

620 TRAFFIC SIGNING**620.01 WOOD SIGN POSTS**

(A) **DESCRIPTION.** Work consists of furnishing, fabricating, and erecting all break-away type wood signposts, of the dimensions specified in the contract documents. Work also includes furnishing foundation sleeves for ground-mounted signs specified in the contract documents.

(B) **MATERIALS.**

Wood Posts – [822.12\(C\)](#)

Preservative – [811.08\(C\)](#)

Post Sleeves shall be 12 gauge steel, galvanized in accordance with AASHTO M 111

Primer Sealer – [811.03\(D\)](#)

Paint shall meet requirements of FS TT-P-71 and shall be tinted to match color green, No. 14109 of Federal Standard 595

(C) **CONSTRUCTION REQUIREMENTS.** Sleeves shall be set as part of PCC footing work. Posts shall be cut to length and drilled or cut for the breakaway requirements as necessary and specified in the contract documents and as specified in AASHTO Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals prior to the preservative treatment.

Samples of posts with their preservative coating shall be submitted before erection for the written approval of the Chief Engineer.

Painting – Post shall be given one complete coat of primer sealer and one uniform coat of green paint. Erection shall not begin until paint is dry to heavy thumb pressure. Painting of posts will not be required on posts used in work zones as temporary sign supports.

Erection – Permanent Wood Sign Posts shall be set plumb in the sleeves at the depth and lateral position as specified in the contract documents. The space between rim of sleeves and projection of posts shall be carefully cleaned and filled with joint sealant meeting requirements of FS TT-S-227, Class B. Sealant shall be tool finished smooth. Backing material for sealant shall be installed as directed.

(D) **MEASURE AND PAYMENT.** The unit of measure for Wood Sign Posts will be per linear foot. Payment will be made at the contract unit price per linear foot, complete in place, which payment will include furnishing galvanized steel sleeves, sealant, cutting post tops and incidentals necessary to complete the work. Wood Post foundations will be paid under [602](#).

620.02 METAL SIGN POSTS

(A) **DESCRIPTION.** Work consists of furnishing and erecting new flanged steel channel sign posts at locations as specified in the contract documents or as directed by the Chief Engineer.

(B) MATERIAL.

Flanged Steel Channel Posts – [824.03](#), ASTM A 499 Grade 60

- (C) CONSTRUCTION REQUIREMENTS.** The posts to support the specified sign shall be driven to the depth shown in the standard drawings. The posts shall be driven using drive caps designed for the size of posts used. The posts shall be plumbed and if more than one post is required per sign, the Contractor shall ensure that the distance between posts is correct to accept the pre-drilled sign.

The weight of the post shall be as specified and shall be 2.00, 3.00 or 4.00 pounds per foot. The posts shall be painted with baked green enamel. All punching, boring, cutting or shearing shall be performed prior to painting. The posts shall be punched with continuous 3/8 inch diameter holes on one inch centers for the entire length of the post with the first hole one inch from the top.

- (D) MEASURE AND PAYMENT.** The unit of measure for Metal Sign Posts will be per linear foot. Payment will be made at the contract unit price per linear foot, complete in place, which payment will include furnishing all labor, equipment, cutting post and incidentals necessary to complete the work.

620.03 GUIDE SIGN PANELS AND TRAFFIC SIGN PANELS

- (A) DESCRIPTION.** Work consists of furnishing, fabricating and erecting Guide Sign Panels and Traffic Sign Panels, of sheet aluminum or of extruded aluminum, including all letters, numerals, symbols and characters, borders, reflective sheeting, and mounting hardware. All features of the sign shall meet the requirements of the MUTCD. The locations and sign messages and/or symbols will be as indicated in the contract documents. Sign supports shall be as specified in the contract documents.

(B) MATERIALS.

Reflective Sheeting – [824.02](#), AASHTO M 268

Sheets, Plates, Angles, Z-bars, Lock Tabs, Support Angles and Panel Hardware – [824.04](#)

Sheet Aluminum – [824.04](#), ASTM B 209

Extruded Aluminum – [824.04](#), ASTM B 221

Demountable Characters and Borders, Non-demountable Characters, [824.04](#)

The Contractor shall submit manufacturer's certification in accordance with AASHTO M 290.

- (C) CONSTRUCTION REQUIREMENTS.** The size of letters and messages shall be as specified in the contract documents. Guide sign borders shall be of the width and color specified.

Guide Sign Panels exceeding four (4) square feet in area shall be fabricated of extruded aluminum sheets. Guide Sign Panels less than four (4) square feet in area shall be fabricated of flat aluminum sheets. Guide Sign Panels shall meet the requirements of the

MUTCD. The reflective sheeting for Guide Sign Panels shall be Type III high intensity sheeting.

