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# CARE AND MAINTENANCE OF YOUR WOOD FLOOR

## An Ounce of Prevention

As with any floor covering material, a few moments of care and a little common sense can go a long way in keeping your new hardwood floor looking its best. Here are a few simple suggestions to make your floor care easier.

***Never mop or clean your hardwood floor with water or steam. Do not use wax, refreshers, polishes or Murphy's Oil Soap, as this may result in a loss of warranty. We do not recommend vinegar and water solutions.***

- If your floor abuts exterior doors, put outside doormats at the entrances to keep dirt and moisture from being tracked in. Inside, we suggest you add an area rug to further prevent dirt and moisture from being tracked onto your hardwood floor. Don't use foam back, coca fiber or plastic mats as they may discolor or scratch the floor. To prevent slippage of area rugs, use an approved RUBBER rug underlay from a reputable manufacturer.
- Sweep or vacuum your floor as often as required to remove loose dirt or grit before it can scratch the surface of the floor. Be careful, the beater bar or the sole plate of the attachment must not touch the floor!
- Wipe up spills as soon as possible, before they get sticky or dry. Remove dried spills with a cloth or pad dampened with PRO CARE CITRUS FLOOR CLEANER. Do not use general purpose citrus cleaning products. Available from Flooring Services, Southern Wood Flooring and Supply (972) 380-9665, online or at http://www.procoatinc.com/procare2.html
- Use floor protectors on the feet of furniture to avoid scratches. There are several sizes of floor protector pads available. When moving heavy furniture or appliances slip a blanket or scrap of carpet face down under each foot and slide the furniture carefully. This will help avoid scratching and gouging.
- Certain type casters on furniture may damage hardwood flooring. Barrel-type caster wheels or wide flat glides are best for protecting your hardwood floor. If your furniture does not have the right type of caster, we recommend that you change them.
- A humidifier is recommended to prevent excessive shrinkage in wood floors due to low humidity levels. Wood stoves and electric heat tend to create very dry conditions. A humidity level of 40 to 50 percent and a temperature range of 60-80 degrees Fahrenheit is recommended. **To prevent cracks and gaps, many hardwood floors will require the higher humidity level during the winter heating season.**
- In damp conditions, proper humidity levels can be maintained with an air conditioner or dehumidifier, or by periodically turning on your heating system during the summer months.
- **Spike or stiletto high heel shoes, especially those in poor repair, may cause denting and related damage to hardwood floors due to the extremely high compressive force they generate. Such footwear can produce dynamic loads in excess of 1000 pounds per square inch, even when worn by someone of slight of average build. Flooring Services will not accept claims for damages, which arise from such exposure.**

Revised 2/20/18

# Benefits of Home Humidification

Each of the following links discuss the detrimental effects of inadequate moisture in your home. Many North Texas homes become overly dry during the heating season. The tighter construction techniques required by todays building code have created the need for outside air to be pushed into the home. In the fall and winter this cold dry air affects your health, your comfort, your furniture, cabinets, wood floors, sheetrock, wood trim etc. In other words, all of the building components and most of your furniture suffer the effects of not enough moisture to stay healthy. These links will provide important information for you to consider.

https://www.achooallergy.com/learning/benefits-of-home-humidification/

http://www.si.edu/mci/downloads/articles/furnbook.pdf

http://www.choicekitchenbath.com/blog/item/15-how-humidity-and-temperature-affect-your-cabinetry

http://www.huffingtonpost.com/glenn-revere/how-does-your-homes-indoo_b_5556419.html

If your North Texas home is maintained at a 45% relative humidity level during the winter heating season you will see only minimal cracks and gaps in your hardwood floor, wood trim, and furnishings. Your health and comfort level is improved as well as achieving better HVAC operating efficiencies. Many North Texas homes require additional humidification during the heating season to attain these humidity levels.

There are many options when choosing a humidifier for your home. There are portable options as well as built-in units. Our experience indicates that the Aprilaire 800 Steam Humidifier offers the most efficient and trouble free performance. https://www.aprilaire.com/whole-house-products/whole-house-products/humidifier/model-800 Depending on the configuration, this whole house system is capable of delivering up to 34 gallons of moisture a day into an overly dry home. Your builders' HVAC contractor can help you determine the actual capacity requirements of your home and family.

Evaporative humidifiers offer different pros and cons. Although inexpensive, the portable units are very limited in their ability to deliver enough moisture on a daily basis. A typical home could require multiple units to keep up with the demand. These products are available at Amazon, Home Depot, Lowes, Wal-Mart, Target, Bed Bath and Beyond etc.

**As the homeowner, you are in total control of your environment. It is important to monitor your home's humidity and temperature levels with a Thermo-Hygrometer. Hardwood floors, wood trim, cabinets, and furniture all feel better with 45% relative humidity during the winter heating season.** You can spend as little as $8 for a single hygrometer, or here is one suggestion to monitor your whole home.

http://www.amazon.com/Ambient-Weather-WS-10-8-Channel-Thermo-Hygrometer/dp/B00FX8ZGOO/ref=cm_cr_pr_product_top

If your home develops sheetrock cracks, unpainted or unstained cracks on cabinet doors, painted trim separation, large cracks and gaps or excessive splinters in your wood floors, your home is too dry.

