

# Pacific Facilities Operations & Maintenance Sustainability Standards

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## Purpose

Being one of the most sustainable universities in the country is part of the President's goal of becoming the best, student-centric comprehensive university in the United States within 10 years. In contribution to that goal, these standards identify operations and maintenance standards for all Pacific facilities that are supportive of meeting university sustainability targets.

The document is used to: train staff; communicate standards to service or product vendors; and drive development of future standards.

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# Energy Conservation and Management

## Targets

25% then 50% below minimum performance threshold (65 Btu per gross square foot per Fahrenheit degree day); Reduction in kWh/sqft  
Status 2019: 0% reduction

## Existing Standards

1. All Title 24 energy efficiency standards are followed.
2. Building temperature set points:
  - a. Occupied: 74°F in summer and 68°F in winter.
  - b. Unoccupied 55°F in winter and 95°F in summer
3. Automatically adjust temperature and ventilation (HVAC systems) based on scheduled occupancy and building type.
  - a. Academic buildings are considered unoccupied 10pm - 6am
  - b. Office buildings are considered unoccupied at 6pm - 6am
  - c. Temperatures are adjusted for special events
4. Winter/Holiday (non-occupied) Closure: all buildings are adjusted to unoccupied temperature setpoints for the break. Students living on campus over winter break are consolidated into one or two residential halls to allow more residential buildings to be powered down.
5. Lights are replaced with high efficiency LED lighting when the previous lighting fails or when a space undergoes a major renovation.
6. All outdoor lighting is LED.
7. Parking lot lighting is dimmed 10 - 15% or turns off until motion sensor goes off.
8. Motion sensors are installed in all new buildings and major renovations as per Title 24.
9. Temperatures for walk-in coolers are set to 38°F and 0°F for freezers.
10. To allow for real-time controls and monitoring, Allerton controls are used as the standard Building Automation System (BAS) in all new buildings and when converting old controls.
11. Power monitoring (monitors kWh) which ties into the BAS is added as a standard when an area is renovated.
12. Window replacement is dual pane and/or comply with Title 24 standards.
13. Electric infrastructure is upgraded during major renovations.
14. Space heaters are not allowed. Facilities staff suggest safer alternatives when they come across space heaters [Foot warmer](#) | [Desk panel](#)
15. Prioritize using Energy Star rated equipment such as for cleaning

## Consideration for future development

1. Require vendors to include a Total Cost of Operation in quotes for energy using equipment (purchase cost, cost to operate over unit lifetime, cost to dispose).
2. Convert all lighting to LED. Develop phased plan for doing so.
3. Install power monitoring and BAS at all buildings. Most buildings are not on it.
4. Install occupancy sensors in offices & classrooms
5. Space heater swap out program for radiant desk or floor mats.

6. Install solar thermal
7. Participate in Demand Response Programs. Cut energy use Tuesdays from 5pm - 6pm. date and hour determined by PG&E. Pacific would get \$4,000/MW avoided/year
8. Use passive solar design in building windows, walls, and floors.
9. Assess impact of implementing My Green Lab

# Waste Reduction and Diversion

## Targets

50% reduction tonnes/person

90% below min threshold of .5 tons

50% then 100% landfill diversion

**2019 status:** 48% reduction tons/person. 0% below .5 tons/person; 30% diverted

## Existing standards

1. All buildings have containers for collecting recycling and landfill waste internally and externally.
2. Residential and buildings with food prep and services have organics waste (compostable) collection bins/toters in exterior waste collection areas.
3. Collection bins are co-located next to each other indoors and outdoors.
4. Internal bins or lids are consistently color coded
  - a. Grey/black = Landfill
  - b. Blue = Recycling
  - c. Green = Compost
5. Campuses use standardized signage applicable to their campus. Signs are consistently placed, on the top lid where possible.
  - a. Stockton's signs can be found on the [Pacific Sustainability pulse page](#)
  - b. San Francisco's signs can be found at [Recology](#)
6. Campus bin standards

## BIN STANDARD



**Sustaining PACIFIC**

<p>Low traffic corridors, common spaces/kitchenettes, hallways</p> 	<p>Highly visible entries, corridors, event spaces</p> 	<p>Offices &amp; small classrooms</p> 
<p>Outdoor, fixed</p> 	<p>Event, Indoor</p> 	<p>Event, outdoor</p> 

