

## TCI Gets Face-Lift

TCI has upgraded to a new, more user friendly webpage. The new site features over 70 pages that report on projects and provide resources. The menu provides for easy navigation.

“TCI has always been a fore-runner in climate protection. It is an important aspect of TCI to share our knowledge and resources



with other institutions. The new webpage enables visitors (approx. 8000 a month) to quickly find information on a specific topic and to download many of the resources we have developed over the years,” said Anja Kollmuss, outreach coordinator at TCI.

TCI’s first webpage was developed in 1999. “It was time to give our site a face lift. We have made it easier to navigate and added many pages. For example, I get frequent requests for our Eco-Reps manual. Now people can go to our website and download the whole manual.” says Kollmuss.

TCI is pleased its wealth of information and experience is now easily accessible to other institutions and the general public.

Please visit our new site:

[www.tufts.edu/tci](http://www.tufts.edu/tci)

If you have comments or feedback: e-mail [anja.kollmuss@tufts.edu](mailto:anja.kollmuss@tufts.edu)

## Interview With LEED Residence Hall Architects

Construction of Sophia Gordon Hall, the state-of-the-art new residence hall at Tufts, began in the spring of 2005. The university’s commitment to green building was evident from the beginning and shaped many of the design decisions. The building was designed by a team of architects from *William Rawn Associates (WRA)* (lead by William Rawn & Doug Johnston). WRA built many residence halls for universities throughout the Northeast.

Anja Kollmuss, TCI’s Outreach Coordinator, interviewed Mark Oldham (Project Architect) and Randy Wilmot (Project Associate) about the project on January 24, 2006.

*AK:* How is the green building process different from designing a conventional building?

*RW:* The challenge was to design a building that fulfills both Tufts sus-

tainable and environmental design goals and satisfies and implements a set of new goals for future residence halls on the Tufts campus. The LEED program certainly made a more complex design and construction process; however we were surprised by the level of leadership that was brought to the process by both the design and construction team. Although WRA developed a set of principles and goals for meeting the LEED program criteria, *Linbeck* [the construction manager] provided a tremendous amount of leadership as the project moved from the design phases into the construction period. This leadership was necessary to oversee a multitude of LEED related construction goals which were necessary to be met by many, if not all of the subcontractor firms executing the project.

*AK:* Given that energy efficiency is such an important feature of green construction, can you talk about the building envelope?

*RW:* The building envelope is designed to meet the new Massachusetts Energy Code. As such, the exterior wall system is very “tight”, with full air and vapor barriers to minimize any energy loss both from the interior and exterior. Although the new energy code essentially improves the building’s energy performance, additional materials and wall systems were employed to “push” the skin beyond the code minimum and currently the envelope exceeds the minimum performance by approximately 20% - 25%.

*AK:* What are LEED’s advantages, its disadvantages?

*MO:* Certainly the LEED program is a very positive program, not only in its goals, but also in that it requires all interested parties, from owner, designers and contractor be equally committed to the LEED agenda.

That said, the certification process is a very expensive and labor intensive one. For many of our clients there is often a discussion as to whether they will pursue the LEED certification process or simply build a project to the standards established by LEED.

*RW:* The paper work is very extensive, however by going through it everybody gets educated: the subcontractors, Tufts employees, the designers. As LEED is still very new to many of the people involved, (particularly the subcontractors) the learning curve is very steep. Once the program becomes more mainstream, it will become both easier and second nature for everyone. The program as a whole however has grown so quickly that it has almost already become mainstream. One of the main advantages is that the LEED program is raising environmental awareness in the construction industry as a whole and as a result standard practices in construction are changing for the better.

*MO:* On the negative side however, one of the problems with LEED is that one can get into point counting. It is important for designers to act in the spirit of LEED, not just the law of LEED. To keep pushing ‘green design’, even if it does not get you a point.

## LEED Residence Hall under Construction continued:

It's really about understanding the goals and being diligent about pursuing them. Much of it lies in the detail: low-VOC glues, recycled carpet. It's not always exciting stuff, but it adds up.

*RW:* Some environmental choices are more expensive. Bamboo plywood is more expensive than maple plywood, for example. But sometimes unexpected things happen. For example, our contractor found out that it was actually less expensive to recycle construction waste than to haul it to a landfill.



*MO:* The LEED process challenges us to consistently look into new technologies, and new, more environmental materials.

*RW:* It's really been an amazing process. In general, people sometimes view the LEED process with some skepticism, even going into the process a bit jaded but then it challenges them, they learn from it and walk away as a better person. That's really the best part of it.