February 2, 2017

FLOORING SERVICES, LLC

# Solid Hardwood Floors and Physics.

Our North Texas climate has been significantly drier this past year. All of the woodwork in your home has shown the physical effect and results of too little internal moisture. Low levels of humidity/moisture have caused wood to shrink, which in turn is causing cracks, gaps, and separations to develop in solid hardwood floors and other wood building materials. The root cause has been too little humidity/moisture in the region and in the home environment itself

As higher humidity levels return to the region we frequently see the cracks and separations reduce or disappear completely. These issues will continue to improve as humidity levels return to consistent levels for our region.

As the homeowner, you are in total control of your hardwood floors overall health, condition, and appearance. When you notice cracks or separations you must add moisture/ humidity to the environment or expect cracks and gaps in a floor that has lost too much moisture. As a side note, a Hygrometer (Acurite 00613A1 Indoor Humidity Monitor – purchased for approx. $10 online) in the home is very helpful, telling you instantly both the temperature and the humidity levels. It allows you to be proactive and ahead of excessive drying.

*The excerpts listed below discuss the normal seasonal movements of solid hardwood floors. This information is taken from various Hardwood Flooring publications and associations in order to provide technical and scientific information to wood flooring professionals. If you have a home with a solid hardwood floor this information is*

*designed to explain why your floor reacts the way it does*. ***This information is targeted to the wood flooring professional. Therefore, it is rather direct and no nonsense in its tone and delivery.***

## Excerpts from:

### How to Prevent Wood Floor Gaps in Winter

By: Craig DeWitt, Ph.D., P.E.

October/November 2010

During the winter, even the most carefully installed wood floors tend to dry out and shrink. Customers begin to notice gaps between boards, and the phone calls begin. The floor behaves that way because of wood's relationship with moisture in the air (there's no accounting for how the customers behave, although educating them about gaps beforehand can help—more on that later). Air with a low moisture content, or low relative humidity (RH), causes wood to lose moisture. When wood loses moisture, it shrinks

**Moisture Issues**

The other approach to winter gapping is to address the moisture issues. Gapping and associated noises usually occur when the flooring dries significantly from its summertime high moisture levels. So, to reduce winter gapping, reduce the annual range of moisture levels. Or, more specifically, to reduce winter gapping, don't let the indoor RH drop too much. (Or don't let summer RH levels get too high—but that is another article.) A good annual range for the best flooring performance is a swing of 20 percent RH from wettest to driest. This means that in the Southeast, we may work in a range of 40 to 60 percent RH, while up north they may use 30 to 50 percent, and out west they may use 20 to 40 percent. All will work, as long as the RH range isn't too wide. But sometimes in the winter, the RH tends to dip too low.

### Realistic Solutions

So what do we do? First, we can't fault wood for being wood or doing what wood does. Second, we can't change the laws of physics and make cold, dry air magically wetter but not hurt houses. Therefore, we are left with a few options to prevent large seasonal gaps

**Solution 1: Go back to the basics**. Use narrower boards, more stable species of wood, quartersawn boards, or a combination of those features. Or consumers can accept seasonal gaps. This takes consumer education by establishing proper customer expectations.

**Solution 2: Use a product that can handle low-RH environments.**
During the winter, even the most carefully installed wood floors tend to dry out and shrink. Customers begin to notice gaps between boards, and the phone calls begin. The floor behaves that way because of wood's relationship with moisture in the air (there's no accounting for how the customers behave, although educating them about gaps beforehand can help—more on that later). Air with a low moisture content, or low relative humidity (RH), causes wood to lose moisture. When wood loses moisture, it shrinks

**Solution 3: Change the building design and/or operation.** This solution isn't up to flooring professionals. Builders and building owners can take steps to reduce ventilation rates, and/or add humidifiers. Humidifiers do need routine maintenance, as often as every month during the heating season. And we all know how good we are at routine maintenance. So be prepared for some gapping complaints a couple years down the road.

**Bottom line: Winter weather dries out wood flooring, causing gaps, possibly increasing squeaks and opening surface cracks.** Wood will be wood. Physics will be physics. Inform your clients of these facts, and don't rely on humidifiers or other sources of moisture to prevent normal winter conditions.

## Excerpts from:
National Wood Flooring Association. Publication 100

### Cracks and separations between boards

In a comfortable home with slight humidity variations through the seasons, wood flooring responds by expanding and contracting. These changes may be noticeable. During warm, humid weather, wood expands. During dry weather, wood contracts. This seasonal movement is a normal characteristic of wood flooring, and it never stops, regardless of the age of the wood. One of the

best ways to ensure that wood flooring will give the performance homeowners expect is to install humidity controls and ensure that they are functioning before the flooring is installed.

## Working with humidity controls

A homeowner who chooses hardwood flooring is making an investment in a floor that will last 40 years or more, and he or she should protect that investment by installing humidity controls – a tool that helps the floor maintain a beautiful, trouble-free appearance.

Most hardwood floors will show separation to some degree. In colder climates, when homes are heated and the air is dry, moisture dissipates and board separation occurs. When that happens, thin cracks appear between the planks. This is normal, and homeowners should be aware of this, so that they are not alarmed at the first sign of cracks. Once the indoor environment regains moisture, most of these cracks will decrease. Cracks in winter – in the drier months – may easily develop to the thickness of a dime (1/32") for solid 2 ¼" strip oak floors. Floors that are naturally or stained lighter in color (like maple), tend to show cracks more than darker finished floors.
Although these are common occurrences, these issues are more apparent when there are extreme variations in climate.

In conclusion, most solid hardwood floors will have some degree of plank separation. The only way to reduce this is to add moisture to the air if it is too dry. Although there are several methods available for adding the moisture, we suggest a built in indoor humidifier or use the inexpensive cool mist humidifiers to boost the humidity to acceptable levels.


