

CODE

COMMENTARY

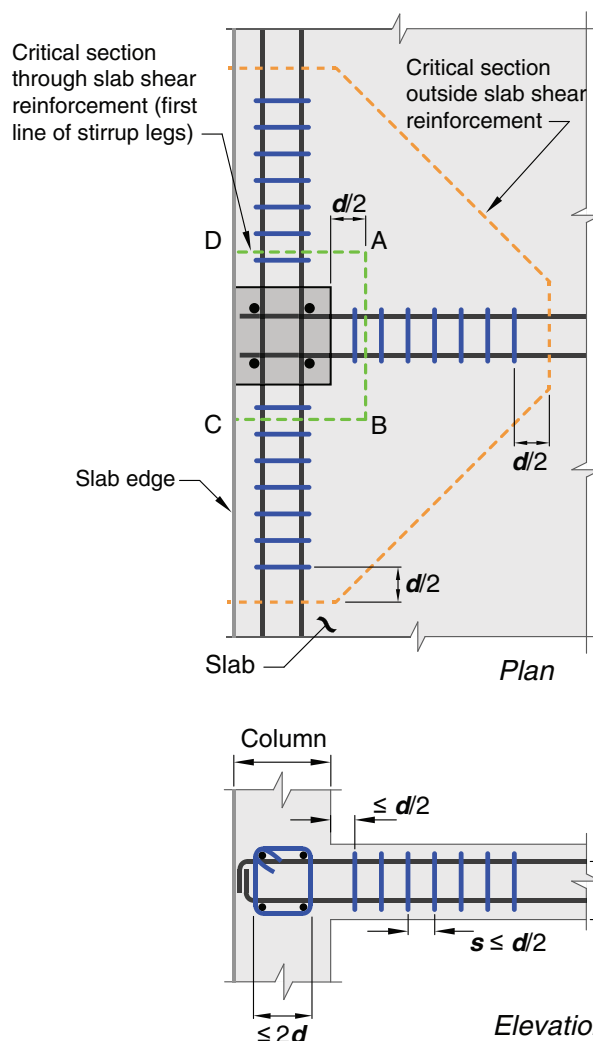


Fig. R8.7.6(e)—Arrangement of stirrup shear reinforcement, edge column.

8.7.7 Shear reinforcement – headed studs

8.7.7.1 Headed shear stud reinforcement shall be permitted if placed perpendicular to the plane of the slab.

8.7.7.1.1 The overall height of the shear stud assembly shall be at least the thickness of the slab minus the sum of (a) through (c):

- (a) Concrete cover on the top flexural reinforcement
- (b) Concrete cover on the base rail
- (c) One-half the bar diameter of the flexural tension reinforcement

R8.7.7 Shear reinforcement – headed studs

Using headed stud assemblies as shear reinforcement in slabs requires specifying the stud shank diameter, the spacing of the studs, and the height of the assemblies for the particular applications.

Tests (ACI 421.1R) show that vertical studs mechanically anchored as close as possible to the top and bottom of slabs are effective in resisting punching shear. The bounds of the overall specified height achieve this objective while providing a reasonable tolerance in specifying that height, as shown in Fig. R20.5.1.3.5.

Compared with a leg of a stirrup having bends at the ends, a stud head exhibits smaller slip and, thus, results in smaller shear crack widths. The improved performance results in increased limits for shear strength and spacing between peripheral lines of headed shear stud reinforcement. Typical arrangements of headed shear stud reinforcement are shown in Fig. R8.7.7. The critical section beyond the shear reinforcement