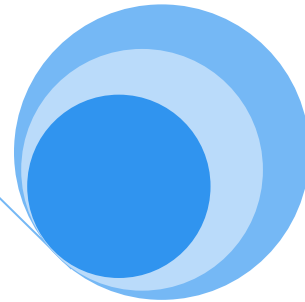




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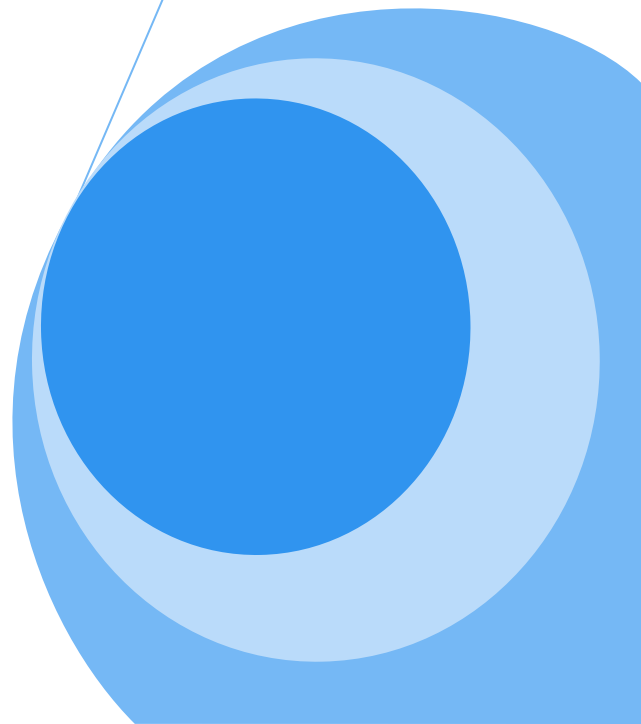
BUILDINGS &
GROUNDS



Blue Cleaning Guidelines

Cleaning for Health &
Environment

Penn State Office of Physical Plant



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1. Introduction/Communications

To ensure the success of the **Penn State Blue Cleaning** program, it must be communicated with our staff and clients. It is a good best practice to post program information at our locations and insert articles in company newsletters to continually demonstrate the commitment for the program. Some examples are OPP's News and Views, Communication Meetings, and our OPP Custodial Website.

Another component of the communication plan is the identification of employees or building occupants with special needs, physical and sensitivities, like dust, chemicals, noise, etc. When identified they should be notified of any products or procedures that may cause discomfort.

The **Penn State Blue Cleaning** program will seek feedback from employees and occupants in buildings. The feedback will help us continue to build a successful program with all stakeholders.

1.1

The intent of **Penn State Blue Cleaning** is to reduce the exposure of our personnel and building occupants to potentially hazardous products, equipment or procedures which could adversely affect human health and the environment, indoors and outdoors.

1.2

The program is designed to meet the requirements of The Pennsylvania State University Finance and Business Environmental Stewardship initiative. The program was specifically developed to assist the Office of Physical Plant in creating a more sustainable environment. We have incorporated criteria and practices from LEED v4.1 O+M Existing Buildings, from Green Seal GS 42 standard for cleaning services and from the Pennsylvania Green Building Maintenance Manual, as well as others, to develop the **Penn State Blue Cleaning** program.

1.3

It is important to note that conventional cleaning programs are not “bad”, however environmentally preferable programs will stress health and the environment more than just appearance of the facility.

As we introduce this program, we will discover that OPP Custodial Services is already utilizing many “green” practices.

2. Mission & Values



We accomplish this mission by promoting and living Penn State Values:

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PENN STATE VALUES

Integrity • Respect
Responsibility • Discovery
Excellence • Community

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3. Goals

- Instill environmental responsibility as a custodial value.
- Strive to use environmentally friendly and safe products.
- Educate and inform our customers about sustainable cleaning practices.
- Measure our “green” progress.
- Provide training to our workforce that promotes environmental stewardship and worker safety.

4. Cleaning Products and Dispensers:

4.1 Penn State Blue Cleaning criteria for environmentally preferable cleaning products:

- Low VOC
- More moderate pH (4-11)
- Low odor
- Work in cold water
- Multiple use products
- Products in recyclable packaging
- Products used in dilution control systems
- Low toxicity
- Concentrates
- Readily biodegradable
- No carcinogens
- No heavy metal floor finishes



4.2 Penn State Blue Cleaning product selection criteria for specific product categories.

4.2.1 All Purpose Cleaner- Can be used on any surface.

- ✓ Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)
- ✓ Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- ✓ Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced. If dyes are necessary, use those that are approved for foods and cosmetics (F&C).
- ✓ Prefer those that have no, or low VOC as compared to alternatives with higher levels.
- ✓ Consider detergent based products compared to those containing solvents.
- ✓ Preferable Ingredients: Surfactants containing terms such as lauryl, amides, and glycosides.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** standards set forth in our Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product - BETCO Velocity

PPE- Examination Gloves

4.2.2 Routine Cleaning Restroom – Use on fixtures, floors, and frequently touched surfaces.

- ✓ Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)
- ✓ Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- ✓ Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced. If dyes are necessary, use those that are approved for foods and cosmetics (F&C).
- ✓ Prefer those that have no, or low VOC as compared to alternatives with higher levels.
- ✓ Consider detergent based products compared to those containing solvents.
- ✓ Preferable Ingredients: Surfactants containing terms such as lauryl, amides, and glycosides.

