

CODE

COMMENTARY

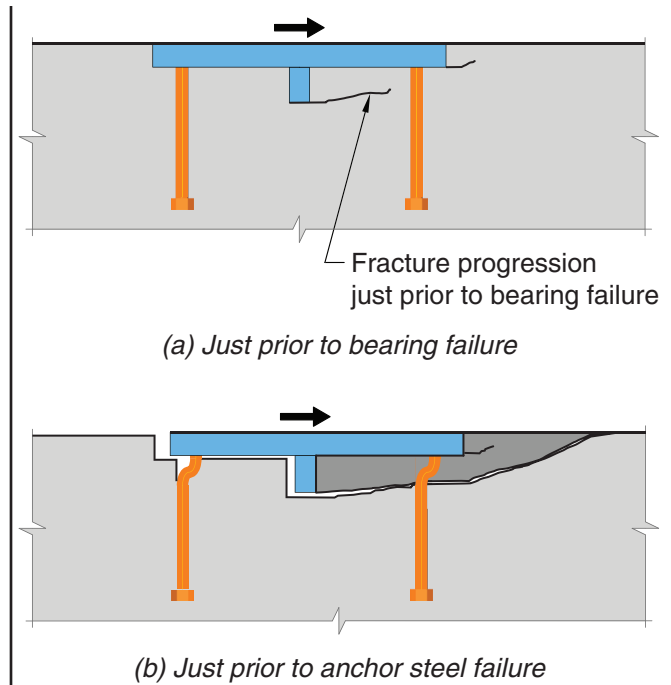


Fig. R17.11.1.1b—Bearing failure and subsequent anchor steel failure for embedded plate with shear lug (if concrete breakout is not applicable)

17.11.1.1.2 A minimum of four anchors shall be provided that satisfy the requirements of Chapter 17 with the exception of the requirements of 17.5.1.2(f), (g), and (h) and the corresponding requirements of Table 17.5.2 for steel strength of anchors in shear, concrete breakout strength of anchors in shear, and concrete pryout strength of anchors in shear.

17.11.1.1.3 For anchors welded to the attachment base plate, tension and shear interaction requirements of 17.8 shall include a portion of the total shear on the anchor.

R17.11.1.1.3 Although neglected in the bearing strength evaluation in 17.11.2, welded anchors resist a portion of the shear load because they displace the same as the shear lug. The portion of the applied shear, V_u , that each anchor carries, $V_{ua,i}$, is given by

$$V_{ua,i} = V_u \left(\frac{2d_a^2}{A_{ef,sl} + n2d_a^2} \right)$$

The effective bearing area of an anchor is assumed to be the diameter of the anchor multiplied by an effective bearing depth of twice its diameter (Cook and Michler 2017). The bearing reaction on the anchor is not large enough to fail the anchor in shear alone but does need to be considered in tension and shear interaction for steel failure (refer to 17.8).

17.11.1.1.4 Bearing strength in shear shall satisfy $\phi V_{brg,sl} \geq V_u$ with $\phi = 0.65$.

17.11.1.1.5 Nominal bearing strength in shear, $V_{brg,sl}$, shall be determined by 17.11.2.