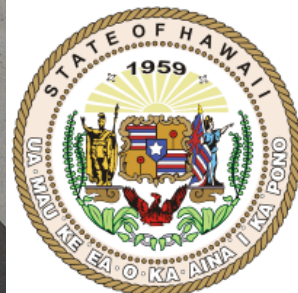


Hawaii State Office Tower

LEED for Existing Buildings: Operations & Maintenance





Hawaii State Office Tower

LEED for EB:O&M

- » 161,070 SF
- » Built in 1991
- » State Office building
- » Named after Leiopapa a Kamehameha
- » Goal: to achieve ENERGY STAR and LEED EB: O&M Silver level
- » *Performance Period – August 2011 – October 2011 to January 2012*



Performance
Measurement: Building
Automation System

Building Commissioning

Mercury-free LEDs

Low-VOC materials including
paints & sealants

Occupant Recycling

High efficiency
plumbing reduces
potable water
consumption

Green Cleaning Program

No Smoking Policy

Hawaii State Office Tower

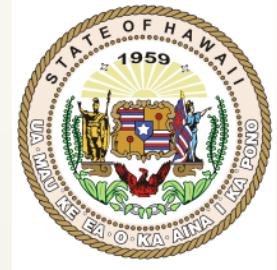
LEED for Existing Buildings: Operations & Maintenance

Hawaii State Office Tower

The State Office Tower is an example of the State of Hawaii's commitment to energy efficiency and green building:

ACT 96 and ACT 155 – HRS 196-9:

- **LEED Silver level for State of Hawaii facilities**
- **ENERGY STAR benchmarking with Portfolio Manager**
- **94 ENERGY STAR Rating and**
- **LEED Gold level submittal to USGBC**





Integrated Team Approach



Green Interns joined the Team...



DAGS and DBEDT and the tenants of the State Office Tower participated in the USGBC's LEED for Existing Buildings: Operations and Maintenance Program

- **Green Interns**
- **DBEDT**
- **DOH**
- **HBWS**
- **GBS**



Hawaii State Office Tower

Sustainable Sites

- » Bike racks to encourage bicycling
- » Central location close to mass transit and basic community needs
- » Alternative transportation survey (137/365 completed the survey = 37.5 %)



Survey Method

- Table was set up in the SOT first floor lobby with handouts and prizes.
- People were asked if they would voluntarily fill out a survey.
- A box was set up on the 5th floor to collect surveys that people had taken back to their desks to finish.
- The survey was then brought floor to floor and given to people at their desks with a prize upon completion.

GREEN Building Survey

Your building, the State Office Tower, is seeking Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council. In order to complete the application, every building occupant is being asked to fill out this very brief survey.

#1 Alternative Commuting Transportation

For the work week from October 24th to October 28th, please indicate how you travel to work each day by writing the appropriate letter for each day in the boxes below (**one letter per box**). If using more than one mode of transportation during your commute, choose the letter which accounts for the longest distance of your trip.

- A. Single Occupant Vehicle (*conventional*) G. Walk/Run/Jog
 B. Compressed workweek H. Bicycle
 C. Telecommuting I. Bus
 D. Low Emitting/Fuel Efficient Vehicle (i.e. hybrid, biofuel, electric)** J. Other (vacation/day off)
 Make _____ Model _____ Year _____
 E. Moped/Motorcycle
 Make _____ Model _____ Year _____
 Engine size _____ Modifications _____
 F. Carpool or Vanpool (*for more than 50% of the trip distance*) # of passengers in vehicle _____

** These vehicles must be classified as zero-emission vehicles (ZEVs) by the California Air Resources Board or that have achieved a minimum green score of 40 on the American Council for an Energy Efficient Economy annual vehicle-rating guide. You may view a comprehensive list of Model Year 2000 to 2010 vehicles that achieved this low emission score at <http://www.greenencars.org/Leed%20Vehicles%202010.xls>.

Work Week				
October 24	October 25	October 26	October 27	October 28
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#2 Occupant Comfort

Please rate your satisfaction regarding the comfort of your work area (+3 being excellent and -3 being poor):

Comfort Type	+3	+2	+1	0	-1	-2	-3
Thermal Comfort (Temperature)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acoustics (Noise from Building Systems)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indoor Air Quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lighting Levels in Common Areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Building Cleanliness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall Workspace Satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Feel free to share your comments here.