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- ✓ Product must clean effectively according to **Penn State Blue Cleaning** standards set forth in our Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product - BETCO GE Peroxide Cleaner (
PPE- Examination Gloves



4.2.3 Routine Cleaning Restroom Disinfectant – Use on fixtures to disinfect

- ✓ EPA registered disinfectant
- ✓ Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- ✓ Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced, if dyes are necessary use those that are approved for foods and cosmetics (F&C).
- ✓ Prefer those that have no or low VOC as compared to alternatives with higher levels.
Consider detergent based products compared to those containing solvents.
- ✓ Non-Acid Formulation that will not harm surfaces
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** standards set forth in Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product – BETCO AF79 Non-Acid Bathroom Cleaner
PPE- Examination Gloves

4.2.4 Heavy Cleaning Restroom - Use on showers, toilet bowls, urinals, and sinks

- ✓ Biodegradability: Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- ✓ Dyes & Fragrances: Prefer those with no or low levels of dyes and

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fragrances. compared to those products that are heavily dyed or fragranced if dyes are necessary use those that are approved for foods and cosmetics (F&C).

- ✓ VOCs: Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent based products compared to those containing solvents.
- ✓ Mild-Acid Formulation that will not harm surfaces
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** standards set forth in Quality Assurance program and building inspections.



Current Product - BETCO Green Earth Restroom Cleaner
PPE-Examination Gloves



4.2.5 Heavy Duty Restroom – Use on porcelain urinals, toilets and sinks

- ✓ EPA registered disinfectant
- ✓ Biodegradability: Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- ✓ Dyes & Fragrances: Prefer those with no or low levels of dyes and fragrances. compared to those products that are heavily dyed or fragranced, if dyes are necessary use those that are approved for foods and cosmetics (F&C).
- ✓ VOCs: Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent based products compared to those containing solvents.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** standards set forth in Quality Assurance program and building inspections.



Current Product – BETCO Kling RTU Bowl Cleaner
PPE- Orange Gloves and Splash Goggles

4.2.6 Carpet Cleaners

- ✓ Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)
- ✓ Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- ✓ Prefer those with no or low levels of dyes and fragrances compared to

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those products that are heavily dyed or fragranced. If dyes are necessary, use those that are approved for foods and cosmetics (F&C).

- ✓ Prefer those that have no, or low VOC as compared to alternatives with higher levels.
- ✓ Consider detergent based products compared to those containing solvents.
- ✓ Preferable Ingredients: Surfactants containing terms such as lauryl, amides, and glycosides.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** standards set forth in our Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Products

Encapsulation/Extraction Pre-spray – Enviro Solutions ES93+

PPE- Examination Gloves
Tools- Pump-up Sprayer



Extraction Rinse – Betco GE Peroxide Cleaner (GS-37)

PPE- Examination Gloves



4.2.7 Chrome Cleaner / Polish

- ✓ Prefer those that have no or low VOC as compared to alternative with higher levels.
- ✓ Prefer products that use oils derived from renewable resources as compared to oils from non-renewable resources.
- ✓ Preferable Ingredients: **(examples needed)**
- ✓ Less Preferable Ingredients: petroleum distillates, ammonia.
- ✓ Product must clean effectively according to Penn State Blue Cleaning standards set forth in Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product – A-BEN-A-QUI

PPE-Examination Gloves

4.2.8 Floor Finishes

- ✓ Durability: Prefer finishes that are more durable (require less maintenance such as buffing, restoring and recoating) than less durable finishes that require more frequent maintenance.
- ✓ Heavy Metals: Prefer non-metal cross-linked polymers as compared to those containing heavy metals. Another significant benefit of non-metal polymer formula is that frequently they can be removed with less hazardous floor stripper.
- ✓ Preferable Ingredients: Metal-free polymers.
- ✓ Less Preferable Ingredients: Metal-cross linked polymers

Current Product
Diversey High Mileage
Diversey Vectra

4.2.9 Floor Strippers

- ✓ pH: Prefer those with a pH closer to neutral (in the range of 10 to 12) as compared to those with an extreme pH (closer to 4).
- ✓ VOC: Prefer those that have no or low VOC as compared to alternatives with higher levels.
- ✓ Preferable Ingredients: d-Limonene (citrus solvent) and methyl esters.
- ✓ Less Preferable Ingredients: ethylene glycol mono butyl ether (butyl cellusolve), 2-butoxyethanol, ammonia, and sodium hydroxide.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** set forth in Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.

Current Product
PRO STRIP- 5 L RTD

4.2.10 General Degreaser

- ✓ VOC: Prefer those that have no or low VOC as compared to alternatives with higher levels.
- ✓ Flashpoint: Prefer products that have a higher flashpoint compared to those with a low flashpoint.
- ✓ Preferable Ingredients: d-Limonene (derived from citrus fruits) and methyl esters from soy and corn.

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- ✓ Less Preferable Ingredients: glycol ethers in general, ethylene glycol mono butyl ether (butyl cellulolve), and sodium hydroxide.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** set forth in Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product
Betco Velocity



4.2.11 General Disinfectants

- ✓ EPA registered disinfectant
- ✓ Biodegradability: Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- ✓ Dyes & Fragrances: Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced, if dyes are necessary use those that are approved for foods and cosmetics (F&C).
- ✓ VOCs: Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent based products compared to those containing solvents.
- ✓ Non-Acid Formulation that will not harm surfaces
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** set forth in Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product
-Betco Quat Stat 5

Vital-Oxide-



4.2.12 Glass Cleaners

- ✓ VOC: Prefer those that have no or low VOC as compared to alternative with higher levels. Consider detergent based products compared to

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those containing solvents.

