Sanding cork floors

Australasian timber flooring association

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E admin@atfa.com.au
W www.atfa.com.au

Introduction

When working with cork, each job should be taken on its merits with differences from one site to another likely.

The assessment undertaken regarding the installation of a new floor will differ from the assessment of an existing floor that is to be either re-coated or sanded to bare cork. Some of the considerations would likely include the age of the floor, the type and structure of the cork tile including density, thickness and chip configuration. Additionally the type and flatness of the subfloor needs to be assessed. When sanding a newly installed floor the timing of the commencement of the sanding would need to be assessed with reference to the type of adhesive used to install the cork. It would be expected that most new installations would be undertaken using a “cork contact” adhesive but note some installers still install using a “wet lay” adhesive. When considering the re-coating of an existing cork floor an assessment of the type and condition of the coating is necessary.

Whilst in broad terms the sanding of both cork and timber floors have many similarities there are differences in the techniques used to sand cork floors. This is due in part to the cork being made from particles and also being relatively soft, when compared to timber floors, making it easier to damage the floor with the sanding equipment.

This information sheet will discuss aspects that need to be considered when preparing and sanding cork floors. As the procedures can differ between new and existing, these will be considered separately.

Preparation and sanding new cork floors

Subfloor preparation at the time of installation:

Subfloors need to be particularly flat prior to the installation of a cork floor, as cork flooring is very susceptible to the “telegraphing” of imperfections in the subfloor surface. It is important that prior to installation of the flooring, the different floor preparation methods and the expected result from each were discussed with the

client. It is deemed prudent that if the contractor is sanding a floor that they have not installed, whether it is a new or existing floor, they explain to the client that they are not responsible for or have control over the adequacy of the subfloor preparation. Subfloor imperfections will be more noticeable when high gloss coatings are used and the condition of the floor, in regards to the flatness of the subfloor, may influence the gloss level of the selected coating. In particular, drum sanding an existing cork floor always presents a judgment call, as cork will conform to all irregularities in the subfloor and greater care is required when sanding, regardless of what machine, paper and technique is used.

Sanding new unfinished cork floors:

When sanding a newly installed, unfinished cork floor, although techniques vary between floor sanders, the following provides a method that has been used with success.

- In a situation where the contractor is sanding a floor that has been installed by others, it is advantageous to know which type of adhesive has been used and whether the floor was rolled at the time of installation. Generally, it would be expected that a cork contact adhesive would have been used. Cork contact adhesives have a number of advantages over wet lay adhesives, including the fact that they can be sanded immediately on the completion of the installation of the floor and rolling the floor a short time after installation provides a secure fit of the tile to the subfloor.
- If the floor was not rolled then there is a likelihood of some raised tile edges which need to be addressed prior to sanding to ensure that the tiles are in full contact and adhered to the subfloor.
- Prior to sanding also consider that heat from the sanding machine can result in particle expansion and that paler coloured ‘under baked’ tiles can be more prone to this. Particle expansion is less prevalent on new floors when solvent based polyurethanes are used but more prone with water based polyurethane. Some contractors report good results when the floor is sanded and left for a period of time prior to the application of the initial coat of finish. With this in mind only low speed rotary machines should be used to sand the floor. If particle expansion was to occur in the finished floor it can usually be corrected by sanding the floor back to raw cork and recoating it.
- The sanding of a new floor would often commence with a 40 or 60 grit paper on a rotary sander and the floor would be cut in both directions (i.e. at ninety degrees one cut to the other). The paper would then be changed to an 80 grit paper and the process would be repeated. Improved results are achieved with a hard base plate which is the same principle as hard plating a timber floor. (Also note that as cork does not have a grain structure like timber, sanding of the floor can be undertaken in any direction.)
- With a random orbital palm sander the edges of the floor and areas not accessible to the rotary machine would be attended to with either a 100 or 120 grit paper. The likes of pencil or other marks on the tiles, often left from the installation of the floor, may be obvious around architraves and they should also be removed by hand sanding so that they don’t show in the finished floor.
- The rotary sander is then used with a 100 or 120 grit paper with a more flexible base plate (such as a red pad). At this stage it is necessary to look for shadow lines both along tile edges and generally in the floor which can indicate low areas of a tile. These should be addressed with the orbital palm sander before again going over the area with the rotary sander. Re-using the rotary sander over any areas where the orbital sander has been used is important to ensure an even coated appearance in the completed floor is achieved, as variations in sanding technique or the machines used, will show up in the finished floor.
- Corners and where the rotary sander and random orbital sander will not reach may need to be attended to with hand paper or a ‘triangle’ sander with a fine grade of paper (100 or 120 grit).
- Thorough vacuuming of the floor, skirtings and any vertical or horizontal surfaces that is holding dust is necessary prior to coating.

