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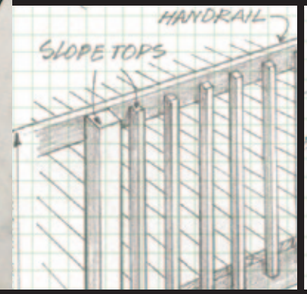
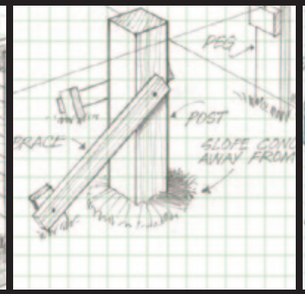
09/10

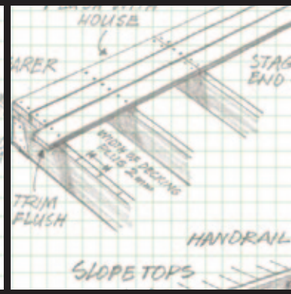
How to build a timber deck

HOW TO GUIDE

A timber deck has many functional uses and can be an asset to any home. A deck can aid the indoor/outdoor flow and becomes an extension of the home in many cases. Your deck dimensions may differ from our design, however construction techniques usually remain the same so can be applied to your deck.







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STEP 1: SITE LAYOUT

- Mark out the position of the deck relative to the house (fig 1).
- The stepdown from door level should be no less than 50mm to prevent rain entry. If it is to be a slatted timber deck, no stepdown is required, provided that there is a gap between the first slat and the house.
- Mark the length of your deck against your home and set out deck levels.
- Ensuring your nails are set at right angles to the house, drive a 75mm flathead nail at the end points of the deck against the house.
- Measure the width of deck from the house, allowing 600mm for profiles.
- Attach string lines to set out nails on the house and stretch to the corner profiles or pegs. Using a line level, position string lines to ascertain deck height.

MATERIALS REQUIRED FOR CORNER PROFILES

50 x 50mm or 75 x 25mm box grade timber for pegs.
100 x 25mm box grade timber for batter boards.
75mm nails for constructing profiles and fixing straight lines.

- Measure string line A-B 900mm from house.
- Measure string line A-C 1200mm from house.
- Adjust string line B-C until distance is 1500mm.

This ensures string line is positioned at right angles to home – complete for each corner.

STEP 2: POSITIONING POSTS (FIG 2 & 3)

- Dig post holes at each corner and one at the centre.
- Hole depth should be 450mm deep and 350mm in diameter, or until you hit firm ground.
- Use 125 x 125mm house piles to provide superior support.
- Suspend piles 100mm above the holes bottom from a support across the pile hole at ground level and a brace from near the top to a ground peg.
- Pour concrete around posts up to 150mm from ground level.
- Leave to harden overnight and backfill to top. Leave 2 days before constructing the remainder of the deck.

STEP 3: TRIMMING POSTS (FIG 3)

- Measure the thickness of decking and the bearer depth.
- Add 10mm per metre of deck length from house.
- This will slightly slope the deck away from house to assist with shedding of rainwater.
- From the string line, measure down the total distance arrived at above and saw off posts/piles at this height.
- Ensure posts/pile tops are level with each other.
- Fix 2 bearers together as a double bearer and fix to the posts/piles using nail plates.

STEP 4: POSITIONING JOISTS

- Use coach screws (with 50 x 50 x 3mm washers under the heads) to connect the deck bearer to existing joist/bearer, (expanding masonry anchors for masonary cladding walls) – where possible bolt through the existing bearer in preference to using a coach screw.
- Ensure there is 12mm gap between cladding and deck bearer by bolting through a packer (fig 4).

