



BLOCKING FOR FLOORS AND DECKS

Timber blocking or herringbone strutting is intended to provide lateral support to floor joists by providing stiffening to the joists and transferring some of the load to adjacent joists.

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NZS 3604: 1999 *Timber framed buildings*, section 7.1.2 sets out specific location requirements for timber blocking or strutting in floor framing. For ground floor joists, blocking is generally required along the lines of subfloor horizontal support, i.e. bracing lines. For other floor joists, blocking is required along the line of each braced wall in the storey below. Blocking at the joist ends must be between the edge pair of joists, and then at 1.8 m centres maximum (see Figure 1). Alternatively, a continuous 25 mm wide boundary joist, the same depth as the floor joists, can be used to provide that lateral support at the joist ends. In addition, clause 7.1.2.3 requires continuous timber blocking or strutting at mid-span when the joist span is greater than 2.5 m *and* the joist depth is four or more times its thickness.

Blocking between joists may be achieved by:

- 40 mm wide, full joist depth, solid timber blocking cut between adjacent joists, or
- pairs of 40 x 40 mm diagonal timber herringbone struts fitted between the top and bottom edges of the joists in opposite directions between adjacent joists (see Figure 2).

Continuous solid blocking may be offset 50 mm for easier fixing.

If more than 150 mm from a joist, a non-loadbearing wall must be supported by 90 x 45 mm solid blocking cut between the joists with the top edge flush with the top edge of the joists (see Figure 3). Blocking is required at each end of the wall, at either side of door openings, and at 1.2 m centres maximum.

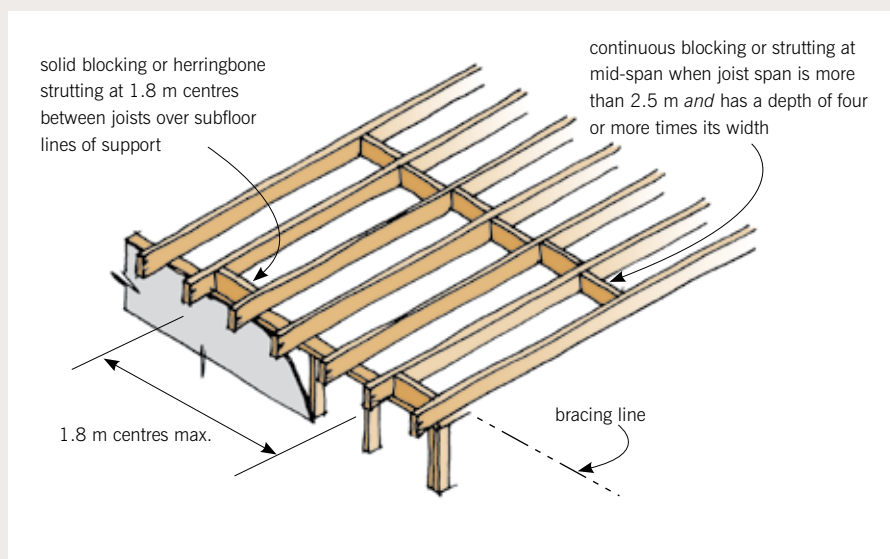


Figure 1: Blocking or strutting location.

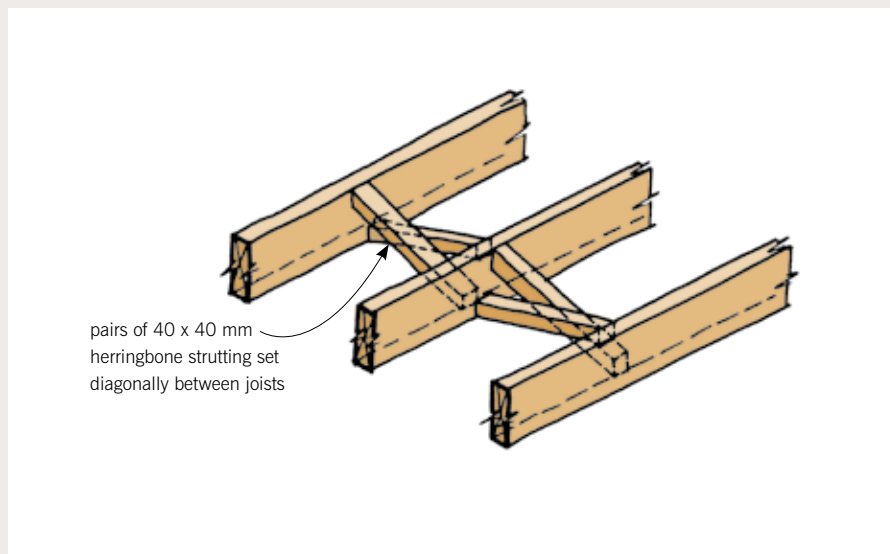


Figure 2: Herringbone strutting.