# For the Customer: How to Spot and Avoid Trouble in Hardwood Floors

In a comfortable home with slight humidity variations through the seasons, wood flooring responds by expanding and contracting. These changes may be noticeable. During warm, humid weather, wood expands. During dry weather, wood contracts. This seasonal movement is a normal characteristic of wood flooring, and it never stops, regardless of the age of the wood. One of the best ways to ensure that wood flooring will give the performance homeowners expect is to install humidity controls and ensure that they are functioning before the flooring is installed.

## Working with humidity controls

A homeowner who chooses hardwood flooring is making an investment in a floor that will last 40 years or more, and he or she should protect that investment by installing humidity controls – a tool that helps the floor maintain a beautiful, trouble-free appearance.

## Cracks and separations between boards

Nearly every floor endures some separation between boards. In winter, when homes are heated and the air is dry, wood flooring gives up some of its moisture an therefore shrinks. When that happens, thin cracks appear between. This is normal, and homeowners should be forewarned of this. It is acceptable, and customers should not be calling the installers at the first sign of cracks. Once the indoor heat goes off in the spring, and the indoor environment regains moisture, most of these cracks will close up.

Cracks in winter – in the drier months – may easily develop to the thickness of a dime (1/32 inch) for solid 2 1/4 –inch wide strip oak floors. Floors with light stained woods and naturally light woods like maple tend to show cracks more than darker, wood-tone finished floors.

The cure for cracks? Homeowners should add moisture to the air during dry periods. It's their choice – live with the cracks and wait until spring, or else add humidity by opening the dishwasher after a rinse cycle, switching off the bathroom fan or hanging laundry to dry in the basement near the furnace. Better yet, install a humidifier in the furnace, or an exterior air vent for the furnace burner.

If cracks are a concern, laminated flooring moves less and shows fewer gaps.

## Cupping and crowning

"Cupping and crowning" are common complaints that develop with high humidity. Both problems occur across the width of the flooring material.

Cupping is when the edges of a board are high and its center is lower. It can occur after water spills onto the floor and is absorbed by the wood, but high humidity is more often the cause. If the wood expands significantly, compression set can result as the boards are crushed together, deforming the boards at the edges.

Cupping is caused by a moisture imbalance through the thickness of the wood: The wood is wetter on the bottom of the board than on the top. The moisture imbalance can be proven by taking moisture meter readings at different pin depths.

The first step in repairing a cupped floor is to identify and eliminate the moisture source. In the kitchen, it may be a leak from the dishwasher or ice-maker. From outdoors, it might be the terrain of the lot, with rain and runoff not moving away from the house and foundation. Indoors, the humidity may need to be controlled, or a plumbing leak may be causing excess moisture in the basement, which migrates up into the subfloor and from there into the wood flooring.

Once the source of the moisture is controlled, cupping can usually be cured. The floor may improve on its own as it dries out over time. Other times, fans may be needed to speed the drying process. Once the moisture content has stabilized, the floor can be reassessed. Choices may be to do nothing at all, to recoat the floor or to sand and refinish the floor. **However, it should not be sanded until moisture-meter readings indicate the floor is thoroughly dried.**

Crowning is the opposite of cupping: The center of a board is higher than the edges. Moisture imbalances is sometimes the cause of crowning if excessive moisture is introduced on the top of the floor, perhaps from water used in maintenance or plumbing leaks from an overhead sprinkler system. However, a common cause is that the floor was previously cupped, but was sanded at the wrong time – before the moisture content returned to normal and the board flattened on its own.

It should be noted that some slight cupping and crowning may occur naturally, and should be tolerated: The bark side of lumber shrinks and swells more than the side closest to the center of the tree. Largely seasonal in occurrence, it's common in wider planks. Its appearance can be minimized by using a beveled-edge flooring product with the satin finish, rather than square-edge flooring with a high gloss finish.

## Buckled floors

The "buckling" of hardwood floors – when the flooring literally pulls away from the subfloor, rising up to several inches in one or more places – is one of the most extreme reaction to moisture that can occur. Fortunately, it is not a common occurrence.

Buckling happens most often after a floor is flooded for a time, but there are numerous other causes. On nailed floors, insufficient nailing, incorrect nails or incorrect subfloor construction are possibilities. On glue-down floors, the causes range from the use of incorrect or insufficient mastics to an inadequate mastic transfer, a subfloor separation or a subfloor contamination.

In flooded hardwood strip flooring, the swelling stress is theoretically high enough to push out walls. However, before that can happen the nails or the glue holding the flooring to the subfloor will usually give way, so that the floor bulges upward.

If buckling floors are caught early, spot repair and replacement may be possible. Once the standing water is removed, several boards may be taken up from the floor so that air can be circulated across and below the floor more effectively. Once the floor has dried to a more stable moisture level, repairs can usually be made.