- ✓ Flashpoint: Prefer products that have a high flashpoint compared to those with a low flashpoint.
- ✓ pH: Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)
- ✓ Biodegradability: Prefer those that are readily biodegradable as compared to those that are slower to degrade. Unfortunately, many older formulations use excellent performing ingredients that have been found to have serious environmental and health concerns (see ingredients to avoid).
- ✓ Dyes & Fragrances: Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced. If dyes are necessary, use those that are approved for foods and cosmetics (F&C).
- ✓ Preferable Ingredients: surfactants containing terms such as lauryl, amides, and glycosides.
- ✓ Less Preferable Ingredients: ammonia, alcohols, propylene glycol, ethylene glycol and other glycol ethers.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** set forth in Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product
Betco GE Peroxide Clea



4.2.13 Graffiti Remover

- ✓ VOCs: Prefer those that have no or low VOC as compared to alternatives with higher levels. Consider detergent based products compared to those containing solvents.
- ✓ flashpoint: Prefer products that have a high flashpoint compared to those with a low flashpoint.
- ✓ (8) pH: Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14).

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- ✓ Preferable Ingredients: n-Methyl-2-Pyrrolidone, d-Limonene.
- ✓ Less Preferable Ingredients: methylene chloride, petroleum distillates, butane, isobutene, and sodium hydroxide.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** set forth in Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product
A-BEN-A-QUI

4.2.14 Gum Remover

- ✓ VOCs: Prefer those that have no or low VOC as compared to alternative with higher levels. Consider detergent based products compared to those containing solvents.
- ✓ Flashpoint: Prefer products that have a high flashpoint compared to those with a low flashpoint.
- ✓ pH: Prefer products with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14).
- ✓ Preferable Ingredients: dry ice, carbon dioxide.
- ✓ Less Preferable Ingredients: Freon, dichloro-difluoromethane, trichloro-fluoromethane.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** set forth in the Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product
Betco Gum Remover

4.2.15 Lime and Scale Remover

- ✓ pH: Prefer those with a more neutral pH as compared to those with extreme pH.
- ✓ Environmentally preferable lime and scale remover may fall more in the range of pH 4 as compared to traditional products that may have a pH below 1.
- ✓ Preferable Ingredients: citric or acetic acid.
- ✓ Less Preferable Ingredients: hydrochloric or phosphoric acid.

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- ✓ Product must clean effectively according to **Penn State Blue Cleaning** set forth in Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.



Current Product
Betco GE Peroxide Cleaner (GS)



Betco GE Restroom Clean



5.2.16 Drain Maintainer-

- ✓ Prefer those with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)
- ✓ Prefer those that are readily biodegradable as compared to those that are slower to degrade.
- ✓ Prefer those with no or low levels of dyes and fragrances compared to those products that are heavily dyed or fragranced. If dyes are necessary, use those that are approved for foods and cosmetics (F&C).
- ✓ Prefer those that have no, or low VOC as compared to alternatives with higher levels.
- ✓ Consider detergent based products compared to those containing solvents.
- ✓ Preferable Ingredients: Surfactants containing terms such as lauryl, amides, and glycosides.
- ✓ Product must clean effectively according to **Penn State Blue Cleaning** standards set forth in our Quality Assurance program and building inspections.
- ✓ Product must be cost-effective in dilution.

Betco Bioactive Solutions PUSH



4.2.16 Dilution Control Systems

The **Penn State Blue Cleaning for Health and Environment** Program will utilize a **Chemical Management System** for dispensing chemical products. The system shall be comprised of multiple dispensing options to allow **Penn State Blue Cleaning for Health and Environment** the greatest flexibility, economy, and effectiveness for **Achieving Custodial Excellence**. The packaging of all products including the entire concentrate bottle shall be 100% recyclable.

- ✓ Designed to “draw up” to prevent over-dilution and accidental draining of concentrated chemical.
- ✓ Safe dispensing mechanism with “off” position to prevent accidental discharge.
- ✓ Varying flow rates for spray bottle(1gpm) vs mop bucket(4gpm)
- ✓ Tamper-proof design to ensure that proper dilution is achieved.
- ✓ Universally accepted backflow prevention.
- ✓ Action gap educators to ensure consistent dilutions at varying water pressures.
- ✓ Ability to dispense remotely.

Current Product
Betco Fastdraw Chemical Management System

5. Powered Maintenance Equipment:

The equipment utilized in the **Penn State Blue Cleaning for Health and Environment** program will reduce building contaminants and the environmental impact while continuing to deliver economical and effective results.

Penn State Blue Cleaning will use the requirements outlined in LEED-EB, Indoor Environmental Quality Credit 3.7 to manage the powered cleaning equipment used **Penn State Blue Cleaning for Health and Environment**

5.1 Vacuum Cleaners – Upright or Backpack

- ✓ CRI certified and HEPA filtration
- ✓ Sound level of less than 70 dBA

Current Equipment

- Windsor Axxess - 69dBA
- Makita Backpack- Battery - .3 microns/ 69dBA

5.2 Carpet Extractors

- ✓ CRI (Carpet & Rug Institute) certified
- ✓ Maximum 24 hr dry time

Current Equipment

- Windsor Clipper – 4 hr dry time
- Windsor Clipper DUO – 4 hr dry time

5.2.1 Carpet Encapsulation

- ✓ Low moisture and chemical
- ✓ Faster dry time

Current Equipment

Windsor iCapsol Mini – 20 min dry time

5.3 Burnishers

- ✓ Sound level <70dBA

Current Equipment

- Nobles Speedshine 2000 <70dBA

5.4 Automatic Scrubbers

- ✓ Variable speed pumps to optimize use of cleaning solution.

