

SECTION 880
SIGN MATERIALS

1474230

880.04 Sign Supports.

(a) GROUND MOUNTED SIGN SUPPORTS.

1. GENERAL.

Ground mounted supports shall fall into two categories, a light weight {mass} or bendaway post and a standard or rigid post.

The light weight {mass} or bendaway posts are normally single "U" channels (aluminum or steel) and tubular shapes (round, square, etc.) of such size and design that when hit by a moving vehicle, will easily bendaway from the vehicle without seriously damaging it.

The standard or rigid posts shall be of various designs (shapes, tubular, etc.) which by size and design will not easily bendaway when hit by a moving vehicle. This type post, unless otherwise noted by plan details, will require a "breakaway" feature to be incorporated with the post. The material and design of the breakaway features for the various shapes of standard posts shall be shown by the plan details.

Breakaway features constructed of steel shall have all elements galvanized, unless otherwise provided by the plan details. Damage to galvanization or any bare spots developed during construction shall be treated with two coats of approved galvanizing paint (Section 855) or approved zinc spelter paint. Aluminum elements will require no special treatment, unless so specified by plan details.

All materials furnished for use shall be new, unless otherwise specified by plan details or provisions of the contract.

All tubular post shapes whose design will have a tendency to collect water shall be provided with an approved type of tight fitting post cap fabricated of material compatible with that of the post.

2. STEEL POSTS.

a. Tubular Type (Std.)

This type of post shall be fabricated from standard steel shapes of the size and weight {mass} shown by plan details. Round shapes shall conform to the requirements of ASTM A 53, Grade B, Schedule 40 or better (no pressure test required). Other shapes and materials shall be as noted by plan details.

b. Beam Type (Std.)

This type of post shall be fabricated from standard beam shapes of the size, shape, and weight {mass} shown on the plans. The material shall conform to the requirements of either ASTM A 588 or A 572, Grade 50, unless otherwise noted by plan details.

c. Light Weight {Mass} or Bendaway Type.

(1) This post shall be fabricated to acceptable shape and design to provide the Moment of Inertia and Section Modulus for the requirements of the designated post size shown by the plan details. The posts shall be made of rerolled rail steel meeting the requirements of ASTM A 499, Grade 60, or a comparable new billet steel meeting the requirements of ASTM A 572, Grade 60. The steel in the posts shall meet the chemical requirements of ASTM A 1 for rails having a nominal

weight SECTION 880 SIGN MATERIALS 665 {mass} of 91 pounds per yard {37 kg/m} or greater. Shaped sections shall be provided with 3/8 inch {9.5 mm} diameter holes placed on 1 inch {25 mm} centers starting 1 inch {25 mm} from the top of the post and extending the full length of the post.

(2) Tubular sections shall be fabricated from steel meeting the requirements of ASTM A 653 SS: GRADE 33 and ASTM A 924/ A 924M. Tubular sections shall be provided with 3/8 inch {9.5 mm} diameter holes placed on 1 inch {25 mm} centers starting 1 inch {25 mm} from the top of the post and extending the full length of the post (holes shall extend through the opposite walls).

In lieu of the above, tubular steel posts may conform to ASTM A 1011/A 1011M SS: Grade 33 or better. The posts shall be provided with 7/16 inch {11 mm} diameter die-cut knockouts on 1 inch {25 mm} centers on all four sides.

d. Post Finish.

Standard posts shall be hot dipped zinc galvanized after fabrication in accordance with ASTM A 123 for beam shape and ASTM A 53 for tubular shape.

Light weight {mass} or bendaway posts shall be zinc galvanized in accordance with the following:

"U" Channel Section - ASTM A 123 after fabrication.

Tubular Section - ASTM A 653, Grade G90 or better. An alternate coating may be an in-line hot dip galvanized zinc coating per AASHTO M 120, followed by a chromate conversion coating and cross-linked polyurethane acrylic exterior coating, with the inside surface given a double in-line application of a full zinc-based organic coating.

3. ALUMINUM POSTS.

a. Tubular Type (Std.)

This type of post shall be fabricated from extruded tubing to the size, shape, and wall thickness shown on the plans and shall conform to the Aluminum Association, Alloy 6061-T6 (ASTM B 221).

b. Beam Type (Std.)

This type of aluminum support shall be fabricated from extruded shapes of the size, shape, and weight {mass} shown on the plans and shall conform to the Aluminum Association, Alloy 6061-T6 (ASTM B 308).

c. Light Weight {Mass} or Bendaway Type.

This type of aluminum support shall be fabricated from acceptable extruded shapes meeting the design requirements (Moment of Inertia and Section Modulus) for the designated post size shown in the plan details. Materials shall conform to the requirements of Alloy 6061-T6 of ASTM B 221.