## Some tips on maintenance

The enjoyment of wood flooring depends on some routine but minimal maintenance details. These include:

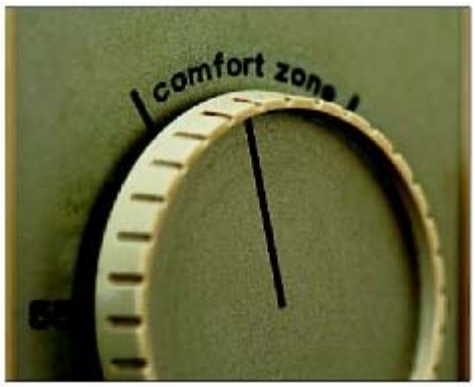
- Sweep your floors or use a dust mop daily, but do not use a household dust treatment, as this may cause your floors to become slick or dull the finish.
- Vacuum your floor regularly, as often as you would vacuum carpets.
- Clean your floor's coated surface with a lightly dampened cloth using a recommended cleaning product, and according to the manufacturer's directions for use.
- Never damp mop a wood floor. In all cases, use minimum water, because water causes deterioration of the wood itself, as well as the finish.
- Buy a "floor care kit" that your installer or flooring retailer recommends instead of counting on a home-made remedy of vinegar and water to clean your floors. Different finishes have different maintenance requirements, and it's best to follow professional advice in this area.
- Clean light stains by rubbing with a damp cloth.
- Avoid using mops or cloths that leave excessive water on the floor. Never let a spill of water dry on the floor.
- Control humidity levels by use of a dehumidifier or humidifier. You may need to add portable units in some rooms.
- Have your floors recoated periodically as the finish shows wear.
- Do not clean your wood floors with the water or water-based products on a regular schedule. Clean only when necessary and clean only the soiled areas.

Hardwood Floors
The magazine of the National Wood Flooring Association

# How Inside Air Affects Wood Floors

By: Craig DeWitt, PhD., P.E.
April/May 2007

Understand how the air in buildings affects wood floors




We build houses (and other buildings) so we can maintain an inside environment different from the one outside. For hundreds of years, we primarily heated buildings. In the last 50 years or so, cooling has become widespread. Much more recently, we've put effort into intentionally controlling humidity in buildings. The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) has published "acceptable" indoor conditions that range near 70 to 75 degrees Fahrenheit (F) and 30 to 50 percent relative humidity (RH). These conditions guide us in determining the expected in-use moisture content of wood flooring.

Wood flooring reacts to the environment it is in. Wood gains or loses moisture and correspondingly gets bigger or smaller based on the moisture content and temperature of its surroundings. Everyone involved with wood deals with this wood-moisture-temperature phenomenon. NOFMA, the NWFA, the U.S. Forest Products Lab and even other publications like *Fine Woodworking* publish information on these relationships and how to deal with them. We, as flooring professionals, need to know what determines or affects humidity and temperature levels in a house, and how those interactions affect wood floors. Here are some basics every wood flooring professional should know.

## Moist Air Relationships

Air as we know it contains moisture in the form of water vapor. This air has a temperature and relative humidity. The relationship between temperature and relative humidity is covered in an area of physics and engineering called psychrometrics (pronounced sigh-crow-met-ricks), or the thermodynamic properties of air.

According to psychrometrics, air at a given temperature can only hold a given amount of moisture. Warm air can hold more moisture than cold air. The ratio of how much moisture is in the air compared to how much it can hold at a given temperature is defined as relative humidity. Relative humidity is expressed as a percent (%) and is abbreviated as RH. Air at 50% RH contains half of the moisture the air can hold at that temperature.

Heating or cooling air doesn't change the amount of moisture in the air, but it does change the air's capacity to hold moisture. (Air conditioners as dehumidifiers are discussed later.) For example, air at 95 degrees F can hold twice as much moisture as air at 75 degrees F. So, changing the temperature of air changes the RH because the capacity changes, but the actual amount of moisture doesn't. This is a critical concept: *Changing the temperature of air changes its RH*. Say it out loud three times: Changing the temperature of air changes its relative humidity. (See the sidebar "Temperature and Relative Humidity" at the end of this article.)

As air is cooled, its capacity to hold moisture decreases. At a temperature, called the dew point, the air becomes saturated and can't hold any more moisture. Cooling the air below the dew point causes the water vapor to become liquid, forming dew or condensation.

In a general sense, outside air in the early morning is saturated and at dew point (100% RH). This is why we get dew on windshields and grass. As the sun heats the air, the RH decreases, and by late afternoon, the outside air is usually at the lowest RH of the day. All day long, the dew point is pretty much the same. The temperature changes and, therefore, the RH changes.

Adding or removing moisture can also change the RH. Humidifiers, cooking, bathing and cleaning activities are ways to add moisture to air. Dehumidifiers and air conditioners are typical ways to remove moisture and lower RH.

So when we change the temperature in a building, we can affect the wood floor because of a related change in RH.

## Buildings Need Air

Some outside air is necessary to keep people comfortable and healthy. Ventilation occurs both through unplanned openings such as cracks and joints around doors and windows and through planned openings such as exhaust fans and mechanical ventilation systems. (Ventilation through unplanned openings is often called infiltration, but here we will call it all ventilation.)

House ventilation is measured in air changes per hour (ACH), or how many times the entire volume of air in the house would change in an hour. For example, a 1,000-square-foot house with 8-foot-tall ceilings would have a volume of 8,000 cubic feet. One air change per hour means 8,000 cubic feet of outside air would move through this house in one hour. Mechanical ventilation systems, such as exhaust fans, are rated in cubic feet per minute (CFM).

A modern "tight" house may have a ventilation rate of less than one-third air change per hour. An older "leaky" house may have two to three or more air changes per hour. I've seen houses with ventilation rates of more than 10 air changes per hour.

Leaky houses can have large swings in humidity levels and corresponding large energy bills. Large swings in humidity levels translate into lots of movement in wood floors.

## Winter Leaks

In Albany, N.Y., for example, 20-degree-F outside air at 100% RH leaking into a 70-degree-F house will become about 12% RH air. What will that do to flooring? In actuality, the air usually mixes rapidly with household moisture and doesn't hit these extremes. But in localized spots or over the long term, very dry spots can happen.