Current Equipment

- Nobles Speedshine w/Fast (Foaming) technology
- Karcher BD 50/55

5.5 Swing Machines

- ✓ Low speed
- ✓ Fit in small areas
- ✓ Can be utilized for many tasks

Current Equipment

- Nobles FM-17-SS

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- Tomcat EDGE Stick

5.5 Battery Powered Equipment

- ✓ Currently all Battery Powered Equipment is AGM (Absorbed Glass Mat) batteries. these batteries are sealed and spill-proof, eliminating gas emissions and acid leakage for safer battery operation.
- ✓ Every replacement battery will be in the form of AGM if it is available for that machine.

5.6 Ergonomically Designed Equipment

- ✓ Large handles to reduce hand fatigue
- ✓ Adjustable handles for variable heights
- ✓ Ambidextrous design for alternative positioning
- ✓ ABS plastic protects equipment and facilities from damage

5.7 Equipment Maintenance

An area to ensure a sustainable cleaning program is the continual **maintenance of custodial equipment**. The **Penn State Blue Cleaning Health and Environment** program will maintain purchasing records and maintenance logs for each piece of equipment in a every facility including:

- ✓ Location of facility
- ✓ Date purchased or introduced to the facility
- ✓ Routine maintenance dates
- ✓ Record of repairs
- ✓ Tracked within "MAXIMO" maintenance tracking system.

6. Miscellaneous Supplies:

Another ingredient of a successful green cleaning program is the consistent use of environmentally preferable disposable paper and trash bags. The program will utilize products containing the criteria outlined in the EPA Comprehensive Procurement Guidelines (CPG), Green Seal GS 01, GS 09 standards, Ecologo CCD 82, CCD 86 standards and LEED-EB Indoor Environmental Quality Credit 3.4-3.6.

6.1 Trash Can Liners

Current Product

Native Green Liners - 70% post-consumer content

6.2 Restroom Paper Products

The issues associated with selecting paper products compared to cleaning products are significantly simpler. The issues of concern for paper are primarily focused at the manufacturing stage of the products. Whereas cleaners may have more than a dozen individual ingredients which can vary significantly from category to category and even amongst different products within the same category, paper is relatively similar. Paper has less emphasis on health issues during the products usage stage, or environmental impacts because of disposal. The three basic issues of concern for paper include:

- ✓ Total recovered material (recycled content).
- ✓ Post-consumer recycled content.
- ✓ No use of de-inking solvents containing chlorine, or any other chemicals listed in the Toxic Release Inventory in the manufacture of paper products.
- ✓ No use of chlorine or chlorine derivatives in bleaching processes for paper products

6.2.1 Toilet Tissue

Current Product

Kimberly Clark Jumbo Roll - 20% post-consumer content

6.2.2 Paper Towels

Current Product

Kimberly Clark Roll Towel - 40% post-consumer content

6.3 Microfiber Cleaning Tools

Custodial Services has begun a program to use MICROFIBER cleaning tools to include cloths, wet mops, and dust mops. Microfiber cleaning tools reduce cleaning product usage, inhibit mold and bacteria growth, and ultimately perform a better job of cleaning. Microfibers cleaning tools fit perfectly in our BLUE CLEANING Guidelines and

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are the preferred cleaning tools for the University's environmental stewardship initiative. Microfiber doesn't absorb like cotton. Since it's synthetic, microscopic bacteria can't absorb into the material like it does on cotton. It doesn't harbor mold and can be washed many times.

6.4 Microfiber Use

Microfiber products have been initially supplied based on allocated funds. Not all needed material has been purchased. Purchases were made based on even distribution per District. If you need additional microfiber products, please refer to section **1.3.4** for ordering information.

6.4.1 Cloths

- ✓ Blue – Use on glass, mirrors, sinks and countertops, water fountains, stainless steel, chrome, brass and Plexiglas.
- ✓ Green – Desktops, tabletops, walls, wood, plastic, chairs, equipment and cabinets. Use as a dusting tool.
- ✓ Red – Restroom toilets and urinals.
- ✓ Yellow – General heavy-duty cleaning of equipment and tools

6.4.2 Wet Mops

- ✓ Blue Microfiber – General purpose mopping on all floor surfaces
- ✓ Blue Cotton Blend Mop – Excessively soiled areas.
- ✓ Pink Cotton Blend Mop – Floor stripping operations to apply stripping solution

Dry Mops

- ✓ Blue Microfiber – Use to remove dry soil from all smooth surfaces. Can be vacuumed when the leading edge becomes visibly full.

6.4.4 Ordering Information

When ordering new microfiber products, we will double our purchase to ensure proper inventory rotation.

6.4.5 Pickup and Drop Off Schedule

Custodial Services has established a drop-off and pick-up schedule to assure microfiber products are properly laundered. This will ensure quality of microfiber products and conformance to the program outlined.

6.4.6 Laundering

Soiled microfiber is laundered by Penn State Laundry Services located near the Office of Physical Plant Building. We are charged in increments of 50lbs. per wet item. Costs by District are determined by the number of towels turned in to be cleaned. Laundry then bills each appropriate District budget and task number.