If you would like us to respond to you, please provide your contact information below.

Agency: _____ Floor #: _____ Room #: _____



Copy of LEED Project Update

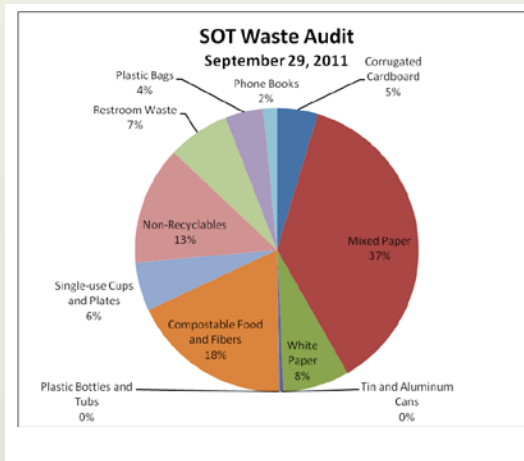
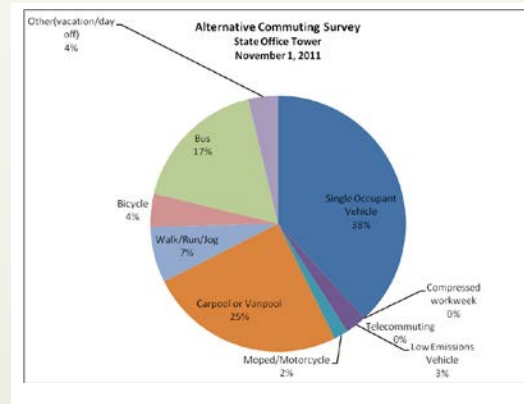
- Poster was displayed from the middle of November 2011 until the end of January 2012.
- Each floor on the SOT had a poster displayed in their elevator lobby.
- Used to disseminate information throughout the SOT on the survey and waste audit results.
- Tenant training was conducted on Nov. 2, 2011 – DBEDT, AG, ADC and OEQC, as well as GBS and NORESO participated. DAGS emailed notice out to tenants.



State Office Tower

Working to Achieve LEED Certification

SOT LEED PROJECT UPDATE



Green Building Survey Results

- More than 1/3 of the building occupants (137 of the 365) returned the commuting survey, providing valuable information. Of the 137 surveyed 59% used alternative means of transportation. This earned us 6 valuable points in helping SOT to achieve LEED certification. Mahalo!!! ☺
- Over 21% of the buildings occupants use some form of alternative transportation to get to work, surpassing the alternate commuting goal set for the SOT. ☺
- The respondents for the occupant comfort level question were satisfied overall. Thermal comfort (cold and hot temperatures) is currently being addressed through the work that NORESO is conducting at SOT.

Waste Audit Results

- Overall, SOT diverts 58% of its waste from landfills through recycling white paper, cardboard, aluminum, and plastics. This gave us another point!!!
- Of the 42% of the waste that is not diverted, mixed paper and compostable food fibers account for over half of the material that could be diverted.
- We are exploring diversion options for those materials such as recycling and composting. Mahalo!!!

Thanks to all who participated!!!



