

Every Day is Earth Day at the World Trade Center

In celebration of Earth Day on April 22nd, this month's newsletter highlights a few of the environmentally friendly elements included within World Trade Center projects.

The 9/11 Memorial Plaza, in addition to being an 8-acre park for reflection and remembrance, acts as a rainwater collection center and a plant-covered green roof for the museum underneath. Rain drains off the plaza into underground receptacles, to be used for irrigating the hundreds of Swamp White Oak trees on site. The trees were harvested from areas representing the attacks on 9/11; since the areas were all within 500 miles of New York City, the short distances limited the amount of transportation-related greenhouse gas emitted. The trees' root systems also help regulate temperatures in the museum below. The Memorial's reflecting pools reduce their environmental impact by recycling water and only adding more to replace what's lost in evaporation.

One World Trade Center aims to be 20 percent more energy efficient than New York State standards. In fact, 1 WTC contains its own fuel-cell co-generation plant that produces up to 1.2 megawatts of energy using natural gas. "Co-generation" refers to how the plant generates not only electricity from natural gas, but also waste heat, which is in turn recycled and used for

heating and hot water within the tower. By using an absorption chiller, waste heat can also assist in producing cooling for the building. The Port Authority will be buying more than 13 million kilowatts of green energy credits every year through 2017 to offset 1 WTC energy use.

One WTC will install high-efficiency plumbing systems to consume about 40 percent less water than a typical building of its size. When rain falls on the structure, it will be collected and used for fire protection, cooling, and irrigation. A separate central chiller plant will cool most other WTC facilities using Hudson River water.

The windows of 1 WTC are made from 20 percent recycled glass and contain a special coating that reflects UV radiation to repel the sun's heat while allowing light to pass through. Since natural light will reach more than 90 percent of the tower's interior, there will be less need for energy-consuming artificial lighting during the day. On top of that, the building will employ "daylighting," so on clear days when there's lots of natural sunlight, dimmers will automatically lower interior lights to reduce energy use.

These and other environmentally friendly design features are helping the World Trade Center raise the bar for sustainable 21st century skyscrapers.

Green Fun Facts About the World Trade Center

-  The WTC central chiller plant will circulate 30,000 gallons of Hudson River water every minute—enough to flush about 15,000 toilets.
-  The electricity generated by the 1 WTC's fuel-cell plant will be able to continuously light 52,000 compact fluorescent light bulbs.
-  At least 75 percent of 1 WTC construction waste is recycled.
-  Everything from the gypsum boards to ceiling tiles at the World Trade Center contains a minimum of 20 percent post-industrial recycled content.
-  At least 50 percent of the wood for 1 WTC comes from Forest Stewardship Council-certified sustainable harvested forests.



Rendering of One WTC, the 9/11 Memorial and Museum

Want more WTC news, pictures and updates? Have a construction question you would like to ask?

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CONSTRUCTION PROGRESS AROUND THE WTC SITE

Vehicular Security Center



The Vehicular Security Center (VSC) will be a state-of-the-art underground security structure that will provide screening for all vehicles entering below street level within the future WTC site. Current construction in phase I sections includes bolting and welding erected steel, and installing steel decking. Phase II work includes line drilling, rock blasting, and mass excavations.

🌿 The roof of the underground security center will double as a landscaped park open for the public to enjoy at street level.

Transportation Hub



The Transportation Hub is a transit project that will provide seamless underground connections between the Port Authority Trans Hudson (PATH) rail line, New York City Transit Subway lines, and the World Financial Center. Currently, steel workers are erecting structural ribs in the Transit Hall and erecting the first pieces of steel at street level.

🌿 The Hub Oculus skylight is designed to open to supplement the building's climate control systems and reduce energy use.

Four World Trade Center



Four WTC, at the southeast corner of the site, will contain the future headquarters of the Port Authority of New York and New Jersey. Construction workers are erecting steel up to the 54th floor, completing core area walls and column encasement up to the 47th floor, and installing curtain wall panels up to the 36th floor.

🌿 The tower is planned to achieve LEED (Leadership in Energy and Environmental Design) Gold certification by the U.S. Green Building Council. Four WTC will also seek to be 20 percent more energy efficient than New York State standards.

Two World Trade Center



Two WTC, designed by Foster and Partners, is rising up to street level. Workers are bolting and erecting steel at levels 01-02.

🌿 Designed in accordance with the highest energy efficiency standards, 2 WTC will seek to be 20 percent more energy efficient than New York State standards and achieve LEED (Leadership in Energy and Environmental Design) Gold certification.