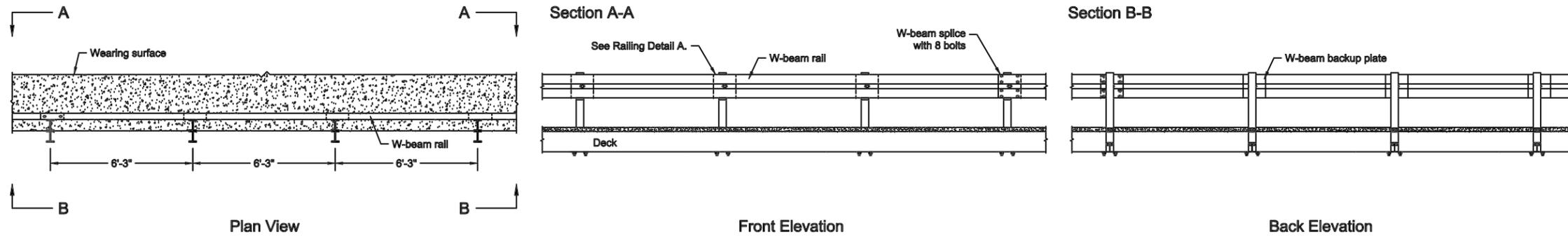


## General Configuration



## Design

1. This bridge rail was successfully crash tested to the requirements for Test Level 1 (TL-1), as outlined in NCHRP Report 350. This rail is adaptable to longitudinal stress-laminated, spike-laminated, nail-laminated, and glued-laminated (glulam) timber decks that are 10 in. or greater in actual thickness. For additional information, refer to Top-Mounted W-beam Bridge Railing for Longitudinal Wood Decks Located on Low-Volume Roads (Faller and others 1996a).

2. Height of the bridge rail shall be 27-3/4 in. above the traveled way (top of wearing surface or top of bridge deck if a wearing surface is omitted), but not greater than 29-3/4 in. above the bridge deck.

3. Bridge railing shall be provided with back-up plates (RWB01a) at each post as specified in the AASHTO-AGC-ARTBA (1995) Guide to Standardized Highway Barrier Hardware. Back-up plates are not required where a rail splice occurs.

4. Railing shall include a strong-post W-beam approach guardrail (SGR04a-b) and an appropriate end terminal as outlined in the AASHTO-AGC-ARTBA Guide to Standardized Highway Barrier Hardware.

## Materials

5. W-beam rail, rail attachment splice bolts, and spacer bolts shall comply with the requirements of AASHTO (1995) M180. Railing shall be Class A (0.105-in. nominal base metal thickness).

6. Steel plates and shapes shall comply with the requirements of ASTM A36.

7. Unless otherwise noted, bolts and lag screws shall comply with the requirements of ASTM (1998) A307.

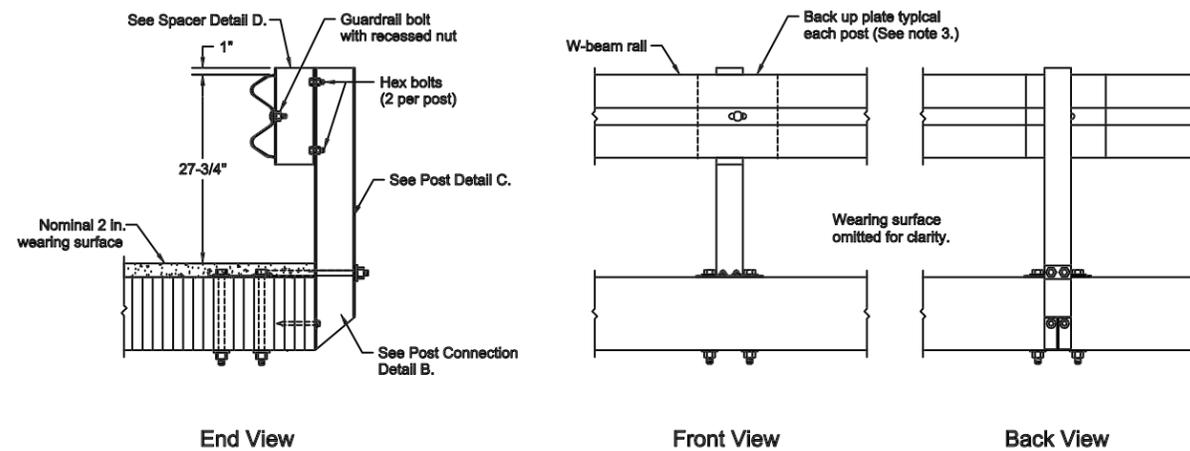
8. All steel components and fasteners shall be galvanized in accordance with AASHTO M111 or M232 or shall otherwise be provided with adequate corrosion protection.

