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# Using the right stud height

NZS 3604:2011 *Timber-framed buildings* does not define stud length or height. This is creating some confusion, especially when continuous studs for chimneys or parapets pass intersecting framing. BRANZ has some advice.

**STUD SIZES** in Tables 8.2 and 8.3 of NZS 3604:2011 are given for various wind zones and stud lengths or heights, but nowhere is the stud length or height defined.

Should the length entered into the table be the full distance between top and bottom plates or only to the intersecting framing? This is particularly important when studs are continuous past an intersecting element such as an attached floor or roof.

## Stud has two roles

To clarify this question, we must look at what a stud is and its function in the building (Figure 1). As the main vertical member in the wall frame, the stud has two primary roles:

- To support vertical (or gravity) loads from the construction above. These loadbearing studs are carrying axial loads.
- To provide a backing for the cladding and lining. These loadbearing and non-loadbearing studs are resisting face loads, mainly from winds and earthquakes, and providing general robustness against service loads such as doors slamming and supporting shelves and other fixtures.

For both these parameters, the unsupported height is a key consideration.

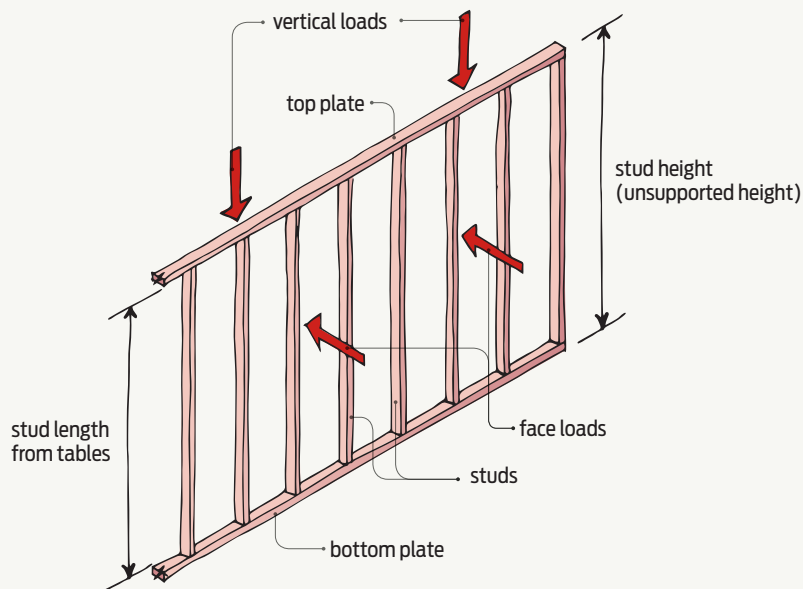


Figure 1 Wall framing.

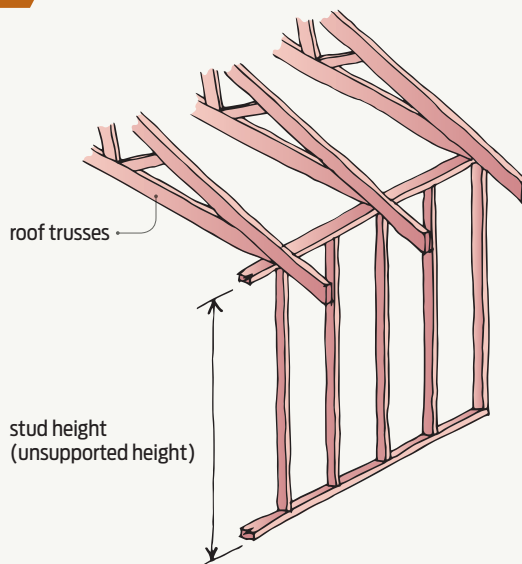


Figure 2 Wall and roof framing.

### Define the lateral support

So, the stud's height between lateral supports is important in providing sufficient strength and stiffness to ensure the frame's structural performance is satisfactory (Figure 2). The key to the question, then, is to be clear on what constitutes a lateral support.

