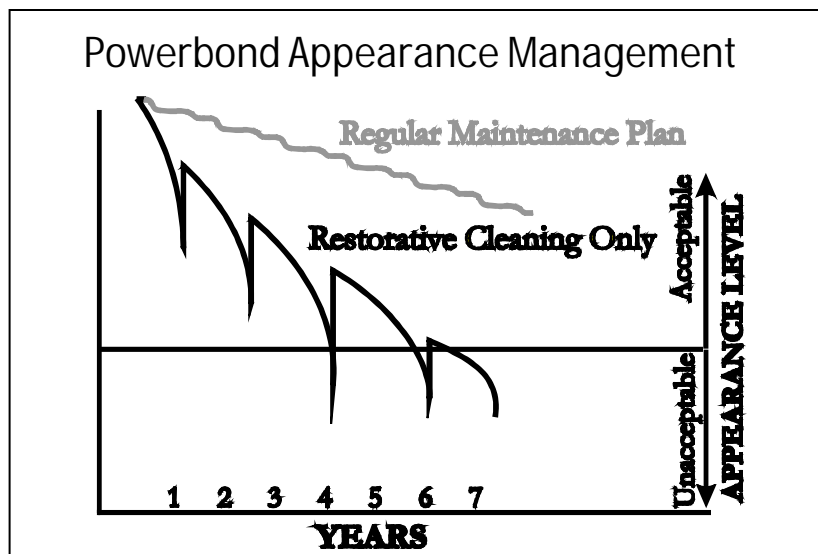


POWERBOND MAINTENANCE CARE PROCEDURES

The following CARE recommendations should be implemented prior to, or immediately after the installation of Powerbond.

Use and traffic patterns in a facility can vary greatly; therefore, a planned maintenance program must be designed in each facility. In addition to this initial planning, the maintenance program must be reviewed on a regular basis to adjust for changing traffic and use patterns. All carpet installations require a properly designed and implemented maintenance system to maximize appearance retention.

Some areas may require a yearly cleaning, while other areas may require cleaning on a weekly basis. The ultimate goal is maintain a high appearance level in all areas at all times and thus extend Powerbond life. This objective is obtained by eliminating the soiled/cleaned, soiled/cleaned cycle as expressed in the illustration below.



A total maintenance package must be initiated to supplement cleaning in order to assure customer satisfaction of the product. Deep or Restorative Cleaning typically occurs as a result of the failure to maintain any textile flooring selection. In essence, the better the maintenance plan, the reduced need for deep cleaning and the longer the lifecycle for Powerbond. Following are recommendations for a complete maintenance package. Keep in mind, that frequencies may vary depending upon the diligence of the maintenance program and the inclusion of these essential support tools.

Developing the Plan:

This CARE maintenance program is based on both Low Moisture Primary Maintenance and Hot Water Extraction methods using minimal cleaning agents. Product construction, color selection, entry mats, daily vacuuming, spot removal, regular cleaning, and product repair are all integral considerations of this CARE program. Implementing a strategic plan is an essential step in developing and maintaining a successful CARE program. Maintenance is a process of soil removal designed to retain carpet appearance. Soiling is a cumulative process that can easily be controlled by vacuuming and soil localization. A facility diagram assists the plan by identifying areas of soiling before they become excessively soiled.

An effective plan includes color-coding a floor plan identifying areas of extreme, heavy, medium and light traffic areas; spot prone areas, and other areas that may require additional maintenance and cleaning attention. The color-coded diagram of the facility will assist in scheduling where to clean and how often.

The facility diagram also can be useful in selecting the cleaning method and proper equipment to perform the required tasks in each area. For example, entry areas may require daily vacuuming, weekly pile lifting and monthly cleaning; whereas, break areas may require a hand-held, spot removal extractor for frequent spot removal. Additionally, the plan can be useful in identifying where to place entry mats.

Each maintenance staff member should be provided with a copy of the plan. The floor plan also may be used to identify newly developed tasks that occur during the course of the business day.

Preventive Maintenance:

Preventive maintenance is the most cost-effective maintenance activity that takes place. These activities include any active or passive activity designed to eliminate soil before it reaches Powerbond. It may include careful selection of drinks in soda machines that do not contain dyes, which can permanently stain Powerbond and it may include the strategic placement of additional trash receptacles.