Adding moisture to the air can help keep the RH up. Leaky houses require more moisture. In our 1,000-squarefoot house under the 20 degrees F and 100% RH outside conditions, psychrometrics indicates that we would have to add 1.5 pounds of water per ACH just to get to 25% RH in the house. In a tight house with one-third ACH, we could add only 0.5 pound of water per hour. In a leaky house with 5 ACH, we would need 7.5 pounds of moisture per hour.

How do we add that kind of moisture? The house and its contents contain enough water to provide a short-term buffer to keep things from getting too dry. People, plants, pets, bathing, cleaning and cooking activities all add some moisture. In some climates, humidifiers are common when other internal moisture sources cannot provide the necessary moisture.

## Summer Leaks

In cooling climates, the opposite happens. As air leaks in and is cooled, its RH goes up. As a result, boards get bigger, gaps close or cupping occurs. In some cases, the leaking air condenses on cold surfaces and creates water issues similar to flooding and plumbing leaks.

Air conditioners can remove moisture from the air and help control indoor humidity levels. But typical air conditioners are controlled by temperature settings, not humidity levels. Short run times, leaky buildings and excess moisture sources can all cause summer indoor humidity levels to be high. For example, outside summer air in Charleston, S.C., is near 95 degrees F and 50% RH. When this air leaks in and is cooled to 75 degrees F, the RH jumps to 100%. Again, dilution and removal don't let it normally get this high. But localized leakage spots and cold spots can.

Removing moisture from the inside air helps keep the humidity at respectable levels of 40 to 50% RH. To dry one ACH of 95 degree F and 50% RH air in our 1,000-square-foot house to 50% RH requires the removal of about 5 pounds of water per hour. A 2-ton air conditioner would remove about 6 pounds per hour, running continuously. So on a hot afternoon, with a mildly leaky house, we can maintain a respectable 50% RH. If the house is leakier, the AC can easily be overwhelmed, resulting in higher inside humidity levels. An equally common situation is when the AC is oversized. Oversizing shortens run time and, therefore, dehumidification capabilities. Even a properly sized AC is oversized most of the time. In the above example, early morning temperatures in Charleston could be near 75 degrees F, with a RH near 100%. With 75 degrees F outside and a thermostat setting of 75 degrees F inside, the AC will run very little. Yet the moisture load is the same, so we still need to remove those 5 pounds of water per hour, or the RH will go up. Leakier houses would again be worse.

## Air/Floor Relationships

A wood floor is affected by the air immediately next to it, not feet or even inches away. The environment above the floor is typically conditioned space controlled to make the majority of people comfortable in an indoor situation.

In above-floor spaces, the air near the floor is often different from that in the center of the room or even on a table in the same room. In buildings with radiant-heated floors, wall radiators or other nonforced air-heating systems, floor temperatures may be several degrees different from those in the middle of the room. In buildings with windows, solar gain can affect floor temperatures. Therefore, best practices dictate that the conditions at the floor are the important ones. Remember the psychrometrics: change the temperature and you change the RH.

When you have concerns about flooring in a particular area, measure the conditions of that flooring. If you are concerned with gaps in front of a window, measure the temperature and RH at the flooring in front of the window. Say out loud three times: "The conditions at the floor are the important ones."

## Subfloor Dynamics

The environment under the floor can also affect wood flooring. Under-floor environments range from fully conditioned spaces (like a first story), semiconditioned spaces (like a basement), unconditioned spaces (like a crawlspace) and slabs that are on-grade. These spaces and systems are governed by the same psychrometrics and moisture dynamics as the spaces above the floors. But because these spaces are conditioned (or not) to a different level from that above the floor, they can affect the flooring from the underside. We see the effects of this kind of situation when wood flooring cups because of a wet slab. Again, the conditions immediately under the floor are the important ones, not the conditions inches or feet away.

Wood flooring installed on a second floor has similar conditioned space above and below. It is controlled by normal swings in indoor environments and settings, and is usually the most stable, predictable flooring in the house. Things can go a little screwy if floor framing consists of open-web floor trusses with leaky band joists. Then the floor environment can become a different environment from the living space.

Floors installed over a basement can be exposed to two different environments. Basements can have cold walls because of earth temperatures, and they can be humid because of water leaks. Basements aren't as well-ventilated as upper floors, so they don't experience the same level of winter drying. Air conditioning needs in basements are minimal because of cool walls, cool floors overhead and even cold ducts. It's no wonder that so many basements have mold problems. And if there is enough moisture for mold, there is potentially enough moisture to affect flooring. One thing in our favor is that heat rises, so floors over basements are usually warmer than the basement in general, so RH levels near the wood floor are lower.

The air in a vented crawlspace is at best just outside air. Any change in temperature between the crawlspace and outside or any gain of moisture in the crawlspace will affect the RH in the crawlspace. In the heating season, crawlspaces are usually warmer than outside. So even if we do gain some moisture from the soil, the air in the crawlspace will be at a lower RH than outside air. In Albany, N.Y., that 20-degree-F outside air at 100% RH leaking into a 50-degree-F crawlspace will push the crawl space toward 25% RH.

## Solutions

Wood floors react to an indoor environment in a predictable way because of known relationships with temperature and relative humidity. A more stable environment results in a more stable floor. Wood species, board width and consumer expectations are factors that determine environmental requirements.