6.5 Hard Floor Pads

6.5.1 General Floor Pads

General Cleaning Pad-3M™ Red Buffer Pad 5100



Red

Floor Stripping Pad-3M™ High Productivity Pad 7300



Top Scrubbing Pad-3M Scotch-Brite™ Surface Preparation Pad Plus



Burnishing Pad-3M™ Sky Blue Hi-Performance Burnish Pad 3050



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6.5.2 Specialty Floor Pads

3M™ White Super Polish Pad 4100



3M Scotch-Brite™ Clean & Shine



TurfScrub™ Pad



7. General Procedures

7.1 Team Cleaning

Within a building, a group of specialists are deployed in a systematic method performing specific cleaning tasks. Although there are four types of specialists, a team can be made up of any number of people and any configuration of the specialist depending on the site and the cleaning specifications of the building.

- ✓ Standard level of cleaning.
- ✓ Training time is reduced by 50% - 75%
- ✓ Less equipment and supplies needed to clean facilities.
- ✓ Productivity is increased by 15% - 40%

7.1.1 Team Cleaning Specialist

A team of specialists go through the area systematically. Rather than cleaning a specific area, each custodian performs a specific task. Team cleaning tasks are generally broken down into the following areas:

- General Duty Specialist
 - ✓ Collects trash and recycling in public spaces.
 - ✓ Cleans all horizontal surfaces and frequently touched surfaces.
- Floor Specialist
 - ✓ Vacuums carpet using backpack vacuum.
 - ✓ Mops hard floors using microfiber flat mop or pulse mop.

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- Restroom Specialist
 - ✓ Follows 16-step restroom procedure.
 - ✓ Cleans all restrooms in the facility.
- Grade 9 Utility Specialist
 - ✓ Cleans corridors/lobbies/vestibules daily.
 - ✓ Responsible for interim and restorative cleaning of floors.
 - ✓ Changes all lights within the facility.
 - ✓ Removes trash from the building to the trash yard.
 - ✓ Trained in running cleaning equipment.

7.2 Cleaning Procedures

The procedures listed below are a combination of years of research, the current **Penn State Blue Cleaning** written procedures used at PSU, and a thorough consideration of “The Pennsylvania Green Building Operations and Maintenance Manual.” The procedures included are basic guidelines and should not be confused with the **Penn State Blue Cleaning** specific cleaning procedures for each process described.

7.2.1 People with Cleaning Product Sensitivity

One of the primary goals of our BLUE CLEANING maintenance program is to protect the health of building occupants. This is done in many ways including the identification and removal of harmful contaminants, such as particulates, mold spores, bacteria and viruses. And while the cleaning process can reduce exposure to these and other harmful contaminants, unfortunately, the process of cleaning and cleaning products themselves can cause adverse health impacts from building occupants. This is especially true for those who are very sensitive to odors, those with pre-existing health conditions such as asthma and allergies, those with reduced immune system such as those recovering from cancer, and other health conditions.

For these individual's accommodations must be made relative to cleaning activities such as noise levels, dust etc. Some may be very sensitive to the fragrances of cleaning products. In some cases, reported sensitivities may not even be caused by cleaning products, but rather sensitivities to per allergens from guide dogs and even co-worker's household pets. Understanding those sensitivities is essential to accommodating the occupants. In some cases, different products may be necessary. In other cases, the time of day that cleaning takes place may need to be altered and in other cases occupants who are reacting to their co-workers may need to be relocated to other areas within the building.

- Identify those building occupants with individual needs and sensitivities.

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- Develop a plan to address the individual needs of people with sensitivities.
- Change the products and/or cleaning schedules as necessary to accommodate their individual needs.
- Address ventilation requirements to help mitigate the problems.

7.3 Spray and Wipe

- ✓ Microfiber cloth required.
- ✓ Limit exposure to cleaning products by spraying microfiber directly.
- ✓ Launder microfibers regularly

7.3.1 Spray and Wipe Procedure

1. Fold microfiber cloths into 1/8th, giving you eight cleaning surfaces.
2. Spray approved cleaning chemical directly onto microfiber cloth.
3. Wipe surface to remove any soil.
4. Reapply disinfectants as needed to ensure the surface stays wet throughout the recommended dwell time.

7.4 Dry Mopping

- Dry microfiber flat mop is preferred over a dry or treated cotton mop.
- Choose wide mops if possible, taking into consideration area needing dry mopped.
- Launder dry mops regularly

7.4.1 Dry Mopping Procedure

1. Begin with the mop next to the wall, walk to the other end of the work area. At the opposite end, pivot the dry mop so that the leading edge remains the same. Return to the opposite end. Overlap the previously mopped path by 2 to 4 inches, to ensure complete coverage.
2. One pass with a dust mop removes dirt, dust and abrasive particles, without leaving the floor dull or slippery. Sweep accumulated soil to a collection area, lightly shake loose soil from the dust mop, and continue. Remove gum, tape or other sticky residue with a scraper, using care not to mark or scratch the floor finish. Continue the dust mopping process until the entire area has been dust mopped. When finished pick up the collected debris using a vacuum, counter brush and dustpan.
3. Clean excess soil left on dry mop by vacuuming instead of brushing to reduce air contaminants.
4. Store the mop in a hanging position. DO NOT Store the dry mop on the floor.
5. Launder soiled dust mop heads.