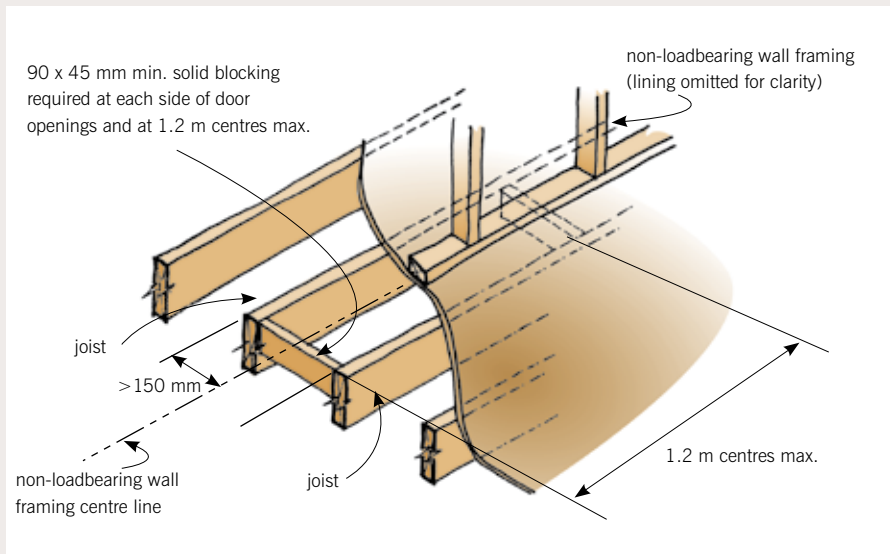


Figure 3: Support to non-loadbearing walls.

New timber grades increase spans

Treatment for timber blocking or strutting must be the same as for the joist timber in accordance with NZS 3602: 2003 *Timber and wood-based products for use in building*.

Amendment 2 to NZS 3604, introduced in May 2006, incorporates additional tables to accommodate the new timber grades defined in NZS 3603: 1993 *Timber structures standard: Amendment 4*. Under the re-grading, the strength and stiffness of No. 1 framing timber has been down-rated, and new verified grades of timber have been introduced that, when used in dry service, are able to achieve greater spans than previously permitted.

Blocking not always required

The requirement for continuous blocking or strutting at mid-span has not changed from the earlier version of NZS 3604. Now, however from Table 7.1, 140 x 45 mm timber of grades VSG 8 and MSG 8 (dry service), with a maximum spacing of 400 mm centres, may span up to 2.7 m, and grades VSG 10 and MSG 10 (dry service), with a maximum spacing of 400 mm centres, may span up to 2.9 m. For these sizes, the depth of the joist (140 mm) is not four times or greater its thickness (45 mm) so, under clause 7.1.2.3, blocking is not required.

Although limited in its application, and generally only applicable for ground floor

framing, there is some advantage to keeping bearer centres such that 140 x 45 mm joists can be used.

Solid blocking versus herringbone strutting

Solid blocking is more commonly used than herringbone strutting primarily because it is quicker to install. However, one advantage of herringbone strutting is that it is possible to tighten up gaps that occur in the blocking when timber shrinks.

If joists are installed wet, solid blocking that was originally tightly fitted will not be tight after shrinkage has occurred. If herringbone strutting is fitted, this can be tightened from the underside after the timber has dried in situ, and before linings are installed. If solid blocking is used, it should be fitted as late as possible in the construction process and with dry timber when joists have had more time to dry and shrinkage is reduced or eliminated.

Other benefits of herringbone strutting include the ability to run services without the need to cut or drill holes through solid timber, reduced timber waste as shorter offcuts may be able to be used (as long as minimum treatment levels are maintained), and when left exposed on the underside, it is more aesthetically interesting than solid blocking. ♦