One solution to dry or humid houses is to add humidity controls. Humidifiers are added for the heating season to keep things from getting too dry. Dehumidifiers are added or air conditioners are turned down to deal with summer moisture. Constraints to adding moisture are energy requirements and the quantity of water needed in a large or leaky building, and not over-humidifying the inside such that condensation on windows or other building surfaces occurs. Concerns of health issues with dirty or contaminated humidifiers are also an issue.

Air conditioners can help control summer humidity levels but need to run to be effective. AC units typically do not dehumidify much in the morning or during cooler spring and fall seasons when moisture loads can still be high. In many cases, a stand-alone or whole-house dehumidifier is necessary, especially with wider flooring in more humid climates. In this way, humidity levels are controlled independent of temperatures.

Outside air is not the friend of wood flooring. Winter ventilation tends to dry flooring; summer ventilation tends to add moisture to flooring. Beyond what is necessary for human health and safety, more is not better. An effective step in reducing floor issues is to reduce ventilation and air infiltration as much as possible.

The next step is to get the environment across the floor as consistent as possible. Try to eliminate cold spots resulting from AC systems, ducts and registers, and exterior wall drafts. Eliminate hot spots at windows and near heating systems, ducts and registers.

Another step is to get the environment on both sides of the flooring as similar as possible. In under-floor spaces such as crawlspaces, thermal, air and moisture flows need to be addressed. Using insulation incorporating an air and moisture barrier can accomplish this. Separate thermal, air and moisture barriers can also be combined to do the job.

A consistent, stable environment will result in a more stable, consistent wood floor. With today's high consumer expectations and flooring preferences, consistent, stable environments are necessary for a successful wood floor installation. The good news is that creating those environments is quite possible and cost effective. The bad news is that it takes many other building trades to help make it happen.

### Temperature and Relative Humidity

Temperature affects relative humidity. The following are examples of air that has the same number of water molecules and the same number of air molecules. Only the temperature is different.

Cooling the air raises the RH. These are the same air at different temperatures:

- 95 degrees F and 25% RH
- 75 degrees F and 50% RH
- 55 degrees F and 100% RH (dew point).

Heating the air lowers the RH. These are the same air at different temperatures:

- 35 degrees F and 100% RH (dew point)
- 55 degrees F and 50% RH
- 75 degrees F and 25% RH.

# SUGGESTED CLEANING PROCEDURE FOR PAINT OVERSPRAY AND SHEETROCK DUST

## Paint removal

- Suggested paint cleaning agents are Goo-Gone, Goof off, Mineral Spirits or VMP Naphtha. Never use Lacquer thinner, it will eat the finish. (REMEMBER SOME OF THESE ARE FLAMMABLE, VENTILATE WELL!) Always test these cleaning agents in a corner or low traffic area to check for any change to the finish.) Many paint drops can be flicked off of the floor using your fingernails or a plastic scraper etc.
- After paint removal, clean the area thoroughly with Pro care cleaner and a clean white rag.
- A stain pen is helpful in touching up spots that are unreachable or un-removable down in the grain.

## Sheetrock dust

- Vacuum the area thoroughly to remove dirt, debris, and sheetrock dust. If sheetrock dust is still in the grain after vacuuming, use an appropriate nylon bristle brush to remove it. *(Please note, if water is used first it will be very difficult to remove the sheetrock mud from the grain when it dries. Many hardwood floors are ruined and cannot be saved because they were mopped first and not vacuumed first.* Do not wet mop hardwood floors!*)*

Revised 9/14/17


# Pro-Care Floor Cleaning Kit

(All Wood Floors)

| Amnt | Item Number | Product Description |
|---|---|---|
| 1 | MOP16 | Household Mop Hardware |
| 1 | WPC16 | Wet/Dry Mop Pad |
| 1 | PC20 | 32 oz Pro Care Floor Cleaner Spray Bottle |

## Pro Care Cleaner Details

- Cleans Hardwood, Tile and Marble floors
- The freshness of citrus leaves your house smelling clean
- The natural degreaser gently removes tough stains
- Environmentally safe – leaves no ozone depleters
- The fast-drying formula gets the job done quickly
- Pro-Care Cleaner - 32oz bottle cleans approximately 5,000 sq. ft.

| | | |
|---|---|---|
| Can Also Purchase | PC302 | Pro Care Concentrate 8oz |
| Can Also Purchase | PC303 | Pro Care Concentrate 1 Gal |

# Flooring Services recommends this product for your Hardwood Floors.


*Cleaning your floors has never been easier. Just spray and mop.* ***Pro-Care*** *cleans and enhances the natural beauty of your floors.* ***Pro-Care*** *leaves a fresh citrus aroma with no sticky or oily residue. It can tackle even the toughest stains, but it is gentle enough for the most delicate floor finishes. Now available at Southern Wood Flooring & Supply.*

