# Yale University Cleaning Standards

*Developed by Yale's Custodial Services, Office of Sustainability,*
*Materials Management – Facilities, Office of Environmental Health and Safety*
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## ***Background***

The term Green Cleaning has evolved from its once specific reference to "natural" or "all natural" cleaning products[i] to its current use describing an approach to cleaning by which the products and processes protect health without harming the environment[ii]. A green cleaning program incorporates not only environmentally benign cleaners, but equipment, tools and procedures that limit environmental and human health impacts as well. A successful green cleaning program embraces the cleaning process holistically and includes an emphasis on education and training of workers.

At Yale, a Green Cleaning Committee was established to determine, and guide the implementation of, best practices for institutional cleaning. The committee meets monthly and is comprised of individuals from: Yale Custodial Services; Environmental Health & Safety; the Office of Sustainability; Recycling; and Materials Management - Facilities. Four subcommittees have been formed to review and make recommendations on: Training and Procedures; Purchasing; Testing; and Outreach and Education.

## ***Green Cleaning Standards at Yale***

Yale Custodial Services is committed to a process of continual investigation into products, equipment, tools and procedures that are safe for our environment and health.

The purpose of these standards are to: 1) limit faculty, staff, student and visitor exposure to toxic chemicals high in irritants and volatile organic compounds (VOCs); 2) protect the natural environment from hazardous chemical contaminants; 3) reduce energy and water use during the cleaning process. These standards will be reevaluated on an annual basis in order to keep current with industry standards, new technology and an evolving market of new products.

### Limitations

The degree to which Yale occupied spaces are cleaned in accordance with these standards is limited by the influence the university has over the cleaning process in those spaces. These standards cover spaces that are owned by Yale and maintained by Yale Custodial Services and by contracted cleaners. Yale occupied spaces which are not covered by these standards are those which are leased by Yale and maintained by the property owner.

### Chemicals

Chemicals will be Green Seal certified or Green Seal recommended (See Appendix A) (Green Seal Household Cleaners, GS-08; Green Seal Industrial and Institutional Cleaners, GS-37; and Green Seal Recommended Cleaners). If a Green Seal certified or recommended product is not available, then a product will be selected that is "Environmentally Preferable" (GS-42), or that does not contain carcinogens and other hazardous chemical compounds (as defined by Hazardous Cleaning Chemicals Glossary, US Department of Health and Human Service Report on Carcinogens, and Green Seal Report on Industrial and Institutional Cleaners) or contains the least amount of these hazardous compounds, as determined by Yale Environmental Health and Safety.
Cold water will be used when diluting chemicals. Adequate dwell time (in accordance with manufacturer instructions) for chemicals is required to maximize efficacy and minimize product use.

In accordance with Green Seal standards, dispensing units that regulate chemical concentrates will be used for dilution control. Currently, Johnson Diversey dispensers are in use.

| Purpose | Standard | Current Product |
|---|---|---|
| General Purpose Cleaners | Yale will use a hydrogen peroxide based, Green Seal certified multi-surface cleaner | Johnson Diversey Alpha HP<br>Currently phasing in:<br>Ionator EXP by Activeion |
| Glass Cleaners | Yale will use a Green Seal certified non-ammoniated cleaner for glass as well as stainless steel and chrome fixtures. | Johnson Diversey Glance NA<br>Currently phasing in:<br>Ionator EXP by Activeion |
| Heavy Duty Cleaners/Degreasers | Yale will use a Green Seal certified heavy duty cleaner/degreaser for difficult buildups of soap and scale in restrooms and showers | Johnson Diversey Crew 44 |
| Disinfectants | The use of disinfectants will be eliminated or minimized and used only as needed at primary points of contact (bathroom sinks and toilets). Hypochlorites (bleach) and phenolic disinfectants will not be used except for boodborne pathogen cleanups. A quaternary disinfectant will be used only when required. | Johnson Diversey Crew 42<br>Currently phasing in:<br>Ionator EXP by Activeion |

**Paper Products**

Our largest non-labor expense is in paper products. Yale commits to using Green Seal certified or EPA preferred towels and tissue that are 100% recycled. The use of post consumer paper waste[1] and recovered paper materials[2]can reduce the impact of these materials in land fills and cut down on the use of virgin materials and save trees. During the manufacturing process bleaching of paper is common, and it is reported that this process releases deadly toxins in the waste stream effecting aquatic life. Instead of chlorine the green seal certified paper uses sodium hydrosulfite which is a better environmental choice. Additionally the dispensing systems help reduce waste by providing dispensing control. Our goal is to reduce waste from our facilities. The packaging is environmentally preferable and can be recycled as well.

| Purpose | Standard | Current Product |
|---|---|---|
| Toilet Tissue | Yale will use Green Seal certified or EPA preferred tissues that are 100% recycled | Bay West Ecosoft - 100% Recycled |
| Paper Towels | Yale will use Green Sal certified or EPA preferred towels that are 100% recycled | Bay West Ecosoft Natural Roll Towels – 100% Recycled |
| Multi-fold Towels | Yale will avoid the use of multifold towels, but if required by the location, a Green Seal certified product will be chosen. | N/A |

[1] **Post-Consumer Materials/Waste:** Materials or finished products that have served their intended use and have been diverted or recovered from waste destined for disposal, having completed their lives as consumer items. Postconsumer materials are part of the broader category of recovered materials
US EPA. Terms of Environment: Glossary, Abbreviations and Acronyms.
http://www.epa.gov/ocepaterms/rterms.html Dec. 16, 08 [2]
**Recovered Material:** Pre-consumer waste fiber generated internally during the manufacturing process in the form of trimmings, roll ends and repulped rolls, as well as materials generated in households, offices and other post-consumer sources. Rhyer, Charles R. Waste Management and Resource Recovery. 1995 pg 120

**Floor Care Systems**
There are two major "hot points" in floor care: the use of floor finishes that contain zinc, and the use of floor strippers that contain some form of ammonia or ammonia like substance. Strippers are used to dissolve and suspend floor finishes when finishes become worn, dirty and uneven. The process of stripping floors is time consuming and costly. Most floor strippers contain monoethanolamine, commonly referred to as odorless ammonia; strippers also have a high PH.

