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## Take Your Time with Cork

by Christopher Capobianco  
March 27, 2007



The author in front of a gigantic pile of cork bark ready to be ground up and eventually turned into floor tile. (Photo by Rick Rollins)

Since my last column about cork about two years ago, I have had hundreds of calls about cork flooring, and developed a one-hour training program called "The Fascinating World of Cork", which I have presented a number of times and which has been well received. We have seen a lot of interest in cork, so my editor here at FCI asked me to give our readers an update on how to handle this unique, but intimidating floor covering product.

Cork can vary in color from tile to tile, so make sure the customer knows that before you sell the job and make sure to shuffle the tiles before you put them down so there are no groupings of darker or lighter color.

Cork comes from the bark of the cork oak tree and is manufactured into a huge variety of materials, most notably cork stoppers for wine bottles. I am lucky to have had the chance to learn a lot about cork and have visited Portugal and seen how it is grown and manufactured. It really is an amazing material, and as a floor covering is one of the most beautiful and functional products on the market, in addition to being arguably the most "green" floor covering product available.

That being said, it is also a challenging product to handle so it's important to take your time every step of the way. If everyone involved with a cork flooring project understands that it's a slow process to get the job done right, the result can be a beautiful warm, quiet environmentally friendly floor that will last for decades.

### Tile or Plank?

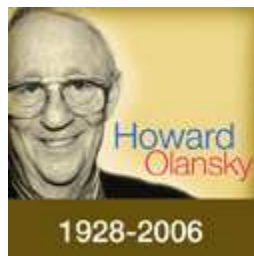
Cork flooring comes in two formats; cork tile that is glued down and cork planks that are installed as floating floors.

Cork Tile offers the largest number of available colors and size variations with 12"-by-12", 24"-by-24" and other sizes that are adhered directly to the substrate using an adhesive, which we'll explain in detail later.

Cork planks are usually 12"-by-36" tongue in groove planks installed as a floating floor using the same methods as laminate or wood floating floors. Cork floating floor products have a fiberboard core, a cork backing, a cork top layer and a urethane finish. Because of the cork backing, most installations do not need an underlayment such as the foam or other types of underlayments most floating floors are installed over. However, if needed, a cork underlayment or other moisture barrier type underlayment product can be used for additional insulation value, moisture resistance, or to build up the height of the finished floor. Cork floating floors are used mostly residentially, although there is an increasing interest in floating cork floors for commercial use due to the ease of installation and removal. Most, if not all, floating cork floor products in the United States market today are being sold with the "click" installation system that is made to be installed without adhesive. These products should not be glued to the substrate, and I do not recommend them in wet areas such as bathrooms. However, if cork floating floors are used in a high traffic such as a commercial installation, I recommend that the tongue and groove be glued using a Type 2 PVA adhesive as you would use for a floating wood or laminate floor. You will not find this advice in any of the manufacturer's guidelines but the advantages of gluing the tongue and groove together are better resistance to water from the top and less chance of joints opening up due to seasonal changes in temperature and humidity.



This unique installation of cork on the floors and walls was done using contact adhesive for excellent adhesion on both surfaces.





Proper substrate preparation will prevent telegraphing of substrate irregularities.

Cork floors are manufactured either in homogeneous or veneer construction. Homogeneous means the pattern and color all the way through the product in the case of tile products or all the way through the top layer in the case of floating floors. Veneer cork products, on the other hand, have unique visuals created by placing a veneer on top of a cork base. The advantage of homogeneous products is that they can be sanded and refinished when the floor is worn or damaged. Veneer products, as beautiful as some of the patterns are, should not be sanded and refinished. This difference makes homogeneous products an excellent choice for a variety of traffic areas. Even when exposed to heavy wear, they can be sanded and refinished. However, regardless of

whether a veneer or homogeneous cork floor is installed, proper maintenance, which we will discuss later, will prevent the need for refinishing.

