2025 Student Steel Bridge Competition

SECTION 9 STRINGER OVERVIEW

This document provides an overview of the rules in Section 9 of the 2025 Student Steel Bridge Competition (SSBC) Rules pertaining to the stringer of a bridge. This overview does not cover every possible scenario or rule associated with the bridge stringers, but is meant to help you understand the meaning of the rules. The document is formatted such that a specific rule is provided followed by pictures that demonstrate that rule.

9.2.1 The bridge shall have exactly two stringers, each of which is contiguous. Each stringer shall extend from inside the west end footing to inside the east end footing. Sections of the stringer may be part of members that serve other functions in the bridge. See the Bridge Elevation Diagram.

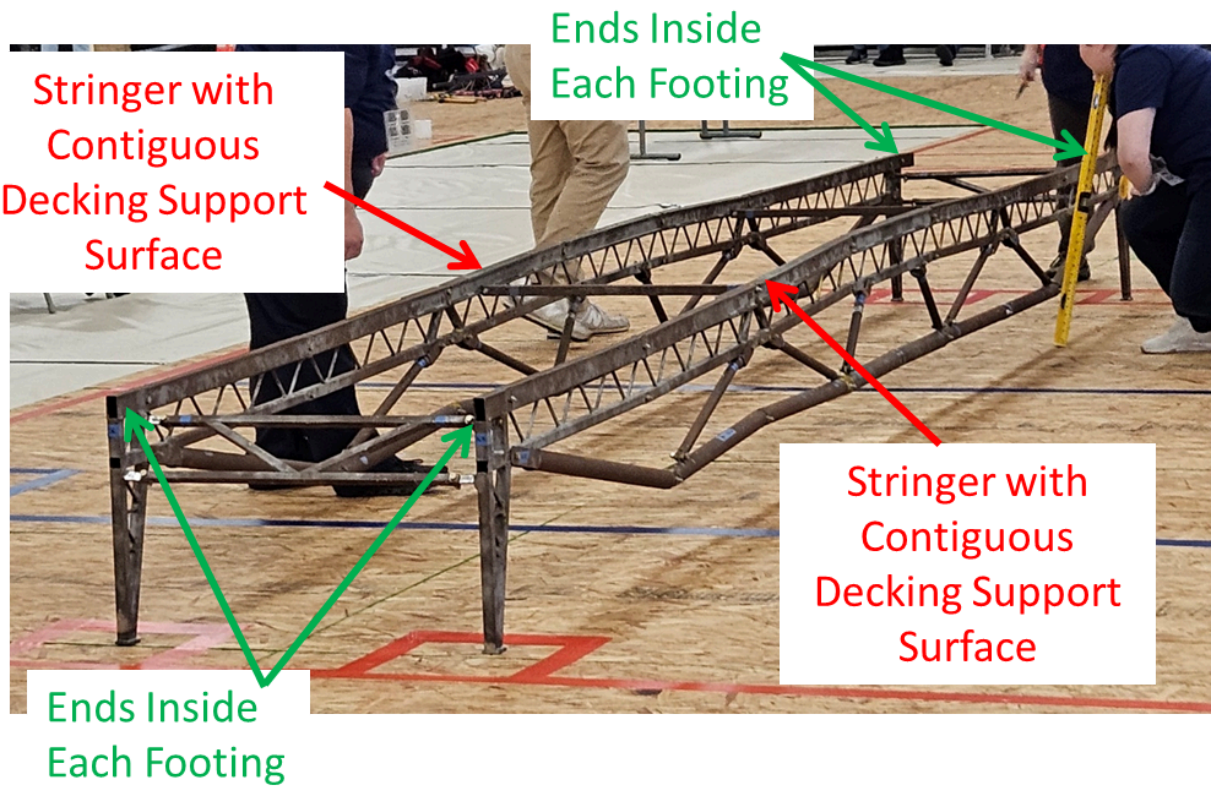

Figure 1: The stringer refers to a collection of connected members whose top surfaces provide a contiguous decking support aligned longitudinally along the bridge. Each of the stringers shown, terminate in the space above each respective footing.

9.3.6 The north side stringer shall be at minimum 15’-6” long and at maximum 16’-6” long, measured along its top. The south side stringer shall be at minimum 19’-0” long and at maximum 20’-0” long, measured along its top.