Preparation and sanding existing cork floors

Preparation prior to sanding and coating:

Prior to undertaking any work it would be considered prudent to gain as much information about the floor from the client as possible including the age and structure of the tile. Additionally, it is important to confirm the cork floor is actually a cork floor. Some laminated tile products are in the market with one such product having a PVC base, a small section of cork fixed to the base and a clear PVC wear layer over the cork, and as such, these products cannot be sanded or recoated. Client expectations are important. As an example, if the existing coating has yellowed and the owner views this appearance as unappealing it would necessitate a re-sand back to the raw cork. Also to be considered is if the owner has spare tiles to enable you to obtain information about the tile used on the floor. If it is a veneer tile re-sanding to raw is not possible and a recoat would be the only option. If no owner information about the tile is available then it may be possible to view tile edges at heating vents in the floor or to assess the type of tile in the back of a pantry, under a fridge, or the like, where damage would not be as apparent. Additionally, it is important to confirm the cork floor is actually a cork floor - some laminated tile products are in the market with one such product having a PVC base a small section of cork fixed to the base and a clear PVC wear layer over the cork, and as such these products cannot be sanded or recoated.

With a recoat the colour and appearance of the floor will not change significantly and all the contractor is doing is adding a coat of finish to the floor to extend the life of the floor. With a re-sand (belt or drum sand back to raw cork) the tile will be returned close to its original colour and appearance. This can result in a dramatic change in the colour and the appearance of the floor, particularly with older floors where a solvent based coating was originally used to coat the floor. Over time the tiles can take on a golden/yellow colour. An example of this is chocolate brown tiles (popular in the 70's and 80's) that appear golden brown (at the time of refurbishment some years later) but on re-sanding the original chocolate brown colour of the tile is restored. Such aspects need to be discussed with clients with it considered important to inform the client of the expected result from each refurbishment method. One other point to consider is that on drum sanding the floor, the original natural colour variations between tiles, now blended by the aged coating, will also become apparent.

Following this it is necessary to determine if there is sufficient cork remaining to be sanded. Traditional tiles came in number of different thicknesses and it is not possible to distinguish between them simply with a visual inspection of the floor.

One method of determining the thickness of the tile is to use either a new blade of a Stanley knife or a drawing pin, as shown to the right. Push the blade or drawing pin into the floor and it will go through quite easily. Once it hits the subfloor it will stop. Mark the blade or drawing pin and measure the distance from the bottom of the blade or pin, to your mark. Many experienced floor sanders would not attempt to drum sand tiles that were not either

4.8mm or 6mm tiles at the time of installation. If the thickness of the tiles is 4.0mm or less this would likely indicate the floor has been drum sanded in the past or the tiles were a thinner tile when originally installed. Tiles thinner than 4.8mm were also often low density products. This test should be carried out in a number of locations throughout the floor to gauge whether there is an even depth of cork throughout. This test is however, not a guarantee, but if carried out in a number of places, it should provide a reasonable indication of whether the floor could be re-sanded or not. Another gauge to the possibility of the floor being drum sanded with past refurbishment would be sanding marks, including edger marks that may be apparent at the perimeter of the floor. Also, as part of a visual inspection, the condition of the floor should be assessed in terms of the adhesion of the tile to the subfloor as with poor adhesion it is also advisable not to re-sand the floor. Floor replacement may be the only option in such instances.

Cut back for re-coating:

If the re-coating of the floor is the chosen refurbishment method several points need to be considered. Ask the client if they know which coating has been used on the floor but treat this information with care. However, information about their maintenance regime is important and should be obtained from the client, as for example acrylic polishes would need to be stripped off and some cleaners can leave a residue that can prevent the adhesion of the new coating to the floor. It is also prudent to undertake a test spot to ensure that the new coating will adhere to the existing coating. The test area (an area out of sight) should be cleaned with a mild detergent and a 'Scotchbrite' pad and then cleaned with water and dried. After drying wipe down with a solvent or thinner (as recommended by the manufacturer of the coating you intend to apply to the floor and thoroughly sand with a fine grade of paper (150 grit or 180 paper is commonly used), clean again, vacuum and apply the selected coating to the floor. The area should be left for a few days before assessing the adhesion of your coating to the existing coating (using packaging tape and a cross hatch test). If the test passes then a re-coat is likely to produce a commercially acceptable outcome. However, it is important for the owners to also realise that products used when ironing, cooking fat spatter on a floor and even fly sprays are among a number of household products that can result in rejection of the new coating. It would be prudent to inform the owner that there is a strong possibility of some spots of rejection visible in the completed floor and indicate to them that such rejection cannot be predicted by the flooring contractor and should not be viewed as a failing by the contractor.

After removal of the furniture the floor is cleaned with a neutral pH detergent in warm water with the cleaning water used changed regularly to ensure the cleaning is effective. Mechanical systems with a scrubbing machine are best to clean the floor or alternatively a rotary machine with a red pad can be used. Some floors requiring greater cleaning and may need two or three washes. Drying of the floor may be assisted with a fan and once dry, solvent or thinners as recommended by the coating manufacturer are often used on the floor as a final clean (using normal precautions as they are flammable) and to soften the existing coating. Again, it is important that coating manufacturer's instructions be viewed and followed.

