

**National and International Organizations**

The trend toward sustainability and reduction of carbon emissions is supported by many organizations. Stevens must begin by joining some of these organizations as a sign of support of and dedication to reducing its carbon footprint, going green, and moving toward sustainability. Partnering with these organizations will help Stevens establish a campus-wide effort at every level, from the students to the president

**American College & University Presidents Climate Commitment**

<http://www.presidentsclimatecommitment.org/>

**The Talloires Declaration**

<http://www.iisd.org/educate/declarat/talloire.htm>

This agreement has already been signed already by over 350 US universities.

**Institutions of Higher Education: A Study of Facilities and Environmental Considerations, spring, 2006**

<http://www.universitybusiness.com>

**Association for the Advancement of Sustainability in Higher Education**

<http://www.aashe.org/index.php>

**Engineers for a Sustainable World (ESW)**

<http://www.esustainableworld.org/>

**New Jersey Higher Education Partnership for Sustainability (NJHEPS).**

Stevens is already a member of NJHEPS and can become more active in their programs.

<http://www.njheps.org/basic-facts.html>

The mission of NJHEPS is to transform the higher education community to consistently practice sustainability and to more effectively contribute to the world's emerging understanding of sustainability, through teaching, research, outreach, operations, and community life.

**Single Stream Recycling at Stevens:**

The current plan being examined by the Physical Plant is for Stevens to implement a Single Stream Recycling program. Single Stream recycling utilizes advanced sorting technologies to separate all recyclable material, paper, glass, plastic and metal are placed in one container, trash in another. This increases the efficiency of the recycling program and eliminates the need to separate recyclables. It also reduces hauling for recyclables. Research shows that single stream recycling increases recycling rates by 30% since there is no need to sort recyclables into separate bins.

What to Recycle	What Not
Paper and cardboard	Carbon Paper, Blue Prints
Magazines	Plastic bags, cups, utensils
Envelopes	Waxed paper
Pads	Corrugated cardboard
Aluminum & Steel Cans	Light bulbs
Plastic bottles & containers	Aerosol Cans
Metal hangers	Styrofoam

First Steps which need to be taken:

- Educate the Stevens community and train personnel about the collection program.
- Obtain full support from the administration.
- Analyze the needs of the faculty. \*
- Determine where waste and recycling is generated. \*
- Determine size and location of containers.\*
- Develop signage to education community about program.\*
- Participate in RecycleMania.\*

**Recyclemania**

<http://www.recyclemaniacs.org/index.htm>

International competition for institutions of higher learning. The competition runs for ten weeks, from January 18 - March 28 2009. The goal for 2009 is for Stevens to participate in the *Gorilla Contest* collecting highest gross amount of recyclables, regardless of the population.

*\*Currently being examined by Business Technology Senior Design Team*

**Sustainable Sodexo Activity:**

Currently there is no recycling in any of the food service venues Sodexo manages around campus. Within Pierce dining hall bottles and cans are no longer used. All beverages are distributed directly into glasses or mugs. All napkins are made out of recycled material. Other food service venues within campus; America's Cup, Seattle's Best, Col. John's and Starbucks use paper cups and napkins which are made out of recycled material. The extended hours of operation of the Pierce Dining room, has significantly decreased the volume of take out containers. All cooking appliances have been switched from electric to gas.

**Energy Use on Campus:**

Stevens is currently an active participant in alternative, renewable energy initiative. Both the Library and the Schaefer Center have solar panels on their roofs and are 100% off the energy grid. The current peak demand for the entire campus is 3,400 KW. Total consumption on average is 19,500,000 kWh per year (2,226 kW on average). With future alternative energy (solar/wind) and the cogeneration systems installed, Stevens is looking at a 45% reduction in peak demand and 6,240,000 Kwh reduction in consumption per year.

Solar Power projects are continuing the newest being in the 8<sup>th</sup> Street parking lot. Panels by the Castle Point Apartments and Hayden Parking lot will be next.

Power Generated (per hr)	Location
130 kW	Library and Schaefer Roofs
225 kW	8 <sup>th</sup> St. Parking Lot Davidson Lab
100 kW	CPA Roof & Parking lot
150 kW +	Hayden Parking lot
<b>605 kW</b>	<b>Total</b>

Solar Power reduces Stevens' Carbon footprint: Currently 3% of the power is supplied from solar. With the addition of the panels on 8<sup>th</sup> street this will increase to 11%.

### **Student Activity at Stevens**

Currently at Stevens there are three student organizations focused in the areas of recycling, environmental issues and sustainability:

- The Recycling Club (the only Stevens Recognized Student Organization (RSO))
- Students Against Violating the Environment (SAVE)
- Sustainable Engineering Club

These organizations can be the drivers for the Green Agenda among the student body. They can help generate and sustain the momentum of the green initiative. Consolidating these clubs into one national organization such as, Engineers for a Sustainable World, would be beneficial, enabling these students to work together for a common cause while getting the “Green momentum” moving among the students.

### **Future Considerations**

Stevens must also become more environmentally conscious when considering new construction and reconstruction on the campus. There must be a concerted effort to select environmentally sound materials in every aspect of a renovation or construction project. This includes insulated windows, energy star rated appliances and other energy saving products. Future construction projects should meet the Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ standards which encourages and accelerates global adoption of sustainable green building and development practices.

### **Chemical use on Campus**

An effort is currently underway to switch all cleaning supplies used by Temco to green products. Temco is in the process of weaning away from all non-green chemicals. It has begun procurement of green chemicals from Butchers Command Center. All non-green chemicals are being used up, and not reordered. The landscape contractor for Stevens, D’Agostino Landscaping, currently uses 50% organic materials for lawn maintenance. Research will be needed to increase that percentage since pest control and management are not accomplished readily by organic compounds.

### **Campus Activities**

Another critical component of the Green Initiative involves separate activities involving:

- Student Life
- Educational program offerings at Stevens
- Increase research for green engineering

Stevens students will be an essential component in changing the mindset and raising the awareness among the student population. Our students need to become responsible citizens – conserving energy, recycling and reducing waste. The green initiative has to be integrated into the everyday student life at Stevens. Khoda has offered to play a key role in this undertaking. It is important that we identify student interests and get both undergraduate and graduate students involved.

The Stevens faculty must also be responsible and get involved, not as a focus of the curriculum, but as partners in the effort. Green Engineering courses already exist within the Stevens curriculum. These courses introduce the students to the technology and issues related to Green Engineering. Additional courses, both discipline specific, and interdisciplinary, should be developed to increase the students’ knowledge and expertise in energy, conservation and sustainability. These courses will go beyond the junior year and enable students to engage in Green Senior Design Projects.

Faculty and student partnerships could develop technology which can be tested at Stevens and then used elsewhere as is modeled with Technogenesis. These efforts will raise awareness at all levels, while providing hands on experiences for both student and faculty, which can have an impact beyond Stevens. Research and curriculum development funding can be tied into these efforts as well.

Senior design projects will develop as a by-product of previous. These senior design projects should have clearly stated objectives and well defined outcomes. There is, however, a weakness within the faculty expertise which needs to be addressed. Faculty need to gain the necessary expertise.

# **Green Initiative At Stevens Summary**

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