

Packing house piles step-by-step video guide

MBIE developed this video for builders working in Canterbury, New Zealand. It should be used in conjunction with the guidance [Repairing and rebuilding houses damaged by the Canterbury earthquakes](#).

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Of interest to Builders

Transcript [Print \(https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/packing-house-piles-video/downloadpdf#\)](https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/packing-house-piles-video/downloadpdf#)

Duration: 7.47 minutes

So you have to pack a pile...

When earthquakes cause floors, or parts of floors to move, some floors will need to be re-levelled.

Packing a pile is something you usually have to do when re-levelling a timber floor.

A PMO or engineer will make that decision but they may not have been under the floor. They'll be relying on your skills to do the job properly.

So today we're looking at how to pack a pile safely and properly.

Safety first - before you go under the floor, there are some safety considerations.

First, check the power and gas services are safe to work around and put up safety barriers around the site.

Second, make sure your electrical gear and equipment carries a current appliance test label.

Third, wear the right safety gear for the task.

And finally, treat the area like a confined space – tell a workmate you're going under the floor and prepare a rescue plan.

Step 1: Preparation

Now you're ready to set up your levels.

Once you're under the floor, check the floor structure.

Piles that are loose or on a lean will need to be replaced.

Step 2: Detach the piles and raise the floor

The next step is to jack the floor and building.

Place the jacks on flat timber blocks so that they lift vertically, and not on a lean.

Concentrate jacks to lift under the load-bearing walls.

Disconnect the fixings between the piles and the bearers.

Jack up the floor bit by bit to bring the floor to the new level. Avoid over-lifting any one jack and concentrate lifting under load-bearing walls.

Work the jacks to keep an even pressure over the whole floor area.

Once the floor is raised, you'll see the gaps between the bearers and the piles.

Step 3: Cut and place packers

The next step is to cut and place packers.

Cut packers or wedges from minimum H3.2 treated timber.

They should be the full width of the bearer and extend the full width of the pile top.

If you are cutting packers, cut them to fit each gap.

Before you place the packers, it's good practice to give any cut timber surfaces a coating of timber preservative treatment.

All concrete piles and timber piles less than 150mm high require damp proof course (or DPC). It's good practice to put DPC under all packers.

When the whole floor is in its final position, place permanent packers and the DPC between each pile and bearer.

Nail the packers in place with galvanised or stainless steel nails.

Step 4: Replace piles

Now we've packed our piles, go back and replace any loose or leaning piles.

How do you know which piles on a lean to replace? Any piles leaning more than 15mm off plumb or piles loose on their footings will need to be replaced. If unsure, the rule is: Along any bearer - "one in doubt OK, more in doubt replace".

When you're buying replacement timber piles make sure that they have this brand.

It's also best to buy your piles cut to the required length.

If you have to cut a pile, make sure you keep the cut end out of the ground and coat it with preservative.

Position new piles next to existing piles.

Dig the pile hole to firm ground and make the area of the hole the same or larger than under the existing pile.

Fill the hole with concrete, place in the new pile, immediately nail the pile to the underside of the bearer.

Check that the brand will remain visible above ground even after setting.

Make sure there is at least 100mm of concrete underneath the pile.

Step 5: Fix the piles to the bearers

So, now you've either packed or replaced your piles, the final step is to fix the piles to the bearers.

There are two ways of doing this, depending on whether you have concrete or wooden piles.

For a concrete pile:

- * take a 4mm galvanised wire through the pile hole.
- * bend the ends over the bearer and pull tight.

- * staple the ends with 3.5mm wire staples.
- * use the staples to tension the wire.

For timber piles:

- * nail on steel straps, one each side of the bearer.
- * use 25mm by 1mm straps, long enough to fix with three nails each end.
- * use galvanised or stainless steel straps and fixings.
- * use only stainless steel for piles less than 600mm high.
- * use 30 mm by 3.15mm galvanised or stainless steel clouts positioned more than 50mm from leading timber edges.

And that's how to pack a pile safely and properly.

Before you start, make sure you're safe.

Step one, set your levels.

Step two, jack the floor and building.

Step three, cut and place packers. Don't forget, single packers only!

Step four, replace any piles that are loose or on a lean.

Step five, fix the piles to the bearers.

And finally, clean up the job.

We've just looked at repairing and packing ordinary piles, but anchor piles and braced piles are more specialised.

You can find out more about all piles in this booklet and in NZ Standard 3604 – section 6 in sub-floor framing.

Remember: Do it right first time and do it safely to avoid any call backs or accidents.

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New Zealand Government

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