

INFORMATION SHEET

STRUCTURAL CONNECTIONS



NAILS

FASTENER SELECTION GUIDE

The information provided below has been taken from the New Zealand Timber Design Guide 2007, published by the Timber Industry Federation and edited by Professor A H Buchanan. To purchase a copy of the Timber Design Guide, visit www.nztif.co.nz

Table 1: Fastener selection guide

Type of joint	Fastener type	Size (mm)	Penetration length	Head	Shank	Coating
Diaphragm	Gun nail	2.9 x 50 3.3 x 75 3.3 x 90 3.3 x 100	10d min	Jolt, flat	Smooth	Bright, zinc coated, HD galvanised
– elastic	Gun nail	2.9 x 50 3.3 x 75 3.3 x 90	10d min	Flat	Smooth	Bright, zinc coated, HD galv
– steel side plate	Hand-driven nails	3.15 x 45 ¹ 3.55 x 45 ¹ 4.00 x 60 ¹	10d min	Flat	Smooth	HD galv
General framing – side grain – end grain – skew nail	Gun nail Hand-driven nails	100 x 4.0	10d min	Flat, jolt	Smooth	Bright, zinc coated, HD galv
Withdrawal		any	Design	Flat ²	Twisted, spiral rolled, annular grooved	HD galv

Notes: 1 = Nails available on special order.
2 = Special nail head types available for use on exterior cladding systems to ensure watertightness.
d = nail diameter.
HD galv = hot dip galvanised.

To prevent buckling, the ratio of the nail length to nail diameter usually varies from 15 to 35 for common steel wire nails. Gun nails usually have a larger length-to-nail shank diameter than hand-driven nails because they are less likely to buckle during driving.