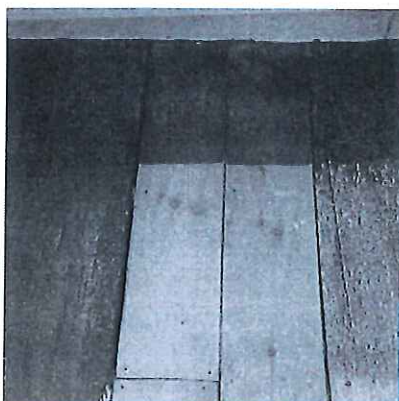


Patching old floorboards*

Warmth and richness of a well-repaired old floor.



Inappropriate use of narrow softwood boards to replace a wide elm board damaged during the installation of central heating. Couldn't the board have been repaired?



Introduction

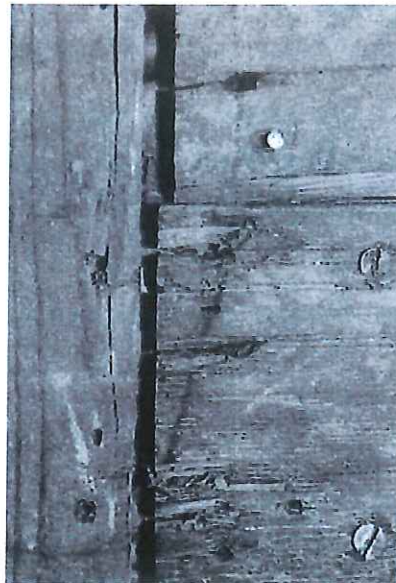
An old floor of wide boards – scrubbed or polished for generations and uneven with wear – adds considerable richness to any room in an old building. A floor is one of the principal surfaces of a room, yet ancient boards are often badly abused. Botched attempts to replace boards are common, and, even when this is done well, the result will not always be visually satisfactory. In addition, complete replacement of floors often takes place unnecessarily.

This information sheet aims to alleviate the problem by suggesting a number of ways in which old boards may be patched or repaired. It is written with butt-edged boards in mind and the advice given will not necessarily be suitable for tongue-and-grooved boards. The ancient method of fixing boards to the joists was with wooden pegs, and where these or any other unusual feature is found specialist advice should be sought.

Causes of deterioration of floorboards

A full examination of causes is outside the scope of this sheet, but the principal areas include:

- beetle attack;
- fungal decay;
- careless lifting of weakened boards (particularly by electricians, plumbers and heating engineers);
- careless replacement of lifted boards;
- natural seasoning, shrinkage and warping of boards originally laid green;
- the effects of furniture (particularly casters) when positioned on the edge of an old board.



Far left: Damage to board caused by caster. This can be particularly serious when the caster is positioned over the edge of a board.

Left: Board damaged by careless lifting and relaying during installation of central heating and wiring runs (pipes and wires just visible in gap between boards).

It is relatively unusual to find that boards affected in any of the above ways are beyond repair. For example, although a board may be suffering from beetle attack and have many 'worm holes' (actually beetle 'flight' holes), its strength may not have been reduced significantly.

In such a case treatment against beetle attack may be all that is necessary.