### Think Wood—the Importance of Temperature

Once you have gone through the process of helping a customer select the right cork floor, planning the installation should begin right away. Although cork tile is classified as a resilient flooring product and is often installed in a similar way to other resilient floors, it acts a lot like solid wood flooring after it is installed, so when working with cork, “think wood!” Cork is sensitive to changes in temperature so if the climate control system is not operating, do not do the job! This is sometimes a problem on commercial job sites, but do not take no for an answer on this one.



If a wet set adhesive is left open for too long, there will be no adhesive transfer to the back of the tile. Loose, gapped or curling edges are the result.

We have talked about substrate testing and preparation in other columns here in FCI, so I will not take a lot of time other than to say that the floor needs to be dry, flat, and hard.

The industry standard, ASTM F 710\* says, “All concrete floors shall be tested for moisture regardless of age or grade level”, and manufacturer’s guidelines usually have similar language. Notice it says “shall”, not “should”, and it says “regardless of age or grade level” That means ALL concrete – new, old, basement or 50th floor - MUST be tested, no exceptions.



When using a wet set type adhesive, tile must be set while adhesive is still wet, usually after 10-15 minutes of open time. (Photo courtesy of Expanko)

As far as substrate preparation be sure to prep the floor so that is smooth, solid and dimensionally stable. Do not assume because cork tile is such a thick product that you can scrimp on floor prep. Glue down cork tile can telegraph substrate irregularities just like any other floor covering. Use high quality plywood underlayment over wood floors and a cement-based patching or leveling compound over concrete.

As for prep for floating floors, some people believe they can be installed over anything, so “level and flat” is a detail that often is forgotten! Bring a large level to the job when you measure to check that the floor is level and flat within manufacturer’s tolerance. A floating floor may float downhill if you install it on a floor that is not level! Flatness is important too - high spots will not allow the new floor to sit correctly and dips in the substrate create a lot of movement in the finished floor that lead to gaps between the boards, or worse

Acclimation is another step that must not be excluded from your installation procedures.

The product needs to sit on the job, in the room where it will be installed, for at least three days before you install it so it has acclimated to the temperature and humidity of the job site.

### Glue-down Cork Tile

Cork tile is installed with a contact type adhesive or a wet set trowel applied adhesive, depending on the manufacturer’s guidelines and the finished use of the floor. Whatever you do, do not switch adhesives from what the manufacturer recommends, unless the



adhesive manufacturer is going to stand behind the job without question.



Cork stoppers for wine bottles being manufactured. (Photo by Rick Rollins)

Contact has been in use in Europe for many years, and a number of U.S.- based cork companies have also recommended it. Contact is applied with a paint roller - to the back of the tile and to the substrate - which sounds like a pain in the neck at first but is not as time consuming as you might think, especially since you can coat the tile a day before installing it and coat large areas of substrate at one time. The advantages to contact are that it is spread with a paint roller, which means you can be off your knees (just be sure the substrate is spotlessly clean!); it creates instant bond, so there are rarely any curling edges; and you can work on top of it and walk on the floor as soon as it is installed. I have spoken to many installers with a lot of years of cork installation experience and many of them prefer contact to any other method.

That being said, there are a number of cork suppliers and adhesive manufacturers who have brought trowel-applied cork adhesives to the market. This is more like a conventional resilient flooring installation and may seem easier because you do not have to coat the tile. However, I have had more calls with problems on trowel-applied adhesive than I have with contact, so here are some cautions to be aware of. Urethane coated cork tile tends to want to curl a little, so open time and working time are critical. The open time is how long you wait to lay the flooring after you spread the adhesive and the working time is how long you have between the time you start to lay the flooring and the time the adhesive is no longer usable. Pay attention to these two times, and do not forget to roll the floor after it is set into the adhesive. Spread small areas at a time, allow the adhesive to "flash off" for the recommended open time, set the tile and roll the floor before the working time expires.

Failure to roll the floor or allowing the adhesive stay open too long are major causes of poor adhesive bond in any "wet lay" installation of resilient flooring, and loose or curling edges or gaps can be the result in the case of cork tile. Take your time! One of the top failures I have encountered with cork flooring is when the installer uses a trowel applied adhesive, leaves it open too long and/or doesn't roll it, and calls me the next day to find out how to fix curling edges. Even worse, the floor can fail months later when the seasons change and the tile wants to move as the humidity decreases in the winter months. Before leaving the job, make sure all of the edges of the tile are down flat and if they are not, put some weight on them to be sure they are firmly set into the wet adhesive.