Traffic Sign Panels, including regulatory and warning signs meeting the requirements of the MUTCD for color and size, shall be fabricated of flat aluminum sheets. The reflective sheeting for Traffic Sign Panels shall be Type III or Type IX as specified in the contract documents.

The reflective sheeting shall be free of ragged edges, cracks, and extraneous material and applied to prepared aluminum backing. The aluminum backing shall be properly prepared by degreasing and etching or treated according to the recommendations of the sheeting manufacturer. Sign faces comprising two or more pieces or panels of reflective sheeting shall be carefully matched for color to provide a uniform appearance during daylight and darkness. Alternate successive width sections of sheeting shall be reversed and consecutive to insure that corresponding edges of sheeting lie adjacent on finished sign. Non-uniform shading and undesirable contact between adjacent widths of applied sheeting will not be permitted.

Patched sheeting shall not be permitted.

The reflective sheeting for extruded aluminum sign panels shall be the pressure sensitive type. Splicing of the sheeting will not be allowed except splices permitted by the sheeting manufacturer. The sheeting shall be rolled over the edge of the extrusion $\frac{1}{4}$ inch. Letters, numerals, symbols, borders and route numbers for extruded aluminum sign panels shall be demountable copy of the specified reflective sheeting applied to properly prepared flat sheet of 0.032 inch minimum thickness aluminum sheet of 6061-T6 alloy. Mounting shall be accomplished with aluminum blind rivets with the head painted the color of the copy and the surface shall present a smooth surface.

The reflective sheeting for sheet aluminum sign panels shall be pressure sensitive or heat activated type. Splicing of the sheeting will not be allowed except splices permitted by the sheeting manufacturer. Splices will not be permitted on signs which are screen processed with transparent color.

Guide Sign Panels shall be fabricated from an aluminum extrusion to 0.125 inch thickness at the surface and to .078 inch at the walls, as per [Standard Drawing 620.07](#).

Traffic Sign Panels shall be cut from a single aluminum sheet of 0.063 inch thickness or as shown on the contract plans and fabricated to the size and shape shown on the contract plans. Sheets may be sheared, blanked, sawed, or milled; no flame cutting will be permitted. Cut edges shall be true, smooth, and free from burrs or ragged breaks and panels shall show no deviation from flatness when examined from a distance of 20 feet. Mounting holes shall be punched or drilled.

Sign Panels shall be provided with the necessary mounting hardware including angles on the back face at the joints to hold the abutting panels firmly and in proper alignment. All sign panel fastenings, lock tabs, and aligning angles shall be applied in such a manner as to cause a minimum of projection of the sign face. Where lock tabs are not used, end panel sections shall be provided with hook-bolted connections to horizontal stringers to keep all panel sections tightly joined, and centered horizontally on the stringers. These hook-bolt connections shall not be visible from the sign face.

Backs of sign panel sections shall be provided with suitable fasteners to permit easy attachment to the supporting zee stringers. Stringers shall be fastened to the panels with aluminum or stainless steel bolts, nuts, and washers, or with extruded aluminum lock tabs. Lock tabs shall be fastened to the sign panels by spot welding or by counter-sunk head aluminum bolts. Aluminum bolts shall be used in strict accordance with the manufacturer's recommendations, subject to the approval of the Chief Engineer. Two copies of the manufacturer's specifications and instructions for the bolts and type of aluminum used shall be delivered to the Chief Engineer prior to use. Tubular stiffeners shall be provided with end flanges with the bolt holes where indicated on plans. Stiffeners shall be fastened to the zee stringers with bolts through the neutral axis of the zee section web.

Where aluminum comes in contact with steel other than stainless steel, a 1/16 inch thickness approved insulating material as specified herein shall be placed between the two members. This material shall be used in all cases whether indicated on the plans or not.

Field drilling of holes will not be permitted in any part of the structural assembly unless approved by the Chief Engineer.

All welding of aluminum alloys, except spot welding, shall be performed by the inner-gas-shielded, tungsten or consumable-electrode method. Both the welding procedure and the welders shall be qualified in accordance with the requirements of ASME BOILER AND PRESSURE VESSEL CODE, SECTION IX. Three certified copies of the qualification test (Form Q-1, Form Q-1G and/or Form Q-1F whichever is applicable) as required by the above code, shall be properly completed and furnished the Chief Engineer. All welds shall be neatly formed, and shall be free from cracks, blow-holes, and other irregularities.

No field welding will be permitted on any part of the sign panel.