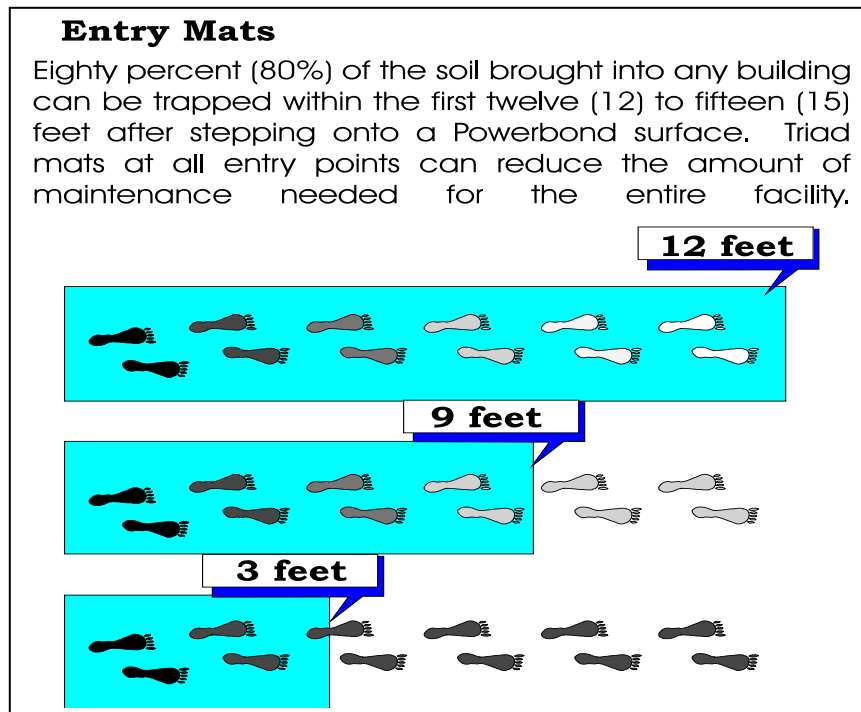
One of the most important, yet most often overlooked, preventive maintenance method is the use of transition/entrance matting systems. Up to 90% of the soil load is caused by soil tracked in from outside areas. Transition mats are an essential part of the CARE maintenance program. The proper use of transition mats can reduce a significant amount of tracked-in soil. Transition mats or entry mats should be used at all facility entrances and transition points adjoining hard surface flooring

Entry mats must be kept clean to make sure they do not become a source of soil. Ideally, a duplicate set of mats should be provided for all areas. Mats should be thoroughly vacuumed or changed weekly to ensure a clean mat is in use at all times. Entry mats should provide at least eight to twelve footsteps of coverage.

Tandus has developed and recommends the Triad® matting system which utilizes a three-tier soil removal process to reduce soil tracked into a facility.

- Tier ONE Exterior Triad® mats- Placed at outside entrances as the initial protection from tracked-in soil. The scraping action of this mat removes excess soil and moisture from foot traffic
- Tier TWO Foyer Triad® Mats- Placed in the vestibule of an entryway. This mat features a brushing action to remove soil and moisture. Foyer mats also may be used as exterior mats.
- Tier THREE Interior Triad® mats- Placed in interior areas adjacent to entryways and other areas exposed to heavy walk-in traffic. This mat offers unique aesthetic appeal, while completing the three-tier soil removal process.

Cleaning: Triad mats are cleaned using the maintenance procedures detailed in this publication includes daily vacuuming and weekly cleaning. Once these mats become filled with soil they then become an additional source for soil. Make sure the mat is dry prior to use.



Daily Maintenance:

Daily maintenance activities include vacuuming and spot removal. These activities are critical for the success of the maintenance plan. Without an adequate plan for these activities, facility appearance will quickly deteriorate to an unacceptable level and the aesthetic value of the Powerbond will be substantially shortened.

Effective, well-functioning equipment is required for successful daily maintenance. The size and type of equipment will be determined by the requirements of the job. As an example, a wide area vacuum cleaner may be necessary for facilities with large, open areas that must be cleaned on a daily basis. A modular office may require smaller vacuum cleaners in order to clean in tight spaces.

A note on equipment care: Like any tool, keeping cleaning equipment in top working order enhances cleaning results, lowers carpet maintenance costs by extending equipment life, and limits staff downtime due to equipment failure. Follow equipment manufacturer recommendations for equipment care. For vacuum cleaners, replace nylon brushes at the first sign of wear. Empty vacuum bags when they become half full to improve soil removal results. Use only original equipment manufacturer parts for consistent performance results.

