

## **The University: Committees, Policies, Academic, and Student Organizations:**

1990:

- Ad Hoc Environmental committee established as an unofficial gathering of students, faculty and administrators<sup>1</sup>

1991:

- Program in Environmental Studies created<sup>2</sup>
- Princeton received NJDEP's Outstanding Achievement award for Recycling more than 60 percent of its solid waste<sup>3</sup>

1992:

- Residential colleges given an environmental chair on their student college council<sup>4</sup>

1994:

- Princeton Environmental Reform Committee (PERC) created<sup>5</sup>
- Princeton Environmental Institute founded<sup>6</sup>
- University signed on to the Voluntary Green Lights Program as a Green Lights Partner<sup>7</sup>
- University established Ride Share Program and offered payment of \$720 to employees who switched to natural gas as a fuel source as well as other programs as part of ETRP<sup>8</sup>

1995:

- PERC completed Environmental audit<sup>9</sup>
- Electronic Ride Board appropriated by USG to help students find carpools<sup>10</sup>

2000:

- Second Environmental audit completed and compiled<sup>11</sup>

2001:

- February 12: University signed the Sustainability Greenhouse Gas Action Plan to decrease emissions to 3.5% below 1990 levels by the year 2005<sup>12</sup>

2002:

- Princeton Environmental Oversight Committee (PEOC) formed<sup>13</sup>
- Third Environmental audit performed<sup>14</sup>

## **Facilities - Dining Services:**

1992-1994:

- Recycled napkins implemented in dining halls<sup>15</sup>
- Mug discount and reusable silverware provided in student center<sup>16</sup>

1993:

- Recyclable black plastic plates and polystyrene provided cups in student center<sup>17</sup>

1993-1995:

- Food waste reclamation program established with pig farmers through program with local company, Neil McIntyre: Recyclers of Food Waste<sup>18</sup>

1995-2000:

- Number of vendors reduced in order to facilitate bulk buying, reduce waste, and reduce trucks on campus<sup>19</sup>

1999:

- FoodPro software adopted to track food use and waste<sup>20</sup>

2001:

- Dining Halls closed during slow periods, eliminating the need for beverage machines and dishwashers to be in service<sup>21</sup>
- Contracted new soap and detergent vendor with a higher concentration of product<sup>22</sup>
- Food donated biweekly to Trenton Soup Kitchen<sup>23</sup>

2002/2003:

- Discount provided to students who use reusable mugs in Frist<sup>24</sup>

2003:

- Introduced environmentally-friendly food into dining halls: sustainable seafood, antibiotic free meat, local produce<sup>25</sup>
- Seafood labeling system with dot colors representing sustainability of the fish
- Reusable mugs and information distributed<sup>26</sup>
- Organic coffee offered in Café Vivian and the dining halls<sup>27</sup>

### **Facilities - Engineering:**

1990-:

- Upgraded old lighting systems<sup>28</sup>
- Phased out incandescent bulbs for compact fluorescent lighting<sup>29</sup>
- Placed motion and daylight sensors in buildings<sup>30</sup>
- Replaced old incandescent exit signs with LED units<sup>31</sup>
- Replaced all R-12 and R-500 (CFCs) in older chillers in the Chilled Water Plant with R-134a (HFCs)<sup>32</sup>

1991:

- Environmental Engineer hired<sup>33</sup>

1992-:

- 170 underground oil and gasoline tanks removed<sup>34</sup>

1994-2020:

- All dormitories added to Central Supervisory Control System (CSCS)<sup>35</sup>

1994/1995:

- Silver recovery units implemented in photographic operations<sup>36</sup>

1996-:

- Cogeneration plant completed providing more efficient electricity and hot water generation accompanied by switch to natural gas and diesel fuel<sup>37</sup>
- Installed low-flow bathroom fixtures such as shower heads at 2.5 gallons/min instead of 3.9 gallons/min<sup>38</sup>

1997:

- Halogen lamps banned from dormitories<sup>39</sup>

1998:

- West and East end detention ponds constructed<sup>40</sup>

1999-:

- Passive radon systems placed in newly renovated buildings such as Little and Blair (Buyers)<sup>41</sup>

2000:

- New and renovated dormitories fitted with individually-controlled thermostats beginning with Buyers to minimize room overheating and provide better comfort<sup>42</sup>