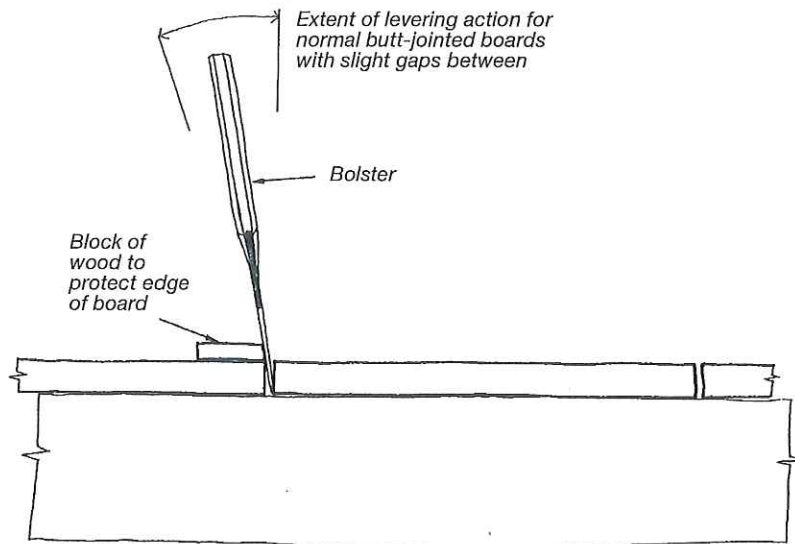
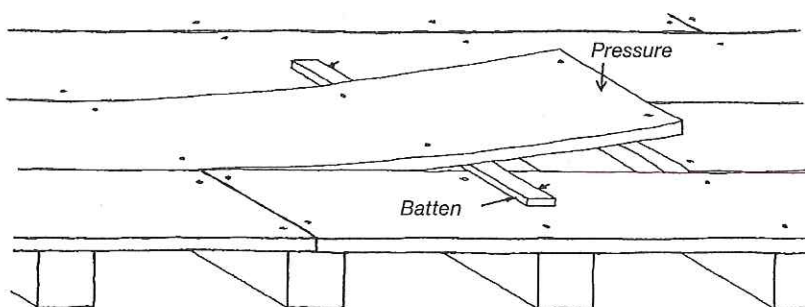
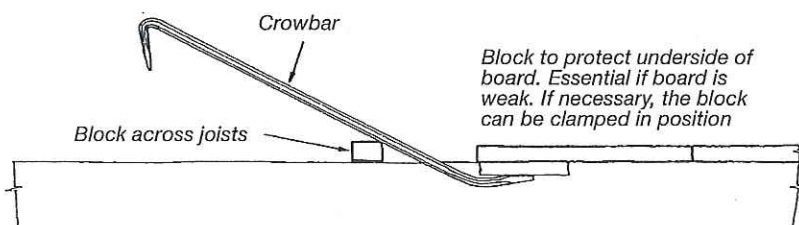
Lifting floorboards

It is extremely easy to cause serious damage to floorboards by attempting to lift them – particularly when the board is decayed. Despite the pitfalls, there are numerous techniques for successfully lifting floorboards. Lifting the first board without damage is usually much more difficult than the remainder. It is not an operation which should be rushed into – it requires ingenuity, preparation, care and patience! The ideal is a shortish board, with at least one end in relatively good condition, not against a wall, and preferably with a gap big enough for the bolster to fit between boards.

The necessary tools are likely to include a 6" bolster (preferably two of these), wooden blocks of various thicknesses, a flat hardened steel plate, a hammer, a ½" batten about 8" longer than the width of the board, nail punches, a hacksaw, and a crowbar.

- Using a block of wood (or steel plate) to protect the edge of the adjoining board, work around the board to be lifted with the bolster, levering from side to side slightly, to try to loosen the board.
- Starting over a joist (by a nail) about a third of the way down the board (to avoid splitting the end), lever more vigorously with a pumping action one side of the board then the other, to raise the board by up to one third of its thickness. Ensure the edge of the adjacent board is protected. Moving towards the middle then back towards the end, repeat the process until one end of the board comes free. If this does not seem to be working, or if the board is very decayed, resort to the nail punch and try to drive the nails down.

It is extremely easy to cause serious damage to floorboards by attempting to lift them – particularly when the board is decayed.

The first stage in lifting a butt-edged floorboard**Easing up the first board****Lifting second and subsequent boards**

- When one end has been freed, try placing the ½" batten under it, spanning the two adjacent boards, and gradually move this towards the next set of nails with gentle pressure applied on the free part of the board. The amount of pressure will depend on the condition of the board. This will normally ease the nails slightly out of the joists. Remove the batten and allow the board to drop to its original position to give access to the nail heads. If it does not succeed, try the bolster again or perhaps the crowbar – levering (pump action again) under the board near the position of the nail, but away from the edge of the board.
- Particular care needs to be taken with the nails at the end of the board, as it is easy to split an old board unless these are removed gently.
- Once the board is free, pull out the nails – pincers, hammer or crowbar.

The levering process using the bolster against the side of the board is probably the one most likely to cause damage by bruising neighbouring boards or splitting away part of the board being lifted. It is usually possible to avoid this process when lifting the second and subsequent boards, as it is possible to place a block across the joists and to lever against the underside of the board with a crowbar. Once the board has started to lift, the bolster or crowbar can be inserted between board and joist and levering with a pumping action resumed. Again, it is wise to start about a third of the way along a board and work to the middle and back to the end.

Where a board (or part) is very fragile, it may be necessary to cut the nails using a hacksaw.