Vacuum cleaners should remove adequate soil without introducing substantial particles into the air and without damaging pile yarn. It is impossible to evaluate vacuum cleaner performance based on equipment specifications alone.

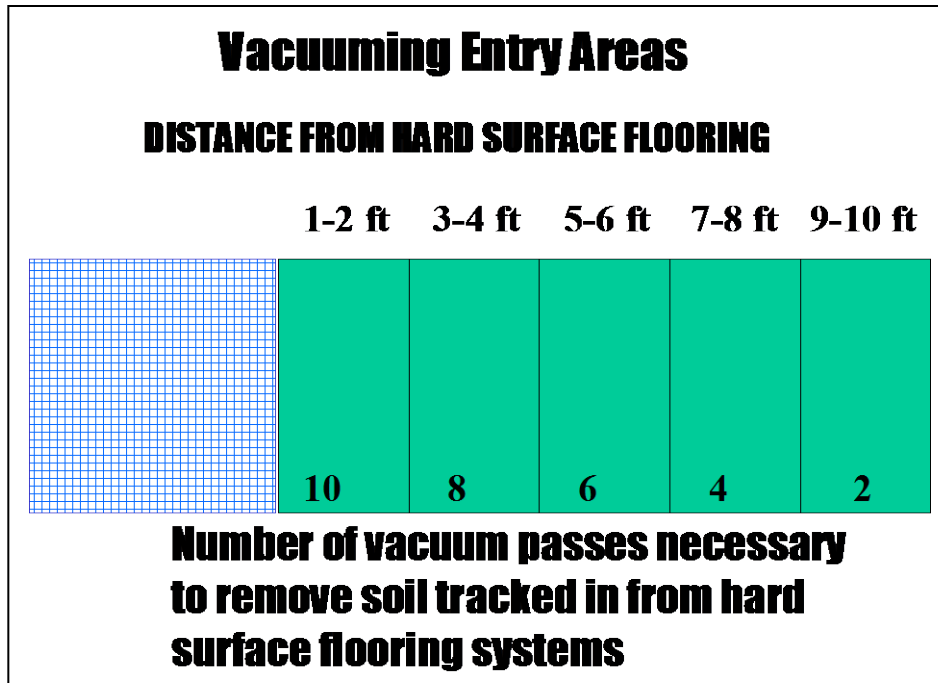
Vacuuming:

Vacuuming is the single, most important maintenance activity for Powerbond®, so proper vacuuming and vacuum cleaner selection is given a high priority in the CARE maintenance program. Approximately 75%-85% of the soil deposited into carpet is dry soil and may be removed with proper vacuuming. Dry soil can abrade and permanently damage pile yarn. Effective dry soil removal can be managed through a continuing planned maintenance program. While vacuuming alone WILL NOT keep carpet ‘completely’ clean, vacuuming will remove dry (insoluble) soil that cannot be removed through regular wet extraction cleaning.

Vacuuming must play a significant part in a planned maintenance program. Cubicle areas, Track-off areas, heavy traffic areas and entry mats should be maintained at least once **daily** using an approved vacuum. For improved indoor air quality, the vacuum should offer high efficiency filtration and should be Carpet & Rug Institute Seal Of Approval Certified (www.carpet-rug.org).

A note on backpack vacuums: Backpack vacuums may be used in conjunction with an upright vacuum. These units may be used for daily vacuuming, as they have shown to provide greater dry soil removal than upright units when used on Powerbond.

- Entry areas and areas adjoining hard surface flooring materials should receive a larger share of maintenance emphasis than other heavily trafficked areas within the facility. If an adequate job of entry maintenance is performed, dry soil can be limited to the first 12-15 feet after stepping onto Powerbond. If dry soil can be restricted to these areas, interior maintenance can be redirected to remove surface litter only, rather than spending an inordinate amount of time in trying to remove embedded dry soil. This translates to vacuuming less square footage on a daily basis, thus reducing labor costs. It will not be necessary to vacuum every square foot each day, if entries can be maintained properly.



Spot Removal:

Spot Removal should take place on a daily basis. Each facility should plan to purchase a spot removal extractor. One of the most effective maintenance tools to be introduced in the past few years is the spot removal extractor.



These 1-2 gallon portable extractors are lightweight and are available for quick removal of spot and spills. Spot removal, if performed on a daily basis, can be performed with minimal effort.