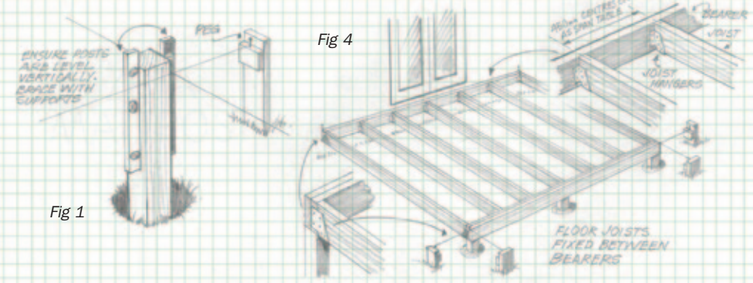

Fig 1

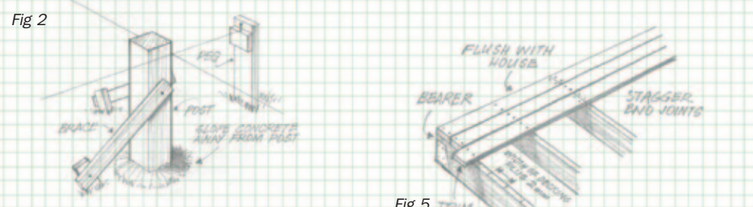

Fig 2

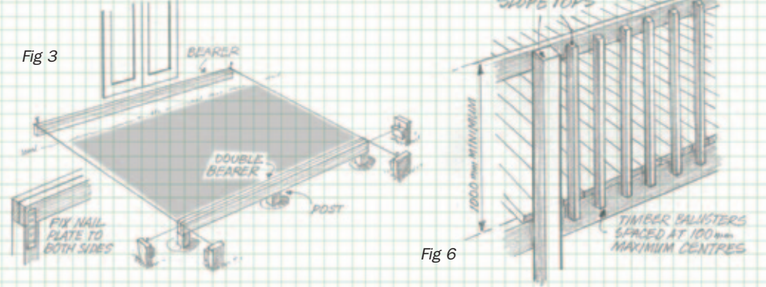

Fig 3

Fig 4

Fig 5

Fig 6

POINTS TO CHECK

- Decks higher than 1 metre from ground level will require a Building Permit and plans.
- Larger decks could possibly require bracing to the foundations.
- Hand rails will be required for decks more than 1 metre from the ground.
- NZS 3604 requires external structures within 500 metres of the ocean or thermal activity to have stainless steel fixings and fastenings.
- Some Councils also require a Building Consent for any deck that is partly supported by a house, regardless of height.

Note: Deck construction is governed by both the Resource Management Act and the New Zealand Building Code, so in all cases check with your local Council. Although a deck may not need a Building Consent, it still must comply with the Building Code.

STEP 5: FIX DECKING (FIG 5)

- Measure length between the deck bearer at the house wall and the double bearer to get the length of the deck joists.
- Check measurements of joists and square cut ends.
- Mark house and double bearers at 450mm centres.
- Nail joist hangers to the bearers so that the top of the joists will sit flush with top of the bearers.
- Place joists in hangers, fix with galvanised clouts in all hanger holes.

STEP 6: HAND RAILS (FIG 6)

- Complete hand rail prior to laying decking.
- Measure and mark external joists at 90mm centres (if using 88mm wide decking).
- Ensure a gap of 2mm (88mm) is left between decking.
- Begin from the edge of the house, 12mm out from cladding.
- If decking differs in length, alternate with long/short lengths.
- Sand deck length ends, that are to be joined together as one length, to avoid splinting timber.
- Make joints of decking at centre of the joists slightly undercut. Butt joints fixed with nails on a slight inward skew.
- Fix last length of decking 15mm over outside of double bearer, this provides a nicer finish.
- For safety, handrails must be provided for decks more than 1 metre from the ground.
- Height for railing, above decking is a minimum of 1000mm (domestic).
- Hand railings can be bolted to posts with one or two 10mm galvanised bolts/coach screws, depending on the size and width of the rails.
- If deck support posts do not extend through the deck, additional posts should be bolted, using 2 x 12mm galvanised bolts at least 75mm apart with 50 x 50 x 3mm washers under the bolt heads.
- Bearers or joists supporting handrail posts must be at least 125mm deep with no bolt closer than 25mm to the edge.
- Ensure posts are braced where the deck is wider than 2m.

INFILL OPTIONS BETWEEN DECKING AND HANDRAIL:

- Plywood/glass panels.
- Verticals balusters no more than 100mm apart.
- Horizontal rails must not provide footholds between 150mm and 760mm. Above and below those heights the rails must not allow the passage of a 100mm dia sphere.
- Close spaced trellis with spaces between the battens being no more than 50mm.

DECK FRAMING SIZES AND SPANS

POST SIZE	NZS3604:1999 TABLE 6.6b BEARER SIZE (mm x mm)			
NZS 3604:1999 Section 6.4.2 125 x 125mm house piles	Span of Bearer	Spacings between Bearers		
		2.0m	2.8m	3.7m
	1.3m	100 x 100	150 x 75	150 x 100
	1.65m	200 x 75	200 x 75	N/A

JOIST SIZES AND SPANS

Joist Size	JOIST SPAN (mm x mm) Joist Spacing 400mm	450mm	600mm	DECKING SIZE Max Joist Spacing (mm)	Actual Size (mm) Not less than
100 x 50	1.2	1.15	1.0		
150 x 50	1.95	1.85	1.6	450	88 x 19
200 x 50	2.65	2.5	2.15	600	88 x 32

TREATMENT OF DECK COMPONENTRY

Bearers, joists, ledgers, rafters, rails, decking (not in contact with ground)	H3.1 or H3.2
Sawn timber posts (in contact with ground)	H5

H3.1 and H3.2 Timber are treated timbers designed for outside, above ground level use. H3.1 must be painted and H3.2 may be left unpainted. H5 Timber is treated and designed for structural below ground level use.

SAFEGUARDING MATERIALS FROM CORROSION OR DETERIORATION

TIMBER: Timber sizes and spans are based on NZS 3604:1999 Amendment 2 for No.1 framing

- Posts being inserted into soil must be treated to H5.
- Timber throughout the rest of the deck, other than piles, need to be treated to H3.2 if left unpainted or H3.1 if painted.
- Ensure all cut ends of timber are protected with a suitable timber preservative.

NAILS/BOLTS AND BRACKETS:

- Must be either stainless steel or epoxy powder coated hot dip galvanised. To comply with NZS 3604 4.3.5.
- Upon arrival of materials, timber should be stacked above ground level, covered and hardware kept free from moisture. This will protect your materials from weather damage.

MATERIAL LIST

- String
- Nails, coachscrews and clouts, bolts, dynabolts (masonry) and washers
- Pegs
- Timber for profiles (optional)
- Concrete
- Sandpaper
- Infill (optional)
- Spade
- String line

TOOL LIST

- Tape measure
- Spirit level
- Circular saw (provides cleaner cuts, but not essential)
- Hand saw
- Electric drill
- Set square
- 2 adjustable spanners
- Hammer