



2015 AASHTO Design Specification Form

Overhead Sign, Luminaire Support, and Traffic Signal Structures

The 2015 AASHTO Specification requires the owner to specify many design parameter options. These options can dramatically increase the size, weight and cost of the structure. In order for Valmont to design structures in compliance with the 2015 AASHTO Specification, please specify the following design parameter options:

Name: _____ Title: _____

Organization: _____ Phone #: _____

Project Description: _____

1. Project Site Location: _____, _____
(City) (State)

2. Basic Wind Speed – AASHTO Section 3.8.2 & Figure 3.8.1, 3.8.2 or 3.8.3 & Figure 3.8.4 (If blank, we will base it off of the AASHTO map using the city/state provided above. A blank implies that there is not a more stringent local design requirement) :

a. Ultimate Design Wind Speed: _____ mph. (Figure 3.8.1, 3.8.2 or 3.8.3)

b. Service Design Wind Speed: _____ mph (Figure 3.8.4)

3. Mean Recurrence Interval Years – AASHTO Section 3.8.1 and Table 3.8.-1 (check only one).

_____ 300 years. Supports that cannot cross the travelway. This is similar to a 25-year design life in the previous codes.

_____ 700 years. A “typical” support that could cross the travelway during a failure thereby creating a hazard for travelers. This is similar to a 50-year design life in the previous codes.

_____ 1700 years. A support that could cross lifeline travelways. This is similar to a 100-year design life in previous codes.

4. Unreinforced and Reinforced Holes and Cutouts – AASHTO Section 5.6.6 states that, when designing for fatigue, the width of unreinforced and reinforced holes or cut outs in the cross-sectional plane of the tube **shall not be greater than 40 percent** of the tube diameter at that section, and the minimum clear distance between transverse plates and the opening **shall not be less than the tube diameter**. In addition, Section 11.9.2 requires **all holes and cutouts** to have the fatigue stress analyzed. Conformance to this section may significantly increase the diameter of the tube. Many existing details do not meet these requirements, therefore, the code allows for alternative hole and cut out configurations may be approved by the owner (check only one).

_____ Design structure unreinforced and reinforced holes to conform to section 5.14.6 and 11.9.2

_____ Do not design structure unreinforced and reinforced holes to conform to section 5.14.6 and 11.9.2. Customer will review proposed options for approval.

5. Fatigue Category – AASHTO Section 11.6 and Table 11.6-1 (check only one).

- Category I *Structures **without mitigation devices** may be classified as Category I if any of the following apply:* Structures on roadways with a speed limit in excess of 35 mph and ADT exceeding 10000, or ADTT exceeding 1000.
Cantilevered sign structures with a span in excess of 50 ft.
Large sign structures, both cantilevered and non-cantilevered, including variable message signs. Structures located in an area that is known to have wind conditions that are conducive to vibration.
- Category II All structures not explicitly meeting the Category I or Category III criteria.
- Category III Structures located on roads with speed limits of 35 mph or less. Structures that are located such that a failure will not affect traffic.

6. Galloping Loads – AASHTO Section 11.7.1.1 (check only one).

- Design cantilevered support structures to resist periodic galloping forces.
- Do not design cantilevered support structures to resist periodic galloping forces. An owner approved mitigations device will be attached to each structure. The mitigation device shall be the sole responsibility of the owner.
- Do not design cantilevered support structures to resist periodic galloping forces. The owner will install an approved mitigation device only if a structure displays a galloping problem. The mitigation device must be installed as quickly as possible after the galloping problem appears.

7. Truck Loads – AASHTO Section 11.7.1.3 (check only one).

- Include truck-induced gust loads for VMS support structures, but not for traffic signal support structures. AASHTO states that truck-induced loads shall be excluded unless required by the owner for fatigue design of overhead traffic signal support structures. The specified average truck speed is _____ mph. AASHTO equations are based on a truck speed of 65 mph, but also allow for a design pressure reduction for lower speeds.
- Include truck-induced gust loads for all structures. The specified average truck speed is _____ mph. AASHTO equations are based on a truck speed of 65 mph, but also allow for a design pressure reduction for lower speeds
- Exclude truck-induced gust loads for all structures.

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