

SSPC: The Society for Protective Coatings

PAINT SPECIFICATION NO. 15

Steel Joist Shop Primer/Metal Building Primer

1. Scope

1.1 This specification covers a one coat shop-applied primer for open web and long span steel joist and joist girders and for cold formed steel framing, and primary and secondary structural framing for metal buildings. This coating is intended to provide temporary protection to the steel joist during delivery, storage on site, and erection in an atmosphere comparable with SSPC Environmental Zone 1, normally dry. This coating is intended to be used as a holding primer that may or may not be removed before or after erection or assembly in the field.

1.2 The specification does not address the formulation of the coating but covers the physical and performance characteristics of the coating.

2. Description

2.1 COMPOSITION:

2.1.1 Wide latitude is given for the composition of the coating. The formulation will be agreed upon between the contracting parties, so that the coating is compatible with the owner's facility and processes, while meeting or exceeding the performance requirements of this specification.

2.1.2 This specification will cover all generic classes of coatings.

2.2 VOLATILE ORGANIC COMPOUND (VOC) REQUIREMENTS:

2.2.1 The VOC content of a merchantable coating meeting the compositional and performance requirements of this specification can vary from less than 60 g/L to over 420 g/L.

2.2.2 The specifier should consult applicable government regulations to determine the maximum allowable VOC content and the proper VOC test method for their application. As a part of the purchase documents, the specifier should state the required VOC limit, test method, and governing regulations. (See Note 11.1.)

3. Referenced Standards

3.1 The latest issue, revision, or amendment of the referenced standards in effect on the date of invitation to bid shall govern, unless otherwise specified. Standards marked with an asterisk (*) are referenced only in the Notes, which are not requirements of this specification.

3.2 If there is a conflict between the requirements of any of the cited referenced standards and this specification, the requirements of this specification shall prevail.

3.3 SSPC STANDARDS AND JOINT STANDARDS:

Guide 13	Guide for the Identification and Use of Industrial Coating Materials in Computerized Product Databases
PA 2	Measurement of Dry Coating Thickness with Magnetic Gauges
SP 1	Solvent Cleaning
SP 2	Hand Tool Cleaning
SP 6/NACE No. 3	Commercial Blast Cleaning
VIS 1	Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
VIS 2	Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces

3.4 ASTM INTERNATIONAL STANDARDS:

A 36	Specification for Carbon Structural Steel
B 117	Practice for Operating Salt Spray (Fog) Apparatus
D 562	Test Method for Consistency of Paints Measuring Krebs Units (KU) Using a Stormer-type Viscometer
D 714	Test Method for Evaluating Degree of Blistering of Paints
D 1200	Test Method for Viscosity by Ford Viscosity Cup
D 1308	Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
D 1475	Test Method for Density of Liquid Coatings, Inks, and Related Products
D 1654	Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
D 2243	Test for Freeze-Thaw Resistance of Water-Borne Coatings
D 3359	Test Methods for Measuring Adhesion by Tape Test
D 3363	Test Method for Film Hardness by Pencil Test

- D 3924** Specification for Standard Environment for Conditioning and Testing Paint, Varnish, Lacquer, and Related Materials
- D 3925** Practice for Sampling Liquid Paints and Related Pigmented Coatings
- * D 3960** Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
- D 4062** Test Method for Leveling of Paints by Draw-Down Method
- D 4585** Practice for Testing Water Resistance of Coatings Using Controlled Condensation
- D 5894** Practice for Cyclic Fog/UV Exposure of Painted Metal, (Alternating Exposures in a Fog/Dry Cabinet and UV/Condensation Cabinet)

3.5 BAYAREAAIRQUALITYMANAGEMENTDISTRICT (BAAQMD)

- * METHOD 41** Determination of Volatile Organic Compounds in Solvent Based Coatings and Related Materials Containing Parachlorobenzotrifluoride

4. Standard Testing Conditions

4.1 When testing the paint and its application, the conditions under which it is applied and cured shall conform to ASTM D 3924.

4.2 The hot rolled steel test panels shall conform to ASTM A 36 or equivalent. Prior to preparing the surface, the amount of rust and mill scale on the surface shall conform to Condition A or Condition B as described in SSPC-VIS 1. Panel size shall be 100 mm x 150 mm x 4.8 mm (4 in x 6 in x 3/16 in) or greater.

4.3 Surface preparation shall consist of SSPC-SP 1 and SSPC-SP 2.

4.4 The dry film thickness of the primer shall be as recommended by the manufacturer. If no recommendation is given, the dry film thickness shall be a minimum of 20 micrometers (0.8 mils) unless indicated otherwise. Measure dry film thickness in accordance with SSPC-PA 2.

4.5 All coated panels to be tested will be allowed to cure for a minimum of seven days under ambient laboratory conditions before physical testing is to begin.

5. Physical Properties

5.1 TEST INFORMATION: The paint manufacturer shall measure and record batch testing information that will allow certification that a batch meets the necessary standards established by the manufacturer for the primer as tested per Section 5.

5.2 CONDITION IN CONTAINER: Each component as received shall show no evidence of livering, skinning, or hard settling of the pigment. The inside of the container shall not be corroded. Multi-component material shall be easily dispersed in the liquid portion by hand stirring to form a smooth, homogeneous primer.

5.3 COLOR: There is no color requirement; however, color will be agreed upon between the contracting parties or be the color of the sample submitted under Section 9.2.

5.4 VISCOSITY: The viscosity of the stirred primer shall be determined in accordance with ASTM D 562. Variance of viscosity measured in KU shall be within 12 percent of the viscosity of the previously qualified coating and the value published by the manufacturer (e.g., technical data sheet or container label).

For viscosities lower than 55 KU, a number 4 Ford Cup shall be used in accordance with ASTM D 1200. Variations shall be within five seconds of the previously qualified coating. The contracting parties may agree to different variances.

5.5 DENSITY: Density of the mixed primer shall be determined in accordance with ASTM D 1475. Variance shall be within ± 48 g/L (0.4 lb/gal) of the sample submitted under Section 9.2.

5.6 FREEZE-THAW RESISTANCE (WATER-BORNE COATINGS ONLY): The liquid (water base) coating shall be tested in accordance with ASTM D 2243. At the end of three cycles there shall be no gelling or excessive thickening, coagulation, lumps, or coarse particles. The maximum increase or decrease in viscosity shall not exceed 10 Krebs units.

6. Performance Testing Requirements

6.1 RUST AND BLISTER RESISTANCE:

6.1.1 Test Panel Preparation: Apply one coat of the steel joist shop primer to the front of nine steel panels in accordance with the standard testing conditions specified in Section 4. Coat and seal all edges and the back side of each panel with a coating or masking that will provide the necessary protection to these surfaces.

Scribe a 5 cm (2 inch) vertical line through the lower middle portion of the primed panels so as to expose the underlying metal before testing. The conditions of making the scribe are described in ASTM D 1654.

6.1.2 Salt Spray: Three replicate panels shall be exposed in a salt spray conducted in accordance with ASTM B 117. The duration of the test shall be 96 hours. The rust rating of each replicate panel shall be 8 or higher according to SSPC-VIS 2 (see Note 11.2). The blister rating of each panel shall be no worse than No. 4 "Few," No. 6 "Medium," or No. 8 "Medium Dense" using ASTM D 714 (see Note 11.3). The maximum undercutting or rusting measured from the center of the scribe