Legends for sheet aluminum signs shall be applied by the direct or reverse screening process. Legends shall be uniform in color, free from ragged edges, runs, drops and other faults affecting sign appearance. Copy registration shall be accurate. The finished screened area shall exhibit uniform film thickness, hiding power and proper color and shall be satisfactory to the Chief Engineer.

Alternate details may be submitted to the Chief Engineer for approval, for structural framing and brackets needed to mount sign panels to supports.

The Contractor shall furnish, for approval of the Chief Engineer, complete shop drawings for guide signs showing panel assembly, stringer size and spacing, letter size, letter and word spacing, bracket and support spacing, type and color of message components, and sign face arrangement.

All panel fabrication, including cutting and punching or drilling of holes, shall be complete prior to metal degreasing and application of reflective sheeting. Metal panels shall be cut to size and shape and shall be free of buckles, warp, dents, cockles, burrs, and defects resulting from fabrication. The front surfaces of all sign panels shall be flat.

All guide, regulatory, warning, or other traffic sign panels damaged as a result of the Contractor's operations shall be restored to their original condition or be replaced by the Contractor at his own expense, to the satisfaction of the Chief Engineer.

Prior to final acceptance of the work, the signs will be inspected. If specular reflection is apparent on any sign, the sign panel shall be adjusted by the Contractor at his sole expense to eliminate this condition.

- (D) MEASURE AND PAYMENT.** The unit of measure will be the square foot of sign panel or traffic sign mounted in place. Payment for Guide Sign Panels and Traffic Sign Panels will be made at the contract unit price per square foot which payment will include furnishing, fabrication, erection, mounting brackets and hardware, final sign adjustments and all labor, tools, materials, equipment, and incidentals necessary to complete the work.

620.04 FEDERAL AID PROJECT SIGN

- (A) GENERAL** The Contractor shall furnish, erect, maintain and remove as directed by the Chief Engineer one Federal-Aid Project Sign at each end of the project under construction as shown on the detailed drawing included in the contract documents. Cost figures for insertion on signs, rounded to the nearest \$1,000.00, will be provided by the Chief Engineer. The Chief Engineer will provide the project description and the U.S. Route number if any.

The sign shall be 3' X 5' X 3/4" exterior plywood, substrate smooth sanded on one side. The sign will be mounted on three 4" x 4" x 12' posts (or approved alternate) at location(s) designated by the Chief Engineer. The sign face shall be painted with three (3) coats of outdoor white enamel; sign rear with one (1) coat of same enamel. Lettering shall be of silk screen enamels; black for all lettering; crimson red for the D.C. Logo. The sign shall include the Rebuilding DC logo as shown in the contract documents.

(B) COLORS

Red – Pantone 485 Blue – Pantone 280 Light Blue – Pantone 305

Gray – CiCy 2, and Black over White

(C) FONTS

Ariel Narrow Italic or Ariel Narrow Bold Italic may be used. Sizes: 180 pt., 140 pt., 120 pt. and 100 pt.

- (D) ARTWORK.** Rebuilding DC Logo will be provided with the fonts outlined, EPS-JPEG Adobe Illustrator file on Mac formatted 3.5 disk or as required by the Chief Engineer.
- (E) OUTPUT.** Digitally reproduced sign. Printed or silk screened.
- (F) MEASURE AND PAYMENT.** The unit of measure for Federal Aid Project Sign will be per each sign furnished for the contract. Payment for Federal Project Sign will be made at the contract unit price per each, which payment will include labor, materials, equipment and incidentals necessary to furnish, erect, maintain and remove the sign.

620.05 DELINEATORS, REFERENCE POSTS AND OBJECT MARKERS

- (A) **DESCRIPTION.** Work consists of furnishing and installing Delineators, Reference posts and Type I, II, III and End of Road Object Markers as shown in the contract documents or as directed by the Chief Engineer. The Delineators, Reference posts and Object Markers shall be installed in accordance with the requirements of the MUTCU.
- (B) **CONSTRUCTION REQUIREMENTS.** The Delineators, Reference Posts and Object markers will be installed on flanged channel posts. The posts shall be driven to the correct height and plumbed prior to installing the Delineators, Reference Posts and Object Markers.
- (C) **MATERIALS.** Reflective Sheeting Type III. [824.02](#) Flanged Steel Channel Posts 1.33 LB/LF, [824.03](#), ASTM A 499 Grade 60
- (D) **MEASURE AND PAYMENT.** The unit of measurement for Delineators, Reference Posts and Object Markers will be each. Payment will be made for each Delineator, Reference Posts and Object Marker complete in place and which payment includes the flanged steel channel post support and all labor, equipment and incidentals to complete the work specified herein.