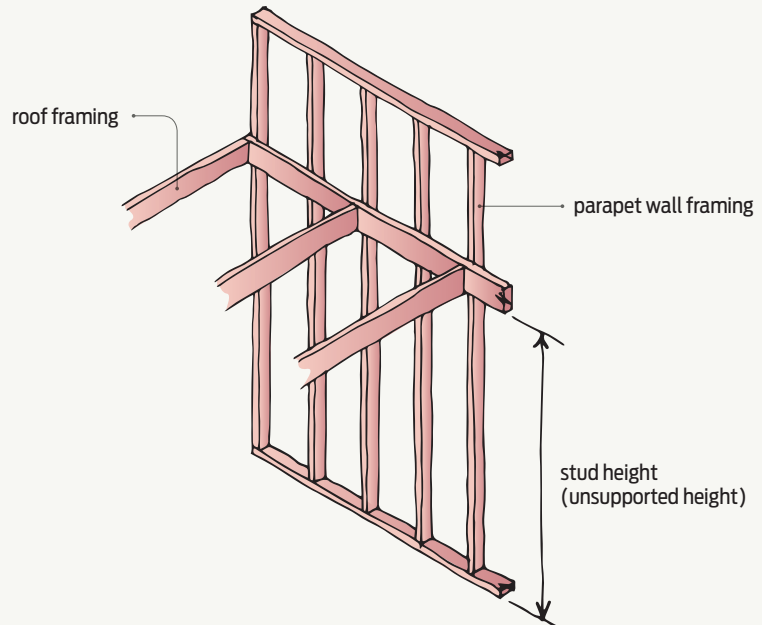
In today's typical platform framing, this is the top and bottom plates, supported laterally by floor and ceiling framing.

### Height to intersecting framing

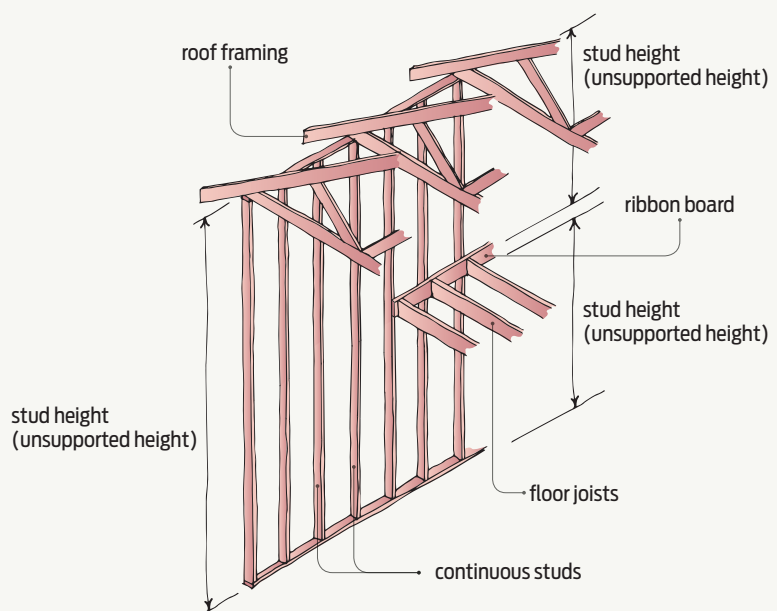
However, where there is framing attached to the side of continuous studs, this framing may provide adequate support. This often occurs where the studs are extended up:

- to form a parapet (Figure 3)
- to form a 2-storey chimney forming part of a wall
- in a stairwell (Figure 4).

In this situation, the **stud length** to be entered into the selection tables is the height to intersecting framing as shown, less the plate thickness for complete accuracy. ◀



**Figure 3** Parapet wall framing.



**Figure 4** 2-storey continuous wall framing (for chimney or stairwell).