Ingenuity and care are the keys to success.

An uneven board can rarely be made perfectly straight, but any twist or warp can usually be reduced to acceptable levels.

Undulating floors and gaps between boards

It is sometimes suggested that all the floorboards should be lifted in order to shuffle them up to close gaps or to level-up a sloping or undulating floor. In general, such proposals should be resisted for various reasons unless there is special need (e.g. to carry out repairs). In particular, there is a danger that lifting floorboards will cause damage. Also the undersides of many old boards are shaped because either the board or the joists are uneven, and in such circumstances they must be replaced exactly in their original position.

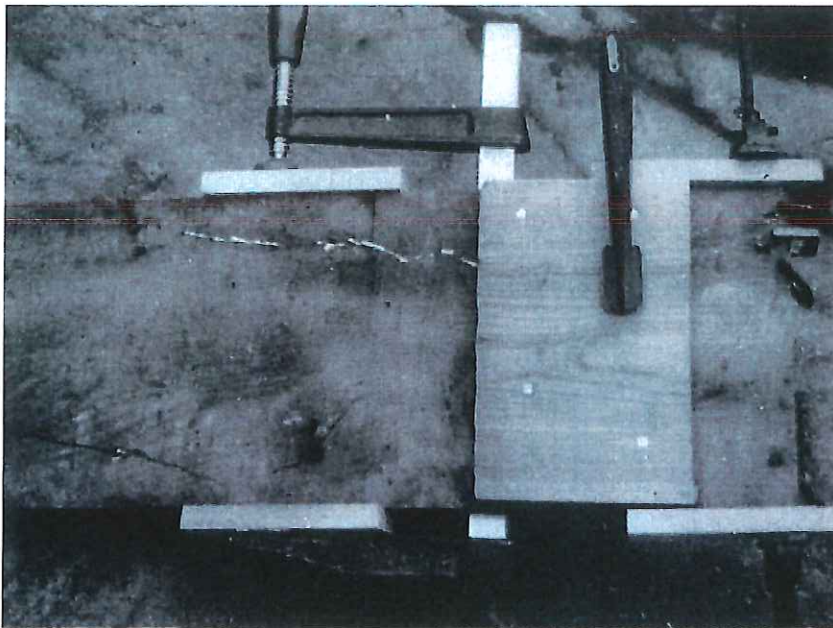
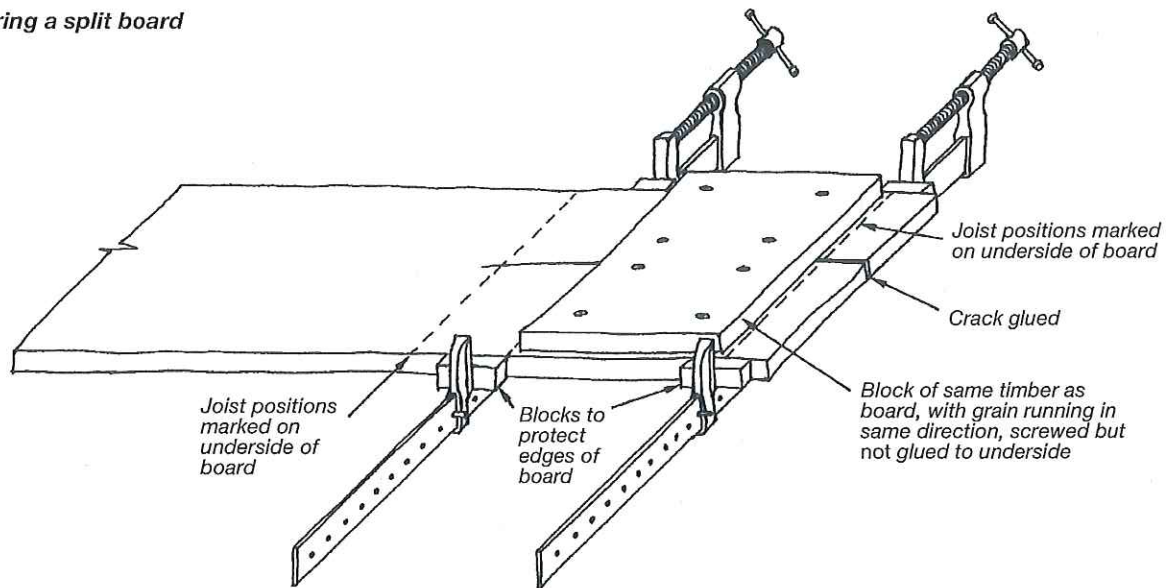
Deflection in a floor is often reflected by movement elsewhere in the structure, but, provided that the structure is still sound, it may be best to leave well alone. A levelled floor can look extremely out of place in an old cottage or house where the walls, windows and doors have deflected and where the ceiling slopes on a similar angle to the old floor.

