



*Pomona College*

# **Sustainable Operations & Maintenance Standards**

**May 2010**

*Sustainability Integration Office  
Facilities and Campus Services*

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# Sustainable Operations & Maintenance Standards

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These standards are provided to reduce the environmental impacts caused by operating and maintaining facilities, including water, energy, and chemical use, the generation of a wide variety of wastes, and the purchase of materials. The following standards apply to operations and maintenance activities as they apply to all campus buildings, facilities, and outdoor sites. The majority of activities affected are housed in Facilities and Campus Services, including Grounds, Housekeeping, Maintenance, and the Sustainability Integration Office, but other offices and departments throughout the College are affected by and should be aware of these standards.

## Implementation and Performance Measurement

Individual departments and offices, particularly those in Facilities and Campus Services, are responsible for ensuring that their activities are compliant with these standards. The Sustainability Integration Office and the President's Advisory Committee on Sustainability will assess compliance and performance over time as part of their regular sustainability assessment and reporting activities. These bodies will also assist offices and departments with issues including compliance, exceptions to standards, and outreach and training activities. These standards shall be made available to relevant staff members and posted publicly on the Sustainability Integration Office's website.

The College recognizes that in certain extraordinary circumstances, these standards may not provide necessary services or level of control. In those instances, departments involved will use their discretion in choosing operations and maintenance materials and activities that minimize environmental impact.

## Standards

All buildings, facilities, and sites on campus shall be maintained and operated with the following procedures:

- >> **LEED-EBOM certification** Every facility certified under LEED-NC must maintain LEED-EBOM certification, with the goal of a certification level equal to its initial LEED-NC certification level. Buildings without LEED-NC certification may also pursue LEED-EBOM certification.
- >> **Operations and Maintenance Plan** All new and renovated facilities, whether or not they pursue LEED-EBOM certification, must have an operations and maintenance plan that acknowledges compliance with the standards described here, that outlines special circumstances, and that establishes site-specific operational standards and procedures; for instance, those associated with the Energy section below or those that come with specific building activities, such as laboratory research.

## Site Impacts

### Building Exterior and Hardscape Management

The College employs best management practices to reduce buildings' impacts on the surrounding site and natural area, including mitigation of potential impacts resulting from chemical, energy, and water use, and waste generation. To this end, the College shall engage in the following activities:

- >> **Maintenance equipment**
  - Maintenance equipment shall be used only as frequently as needed to maintain the safety and structural integrity of building exteriors and other hardscape.
  - Alternative methods shall be used whenever feasible to reduce the need for maintenance equipment.

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- Conventional equipment will be replaced with lower-impact alternatives when possible, for instance the use of low-decibel blowers.
- Equipment will be chosen to minimize or recycle wastes, for instance the use of mulching mowers where possible.

### >> **Cleaning**

- Buildings, sidewalks, and other hardscape shall be cleaned only as often as needed to maintain safety and appearance.
- Cleaning products, including water, shall be used efficiently to reduce cost, resource use, and environmental impact. Technologies used to make resource use effective include the use of water brooms and a dilution system for cleaning chemicals.
- All cleaning products used shall be in compliance with the College's Green Cleaning Standards (see below), which help ensure that products used are effective and have minimum environmental impact.
- Paints and sealants used on building exterior shall meet specific environmental standards (see Purchasing section, below).

### **Landscape Management Plan**

The College employs best management practices to reduce the environmental impacts associated with landscaping activities, including mitigation of potential impacts resulting from pest management, chemical and water use, and waste generation. To this end, the College shall engage in the following activities:

### >> **Integrated Pest Management (IPM) – Outdoor**

- Outdoor pests (including insects, animals, invasive plants, and fungi) shall be managed in a way that protects the surrounding environment and human health, including the use of least toxic chemical pesticides and minimized use of chemicals.
- To minimize use of chemicals, Grounds and other relevant department shall engage in activities including inspection and monitoring of outdoor facilities, evaluation of the need for pest control, sanitation and other means of managing pest attractants, and structural maintenance.
- If the need for chemical controls is established, substances shall be used only in targeted locations and for targeted species in order to reduce their use. Substances used shall meet San Francisco's Tier 3 hazard criteria for a least toxic pesticide. All nonrodent pesticides are acceptable if used in self-contained baits and placed in inaccessible locations. Additional qualifications may be determined by Facilities and Campus Services.
- Any cleaning products used as part of a pest management program shall be in accordance with the College's Green Cleaning Standards (see below).
- The above standards may not be followed in times of an extraordinarily high need for pest control or when normal procedures have failed to control the situation.
- This program should be coordinated and integrated with indoor IPM efforts (see below).