7.4.2 Hard Surface General Maintenance

- ✓ Clean entryways to limit soil being tracked throughout the building.
- ✓ Use walk-off matting outside and inside entry (minimum 15-25 ft).
- ✓ Make sure mopping solutions are kept clean using only the correct amount of cleaning product.
- ✓ Use appropriate vacuums. Dispose of captured material or empty bags at half full.

7.5 Burnishing

This procedure is an integral part of our Blue Cleaning program, as it is extremely less harmful to the employee, the occupant, and the environment. Burnishing is less costly and not as invasive as top scrubbing and recoating hard surface floors. The key to a successful burnishing program is to perform the process on a regularly scheduled basis.

Procedure:

1. Place wet floor signs and notify occupants of work to be done.
2. Be aware of your surroundings, watch for pedestrian traffic.
3. Dry mop to remove loose soil and debris.
4. Select appropriate products and tools.
 - a. Ultra Shield Burnishing Formula
 - b. Blue ACE burnishing pad
 - c. Automatic Scrubber
5. Scrub floor following manufacturer recommendations of machine used.
6. Burnish clean floor with ACE burnishing pad and burnishing machine.
7. Ventilate area and allow proper drying time before opening area.

7.6 Top Scrub and Recoat

This procedure is an integral part of our Blue Cleaning program, as it is extremely less harmful to the employee, the occupant, and the environment. Top scrub and recoat also is less costly and not as invasive as stripping hard surface floors. The key to a successful top scrub and recoat program is to perform the process on a regularly scheduled basis.

Procedure:

1. Place wet floor signs and notify occupants of work to be done.
2. Barricade or tape off area to be scrubbed to discourage occupant traffic.
3. Don your PPE including gloves, eye goggles and anti-slip footwear.
4. Dry mop to remove loose soil and debris.
5. Select appropriate products and tools.

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- a. GE Daily Floor Cleaner
 - b. Blue Cleaning Pad / Surface Prep Pad
 - c. Automatic Scrubber
 - d. Appropriate Floor Finish
6. Scrub floor following manufacturer recommendations of machine used.
 7. Rinse floor with clean water.
 8. Apply floor finish (Usually 2 coats)
 9. Ventilate area and allow proper drying time before opening area

7.7 Stripping

In our **Penn State Blue Cleaning**, stripping is considered a high environment and health impact procedure. For that reason, one of the main goals of the floor care program is to focus on daily and interim floor care to extend the time between strip outs.

Procedure:

1. Prepare the area. Place "Floor Hazard" signs at entrances to the area being stripped. Move furniture. Work around heavy furniture or equipment that cannot be moved. Sweep the floor with a treated dust mop. Remove gum, tape and other foreign materials with a scraper using care not to mark or scratch the surface finish.
2. Prepare equipment, Assemble two mop heads and handles. Label one "**Strip Mop**". Label the other "**Rinse Mop**". Assemble two mop buckets and wringers. Label one "**Strip Bucket**". Label the other "**Rinse Bucket**". Place black or high productivity stripping pad on the rotary floor machine. Fill the **Strip Bucket** with a solution of floor stripper (see section on products selection) following the manufacturer's recommendations for dilution rates and water temperature. Fill the **Rinse Bucket** with lean, cold water. Equip a wet vacuum with a floor squeegee tool. Place the equipment in the area where the work will begin.
3. Apply stripping solution to the floor, using the **Strip Mop** and **Strip Bucket**. Dip mop in stripping solution. Lift mop and allow excess stripper to drain back into the bucket. Fan out the mop head on the floor and apply stripping solution along the edges. Continue applying solution using an arc motion from right to left, covering the area between the edges. Apply sufficient solution to thoroughly wet the floor, but DO NOT flood it. (Adequate solution coverage will allow a match or toothpick to float on the surface.) Do not allow solution to dry on the floor. Re-apply as necessary to keep the floor wet. Immediately wipe off splashed from walls, baseboards, glass partitions, etc. with a damp cloth. Allow solution to remain on the floor 5 to 10 minutes. Re-apply as necessary to keep the floor wet.
4. Scrub the floor with the rotary floor machine and stripping pad. Scrub in a circular motion, from side to side. Overlap the strokes made by the machine. Keep the floor wet. Re-apply solution as necessary.

5. Remove the stripping solution from the floor with a wet vacuum and floor squeegee tool. Examine the floor for complete finish removal. Re-strip at areas with residual gloss.
6. Rinse the floor. Apply rinse solutions using the **Rinse Mop** and **Rinse Bucket**. Apply enough water to thoroughly wet the floor, but DO NOT flood it. Remove the rinse solution from the floor using the wet vacuum and floor squeegee tool.
7. Damp mop the floor with clean water. Empty the **Rinse Bucket** and refill with clean water. Rinse the **Rinse Mop** with clean water. Damp mop the floor with clean water. Remove Floor hazard signs only when floor is completely dry.

7.8 Routine Maintenance (Vacuuming and Spot Removal)

Vacuuming is the most effective carpet care method for improving IAQ (Indoor Air Quality) in any building. Routine vacuuming removes up to 80% of all soil contained in carpet, so it will be the method of carpet care that will be performed more than any other.

Current Routine Carpet Maintenance Guidelines:

1. Use a backpack vacuum for routine vacuuming.
2. Ensure that vacuums are in good working order using appropriate bags and/or filters.
3. Vacuum bags should be emptied or replaced when half full. Dispose properly.
4. Clean up spills while they are still fresh.
5. Minimize the amount of moisture used during cleaning.
6. When vacuuming entrance mats, an upright vacuum with a beater bar is preferable for removing embedded soil.