Hawaii State Office Tower

Water Efficiency

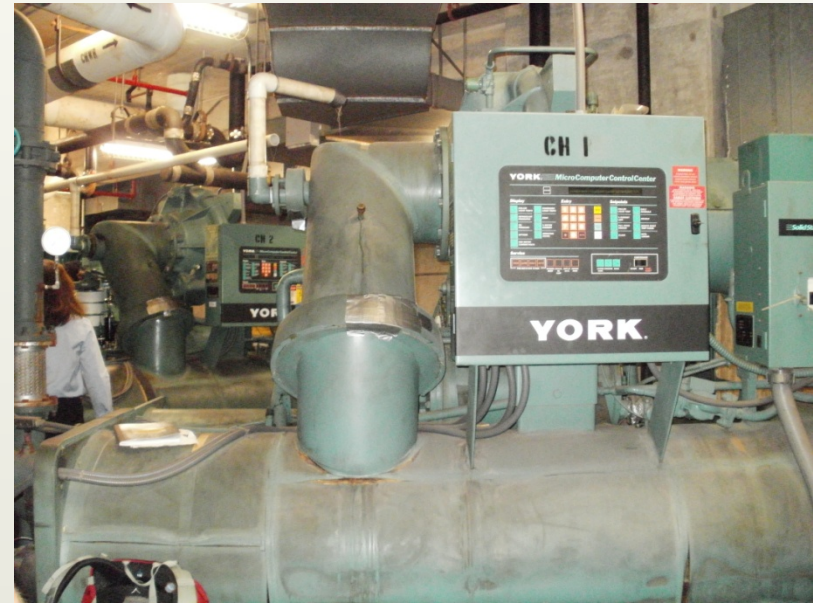
- » 36.48% water use reduction savings through the use of:
 - Ultra low flush toilets
 - low-flow heat activated fixtures
- » Saves an estimated 36,270 gallons per year
- » Installed by DAGS CSD



Hawaii State Office Tower

Energy & Atmosphere

- » Building is ENERGY STAR labeled with a score of 94
- » 100% RECs for two years purchased from 3Degrees
- » Mercury-free LED lighting
- » Occupancy sensors in the back of house and Office areas
- » Recently purchased ENERGY STAR computers and LED screens



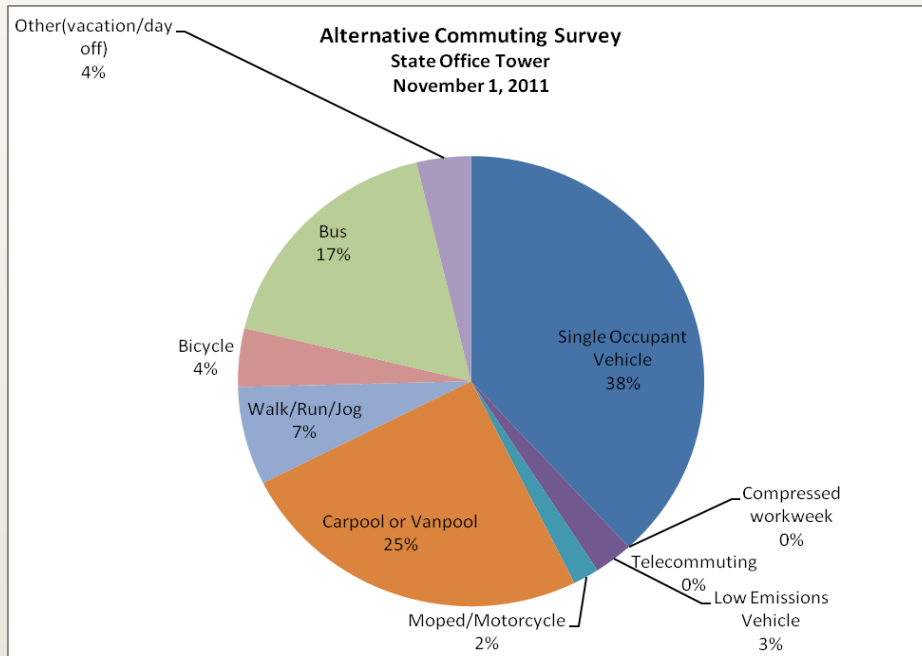
Hawaii State Office Tower

Materials and Resources

- » Waste Audit conducted on one day's worth of trash and recycling
- » Daily waste vs. recycling data was collected and recorded
- » Purchases contain at least 70% material salvaged on-site, through an internal organization materials and equipment reuse "Excess Property" program



