



## **Caltrans® User Guide to Standard Plans Section RS – ROADSIDE SIGNS**

Standard Plan Numbers:

RS2, RS3, RS4

Implementation:

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

Description of Component:

Used for single post and two post supports for the following types of Roadside Sign Panels

- Single Sheet Aluminum
- Framed Single Sheet Aluminum
- Laminated Type B, 1 inch Thick (two post only)
- Laminated Type B, 2½ inch Thick (two post only)
- Laminated Type H, 2½ inch Thick (two post only)

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:

RS2: Single and two post installations using 4x4, 4x6, 6x6, and 6x8 wood posts. Includes spacing and embedment of posts, attachment and bracing of sign panels, post caps, and slots for breakaway feature.

RS3: Two post installations using Laminated Wood Box Posts Type L and Type M. Includes spacing and embedment of posts, attachment of sign panels.

RS4: Additional details for attachment of sign panels, including bracing and frame details. Also includes attachment of sign panels to the pole of an electrolier, signal standard, or the post of a sign structure.

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 \(CA MUTCD\)](#)



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- [Traffic Manual](#)
- [Traffic Operations Policy Directives](#)
- [MASH Implementation Memo](#)
- 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 these 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 [Traffic Signs Branch in Traffic Operations](#).
  - 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.

- Laminated wood box posts for construction contracts are typically contractor furnished.

### **Design/General Notes:**

#### **Structural Design Notes:**

- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 3<sup>rd</sup> Edition, 1994.
- Wind
  - V = 60 mph (fastest mile)
  - 40% allowable stress increase for combinations involving wind
- Materials (Solid-sawn wood posts):
  - 4x4 allowable stress: 900 p s i
  - 4x6 and larger allowable stress: 960 p s i



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- Materials (Laminated wood box posts):

Untreated laminated veneer lumber must comply with the following requirements:

Quality Characteristic	Test Method	Requirement	Sample Size
Mean modulus of rupture	ASTM D198	8,000 psi, min for at least 80% of samples	10 pieces, min
Moving average bending shear strength	ASTM D198	9,900 ± 990 p s i	30 - 2.25" wide specimens, min
Ultimate shear strength of completed box section	ASTM D198	700 p s i, min	1 untreated post from each lot of 100 or fewer posts

- Exceptions:
  - Ice Load NOT included, analysis indicated ice load combination not likely to control overall structure design.

### Additional Drawings Needed to Complete PS&E:

Project plans showing

- Sign structure location
- Post spacing (two post)
- Sign panel type
- Sign panel sizes and locations on structure
- Post type

Non-standard vertical clearance requirements

### Contract Specifications:

- Standard Specifications.
- Standard Special Provision (SSP)
- NSSP 82-3 (available from the Office of Traffic Engineering, in the Division of Traffic Operations).

### 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
- Other sign panel types such as Extinguishable Message Sign (EMS)



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- Additional holes
- Deviations from dimensions
- Weak soils
- Locations where finish grade at base of standards is more than 33 feet above surrounding terrain