As an all-purpose spotter, Tandus recommends SYON-5 for the majority of the spills encountered on a daily basis. SYON-5 should be applied directly to the spill and agitated slightly. Extract the solution after 5-6 minutes of dwell time using fresh hot water only. Spills should be addressed as soon as they occur. The sooner removal can be attempted, the higher the probability of complete spill removal. SYON-5 can be purchased from your local Tandus Account Executives.

The following products will be helpful in removing many spots and spills:

SYON-5	Product patented and distributed by Tandus. May be used as the first solution for <u>all</u> spills. Especially effective on food and beverage spills. Dilution ratio is: Undiluted; up to 1 part: 10 parts of hot tap water.
Hot Water Rinse	Used to rinse detergent residues to limit re-soil potential. Use only cold water on blood spills to prevent setting the stain. Hot water should be utilized in every other situation.
Red Carpet/iCapsol	Good for water-based spills. May be used instead of SYON-5, if no fragrance is desired and no deodorization is needed.
SAF T SOLV	Bane-Clene product (800.428.9512) Non-Flammable, Volatile Dry Solvent May be used on many oil-based spills, as well as ink, gum and other solvent soluble contaminants.
Acetone	Breaks down adhesives, seam sealer etc. Use Caution and follow label directions for proper use.
Spray n' Go	Chemspec product (800.428.9512) An oxidizing bleach. It works on many permanent stains by removing color from the staining agent. <u>Never use Clorox, or any chlorinated bleach, that will remove Powerbond color.</u> Simply dilute Spray n' Go; apply to the area and vacuum up dried residue.
Acid Rinse solution.	Use white vinegar or a commercially available acidic/ extraction rinse This removes some yellowing and neutralizes many high pH detergent residues to limit re-soil propensity.

Common Powerbond Cleaning Suggestions:

There are no standard frequencies that can be suggested for all facilities. Periodic cleaning is dependent upon soiling levels, traffic levels, and the quality of daily maintenance. Due to this fact, some areas may require cleaning on a weekly basis, while other areas only may require cleaning on a yearly basis.

Proper planning will help identify those areas that require more frequent cleaning. The objective should be to limit soiling to smaller areas, before they spread, rather than cleaning the entire facility. It is less costly to clean a 90 square foot entry area on a weekly basis, rather than clean a 2000 square foot outer office quarterly. This should be accomplished by trial and error, with

continuous monitoring. The following are areas that are the first to become heavily soiled. These areas are where the bulk of interior soil originates.

- Entry areas – any outside entry. Asphalt sealer, dry from sidewalks, grass clippings, oily soil. These soils accumulate in entries and slowly spread deeper with the building.
- Areas adjoining hard floors- also called transition areas, these areas occur as a result of the failure to properly maintain hard floors. Even hard floors that are superbly maintained allow finishes to be tracked to the Powerbond where it localizes. Restrooms, kitchen and break areas, and tile common areas all contribute to Powerbond soiling. Cleaning these areas before the traffic pattern begins to spread will lighten the maintenance load.
- Break areas- the majority of spills can be found in these areas. Spills transfer to the soles of shoes and spread throughout the facility. Shoes require about 6 steps to be adequately cleaned by Powerbond. This can translate to about 18 linear feet.
- Soda Machines and coffee makers- areas next to refreshment areas should be monitored frequently for spills and should be cleaned semi-monthly (every other week), before spots and spills become apparent.
- Around the desks of the “neatness challenged”- Cleaning staff usually can identify the offices of those employees who seem to have difficulty in reducing spills in their areas. These areas may require more frequent inspection and more frequent cleaning.
- Areas of concentrated traffic- these are areas where traffic funnels to a concentrated area.
- Elevators- Powerbond RS allows for removal, cleaning and replacement as needed, if elevators cannot be maintained frequently.
- Stairs- because of increased force exertion, soil from shoes is deposited more quickly and more deeply than in other areas.

Common Cleaning Challenges:

Inability to remove spots- Powerbond offers the finest soil and stain retardant treatments available, but no material known to man is stain-proof. In addition, there is not a single spot removal product that can be used universally to remove all spots.

Optical Brighteners-Optical brighteners should NOT be used on any Tandus products.

Rotary Shampooing/Bonnet Cleaning-

Is never to be used on Tandus products. As an alternative, PLEASE implement a dual cylindrical brush agitation machine. There are a couple of Tandus Approved machines: Windsor Industries “iCapsol Mini”; Windsor/ Karcher’s iCapsol Mini, XL North/ Grab Carpet Cleaning System’s XLerator, Carpet Cleaner America’s Dri-Star & Renovator and North American Cleaning Equipment “Duplex Hydrowasher”. The rotary action does not allow for sufficient cooling from the friction and potential yarn abrasion and permanent pile fiber distortion typically results.