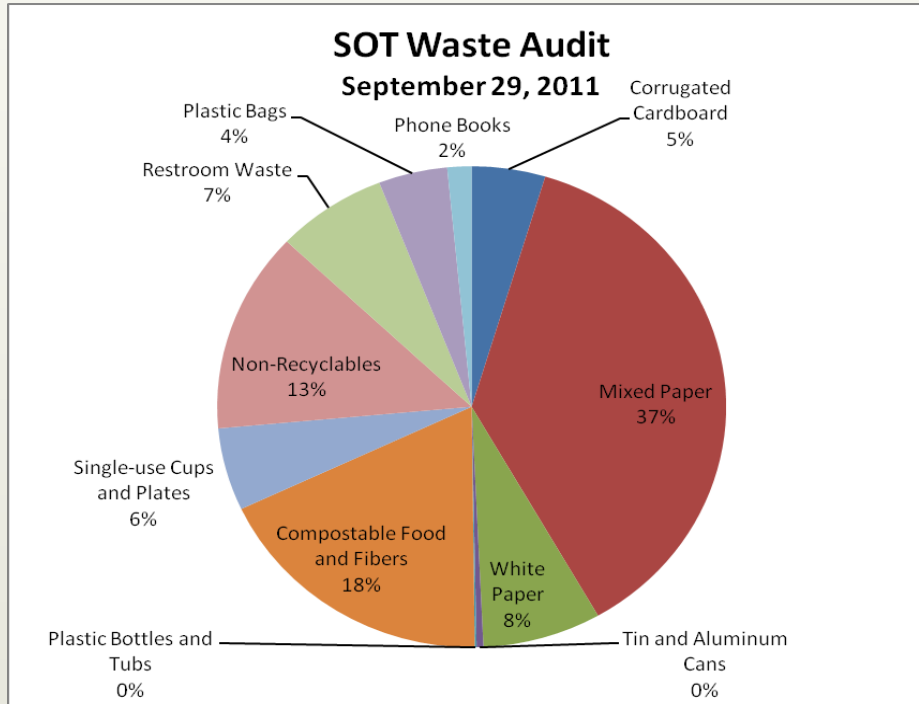
Part 1 of SOT LEED Project Update



Green Building Survey Results

- More than 1/3 of the building occupants (137 of the 365) returned the commuting survey, providing valuable information. Of the 137 surveyed 59% used alternative means of transportation. This earned us 6 valuable points in helping SOT to achieve LEED certification. Mahalo!!! 😊
- Over 21% of the buildings occupants use some form of alternative transportation to get to work, surpassing the alternate commuting goal set for the SOT. 😊
- The respondents for the occupant comfort level question were satisfied overall. Thermal comfort (cold and hot temperatures) is currently being addressed through the work that NORESO is conducting at SOT.

Part 2 of SOT LEED Project Update



Waste Audit Results

- Overall, SOT diverts 58% of its waste from landfills through recycling white paper, cardboard, aluminum, and plastics. This gave us another point!!!
- Of the 42% of the waste that is not diverted, mixed paper and compostable food fibers account for over half of the material that could be diverted.
- We are exploring diversion options for those materials such as recycling and composting.

Mahalo!!!

Recommendations From Waste Audit

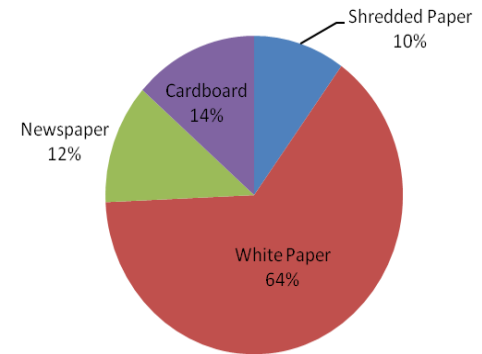
Explore possible options for mixed paper waste.

Explore means of composting in office.

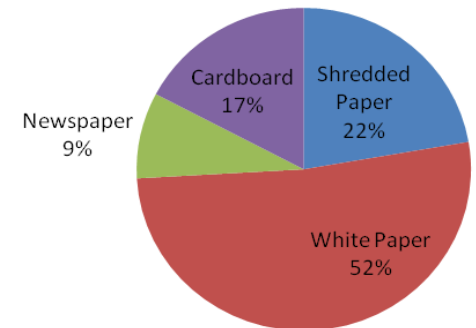
All printers should be defaulted to double-sided printing.

Encourage tenants to use online sources for news instead of newspapers to cut down on waste.