The floor is then cut back with a fine paper (150 to 180 grit is commonly used) and with particular attention being paid to low spots which may need extra work with an orbital sander. Also at the perimeter of the floor it is necessary to ensure a mechanical key is obtained and this also requires use of a random orbital sander and a triangle sander in these areas and any other area where the rotary machine cannot reach. After the cut back the floor should have a uniform dull appearance.

The floor is then ready to be vacuumed and coated.

Drum or belt sanding:

Again, as stated above, the floor needs to be assessed as to the tile type to make sure the floor can be successfully drum sanded. The process to remove the coating depends on the condition, type and film build of the existing coating. If the coating is low build (e.g. hard wax oil) it may be possible to remove it by hard plating. In most circumstances, a polyurethane will have been used and it will generally need drum or

belt sanding to remove this type of coating. The paper on a drum or belt machine would usually be 60 grit unless a high solids, high build coating had been used on the floor, in which case 40 grit would be more applicable. This may take a number of passes before edging is done which would usually be undertaken with 60 grit paper, as a starting point, but could require 40 grit paper. After addressing any low sections of the floor, the complete coating will have been removed. At this stage there may be a need to apply some filler (water based wood filler would normally be used) to any damage the floor has sustained. Following this the floor would be hard plated with 80 grit paper often used. In areas not accessible to the rotary machine a random orbital sander would be used. The purpose of hard plating is to remove any sanding imperfections left from belt or drum sanding and edging. As such, the floor would now be in a condition where sanding imperfections have been removed and ready for final rotary sanding with 100 or 120 grit paper. Many contractors would use a more flexible base pad on the machine for this final stage of sanding. It would be expected that the appearance of a drum or belt sanded floor would be very similar to that of a newly installed floor.

The floor is then ready to be vacuumed and coated.

Note, if an acrylic caulking compound is to be used to fill such things as gaps between the floor and skirting boards it should be applied immediately prior to the application of the final coat of finish.

Coatings

Solvent based as well as water based polyurethanes work well on cork floors, but always check the manufacturers' recommendations. Some customers prefer their cork floor to have a deeper shade which water based finishes do not tend to give, so if this is the case, a solvent sealer with water based top coats could achieve the desired appearance. Experience suggests with older floors that are drum or belt sanded, particle expansion is less likely to occur than on new floors. Therefore some additional care may be needed if using a water based sealer on a re-sanded cork floor. In addition to polyurethane finishes some other coating types have at times been used successfully. Generally, the technique and number of coats used on cork would be the same as is used on timber flooring. Above all, it is important the floor sanding contractor is confident enough to carry out this work to ensure a successful result.

What can go wrong?

There have been instances where inexperienced operators have sanded cork floors too aggressively with belt or drum sanders and edgers. Sanding a cork floor, as if it is a timber floor, can result in problems occurring where the floor surface becomes uneven after the sanding. An example is shown in the adjacent photo. The standard AS 4786.2 Timber flooring Part 2: Sanding and finishing indicates that finish sanding should generally provide a smooth flat surface. Although this is recognised it also needs to be considered that the subfloor plays a significant role in how the finished floor appears, in regards to the flatness of the sanded and coated floor. Undulations in the subfloor that are obvious in a completed floor (that has not been installed by the floor sander) should not be construed to be the floor sanders fault. If there are any doubts or concerns regarding the adequacy of the preparation of the subfloor and the possible effect on the final appearance, a low gloss coating should be considered.

In addition to this, the other area as mentioned above, relates to particle expansion which can be contributed to by both the heating of the floor and use of water based sealers and coatings. This shows in a cork floor similar to grain raise in timber floors, and gives the cork surface a granular, uneven appearance, and is to be avoided.

With reference to Appendix B of AS 4786.2, it specifically provides guidance when assessing the appearance and quality of finish of a site sanded and finished timber floor but with some applicability to cork floors. It indicates that the floor should be observed in daylight with lighting switched on, that the floor should be assessed from a standing position and then by looking down at about a 45 degree angle, and observed in those areas normally occupied by people rather than areas screened by furniture. The standard indicates that some sanding and coating imperfections may occur and be considered acceptable. Even so, a high standard of workmanship is to be expected but with greater latitude in some respects with a cork floor due to the nature of cork.

Summary

It is evident from the above that with sanding of cork floors there are a number of aspects that need to be considered that differ to timber floors. A thorough understanding of the entire process from the initial site assessment, product characteristics, sanding technique and also coating selection are extremely important if a quality result is to be expected. Although care may be taken with the work, it is apparent that there can be difficulties and due to this and particularly where gloss finishes are used some degree of imperfection may occur but may be considered acceptable for a particular floor.