Our tree hugging author hugging one of the largest cork oaks in Portugal. (Photo by Rick Rollins)

### After Installation

Like any "wet lay" installation, cork tile is subject to movement or shifting while the adhesive is still wet, so the floor should sit for 12-24 hours after installing before allowing any traffic. This is another one that is sometimes a problem on busy job sites but it is very important that the adhesive be allowed to harden. If construction has to continue on a newly installed resilient floor, my instructions are the same whether the floor is cork, VCT or anything else. Leave the floor undisturbed for the first 24 hours, sweep thoroughly and then cover with brown Kraft paper. Do not use the pink "rosin" paper because it has been known to stain floors if it gets wet. If there will be heavy traffic and rolling loads on top of the floor, put 1/4" plywood or other similar boards over the Kraft paper to protect it.




Cork has traditionally been used in libraries, courtrooms and similar spaces because it is a quiet floor compared to other hard surfaces. (Photo by Howard Goldberg)

### Finishing and Maintenance



Cork is sold with a variety of surfaces such as unfinished, wax, oil or urethane, which is the most popular and the one you will most likely see in the field.

Unfinished cork must be finished on site, so for people with experience in wood floor sand and finish work, this may be the ideal product. It costs a little less and has a few other advantages. I like unfinished tile because it is less likely to curl than factory urethane, you can fill any



Moisture testing is a must before installing any type of resilient flooring. (Photo courtesy of Delmhorst)

gaps before finishing, and the result tends to be a smooth, "tight" floor.

Wax cork has a beautiful low gloss luster to it when you see the sample, but it needs to be buffed and occasionally re-waxed with paste wax in order to keep the luster and remove scuffs. The problem is that for residential use, not too many homeowners are going to buff and wax their floors, and I have found that there are few floor maintenance technicians that know how to "paste wax" a floor, plus the paste wax is flammable and has a strong odor.

Oil Finished cork flooring is relatively new to the market, and is being sold as a "natural" sealer that is environmentally friendly. This finish is maintained using a similar process as factory waxed floors.

The bulk of cork being sold today in tile and plank is urethane-finished cork. You may see a specification that calls for a light screening and an additional coat of urethane after the floor is installed. Most manufacturers recommend (but do not require) this process. I often am asked, "Why should we put another coat on if there is already a urethane coating on the floor?" There are three main reasons. One is that sometimes you will see a slight "over wood" or "ledging" condition on cork tile, which means in certain light you can see the edges and you may be able to feel a slight ridge where two tiles meet. The screening process will knock down these edges and produce a smoother floor, in addition to helping seal up the edges to a certain degree and providing extra durability from that much more urethane on the surface. This job is made to be done professionally! This is not like mopping on a coat of floor finish in a VCT floor; it is like screening and putting a urethane finish on a wood floor. If you have never done it before, don't! You could ruin the floor if you make a mistake.

For ongoing maintenance, this same "screen and re-coat" process can be done periodically to keep a coating of protective urethane on the floor and prevent wear down into the cork itself. This could be every 5 years in light traffic or once a year in heavy traffic. If the "screen and re-coat" is done regularly, the urethane layer will never wear out.

As far as day-to-day maintenance, again – think wood! Sweep often, use mats to keep dirt and grit from getting on the floor, protect from sunlight and make sure furniture has soft felt glides on the bottom of the legs. Clean by damp mopping with very little water. I prefer one of the wood maintenance systems that are available on the market, where you spray a cleaner on the surface and mop with a microfiber mop. The cleaner you keep it, the longer it lasts; and the less water used, the better!

This is just a quick summary of some dos and don'ts for cork flooring. The most important thing is to take it slow – one-step at a time from testing and floor prep to installation, finishing and maintenance. If it has been done right, it's one of the most beautiful floor coverings I have seen.

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*Christopher Capobianco*

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