

For example, a straight pull with trade size 2 conduit would require a 16-inch-long pull box ( $8 \times 2 \text{ in.} = 16 \text{ in.}$ ). Although 16 inches is the required minimum length, a longer pull box might be desired for ease in handling conductors.

**(2) Angle or U Pulls, or Splices.** Where splices or where angle or U pulls are made, the distance between each raceway entry inside the box or conduit body and the opposite wall of the box or conduit body shall not be less than six times the metric designator (trade size) of the largest raceway in a row. This distance shall be increased for additional entries by the amount of the sum of the diameters of all other raceway entries in the same row on the same wall of the box. Each row shall be calculated individually, and the single row that provides the maximum distance shall be used.

*Exception: Where a raceway or cable entry is in the wall of a box or conduit body opposite a removable cover, the distance from that wall to the cover shall be permitted to comply with the distance required for one wire per terminal in Table 312.6(A).*

The distance between raceway entries enclosing the same conductor shall not be less than six times the metric designator (trade size) of the larger raceway.

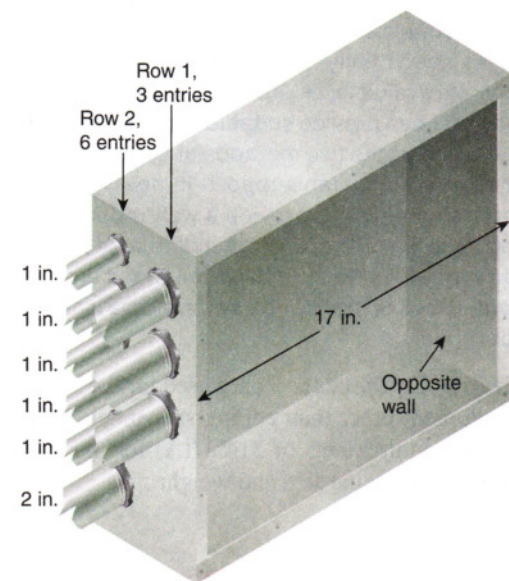
When transposing cable size into raceway size in 314.28(A)(1) and (A)(2), the minimum metric designator (trade size) raceway required for the number and size of conductors in the cable shall be used.

The “six times” rule of 314.28(A)(2) applies to straight-through conduit entries if the conductors are spliced as part of the straight-through wiring. Adjusting the example in the preceding paragraph of trade size 2 conduit, if the conductors were spliced within the enclosure, the required pull box dimension could be reduced to a 12-inch-long pull box ( $6 \times 2 \text{ in.} = 12 \text{ in.}$ ).

In boxes where splices, angle pulls, or U pulls are made, the distance between each raceway entry inside the box and the opposite wall of the box must be not less than six times the trade diameter of the largest raceway, plus the distance for additional raceway entries (see Exhibit 314.10). The additional distance is calculated by adding the diameters of the other raceway entries in one row on the same side of the box. Raceway entries enclosing the same conductor are required to have a minimum separation between them (see Exhibit 314.11). The intent is to provide adequate space for the conductor to make the bend.

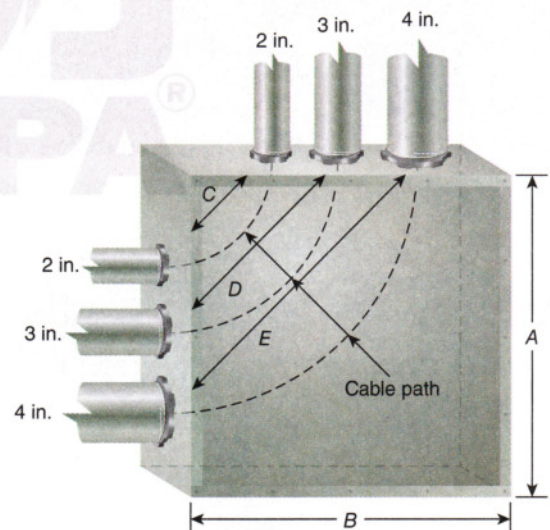
**(3) Smaller Dimensions.** Listed boxes or listed conduit bodies of dimensions less than those required in 314.28(A)(1) and (A)(2) shall be permitted for installations of combinations of conductors that are less than the maximum conduit or tubing fill (of conduits or tubing being used) permitted by Table 1 of Chapter 9.

Listed conduit bodies of dimensions less than those required in 314.28(A)(2), and having a radius of the curve to the centerline not less than that indicated in Table 2 of Chapter 9 for one-shot and full-shoe benders, shall be permitted for installations of combinations of conductors permitted by Table 1 of Chapter 9. These conduit bodies shall be marked to



$6 \times 2 \text{ in. (trade diameter of largest raceway)} = 12 \text{ in.}$   
 $12 \text{ in.} + 5 \text{ in. (sum of diameters of other entries, row 2 only)} = 17 \text{ in. (min. required from each entry to opposite wall)}$

**EXHIBIT 314.10** An example showing calculations for splices, angle pulls, or U pulls.



$A = (6 \times 4 \text{ in.}) + 2 \text{ in.} + 3 \text{ in.} = 29 \text{ in. min.}$   
 $B = (6 \times 4 \text{ in.}) + 2 \text{ in.} + 3 \text{ in.} = 29 \text{ in. min.}$   
 $C = 6 \times 2 \text{ in.} = 12 \text{ in. min. required between raceways enclosing the same conductor}$   
 $D = 6 \times 3 \text{ in.} = 18 \text{ in. min. required between raceways enclosing the same conductor}$   
 $E = 6 \times 4 \text{ in.} = 24 \text{ in. min. required between raceways enclosing the same conductor}$

**EXHIBIT 314.11** An example showing calculations for raceways enclosing the same conductor.