



Lintel fixing



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THERE SEEMS TO BE SOME CONFUSION AROUND SELECTING LINTELS AND DECIDING IF UPLIFT FIXINGS ARE REQUIRED USING NZS 3604:2011 *TIMBER-FRAMED BUILDINGS* TABLE 8.14. SO GRAB YOUR COPY OF NZS 3604 AND WORK THROUGH THE STEPS.

BEFORE USING NZS 3604:2011 Table 8.14, you will need to know the:

- wind zone
- loaded dimension on the lintel (see NZS 3604:2011 section 1, Figures J, K and L)
- span of the lintel.

Generally, the loaded dimension of a lintel that is supporting a truss will be half the span of the truss.

NZS 3604:2011 does not cover girder truss loads, which will be greater than an ordinary truss. If a girder truss lands on a lintel, the lintel will require specific engineering design.

Lintel location

Using NZS 3604:2011 Figures 8.7 to 8.11, identify the lintel location in the building and then select the appropriate lintel from the table above the chosen figure. The lintel tables relate to all wind zones.

Only lintels that directly support trusses or roofs must be secured against uplift (clause 8.6.1.7), and not all of these require uplift fixings (see below).

Worked example 1

This example is a 2-storey construction but with the window opening in the upper level, so NZS 3604:2011 Figure 8.7 and Table 8.9 are chosen (see Figure 1). Only lintels from Figure 8.7 and Table 8.9 require uplift fixings because they are the only ones that relate to lintels that support a roof or truss.

Let's assume we have a window 2.5 m wide supporting a loaded dimension of 6 m and a light roof in a medium wind zone. Use these numbers in Table 8.9. Note there is no option for a 2.5 m span so choose the next larger span on that line, that is, 2.7.

Now read up the table to obtain the lintel size required, in this case, 240 x 90 mm. ➤

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Table 8.9 – Lintel supporting roof only for all wind zones – SG 8 (see figure 8.7)

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Loaded dimension* of lintel (m)	Maximum span for lintel sizes listed below (m)									
	width x thickness (mm)									
	90 x 70	90 x 90	140 x 70	140 x 90	190 x 70	190 x 90	240 x 70	240 x 90	290 x 70	290 x 90
2	1.2	1.4	2.0	2.1	2.7	2.9	3.4	3.6	4.0	4.2
3	1.1	1.2	1.7	1.9	2.4	2.6	3.0	3.3	3.7	3.9
4	1.0	1.1	1.5	1.8	2.1	2.4	2.7	3.1	3.2	3.7
6	0.8	1.0	1.3	1.6	1.8	2.1	2.2	2.7	2.7	3.3
2	1.0	1.0	1.5	1.6	2.1	2.3	2.6	2.9	3.2	3.5
3	0.9	0.9	1.4	1.5	1.9	2.0	2.4	2.6	2.9	3.1
4	0.8	0.9	1.3	1.4	1.7	1.9	2.2	2.4	2.6	2.9
6	0.7	0.8	1.1	1.2	1.5	1.7	1.9	2.1	2.3	2.6

* Loaded dimension is defined in figure 1.3.
NOTE – Members 70 mm and 90 mm thick may be substituted with built-up members sized and nailed in accordance with 2.4.4.7.

Figure 8.7 – Lintel supporting roof only (see 8.6.1.1 and table 8.9)

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Figure 1

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Are uplift fixings needed?

Now we have the lintel size, but does it require uplift fixings? To work this out, go to NZS 3604:2011 Table 8.14 and enter the same information – light roof, medium wind zone, loaded dimension of 6 m (see Figure 2).

In the relevant row, under the third column 'Uplift fixings not required, use fixings from table 8.19' is NA (not applicable). This means that this column is not applicable, it does not mean uplift fixings are not required.

We move to the fourth column 'Uplift fixings required, see 8.6.1.8 for fixings'. This indicates that the maximum span of a lintel in a medium wind zone supporting a loaded dimension of 6 m is 3.7 m. Our lintel is within that span (2.5 m) so it is within the scope of NZS 3604 and does require uplift fixings.

Clause 8.6.1.8 requires the lintel to be secured against uplift by being fixed at each end to the trimming stud, which in turn is attached to the floor framing as shown in Figure 8.12 or an alternative fixing of 7.5 kN capacity in tension along the line of the trimming stud.

Another example

An example that doesn't require uplift fixings in Table 8.14 would be: light roof, medium wind zone, loaded dimension 3 m and lintel span 1.8 m.

Using this information in Table 8.14 shows fixings from NZS 3604:2011 Table 8.19 should be used. This has the standard attachment requirements of trimming studs to lintels, studs to bottom plates and bottom plates to floor. In this case, no additional strapping is required. ◀

For more NZS 3604:2011 is available for purchase from www.standards.co.nz.

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Table 8.14 – Lintel fixing (see 8.6.1.8)

Wind zone	Loaded dimension of lintel (m)	Uplift fixings not required Use fixings from table 8.19	Uplift fixings required See 8.6.1.8 for fixings
(a) Light roof			
		Maximum lintel span for fixings above (m)	
Extra high	2	NA	3.5
	3	NA	2.6
	4	NA	2.0
Very high	2	NA	1.4
	3	NA	4.4
	4	NA	3.2
High	2	NA	2.5
	3	1.5	1.8
	4	NA	5.0
Medium	2	NA	4.3
	3	2.1	3.4
	4	1.8	2.4
Low	2	NA	5.0
	3	3.6	5.0
	4	2.6	5.0
(b) Heavy roof	2	1.4	5.0
	3	NA	5.0
	4	NA	5.0
Extra high	2	NA	4.0
	3	NA	2.9
	4	NA	2.3
Very high	2	NA	1.6
	3	1.3	5.2
	4	NA	3.8
High	2	NA	3.0
	3	2.1	2.1
	4	1.4	7.5
Medium	2	NA	5.5
	3	3.5	4.3
	4	2.6	3.0
Low	2	1.4	19.4
	3	6.9	9.8
	4	5.1	7.8
	2	2.8	5.4
	3	NA	•
	4	NA	•
	6	NA	10.6

NA Not applicable.
 • Table 8.19 fixings are satisfactory.
 NOTE – Fixings for lintel spans greater than those shown require specific engineering design.

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Figure 2

NZS 3604:2011 Table 8.14 Lintel fixing. Provided by Standards New Zealand under licence 001023.