

Understanding the Causes of "Squeaky and Creaking" Particleboard floors

INTRODUCTION

Since the 1960s when particleboard flooring was introduced, the particleboard panels have been laid on green floor joists before the wall and other framing has been erected. These houses are built quickly and timber structure shrinkage and movement is a major contributor to floors creaking or squeaking.

INTRODUCTION

Common causes of creaking or squeaking particleboard floors are:

- Differential of the joists bearing surfaces as the dry-bowing of the joists can create a difference in the level between joists and create stress on the fastenings.
- Shrinkage as the joists dry out - Timber shrinks across the grain, leaving a gap between the underside of the sheet and the top of the joist.
- Using long span joists which allow the floor to deflect more and creak at the lower block fixing when a person walks on it.
- Insufficient and loose strutting or blocking of the joists. Also, if green timber is used the blocking becomes loose after the timber joists shrink in their width.
- Swelling of the particleboard panels exposed to the weather. When particleboard flooring gets wet the edges of the sheets swell and may not bear tightly on the joists when they dry. Unevenness on the top side of the sheets can be levelled by sanding. This does not, however, rectify the underside unless nails are punched just prior to sanding. Slightly angle nails at sheet edge meeting points.
- Insufficient fixings being used or panels not being fully fixed down when laid.
- The floor and wall framing dries out after the house is closed in and occupied.
- Foot traffic in the house working the panels down the shank of the nails onto the top of the joists often leading to squeaking as the nail shafts work in the particleboard panels.
- Power fastening being over driven into the panel core.

- Hand fixed nailing being punched off at the initial fastening stage with no allowances made for the drying out of the joists.
- Nails being positioned too close to the panel edges.
- Nails being angled into the lower point of the panels meeting edges over joists and nogging supports.
- Floor joists ends tightly butting (Rubbing) on the R.S.J. chord.
- Relying on end grain fastening at the lowest fixing point in exposed joint mezzanine floor installations.

ELIMINATION

The following pointers will help to eliminate creaking and squeaking:

- When possible, use dry joists to lessen the risk of distortion and timber shrinkage.
- For new buildings, reduce the joist span or increase joist depth to reduce deflection (prop green long span joists at mid span until they are dry).
- Level the joists tops before laying the flooring panels.
- Ensure solid blocking or herringbone strutting is fitted tightly to stiffen floor in accordance with NZS 3604.
- If using solid blocking fit as late as possible so that joists are drier and shrinkage will be less.
- Herringbone strutting is preferred as it can be tightened from the underside after timber is dry and before ceilings are fixed to upper floor joists.
- Lay flooring panels with staggered joints.
- Don't cramp flooring panels tightly together.
- Leave punching of nails as long as possible to allow the flooring and the timber to have time to dry and shrink and just prior to sanding.
- Use adhesive/nail fixing system where possible and completely nail off.

TECHNICAL SUPPORT

Additional end use and specifying information is available as a complimentary service. For advice on technical matters please contact Fletcher Wood Panels Customer Services Department.

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