Gaps between boards must be expected in an old house. Normally these will be unobtrusive and cause little problem, but where gaps approach 7mm or more it may be worth considering the introduction of slips of matching timber between the boards. This will, of course, avoid the need to lift and possibly damage the old boards. Papier-mâché is also sometimes used to fill gaps between boards.

Reducing unevenness in a warped or twisted board

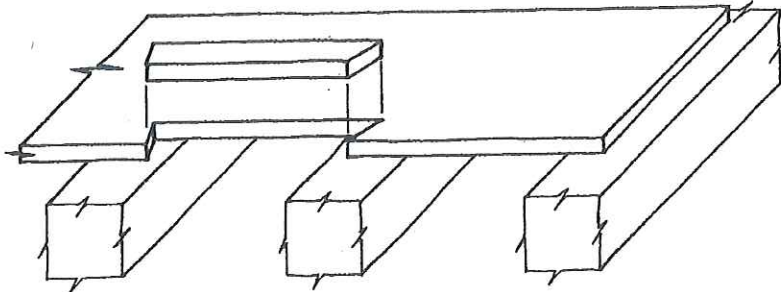
An uneven board can rarely be made perfectly straight, but any twist or warp can usually be reduced to acceptable levels.

- Lift board.
- Immerse and soak board in water (note: this is likely to spoil any finishes which have been applied to the board).
- Lay board out to dry on battens and apply weights to overcome twisting. There is a tendency for boards to partially revert to original twist when weights are removed and this should be compensated for by overweighting.
- Allow board to dry slowly whilst under pressure for at least one week.
- If serious warping is still present, try applying wet rags to selected areas of the board and reweighting. The dampened areas will swell slightly – helping to straighten the board. If it is held flat while drying, then the warping is likely to be reduced. The process can be repeated.
- Treat underside of board (and joists, etc.) if necessary against beetle attack.
- Re-lay old board.

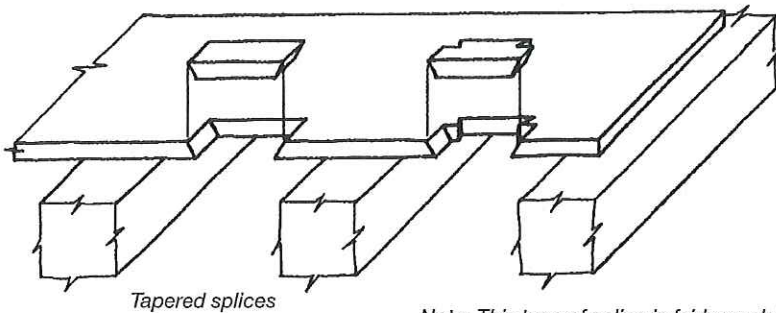
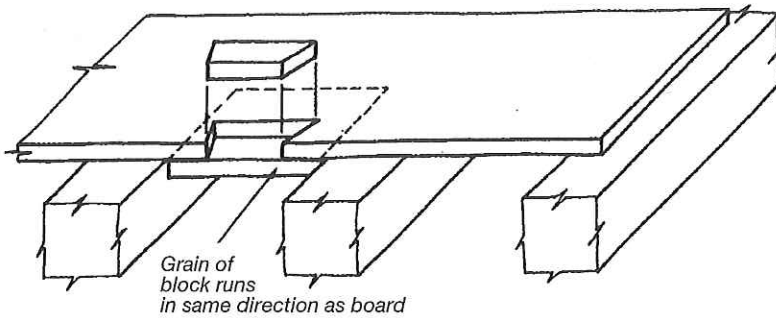
Repairing a split board**Repairing a split board**

- Lift board.
- Mark joist position on board.
- Clean out crack.
- Remove warp/twist (if necessary).
- Glue and clamp. Ensure use of blocks to protect edges and that board remains true.
- Treat underside of board and joists etc., if necessary.
- Screw on fixing blocks but do not glue. If split has been caused by maltreating the board, ensure blocks are of similar timber to board, well-seasoned and with grain running in same direction as board. If split has been caused by natural movement of the timber, the blocks should be fixed with slotted screws and with grain running across the board.
- Re-lay board.

