By: Robert L. Bays

RESILIENT FLOORS

Selection, Cleaning, and Maintenance

Floor Care is very often an overlooked component of the care and image of a facility and yet one of the most important components in your cleaning management system.

Floors can set the initial impression a visitor has of a building, the quality of that business and the pride for that facility .The floor is the main surface in a facility and it will take constant abuse with hundreds and thousands of feet each and every day. In addition to this, abuse from changing weather conditions, dirt and grime carried inside on the soles of shoes, carts with wheels pulled across floors is a challenge to deal with as well. Beautiful floors are a result of proper selection and application of high quality floor care products coupled with regular maintenance using proper procedures.

How to Select a Resilient Floor Finish

Selection of a floor care system takes place as you decide on a maintenance program. The maintenance program will be based on available labor hours, equipment, product usage, ease of application, desired initial appearance, short and long-term appearance and final concerns.

Your three major maintenance systems are: Scrub & Recoat, Low Speed & High Speed Spray Buffing (175 -1200 rpms), and Ultra High Speed Burnishing (1500-3000 rpms).

Scrub & Recoat systems are low in labor, equipment usage, total cost, and are easy to implement. While the initial and short-term appearance are very good, long-term appearance is fair to poor. The major benefit is minimal care, but continuous high shine is difficult to maintain.

Low Speed & High Speed Spray Buffing systems are moderate to high in labor, equipment usage, total cost, and moderate to implement. The initial short and long-term appearances are very good to excellent. The major benefit is minimal effort for continuous high shine in moderate traffic areas. Concerns with this program might be that low speed spray buffing doesn't give a wet look and high speed spray buffing is labor intensive.

Ultra High Speed Burnishing systems are moderate to high in labor, equipment usage, total cost, and moderate/high to implement. The initial short and long-term appearances are very good to excellent depending on the frequency of burnishing. The major benefit is moderate to high effort for continuous high shine in moderate to heavy traffic. Concerns with this program might be: labor and product intensive along with required training to implement. After selecting the appropriate maintenance system; you pick the best finish to use.

Solids and Floor Finish

There seems to be a lot of confusion and misinformation regarding the solids content of floor finishes. Let's try to clarify what solids are, what "% solids" means, and how a finish's performance is related to the percent solids.

What are Solids?

Solids consist of the polymers, waxes, resins, surfactants and other ingredients that remain after the water and other volatile ingredients have evaporated. The floor finish gets virtually all of its gloss, durability, water, detergent, slip resistance, removability and other properties from the remaining solids. These components also make up what is known as the non-volatile content. The amount of solids or non-volatile solids is usually expressed as a weight percentage, e.g., weight of total solids remaining divided by beginning product weight.

All Solids are not Equal

It is important to remember that all solids are not identical. The individual polymers, waxes, resins, etc. that are used in one product may differ from other products. For example, a finish with 16% solids may be very different in performance and character to other finishes with 16% solids. Also, a finish with 16% solids may be superior to a finish with 20% solids. It all depends on:

1. The various polymers available.
2. The skill in combining and formulating them.
3. The manufacturing facilities where the finish emulsions are processed.

The true test of a finish and its performance is how it performs on the floor, under actual use conditions, consistently, every day.

Maintenance Equipment

Buffing and burnishing equipment are categorized by speed (revolutions per minute) of the equipment. Low speed is normally 175 rpms. Variable (medium) speed is 300-450 rpms. High speed is usually 1000 -1200 rpms and ultra high speed is 1500-3000 rpms.

You will be working with either an electric, battery, or propane burnisher. The electric burnishers have larger wheels in the back and are referred to as a straight-in-line machine, which means you cannot swing it back and forth like you would a 175 buffer or a variable speed machine. The battery operated burnisher has the advantage of not having an electric cord to worry about. A propane burnisher is like having a big lawn mower engine on a buffer.

The electric burnisher's speed will usually vary from 1000 to 3000 rpms. The battery burnisher's speed is usually 2000 to 2500 rpms. The propane burnisher is usually 2000 rpms. Note: There is a propane stripping machine (350 to 500 rpms) but it is not used to burnish floor finish.

In order of aggressiveness; The electric is less, aggressive than the battery, and the battery is less aggressive than the propane. The aggressiveness is measured as the amount of pad pressure applied to the floor. In addition to pad pressure, you need to be aware floor burnishing pads also vary in aggressiveness.

