c. Natural causes deteriorate the material to the extent that:

1) The sign is ineffective for its intended purpose as defined in Subsection 913.2.01.C.1.b above.

2) The average nighttime reflective brightness is less than 70% of the values specified in Table 1 or Table 2.

D. Materials Warranty

Transfer to the Department a performance warranty for Type V or Type VI reflective sheeting issued by the manufacturer.

Ensure that the warranties cover the full replacement cost, including material and labor.

Include in these warranties a provision that the warranty is subject to a transfer to the Department.

Submit a warranty from the manufacturer that states that the reflective sheeting—processed, applied to sign blank materials, and cleaned—shall maintain 70% of the values listed in Table 1 or Table 2 for 10 years.

Section 914—Sign Paint

914.1 General Description

This section includes the requirements for opaque silk screen lettering paint and transparent process colors intended for fabricating high quality, durable reflective signs and emblems by screen processing, spraying, roll coating, or hand brushing.

914.1.01 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

ASTM G 23, Type D

ASTM D 822

914.2 Materials

914.2.01 Silk Screen Lettering Paint

A. Requirements

1. Process Colors

   Use process colors and toner that are weather resistant and designed for use on reflective sheeting.

   a. You may tone or blend process colors to make the desired color, but supply each color ready-mixed to a smooth, uniform texture.

   b. If painting on reflective sheeting, use only paint recommended by the sheeting manufacturer.

2. Submittals

   a. Submit a 1/2-pint (0.25L) sample of each color paint from each lot to be used.

   b. Submit to the Engineer a certificate from the fabricator stating that the paint used on the Project signs is recommended by the sheeting manufacturer and is of the same lot as the test sample.

3. Color and Transparency

   Ensure that the transparent colors have the following characteristics when processed, according to the manufacturer's instructions, through a 10XX screen onto silver-white reflective sheeting background:

   a. Produce a true color under both diffuse and reflected light.

   b. Match the color samples submitted by the Engineer.

   c. Allow good reflective brilliance of the processed sheeting.

4. Process Color and Toner

   Use process colors that flow out and dry to a tough, smooth, glossy surface free of defects, pattern, non-wet spots, and have a sharp edge (screen processed).

Ensure that the process colors have the following characteristics when applied according to the manufacturer's instructions:

- Have an appropriate viscosity for the purpose intended.
- Dry to a solid film in 24 hours at 77 °F (22 °C) and 50 percent relative humidity.
- Withstand curing at temperatures up to 150 °F (66 °C) for 4 hours without adverse effect or embrittlement.
- Be removable with a recommended solvent before it thoroughly dries, without damaging the reflective sheeting.

5. Durability
   a. Use weather-resistant colors when processed through a 10XX screen and finished according to the recommended procedures.
   b. After cleaning, ensure that the material meets the following requirements:
      - No appreciable color change
      - No loss by either diffuse or reflected light
      - No significant change in transparency when exposed to accelerated weathering for 100,000 Langleys, facing south, unprotected at 45 degrees in south Florida; or 1,000 hours Atlas Twin Arc Weathering (ASTM G 23, Type D) as per ASTM D 822.
   c. After accelerated exposure, ensure that no process color can be removed when tested by scratching through the surface, applying cellophane tape over the scratched area, and removing the tape with one quick motion.

B. Fabrication

1. When using color silk screen paint other than black, thoroughly stir the paste before use and frequently during use. Stir especially when using reverse silk screening.
2. Ensure that the finished silk screen has no streaks. If the paint has streaks, the Engineer or Inspector will reject it.
3. Apply the paste on the silk screen with a rubber squeegee that is as wide as the sign.

C. Acceptance

The Engineer will approve the lettering paint based on the results from the color, transparency, viscosity, dry time, and removability tests from submitted paint samples.

D. Materials Warranty

Storage and Packaging: Ensure that the material in storage for up to one year does not skin, settle, change color, thicken, or liver so that normal mixing procedures do not return the material to the proper consistency and texture.

Section 915—Mast Arm Assemblies

915.1 General Description

This section includes the requirements for steel posts, arms, and guy wires and cable for mast arm assemblies.

915.1.01 Related References

A. Standard Specifications

Section 106—Control of Materials

B. Referenced Documents

ASTM A 53/A 53M

ASTM A 475

Federal Specification FF-T-2765, Type III

QPL 72