



Bridge Design Details 11.4 June 2019

Control Dimension “Y” on Steel Girders

The control dimension “Y” is defined as the distance from the top of deck slab to the top of web plate and must be shown at centerline of bearings on the TYPICAL SECTION sheet and rounded up to the nearest ½ inch. The “Y” dimension is shown on the plans to allow construction and camber tolerances while ensuring adequate clearance is provided between the top flange and the bottom concrete deck slab.

The control dimension “Y” includes the following components:

1. Deck thickness
2. Correction for roadway slope = $\frac{\text{Maximum Flange Width}}{2} \times (\text{roadway across slope})$
3. Maximum top flange thickness of girders
4. Correction for sagging (for a straight girder on a sharp horizontal curve or at a sag vertical curve, the depth of fillet at the supports shall be increased so that the girder will not encroach into the decks).
5. Thickness of splice plate, if applicable.
6. Excess fillet to allow for fabricating tolerance in girder camber. Allow 1 inch for span lengths less than or equal to 40 ft; allow 1.5 inches for span lengths greater than 40 feet.

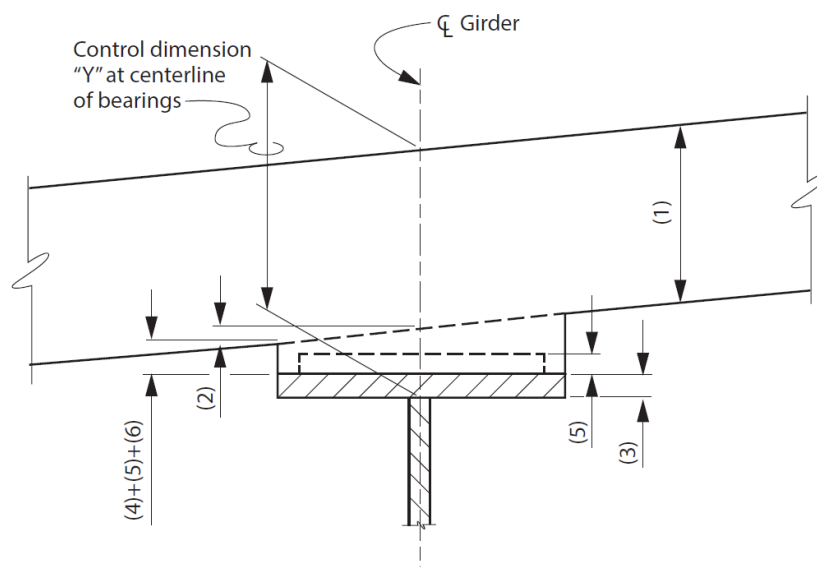


Figure 11.4.1 Control Dimension “Y”



It is preferred that the control dimension “Y” should be the same at all supports throughout a bridge. The minimum concrete cover over the tops of the shear connectors on composite girders (2 inch) and the minimum penetration depth into the concrete deck of the shear connectors (3 inch minimum) must be provided (See Figure 11.4.3). Straight girders on a horizontal curve with a cross slope require special attention.

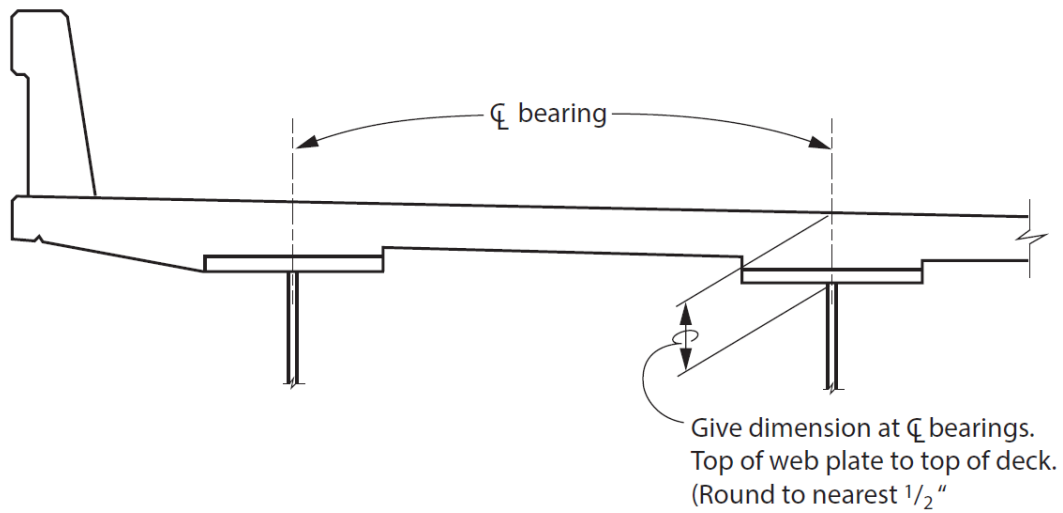


Figure 11.4.2 Centerline Bearings

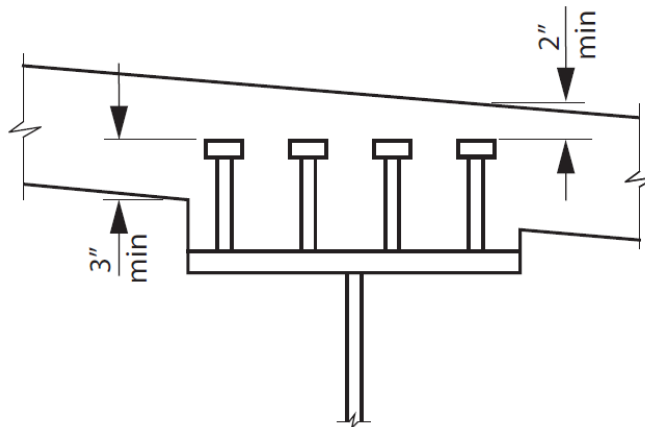


Figure 11.4.3 Minimum Concrete Cover Depth and Minimum Penetration Depth