

# PROCEDURES/ TROUBLESHOOTING



# Surface refinishing concerns

Maple flooring is a hygroscopic material that expands and contracts due to the influences of moisture, temperature and humidity changes. The multiple application of sealers, finishes and paints on the surface of an installed maple floor can only slow down the rate of vapor transfer between the maple flooring and its environment. Such applications cannot stop the dimensional changes inherent in this natural product.

When a new maple floor is installed, sanded, sealed, painted and finished during the summer months, the maple's moisture content is usually at its highest annual level in most regions of the United States. In most locations, the onset of winter months results in lower relative humidities and ambient air temperatures. Such environmental changes can cause individual flooring strips to contract. The same can be said for existing maple floors that have undergone a complete resurfacing during the summer months. The removal of the existing floor finish, which typically consists of multiple coats, increases the vapor transmission rate and can cause the originally

installed maple flooring to expand or contract at a faster rate than it did during prior years when multiple finish layers reduced vapor transmission rates and resulting flooring movement.

Such changes in the appearance of a newly refinished maple flooring system are not uncommon, and are a direct result of the recently exposed surface maple adjusting to a new environmental set point. As with newly installed floors, these resurfaced floors typically reach an equilibrium set point within their installed environments after 6-12 months. Future expansion and contraction cycles tend to be less pronounced.

If you have additional questions, contact MFMA's Technical Director at 847-480-9138.

# Solid painted areas on maple gym floors

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When maple flooring is installed, sanded, sealed, painted and finished during the summer months, the maple's moisture content is usually at its highest annual level in most regions of the United States. With the onset of winter comes dryer air and lower ambient air temperatures. Such environmental changes typically cause individual flooring strips to contract. With such movement, flooring strips that are painted a solid color (basketball keys, sidelines, and

logoed areas) tend to exhibit more noticeable shrinkage due to the visual contrast between the solid colors and the cracks that develop between individual flooring strips. In some cases, the surface finish has been known to peel at the edges of individual painted flooring strips if the amount of shrinkage exceeds the elasticity of the paint or the finish. This is a direct result of the wood adjusting to a new environmental set point.

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# Prep & Recoating sport floors

## Long-Term maintenance: Recoating

- The MFMA has given approval in the use of auto-scrubbers in the recoating process of sports floors, but not to be used in the maintenance of those floors.

Recoating should be done annually or when the floor begins to show wear. Do not wait until the finish is worn down to bare wood, giving dirt and spills a chance to penetrate into the floor.

NOTE: DO NOT USE THIS RECOATING PROCEDURE OVER ANY FLOOR THAT HAS BEEN WAXED OR OILED. If unsure, wipe a small section of the floor with a clean, white rag dampened with mineral spirits. If a wax residue appears as a shiny glaze on the rag, DO NOT RECOAT WITH FINISH. BONAKEMI DOES NOT GUARANTEE ADHESION OF FINISH OVER WAX OR OILY RESIDUES.

ALWAYS PREPARE A SAMPLE TEST AREA TO DETERMINE GENERAL COMPATIBILITY PRIOR TO RECOATING ENTIRE FLOOR.

## Auto Scrubber

1. Clean the floor thoroughly: Vacuum, sweep or dust mop floor to remove loose dirt and grit. DO NOT USE TREATED DUST MOPS.
2. Put the Prep solution in the clean solution tank. Make sure the solution tank is clean and does not have any other cleaner in it. DO NOT DILUTE THE PREP SOLUTION.
3. Set the auto-scrubber to release solution at a low application rate and medium to heavy pad pressure. Use Bona Conditioning Pads or black pads.
4. Move the auto-scrubber in the same direction that the flooring runs and watch for loading of the Conditioning Pads. Change them as needed. (If you find that the Conditioning Pads are loading up easily, use 1" black pads instead). Have someone else follow behind the Auto Scrubber to pick up any residue/puddles left behind with a well wrung-out cotton towel wrapped around a push broom lightly dampened with Prep. Regardless of the size of area, be sure to overlap sections to ensure that no area is missed. **NOTE: One pail of Prep will scrub and clean 5000 square feet. Over use of the Prep can saturate cracks in the floor and may result in problems with the finish coat.**
5. Any areas not reached by the Auto Scrubber will have to be done with a 175-rpm buffer or by hand, where the buffer cannot reach, cleaning with Prep and a Conditioning Pad.