Zinc is used in floor finishes for its strength, durability and colorless characteristics. Zinc enters the waste-water stream during the routine washing and periodic stripping of floors.

Zinc free finishes have been tested and it has been determined that the products currently on the market are not sufficiently durable in high traffic areas, especially during the winter months.

| Purpose | Standard | Current Product(s) |
|---|---|---|
| Floor Finish | Yale will use zinc free finish in low traffic areas and finishes containing zinc will continue to be used in high traffic areas until a suitable alternative is identified.<br><br>Yale will continue to avoid using finishes on stone floors.<br><br>Yale will increase the number of walk-off mats at the entrance of buildings in order to reduce wear and protect floors. | Zinc Free – Johnson Diversey Aquaria<br><br>Containing Zinc – Johnson Diversey Vectra |

**Matting**
Matting which meets Green Seal specifications is currently being used on the central campus and will be further evaluated for implementation at the School of Medicine.

**Vacuums**
High filtration systems and/or HEPA systems do have a significant impact on indoor air quality. Yale is phasing in the use of vacuums which meet the Carpet and Rug Institute's (CRI) Green Label Seal of Approval (See Appendix B). Pro-team back packs and some Clarke's and Tennant 3220 both of which meet the CRI requirements are currently being used at Yale.

**Electrostatic Water**
Yale has tested and is phasing in the use of electrostatic water as a green disinfectant and heavy duty cleaner. This machine separates the ion of salt water using an electric current created by a battery cell forming an electrolyzed acid solution from the anode stream, which has strong bactericidal effects.

**Microfiber cloths and wipes**
Microfiber technology is being evaluated for use in dust mops, wet mops and wiping cloths. Until it becomes more cost effective and processes and procedures are in place to launder the soiled microfiber clothes, we will continue to use rental cloths as well as disposable cotton cloths.

*The following green tools and products are being tested.*

**Liners**
Yale is currently using 33% post-consumer recyclable content liners with sizes to fit regulation size containers. The university is currently testing 66% post-consumer recyclable content liners. Yale continues to investigate opportunities for reducing the size and number of liners being used.

**Vegetable Soaps**
Yale is testing the use of vegetable soaps as a floor protectant and cleaner, which could reduce our reliance on zinc finishes.

**APPENDIX A**


# *About Green Seal*

## Validating environmental excellence

Founded in 1989, Green Seal provides science-based environmental certification standards that are credible, transparent, and essential in an increasingly educated and competitive marketplace. Our industry knowledge and standards help manufacturers, purchasers, and end users alike make responsible choices that positively impact business behavior and improve quality of life. A 501 (c)(3) nonprofit organization, Green Seal issued its first environmental standards in 1991-2, and the first product certifications were completed in 1992. Hundreds of products and services from major companies such as 3M, Benjamin Moore, and Andersen Windows have now been certified to meet Green Seal standards, and the number of major product categories covered by standards has increased to more than 40.

Today, Green Seal has established a significant market among large institutional purchasers, including government agencies, universities, and the lodging and architectural building industries. Green Seal actively advises and assists these institutions and industry sectors in their efforts to green their purchasing, operations, and facilities management functions.[iii]

**APPENDIX B**

## About CRI

To put it simply, CRIs job is to go well beneath the surface and prove how our environment for living, working, learning and healing is better — thanks to carpet and rugs. Through science-based research, customer advocacy, environmental stewardship and consensus building, we serve our members and their customers. Our initiatives help protect carpet's life and beauty and demonstrate its air quality benefit.

CRI combines the indoor air quality protection of its Green Label vacuum program with enhanced cleaning standards of its Seal of Approval programs to identify even better performing vacuum cleaners than the previous program. Under the Seal of Approval/Green Label vacuum program, manufacturers must meet higher performance standards and are rewarded with Gold, Silver or Bronze ratings. This program tests two general categories of vacuums:

- General-purpose vacuums approved for use on all conventional carpet styles
- Vacuums specifically approved for use on carpet with a low pile, or surface texture, measuring approximately a quarter inch or less

To earn the CRI Seal of Approval/Green Label certification, vacuums must pass the following independent laboratory tests:

- **Soil removal** — CRI uses NASA-enhanced x-ray fluorescence technology instead of traditional gravimetrix testing to measure the precise amount of soil removed from carpet — either 30 oz/sy commercial cut pile carpet or 30 oz/sy loop pile carpet.
- **Dust containment** — The vacuum must not release more than 100 micrograms of dust particles per cubic meter of air, keeping dirt and dust locked tight in the vacuum — not escaping back into the air where it can be breathed.
- **Carpet fiber retention** — The vacuum must not affect the texture of the commercial cut pile carpet (900 passes with sample rotated every 50 passes) more than a one-step change based on one year of normal vacuum use. [iv]

Kahlenberg, Rebecca R. "Getting Clean and Green" *The Washington Post* 18 Sept. 2003 H.01 [ii]
The Ashkin Group, LLC. 17 Sept. 2008 http://www.ashkingroup.com/homenew.html
[iii] Green Seal, 30 Oct. 2008 http://www.greenseal.org/about/index.cfm
[iv] CRI. 16 December 2008 < http://www.carpet-rug.org/index.cfm>