Sophia Gordon Hall is scheduled to open in the fall of 2006. The residence hall will offer a home for 126 students. High efficiency

boilers, solar hot water, PV panels, and improved temperature controls will be among the many green elements. In addition to the environmental features its unique design will offer common space, optimized daylighting and a multi-purpose common room that will be used for concerts, social events, lectures and film evenings.

(Picture: Sophia Gordon Hall under construction, summer 2005.)

## Tufts Changes Electricity Supplier, Cleans Up Emissions

Starting in January 2006, Tufts became a much cleaner university. The university changed electricity suppliers and as a result, the emissions associated with the university's electricity usage have plummeted.

Tufts now receives its electricity from TransCanada, an electricity supplier based in Westborough, MA. Whereas on the university's former contract Tufts received the system mix (the electricity came from whatever was available on the grid – coal, natural gas, oil, etc.), the university now has an electricity supplier whose power sources include hydroelectric plants on the Deerfield and Connecticut Rivers and a combined cycle natural gas power plant in Rhode Island.

With this new mix, the CO<sub>2</sub> emissions related to Tufts electricity use will drop to 0.2 lbs/kWh, or to about 21% of the New England average (and the New England grid is already substantially cleaner than many other areas of the country).

This purchase, a combination of the efforts of the Tufts Energy Manager and TCI, help Tufts to nearly reach its commitment of meeting or beating the Kyoto Protocol goals of 7% reductions below 1990 emissions levels. Considering that emissions have grown from 14,971 metric tons carbon equivalent (in 1990) to 23,585 metric

tons carbon equivalent (in 2004) even with a decade of efficiency upgrades, this is an impressive reduction.

It is important to realize that there is much work yet to be done. Emissions from fuel used for heating are still large and need to be reduced. Further efficiency would help reduce the amount of electricity that is used on campus, and even though Tufts' electricity is now cleaner, it is better to not use the kilowatts in the first place. The change in provider is an important step in the right direction.

Tufts has long held a leadership role in the environmental arena, and with this purchase, the university has rededicated itself to being on the cutting edge.

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## Climate Change News Brief

### 2005 Was the Warmest In a Century

The year 2005 may have been the warmest year in a century, according to NASA scientists studying temperature data from around the world.

Previously, the warmest year of the century was 1998, when a strong El Nino, a warm water event in the eastern Pacific Ocean, added warmth to global temperatures. However, what's significant, regardless of whether 2005 is first or second warmest, is that global warmth has returned to about the level of 1998 without the help of an El Nino.

"The five warmest years over the last century occurred in the last eight years," said James Hansen, director of NASA GISS. They stack up as follows: the warmest was 2005, then 1998, 2002, 2003 and 2004. Over the past 30 years, the Earth has warmed by 0.6° C or 1.08° F. Over the past 100 years, it has warmed by 0.8° C or 1.44° F.

Modified from: [www.nasa.gov/vision/earth/environment/2005\\_warmest.html](http://www.nasa.gov/vision/earth/environment/2005_warmest.html) (1.24.06)

### Sea-level Rise Is Quickening Pace

The rate of global sea-level rise has sped up during the twentieth century, Australian researchers have confirmed. This disturbing acceleration is predicted by climate models, but has been difficult to spot in real data; natural variations in sea level have masked long-term trends. Now researchers have managed to tease out the acceleration from tide-gauge data, by cleaning up the information using satellite measurements.

They say the acceleration they have detected since 1870 matches up nicely with model predictions: if the acceleration continues as expected, by 2100 the seas will lap the shore about 31 centimeters higher, on average, than they did in 1990. That matches what has been forecast by the Intergovernmental Panel on Climate Change.

This will push back typical beach shorelines by around 300 meters. "That's a real concern," says marine geologist Kenneth Miller of Rutgers University in New Jersey.

Modified from: [www.nature.com/news/2006/060116/full/060116-11.html](http://www.nature.com/news/2006/060116/full/060116-11.html) (1.19.06)

### California Launches Solar Power Plan

The California Public Utilities Commission approved a \$2.9 billion program to make CA one of the world's largest producers of solar power.

The California Solar Initiative, backed by Governor Schwarzenegger, aims to add 3,000 megawatts of solar energy over 11 years through the installation of 1 million rooftop solar energy systems on homes, businesses, farms, schools, and public buildings.

That amount of electricity would be equivalent to about six new power stations. If the program is fully implemented, California would become the world's third-largest solar generator behind Japan and Germany. The state currently produces about 100 megawatts of solar electricity.

The governor's energy goals call for making renewable energy, such as solar and wind power, 20 percent of California's electricity resources by 2017.

Modified from: Reuters (1.13.06)