6. Depending on the condition of the floor, at this time you may need to completely tack the entire floor again with well wrung-out cotton towels dampened with the Prep solution, wrapped around a push broom, to avoid streaking from the Auto Scrubber and buffer.

7. Once the Prep has dried, using a buffer, dry abrade the floor using a 150 grit screens or two Bona Conditioning Pads (one driving the other) so that the pad more effectively contours to the surface of the flooring. This will optimize abrasion of the edges next to any over wood and in the grain pattern. Anywhere the buffer cannot reach and any visibly unabraded areas should be abraded by hand. When buffing, always move the entire length of the floor to minimize buffer lap marks. **NOTE: Screens and maroon pads are designed to cut for 250 feet per side. Pads must be flipped and changed often. Floor must be buffed very slowly to ensure that pad is cutting and de-glossing the entire floor. Failure to do so could lead to problems with finish adhesion.**

8. Vacuum the entire floor to remove loose dirt, grit or sanding dust. You may also use the Auto Scrubber with Prep to clean the sanding dust off the floor instead of vacuuming. Vacuum the edges where the Auto Scrubber does not reach. Make sure you tack up any remaining residue left behind by the Auto Scrubber immediately with a Bona Micro Fiber Mop or towel wrapped around a push broom, dampened with Prep.

9. Tack the floor again to remove the remaining dust using a well wrung-out cotton towel dampened with Prep wrapped around a push broom.

10. When dry, apply a Bona Sport brand floor finish immediately, following the label directions. Make sure the Prep solution is completely dry before applying finish.

Note: If the floor cannot be coated with finish within 8 hours, stop between steps 6 and 7 and then proceed with step 7, WITHIN 24 HOURS.

Clean-Up: Clean all tools and equipment with water. When you are done with the autoscrubber, empty dirty water reservoir then rinse with clean water. Empty remaining unused Prep into a clean 5 gallon bucket and store for further use.

Visit [bona.com](http://bona.com) to watch the Sport Prep & Recoat video.

# Poly balls

“Poly Balls” occasionally occur in new maple installations or during resurfacing or recoating of existing maple floors coated with oil based floor finish. The finish collects between flooring strips and cures at a much slower rate. With some new low-VOC oil-modified finishes the cure time has increased. Solvent-based finishes rely on exposure to oxygen to cure the film. A situation may occur when the finish is applied penetrates between the flooring strips.

Once the finish gets in between the flooring strips, it becomes more difficult for oxygen to react with the dryers in the finish. This allows the finish to remain partially cured for an indefinite period of time. When the moisture content of the flooring increases and closes the spacing between the boards, the finish that has not fully cured squeezes out from the side joints of the maple strips and appearing like little BB’s on the surface of the flooring. When stepped on, poly balls flatten out or break open and leaving unsightly residue on the finish.

The floor should be swept daily to remove any poly balls that have broken free. A complete resurfacing is not necessary to remedy this minor problem. Contact your MFMA Installer or Finish Manufacturer for an evaluation for recommended remedial procedures. Extent and severity of poly balls varies dramatically, so a general recommendation is not possible.

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# Humidity

The Maple Flooring Manufacturers Association (MFMA) recommends maintaining indoor relative humidities between 35 percent and 50 percent, and air temperatures between 55 degrees and 75 degrees year-round. By limiting wide swings in atmospheric conditions inside the facility, you will reduce the expansion and contraction of the flooring system. If flooring materials are properly acclimated, a 15 percent fluctuation in indoor relative humidity will not adversely affect the maple. Excessive shrinkage and/or expansion may occur with indoor relative humidity variations in excess of 15 percent.

