



Caltrans® User Guide to Standard Plans Section S – OVERHEAD SIGNS – TRUSS

Standard Plan Numbers:

- S1, S2, S3, S4, S5, S6, S8, S9, S10, S11, S12, S13, S15, S16, S17, S18, S19, S20, S21, S22
- This Users Guide does not cover Overhead Truss CMS 500

Implementation:

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

Description of Component:

Used for single post and two post structural supports for

- Overhead sign panel type “Formed Single Sheet Aluminum”.
- Overhead sign panel type “Laminated Type A-1”

ES-16A may be used to mount CCTV 5, CCTV 10, or CCTV 15 pole over the post.
ES-6C may be used to mount Type 10 or Type 15 luminaire standard over the post.

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.



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Standard Plan Features:

	Single Post	Two Post	Description
	Standard Plan Number	S1	
S2		S9	Post sizes and some derived dimensions, spread footing foundation option details and data (CIDH is standard unless project plans specify otherwise), handhole details.
S3		S10	Base plates, Anchor bolts, permanent anchor bolt templates
S6		Details for gussets at post to base plate connections	
S4		S11	Structural frame member layout, walkway bracket spacing, and limitations on structure sizes. For two post- limits on location of bolted chord splices
S5			Structural frame member data
S12		Structural frame member details for connections including bolted splices	
S13		Structural frame to post connection details	
S8		S15	CIDH foundation and pedestal details and data
S16		Walkway layout and details	
S17		Walkway details	
S18		Safety railing details	
S19		Details for mounting laminated panel mounting beams. Use to mount overhead sign laminated panel Type A (uses type A-1 hardware.)	
S20		Details and data for removable sign panel frames and connection to truss. Used to mounting overhead sign single sheet aluminum formed panels.	
S21		Detail for mounting a new formed panel to an existing removable sign panel frame that supported porcelain coated single steel sheet sign panels. Also needed for mounting aluminum single sheet formed sign panels to new removable sign panel frames.	
S22		Additional details needed for mounting removable sign panel frames used with 110 inches and 120 inches tall sign panels to 106 inches tall structural frames.	



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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 the 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: $f_y = 55$ ksi
 - Anchor bolts: $f_y = 55$ ksi
 - Plates, hot rolled open shapes, $f_y = 36$ ksi
- Materials (Reinforced Concrete):
 - $f'_c = 3,625$ 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.

Additional Drawings Needed to Complete PS&E:

Project plans showing:

- Sign structure location
- Length of structure frame
- 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 bottom of truss.
- 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



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- Locations where finish grade at base of standards is more than 33 feet above surrounding terrain

Do not use the spread footing option without consultation with a geo-professional. See Caltrans Geotechnical Manual.