2001:

- Toyota Prius, a hybrid vehicle, purchased<sup>43</sup>

2002:

- Soda machine sensors installed to minimize electrical use<sup>44</sup>
- Installed four large heat recovery systems in Lewis Thomas laboratory to recover heat for the 100% outdoor air systems<sup>45</sup>
- Installed a reverse-osmosis system for water pretreatment in the Cogeneration Plant; waste water for regeneration sent to cooling tower for re-use<sup>46</sup>

2003:

- Started the installation of new chilled water control valves and the use of cooling coils with large chilled water temperature differences. These valves and coils minimize chilled water usage whenever the air handler is in use, which saves pumping and chiller energy.<sup>47</sup>

2004:

- University recommendation to use electric GEM car instead of gasoline powered golf carts<sup>48</sup>

## Facilities – Building Services

1995:

- Magazines and envelopes with clear windows recycled<sup>49</sup>

2000:

- Standardized tri-compartment recycling bins placed in Frist Campus Center, became norm for all new dorms and buildings<sup>50</sup>

2004:

- Hand Carts provided during move-out to limit cars driving on grass<sup>51</sup>
- Carpet recycling program for students initiated with Carpetcycle in Dover, NJ<sup>52</sup>
- Cinder block recycling program implemented with Habitat for Humanity<sup>53</sup>
- Seventeen boxes of food collected and delivered to the Crisis Center<sup>54</sup>
- Twenty-five bags of clothing sent to Rescue Mission<sup>55</sup>

## Facilities -Construction:

1998:

- Completion of Scully Hall, a dormitory that included individual room thermostats and a heat recovery system for the ventilation air<sup>56</sup>

1999:

- Renovation of Wright and Patton utilized double-pane windows that provide better insulation<sup>57</sup>
- Replaced single pane glass in New South with thermopane and improved HVAC system<sup>58</sup>

2000:

- Completion of Frist Campus Center, which included motion sensors in classrooms<sup>59</sup>

2001:

- Princeton University Design Standards manual developed noting a need for “green” design<sup>60</sup>
- Project utility assessment introduced, which encouraged the use of energy-saving techniques to minimize peak loads<sup>61</sup>
- Replaced single-pane glass in the fourth floor of Robertson Hall with thermopane and improved HVAC system<sup>62</sup>

2002:

- Completion of the Icahn laboratory for the Genomics Institute, which included a heat recovery system, variable volume fume hoods, variable speed motor controllers, and solar sensing panels<sup>63</sup>

2003-2004:

- Completion of graduate housing in the Lawrence apartments complex that included a geothermal heating and cooling system<sup>64</sup>

2004:

- Completion of the Ellipse dormitory, which included elements that could have qualified it at the silver level under LEED standards: the building includes bamboo floors, variable frequency motors, a roof of white material, a heat recovery system, triple-glazed windows to provide insulation during the fall and winter and exterior sun shading against summer heat<sup>65</sup>

### **Facilities - Grounds and Maintenance:**

1992:

- Pennsylvania Road mix consisting of fifty percent salt and fifty percent cinder used to salt roads<sup>66</sup>
- Policy established of converting to groundcover in areas where grass is not viable<sup>67</sup>

1993:

- Bartlett Tree Company consulted to develop a system of Integrated Pest Management centered on the use of biologicals and controlled, pest-specific spraying<sup>68</sup>

1994:

- Construction fabric and crushed stones placed on ground and wood planks put around trees in order to protect the trees during construction<sup>69</sup>

1995-:

- Switched to using a biological treatment instead of a fungicide to control Dutch elm disease<sup>70</sup>
- Adopted a policy that no more than 5% of the same plant species may be planted in a single area to discourage host-specific disease and pests<sup>71</sup>
- Phased out CFCs in air conditioning units in favor of HFCs and HCFCs<sup>72</sup>

1999:

- Used Carnegie Lake water for irrigation purposes during the summer water crisis<sup>73</sup>

2000:

- Alteration of reunion layouts with tables and bars next to paved walkways so people formed lines on paved areas rather than grass<sup>74</sup>
- Inclusion of 16<sup>th</sup> reunion site allowing one site to rest while the other 15 were rotated<sup>75</sup>
- Tree islands planted in lot below the cogeneration power plant to cool the area<sup>76</sup>
- Use of hay when reseeding to hold water and reduce the amount of watering<sup>77</sup>
- Position created in the department to oversee system of Integrated Pest Management<sup>78</sup>