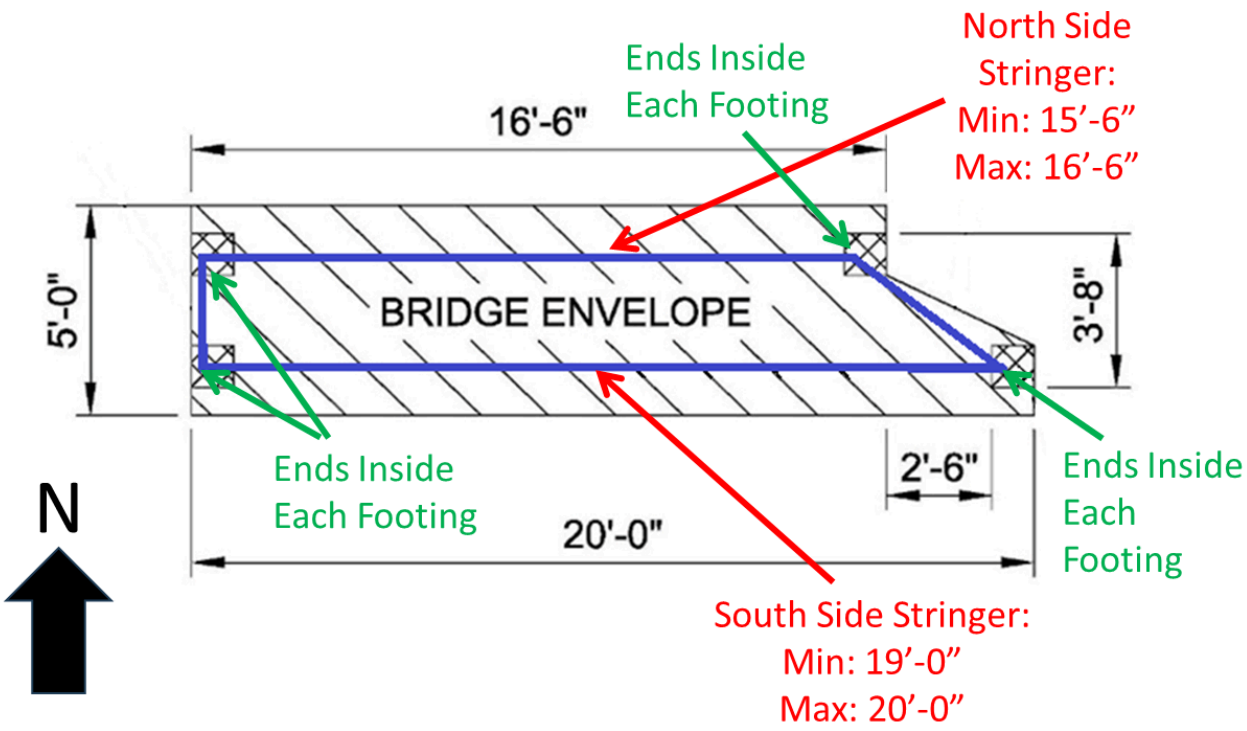

Figure 2: Plan view of the bridge showing viable stringer lengths that fit within the bridge envelope and end inside each footing. The members running between the north and south footings on each end of the bridge are not stringers.

9.3.7 The tops of the stringers shall be no more than 1'-11" and no less than 1'-7" above the surface of the rivers, ground, or footings at any location along the span.

