

4. If the dry film thickness for any 9 m<sup>2</sup> (100 square foot) area (sections 2 & 3) is not in compliance with the requirements of paragraph 1 of this section, then each 9 m<sup>2</sup> (100 square foot) area shall be measured.

5. Other size areas or number of spot measurements as specified in the contract plans shall be measured. Each coat of paint shall have the following thickness measured above the peaks:

	Min. Spec. Thickness	Max. Spec. Thickness	Min. Spot	Max. Spot
Prime	75 µm (3.0 mil)	125 µm (5.0 mil)	60 µm (2.4mil)	188 µm (7.5mil)
Intermediate	125 µm (5.0 mil)	175 µm (7.0 mil)	100 µm (4.0 mil)	263 µm (10.5 mil)
Sub Total	200 µm (8.0 mil)	300 µm (12.0 mil)	160 µm (6.4 mil)	450 µm (18.0 mil)
Finish	50 µm (2.0 mil)	100 µm (4.0 mil)	40 µm (1.6 mil)	150 µm (6.0 mil)
Total	250 µm (10.0 mil)	400 µm (16.0 mil)	200 µm (8.0 mil)	600 µm (24.0 mil)

Film thicknesses greater than the maximum specified thicknesses that do not exhibit defects (such as runs, sags, bubbles, mudcracking, etc.) and for which the Contractor has received a written statement from the coating manufacturer stating that this excessive thickness is not detrimental, may remain in place at the discretion of the Director.

For any spot or maximum average thickness over 600 µm (24 mils) it will be necessary for the Contractor to prove to the Department that the excess thickness will not be detrimental to the coating system. This shall be accomplished by providing the Director, for approval, certified test data proving that the excessive thickness will adequately bond to the steel when subjected to thermal expansion and contraction. This thermal expansion and contraction test shall take place over five 5 cycles of a temperature ranges from -29<sup>o</sup> C to 49<sup>o</sup> C (-20<sup>o</sup> F to 120<sup>o</sup> F). After the thermal contraction and expansion cycles have taken place, the tested system shall be subjected to pull off tests and the results compared to the results of pull off tests which have been performed on a paint system with the proper thicknesses. In addition to the certified test results, it will also be necessary for the Contractor to provide the Director a written statement from the paint manufacturer stating that this excessive thickness is not detrimental.

If the Director does not approve the excessive coating thicknesses or the Contractor elects not to provide the required written statement from the paint manufacturer and the certified test results when required, the Contractor, at his own expense, shall remove and replace the coating. The removal and replacement of the coating shall be done as specified in 815.08 F Repair Procedures.

**815.09 CAULKING QCP #7.** The material shall be a two component, 100% solids epoxy and shall be one of the following:  
**MANUFACTURER**

Mark 270 Poly-Carb Solon, OH 216-248-1223	KOP-COAT A-788 Splash Zone Compound Carboline Company Hamilton, OH 513-896-1919
Sikadur Injection Gel Sika Chemical Corp. Lyndhurst, N.J. 201-933-8801	OR Other Commercially Available, 100% Solid, Non-Sag, Non-Shrink Epoxy Based System Capable Of Filling Voids Up To 25 mm (1 inch) Wide

**815.10 SAFETY REQUIREMENTS AND PRECAUTIONS.** The Contractor shall meet the applicable safety requirements of the Ohio Industrial Commission and the Occupational Safety and Health Administration (OSHA), in addition to the scaffolding requirements specified below.

The Material Safety Data Sheets (MSDS) shall be provided at the preconstruction meeting for all paints, thinners and abrasives used on this project. No work shall start until the MSDS has been submitted.

**815.11 INSPECTION ACCESS.** In addition to the requirements of 105.11, the Contractor shall furnish, erect, and move scaffolding and other appropriate equipment, to permit the Inspector the opportunity to closely observe all affected surfaces. This opportunity shall be provided to the Inspector during all phases of the work and continue for a period of at least 10 working days after each structure has been completely painted.

When scaffolding, or the hangers attached to the scaffolding are supported by horizontal wire ropes, or when scaffolding is placed directly under the

surface to be painted, the following requirements shall be complied with:

A. When scaffolding is suspended 1092 mm (43 inches) or more below the surface to be painted, two guardrails shall be placed on all sides of the scaffolding. One guardrail shall be placed at 1067 mm (42 inches) above the scaffolding and the other guardrail at 508 mm (20 inches) above the scaffolding.

B. When the scaffolding is suspended at least 533 mm (21 inches) but less than 1092 mm (43 inches) below the surface to be painted, one guardrail shall be placed on all sides of the scaffolding at 508 mm (20 inches) above the scaffolding.

C. Two guardrails shall be placed on all sides of scaffolding not previously mentioned. The guardrails shall be placed at 1067 mm (42 inches) and 508 mm (20 inches) above scaffolding, as previously mentioned.