Periodic Cleaning:

Tandus’s Powerbond product provides end- users with a high performance, easily maintainable flooring option. An organized, fully implemented maintenance plan will ensure many years of

performance from Powerbond products and will reduce product lifecycle costs to make them one of the most affordable floor covering options available.

For enhanced performance of your new installation, Tandus has evaluated most methods of periodic cleaning, and has selected the optimum cleaning system for Powerbond products. Based on numerous scientific evaluations involving field and laboratory investigations, Tandus recommends the use of both Low Moisture and Hot Water Extraction systems for the maintenance of all Tandus products. While there is no standardized cleaning frequency for all facilities, Tandus recommends regularly scheduled primary maintenance cleaning, before the Powerbond 'appear' soiled. Some areas will require daily attention, while limited-use areas only may require a yearly extraction. Ultimately, localized use, soiling conditions, the quality of daily maintenance and appearance retention inspections will determine the frequency of primary maintenance cleaning.

The following should be considered when cleaning any Tandus products:

1. Operate heating, ventilation, and air-conditioning (HVAC) system during, and for at least 24 hours following, periodic cleaning with Hot Water Extraction.
2. Utilize air movers, in conjunction with HVAC operation, to expedite drying.
3. Limit traffic on wet Powerbond to limit soil tracking and soil wicking.
4. NEVER use any cleaning product that contains optical brighteners or bleaching agents.
5. Select cleaning products with a pH range between 4 - 9.
6. Select cleaning products that do not leave oily or sticky residues. Evaluate residue by diluting and pouring the solution into a pie plate. Place the pie plate in direct sunlight and allow evaporation. Evaluate residue for oily or sticky consistency.
7. Always keep Material Safety Data Sheets (MSDS) available during cleaning.
8. Always read and comply with label instructions of the detergent formulator.

Following is the recommended periodic cleaning procedure for the maintenance of Powerbond products:

- Vacuum the area to be cleaned, taking the required time and effort to remove as much dry particulate (insoluble soil) as possible. Hot Water Extraction (HWE) is performed to remove water-soluble soil, which cannot easily be removed with daily vacuuming. Surfactants, used in the cleaning process, attempt to emulsify these non-water soluble particulates, thus increasing cleaning efficacy.
- Following thorough vacuuming, apply a slightly alkaline pre-spray surfactant or SYON-5 directly to the pile fiber. Most surfactants require 8-10 minutes of dwell time to enable emulsification and saponification of the contaminants.
- Agitate the area with a pile brush or cylindrical brush agitation, such as the Freestyle or Libertor (Racine Industries), iCapsol Mini (Windsor Industries/ Karcher), or the dri-Star & renovator (Carpet Cleaner America). NEVER USE A ROTARY BONNET or ROTARY BRUSH for mechanical agitation. Cylindrical agitation will assist the surfactant solution in lifting soil from the pile fiber and pile lifting.

- Extract the surfactant solution and attached soil particles using an extractor with fresh water only. Do not use a detergent solution in the rinse tank. It is suggested that an Acidic/ Extraction Rinse be utilized in areas where Salt or Ice Melt Compounds have been used. The Extraction Rinse may be pre-sprayed and added into the rinse tank of the extractor.
- After thoroughly rinsing, continue to extract the area using “dry” strokes (no water injection) until suitable moisture removal is attained. Under no circumstance should any Powerbond product be allowed to remain wet for more than 8 hours.

Other considerations:

Soiling that reoccurs more than 24 hours following cleaning often may be attributed to detergent residues that were not adequately rinsed. Evaluate detergency by pouring water onto pile fiber and briskly agitating with a spotting brush. Look for foaming or other signs of detergent residue. If detergent is present, continue to extract these areas until detergent is thoroughly rinsed. In severe situations, an acid rinse may be applied as a pre-spray or added to the extractor rinse tank to neutralize detergent residues. In severe situations, an acid rinse may be applied as a pre-spray or added to the extractor rinse tank to neutralize detergent residues.

Some primary cleaning methods, such as the Windsor iCapsol System; Racine Industries HOST System, the milliCare System and Carpet Cleaner America have been proven effective in maintaining desired appearance levels and improving the quality of overall aesthetic value of all Tandus products. These methods may be used to extend the time between extractions.

For additional information, please visit: www.tandus.com/maintenance or www.carpet-rug.org