7.9 Interim Carpet Cleaning

Current Interim Carpet Cleaning Guidelines:

1. Identify traffic lanes, spots and stains or entire carpets that are ready for an interim clean.
2. Choose the interim method that will be best for the situation. (Encapsulation or low moisture)
3. Inform occupants of cleaning to be performed.
4. Perform cleaning and dispose of cleaning products properly.

Interim Carpet Cleaning (Encapsulation)

1. Remove dry soils by vacuuming.
2. Apply encapsulation products with pump up sprayer.
3. Agitate carpet and brush in encapsulating chemical with ICapsule machine so that chemical encounters the sticky, oily soils.
4. Allow product to dry and form a crystal around the soil.
5. Vacuum to remove encapsulated soil.

7.10 Extraction Carpet Cleaning

Extraction Cleaning Guidelines:

- ✓ Minimize the amount of cleaning chemicals. Excess chemicals result in rapid resoiling.
- ✓ Use appropriate functioning equipment that will maximize the amount of water being extracted from the carpet to minimize moisture and potential for mild, mildew and bacterial growth.
- ✓ After extraction of carpet areas that were flooded spray treat the area with a disinfectant solution (e.g., Micro-Ban) to prevent mold, mildew, and bacteria growth.
- ✓ Increase ventilation, open windows if weather allows and use fans to dry quickly. Carpets should be completely dry within 24 hours.
- ✓ Dispose of cleaning solutions properly.

Current Extraction Cleaning Procedures

1. Place wet floor signs.
2. Remove dry soil by vacuuming.
3. Apply pre-spray with pump-up sprayer (allow 5 to 10 minutes dwell time).
4. Use appropriate extractor to agitate carpet, inject rinse agent, and vacuum excess water.
5. Allow carpet to dry (Place carpet fan if needed)
6. Ventilate to speed up dry time.

7.10 Restroom Cleaning Guidelines:

- ✓ Make sure sanitizing and disinfecting solutions are prepared and used properly (i.e. dwell time) and remix as required.
- ✓ Frequently clean surfaces that hands touch to eliminate the spread of germs (i.e. doorknobs, light switches, handles, etc.).
- ✓ Frequently eliminate moisture.
- ✓ Keep floors dry to eliminate slip-falls and the build-up of bacteria, mold and mildew.

16 Steps of Restroom Cleaning

1. Sweep the floor.
2. Apply cleaner/disinfectant to interior of bowls and urinals using a pump-up sprayer or bottle with trigger.
3. Apply cleaner/disinfectant to exterior of bowls and urinals using a pump-up sprayer or bottle with trigger.
4. Apply cleaner/disinfectant to sinks and countertops with pump-up sprayer or bottle with trigger.
5. Check and fill dispensers such as paper towel, toilet tissue, and soap dispensers.
6. Clean and wipe dispensers.
7. Clean mirrors and glass.
8. Clean and wipe sinks and countertops.
9. Clean interior of bowls and urinals.
10. Clean exterior of bowls and urinals.
11. Clean frequently touched surfaces such as light switches and push plates.
12. Spot clean walls.
13. Clean shower (If applicable)
14. Empty Trash and clean receptacles if needed.
15. Pour water in drain to control odor.
16. Mop floor.

7.10 : Entryway cleaning

- ✓ Cleaning entryways can reduce soil tracked into building.
- ✓ Use proper matting to capture up to 80% of soil load.
- ✓ Proper entryway cleaning promotes floor care and reduces risks of slips and falls caused by wet, dirty floors.
- ✓ Entryways provide first impression of facility.

Interior Entryway Cleaning Procedures

1. 1.Use 3-stage entryway walk-off matting system (minimum of 15 to 25

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ft).

2. Clean glass, door handles, push plates, and kick plates, and ADA automatic door openers with general/all-purpose cleaner and microfiber cloth.
3. Vacuum entrance matting with upright vacuum equipped with beater bar.
4. Vacuum entryway flooring with backpack vacuum and a hard floor attachment.
5. If entrance matting becomes excessively wet due to rain or snow, use a carpet extractor to clean wet entrance matting as moisture will damage backpack and upright vacuums.

Exterior Entryway Cleaning Procedures:

1. Empty and spot clean trash cans and ash urns.
2. Clean glass, door handles, push plates, kick plates, and ADA automatic door openers with all-purpose cleaner and microfiber cloth.
3. Sweep entry matting and surrounding walkways with a broom.

7.11: General Purpose and Departmental Classroom Procedures

- ✓ Classrooms are cleaned daily to ensure a safe and healthy learning environment for professors and students.
- ✓ Chalk, black, white eraser markers, and erasers are provided for all classrooms.

Chalkboards

1. Clean chalkboard surface using general/all-purpose cleaner and microfiber towel.
2. Clean chalk railing using general/all-purpose cleaner and microfiber towel.
3. Dispose of chalk under one inch in length and replace with full piece.
4. Check erasers for wear and replace as needed.

