1. Scope

This specification applies to flat-surfaced, pressure-sensitive, adhesive-backed decal manufacturing materials designed for permanent application on smooth, clean, painted surfaces, vinyl dashboards, window visors, or other hard-to-stick and low energy surfaces. Material shall conform well to flat surfaces or surfaces with slight contours such as polyolefin plastic, poly-ethylene, polypropylene, polyurethane, and similiar surfaces. Materials shall not be removable without defacing, covering, or destroying the decal.

2. Reference Standards

Where applicable and unless otherwise stated, decals shall comply with the latest revisions of the following industry standards:

ANSI Z535.1 *Safety Color Code*
ANSI Z535.2 *Environmental and Facility Safety Signs*
ANSI Z535.3 *Criteria for Safety Symbols*
ANSI Z535.5 *Safety Color Code for Marking Physical Hazards*
ANSI C2 *NESC Handbook, Appendix B—Safety Signs*

3. Font

Font shall be Helvetica-Narrow Bold, or District approved equivalent.

4. Material

Decal printing material shall be Arlon DPF 8000 Vinyl Film; color will be specified by the District.

5. Thickness

Decal printing material thickness shall be 3.8 mils, with adhesive.

6. Adhesive

Adhesive shall be pressure sensitive.

7. Liner

Finished decals shall include a liner, which shall be back scored for easy removal.

8. Adhesion

Finished decals shall include a precoated pressure sensitive adhesive backing. Decals must be suitable for application without the necessity of additional adhesive coats on the label or application surface and without the use of water, solvents, or heat.

The protective liner attached to the adhesive shall be an easy release type. It shall be removable by peeling without soaking in water or other solvents. The protective liner shall be easily removed after accelerated storage of the decal for four hours at 180°F. Removal shall require a maximum pull of 0.25 pounds per lineal inch of width.

The precoated pressure sensitive adhesive shall adhere by pressing it in contact with a clean, dry surface. It shall form a durable bond to clean, well painted surfaces or unpainted corrosion-proof metals. The adhesion after 24 hours shall be a minimum of 5.0 lb/inch. The precoated adhesive, after 48 hours of aging at 75°F, shall have no appreciable effect on the decal material. The precoated adhesive shall have no staining effect on the decal material. The adhesive shall be mildew resistant.

9. Tensile Strength

The material shall have a minimum tensile strength of 5 lb/inch at 73°F.

10. Minimum Application Temperature of Decal

The material shall have an application temperature range of 30°F to 80°F.

11. Applied Performance Range

Materials shall have a performance range of -65°F to +225°F unless otherwise specified by the District.

12. Outdoor Durability

Material shall have an outdoor life of 2 years minimum, with vertical exterior exposure.

13. Humidity Resistance

Materials shall be resistant to 500 hours at 90% relative humidity.

14. Chemical Resistance

Material shall be resistant to degradation by petroleum solvents and greases. Material shall have excellent water resistance. Material shall resist occasional fuel spills in addition to mild alkalis, acids, and salts.

15. Film Flammability

Material shall be self-extinguishing.

16. Shelf Life

Material shall have a minimum processed shelf life of 1 year in a clean area, free from excessive moisture and direct sunlight with ambient temperatures of 100°F or less.

17. Packaging

Finished decals shall be packaged to protect them from moisture and dirt in Zip-Lock type resealable, clear polyethylene bags (25 decals per bag). Each bag shall be marked with the date of production and the manufacturer's name or logo.

18. Shipping

Finished decals shall be shipped lying flat and protected from possible damage during shipment.

19. Proof Drawing

When requested, the supplier of the decal shall provide a proof drawing for approval by the District's Standards Group before proceeding to produce the first order.