



BUILDING GREEN IN NEW YORK CITY

Robert F. Fox Jr., a partner at Cook+Fox Architects in New York City, is one of the most respected leaders in the green building movement. In an address at the Bard Center for Environmental Policy in April, he spoke about his groundbreaking sustainable design for the Bank of America Tower at One Bryant Park, a high-rise office complex scheduled to be completed in the fall of 2009. A summary of his remarks follows.

We privileged Americans occupy a small fraction of the globe, yet we are consuming resources at an incredible rate compared to the rest of the planet. At the same time, 16 million people in the People's Republic of China move from rural areas to cities every year. They're building the equivalent of two New York Citys annually. The people moving to these cities want what we have, and you don't need an advanced degree to know that's not going to work.

In 400 thousand years—a period that has seen three ice ages—the level of carbon dioxide in the Earth's atmosphere never passed 300 parts per million. It's now up to about 385 parts per million. As the level of carbon dioxide rises, so does the Earth's temperature. Climate scientists tell us that carbon dioxide levels of 500 parts per million—a tipping point after which human intervention in halting climate change will become much more difficult—may be reached by the year 2025.

What does an architect have to do with this? A significant amount of the carbon dioxide that goes into the atmosphere comes from buildings, so if we're going to make a difference, we might want to start there. This brings me to the Bank of America Tower at One Bryant Park.

The U.S. Green Building Council has a rating system called LEED [Leadership and Energy Environmental Design] that evaluates a building's environmental performance. The certification levels are silver, gold, and platinum. If you had asked me two years ago if a high-rise building in New York City could get a platinum rating, I'd have said, "No way." When we were designing One Bryant Park, the charge from our clients, the Durst family and Bank of America, was to create the highest-performing—that is, the greenest—building that we could, period. They didn't say anything about LEED. But when we went through the points, there we were, at platinum.

How did we get our platinum rating? A big part of it is our planning for energy generation. A typical power plant in New York State loses about





two-thirds of its energy right at the smokestack and another 7 percent of its energy in transmission. It's a system that's about 27 percent efficient—not very good when fuel's cost is rising and its amount diminishing. The natural gas-fired five-megawatt cogeneration plant we're putting in the building will be 77 percent efficient, much more efficient than what Con Edison can deliver. It will produce about two-thirds of the building's annual energy.

Bank of America is also funding an anaerobic digester plant in the Brooklyn Navy Yard where we will take the food waste from the building's cafeterias, create methane, and use that methane to create electricity. What's more, the compost that results from this—compost of the highest quality—will go to New York City parks, including Bryant Park, and to the building's roof garden.

Using recycled content in the construction process is also very important in green building. We found that we could take blast furnace slag—a waste product of the steel

industry—grind it up, and substitute it for cement at a ratio of 45 percent. The resulting concrete sets up better and is stronger. Using blast furnace slag in every batch of concrete that went into this building saved 56 thousand tons of carbon dioxide.

Rainwater—hopefully, as much as four feet a year—will be collected in a series of cascading tanks that flow down into a holding tank in the building’s cellar. We’ll add to that the water collected from the sinks where occupants wash their hands, and the steam condensate from the air conditioning system. This combined water will be

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treated slightly and used to flush the toilets and for the cooling tower. Since cooling towers work on an evaporative process, this water will go back into the environment, instead of down the city sewer system.

When they travel to work, our building’s occupants will generate about one-twentieth of the carbon dioxide generated by commuters traveling to a typical suburban campus. The major reason for this is that no building in New York is better located for public transportation. It’s a five-minute walk from Grand Central Terminal, ten minutes from Penn Station, and about three minutes from the Port Authority Bus Terminal. The design for the site includes a new pedestrian passageway that connects the Sixth Avenue and Broadway subway lines.

You might ask what the “greening” of One Bryant Park will cost. On the high side, our estimate is less than \$40 million. If we can help Bank of America employees increase their productivity, the client’s payback period will be short. How can we do that? By creating an environment that attracts and retains the best employees. For example, the air that this building’s occupants breathe will be filtered so well that it will be cleaner than a hospital’s. In our design we’ve also taken into account a science called biophilia, which is how we relate to nature. Your ability to look out the windows during the day, to rest your eyes, to see something outside—even just the sky when it’s raining outside—makes a tremendous difference in how good you feel and, therefore, in how productive you can be. In One Bryant Park, everyone working in the building will have a view outside.

Recently, I attended a discussion with Edward O. Wilson, a professor emeritus at Harvard’s Center for Health and the Global Environment and an internationally known biologist. He said that over the millennia, there have been five extinction periods, mainly caused by meteorites, and we are now in the beginning of the sixth era. But Wilson also said, “I have hope, because I know that Americans are going to figure it out.” That’s the reason I was eager to speak to the students here today. Those of us who are older have less to lose; we need a little push [to engage in the green movement]. It is your generation that can make a difference. I encourage you to do that.