## Fabrication and Construction

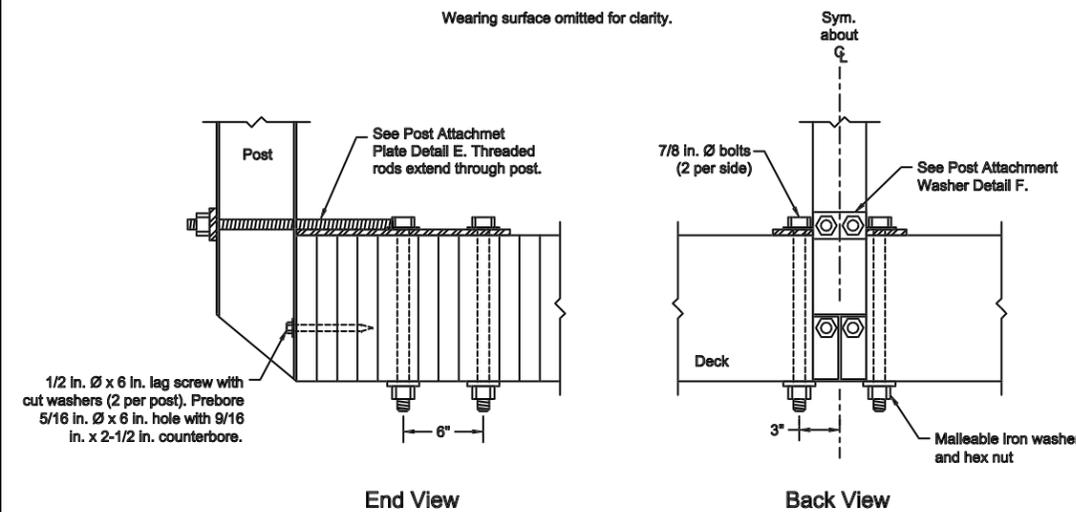
9. To the extent possible, all wood shall be cut, drilled, and completely fabricated prior to pressure treatment with preservatives. When field fabrication of wood is required or if wood is damaged, all cuts, bore holes, and damage shall be immediately treated with wood preservative in accordance with AASHTO M133.

10. Unless noted, malleable iron washers shall be provided under bolt heads and under nuts that are in contact with wood. When the size and strength of the head are sufficient to develop connection strength without wood crushing, washers may be omitted under heads of dome-head timber bolts.

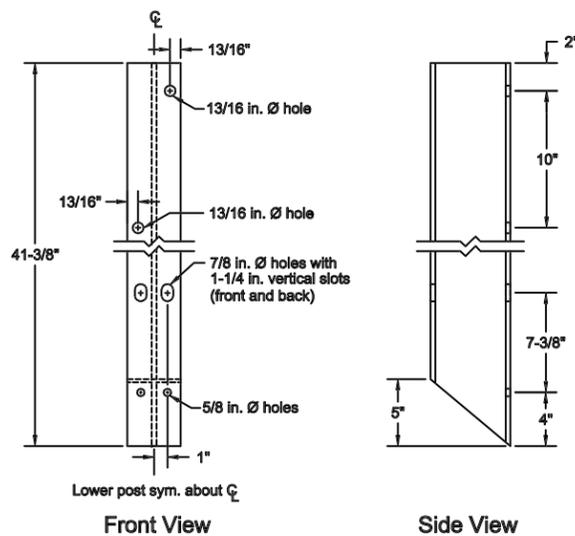
## A Railing Details



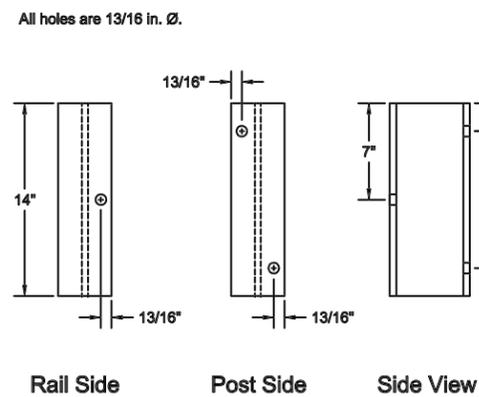
## B Post Connection



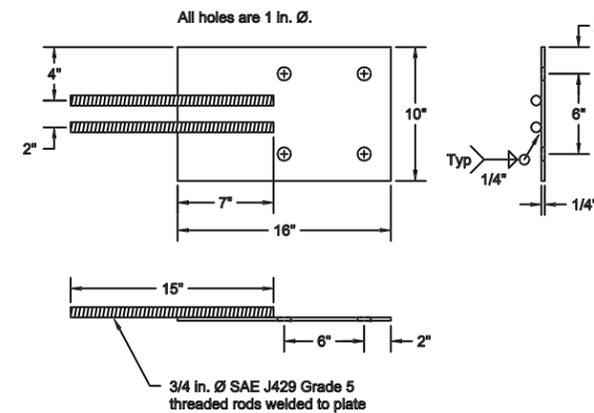
## C W6x9 Steel Post



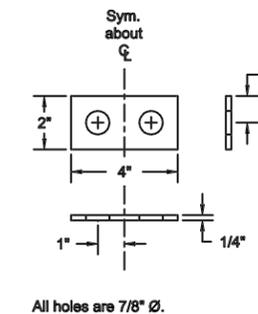
## D W6x9 Steel Spacer



## E Post Attachment Plate



## F Post Attachment Washer



The bridge railings depicted on these drawings were developed and crash tested under a cooperative research agreement between the Midwest Roadside Safety Facility of the University of Nebraska-Lincoln and the USDA Forest Service, Forest Products Laboratory.



# Crash-Tested Bridge Rails for Longitudinal Wood Decks on Low-Volume Roads

Top Mounted Railing  
NCHRP 350 Test Level 1 (TL-1)

August 1998

Sheet 1 of 1