Sustainability is the conservation of the planet’s resources to ensure the viability of future generations.

Smith works to reduce energy and resource consumption by means of retrofits in buildings, energy-efficient generators, and sustainable practices such as energy reduction, resource conservation and educational outreach.

To help the campus meet its goals, Smith is committed to buying locally made products, reducing energy consumption, recycling and reducing waste and learning more about the most effective sustainable practices.

Places marked on the map indicate some of the most visible areas where Smith has made major changes with sustainability as part of the planning.

In an ongoing program of renovation in the residence houses, Smith engineering faculty and students studied building envelopes and provided data on the best choices in adapting the college’s varied architecture to more sustainable operation by incorporating responsible deconstruction and recycling with energy-efficient improvements.

Smith’s curriculum also integrates sustainability, particularly through the Picker Engineering Program and CEEDS, the Center for the Environment, Ecological Design and Sustainability, which develops and supports projects involving engineering, Environmental Science and Policy, and Landscape Studies, among other disciplines and departments.

All these efforts are part of the Smith Sustainability and Climate Action Management Plan (SCAMP), an evolving 20-year plan to make the college carbon-neutral.

The plan and other information about sustainability at Smith can be found at [www.smith/green/sustainability](http://www.smith/green/sustainability).
The Campus Center: Getting to the Heart of Sustainability
At the heart of the Smith campus lies the Campus Center. Campus mail and the campus store are here, as well as a Café named in honor of alumna Julia Child. The unusual shape made this structure complicated to insulate, but the building envelope includes thermal-paneled windows with a low-e coating to reduce the amount of heat that passes through them. The roof has five inches of foam insulation, which brings it to a rating of R35. Walls have two inches of foam outside the sheathing and one inch of glue-based cellulose on the interior, bringing the wall rating to R20.

The center houses the common recycling containers as well as locations for batteries, phones and CFL bulbs. The Center has a 29 kilowatt solar electric system on the roof which will produce about 30,000 kilowatt hours of electricity each year, enough to power about three average U.S. homes. (Stand next to Chapin House to see the panels.)

The Campus Center is a huge energy user, accounting for as much as 3% of the college’s total electricity load. The Class of 1961 is spearheading an effort to make the Center a model of sustainability. Forthcoming upgrades include adding daylight sensors to perimeter lighting to take advantage of excellent natural light and upgrades for the Café to allow a shift to durable dishes, as well as new bike racks outside.

Northrop-Gillet: Sustainable Food at Smith
Northrop-Gillet’s dining hall provides vegetarian and vegan options at all meals. Smith Dining Services uses seasonal food from local farmers whenever possible. In 2009, Dining spent $375,000 on locally grown food including vegetables, fresh fruits, goat cheese, honey, maple syrup, yogurt, turkey and roast beef. Purchasing local food reduces transportation and keeps farmland in tillage; many farmers are also organic growers.

Most Smith dining halls compost food and paper waste, which is taken to a local farm permitted to process it. This has made a huge impact on the amount of solid waste Smith generates. Smith dining has eliminated disposable cups at all locations; reusable mugs are the norm for students. Smith has never used trays in dining rooms, which saves washing and related water and energy use.

Look through the Northrop-Gillet portico to see Smith’s student-run Community Garden.

Conway House: Highest Performer
Conway House residence hall was built in 2006 for Ada Comstock scholars. It is the most energy-efficient Smith building and boasts a 5+ EnergyStar rating from the U.S. EPA. Its ten apartments have EnergyStar appliances, but the key to this building’s low energy use is extensive insulation. Walls and ceilings were constructed with more than a foot of expanded polystyrene foam, the least toxic type. The building envelope is nearly airtight, thanks to use of a superior pre-cast concrete with a built in R5 insulation and additional insulation that reaches R36. Conway House has triple-glazed windows made with pultruded fiberglass. Pultrusion, a continuous molding process, uses glass or fibrous reinforcement in a polyester or vinyl ester resin matrix; the windows produced are strong, safe, and corrosion resistant.