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It is especially important to maintain this recommendation during the application of oil based floor finishing products. When conditions fall outside the recommended limits, finish oozing is a likely possibility, even if the floor was refinished several months before.

In buildings where air conditioning is not available, many facility managers make use of circulating or venting fans. Other facilities have vent windows or corridor doors available to open as needed to improve air circulation. Facilities without adequate HVAC equipment to regulate the indoor atmosphere, or those facilities which are “closed up” with no ventilation for long periods of time (summer breaks) are more likely to develop flooring problems directly related to environment.

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# Finish peeling/chipping

Finish peeling and/or chipping, in a very moderate form, occasionally occurs in new maple installations that experience large swings in humidity levels. This condition most often develops over painted areas of the maple surface.

MFMA has no written policy or specification regarding the appearance or frequency of finish peeling and/or chipping in MFMA flooring installations. Finish peeling and/or chipping can be a result of expansion/contraction of the flooring system due to seasonal moisture level changes, which causes fractures in the finish in painted areas as maple flooring adjusts to drier indoor conditions during the heating season.

The “elastic” properties of many surface finishes are commonly restricted by application over less “elastic” game line paints. During the first heating season, a new maple floor will typically contract more than in subsequent years under the same environmental conditions. USDA performance data confirms this physical characteristic with all hardwood species.

Assuming drier than average conditions exist in a facility during the first heating season, above-average shrinkage may result in some paint fracture over maple joints and subsequent peeling or chipping of surface finish in these areas, regardless of the application methods used with the floor sealer, game marking paint and finish. With the use of tape or decals, floor finish may experience similar conditions.

Maple flooring adjusts to its environment over its lifetime. Typically, the most expansion/contraction is experienced in the first 18-24 months of a floor life. The Maple Flooring Manufacturers Association (MFMA) recommends

maintaining indoor relative humidities between 35 percent and 50 percent, and air temperatures between 55 degrees and 75 degrees year-round.

By limiting wide swings in atmospheric conditions inside the facility, flooring owners and facility managers can reduce the expansion and contraction of the flooring system. If flooring materials are properly acclimated, a 15 percent fluctuation in indoor relative humidity will not adversely affect the maple. Excessive shrinkage and/or expansion may occur with indoor relative humidity variations in excess of 15 percent.

In buildings where air conditioning or humidification/dehumidification equipment is not available, many facility managers make use of circulating or venting fans. Other facilities have vent windows or corridor doors available to open as needed to improve air circulation.

Facilities without adequate HVAC equipment to regulate the indoor atmosphere, or those facilities that are “closed up” with no ventilation for long periods of time (summer breaks) are more likely to develop flooring problems directly related to environment. Floor finish peeling and/or chipping as a result of expansion/contraction cycles can be minimized by carefully monitoring and adjusting the indoor environment in the facility, particularly during the first year after installation.

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# Swirl marks

Swirl marks, in a very moderate form, are fairly common in new maple installations where disc sanders are used in the flooring surface sanding process.

MFMA has no written policy or specification regarding the appearance or frequency of swirl marks in MFMA flooring installations. Generally speaking, minor swirl marks are apparent in some locations on most flooring installations. They are considered excessive if close-up inspection yields noticeable uneven or gouged areas of the flooring.

There can be a number of causes of swirl marks. The most common occurrence in the maple itself results from the use of disc sanders. These are very different from swirl marks between layers of finish, which are typically seen when lighting is reduced and angled reflections are observed.

Between-coat buffing is desirable to ensure proper adhesion of successive coats of finish, and in fact is

required under certain finish manufacturer warranties. Flooring appearance in these cases is akin to a fresh wax job on a black automobile -- when viewed at a specific angle under specific lighting conditions, the marks are visible.

Swirl marks of this type are not damaging to the surface, nor will the marks impair the playability or performance of the system. Typically, the marks will soon begin to disappear as the oil-modified finish on the floor ambers with age.

The pace of ambering varies from product to product, but most color changes will take place between six months to fifteen months following the initial application. However, water-based finishes do not amber over time and if you think swirl marks are present, check the severity and contact your flooring installer.

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