

**This document** has been scanned from hard-copy archives for research and study purposes. Please note not all information may be current. We have tried, in preparing this copy, to make the content accessible to the widest possible audience but in some cases we recognise that the automatic text recognition maybe inadequate and we apologise in advance for any inconvenience this may cause.

# TECHNICAL PUBLICATION

RESEARCH DIVISION SERIES NUMBER 12 ISSN: 0155-7548 ISBN: 0 7305 9698 2

## THE FINISHING AND MAINTENANCE OF TIMBER FLOORS



The decision to use a timber flooring system, particularly if it is to be a decorative feature, is one that over the years will pay dividends in terms of comfort, health and aesthetics. Unlike most floor coverings, a feature timber floor is usually an integral part of a building and is not designed to be replaced every few years. When properly installed and maintained, there is no reason why, except under exceptional circumstances, a timber floor should not last the life of the building.

While the choice of product, species and profile will largely depend on its intended use, for example, heavily trafficked commercial or sports floors would generally demand harder species and heavier sections than the average domestic floor, if the timber floor is to be left uncovered it should be sealed against the inevitable scuffing and staining that is part and parcel of any floor's life. The initial sealing process, at least, should take place as soon after laying as possible, particularly if wet trades have not finished in the building.

The days of compulsory labour intensive waxing and polishing of timber floors have long gone. With the advent of modern seals and surface finishes, maintenance of the average timber floor in a domestic situation is probably less onerous than the ongoing cleaning and maintenance of carpet and, in the long term, easier and less expensive than for most vinyl or other coverings that will eventually need to be replaced.

While this publication makes some mention of the method of application of various finishes, because there are so many finishes on today's market, it is important that, in all cases, manufacturers' recommendations are followed if a first-class result is to be obtained.

### TYPES OF USES

The four broad areas of use for feature timber floors are:

- Domestic
- Commercial
- Dedicated sports
- Multi-purpose (schools, community halls, etc.)

Each of these floor types, while requiring the same careful initial surface preparation, will differ markedly in the type and quantities of initial sealing materials and ongoing maintenance regimes.

### SURFACE PREPARATION

Australian Standard CA39 'Code of recommended practice for the sanding of interior wooden floors', should be referenced in any intended specification for the sanding of timber floors. However, in short, it must be appreciated that besides the actual laying of the floor, the final appearance will ultimately be dependant upon the quality and evenness of the sanding process which is best carried out by skilled operators. Unfortunately, it is usually only after the floor is sealed that sanding blemishes show up.

### PRELIMINARIES

1. All nails must be punched 3 mm below the floor surface and a careful check made to remove any other protrusions (nail holes should not be filled until the first coat of seal is applied in case oils present in the filler prevent an even penetration of sealant.)
2. Sub-floor area should be checked to ensure adequate ventilation and apparently dry conditions. (It is assumed that the moisture content of the flooring timber would have been correct at the time of laying.)
3. All trades should have been completed. If not, precautions should be taken to ensure the floor is protected before, during and after sanding and sealing. (If some trades are still present or expected, it may be worthwhile having the floor rough-sanded and an initial protective coat of sealant applied. Final fine-sanding and sealing may then be carried out at a later time. While plastic sheeting may offer some measure of protection it would be unwise to rely on it entirely.)

## PREPARATION FOR SEALING

1. *Cleaning.* Following sanding, the room should be thoroughly cleaned of all dust and the floor vacuumed. The floor should then be carefully inspected for any irregularities, re-sanded and vacuumed again.

2. *Final cleaning.* The entire floor should be wiped with lint-free cloths moistened with mineral turpentine taking care not to wet the floor with the solvent. The intent is to collect any remaining dust following the vacuuming. These cloths should be regularly reversed, rinsed or replaced. The care taken during and after this process will have a major bearing on the ultimate appearance of the floor.