Diverted Waste
SOT - August 2011



Diverted Waste for
September 29th, 2011



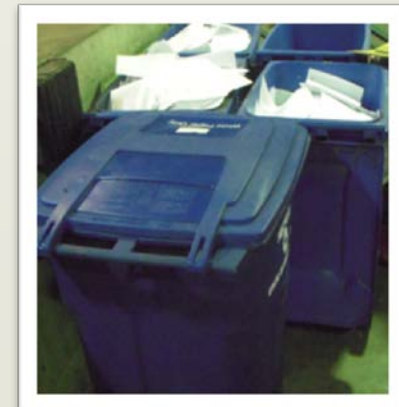
Recommendations Continued

Encourage tenants to bring washable or reusable utensils, glasses, or Tupperware for their meals at work.

Explore options for phone book recycling.

Educate tenants on recycling, separation of food waste from trash, the use of double sided printing, green purchasing practices.

Explore eco-friendly procurement policy for building.



Hawaii State Office Tower

Indoor Environmental Quality

- » Low/No VOC paints, adhesives, sealants, and furniture used throughout
- » Increased air quality through added outside air and increased filtration
- » Lighting and thermal comfort controls for all work stations
- » Green Cleaning Program for janitorial products



Tool 8: Custodial Effectiveness Audit Worksheet, Space Type - Offices/Conference Rooms

SPECIFIC: Use multiple copies of this worksheet as necessary to audit 10% of offices/conference rooms per square foot AND total quantity of rooms within this particular space type category.

Determine the level of cleanliness for each appearance item based on the appearance level below. Multiply the level of cleanliness by the weighting factor; this equals the item raw score. The total raw score equals the sum of all item raw scores. Divide the total raw score by 100, this equates to your current level of cleanliness for offices.

Basic Building Information:

Building Name	
Address	
Responsible Party	

Audited Space:

Room	
Square Feet/Number of rooms	
Evaluated By	

Audit:

Appearance Item	APPA Weighting Factor	Appearance Level	Item Raw Score (factor x level)	Notes
		1 - 5*		
Floors	55		0	
Horizontal Surfaces**	12		0	
Vertical Surfaces***	7		0	
Trash Containers	23		0	
Lighting and Light Fixtures	3		0	
Total Raw Score			0	
Level - Raw Score/100			0	

* 1 = Orderly Spotlessness; 2 = Ordinary Tidiness; 3 = Casual Inattention; 4 = Moderate Dinginess; 5 = Unkempt Neglect.