D. All scaffolding must be at least 610 mm (24 inches) wide when guardrail is used and 711 mm (28 inches) wide when the scaffolding is suspended less than 533 mm (21 inches) below the surface to be painted and guardrail is not used. If 2 or more scaffolding are laid parallel to achieve the proper width, they must be rigidly attached to each other to preclude any differential movement.

E. All guardrail shall be constructed as a substantial barrier which is securely fastened in place and is free from protruding objects such as nails, screws and bolts. There shall be an opening in the guardrail, properly located, to allow the Inspector access onto the scaffolding.

F. The rails and uprights shall be either metal or wood. If pipe railing is used, the railing shall have a nominal diameter of no less than 38 mm (1.5 inches). If structural steel railing is used, the rails shall be 50x50x9 mm (2x2x3/8 inch) steel angles or other metal shapes of equal or greater strength. If wood railing is used, the railing shall be 50x100 mm (2x4 inches) (nominal) stock. All uprights shall be spaced at no more than 2.4 m (8 feet) on center. If wood uprights are used, the uprights shall be 50x100 mm (2x4 inches) (nominal) stock.

G. When the surface to be inspected is more than 4.57 m (15 feet) above the ground or water, and the scaffolding is supported from the structure being painted, the Contractor shall provide the Inspector with a safety harness (not a safety belt) and lifeline. The lifeline shall not allow a fall greater than 1.8 m (6 feet). The Contractor shall provide a method of attaching the lifeline to the structure independent of the scaffolding, cables, or brackets supporting the scaffolding.

H. When scaffolding is more than 762 mm (2.5 feet) above the ground, the Contractor shall provide a ladder for access onto the scaffolding. The ladder and any equipment used to attach the ladder to the structure shall be capable of supporting 113 kg (250 pounds) with a safety factor of at least four. All rungs, steps, cleats, or treads shall have uniform spacing and shall not exceed 305 mm (12 inches) on center. At least one side rail shall extend at least 914 mm (36 inches) above the landing near the top of the ladder.

I. An additional landing shall be required when the distance from the ladder to the point where the scaffolding may be accessed, exceeds 305 mm (12 inches). The landing shall be a minimum of at least 610 mm (24 inches) wide and 610 mm (24 inches) long. It shall also be of adequate size and shape so that the distance from the landing to the point where the scaffolding is accessed does not exceed 305 mm (12 inches). The landing shall be rigid and firmly attached to the ladder; however, it shall not be supported by the ladder. The scaffolding shall be capable of supporting a minimum of 454 kg (1000 pounds).

J. In addition to the aforementioned requirements, the Contractor shall be responsible to observe and comply with all Federal, State and local laws, ordinances, regulations, orders and decrees.

K. The Contractor shall furnish all necessary traffic control to permit inspection during and after all phases of the project.

**815.12 PROTECTION OF PERSONS AND PROPERTY.** The Contractor shall collect, remove and dispose of all buckets, rags or other discarded materials and shall leave the job site in a clean condition.

The Contractor shall protect all portions of the structure, which are not to be painted, against damage or disfigurement by splashes, spatters, and smirches of paint. Deck bottoms and backwalls are exempt from this requirement.

When or where any direct or indirect damage or injury is done to public or private property, the Contractor shall restore, at his own expense, such property, to a condition similar or equal to that existing before such damage or injury was done.

**815.13 POLLUTION CONTROL** The Contractor shall take all necessary precautions to comply with pollution control laws, rules or regulations of Federal, State or local agencies and as required in this specification.

**815.14 WORK LIMITATIONS.** Abrasive blasting and painting shall be done between April 1 and October 31. Even though the Contractor is permitted to work prior to May 1, April is considered a winter month and no extension due to adverse weather conditions will be granted for this period. Additional work limitations on specific bridges/projects may be required by plan note.

**815.15 METHOD OF MEASUREMENT.** Field painting of structural steel is based on a square meter (square foot) pay item. All field painting will include 3 coats of paint; prime coat, intermediate coat, and finish coat.

On steel beam and steel girder bridges, the surface area is based on a nominal measurement of the beams; ie. 2 times the beam depth plus 3 times the flange width. In addition to this nominal measurement, a percentage is added to account for incidentals such as cross frames, bearing assemblies, stiffeners, expansion joints, scuppers, etc. Thus, it is not necessary for the Inspector to field measure every detail of the bridge to verify quantities. Some extremely complex bridges, such as trusses, will be paid for as lump sum. In the case of a quantity dispute, exact field measurements of all painted surfaces and/or calculations will govern.

Grinding fins, tears, slivers is based on the manhours expended only by the workmen who are actually doing the grinding and will include all the time when the workmen are performing grinding and repairing prime coat and not limited to the actual grinding duration (ie. all hours of the workmen when assigned to grinding regardless of actual grinding time).

Grinding of flange edges: This pay item includes all labor and equipment to grind the bottom flange edges denoted in the plans. Each meter (one linear foot) of beam represents 4 m (4 linear feet) of edge grinding.

Caulking: Includes all labor, materials and equipment to caulk areas described in the plans. Each meter (linear foot) of caulk (regardless of width or