Dovetail splice – ends supported on joists



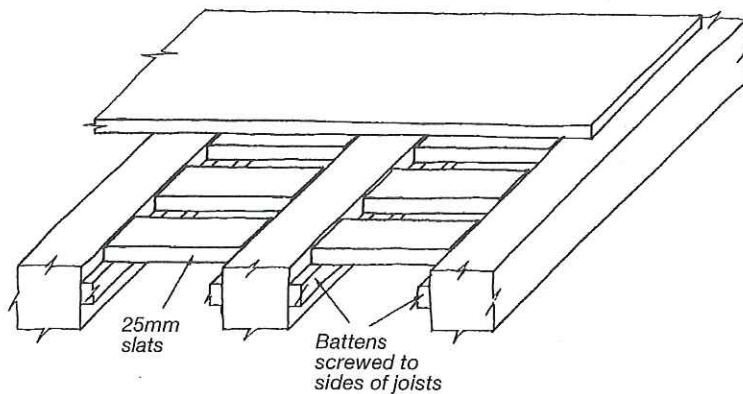
Dovetail splice – supported on block screwed to underside of board



Note: This type of splice is fairly weak but can be useful for boards at edges of floors – particularly for making good holes left by pipes etc.

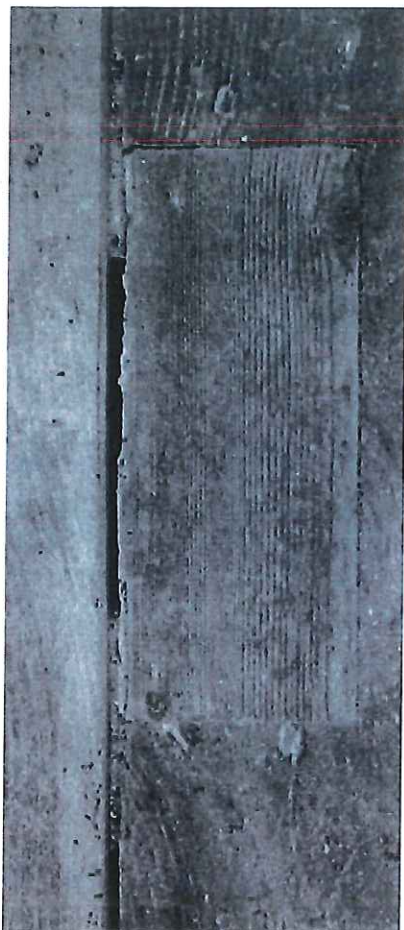
Repairing a broken edge

- Lift board.
- Choose repair type.
- Mark joist positions on underside of board.
- Select seasoned timber of same variety and match grain.
- Cut out around broken edge of board.
- Form new section to fit old, glue and clamp in position.
- Carefully pare down new section to follow undulations of old. Do not pare down surface or edges of old board.
- Treat underside of board, and joists etc. if necessary.
- Re-lay board.