Desk and Tables

1. Spray desk and tables with general/all-purpose cleaner.
2. Wipe clean with a microfiber towel.

Floors (carpeted)

1. Use backpack vacuum to vacuum entire floor
2. Apply general purpose spotter to any spots in the carpet.

Floors (uncarpeted)

1. Use backpack vacuum to vacuum entire floor.
2. Damp mop entire floor using microfiber flat mop.

7.11.1: Lights

Lights

1. Check
2. report needed repairs or needed relamping to grade 9

7.12: Corridor, Lobby, & Foyer Task Procedures

Doors

1. Spot clean both sides, including glass using Betco Peroxide cleaner.
2. Lock and unlock as scheduled (including those in adjoining stairwells/entranceways)

Drinking Fountains

1. Clean drinking fountain with Betco #32 Restroom Cleaner.
2. Disinfect drinking and bottle fill nozzles with Betco Quat Stat 5.
3. Rinse nozzles with clean water for thirty seconds.
4. Wipe fountain with microfiber cloth.

Trash and Recycling containers

1. Remove recycling waste liner.
2. Replace liner.
3. Damp wipe container with general/all-purpose cleaner and a microfiber rag.

7.13: Electrostatic Disinfecting Procedures

1. Don PPE gloves, goggles, long sleeve and long pants
2. Ensure battery is charged
3. Pour Vital oxide directly into tank
4. Turn nozzle to setting 9C
5. Hold trigger and spray product into the air
6. Walk around the area while moving wand left to right

8 Health & Safety

8.1 Custodians

1. Every Penn State custodian will complete safety training throughout the year to include these topics:
 - a. HazCom - Understanding products used.
 - b. Bloodborne Pathogens - How to address a blood spill to protect yourself from injury or illness.
 - c. Lab Safety – Safely working in or around labs.
 - d. Back Safety - How to avoid back injuries while lifting and performing duties.
 - e. Snow Removal - How to be safe when shoveling and running equipment.
 - f. Proper Nutrition - How to eat and sleep right when working an odd shift.
 - g. Fluorescent Bulb Replacement and Disposal
2. Each custodial supervisor will conduct a minimum of 4 safety inspections per month, one of which must be a behavioral inspection, to ensure that the work area is safe for both the custodian and the customer.

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3. Employees **MUST** wear required PPE:
 - a. Orange gloves and goggles when using acids.
 - b. Splash goggles when using FastDraw dispenser.
 - c. Non-Slip safety shoes when stripping a floor.
4. Instill culture of safety in each custodian's way of working.
5. Each supervisor must perform one safety conversation per day with at least one employee.

8.2 Customers

1. Always communicate with building occupants and visitors to inform them of potential hazards associated with cleaning.
2. Place wet floor signs and barricade areas when customers and visitors should not enter due to slippery floors, etc.
3. Ventilate areas to reduce VOCs from the use of cleaning products.
4. Use environmentally friendly products and procedures, when possible, to reduce the impact on our customers' health.

Each year, **Penn State Custodial Services** strives to keep its workers safe. One of our main priorities is to ensure that our workforce has a safe working environment. One of the benefits of implementing the Penn State Blue Cleaning is that our employees have less of a chemical exposure risk when they are using safer cleaning products. These products are deemed to be safe for the worker and the environment by organizations such as Green Seal, DFE, and Eco Logo.

9. Training

Initial, recurring, and corrective training is the cornerstone of a successful Train the Trainer program which is our current process. The procedures and training segments are presented to supervisors first and then incorporated during monthly training of employees. Topics will be developed and presented on a Monthly basis with a knowledge retention following every training session.

- **Specific "BLUE" training**
 - ✓ Offer training overview to customers.
 - ✓ Communicate benefits to our employees and customers.
 - ✓ Completed once annually and/or available on OPP website.
- **Product/Equipment/Supplies**
 - ✓ Description of new products, equipment, and supplies
 - ✓ Compare to existing items
 - ✓ Dispensing methods
 - ✓ Safe use and storage information

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- **Cleaning procedures** – (specific cleaning procedures will be taught, demonstrated and monitored for areas noted above)
- **Methods of instruction** – (Product and Equipment personnel will assist with initial and follow up training sessions on-site and in classrooms)
 - ✓ Lecture with training aids, videos, printed material
 - ✓ Hands on sessions (Restroom cleaning, floor care)
 - ✓ Specific web-based sessions and 24/7 availability on vendor web sites (e.g...www.betco.com)
 - ✓ LRN-based training
 - ✓ Knowledge Retentions for each training
 - ✓ Cleaning task cards
 - ✓ Wall charts for product selection guidelines
- **Training attendance logs** in the form of training sign-in sheets are maintained for initial, review and corrective training sessions for all personnel.
- **Training hours** shall be logged in the form of ND codes on employee electronic timecards for purpose of OPP-HR to track completed training.
- **A minimum of 16 hours training** shall be performed each calendar year related to job-specific topics.
- **Training software** will be maintained with records of all training complete with dates, grades, and retrain dates.
- **TTT Training Matrix** – Penn State Custodial uses a train-the-trainer philosophy for much of our training. Included is the current year's matrix for training.

10. Staffing Requirements

The definition of green cleaning is to lessen the impact of products and services on the health and the environment when compared to similar products and services used for the same purpose. We have found that staffing requirements have not changed for green cleaning. The major changes will be in products, equipment, and supplies, not in procedures and time requirements.

The 2008 LEED-EB document, Indoor Environmental Quality Credit 3, requires the use of the APPA Leadership in Education Facilities Custodial Staffing Guidelines to determine the appearance and staffing levels of facilities. Our current work loading program, Janitorial Manager has been modified to adapt to the APPA guidelines.

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