures Painting Council Standard*:⁵

SSPC-PA-2 Measurement of Dry Paint Thickness with Magnetic Gages

3. Summary of Practice

3.1 This practice for assessing the condition of coatings consists of identifying general types of components of a structure and assessing each separately for commonly occurring modes of coating deterioration and rust breakthrough of the coating using visual standards and simple evaluation tools. A form for recording the results of the assessment procedure (Fig. 1) is provided.

4. Significance and Use

4.1 Assessment of the condition of aged coated surfaces strengthens decisions on when coating maintenance is required, aids in the selection of effective coating maintenance procedures, and provides a means to characterize performance of coating systems.

5. Procedure

5.1 Survey the structure to (1) determine the general types of unique components (for example, for fuel tanks the components may be shell, roof, ladders, and piping) and the service exposure environment for each, (2) visually identify areas having a typical level of coating deterioration and rust breakthrough for each component and (3) identify areas having a much greater visual level of deterioration than typical and unique environmental conditions that may correspond to these areas (for example, bridge expansion joints). Record a description of the components and their general environment on an inspection form and describe areas having greater deterioration, as well as any unique associated environments in the remarks column. A suggested general format for data collection is shown in Fig. 1. Modification of the form (for example, adding or deleting specific items) will be required for each specific application.

⁴ *Annual Book of ASTM Standards*, Vol 01.07.

⁵ Available from Steel Structures Painting Council, 4400 Fifth Ave., Pittsburgh, PA 15213.