620.06 BREAKAWAY BASE SIGN SUPPORT SYSTEMS

- (A) **DESCRIPTION.** The work consists of furnishing and installing Breakaway Base Sign Support Systems as specified in the contract documents. Breakaway Base Sign Support system is shown in the [Standard Drawings 620.04](#) and [620.06](#). The Contractor may submit an alternative system which meets or exceeds NCHRP Report 350, Test Level 3.
- (B) **CONSTRUCTION REQUIREMENTS.** The Contractor shall furnish and install Breakaway Base Sign Support Systems including post hinge assembly units as specified in the Contract Documents and in conformance with the manufacturer's recommendations. The Contractor shall grade the ground around the foundation as part of this work. The Contractor shall provide the type of foundation for the Breakaway Base Sign Support System specified and shall ensure that the foundation is trued and at the proper dimensions to accept the support system and specified sign.
- (C) **MATERIALS.** Breakaway Base Sign Support Systems shall conform to the breakaway requirements specified in AASHTO Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and approved by the Chief Engineer.

STEEL AND HARDWARE [824.03](#), AASHTO M 1164

Concrete [817.03, \(A\) Type F](#).

- (D) **MEASURE AND PAYMENT.** The unit of measure for Breakaway Base Sign Support System will be for each. Payment will be at the contract unit cost for each Breakaway Base Sign Support System. A Breakaway Base Sign Support System will consist of a post, hinge assembly, base plates and necessary hardware and a foundation for the complete system in place. Payment also includes all labor, equipment, excavation, backfill, grading adjacent to the foundation and incidentals to complete the work specified herein.

620.07 MODIFY AND REPAIR EXISTING SIGN

(A) **DESCRIPTION.** The work consists of modifying existing sign messages and repairing existing signs. Ground mounted and over head signs are included. Sign patching and the replacement of demountable copy will be necessary as a part of this work.

(B) **CONSTRUCTION REQUIREMENTS.** Damage to reflective sheeting may be repaired and the edges sealed according to the requirements of the manufacturer's recommendations. The sign patch material shall be the same type and color as the surrounding sheeting. Patching will not be permitted on any letter, numeral, arrow symbol or border. Overlayment and demountable copy including borders that are existing shall be removed to facilitate the installation of the new overlayment. Deformations in the sign panel shall be smoothed and corners straightened.

Overlayments of 3 feet or less in length shall be accomplished with one panel. Overlayments greater than 3 feet in length shall be accomplished with panels no less than 3 feet wide. All joints shall be tightly butted and not overlapped.

Overlays shall be attached to the signs with aluminum rivets of a length to securely fasten the overlay to the sign panel. The rivets shall be installed in a pattern that will prevent the buckling of the panels.

(C) **MATERIAL**

Reflective Sheeting: [824.02, Type III or IX](#)

Aluminum: [824.04](#)

(D) **MEASURE AND PAYMENT.** The unit of measure for Modify and Repair Existing Sign will be the square foot. Payment will be at the contract unit cost for the square foot of sign overlayed, which payment will include furnishing, installing overlays for existing signs and all labor, equipment and incidentals to complete the work specified herein.

620.08 REMOVE AND RELOCATE EXISTING SIGNS AND SUPPORTS

(A) **DESCRIPTION.** The work consists of removing and relocating existing signs and sign supports as specified in the contract documents. Ground mounted and overhead signs, and ground mounted sign supports are included.

(B) **CONSTRUCTION REQUIREMENTS.** Existing signs and sign supports will be removed are relocated for traffic pattern changes or during construction work. If the existing signs and sign supports are to be replaced with new signs of similar messages or a part of a sequence of signs, new signs shall be installed prior to the relocation or removal of the existing signs and supports. When the existing sign is to be replaced using the existing supports, the existing sign shall not be removed until a new sign is ready and on site for immediate installation. The existing sign support shall be totally removed and holes and foundation cavities backfilled. The holes for flanged steel channel posts and wood posts shall be backfilled with suitable material as specified in [804](#). The posts shall be extracted with a minimum disturbance to the area surrounding the existing sign. The wood sign posts foundation and sleeve shall be extracted with the wood post. Foundations for breakaway base sign support systems shall be demolished to a depth of one foot below grade.

Existing overhead signs shall be removed and relocated and the existing sign luminaires shall also be removed. All cable feeding the luminaires shall be removed and terminated in a manner so as to maintain service to the remaining overhead sign luminaires.

- (C) **MEASURE AND PAYMENT.** The unit of measure for Remove and Relocate Existing Signs and Supports will be the square foot. Payment will be made at the contract unit price per square foot of sign removed or relocated. Payment for relocated ground mounted breakaway sign supports for relocated signs will be paid according to [620.06](#). Payment will include all labor, equipment, necessary backfill, tools and incidentals necessary to complete the work specified herein.