# SECTION 630 - TRAFFIC CONTROL GUIDE SIGNS

**630.01 Description.** This section describes furnishing and installing guide signs, sign structures, overhead sign supports, and foundations. Guide signs include freeway, expressway, destination, street name signs, and route markers.

**630.02 Materials.**

| | |
|---|---|
| Structural Concrete | 601 |
| Zinc Paints and Primers | 708.02 |
| Dark Green Enamel Paint | 708.03 |
| Paint Thinner | 708.04 |
| Signs | 750.01 |
| Sign Posts | 750.02 |
| Fasteners for Signs and Route Markers | 750.03 |
| Ground Mounted Destination and Expressway Sign Supports | 750.04 |
| Overhead Expressway Sign Supports | 750.05 |

Retroreflective sheeting shall conform to AASHTO M 268, or as amended in accordance with Subsection 750.01 - Signs.

Submit certification and mill test reports for overhead sign support materials with the following information:

**(A)** List of component parts showing the following:

**(1)** Description of each part.

**(2)** Source of fabrication of material (including ASTM numbers where applicable).

**(3)** Certificate of Compliance.

**(B)** Complete and detailed engineering computations accompanying shop drawings that justify selection of dimensions and materials. Computations and drawings shall be stamped and signed by Hawaii Licensed Structural Engineer.

**(C)** Copy of mill test reports for structural members (posts and beams), including physical and chemical descriptions of material incorporated.

## 630.03 Construction.

### (A) Destination and Expressway Sign Supports.

**(1) Alternate Designs.** Alternate designs for overhead expressway sign supports of either steel or aluminum shall comply with the following:

**(a)** Be similar in appearance and construction detail to sign supports indicated in the contract documents.

**(b)** Base design on criteria indicated in the contract documents.

**(c)** Do not change foundations or other anchorages, including anchor bolt details.

**(d)** Design load-carrying capacities at least equal to load-carrying capacities indicated in the contract documents.

**(e)** Provide vandal resistance at least equal to that indicated in the contract documents.

Submit shop drawings, specifications, and structural calculations for alternate designs of overhead sign supports in accordance with Subsection 105.03(A) - Shop Drawing Requirements. Structural calculations and shop drawings shall be stamped and signed by Hawaii Licensed Structural Engineer. Identify on drawings ASTM designated alloy and temper materials. When using stock or standard items, catalog cuts may be submitted instead of shop drawings.

**(2) Shop Drawings.** Submit shop drawings in accordance with Subsection 105.03(A) - Shop Drawing Requirements and Subsection 501.03(A) - Shop Plans.

**(3) Welds.** Make welds continuous in accordance with Section 501 - Steel Structures.

Extend weld metal at transverse joints to sleeve, making sleeve an integral part of joint. Use submerged arc process to make longitudinal welds. Grind welds, except fillet welds, flush with base material.

**(4) Zinc Coating.** Hot-dip zinc coat exposed surfaces, including inner portion of tubular posts and arms, after fabrication. Hot-dip zinc coat upper 10-1/4 inches of anchor bolts. Zinc coating shall conform to Subsection 501.03(G) - Zinc Coating.

**(5) Painting.** For steel structural members, paint ground-mounted destination and expressway sign supports and overhead expressway sign posts, crossarms, and panel frames at work site after preparation of zinc-coated surfaces, in accordance with Subsection 501.03(F) - Painting. Alternatively, include one prime coat of zinc-dust, zinc-oxide primer, followed by two coats of dark green enamel paint.

When indicated in the contract documents, paint aluminum structural members in accordance with Subsection 715.02 - Contacts With Dissimilar Material.

**(6) Miscellaneous Destination Sign Posts.** Furnish and install zinc-coated steel posts, flanged channel posts, or 12 or 14 gage square tube posts.

**(7) Aluminum Sign Supports.** Aluminum sign supports shall conform to Subsection 750.05(B) - Aluminum Supports.

**(B) Exit Number Panel Mounting.** Submit specifications and shop drawings of exit number panel mounting and support attachments to expressway signs within 20 calendar days after notice to proceed.

Specify and identify materials used in shop drawings in accordance with ASTM standards. Submit catalog cuts instead of shop drawings when using stock or standard items.

Relocate or furnish and install exit number panel mounting and support attachments to right or left edge of expressway or destination signs, as indicated in the contract documents.

**(C) Destination And Expressway Signs.**

**(1) Shop Drawings.** Submit shop drawings of destination and expressway signs.

**(2) Assembly.** Assemble and check panels in shop for straightness, alignment, and dimensions.

**(3) Installation.** Install sign panels carefully and securely. Replace signs chipped or bent during installation.

**(D) Splicing of Reflective Sheeting Material.** Do not splice legends when using reflecting material as background for signs with sheet aluminum backing. Make reflecting material one piece whenever sign dimensions are four feet by six feet or less.

