

CARSONITE PRODUCT SPECIFICATION FOR TUFFFLEX™ UTILITY MARKER

1 SCOPE

The Scope of this specification covers the minimum requirements for the Carsonite TuffFlex™ Utility Marker. This product is designed as an identification marker for buried utility services. This product may be used in road right-of-ways and for installations where vandalism and impact resistance is of primary consideration.

2 GENERAL REQUIREMENTS

2.1 MATERIAL

The material shall be a glass and marble reinforced thermosetting composite which shall be resistant to vandalism, impact, ultra violet light, ozone, and hydrocarbons and which is temperature resistant from -50°F to +150°F. The material must have a minimum tensile strength of 50,000 psi. (ATSM D638)

2.2 DIMENSIONS

2.2.1 The flexible post shall have reinforcing ribs incorporated longitudinally down each edge and a reinforcing web incorporated longitudinally down its center. The ground end of the post shall be pointed for ease of ground penetration purposes.

2.2.2 The post shall be dimensioned in accordance with Figure 1:

MINIMUM DIMENSIONS:

Post Width	= 3.80"
Web Thickness	= 0.25"

Rail Thickness = 0.375"

2.2.3 The post length and burial depth shall be manufactured to specified length.

3 PHYSICAL AND MECHANICAL REQUIREMENTS

3.1 Heat Resistance

A 6 foot post shall be conditioned a minimum of 1 hour in an oven at 140°F, ± 3°F. The conditioned post shall be capable of straightening itself within 5 seconds when bent 90° at the midpoint for each of 4 bends. The test of each post shall be completed within 2 minutes of removal from the oven or environmental chamber.

3.2 Cold Resistance

A 6 foot post shall be conditioned a minimum of 2 hours at -40°F ± 3°F. The conditioned post shall be capable of straightening itself within 5 seconds when bent 90° at the midpoint for each of 4 bends. The test of each post shall be completed within 2 minutes of removal from the environmental chamber.

3.3 Impact Resistance:

The post shall be manufactured from an impact resistant composite and be so designed that an installed post is capable of self erecting and remaining serviceable after being subjected to a series of direct impacts by a typical passenger sedan. The posts shall be tested complete with attached decals proposed for use. Posts shall be capable of withstanding a series of 5 impacts head-on (90°) into traffic face of the post at a speed of 35 mph, without displaying vertical cracks in the web section of the post or a loss in legibility of the decal.

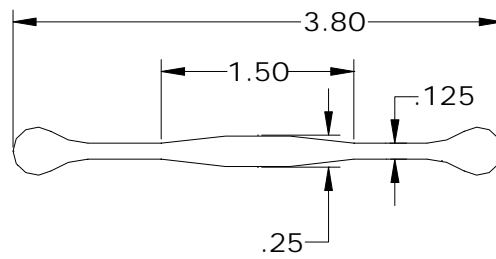
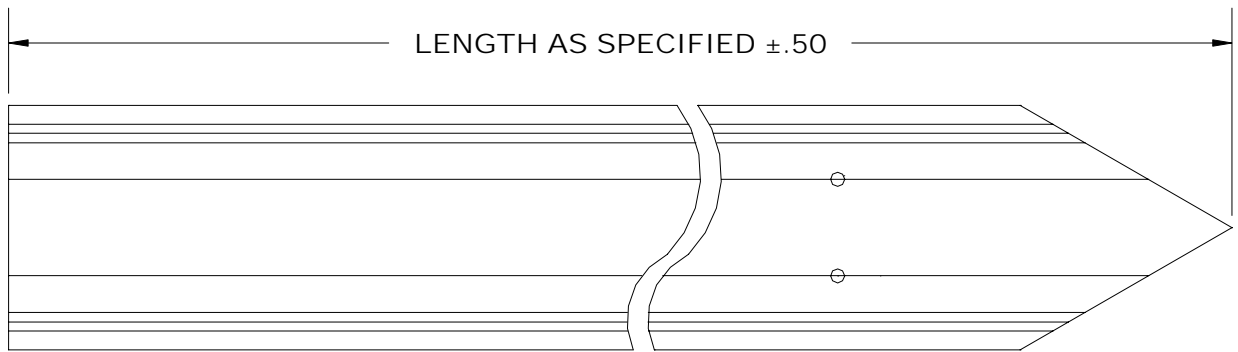
3.4 Appearance/Weatherability:

The post shall be pigmented throughout the entire cross section. Reinforcement fibers are to be sufficiently embedded in the post to prevent fiber surface. The post shall show negligible fading after being weather per ASTM G-26-70.

3.5 Mechanical Properties

The TuffFlex shall have the minimum mechanical properties as follows:

<u>PROPERTY</u>	<u>ASTM TEST METHOD</u>	<u>MINIMUM VALUE</u>
Ultimate Tensile Strength	D-638	50,000 psi
Ultimate Compressive Strength	D-638	45,000 psi
Specific Gravity	D-792	1.7
Weight % Glass Reinforcement	D-2584	50%
Barcol Hardness	D-2583	47



SECTION VIEW

FIGURE 1