



Access and services

Lifting boards for services

In the past, when there were fewer services to be fitted below floors, there was a limited need for underfloor access. Recently substantial damage to floors has occurred through the need to install a range of cables and piped services. If, during refurbishment, boards have to be lifted, it is wise to get them lifted by a joiner, who will take more care than operatives from the non wood trades.

Whilst it is good practice to hide nailheads with secret nailing, it makes later lifting of the boards difficult, and invariably results in damage if care is not taken. Sometimes the damage can be limited by cutting the tongues off by cutting along the joint between the boards with a handsaw. However concealed nails often damage the saw and there is real risk of also damaging any underlying services.

Deafening

During work on services on upper level floors the layer between the underlying ceiling and the floorboards, called deafening, should be left undisturbed. Fitted in most traditionally built domestic properties, a mix of clinker, and sand mounted on rough boards, deafening provides a valuable fire resistant, acoustic and thermal insulation and should be retained.

Notching joists

Frequently the underlying joists may have been heavily "notched" to allow access of new services. Excessive notching can compromise the structural integrity of the joist or even the floor. Large notches should be repaired by bridging the notch cut into upper side. Where new pipes or cables have to be fitted, drilling holes through the joists better preserves the structural integrity. Any significant new cutting required should be checked by a structural engineer first.

Finishing a wooden floor

Sanding

Sanding a wooden floor can give an attractive result, but care should be taken when carrying out such work. The sanding should always be done along the grain, finishing with the finest grade of sandpaper to give the desired smooth finish. Additional care needs to be taken when working on newer boards and into the corners. Areas of sapwood will react differently to the sander. Being less dense they will wear down much quicker. Over sanding can thin boards considerably. The bitumen paint layer (referred to earlier) can clog up a sander, and may have to be removed with a scraper.

Sealing

When first sanded the timber will appear quite light in colour. The temptation to stain the colour down should be resisted. This will happen naturally through exposure to sunlight, and good quality timber will give rise to a rich mellow honey colour. When considering a protective finish there are a variety of varnish options available - oil or water based, matt, vinyl or eggshell. Whatever coating is used any point impact from high heeled shoes will damage the surface and the timber below. In areas of heavy traffic, the varnish may need re-coating every 3 years or so. If it is left untreated the floor will become very patchy in appearance, and a complete re-sand may be necessary to ensure an even application.



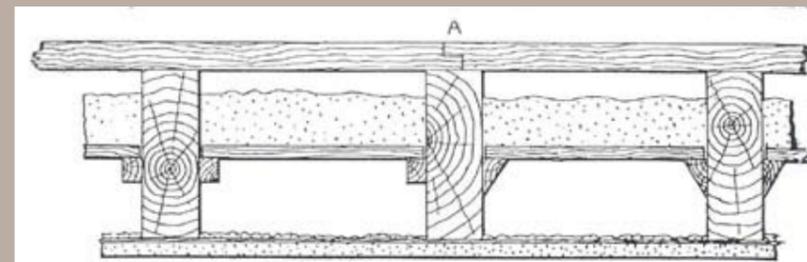
Further Information:

Historic Scotland,
Conference Proceeding,
Timber & the Built environment,
Historic Scotland 2004
ISBN 1904966004

Historic Scotland,
The repair of historic buildings in Scotland,
advice on principles and methods,
HS 1995.
ISBN 0951798928

Ridout, B
Timber Decay in Buildings,
Spon 1999.
ISBN 0-41918820-7

A. Jackson and D. Day, Period House,
ISBN 000-7192754
K. Wedd, The Victorian Society Book of the
Victorian House, ISBN 978-1845132941
J. Gilbert and A. Flint, The Tenement
Handbook, ISBN 978-1873190142



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INFORM
INFORMATION FOR HISTORIC BUILDING OWNERS

**Timber
Floors**



Timber has been used as a flooring material since the earliest times. Timber flooring has proved to be durable and resilient under normal use and an attractive element of a traditional building; this INFORM covers basic aspects of their care, maintenance and repair, including:

- **Sourcing and preparing timber**
- **Basic structure and construction**
- **Defects and decay**
- **Access and services**
- **Finishing a timber floor**

Sourcing and preparing timber

A variety of timber has been used for flooring, from rough sawn softwoods in agricultural buildings to more costly and durable hardwoods used in higher status properties. By the mid 18th Century, most domestic flooring was from varieties of slow grown softwood such as local Scots Pine, or imported Yellow Pine.

