



Caltrans User Guide to Standard Plans Section S – OVERHEAD SIGNS TUBULAR
Standard Plan Numbers

S6, S16, S17, S17A, S18, S30, S31, S32, S33, S34, S35, S36, S37

Implementation

This user guide applies to the latest versions of Standard Plan Numbers above.

Description of Component

Used for single post and two post tubular supports for

- Overhead sign panel type “Laminated Type A-2”

Use inside or outside of Special Wind Regions. Use inside or outside of Ice Regions. However, in locations where the designer knows that gravity loads due to freezing rain accumulations have caused damage to engineered structures, the senior technical specialist for signs and overhead structures should be consulted.

Standard Plan Features

Single Post	Two Post	Description
S6		Details for gussets at post to base plate connections
S16		Walkway layout and details
S17		Walkway details
S17A		Compression strut system for walkway
S18		Safety railing details
S30		General information, layout examples, general notes
S31	S32	Table for choosing post Type, Post Type-Size table, dimension definitions, additional notes. Camber diagram (for two post)
S33		Details for attachment of sign panel mounting brackets, walkway brackets, and walkway chain angle
S34		Details for shop splice, field splice, photoelectric unit mounting, handhole, handhole location at post base. Also Mast arm end detail (for single post).
S35		Details for post to base plate connection (for gusset plates see S6), anchor bolts, anchor bolt templates.
S36		CIDH foundation and pedestal details and data for Square Pedestal
S37		CIDH foundation and pedestal details and data for Round Pedestal



Caltrans® User Guide to Standard Plans Section S – OVERHEAD SIGNS TUBULAR Project Development Procedures

- Check for latest applicable version of [Standard Plan\(s\) and Standard Specifications](#)
- Get the applicable version of this [User Guide](#)
- Check for other documents that might apply. Some examples are:
 - [Highway Design Manual \(HDM\)](#)
 - [California Manual on Traffic Control Devices \(CA MUTCD\)](#)
 - [Traffic Manual](#)
 - [Traffic Operations Policy Directives](#)
 - [Caltrans Geotechnical Manual \(Section on Standard Plan Overhead and Changeable Message Signs\)](#)
- Verify that the project conforms to Standard Plans, this User Guide, the specifications, and other requirements and determine which sheets are needed.
 - For questions on interpretation of the Standard Plans or the User Guide, contact the [Senior Technical Specialist for Signs and Overhead Structures](#).
 - For questions on the interpretation of the construction specifications contact the [Office of Structure Quality Management](#).
 - For detailed assistance in verification related to the Standard Plans, contact the [Office of Design and Technical Services](#).

If elements of the project do not conform, then fill out a special designs form to request a custom design. In some cases, special design is only needed for a certain portion, in which case the Standard Plans might still apply for the other portion.

Design/General Notes:

Structural Design Notes:

- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 4th Edition.
- Wind
 - 100% sign panel coverage.
 - Wind pressure on sign panels = 40.3 psf. An equivalent set of assumptions would be
 - $V = 100$ mph (3-second gust, 50 year return period)
 - $K_z \times K_{zt} = 1.06$
 - $G = 1.14$
 - $C_d = 1.3$
 - $I_r = 1.0$
- Yearly Mean Wind Speed (11.2 mph)



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- Materials (Structural Steel):
 - Pipe Posts and Mast Arms: $f_y = 55$ ksi
 - Anchor bolts: $f_y = 55$ ksi
 - Plates, hot rolled open shapes, $f_y = 36$ ksi
- Materials (Reinforced Concrete):
 - $f'_c = 3,600$ psi
 - $f_y = 60$ ksi
- Exceptions:
 - Ice Load NOT included, analysis indicated ice load combination not likely to control overall structure design.
 - Fatigue requirements checked only for post to base plate connections.
- Project plans showing
 - Sign structure location
 - Span
 - Slanted Post or Vertical Post
 - Sign panel type
 - Sign panel sizes and locations on structure
 - Is sign lighting included
 - Is walkway included
 - Walkway length (for two post signs that use walkway)
 - Post type and height from bottom of base plate to CL of mast arm/CL of sign panel.
 - Base plate elevation
 - Footing elevation or location of pile foundation.
 - Photoelectric unit location (if required)
 - Non-standard minimum vertical clearance requirements

Contract Specifications:

- Standard Specifications.
- Standard Special Provision (SSP)

Restrictions on Use of Standard Drawings:

If project conditions require significant deviations from these standards, the design might require a special design. Some examples might be:

- Additional loads not shown
- Additional holes or welding not shown
- Deviations from dimensions
- Weak soils
- Locations where finish grade at base of standards is more than 33 feet above surrounding terrain