9.1a.12.3 Required Interface Shear Reinforcement

For cast-in-place concrete slabs placed on clean concrete girder surface intentionally roughened, $c = 0.28$ ksi

The actual contact width, $b_v$, between the slab and the beam is 42 in.

For the design of vertical shear reinforcement, a No. 4 double-leg bar at 12-in. spacing is provided from the beam extending into the deck. Therefore, $A_{vf} = 0.40$ in.$^2$/ft

However, LRFD Article 5.8.4.4 states that the minimum reinforcement need not exceed the amount needed to resist $1.33V_{hi}/\phi$ as determined using Eq. 5.8.4.1-3.

9.1a.13 Minimum Longitudinal Reinforcement Requirement

Longitudinal reinforcement should be proportioned so that at each section the following equation is satisfied:

$$A_{ps}f_{ps} + A_s f_y \geq \frac{M_u}{d_v \phi_f} + 0.5 \frac{N_u}{\phi_e} + \left(\frac{V_u}{\phi_e} - V_{ip} - 0.5V_s\right) \cot \theta$$

where

- $A_s$ = area of nonprestressed tension reinforcement, in.$^2$
- $f_y$ = specified yield strength of reinforcing bars, ksi

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