7. Liner standards
  - a. Recycle - clear
  - b. Organics - green, BPI Certified (Biodegradable Products Institute), ASTM D6400
  - c. Clearstreams
    - i. REP-4447CL 44x47 1.35 MIL Clear Coreless Liners (Landfill & Recycle)

- ii. REP-42481GRN 42x48 1 MIL Compostable Liner coreless (Compost Liner)
- 8. Custodial and Grounds staff are trained annually on what is and is not acceptable in the various waste streams to assist in keeping the streams free from contamination.
- 9. Staff have necessary equipment for collecting and keeping separate multiple waste streams.
- 10. Reusable moving boxes or reused cardboard boxes are utilized for campus moves.
- 11. Move out waste diversion efforts on campuses with residents are coordinated with the Sustainability office.
- 12. All university surplus is posted online for reuse by employees prior to disposal.
- 13. Water bottle refill stations are installed when an area undergoes a major renovation or existing infrastructure needs to be replaced.
- 14. Green waste from landscaping is composted offsite by a third party
- 15. There are collection points and safe storage for: green waste, metal, pallets, tires, e-waste, batteries, mercury-containing lamps and other regulated materials.

### **Campus specific standards**

#### San Francisco Campus

- 1. Contract with custodial vendor includes requirements on employee training, contamination, cleaning products, etc.
- 2. Waste is sorted by hand on site to comply with hauler and City regulations on diversion. Per city code, the waste hauler also must separate streams

#### Stockton Campus

- 3. Hauler is required to have standardized exterior bins. Black top = landfill; yellow top = recycle; Brown = compost
- 4. Supplies collection containers for cardboard during move in.
- 5. Mail Services at the main campus collects and reuses packaging items such as bubble wrap, peanuts and inflated plastic bags.

#### San Francisco & Stockton Campuses

- 6. Regular waste audits are conducted to determine total waste, diversion and problem areas or products. Stockton audit is conducted internally & annually. City of San Francisco conducts an audit every 3 years on Med waste, Bio waste. ENHS does a monthly waste audit.

### **Consideration for future development**

- 1. Add compost to restroom bin standards
- 2. Requirements are shared with and expected to be followed by custodial vendors (specifications are in contract)
- 3. Put out an RFP for a hauler at STK & Sacramento. Include these standards, as well as:
  - a. Exterior bin standards
  - b. Regular Audits
  - c. Data & reports re: contamination at location level if possible, diversion, weights
  - d. Employee training
- 4. Outdoor catered events of 25+ people utilize Clearstream, 3-bin collection
- 5. Indoor catered events of 25+ people utilized Brute, 3-bin collection
- 6. Recycle mattresses
- 7. Expand battery and e-waste collection for residents
- 8. University surplus items are sold if not claimed within 3 months - 1 year.

# Water Conservation & Management

## Targets

30% reduction in gal/person; gal/sqft; gal/acre

Status 2019: 45% gal/person; 26% gal/sqft; Increase gal/acre

## Existing standards

1. All new and replacement plumbing fixtures: toilets, urinals, showerheads, faucets are low-flow or have aerators. Fixtures meet the criteria outlined in Table 1.

*Table 1: Plumbing fixture flow requirements*

Fixture or Fitting	Baseline (IP Units)
Toilet or retro fit flush handle	1.28 or less gpf
Urinal	1 - 0.5 gpf
Public lavatory (restroom) faucet	0.5 gpm at 60 psi
Private (residential) lavatory faucet	1 gpm at 60 psi
Kitchen faucet	1.5 gpm at 60 psi
Showerhead	1.5 gpm at 80 psi per shower stall

2. Faucet fixtures and showerheads are third party labeled as Water Sense
3. Utilize mulch in areas where there is no ground cover
4. Allow grass to grow to 3" in summer or more before cutting to minimize water loss.
5. All new irrigation in planter beds is distributed via drip irrigation
6. Lawns and other areas that have **spray** irrigation utilize MP Rotator nozzles which are 30% more efficient than traditional spray distributors.
7. Irrigation is mainly set to occur between 10 pm - 8 am to minimize evaporation losses.
8. Heating and air conditioning units are inspected at monthly, quarterly and annual intervals as part of preventive maintenance to ensure condensate pans are clear, and all coils, filters, and insulation are clean and functioning properly.
9. Vendors must include a Total Cost of Operation (purchase cost, cost to operate over unit lifetime, cost to dispose) in quotes for water using equipment.

