LINTELS

When I began my engineering career, an old builder told me that the rule for lintels was ¾ inch depth per foot of span. Things have changed a bit since then…

By Roger Shelton, BRANZ Structural Engineer

NZS 3604: 1999 *Timber framed buildings* includes tables of lintels for three grades of timber, with two roof weights in a variety of applications. That is about 1,300 different options if my maths is correct! And most of them give lesser spans than the old rule of thumb, so maybe timber was stiffer and stronger in the old days.

Alternatives for over 4 m

Surely that array of options is enough for anyone. Unfortunately, because of the limited timber sizes commercially available, the maximum spans in the tables are generally less than 4 m. This is restricting for many design situations, such as double garage doors. As a result there are plenty of proprietary alternatives available to fill in the gaps although, for certainty of availability, many designers will opt for rolled steel sections.

Ingenious use of proprietary lintels

Proprietary lintels come in a wide range of configurations, with some ingenious ways to use the attributes of the materials. All must comply with the same engineering parameters of strength and deflection as the generic timber or steel lintels. These parameters, and the criteria used for NZS 3604, are set out in BRANZ Study Report 168, available for free download from the Bookshop on the BRANZ website (www.branz.co.nz).

Where a proprietary lintel span is greater than the NZS 3604 tables, the NZS 3604 solutions for gravity support and hold-down against wind uplift will no longer be sufficient. This information is part of the lintel design package, and should be included in the manufacturer's technical literature. Many do include this information, but in cases where it is absent a structural engineer will have to be engaged to provide the necessary details.

New on-line guide in 2008

Over the years BRANZ has produced a guide on lintels called, surprise surprise, *BRANZ Guide to lintels and beams.* It was last published in 1997, and was being updated when the new timber grading regime was first mooted. This stopped progress but work is due to start soon on a new on-line version, which should be available early next year.