- **Cleans Hardwood, Tile and Marble floors**
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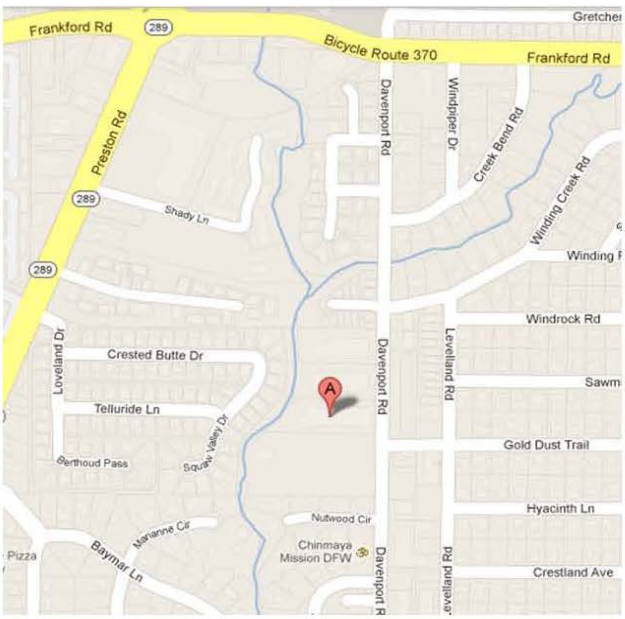
- **The natural degreaser gently removes tough stains**
- **Environmentally safe – leaves no ozone depleters**




## Southern Wood Flooring & Supply

17815 Davenport Rd. Ste. #280
Dallas, Texas 75252
(972) 380-9665

7071 Twin Hills
Dallas, Texas 75231
(214) 360-0123

7450 White Hall
North Richland Hills, Texas 76118
(817) 595-9500

T FLOORING SERVICES, LLC

**Minwax Stain Touch-up pens** are available at Home Depot and Lowes in the paint department. Popular colors include; Red Oak, Dark Walnut on the darker floors and Early American on the lighter floors. Please verify the color compatibility before applying.

2020 Valley View Lane • Farmers Branch, Texas 75234 • (972) 484-3999 • Fax (972) 888-3900

# CARE AND MAINTENANCE OF YOUR CARPET FLOOR

## *General Maintenance*

**To keep the lasting shine and fresh feel of your investment for as long as possible, we recommend that you...**

**DO**

- Vacuum twice a week with upright vacuum on medium to low setting.
- Clean on spots with carpet cleaner, then rinse out all residue.
- Trim long strings at edges or snags, before the vacuum pulls and unravels carpet
- Steam clean carpet at least once a year.

**DON'T**

- Let carpet get wet; if wet, have carpet dried properly.
- Use paint thinner or lacquer thinner on carpet.
- Use any product with bleach.
- Cut out caulk or paint
- Pull strings on loop berber carpet
- Leave self-stick plastic runners on carpet for more than a week (Glue residue will require a professional cleaning to remove.

# CLEANING PROCEDURES FOR YOUR CARPET

## *Cleaning Solutions*

*Detergent*: Mix ¼ teaspoon *clear* hand dishwashing liquid with 1 quart warm – not hot – water.
*Hydrogen Peroxide*: Mix ½ cup (3% solution available in drug stores) with 1 teaspoon household ammonia. Use within 2 hours of mixing.
*Ammmonia*: Undiluted household ammonia.
*Dry Cleaning Fluid*: Non-oily, non-caustic type sold for spot removal from garments (Carbons #10. Energine, etc) Caution may be flammable.

## *Recommended Stain Removal Procedures*

**Procedure A**
Apply detergent cleaning fluid, use dry towel/cloth.
Blot – don't rub
Repeat dry cleaning fluid application as above
Blot – don't rub
Finish with weighted pad of towels

**Procedure B**
Scrape or blot up excess spills.
Apply detergent (See "Cleaning Solutions), use damp towel.
Blot – don't rub
Apply water with damp towel
Blot – finish with weighted pad of towels.

**Procedure D**
Scrape or blot up excess spills.
Apply detergent (See "Cleaning Solutions), use damp towel.
Blot – don't rub
Apply ammonia (See "Cleaning Solutions"), use damp towel.
Blot – don't rub.
Apply water with damp towel
Blot – finish with weighted pad of towels.
Apply white vinegar (undiluted), only after stain is removed.

**Procedure G**
Scrape or blot up excess spills
Freeze with ice cubes
Shatter with blunt object such as the back of a spoon
Vacuum chips away before they melt.

**Procedure L**
Apply nail polish remover (non-oily acetone type), use cotton towel to apply to the spill. Don't wet through to carpet backing.
Pick up softened material – use clean white paper towel and Push toward the center of the spot to avoid spreading material.
Repeat above – soften and carefully remove a layer of the material each time. Haste may spread the stain and/or damage the carpet

**Procedure M**
Apply detergent solution (See "Cleaning Solutions"), use damp towel, leave 3-5 minutes.
Blot – don't rub. If stain is removed, finish with a water rinse, blot, followed with a pad of weighted paper towels. If stain is not removed, continue as follows:
Apply hydrogen peroxide solution (See "Cleaning Solutions") – let stand 2 to 3 hours under a weighted sheet of plastic wrap.
Repeat application of hydrogen peroxide and dry under weighted plastic wrap until removal is complete. Apply water with damp towel.
Blot – finish with weighted pad of paper towels.
Apply white vinegar (undiluted) – only after stain is removed.

**Procedure O**
Scrape off excess material.
Cover with white cotton towel or brown paper.
Apply warm iron until material is absorbed. Be sure towel is large enough to cover the stained area. Take care never to touch the iron to the carpet as the fiber may melt.
Change towel or rotate to clean area and repeat until all material is absorbed.

**Procedure P**
Vacuum away as much as possible.
Loosen remaining material by tapping with a scrub brush or Toothbrush. Tap with brush, do not scrub.
Vacuum again.
Follow with Procedure B.