Lyman Plant House of the Botanic Garden: A History of Environmental Education
Lyman Plant House, a Lloyd and Burnham design, is one of the oldest greenhouses in North America. The Botanic Garden is the site of botanical and interdisciplinary research, a visitor center for the public, and the locus for area school programs, exhibitions in its Church gallery, and the spring bulb and fall chrysanthemum shows. Renovations in 2004 provided new classrooms and offices built into the hillside that adjoins the building. Lucite panes have replaced glass, and HVAC controls provide better regulation of heat and humidity for the various plant zones included in the greenhouses, as well as classrooms, labs and public areas.

Neilson Library: An Old Dog Learns New Tricks
Neilson Library, opened in 1909, was built in Italian Renaissance Revival style with funding from Andrew Carnegie. The main social sciences and humanities library contains thousands of books and an outstanding rare book collection. The building is used 18 hours a day throughout the year; in the summer, air conditioning is necessary. Due to heavy use and the sensitivity of the collections, Neilson’s HVAC system used a lot of energy and needed upgrading. Smith is replacing old pneumatic controls (which required compressed air to function) with modern digital controls, adding energy recovery ventilation (which brings in fresh air from outside but heats/ cools it with the air exiting the building), and increasing attic insulation. Neilson will soon be cooled by an absorption chiller connected to the co-generation facility.

Ford Hall: LEED Gold Home for the Sciences and Engineering
Ford Hall for the Sciences and Engineering is the newest campus building, completed in 2009. It is LEED certified at Gold level and one of the most energy-efficient buildings of its type.

Because venting hoods in the labs are always on, laboratory buildings must have a constant supply of fresh air. One of the most impressive, efficient controls in Ford Hall is the energy recovery system, which allows a changeover of fresh air without losing the heat in used air. In addition, by separating the building into “laboratory” and “office” areas, some heated/cooled air can be reused in the “office” area, which includes a large atrium. The “office” end has operable windows. Classroom lighting is monitored by ballast controls that adjust to natural light levels and dim or brighten accordingly; they are also motion-sensitive. Compared to general classrooms, these are 40% more efficient. During construction, Ford Hall achieved a 95% waste recycling rate, significantly higher than the usual 70-75%. Recycled materials were used in construction as well.

The building has a large roof surface and uses a green roof to help recapture and filter substantial amounts of rainwater, which is stored in a 30,000-gallon tank underneath the landscaping and used in laboratory sinks and toilets throughout the building. The green roof allows Ford Hall to use about 40% less heat and 60% less water.

Indoor Track and Tennis: Efficient Retrofit May Help Your Game
The Indoor Track and Tennis facility (ITT) is used year-round and has been retrofitted with energy efficient lighting and motion sensors. These upgrades to this single facility will reduce campus total electricity use by 1% or about 250 thousand kilowatt hours—more than eight times the annual output of the Campus Center solar system. The new lighting has the added benefits of increased brightness and better color rendition.

Facilities Management and the Mill River Dam: Sustainable Energy Old and New
Today, Paradise Pond is used for recreation and educational purposes. The surrounding landscape is home to edge species like snapping turtles, crayfish, blue herons, ducks, geese, and beavers. Historically, Paradise Pond was created when the Mill River was dammed around 1700 to supply water power to a hammer mill. Smith does not currently capture energy from the dam, but perhaps one day we will. Smith faculty members are currently researching possible uses for the dam, including as potential power source.

Looking down the hill along the Mill River dike, a tail stack locates the Facilities Management building and Smith’s power plant. Facilities management maintains and monitors all heating, cooling and electrical systems for campus. Smith started up its co-generation plant in fall 2008. Though it is one of the most environmentally sustainable mechanisms on campus, it is invisible to the general public; many students are unaware of its energy-saving capacity. This facility simultaneously generates electricity and heat, wasting much less energy than generating either output by itself. In summer 2010, Smith began operating an absorption chiller which uses heat created by the cogeneration facility to make chilled water to air-condition buildings. Running cogeneration in warmer months increases energy efficiencies in hot weather.