### >> **Erosion and sedimentation control**

- The College shall engage in activities to control erosion and sedimentation impacts associated with both ongoing landscape operations and construction-related activities. Grounds, third-party contractors, and other relevant departments will take measures to prevent erosion, sedimentation, and air pollution from dust or particulate matters, to restore eroded areas, and to identify potential risks for erosion and sedimentation.

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- All construction projects completed on campus shall complete and implement an erosion and sedimentation control plan, in compliance with the LEED certification system and/or applicable local, state, or federal policy. Efforts specified in each plan are specific to each site and its conditions.
- Additional activities implemented in general campus operations shall include the following:
  - Develop project goals using Green Building Standards
  - Create preliminary LEED checklist and confirm Green Building Standards
  - Determine renewable energy integration goals
  - Include stakeholders, potential contractors, Savings By Design
  - Identify design concepts with significant operational savings
  - Adequate maintenance of drainage facilities, including clearing of downspouts, gutters, roof drains, and other drainage infrastructure.
  - Assessment of loose soil, drainage issues, and other risks during wet periods.
  - Maintenance of mulches or decomposed granite groundcover, particularly on areas with high pedestrian or vehicular traffic.
  - Cleanup and management of green waste and other detritus on campus hardscape.
  - The use of seeding and mulching to stabilize slopes and other at-risk areas.
- Diversion of landscape waste
- The College shall engage in landfill diversion activities for all campus green waste, whether composted on-site and used as mulch either throughout campus or at the campus' on-site Organic Farm, or managed through the City of Claremont's green waste composting procedures.

### >> Chemical fertilizer use

- Chemical fertilizer shall be used only on athletic turf surfaces, and only as frequently as needed to maintain the necessary characteristics for athletic uses. The use of local and native plants and low-impact maintenance practices eliminates the use of chemical fertilizers elsewhere on campus.
- Chemical fertilizers shall be replaced with organic options when available and feasible.
- Fertilizers are used only during times of plant uptake and not when heavy rain is expected.
- Fertilizers are never used in proximity to a body of water.

### Water Consumption

>> **Plumbing** Plumbing fixtures (including toilets, faucets and aerators, and shower heads) installed/replaced shall be chosen based on efficiency standards determined by the Sustainability Integration Office, Maintenance, and other appropriate offices.

### >> Landscaping

- Landscaping changes and choices shall be made in accordance with *Pomona College Landscape and Open Space Guidelines*, which detail standards for plant palette and irrigation technology.
- Irrigation activities shall be conducted in accordance with frequency schedules as determined by Grounds, and with information provided by the College's weather station, flow sensors, and other relevant systems.

>> **Cooling towers** When a cooling tower is present, the College shall develop and implement a water management plan that addresses chemical treatment, bleed-off, biological control, and staff training. This plan will consider installing and/or maintaining a conductivity meter and automatic controls to adjust the bleed rate and maintain proper concentration.

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## Energy

- >> **Schedules and setpoints** All buildings shall be operated in compliance with established schedules and set points for HVAC, lighting, and other major electrical and mechanical systems, when those established standards exist.
- >> **Annual building review** Facilities and Campus Services shall conduct a building-level review of energy and other resource use and performance at least once in each 12 month cycle, with depth of analysis dependent on available data and metering technology.
- >> **Refrigerants** The College shall use no CFC-based refrigerants in HVAC and refrigeration, if possible, in current equipment or when switching out equipment. Only refrigerants that comply with LEED enhanced refrigerant management standards shall be used.
- >> **Implementation of projects** The College shall complete all energy efficiency or conservation projects deemed feasible and with a demonstrable payback period of less than 6 years.
- >> **Facility auditing and commissioning** The College shall engage in retro-commissioning, monitoring-based commissioning, and energy audit activities as specified in the Pomona College Sustainability Action Plan.
- >> **Utility rebates** The College shall apply for utility rebate programs (e.g. Southern California Edison Express Efficiency) whenever relevant to operations and maintenance activities.

## Waste Management

- >> All buildings shall be operated within the College's waste management programs and procedures, as deemed appropriate by Housekeeping and/or other relevant departments. This includes management of wastes including ongoing consumables, durable goods, and the wastes associated with regular operations, maintenance, construction, and demolition activities.

## Purchasing

### Facility fixtures, furnishings, and alterations materials

These standards cover purchasing activities associated with operations and maintenance and as conducted by Facilities and Campus Services; purchases conducted by individual building occupants or departments and unassociated with official operations and maintenance activities fall under the College's Sustainable Purchasing Policy.