In general, a synthetic pad is less aggressive than a natural "hog hair" pad. Aggressiveness will also vary between synthetic and non-synthetic hair blends. You have to match the right pad to the right machine and then to the "Relative Reparability" of the finish. Some finishes a will require a more aggressive pad and other by finishes will require a less aggressive pad. You need to try several for maximum results with your equipment.

Floor Care Slip Support

The company providing you finish should offer complete support to customers in terms of floor care slip issues. This support system needs to include the following items:

- Do the floor finishes pass the American Society of Testing and Materials (ASTM) standard D-2047 for slip resistance, as measured by the James Machine. This is the only slip resistance testing procedure recognized in a court of law.
- Are they classified by Underwriters Laboratories, Inc., as it relates to slip resistance?
- Product liability insurance should be part of the Manufacture's liability policy. As such, are they fully insured against slip and fall claims.
- Does the manufacturer offer support for individual slip and fall issues. This includes telephone assistance through a Technical Affairs 800 number and on-site investigation.
- For actual slip and fall cases in a court of law does the manufacturer offer an Expert Witness Program. They have professionals within the company with experience in the floor care industry who are available to testify as expert witnesses. Expertise in test methods, industry standards, factors involving slip and falls and related information are provided.

After choosing your maintenance system, family of finishes, solids, slip and fall support, match the buffing/burnishing equipment and pad to the final finish selected.

Mats

Walk-off mats should perform three functions:

1. Remove dirt and water.
2. Trap dirt and water.
3. Hide dirt and water.

One thousand people will track in up to 1.2 pounds of dirt into a facility (3.6 pounds on a wet day). Sand and grit are the major cause of floor wear. One pound of dirt will cause $500 of damage before you can remove it from a facility!

Matting reduces interior maintenance cost and reduces costly slip and fall accidents. The first 20 feet (three steps per shoe) of matting removes 85% of the dirt from shoes. Twelve times as much dirt is tracked in during wet weather conditions. Matting is the first line of defense.

Building a Floor Care System

The components of a "Floor Care System" is the matching of strippers, seals, finishes, cleaners, restorers, equipment, pads, mats, and a good maintenance program to the type of flooring to be maintained.

Floor Strippers

What type of stripper do you want to use? Is odor going to be a problem? What about rinse? Or no rinse? If you sell your people on the idea of a no rinse stripper, will they get sloppy? What type of flooring does your customer need to maintain? If it is asphalt or linoleum, be careful with solvent type no rinse strippers.

Strippers are usually referred to as conventional or No-Rinse type products. Conventional strippers require a neutralizing/water rinse due to alkaline residue. No-Rinse strippers do not leave an alkaline residue and therefore do not require a neutralizing rinse. All stripped floors require rinsing because of footprints, squeegee marks and other assorted residues. Below are various floor stripper types and their characteristics.

Conventional Fast acting, non-ammoniated, and low foaming– Effective on all hard/resilient floor types.

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No-Rinse Low odor stripper, fast-acting, lowest foaming and free rinsing– Effective on all hard/resilient floor types. Excellent for use in hospital and nursing homes.

No-Rinse Fast acting, non-ammoniated, free-rinsing and low foaming–Effective on all hard/ resilient floor types. Can be used as a mop-on, mop-off application. No machine required.

Conventional Baseboard stripper–Strips where machines cannot reach. Aerosol contains no CFCs.

Neutralizer–Aids in floor re-coat prep. Acid pH helps neutralize alkaline stripper residue.

Neutralizer packet–Pre-measured packet -offers great cost control.

Water-soluble neutralizer and conditioner prior to re-coat– Effective in removing salt residue during winter months.

Floor Types

Vinyl (Pure) or No Wax Mixture of vinyl chloride, plasticizers & pigment

Known as homogeneous vinyl. Some have a thin surface factory coating. Sensitive to grit, sand, pads & cigarette burns; difficult to strip; assumes shape of sub-floor; indents at 150 lbs/in^2.

Vinyl Asbestos

Mixture of vinyl chloride, plasticizers, inert filler, pigment & asbestos fibers. Brittleness to abrasives and embossed designs are hard to strip. Factory finish must be removed. Sometimes develops a whitish cast when stripped. Never buff and/or burnish bare tile. Indents at 25 lbs/in^2.

Vinyl (Composition)

Vinyl chloride, plasticizers, inert filler and pigment. Factory finish must be removed. Brittleness to abrasives, embossed designs are hard to strip; whitish cast when stripped (burnish to remove). Indents at 25 lbs/in^2.

