

2308.10.4 Ceiling joist and rafter framing. Rafters shall be framed directly opposite each other at the ridge. There shall be a ridge board at least 1-inch (25 mm) nominal thickness at ridges and not less in depth than the cut end of the rafter. At valleys and hips, there shall be a single valley or hip rafter not less than 2-inch (51 mm) nominal thickness and not less in depth than the cut end of the rafter.

2308.10.4.1 Ceiling joist and rafter connections. Ceiling joists and rafters shall be nailed to each other and the assembly shall be nailed to the top wall plate in accordance with Tables 2304.9.1 and 2308.10.1. Ceiling joists shall be continuous or securely joined where they meet over interior partitions and fastened to adjacent rafters in accordance with Tables 2308.10.4.1 and 2304.9.1 to provide a continuous rafter tie across the building where such joists are parallel to the rafters. Ceiling joists shall have a bearing surface of not less than 1½ inches (38 mm) on the top plate at each end.

Where ceiling joists are not parallel to rafters, an equivalent rafter tie shall be installed in a manner to provide a continuous tie across the building, at a spacing of not more than 4 feet (1219 mm) o.c. The connections shall be in accordance with Tables 2308.10.4.1 and 2304.9.1, or connections of equivalent capacities shall be provided. Where ceiling joists or rafter ties are not provided at the top of the rafter support walls, the ridge formed by these rafters shall also be supported by a girder conforming to Section 2308.4.

Rafter ties shall be spaced not more than 4 feet (1219 mm) o.c. Rafter tie connections shall be based on the equivalent rafter spacing in Table 2308.10.4.1. Where rafter ties are spaced at 32 inches (813 mm) o.c., the number of 16d common nails shall be two times the number specified for rafters spaced 16 inches (406 mm) o.c., with a minimum of four 16d common nails. Where rafter ties are spaced at 48 inches (1219 mm) o.c., the number of 16d common nails shall be two times the number specified for rafters spaced 24 inches (610 mm) o.c., with a minimum of six 16d common nails. Rafter/ceiling joist connections and rafter/tie connections shall be of sufficient size and number to prevent splitting from nailing.

TABLE 2308.10.4.1 RAFTER TIE CONNECTIONS

| RAFTER SLOPE | TIE SPACING (inches) | Roof span(feet) | | | | | | | | | | | |
|---|----------------------------|-----------------|----|----|----|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | 12 | 20 | 28 | 36 | | | | | | | | |
| Required number of 16d common (3 ¹ / ₂ " x 0.162") nails ^{a, b} per connection ^{c, d, e, f} | | | | | | | | | | | | | |
| 3:12 | 12 | 4 | 6 | 8 | 10 | | | | | | | | |
| | 16 | 5 | 7 | 10 | 13 | | | | | | | | |
| | 24 | 7 | 11 | 15 | 19 | | | | | | | | |
| | 32 | 10 | 14 | 19 | 25 | | | | | | | | |
| | 48 | 14 | 21 | 29 | 37 | | | | | | | | |