** "Horizontal Surfaces" include telephones, furniture, and drinking fountains.

*** "Vertical Surfaces" include walls, doors, windows, mirrors, vents, blinds, and partitions.

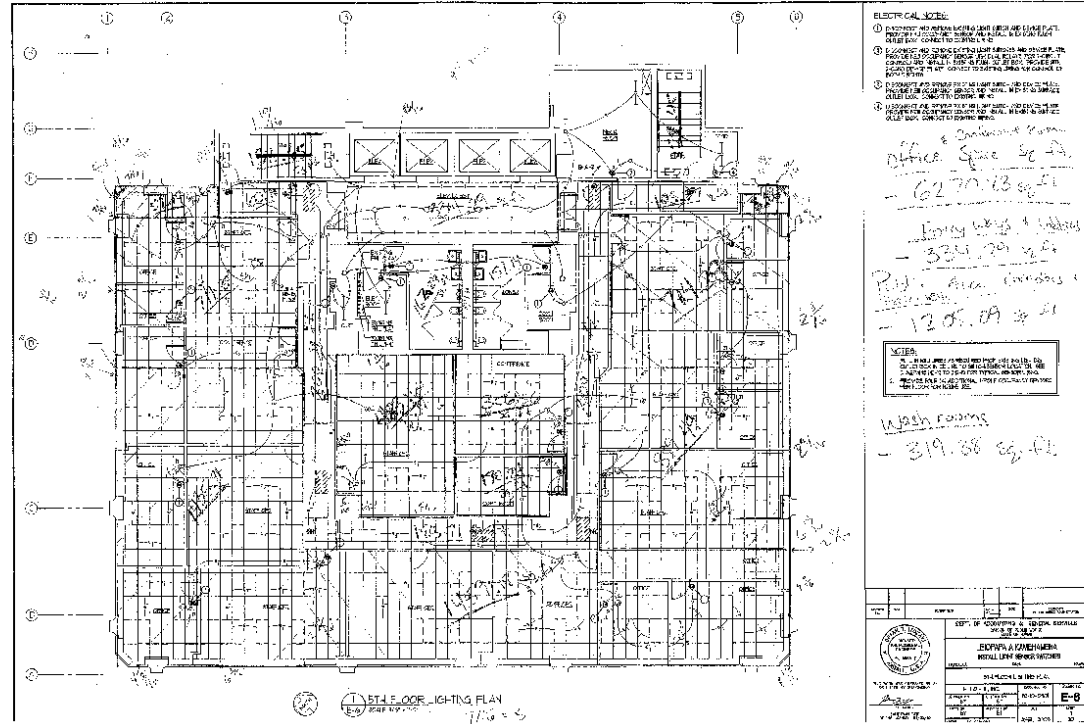
Custodial Effectiveness Audit

- Auditors walked from room to room rating the office space using the criteria on the right.
- There are six categories of rooms: office/conference rooms, entryways and lobbies, locker and changing rooms, public area corridors and stairwells, washrooms, and class/training rooms.
- To complete the audit 10% of spaces by category per square foot and total quantity of rooms within each particular space type category had to be audited.



Square Footage Calculations

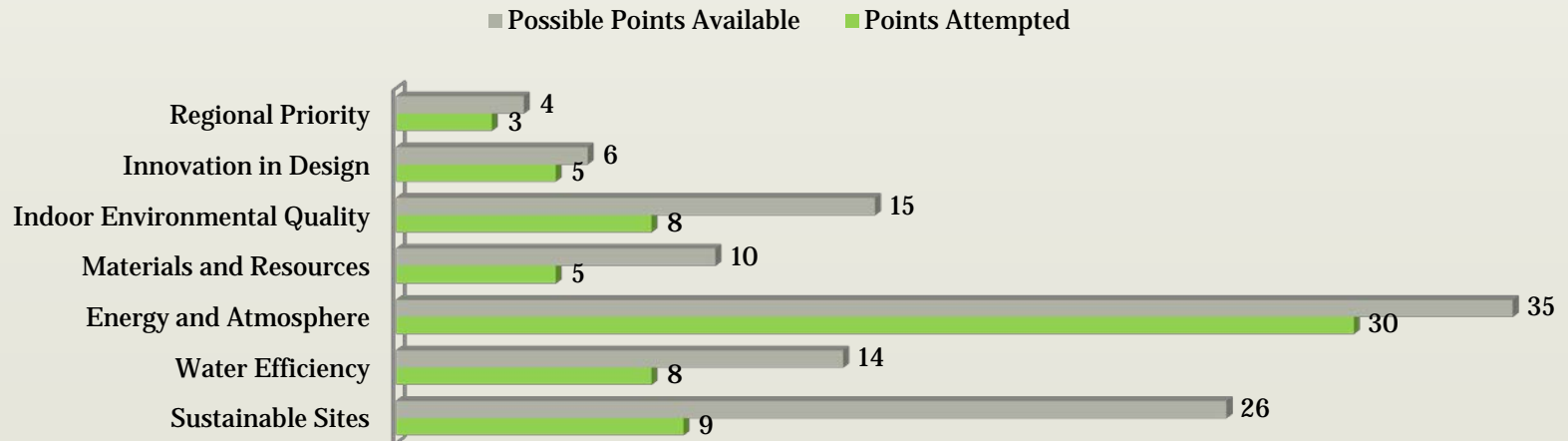
- **Used floor plans to calculate for the percentage of space types and quantities of rooms for Custodial Effectiveness Audit**
- **Conducted by Interns during project performance period**
- **Resulted in acceptable score for cleanliness of office and other spaces**