Asphalt Tile

One of the first resilient floorings made in volume was asphalt tile. It is no longer manufactured; however old installations still exists. Asphalt tile is made with asbestos fibers, lime rock, inert fillers, and colored pigments, with an asphalt or resin binder. Solvent cleaners and strippers should be avoided as the may attack the tile. Full stripping should be minimized; scrub and recoat operations are recommended.

Rubber flooring

Made of natural rubber colored by mineral pigments. Oil, solvents, strong soaps and alkalis may damage rubber tile. The rubber flooring should be protected against indentation and against deterioration from sunlight. It might become discolored and lose its elasticity. Avoid abrasive cleaners because they can scratch the tile. Rubber is a non-porous, smooth surface and is resistant to stains, acids, and mild alkalis.

Linoleum

Linoleum is another early resilient flooring. Linoleum is composed of natural oils (linseed) with resin, cork and wood fillers. The natural oils in linoleum are attacked by high pH products, especially strippers. Scrub and re-coat instead of stripping. If high pH products cause discoloration of the linoleum, scrubbing with a weak acid such as a neutralizer rinse, can help.

Floor Sealers

To seal or not to seal; that is the question! Some people have experienced problems removing a seal and therefore do not like to use them. If you have either an old porous floor or a newer type, you might still want to consider a seal. Otherwise .you can usually go straight up with the finish. Is there a possibility of stains, such as in a hospital? If so, a stain resistant seal might be your best choice. But if you have the type of flooring that can be damaged by an aggressive stripper, do not use a seal. You need to discuss and decide prior to sealing.

The main purpose of a seal is to “bridge the porosity” of the substrate (floor). By bridging the porosity, less product is required to produce the desired gloss level. Secondly, a sealer can be used to block stains from getting into the tile. This reduces the maintenance effort required to remove the stain. Seals can be permanent or removable. The following table represents floor sealers and their characteristics.

Water base–Excellent chemical/stain resistance. Betadyne resistant. Use on vinyl composite, vinyl, asbestos, vinyl, linoleum, terrazzo, porous quarry, and marble.

Conventional seal Water base–Excellent chemical/stain resistance. Betadyne resistant. Use on vinyl composite, vinyl asbestos, vinyl, asphalt and linoleum.

Seal/Finish Water base–Good chemical resistance. Vinyl composite, vinyl asbestos, vinyl, asphalt, linoleum, terrazzo and marble.

Floor Finishes

Selection of the floor care system takes place as you develop a maintenance program. The maintenance program will be based on available labor hours, equipment, product usage, ease of application, desired initial appearance, short and long-term appearance and

final concerns. The recommended finish is based on a variety of "on-site" conditions.

Are you matching the finish to the maintenance program? Will the results meet your expectations? You don't get a "wet look" from a low maintenance program. Look at the equipment and budget you have to work with to meet your expectations.

The three major maintenance systems are: Scrub & Re-coat, Low Speed & High Speed Spray Buffing (175 -1200 rpms), and Ultra High Speed Burnishing (1500-3000 rpms).

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Floor Cleaners

The purpose of a cleaner is to hold the dirt in suspension and remove it from the surface without damaging the finish. Use neutral cleaners for routine maintenance on a resilient floor finish. As the alkalinity of the cleaner increases, the floor finish can be dulled and/or removed. Match the choice of cleaner to the finish and maintenance program.

Do not try to use one cleaner to do everything. It might be too strong and attack the finish when used at to high a concentration. When you are using a cleaner/restorer prior to burnishing, do not use your regular cleaner. Always use a neutral cleaner prior to a scrub and re-coat.

Floor Restorers

The purpose of a floor restorer is to temporarily soften the surface and restore plasticizers to the finish. This also provides lubrication to the pad to aid in the grinding process during spray buffing and/ or burnishing. Restorers are available in the following types:

Spray Buff 175 -1500

An RTU spray buff/burnish cleaner restorer. Easiest maintainer for small areas.

Mop on Dressing 1500 -3000

A restorer for high and ultra high speed burnishing systems. Usually mix 1 :4 with water and apply solution with a clean mop in a thin film. Allow to dry 10-15 minutes before burnishing.

Cleaner/Restorer Daily Floor Maintainer 1500 -3000

A one-step daily floor maintainer restorer for high and ultra high speed burnishing systems that cleans and restores the gloss on finished floors. Mix 2-4 ounces per gallon with cool water and either apply with a mop or an automatic scrubber . Allow to dry 15-30 minutes before burnishing.

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