- >> **Fixtures, furniture, building elements** Fixtures, furniture, and building elements (including those materials permanently attached to the building) shall be purchased with the environmental impact in mind, including the following product characteristics:
  - Postconsumer and/or postindustrial recycled content
  - Salvaged materials
  - Rapidly renewable materials
  - Forest Stewardship Council certified wood
  - Materials harvested, processed, extracted, and processed regionally
- >> Additionally, certain materials shall meet specific standards, subject to change at the discretion of the Sustainability Integration Office, working in conjunction with Maintenance and other appropriate

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departments. Exceptions are possible when compliance is financially or otherwise difficult; for example, when matching to otherwise existing materials or when trying to match historic fixtures.

- Adhesives and sealants must have a VOC content less than current VOC content limits of SCAQMD Rule #1168
- Paints and coatings have VOC emissions not exceeding VOC and chemical component limits of green Seal's Standards GS-11 requirements
- Non-carpet floor finishing is FloorScore-certified
- Carpet meets requirements of CRI Green Label Plus Carpet Testing Program and carpet cushion meets requirements of CRI Green Label Testing Program
- Composite panels and agri-fiber products contain no added urea-formaldehyde resins

### Indoor Environmental Quality

#### >> Integrated Pest Management (IPM) – Indoor

- Indoor pests (including insects, animals, invasive plants, and fungi) shall be managed in a way that protects the surrounding environment and human health, including the use of least toxic chemical pesticides and minimized use of chemicals.
- To minimize use of chemicals, Maintenance and other relevant department shall engage in activities including inspection and monitoring of facilities, evaluation of the need for pest control, sanitation and other means of managing pest attractants, and structural maintenance and repairs.
- If the need for chemical controls is established, substances shall be used only in targeted locations and for targeted species in order to reduce their use. Substances used shall meet San Francisco's Tier 3 hazard criteria for a least toxic pesticide. All non-rodent pesticides are acceptable if used in self-contained baits and placed in inaccessible locations. Additional qualifications may be determined by Facilities and Campus Services.
- Any cleaning products used as part of a pest management program shall be in accordance with the College's Green Cleaning Program (see below).
- The above standards may not be followed in times of an extraordinarily high need for pest control or when normal procedures have failed to control the situation.
- This program should be coordinated and integrated with outdoor IPM efforts, as described above. In particular, it is acknowledged that indoor IPM efforts are strongly linked to the preventative nature of outdoor IPM efforts, including prevention of pests entering facilities through the structural maintenance and outdoor sanitation activities.

### Green Cleaning Program

The College follows a Green Cleaning Program for all cleaning services covered under Facilities and Campus Services, including Housekeeping, Grounds, and Dining Services.

If products, procedures, or equipment must be used that do not meet the below standards, they should be used for an isolated issue that can only be mitigated by using that item or action. Occasional deviation from this program is acceptable on a case-by-case basis as determined by Facilities and Campus Services and the Sustainability Integration office. In cases where it would take significant financial investments to completely switch out equipment, procedures, or supplies, phased replacement is suggested. Additional requirements and suggestions may be developed as new options and best practices are available.

Facilities and Campus Services will continually test environmentally-preferred products from a variety of manufacturers in order to best understand what will be effective for the College.

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Staff using these procedures will be trained on an annual basis to reiterate the purpose, goals, and details of the Green Cleaning Program.

## Preferred Products and Procedures

There are a variety of certifications and principles that apply to cleaning products, equipment, and procedures. After researching various certifications and labels, the College has determined that Green Seal-certified and EcoLogo-certified products are in general the preferred options, with exceptions made on a case-by-case basis.

>> **Cleaning Products** Cleaning products have one of the following certifications:

- General-purpose, bathroom, glass, and carpet cleaners: Green Seal GS-37
- Cleaning and degreasing compounds: EcoLogo CCD-110
- Hard surface cleaners: EcoLogo CCD-146
- Carpet and upholstery care: EcoLogo CCD-148
- Floor care: Green Seal GS-40
- Digestion additives: EcoLogo CCD-112
- Drain or grease trap additives: EcoLogo CCD-113
- Odor control additives: EcoLogo CCD-115
- Hard floor care: EcoLogo CCD-147
- Hand soap: Green Seal GS-41; EcoLogo CCD-104; foaming or other high-efficiency soaps where possible; no antimicrobial agents except where required

Cleaning systems utilizing ionized or electrolyzed water as a sanitizer and general cleaner will be phased in as feasible as a means of reducing chemical use.

The use of harsh disinfectants will be minimized and used only as needed at primary contact points, including bathroom sinks and toilets. Bleach and phenolic disinfectants will be used only when necessary. Disinfectants used will be H<sub>2</sub>O<sub>2</sub>-based and EPA-registered.