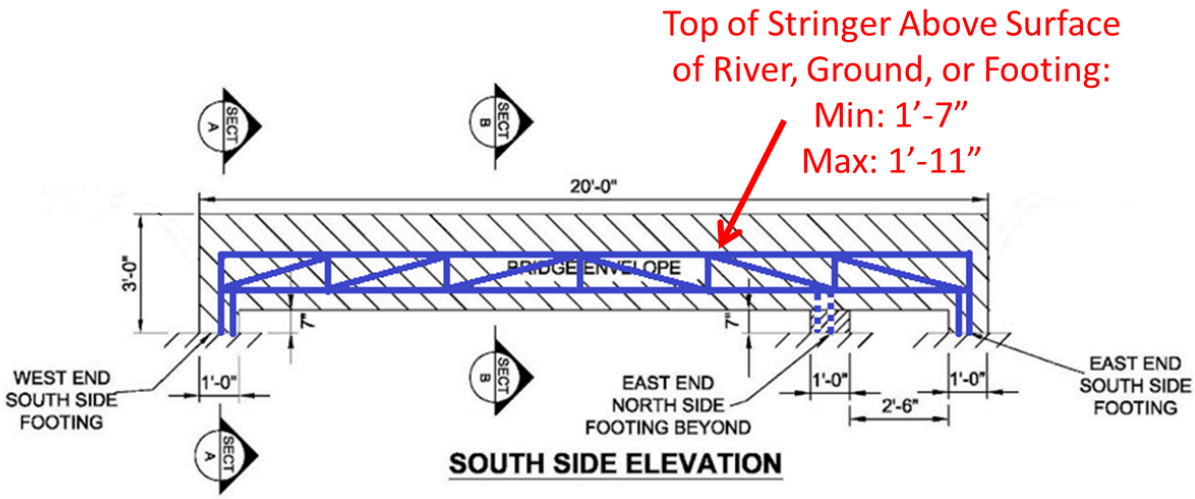

Figure 3: Acceptable location of the top of the stringer above the surface of the river, ground, and footings.

9.3.8 The bridge shall provide a straight, clear decking support location conforming to the Stringer Template detail on the Bridge Elevation Diagram. To verify compliance with 9.3.8.1 and 9.3.8.2, judges will slide the stringer template along the tops of the stringers while holding it plumb and perpendicular to the span of the bridge. The top of only the south side stringer will be in contact with the top of only one rabbet at the east end of the bridge after termination of the north side stringer. If the same obstruction causes a violation of both 9.3.8.1 and 9.3.8.2, the judge will record only the larger violation.

9.3.8.1 At no location along the full length of the stringers shall part of the bridge, including nuts and bolts, obstruct passage of the stringer template. The measurement for non-compliance is the distance an obstruction projects onto the stringer template, measured perpendicularly from the obstructed edge.

9.3.8.2 The tops of both stringers shall contact the tops of the two rabbets in the stringer template at every location along the length of stringers between the west end of the bridge and the termination of the north side stringer at the east end footing during the verification procedure described in 9.3.8. The measurement for non-compliance is the vertical distance between the top of a rabbet and the top of the corresponding stringer.