2003:

- Sod/Garden roof installed on Marquand library<sup>79</sup>

### **OIT:**

1995-:

- Employed recycled toner cartridges in printers and used toner cartridges were recycled<sup>80</sup>

1997:

- Computers and printers recycled<sup>81</sup>

2000/2001:

- Silver recovery unit added to photoservices in microfilm department<sup>82</sup>

2001:

- University Print shop switched to soy based inks<sup>83</sup>
- Pharos uniprint system established a print accountability system allowing students to view how much they print and their paper usage; users must release print jobs from Print Release stations<sup>84</sup>

### **Environmental Health and Safety:**

1991-:

- Paint shop phased out oil-based paints in favor of latex paints<sup>85</sup>

1993:

- Removed fifty-five gallon solvent drums and switched to small containers<sup>86</sup>

1995-:

- Mercury waste sold to recycler Bethlehem Apparatus<sup>87</sup>
- Laboratory solvent bottles recycled once triple rinsed and aired out<sup>88</sup>
- Discontinued use of chromium base glass cleaner<sup>89</sup>
- One hundred mercury thermometers swapped for alcohol thermometers<sup>90</sup>

1997:

- Agar substituted for acrylamide in lab experiments<sup>91</sup>

1998:

- Ethylene glycol in cooling systems replaced with propylene glycol except in Genomics building constructed in 2002<sup>92</sup>
- Replaced regular fluorescent bulbs with lower mercury fluorescent bulbs<sup>93</sup>
- Vegetable-based oil used in elevator lubrication rather than hydraulic fluid<sup>94</sup>

1999:

- Carbon monoxide detectors installed in graduate college and certain dormitories adjacent to natural gas systems<sup>95</sup>

- Propylene glycol replaced formaldehyde as preserving agent<sup>96</sup>

2000:

- University Health Services replaced all mercury-containing equipment with mercury-free alternatives<sup>97</sup>

2001:

- University Environmental Safety and Risk Management Committee adopted Environmental Health and Safety Policy (Oct 17, 2001)<sup>98</sup>
- One thousand mercury thermometers swapped for alcohol thermometers<sup>99</sup>

2002:

- Labs replaced thermal stills with column base stills conserving both energy and water<sup>100</sup>

2003:

- Replaced water aspirator pumps in labs with diaphragm pumps<sup>101</sup>

### **Purchasing:**

1994-:

- University began purchasing Energy Star-compliant equipment, such as computers<sup>102</sup>
- Established contract with Boise Cascade, a supply company offering more recycled products<sup>103</sup>

2001:

- Environmentally Preferable Purchasing Policy number 4.9 created to facilitate the University in “green” product procurement<sup>104</sup>

2002:

- Created “green” catalog of recycled content items in PeopleSoft purchasing system<sup>105</sup>

2004:

- Switched office use paper to 100% post consumer waste in all departments<sup>106</sup>

### **Transportation:**

2001:

- Tiger tram established to provide transportation from the parking garage to Nassau hall, Stanhope, and West College<sup>107</sup>

2003:

- Pilot shuttle program instituted in February following the construction of Lawrence apartments. The Green line was created running from 8 am to 8 pm with two buses.<sup>108</sup>
- Ford Motor Company and BP provided Princeton with two natural gas shuttle buses and several years’ supply of natural gas<sup>109</sup>
- The company Zipcar established an on-campus car rental service<sup>110</sup>