>> **Floor Care Systems**

- Floor sealers, finishes, strippers, and maintainers should be used on an as-needed basis rather than a frequency schedule in order to minimize their use. Green Seal-certified products (GS-40) will be preferred, though used only when effective and their use should be phased in. Housekeeping and the Sustainability Integration Office will continue to evaluate new Green Seal-certified floor care systems as they become available.
- When possible, floors will not be sealed or finished in order to reduce the need for maintenance products and procedures.
- To further reduce the impact of floor maintenance, the College utilizes the following procedures:
  - The use of dust collection mechanisms for burnishers
  - Autoscrubber or mop-on products in lieu of spray products.
  - Low-water autoscrubbers equipped with chemical control systems and with a noise level of less than 70dBA.
  - Orbital scrubbing/stripping machines that minimize water use and that do not require chemical stripper.
  - Scrubbing and burnishing pads with recycled content.
  - Equipment chosen to minimize water use.

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- Staff trained in minimizing water use in floor procedures.
  - Gel and other less environmentally-hazardous equipment batteries.
- >> **Cleaning Equipment** Cleaning equipment should be high-efficiency, low-noise, and low-impact. Specific requirements are as follows:
- Vacuum cleaners are certified by Carpet and Rug Institute Green Label Testing Program and operated with sound level of less than 70dBA
  - Carpet extraction equipment used for restorative deep cleaning is certified by Carpet and Rug Institute's Seal of Approval Testing Program
  - Powered floor maintenance equipment is equipped with vacuums, guards, and/or other devices for capturing fine particulates and operates with sound level of less than 70dBA
  - Propane-powered floor equipment has high-efficiency, low-emissions engines that meet CARB or EPA standards, and operates with a sound level of less than 90dBA
  - Battery-powered equipment is equipped with environmentally preferable gel batteries
  - Powered equipment is ergonomically designed to minimize vibration, noise and user fatigue
  - Equipment is designed with safeguards, such as rollers or rubber bumpers, to reduce damage to surfaces
- >> **Dilution Systems and Packaging** All cleaning products will be administered with an adequate dilution control system. Products with reduced packaging, recyclable packaging, and packaging with recycled content are preferred.
- >> **Dusters, Mops, and Cleaning Tools** The College uses only re-usable, launderable, microfiber cloths and mops as cleaning tools, in lieu of paper. These cloths and mops will replace all disposable cleaning tools as feasible, and should be washed in water- and energy-efficient, EnergyStar label washing machines and dryers. Additional preferred tools include recycled content PET plastic wet mops (100% post-consumer waste PET), bamboo mop handles, and other products with recycled content and/or rapidly renewable materials.
- >> **Entrance Matting** Permanent entry systems (including grills, grates, and mats) will be utilized in College facilities to reduce dirt and particulates entering facilities, which improves indoor air quality and reduces maintenance and cleaning needs. Entrance areas are vacuumed, swept, mopped, and/or dusted frequently. Entry systems should be made from environmentally preferable materials (such as rubber) and/or with recycled content where available, and should be recyclable.
- >> **Deodorizers** Automatic Aerosol Deodorizers are not a part of the College's preferred Green Cleaning Program, because they contain high levels of Volatile Organic Compounds. Air freshening systems should be non-aerosol, including products that operate with a wick system or that otherwise have no aerosol propellants.
- >> **Urinal Blocks** Urinal blocks should not be used because they contain hazardous materials.
- >> **Paper Products**
- Cleaning-related paper products should hold at least one certification as follows:
    - Paper towels and napkins: Green Seal GS-09; EcoLogo CCD-086
    - Tissue paper: Green Seal GS-01; EcoLogo CCD-082
  - Products should also be Processed Chlorine Free (PCF).

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- Additional considerations for paper products include:
    - The use of rapidly renewable materials or tree-free fibers
    - Waste-reducing design, including coreless rolls and regulated towel dispensers
    - Post-consumer recycled content
    - The impacts of whitening and/or bleaching processes
    - Forestry practices and related certifications (e.g. Forest Stewardship Council-certified)
  - The installation of high-efficiency hand dryers are recommended, as long as they can be installed without companion hand towel dispensers.
  - Partial rolls of toilet paper and other paper products should not be discarded when replaced.
- >> **Plastic bags** Plastic bags used in cleaning operations, including trash and recycling bags, should have the highest possible level of recycled content. Clean or unused bags that need to be discarded should be recycled.

### **Additional Procedures**

Staff members cleaning a facility should make certain to turn off all lights and other powered equipment (as directed) when leaving work areas, and only turn on lights and equipment as necessary to complete assignments.