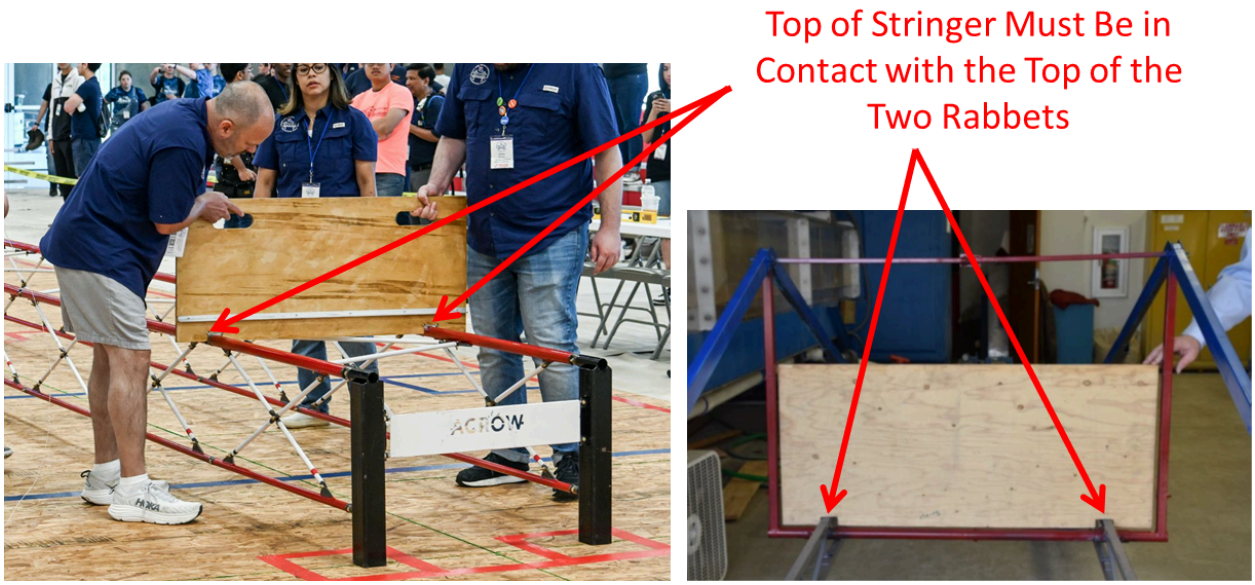

Figure 4: The top of the stringer must be in contact with the top of the two rabbets over the length of the stringers. The template shown is held plumb and perpendicular to the span of the bridge as it is slid down the length of the bridge. There should be no obstructions to its movement.

9.3.9 Anywhere along the top of a stringer within a member shall be free of transverse splits that extend the full width of the top of the stringer (penalty will be assessed based on the smallest separation in the longitudinal direction), protrusions, and abrupt changes in elevation or slope.

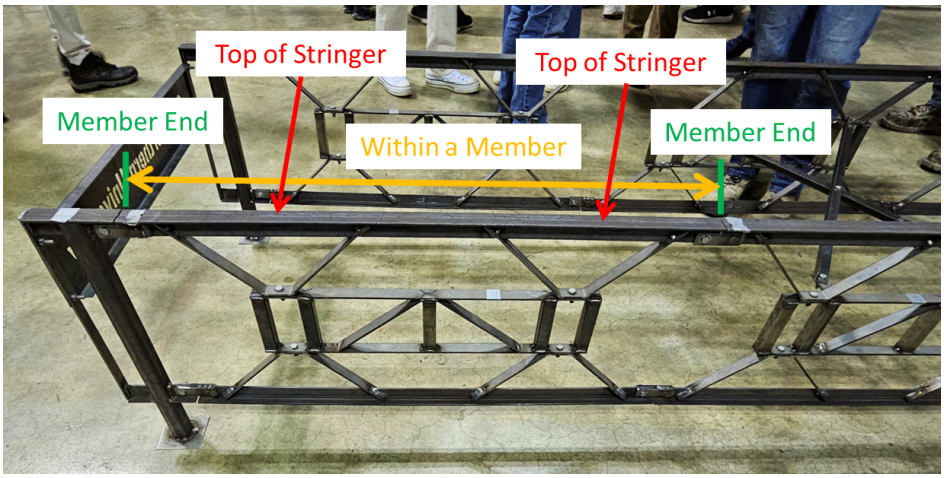

Figure 5: Sub-Section 9.3.9 only refers to splits, protrusions, and abrupt changes in elevation or slope within a member. It does not include how the top surface of a stringer transitions between members.

9.3.10 The smallest horizontal separation at the top of a stringer in the longitudinal direction where adjacent members that comprise the stringer meet shall not exceed 1/4" and the maximum allowable elevation change along the top of a stringer where adjacent members that comprise a stringer meet is 1/8".