## Campus Specific Standards

### San Francisco Campus

1. All fixtures in all restrooms have "eyes" which control when to flush or to control flows at sinks.
2. Leak detectors tie into BMS. Devices are on the floor of the room. Sets off alarm when moisture is sensed moisture.
3. Has minimal landscaping. Landscaping is on drip irrigation. Manually managed by trained staff.

### Stockton Campus

4. Potable water sources are not used for landscape irrigation at Stockton campus.
5. Uses an Irrigation Monitoring Management System. This adjusts irrigation schedules and provides remote access to systems.

### **Consideration for future development**

1. Assess plumbing fixtures at Sacramento campus to determine if replacements are needed.
2. Install Irrigation Monitoring Management system at Sacramento
3. Leak detectors at other campuses
4. Automatic or dual flush toilets at all campuses
5. Automatic faucets at all campuses
6. SF has infrastructure for reclaimed water if City makes it available. Consider requiring reclaimed infrastructure in new buildings and converting some existing buildings.
7. Automate tracking of water usage at building level to analyze any noticeable changes potentially due to leaks. Would require submeters and automation system
8. Develop plant standards to provided Grounds staff or developers when selecting plants for landscaping. Ex. New plant installations are non-invasive and adapted to low-water conditions (requiring water 1 - 2 times a month) once established and local conditions as indicated by CalScape, Calflora, UC Davis Arboretum All-Stars.

# Green Cleaning

## Targets

100% of janitorial cleaning products are certified and 100% of janitorial paper products are certified or FSC certified

2019 status: 92%

## Existing standards

1. When there is an option for disposable or reusable cleaning accessories/parts such as mops, dusters, etc. reusable components are preferred.
2. Standards are provided to and followed by any external vendor performing janitorial or custodial services.

## Campus Specific Standards

### Stockton Campus

1. Cleaners are not used when cleaning windows. Instead, an ionization, water-based system is used.
2. Eco-Label Standards
  - a. Toilet paper is FSC certified.
  - b. Toilet seat covers are 70% recycled content
  - c. Hand soap is EcoLogo certified
  - d. Paper towels: EcoLogo cert
  - e. Heavy duty, multi-purpose and glass and floor cleaners are Green Seal Certified, EcoLogo (UL environment) certified or other nationally recognized standard:
    - i. Cradle to Cradle Certified
    - ii. Forest Stewardship Council (FSC) certified
    - iii. U.S. EPA Safer Choice labeled
    - iv. Other multi-criteria sustainability standards and ISO Type 1 ecolabels developed/administered by
    - v. Global Ecolabelling Network and/or ISEAL Alliance member organizations

### San Francisco Campus

3. Paper towels are 50% or more recycled content.
4. Eco - Labeling: All supplies provided by contractor must be green seal, ecologo certified or other nationally recognized standard; exceptions will be approved by authorized Pacific representative/Building Operations Supervisors. A current inventory of all cleaning equipment and supplies will be available for review at all times including equipment manuals and MSDS sheets.

## Consideration for future development

1. Adopt SF standards for cleaning products re: ecolabeling and potentially recycled content of paper products to have one university wide practice.



# Air Quality

## Existing standards

1. Follow ASHRAE standards
2. All buildings have carbon monoxide and dioxide detectors
3. Utilize a mix of Merv 8 - 13 filters in HVAC units
4. When a tree is removed it is replaced with another on campus with tree type preferences for low-water (per CalScape), carbon equivalent (iTree) or greater ecological value (native to the local eco-region).
5. When gas maintenance vehicles are at end of life, electric or hybrid vehicles are considered for replacement.
6. Pacific campuses are tobacco free

## Campus Specific Standards

1. San Francisco: Utilize energy-star rated, [portable air cleaners](#) in clinics
2. Stockton: utilize electric chainsaws, hedge trimmers and mower for the majority of in-house landscaping
3. Stockton and Sacramento: Majority of maintenance vehicles are electric or hybrid.

## Consideration for future development

1. Develop sustainability criteria for specific building products such as paint, flooring, adhesives, wood, furniture, etc. These would address VOCs, waste reduction, LCA, recycled content, etc.
2. Utilize electric leaf blowers except in the fall season during heavy leaf fall and rains.