Holes 3/8 inch {9.5 mm} in diameter shall be placed on 1 inch {25 mm} centers starting 1 inch {25 mm} from the post top and extending the full length of the post or within 8 feet {2.4 m} or less of the bottom of the post (holes in tubular sections shall extend through the opposite walls),

d. Finish.

Aluminum supports shall be provided with a smooth non-glare finish.

4. BOLTS, NUTS, WASHERS AND MISCELLANEOUS HARDWARE.

High strength bolts, nuts, and washers shall meet the requirements of Article 836.33. Bolts, nuts, and washers other than high-strength shall meet the requirements of ASTM A 307 for bolts and the appropriate requirements noted in Subarticle 836.33(a) for nuts and washers.

All bolts, nuts, and washers shall be galvanized utilizing zinc in accordance with the provisions of ASTM A 153, Class C or AASHTO M 232, Class C. Other miscellaneous hardware shall be galvanized in accordance with ASTM A 153, Class B.

(b) OVERHEAD SIGN SUPPORTS.

The materials required for overhead sign supports shall be furnished in accordance with the requirements given in Section 891.

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
1	Bracket, Type A16	6061-T6 Aluminum	2	SBK6117
2	Bracket Hardware Assembly, Type A16, includes:		1	SB-A16H
2a	Bolt	12.7mm(1/2")-13UNCx57.2mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
2b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	8	
2c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
3	Coupling & Special Bolt Assembly, Type A, includes:		1	SB-CALP
3a	Special Bolt	15.9mm(5/8")-11UNC, ASTM A449, Galv. ASTM A153/B695	4	
3b	Coupling	15.9mm(5/8")-11UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	15.9mm(5/8") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	15.9mm(5/8") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type A, includes:		1	SB-HB3
4a	Hinge Plate	Type A, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type A, includes:		1	SB-HHA
5a	Bolt	12.7mm(1/2")-13UNCx37.2mm(1-1/2"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
6	Anchor Assembly, Type A, includes:		1	SBAAPK
6a	Anchor	15.9mm(5/8")-11UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
1	Bracket, Type B525	6061-T6 Aluminum (see Bracket Selection Table for -Number)	2	SBBK525-1A,-2A,-3A
2	Bracket Hardware Assembly, Type B525, includes:		1	SB-B525LPH
2a	Bolt	12.7mm(1/2")-13UNCx63.5mm(2-1/2"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2b	Bolt	12.7mm(1/2")-13UNCx69.8mm(2-3/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2c	Bolt	12.7mm(1/2")-13UNCx76.2mm(3"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2d	Cap Screw	12.7mm(1/2")-13UNCx31.7mm(1-1/4"), Hex Head, ASTM A307, Galv. ASTM A153	4	
2e	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	16	
2f	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A1531	12	
3	Coupling & Special Bolt Assembly, Type B, includes:		1	SB-CBLP
3a	Special Bolt	25.4mm(1")-8UNC, ASTM A449, Galv. ASTM A153/B695	4	
3b	Coupling	25.4mm(1")-8UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	25.4mm(1") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	25.4mm(1") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type B525, includes:		1	SB-HB1
4a	Hinge Plate	Type B525, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type B, includes:		1	SB-HHB
5a	Bolt	19.0mm(3/4")-10UNCx57.1mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	19.0mm(3/4"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	19.0mm(3/4")-10UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
6	Anchor Assembly, Type B, includes:		1	SBABPK
6a	Anchor	25.4mm(1")-8UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
1	Bracket, Type B650	6061-T6 Aluminum (see Bracket Selection Table for -Number)	2	SBBK650-1A,-2A,-3A
2	Bracket Hardware Assembly, Type B650, includes:		1	SB-B650LPH
2a	Bolt	15.9mm(5/8")-11UNCx69.9mm(2-3/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2b	Bolt	15.9mm(5/8")-11UNCx76.2mm(3"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2c	Bolt	15.9mm(5/8")-11UNCx82.6mm(3-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2d	Cap Screw	15.9mm(5/8")-11UNCx31.7mm(1-1/4"), Hex Head, ASTM A307, Galv. ASTM A153	4	
2e	LockWasher	15.9mm(5/8"), ANSI B18-21-1, Galv. ASTM A153	16	
2f	Nut	15.9mm(5/8")-11UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	12	
3	Coupling & Special Bolt Assembly, Type B, includes:		1	SB-CBLP
3a	Special Bolt	25.4mm(1")-8UNC, ASTM A449, Galv. ASTM A153/B695	4	
3b	Coupling	25.4mm(1")-8UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	25.4mm(1") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	25.4mm(1") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type B650, includes:		1	SB-HB2
4a	Hinge Plate	Type B650, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type B, includes:		1	SB-HHB
5a	Bolt	19.0mm(3/4")-10UNCx57.1mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	19.0mm(3/4"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	19.0mm(3/4")-10UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
6	Anchor Assembly, Type B, includes:		1	SBABPK
6a	Anchor	25.4mm(1")-8UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	