

Guidelines for Applying Waterborne Over Oil Modified Paints and Finishes

Although Waterborne Finishes in general are increasing being specified by architects and schools, they present unique problems. When applied over bare wood waterborne finishes because grain raise, and they contribute to panelization. As a topcoat, waterborne finishes often do not meet the expectations of the facility owner. To minimize the chances of panelization, some manufacturers have recommended using oil modified sealers and paints with a waterborne topcoat. This system presents some unique challenges as:

Incompatibility

Waterborne and oil-based finishes are incompatible in the early stages of cure. They must be dry before applying one over the other. Depending on application rates and environmental conditions, this can take several days.

Different Rates of Cure

Waterborne finishes develop film properties quickly. When a waterborne coating is applied over an oil-based sealer or paint, it greatly inhibits the flow of oxygen. This slows the cure rate of the sealer and paint. The sealer and paint must be dry and cured thoroughly before applying the waterborne topcoat.

As these products cure, they will begin to shrink at different rates. This causes stresses between the layers of oil and water. Without proper cure and abrasion of the sealer and paint, adhesion can be lost between the layers. Seal and paint must be abraded aggressively and thoroughly. Any areas (i.e. cracks and butt joints) that are not abraded properly will peel when stress is applied.

Faster Development of Tensile Strength

In general, waterborne finishes develop tensile strength faster than oil-based finishes. This difference in tensile strength can cause stress between the layers of finish as the forces of floor movement and traffic are applied. This can cause peeling of the waterborne finish off the oil-based sealer or paint at the cracks. In order to minimize this problem, the seal and paint

must be cured and abraded aggressively and thoroughly to maximize adhesion between the layers.

The tensile strength of waterborne finishes is also a major contributor to panelization. In effect, the boards become "glued" together. When the floor contracts the waterborne finish will not allow cracks to form. As the forces increase, cracks are created in the weak areas of the floor. Instead of the cracks being evenly distributed across the floor, the contraction forms several large cracks which are unsightly in appearance

The following guidelines will help you minimize the problems and callbacks associated with this system:

Guidelines for Applying Waterborne Finishes over Oil Modified Paints and Sealers

- Check floor for proper moisture content. The floor must be acclimated to the target moisture content for your area. Erratic floor movement causes extreme stress at the cracks. This can lead to peeling and panelization.
- Sand the floor using 40, 60, and 100 grit papers followed by a 120-grit screen. An optional 40 grit cut at an angle can be used as a 1st cut on unlevel floors. Never skip more than 1 grit between sanding cuts. Skipping more than one grit can leave dull spots which require more finish if not removed. Improper sanding will cause the seal, paint, and finish coats to be applied too heavily causing loss of cure and later peeling.
- Apply all coats at the proper coverage rate. Normally this is 500 sf/gal. This allows all coats to cure at their maximum rate. Be sure to watch for puddles and overlaps. Thick coats of either seal or paint will dramatically extend the cure time, sometimes days. Thick films can cause surface skinning which prevents the product from curing from top to bottom. When the floor is abraded, the uncured layer is exposed. This layer does not provide an adequate base for top coating.
- Abrade all layers aggressively and thoroughly. Pay attention to cracks and butt joints. These areas are the areas of greatest stress. They often receive the least abrasion. Dust tends to collect in these areas causing the screen to ride over the area preventing proper abrasion. Vacuum the floor and check for areas which have not received proper abrasion and abrade again if necessary. Improper abrasion is the leading cause of peeling.
- Apply thin coats of paint. Painted areas are the most apt to lost adhesion due to the additional layers of coating in these areas. Some areas can have film builds equivalent to 8 coats of finish!! Pay attention to application rates, cure times and abrasion in these areas. This cannot be stressed enough. Because of the build in these areas, additional cure times are required. Allow the paint to dry for at least 48 hours before applying waterborne finishes. Check for proper cure as above. All paint must be abraded properly as above. Tack painted areas with water to prevent any softening of the paint and entrapment of additional mineral spirits. See TB FB PP 9/98a for additional information on painting procedures.
- Follow manufacturers recommendations for applying waterborne topcoats. If the product requires a cross-linker, be sure to add it to all layers, especially the first coat over the oil-based finish or paint. Crosslinkers improve adhesion.
- The moisture content can increase as the waterborne topcoat is applied. Check the moisture

content of the floor between each coat of finish. Allow the moisture content to stabilize before applying additional coats.

-Abrade thoroughly between coats. All surfaces must be abraded aggressively and thoroughly to ensure maximum adhesion.

-Maintain floors with PoloPlaz Dust Mop Treatment. Do not use floor scrubbers, treated dust mops, or "protective" dust mop treatments. These products can contribute to peeling of the finish. Floor scrubbers can contribute to moisture problems such as cupping, crowning or buckling. They can also contribute to adhesion failure due to moisture content fluctuations.

1) How do I seal and refinish or finish a new installation of a gym floor with a low VOC finish?

Step 1: Final screen raw wood with 120 or 150 grit. Sweep, vacuum, then tack raw wood with 100% virgin mineral spirits until floor is clean. Allow floor to completely dry (usually 20 minutes).

Step 2: Apply first coat of Low VOC Sealer and allow to dry overnight. Apply second coat of sealer and allow to dry overnight as well.

Step 3: Screen sealer with new 150 grit. Sweep, vacuum and then tack thoroughly with water or 100% virgin mineral spirits. Allow to dry for twenty minutes and then begin taping and painting game lines with PoloPlaz Fast Break Paint. If double coating the paint, allow 24 hours for first coat to dry before abrading and recoating.

Allow the final coat of paint to dry for 24 hours before top coating with Magnum Low VOC.

Step 4: Screen game lines with new 150 grit. Handheld sanding devices work well also or abrade by hand with a 150-grit screen. Maroon pads are usually not sufficient in abrading game lines. ***The fact is: For proper abrasion, all paint must be completely deglossed.*** Sweep, vacuum, then tack all game lines with water. Allow floor to completely dry (usually 20 minutes).

Step 5: Apply first coat of Magnum Low VOC @ 500 sq. ft./gal. Allow to dry overnight. If within 24 hrs., the second coat of finish may be applied without abrading the first coat. Please use your own discretion with this "24-hour rule" as high temperatures and low humidity will shrink that 24-hour window. If abrasion is needed within 24 hours, screen with used 150 grit. If longer than 24 hours, a new 150 grit screen may be needed