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- <sup>1</sup> PERC audit: Introduction
  - <sup>2</sup> PERC audit: Introduction
  - <sup>3</sup> PERC audit: Chapter 1: Solid Waste
  - <sup>4</sup> PERC audit: Chapter 1: Solid Waste
  - <sup>5</sup> PERC audit: Introduction
  - <sup>6</sup> Revision by Janet Gruschow: August 25, 2004
  - <sup>7</sup> PERC audit: Chapter 5: Energy Use
  - <sup>8</sup> PERC audit: Chapter 9: Transportation
  - <sup>9</sup> PERC audit: Introduction
  - <sup>10</sup> 2000 audit: Chapter 6: Transportation
  - <sup>11</sup> 2000 audit: Introduction
  - <sup>12</sup> Daily Princetonian: February 27, 2001
  - <sup>13</sup> PEOC meeting minutes: April 16, 2002
  - <sup>14</sup> 2002 audit
  - <sup>15</sup> PERC audit: Chapter 4: Food Services
  - <sup>16</sup> PERC audit: Chapter 4: Food Services
  - <sup>17</sup> PERC audit: Chapter 4: Food Services
  - <sup>18</sup> PERC audit Chapter 4: Food Services and 2000 audit: Chapter 7: Food Services
  - <sup>19</sup> PERC audit: Chapter 4: Food Services
  - <sup>20</sup> 2000 audit: Chapter 7: Food Services and 2002 audit: Food Services
  - <sup>21</sup> 2002 audit: Water Use
  - <sup>22</sup> 2002 audit: Water Use
  - <sup>23</sup> 2002 audit: Regulatory Compliance
  - <sup>24</sup> Greening Princeton website <[http://www.eeb.princeton.edu/~kaichan/greening\\_princeton.html](http://www.eeb.princeton.edu/~kaichan/greening_princeton.html)>
  - <sup>25</sup> Daily Princetonian January 8, 2003 and Greening Princeton website
  - <sup>26</sup> Greening Princeton website
  - <sup>27</sup> Greening Princeton website
  - <sup>28</sup> 2000 audit: Chapter 3: New Buildings and Renovations and NJHEPS Presentation: May 26, 2004
  - <sup>29</sup> 2000 audit: Chapter 3: New Buildings and Renovations and NJHEPS Presentation: May 26, 2004
  - <sup>30</sup> 2000 audit: Chapter 3: New Buildings and Renovations and NJHEPS Presentation: May 26, 2004
  - <sup>31</sup> Revision Tom Nyquist: June 14, 2004
  - <sup>32</sup> Revision Tom Nyquist: June 14, 2004
  - <sup>33</sup> Revision Bob Ortego June 18, 2004
  - <sup>34</sup> Phone Interview: Bob Ortego June 16, 2004
  - <sup>35</sup> 2000 audit: Chapter 2: Energy Use and NJHEPS presentation: May 26, 2004
  - <sup>36</sup> Phone Interview: Bob Ortego: June 16, 2004
  - <sup>37</sup> 2000 audit: Chapter 2: Energy Use
  - <sup>38</sup> 2000 audit: Chapter 4: Water Use
  - <sup>39</sup> 2000 audit: Chapter 2: Energy Use
  - <sup>40</sup> Revision Tom Nyquist: June 14, 2004
  - <sup>41</sup> 2002 audit: Hazardous and Radioactive Waste: Phone interview with Bob Ortego June 16, 2004
  - <sup>42</sup> 2000 audit: Chapter 2: Energy Use
  - <sup>43</sup> NJHEPS Presentation: May 26, 2004
  - <sup>44</sup> Princeton Weekly Bulletin March 11, 2002
  - <sup>45</sup> Revision Tom Nyquist and Bob Ickes June 16, 2004
  - <sup>46</sup> Revision Tom Nyquist and Ted Borer June 17, 2004
  - <sup>47</sup> Revision Tom Nyquist June 14, 2004
  - <sup>48</sup> NJHEPS Presentation: May 26, 2004 and PEOC Meeting Minutes April 16, 2004
  - <sup>49</sup> 2000 audit: Chapter 8: Solid Waste and Recycling
  - <sup>50</sup> Phone interview with Jon Baer: June 11, 2004
  - <sup>51</sup> website: <<http://www.princeton.edu/~wilsonco/info/checkout2004.htm>>
  - <sup>52</sup> Phone interview with Jon Baer June 11, 2004
  - <sup>53</sup> Phone interview with Jon Baer June 11, 2004
  - <sup>54</sup> Phone interview with Jon Baer June 23, 2004
  - <sup>55</sup> Phone interview with Jon Baer June 23, 2004