## OIL-BASED SEALERS

There are a number of proprietary products available, usually based on a blend of synthetic or alkyd resins and oils formulated to penetrate the surface of the timber, sealing the pores and preventing subsequent finishes from penetrating too deeply. Depending on the floor's intended use, different formulations and layers of surface seals are then applied. In domestic applications it is usual for an additional two coats of surface seal to be applied following the initial penetrating seal while for sports floors there may be three or more final coats. In addition, some manufacturers highly recommend an additional sacrificial coat of water-based acrylic polish that is easily re-coated if sufficiently scuffed to warrant it.

## MAINTENANCE

A high quality timber floor is a valuable investment and, as such, should be well maintained to ensure that it performs and lasts as expected. The greatest enemy of any floor covering, and timber is no exception, is dust and grit. The provision of good quality door mats, preferably of the anti-static variety, cannot be over emphasised.

Recommended regular maintenance procedures are:

*Domestic:* - vacuum, or sweep with an anti-static mop daily and immediately wipe up any spillage.

*Multi-purpose or Sports:* - as above but sweeping should be carried out between activities. An occasional wipe with a damp (not wet) mop moistened with a recommended detergent solution will help remove any dust residue and in most cases will be sufficient to remove slight soiling. (Note: do not use oil-impregnated mops as residues could cause the floor to become slippery.)

Speciality floor finishing companies manufacture and distribute proprietary floor cleaning compounds. If these are used to manufacturers' recommendations, excellent results will normally be obtained.

Following extended usage the seal will inevitably begin to wear through, although this would usually be limited only to the higher traffic areas. A major advantage of the oil or acrylic resin sealers is the fact that they can be successfully patched with the original sealer. To patch the floor the area should be thoroughly cleaned and sealer applied with an applicator, working from the centre outwards. Generally the easiest to apply are the water-based acrylic polishes which do not require buffing. Alternatively, the sealer can be given protective coatings of 'wax'. Usually two or three light initial coats would be applied in a domestic situation and these would be buffed between each coat. Spirit-based liquid or paste waxes can also be used. *Note: Water-based waxes are not generally recommended for sports floors.*

A well maintained timber floor should never need to be cut back. However, if the floor has not been properly cleaned and/or if too much wax has been applied, stripping may occasionally be necessary. While stripping compounds are readily available and the necessary machines are easily hired, it would generally be considered worthwhile engaging a speciality cleaning company with the necessary expertise and correct machines to do the work.

## ONE-CAN POLYURETHANES

'Single pot' floor finishes are available from a number of manufacturers under various trade names. These polyurethane (or plastic) floor finishes were generally spirit-based and cured either by the evaporation of the solvent or by a chemical reaction of the ingredients. Recently water borne urethane preparations have become available which do not present the respiratory hazards associated with solvent-based preparations.

Generally these 'one pot' finishes offer similar wearing characteristics to the two-can preparations. However, they are normally easier to apply and inter-coat adhesion is usually better. In both cases great care must be taken in application and manufacturers' instructions should be followed rigidly.

It is usual to apply two initial coats, with light sanding between coats. Where the spirit-based preparations are used, good ventilation of the room during and immediately after application is essential.

*Maintenance:* The alternatives are, vacuum or sweep the area regularly. When a matte appearance indicates an area of considerable wear it is essential to re-coat that area before bare wood is exposed. The area for re-coating should be lightly sanded and thoroughly cleaned of all dirt and grease before the application of the replacement coat; work out from the edges of the patch and this will make the join marks with the untreated areas less noticeable. Alternatively many owners would prefer to re-coat the entire floor area at this stage or,

- from the start, apply wax coatings to take the wear, as described for oil-based sealers; or
- use an acrylic emulsion floor polish as described for oil-based sealers.

However, in domestic situations most owners prefer not to have to polish their floors and will rely on the urethane coating as a final finish that only needs regular sweeping and the occasional damp mop.

### **TWO-CAN POLYURETHANE FINISHES**

'Two-can' plastics do not contain drying oils; they consist of two formulations that, when mixed, link to form a hard polyurethane film finish. These components require very accurate measurement and thorough mixing before use and, as with the one-pot mixes, good ventilation during and immediately after application is essential.