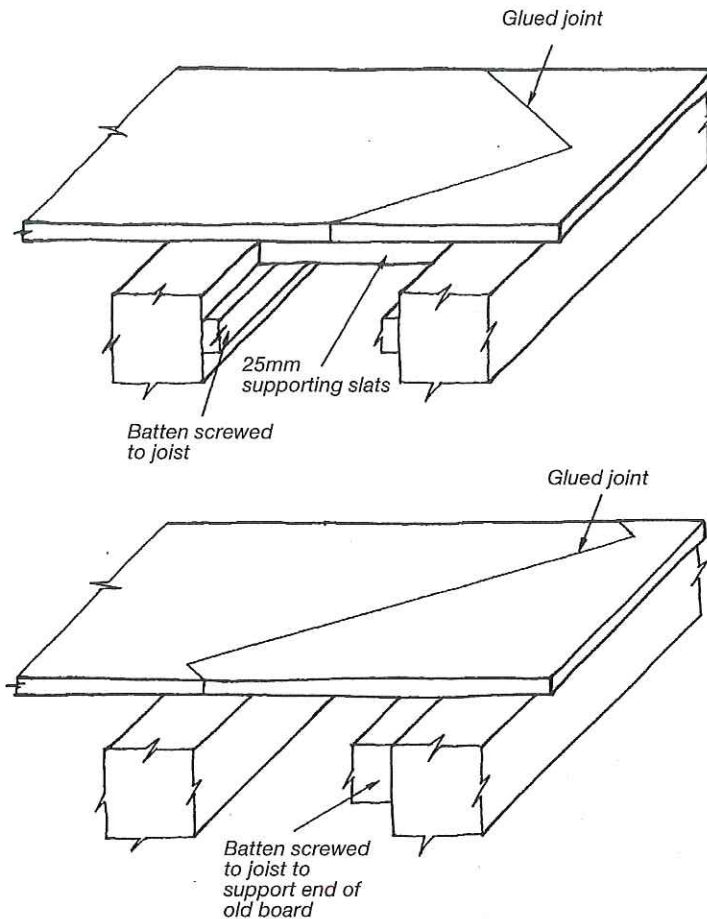
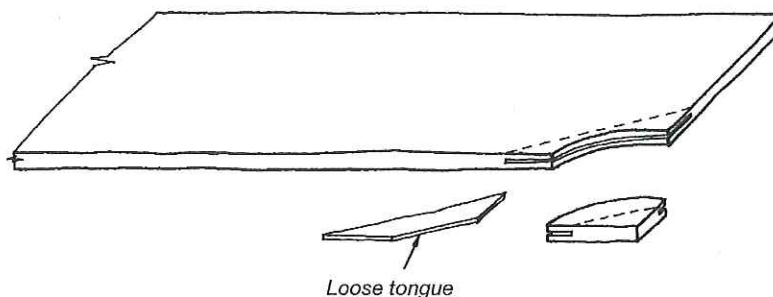
Giving additional support to weak board**Strengthening a weak board**

- Lift board (if necessary).
- Screw battens to sides of joists over area affected.
- Lay 25 mm thick slats on battens under weakened board.
- Treat board, slats and battens against beetle attack. Note: treatments must be undertaken before any wax is applied.
- Impregnate weakened areas of board with beeswax. (If board has become extremely fragile, it may be necessary to use resins.)
- Re-lay board.

Note: It may be necessary to strengthen or fill some areas with wood glue and sawdust (e.g. around nail holes).



Patch poorly selected – grain does not match and patch is of different timber. Despite being old the patch will never 'age in'.

Splicing the end of a board at the edge of a floor (both illustrations)**Repairing a broken corner****Splicing a broken end**

If the end of a board is so decayed that it cannot be saved then it is usual for the board to be cut back to the next joist and a short board pieced in. However, this can often mean that much more of a board is removed than is strictly necessary, and in some floors a new short board can look completely out of place. In such circumstances, it may be appropriate to splice a new end onto a board. The most appropriate type of splice to use will depend on a number of factors, including the grain of the wood and the width of the board. Billiard cue jointing is sometimes used, but two simpler types of splice joint are illustrated.

Re-laying old boards

Considerable care needs to be taken when re-laying old floorboards. In general, it is easier to nail floorboards down, but there are a number of occasions when this should be avoided and screws used instead.

For example:

- over a decorative plaster ceiling or ceiling painting which might be disturbed by nailing;
- over a lath-and-plaster or reed-and-plaster ceiling where the plaster key is suspect;
- over service runs, etc. where frequent lifting and relaying of the board will be necessary.

Iron screws will eventually rust and become extremely difficult to remove (even if greased). In general, brass screws should be used, and these should be lightly greased before fitting to aid removal. Where a board is likely to be lifted and relaid every few years (e.g. over service runs), brass cups should be used to protect the board from damage caused by the screw head.

Surface treatment of floorboards

This is really a suitable subject for an information sheet on its own, but it is perhaps worth mentioning a few points here.