From the mid 17th Centaury, sourcing good timber in Scotland became more difficult and much timber was imported from the Baltic, followed later by timber from North America. Usually timbers with a lot of knots were used for flooring, although that varied with the status of the building. The better quality timber, free of knots or blemishes, was used to make finishing elements such as facings and panelling.

Timber, either imported or from native sources, was sawn into rough planks that were then reduced to a finished dimension with a smoothing plane. Widths and thickness varied, but a common width for mid 19th Centaury

floorboards was 6 ½ inches or 165mm, with a thickness of 1 inch or 25mm. The tongue and groove, required to bond each plank together once nailed down, was cut with a matched pair of planes, one for cutting the edge to give the tongue, the other to give the groove.

Basic structure and construction

Structural background

Timber flooring is laid directly on the structural joists, the floorboards are laid at right angles to the line of joists, and secured at regular intervals with nails. The joists and how they are secured are an integral part of the strength and stability of the floor; any consideration of a floor’s condition should start with investigation into the condition of these structural members. Ground floor joists are normally laid on stone pads and usually run across the shortest distance between walls. Where greater widths had to be spanned, sleeper walls were constructed. Sometimes slate packers were placed on top of the stone supports, to give an element of protection from damp. The ventilation of the space under the floor, called the solum, is important, and all vents should be kept clear. Upper level joists were built directly into the supporting walls.

Fixing

The boards were fixed with nails, driven into the boards through the upper side of the tongue. The groove in the next plank then covered the nailheads. Called “secret nailing” this technique is still standard practice today. If the supporting joists were set unevenly, in order to keep the floor flat, the underside of the plank was sometimes shaved down to get a good level using a joiners framing axe.



Finishing

In the 19th C any small gaps in the joints might be filled with a paper mache mix or sometimes putty. The boards were usually then varnished with a dark shellac or oil based black paint around the edges and left untreated in the centre. This unpainted centre section was then covered with rugs, or more commonly a treated canvas floor covering known as oilcloth. Later on, linoleum was often laid in high traffic areas.

Defects and decay

Wear and tear

In old floors, physical wear can be quite pronounced, especially in areas of high foot traffic. While this can lend character, there may be trip hazards or weakness due to thinning of the timber. Badly worn timber will have to be replaced.

Insect attack

Flooring timber often contains some softer sapwood, which, given the right conditions of increased humidity, is prone to insect attack. This is frequently seen where old linoleum floor coverings have been lifted. Some wood beetle damage is to be expected in an old floor, and as long as it is confined to small areas of the sapwood and sufficient structural strength remains in the boards, there should be little cause for concern or replacement, other than carrying out localised treatment if the beetle is still active.

Mid 19th C timber floor, showing black painted boards and unfinished centre



19th C flooring, showing wood beetle attack (no longer active) on the softer timber.

Floorcoverings

Thick continuous floor coverings should be used with caution, especially on wooden boarded ground floors. Thick, rubberised carpet underlay can prevent moisture movement and create the right conditions for wood beetle and other decay mechanisms to thrive. In the past, linoleum coverings exasperated the problem; now vinyl and laminate floors can cause similar difficulties.

Minor repairs

Recent trends have created a fashion for sanded and varnished floors. Invariably, this also involves some repair to make good shrinkage or earlier insertions for services etc. Holes and gaps should be repaired with small timber patches; smaller holes and cracks can be repaired with proprietary filler. Wide gaps between boards can be repaired with thin strips of softwood glued into the gap. If excessive and uneven, the gap can be made regular with a router on a linear jig.

Re-fixing and relaying boards

Should a board come loose through, use, wear or regular lifting up to gain access to services, it will also require re-fastening. It is advisable to use woodscrews for extra strength and to allow adjustment and tightening. The heads of the screws can be countersunk and plugged to maintain the look of the floor. During this process make sure any fixing goes into a joist, and not the void, or more importantly, into any services such as cables or water pipes that may be beneath. When replacing damaged areas it may be necessary to fix bridging pieces (short lengths of wood) against joists to create a larger fixing area below the board

Care of new timber

When laying new timber board flooring, in whole or in part, the material should be unpacked and laid in the house for at least 10 days to stabilise to the ambient conditions. In most cases bought timber will shrink slightly in width, but if especially dry timber is laid in an unheated environment, it can also swell, causing rising and buckling of the floor. When starting to lay the floor, some padding of the upper surfaces of the joists may be required to make the floor level tie in with existing boarding.



Softwood strips inserted where gaps are continuous