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- <sup>56</sup> 2000 audit: Chapter 3: New Buildings and Renovations  
<sup>57</sup> 2000 audit: Chapter 3: New Buildings and Renovations  
<sup>58</sup> Revision Tom Nyquist and Scott Sepsy: June 16, 2004  
<sup>59</sup> 2002 audit: Buildings and Renovations  
<sup>60</sup> Facilities website < <http://facilities.princeton.edu/DesignConstruction//designstandards/>>  
<sup>61</sup> Revision Tom Nyquist: June 14, 2004  
<sup>62</sup> Revision Tom Nyquist: June 14, 2004  
<sup>63</sup> audit 2000: Chapter 3: New Buildings and Renovations  
<sup>64</sup> notes from GSG/administration meeting on Lawrence apartments construction: April 5, 2002  
<<http://www.princeton.edu/~gsg/minutes.20020405.meeting.lawrence.txt>>  
<sup>65</sup> 2002 audit: Building and Renovation and Princeton Weekly Bulletin March 11, 2002  
<sup>66</sup> Interview with Jim Consolloy: July 15, 2004  
<sup>67</sup> Interview with Jim Consolloy: July 15, 2004  
<sup>68</sup> 2002 audit: Regulatory Compliance  
<sup>69</sup> Interview with Jim Consolloy: July 15, 2004  
<sup>70</sup> 2000 audit Chapter 5: Groundskeeping  
<sup>71</sup> 2000 audit: Chapter 5: Groundskeeping  
<sup>72</sup> 2000 audit: Chapter 1: Procurement  
<sup>73</sup> 2000 audit: Chapter 5: Groundskeeping  
<sup>74</sup> 2000 audit: Chapter 5: Groundskeeping  
<sup>75</sup> 2000 audit: Chapter 5: Groundskeeping  
<sup>76</sup> 2000 audit: Chapter 5: Groundskeeping  
<sup>77</sup> 2002 audit: Groundskeeping  
<sup>78</sup> Interview with Jim Consolloy July 9, 2004  
<sup>79</sup> Interview with Jim Consolloy July 15, 2004  
<sup>80</sup> 2000 audit: Chapter 1: Procurement  
<sup>81</sup> 2002 audit: Chapter 8: Solid Waste and Recycling  
<sup>82</sup> 2002 audit: Hazardous and Radioactive Wastes  
<sup>83</sup> 2002 audit: Regulatory Compliance  
<sup>84</sup> 2002 audit: Solid Waste  
<sup>85</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>86</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>87</sup> 2000 audit: Chapter 9: Toxic and Radioactive Waste  
<sup>88</sup> 2000 audit: Chapter 8: Solid Waste and Recycling  
<sup>89</sup> Phone interview: Robin Izzo: June 16, 2004  
<sup>90</sup> Phone interview: Robin Izzo: June 16, 2004  
<sup>91</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>92</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>93</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>94</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>95</sup> Graduate Student's Guide <http://www.princeton.edu/~gchouse/guide.html> and phone interview with Robin Izzo:  
June 16, 2004  
<sup>96</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>97</sup> Phone interview with Robin Izzo: June 16, 2004  
<sup>98</sup> Daily Princetonian: October 23, 2001  
<sup>99</sup> 2002 audit: Hazardous Wastes and phone interview: Robin Izzo June 16, 2004  
<sup>100</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>101</sup> Phone interview: Robin Izzo June 16, 2004  
<sup>102</sup> PERC audit: Chapter 5: Energy Use and 2000 audit: Chapter 2: Energy Use  
<sup>103</sup> PERC audit: Chapter 3: Procurement  
<sup>104</sup> 4.9 Environmentally Preferable Purchasing Policy  
<<http://web.princeton.edu/pusites/TreasurersOffice/Purchasing/Policies/PrincetonOnly/4.9.html>>  
<sup>105</sup> Purchasing Sense Newsletter: <  
<http://web.princeton.edu/sites/TreasurersOffice/Purchasing/Files/Public/PurchasingSenseNewsletter/DOC/October2002PurchasingNewsletter.doc>>

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<sup>106</sup> PEOC meeting minutes March 10, 2004

<sup>107</sup> Conversation with Laurel Harvey: July 30, 2004

<sup>108</sup> Conversation with Laurel Harvey: July 30, 2004

<sup>109</sup> PEI News: Winter 2003-2004

<sup>110</sup> Conversation with Laurel Harvey: July 30, 2004: The Daily Princetonian: "Zipcar company offers Students hour-long rentals" September 18, 2003