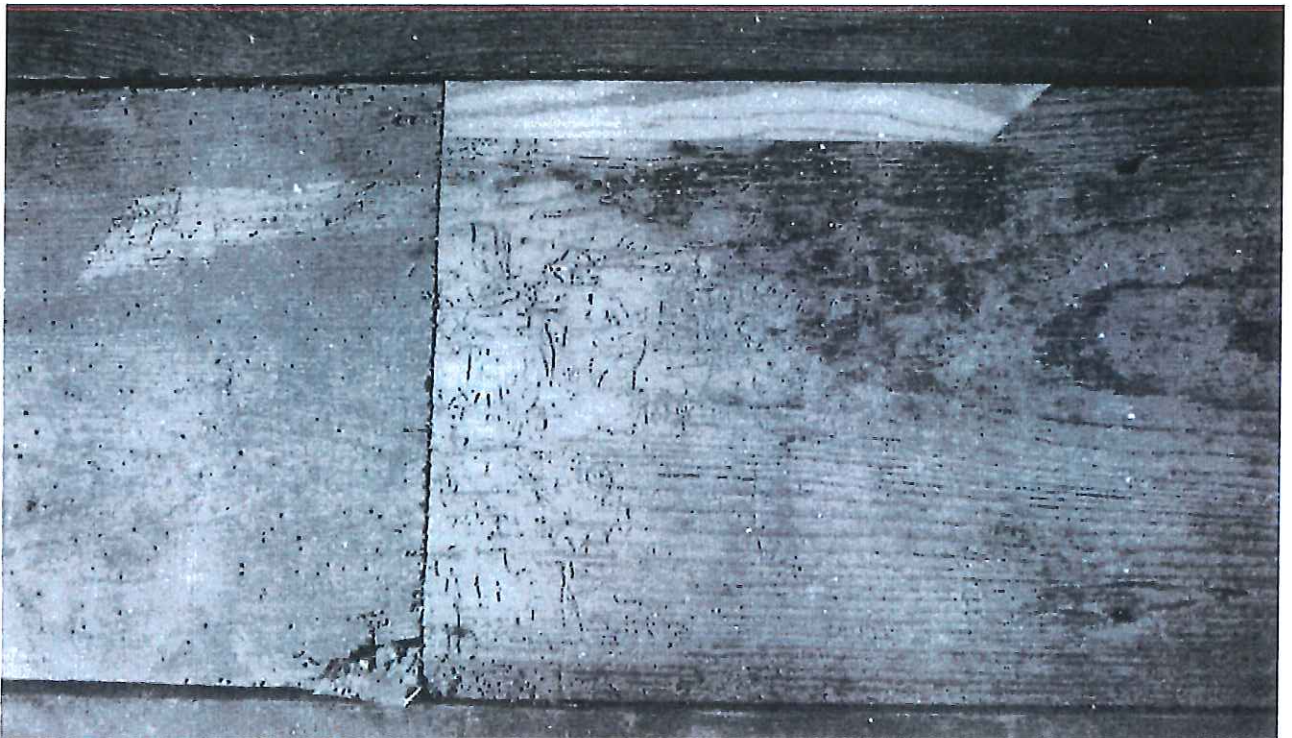
Old boards should never be sanded. If a board has suffered at all from beetle attack, sanding will remove the smooth surface of the board and leave a ragged mess of worm-ridden timber beneath.

If it is necessary to remove a paint, stain or varnish on the surface of the board, reference should be made to the information sheet *Removing Paint from Old Buildings*. Stains will have soaked into the surface of the timber, and, although poulticing may reduce the effect of the stain, it is unlikely to remove it entirely. Repeated poulticing may help.

In general, old boards that have not been polished will have been scrubbed. Minimum water should be used when scrubbing boards. If the board has suffered from beetle attack in the past, scrubbing may remove the surface in the same way as sanding. In such cases, it is probably best to treat the board with timber preservative and then polish with beeswax – trying to get this to soak into the board to consolidate the weakened timber surface.

Before polishing boards, thought should be given to the serious danger of slipping. Loose rugs should never be laid over polished floors.

Modern varnishes and finishes should be avoided, as they tend to give an unsympathetic appearance. Linseed oil should also be avoided, as it is slightly sticky, attracts dirt, and darkens with age.



The surface of timber is usually left relatively intact following beetle attack. If the surface is removed by planing or sanding, as has happened here, the decayed interior becomes exposed.

Conclusion

As one of the principal surfaces of a room, the overall treatment of a floor needs to be carefully considered in relation to the appearance of the room as a whole, the context of the building, and the function of the floor. Simple, straightforward repair of existing floorboards as described in this information sheet should substantially enhance the quality and appearance of the interior of the building. When repairs have been well executed, there should not normally be any need to try to tone them in, as they will demonstrate the care and craftsmanship that has been lavished on the building.



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