The coatings produced by these two-pot mixes are generally hard and remain very clear. There is usually very little penetration of the finish into the wood and unfortunately, unlike the single can mixes, it is very difficult to provide a satisfactory patch to a worn area because of the difficulty of obtaining adequate adhesion between coats. Because of this it is usually necessary to re-sand the entire floor back to the timber. Naturally this is not considered a desirable proposition for domestic floors but, in the case of showrooms and commercial areas, the hard glossy surface and the temporary freedom from maintenance of these two part mixes could be an advantage.

The excess application of 'plastic' finishes may result in the excess finding its way into the joints between the flooring boards. This may have the effect of gluing the boards together and if the floor should subsequently shrink, the resultant stresses could cause some boards to split. This need not be a problem if proper care is taken during the initial application of the finish.

*Maintenance:* Similar alternatives are available as before.

- Buff with a mop or cloth or vacuum clean. When worn areas do show up it *may* be possible to re-coat them but the ease of doing this will vary with the product used. Before committing to the use of the two-can polyurethanes, it is recommended the manufacturer be contacted and asked for their recommendations for patching and/or re-coating; or,
- apply wax coatings as a sacrificial surface coating as described for the oil-based sealers or,
- use an acrylic or water-based polish as described for the oil-based sealers.

### **SLIPPERINESS**

The sealers mentioned above will make little contribution to the slipperiness of a timber floor. However, the application of a wax film to protect the sealer from wear can be a contributory cause to slipperiness, particularly if excessive amounts of wax are applied or if the floor is not properly maintained.

A floor will not necessarily be slippery just because it has a glossy surface. Slipperiness will vary considerably with the type of material used for the soles of footwear and also with the degree of dryness of those soles.

Unwaxed sealed floors can become slippery if wax or grease is introduced from elsewhere in the building or if food, etc. is spilled. Small quantities of foreign material are generally far more dangerous than an evenly waxed surface because of the presence of unexpected areas of uneven friction.

### **GYMNASIUM FLOORS**

Some floors, particularly those used specifically for sporting activities, require predictable and totally slip-free surfaces. Most coating manufacturers formulate speciality sport floor finishes. As the type of footwear used on these floors is usually strictly controlled and the floors are well maintained, the finishes tend to be designed more for performance than their wearing characteristics.

Because of this, it is particularly important that a regular maintenance regime is implemented and carefully followed according to manufacturers' recommendations.

### **MULTI-PURPOSE FLOORS**

As the name suggests, such floors are usually all things to all people and usually cater for everything from sports and dancing, to meetings, dining, speech nights and any one of a hundred or more other activities. These floors are routinely found in schools, reception and community centres, scout halls and clubs. Finishes applied to multi-

purpose floors often vary from none at all to any of those mentioned previously. The maintenance of multi-purpose floors, while just as important as any other, is often neglected, usually because of a lack of understanding of its importance rather than anything else. However, because of the wide variety of activities and performance expected of this class of floor, it is very important that they be correctly maintained to ensure user safety if nothing else.

Because of the likely diversity of activity, it is virtually impossible to recommend a single solution for the sealing and maintenance of a multi-purpose floor other than to suggest that no matter what sealing method is chosen, an acrylic floor polish will at least give a measure of protection to a valuable investment and if correctly maintained should, under most circumstances, provide a fair degree of predictability in relation to general adhesion.

## UNSEALED FLOORS

Sweeping compounds, once commonly used on unsealed floors, are not recommended. These compounds commonly contained oils, sand and other substances which were intended to reduce the disbursement of dust. As mentioned earlier, dust and grit are the greatest enemies of a good quality timber floor. Therefore, the use of sand or other abrasives as cleaning agents would appear to be at odds with common sense. In these days of industrial vacuums and effective anti-static mops, the use of sweeping compounds on timber floors should not be necessary.

*This publication may be reproduced in full provided acknowledgement is made to State Forests of New South Wales. Extracts may not be published without prior reference to State Forests of New South Wales*

Copyright ©: State Forests of New South Wales 1995

Additional copies may be obtained  
by contacting:

Publications Officer  
Research Division  
State Forests of NSW  
PO Box 100  
BEECROFT NSW 2119

Phone (02) 872 0111  
Fax (02) 871 6941