**(E) Labeling of Signs.** Label back of each new sign with legible block print, one-inch high numbers, in a manner that shall produce markings at least as durable as the sign messages applied to sign face. Include the following information:

**(1)** Route Number.

**(2)** Mile Post.

**(3)** Sign installation date.

**(F) Sign Lighting Systems.** Sign lighting systems shall conform to Section 622 - Roadway and Sign Lighting System.

**(G) Refurbishing Sign Panel.** Complete each sign panel within one working day. Exception to this requirement will be contingent upon safety considerations, equipment, provisions for protection of public, and acceptance by the Engineer.

**(1) Shop Drawings.** Submit shop drawings at least 10 working days before beginning sign refurbishment.

**(2) Overlay Panels.** Refurbish signs with overlay panels. Messages, shields, arrows, and borders shall conform to *Manual on Uniform Traffic Control Devices* (MUTCD) and these specifications.

Reflectorize overlay panels of aluminum sheets in accordance with Subsection 750.01 - Signs. Reflectorize messages, arrows, and border with Type III or IV retroreflective sheeting or acrylic plastic reflex reflectors. Reflectorize shield symbol with Type III or IV retroreflective sheeting. Aluminum sheet shall conform to ASTM B 209, alloy 6061-T6 flat sheet, and shall be minimum 0.1 inch thick.

Before fabrication, verify sizes of sign panels, and sizes, shape, and format of letters, numerals, symbols, and borders. Immediately inform the Engineer of discrepancies. Correct discrepancies. Before fabrication, submit final design of sign and splice locations.

Fabricate and install overlay panels in accordance with manufacturer's instructions.

Remove existing letters, numerals, symbols, and borders. Clean and prepare sign panel for overlaying, as recommended by panel manufacturer.

Prefabricated overlay panels may be installed with existing sign panel remaining in place..

**(H) Removal of Existing Signs.** Remove, clean, and store existing expressway and destination signs that will not be used in project. The Engineer will designate signs to be stored or disposed of.

**(I) Street Name Sign on Traffic Signal Mast Arm.** Install signs on mast arms, using brackets.

**630.04 Measurement.**

**(A)** The Engineer will measure panel per square foot in accordance with the contract documents.

**(B)** The Engineer will measure galvanized steel post for ground-mounted destination and expressway sign per linear foot in accordance with the contract documents.

**(C)** Post, post and arms; route marker assembly; directional sign post; footing; street name sign; street name sign on traffic signal mast arm; relocation of existing sign; flanged channel or galvanized square tube post for destination sign; breakaway steel post and foundation for ground-mounted destination sign; replacement of existing sign panel with new destination sign panel; overlay panel; removing, storing and installing existing sign onto overhead sign structure; and overhead sign supports and foundation will be paid on a lump sum basis. Measurement for payment will not apply.

**630.05 Payment.** The Engineer will pay for the accepted pay items listed below at the contract price per pay unit, as shown in the proposal schedule. Payment will be full compensation for work prescribed in this section and the contract documents.

The Engineer will pay for each of the following pay items when included in the proposal schedule:

| **Pay Item** | **Pay Unit** |
|---|---|
| Panel for _____ | Square Foot |

The Engineer will pay for:

**(A)** 80 percent of the contract bid price upon completion of furnishing and installing complete sign panel.

**(B)** 20 percent of the contract bid price upon completion of labeling sign panel.

| | |
|---|---|
| Galvanized Steel Post (_____) for Ground-Mounted Destination and Expressway Sign | Linear Foot |

The Engineer will pay for:

**(A)** 40 percent of the contract bid price upon completion of furnishing galvanized steel post.

**(B)** 60 percent of the contract bid price upon completion of installing galvanized steel post.

| | |
|---|---|
| _____ Post for _____ | Lump Sum |
| Type _____ Post and Arms for _____ | Lump Sum |
| Type _____ Route Marker Assembly | Lump Sum |
| Directional Sign Post | Lump Sum |
| Type _____ Footing for _____ Sign | Lump Sum |
| Street Name Sign | Lump Sum |
| Street Name Sign on Traffic Signal Mast Arm | Lump Sum |
| Relocation of Existing _____ | Lump Sum |
| 4.00 lbs/ft. Flanged Channel Post for Destination Sign | Lump Sum |
| 2.50 Inch Galvanized Square Tube Post for Destination Sign | Lump Sum |
| Breakaway Steel Post _____ and Foundation for Ground-Mounted Destination Sign | Lump Sum |

Replacement of Existing Sign Panel with
New Destination Sign Panel — Lump Sum

Overlay Panel for _____ — Lump Sum

Removing, Storing, and Installing Existing _____
Onto Overhead Sign Structure — Lump Sum

Overhead Sign Supports and Foundation at _____ — Lump Sum

The Engineer will pay for:

**(A)** Excavation for footing in accordance with and under Section 204 - Excavation and Backfill for Miscellaneous Facilities.

**(B)** Concrete in footings in accordance with and under Section 503 - Concrete Structures.

**(C)** Reinforcing steel in accordance with and under Section 602 - Reinforcing Steel.

The Engineer will pay for the accepted quantities of additional contract items required for alternate design at the contract prices per pay units, as specified in contract change order. Payment will be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete work, including additional labor, materials, tools, equipment, and other incidentals that may become necessary to complete alternate design work.

**END OF SECTION 630**