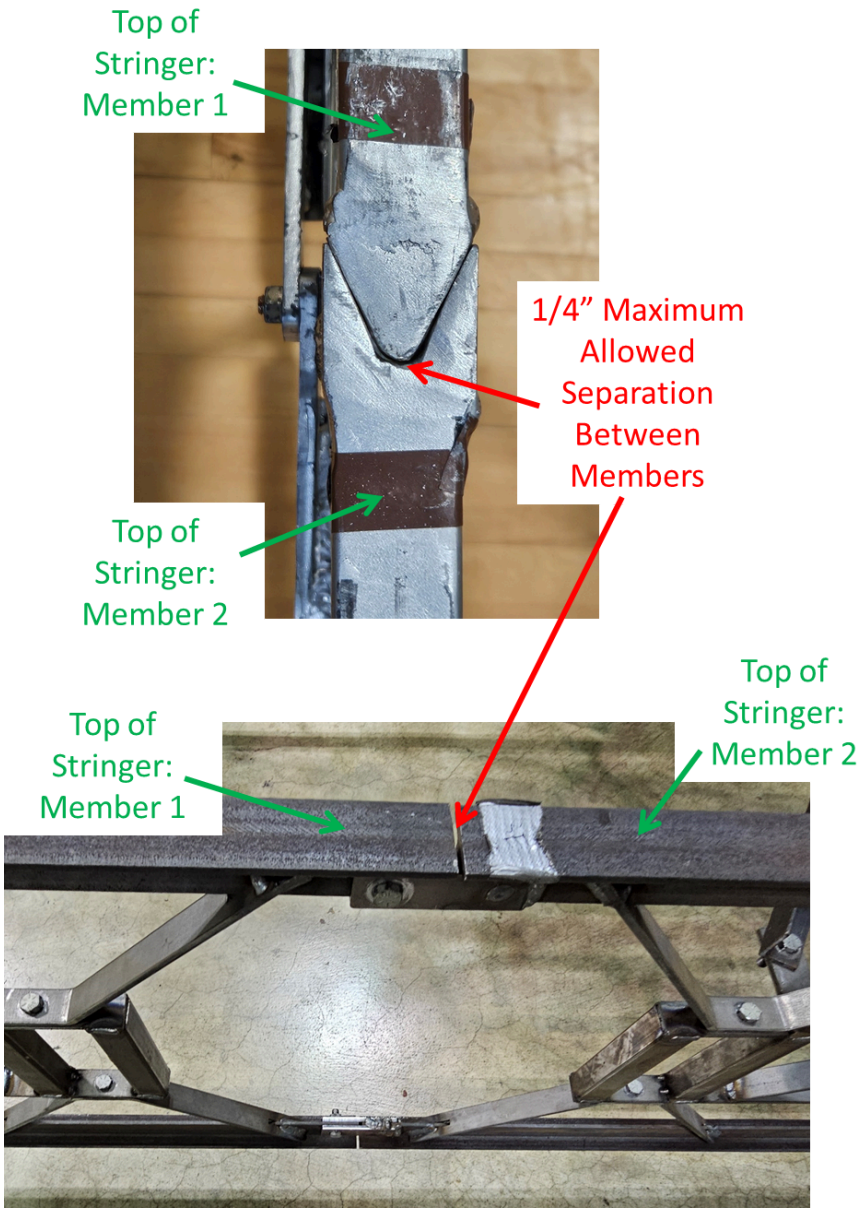

Figure 6: Sub-Section 9.3.10 refers to separation and elevation changes between members at the top of the stringer. The pictures show the top stringer surface for two members, where the transition between members along the top of the stringer is within the maximum separation requirement.

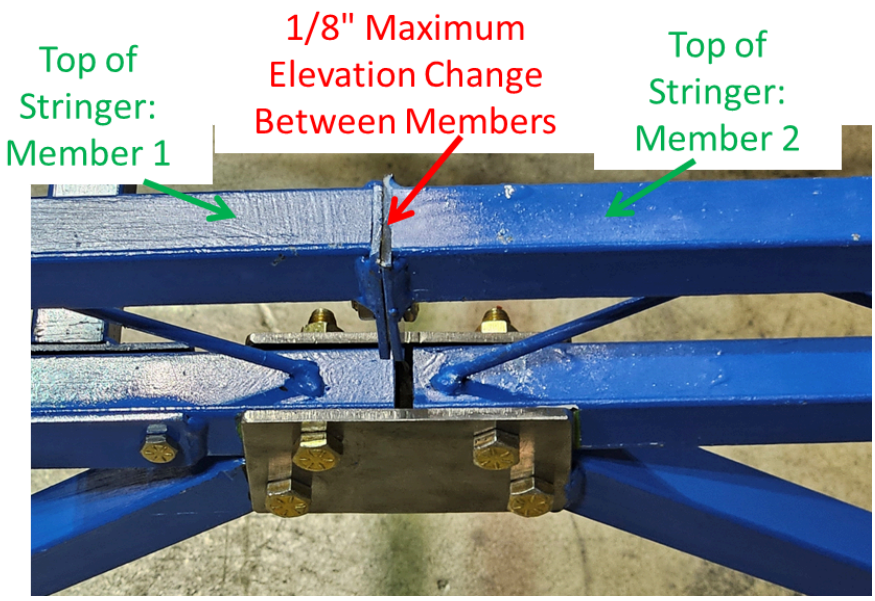

Figure 7: Sub-Section 9.3.10 refers to separation and elevation changes between members at the top of the stringer. The pictures show the top stringer surface for two members, where the elevation change between members along the top of the stringer is within the maximum allowed.