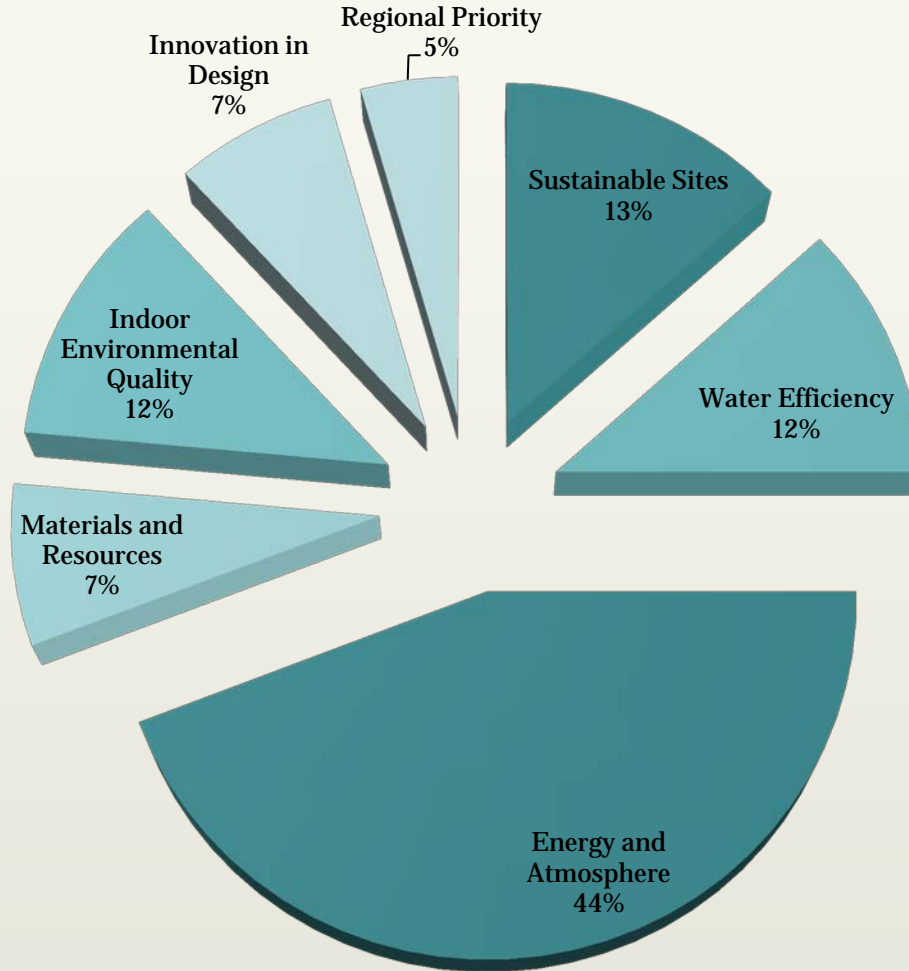
SOT LEED Certification Outlook

LEED Category	Points Attempted	Possible Points Available
Sustainable Sites	9	26
Water Efficiency	8	14
Energy and Atmosphere	30	35
Materials and Resources	5	10
Indoor Environmental Quality	8	15
Innovation in Design	5	6
Regional Priority	3	4
Total	68	110

Possible Points vs. Points Attempted



Category Percentage of Total Points



SOT Breakdown Percentage of Points Attempted

• Percentages of each category as they relate to the total score:

- **ENERGY – 44%**
- **SITES – 13%**
- **WATER – 12%**
- **IEQ – 12%**
- **M&R – 7%**
- **INNOVATION – 7%**
- **REGIONAL PRIORITY – 5%**

Top 10 Ways to Save



Energy Conservation

- » Replace interior incandescent lamps w/CFLs or LEDs
- » Purchase ENERGY STAR equipment and products
- » Benchmark using ENERGY STAR Portfolio Manager



Water Conservation

- » Install 'High Efficiency' aerators and fixtures
- » Offer linen & towel reuse option for guests
- » Use energy & water efficient washers



Solid Waste Reduction & Recycling

- » Purchase 50% RC tissues & toilet paper
- » Recycle paper, cardboard, metal, glass, plastic
- » Provide recycling containers



Pollution Prevention

- » Use green cleaning products and hard surface finish material / furniture



Green Building and ENERGY STAR Technical Assistance and Green Business Award Update

LEED CI – Airport Lounge Project – Silver Level

LEED EB: O&M – State Office Tower - TBD



Green Building TA and Assessments – 10+ facilities

Green Building Training/Workshops/Outreach

12th Annual Build and Buy Green Conf. and Expo



ENERGY STAR for Hospitality – 50 (15 labeled)
and Recognition...

Green Business Awardees – 70



MAHALO !!!

Contact :

Elaine Aye, GBS

elaine@greenbuildingservices.com

Gail Suzuki-Jones

State Energy Office

gsuzuki@dbedt.hawaii.gov

(808) 587-3802