**Procedure Q**
Scrape off excess material. Lightly rub area with a fresh slice of white bread. Complete removal with Procedure AA@.

| Stain | Procedure |
|---|---|
| Asphalt | A |
| Beer | B |
| Berries | M |
| Blood | M |
| Butter | A |
| Candle Wax | O-A |
| Candy (sugar) | B |
| Catsup | M |
| Chewing Gum | G-A |
| Chocolate | B |
| Chalk | P |
| Coffee | M |
| Cooking Oil | A-B |

| Stain | Procedure |
|---|---|
| Crayon | A-B |
| Dirt or Clay | P-B |
| Dyes | M |
| Excrement | B |
| Foundation Makeup | A-B |
| Fruit Dinks | M |
| Fruit Juice | M |
| Furniture Polish | A |
| Grease - Food | A-B |
| Grease – Auto | A |
| Glue – White | B |
| Glue – Hobby | A-L |
| Ice Cream | B |

| Stain | Procedure |
|---|---|
| Ink-Ball Point Pen | A |
| Ink-India, Markers | A-M |
| Kool-Aid | M |
| Lemonade | M |
| Lipstick | Q-A |
| Mascara | A |
| Mayonnaise | B |
| Mercurochrome | M |
| Methiolate | M |
| Milk | B |
| Mixed Drinks | M |
| Mud * | P-B |
| Mustard * | M |

| Stain | Procedure |
|---|---|
| Nail Polish | L |
| Paint-Latex | B |
| Paint – Oil | A |
| Pet Food | M |
| Shoe Polish | A-M |
| Soft Drinks | M |
| Tar | A |
| Tea | M |
| Urine | D-M |
| Vomit | B-M |
| Wine – Red | B-M |
| Wine – White | B |
| Unknown | A-B |

*Allow to dry, scrape up, then clean to reduce spreading.

For additional information, call:

**Scotchgaurd 3-M Stain Release**
**1-800-433-3296**

**DuPont Company**
**1-800-4-DUPONT**

**Shaw Industries, Inc.**
**1-404-278-3812**

# CARE AND MAINTENANCE OF YOUR TILE AND STONE FLOOR

## *General Maintenance Tips*

**DO**

- Clean spills and dirt immediately to prevent the stain from being absorbed.
- Use a neutral cleaner free from any acid or high alkaline solution.
- Be careful around carpet and wood flooring when using water or cleaners.
- Prevent surface damage by covering floors while working or moving objects.
- Re-Seal natural stone and slate after the 1 year warrantee has expired.
- Seal grout after the 1 year warrantee has expired.

**DON'T**

- Allow stains to soak into grout, stone, or unglazed tiles which cannot be removed.
- Use products such as Pine or Lemon Oil to clean.
- Apply any type of wax to tile or grout.
- Allow sand or dirt to collect on the surface to prevent scratches to soft and polished stones such as Marble.
- Cut away or remove caulking when cleaning near a caulk bead.
- Over-lighten electric plugs which can break tile.
- Attempt to "acid-wash" your floor; this is the best left to a professional, and should only be used as a last resort.
- Apply any sealers until after your 1 year warrantee has expired.
- Ever seal ceramic tile (It comes sealed from the manufacturer).

For additional info, go to: www.custombuildingproducts.com

## *An Ounce of Prevention*

As with any floor covering material, a few moments of care and a little common sense can go a long way in keeping your new ceramic tile floor looking its best. Here a few simple suggestions to make your floor care easier.

*Glazed Wall Tile*:

- Wash Daily with clean water. If needed, use non-abrasive, non-acidic cleaner. Rinse thoroughly with clean water. Dry with cloth towel if other than water is used.

*Glazed Floor Tile:*

- Keep floor swept of sand and dirt. Mop when needed to remove spots. Use damp mop with clean water or non-abrasive, non-acidic cleaner such as Hillyard's Super Shine-All.

*Marble Tiles:*

- Keep floor swept of sand and dirt. Wipe up any spill immediately. If needed, mop with non-abrasive, non-acidic cleaner such as Hillyard's Super Shine-All. Never use glass cleaners or vinegar on marble. Do not use cleaners with abrasive or acids as marble is a natural stone and can be scratched or stained easily.

**Waxes and sealers are not recommended on tile surfaces. They will only make maintenance more difficult. Gout sealer can be used to preserve color of grout. Apply only to grout. (Wait until after 1 year warrantee has expired).**

# GROUT AND STONE SEALERS

The primary purpose of stone, tile and grout sealer is to provide stain resistance to naturally porous surfaces by repelling contaminants. The amount of "reaction time" that a sealer provides (amount of time before a liquid contaminant starts to penetrate through the sealer) and the sealer's longevity, determine the quality of a sealer. The emphasis hers is on the word ***resistant…*** it is ***not stain proof!*** When a product is considered stain resistant; it still leaves the burden of good house cleaning on the end user. Even if a sealer repels a stain as it hits the surface; it will in many case lose some of it's effectiveness as time goes on. Wet stains need to be cleaned immediately. If you have an unglazed tile or grout that has been sealed, any acid (per urine, milk, wine, orange juice, coke, etc.) will penetrate through the sealant extremely fast allowing a stain to the tile or grout. Sealers are designed to give you a jump on stains; they are not intended for the replacement of good cleaning practices.

Most products designed specifically for this type of maintenance can be found at home centers such as Home Depot, Lowe's. One product which is recommended by the industry is manufactured by Custom Building Products and is shown below.

For more information visit their web-site at: www.custombuildingproducts.com

**One Step™ Cleaner & Resealer**

- Contains Surface Guard® Penetrating Sealer to seal as it cleans.
- Inhibits mold and mildew growth.
- Tile Type stone, grout, ceramic, porcelain and quarry tile.