

700 MATERIAL DETAILS

Materials shall conform to the stated requirements and/or the requirements of the referenced specifications including modifications as noted.

Copies of all Supplemental Specifications referenced in this section are on file with the City of Columbus Transportation Division.

737 - STREET NAME SIGN AND SUPPORT MATERIAL

737.01 Street Name Sign Supports. Street name sign posts shall be maintenance free galvanized domestic steel pipe. The street name sign posts shall be fabricated in conformance with this specification for use as supports for aluminum street name signs and their aluminum and stainless steel mounting brackets and hardware.

The Contractor shall certify that all sign posts furnished conform to this specification, and will replace without cost to the city all posts that fail to meet this requirement.

Because of the intended use of these posts, special care will be used in the selection of the post material. The sign posts shall be new, hot-dipped galvanized steel pipe. Prior to galvanizing, the pipe shall be rust free and show no obvious signs of pitting. The steel pipe shall meet all the requirements of ASTM specification number A53 and shall have a minimum yield strength of 30,000 psi (207.5 MPa), and a minimum tensile strength of 45,000 psi. (311 MPa). Evidence of previous rusting or pitting shall be cause for rejection of the posts.

The street name sign posts shall have a tubular section of uniform diameter and wall thickness. The diameter and wall thickness shall be for the standard weight (schedule 40) nominal post size (NPS) as specified for each item. The length of the posts shall be as specified for each item with a tolerance of plus or minus 1 inch (± 25 mm).

The street name sign posts shall be fabricated from new hot-dipped galvanized steel pipe, as specified above. The finished posts shall be straight, have a smooth uniform finish, and be free from defects affecting their strength, durability, or appearance. All cut ends shall be free from burrs. Each piece shall be continuous with no butt welds.

All posts shall be hot-dipped galvanized inside and outside with zinc conforming to ASTM Specifications Number B 6. The weight of the zinc coating per square foot (square meter) of actual surface shall average not less than 1.8 ounces (488 g). The zinc coating shall be adherent, smooth, continuous, and thorough. It shall be free from such imperfections as lumps, pits, blisters, gritty areas, uncoated spots, or acid and black spots.

Evidence of such imperfections shall be cause for rejection. Final acceptance or rejection of all material shall be determined by the Engineer. Rejected material will be returned at the Contractor's expense.

737.02 Aluminum Sign Blanks. Sign blanks shall be fabricated from domestic aluminum alloy number 5052-H38 mill produced thermally stabilized flat sheet. This material must be flattened to reduce internal stresses. Blanks must show excellent flatness after shear and/or reshear. Buckles or edge waves of 1/8 inch (3.2 mm) or more in either the longitudinal or transverse direction will be cause for rejection. The contractor must use the most recent manufacture of material meeting specifications.

Blanks shall be vapor degreased by cleaning in a saturated trichloroethelene vapor, etched in a phosphoric acid (6% to 8%) solution, clear water rinsed, and forced air dried. Each blank shall be treated with an alodine coating of alodine 1200, and shall be free from all dirt, corrosion, white rust, burrs, and scratches on both sides. At the sole discretion of the Engineer, sign blanks with excessive burrs, scratches, or marred surfaces will be returned to the Contractor at his expense. Street name sign blanks shall not have a corner radius.

Each Contractor shall submit a current certification from the mill, certifying that the material is thermally stabilized 5052-H38 aluminum alloy, and the actual test results of the chemical composition and strength for the material that he proposes to furnish.

737.03 Cantilevered Offset Brackets. The cantilevered offset bracket shall consist of the following four parts: offset plate, saddle clamp, saddle clamp insert, and double tee section.

The offset plate shall be formed from 14 gauge type 304 stainless steel. It shall be 5 1/4 inches (133 mm) in length with a 3/4 inch (19 mm) return flange. The plate shall have a maximum width of 2 7/16 inch (62 mm) gradually and uniformly tapering to 1 1/2 inches (38 mm) at the smaller end. The return flange shall be spot welded in three places to the saddle clamp insert described later. The plate shall be predrilled with six 3/16 inch (4.7 mm) holes spaced 1 inch (25 mm) apart along the bracket length, paired 1/2 inch (13 mm) on either side of the centerline, beginning 3/4 inch (19 mm) from the narrower end. Measuring center to center from the middle holes to those closest to the widest end shall be 1 1/2 inches (38 mm).

The saddle clamp shall be made from 16 gauge type 304 stainless steel, 2 3/4 inches (70 mm) wide by 3 5/16 inches (84 mm) long, folded to form a "V" shape 1 1/8 inches (28 mm) by 2 3/4 inches (70 mm) wide.

The saddle clamp insert shall be made of 12 gauge type 304 stainless steel 1 inch (25 mm) wide by 4 5/8 inches (118 mm) long formed to a "U" shape, and folded around the saddle clamp, with 0.775 inches (19.6 mm) long by 0.150 inches (3.8 mm) wide slots to receive banding up to 3/4 inches (19 mm) wide.

The double tee sections shall be extruded from aluminum alloy type HE30TF. Each section shall be of a continuous length. The flange (cross member) of the tee shall be 1 1/2 inches (38 mm) wide with a web thickness of 1/8 inch (3.2 mm). The double tee "ribs" (parallel vertical members) shall also have a web thickness of 1/8 inch (3.2 mm) with a slight taper at the open edge to facilitate insertion of the sign blade. Space between the ribs shall be 1/8 inch (3.2 mm) and the ribs shall have a height of 3/4 inch (19 mm).

Double tee sections shall be predrilled along the length of the ribs to allow a 3/16 inch (4.7 mm) rivet to be installed so as to pass through one rib, and intervening sign blank, and the second rib, thus securing the sign blank. The first hole shall be 3 inches (76 mm) from the end which is butted to the bracket. From that point on, holes shall be drilled every 12 inches (305 mm). Holes shall be centered on the preformed groove (0.276 inches (7 mm)) on the rib dimension.

For signs greater than 48 inches (1.2 m) in length, a special assembly is required. This assembly shall consist of two cantilevered offset brackets, which meet specifications, separated by a spacer, riveted to the appropriate double tee section described above. The spacer shall be made from 6063-T6 aluminum alloy. It shall be 2 1/2 inches (63.5 mm) wide by 1/2 inch (13 mm) thick by 5 3/4 inches (146 mm) long with six holes 3/16 inch (4.7 mm) in diameter at 1 inch (25 mm) horizontal centers to match the holes in the cantilevered bracket.

The stainless steel preassembled buckle-strap combination shall be fabricated from Type 201 bright annealed stainless steel 3/4 inch (19 mm) thick, welded to an anti-rotational buckle by two spot projection welds. The anti-rotational buckle shall be formed from Type 304 stainless steel 1/16 inch (1.5 mm) thick and shall measure 1 1/2 inches (38 mm) by 19/16 inches (30 mm). There shall be two turned down 3/16 inch (4.7 mm) parallel gripping surfaces. The rear surface shall be 19/16 inches (30 mm) long, while the front surface shall be 9/16 inch (14 mm) long. There shall be two turned up ears on the front of the buckle, each 3/8 inch (9.5 mm) high by 3/16 inch (4.7 mm) wide, parallel and spaced 13/16 inch (20.6 mm) apart.

The aluminum rivet with steel coated mandrel shall be 3/16 inch (4.7 mm) in diameter and of sufficient length to pass through a double tee section and sign blank, and be properly secured.

The cantilevered offset bracket and hardware shall be those manufactured for the City of Columbus by Signfix, or approved equal.