

"Federation Corner" column
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Getting it about global warming

by Wayne Goldstein

2007 has been the year when some of our leaders really started to "get it" about global warming. In his acceptance speech for the Nobel Peace Prize on December 10th, Al Gore stated: "We, the human species, are confronting a planetary emergency - a threat to the survival of our civilization that is gathering ominous and destructive potential even as we gather here. But there is hopeful news as well: we have the ability to solve this crisis and avoid the worst - though not all - of its consequences, if we act boldly, decisively and quickly... For now we still have the power to choose our fate, and the remaining question is only this: Have we the will to act vigorously and in time, or will we remain imprisoned by a dangerous illusion?"

Gore was not specific about what we could do, although he mentioned a moratorium on constructing conventional coal-burning facilities and the imposition of a carbon tax. If we are looking for individual actions beyond switching to energy-efficient light bulbs, appliances and wind power, we learned of them just a few days later on December 13th in another acceptance speech by another prize winner. This time, the prize was the Vincent Scully Prize, established by the National Building Museum in 1999 "to recognize exemplary practice, scholarship or criticism in architecture, historic preservation and urban design."

The prize winner was Richard Moe, president of the National Trust for Historic Preservation, the nation's preservation advocacy organization. His acceptance speech was such a truly remarkable call to action to fight global warming on the local level that I'm quoting from it at length:

"As growing numbers of people are worried about climate change, the degradation of the environment, and our relentless consumption of energy and irreplaceable natural resources, it is increasingly apparent that preservation has an essential role to play in any effort to deal with the environmental crisis that looms over us. Because it necessarily involves the conservation of energy and natural resources, historic preservation has always been the greenest of the building arts. Now it's time to make sure everyone knows it. It's all about sustainability.

"The United States is a big part of the problem. We have only 5% of the world's population, but we're responsible for 22% of the world's greenhouse gas emissions that are the leading cause of climate change. Much of the debate on this subject usually focuses on the need to reduce auto emissions. But according to the EPA, transportation - cars, trucks, trains, airplanes - accounts for just 27% of America's greenhouse gas emissions, while 48% - almost twice as much - is produced by the construction and operation of buildings... In fact, more than 10% of the entire world's greenhouse gas emissions is produced by America's buildings - but the current debate on climate change does not come close to reflecting that huge fact. The message is clear: Any solution to climate change must address the need to reduce emissions by being smarter about how we use our buildings and wiser about land use.

"The challenge is to help people understand that preservation, by its very nature, is sustainability... The key phrase is "sustainable stewardship." The retention and reuse of older buildings is an effective tool for the responsible, sustainable stewardship of our environmental resources - including those that have already been expended. I'm talking about what's called "embodied energy." Here's the concept in a nutshell: Buildings are vast repositories of energy. It takes energy to manufacture or extract building materials, more energy to transport them to a construction site, still more energy to assemble them into a building. All of that energy is embodied in the finished structure - and if the structure is demolished and landfilled, the energy locked up in it is totally wasted. What's more, the process of demolition itself uses more energy - and, of course, the construction of a new building in its place uses more yet.

"... About 80 billion BTUs of energy are embodied in a typical 50,000-square-foot commercial building. That's the equivalent of 640,000 gallons of gasoline. If you tear the building down, all of that embodied energy is wasted... Since 70% of the energy consumed over a building's lifetime is used in the operation of the building, some people argue that all the energy used in demolishing an older building and replacing it is quickly recovered through the increased energy efficiency of the new building - but that's simply not true. Recent research indicates that even if 40% of the materials are recycled, it takes approximately 65 years for a green, energy-efficient new office building to recover the energy lost in demolishing an existing building. And let's face it: Most new buildings aren't designed to last anywhere near 65 years.

"... By 2030 we will have demolished and replaced 82 billion square feet of our current building stock, or nearly 1/3 of our existing buildings, largely because the vast majority of them weren't designed and built to last any longer... It's estimated that the National Building Museum contains about 1.5 million bricks. When you consider how much energy it took to make all those bricks, plus how much it took to manufacture the other materials, then transport them to this site and put them all together in this marvelous structure, the total embodied energy in this building is the equivalent of nearly 2 million gallons of gasoline.

"... The UN report that I quoted a bit earlier, for instance, doesn't stress the importance of reusing the buildings we have. Similarly, most recent efforts by the green community place heavy emphasis on new technologies rather than on tried-and-true preservation practices that focus on reusing existing buildings to reduce the environmental impacts associated with demolition and new construction... This emphasis on new construction is completely wrong-headed. The statistics I cited earlier tell us clearly that buildings are the problem - but incredibly, we propose to solve the problem by constructing more and more new buildings while ignoring the ones we already have. Here's what we have to keep in mind: No matter how much green technology is employed in its design and construction, any new building represents a new impact on the environment. The bottom line is that the greenest building is one that already exists.

"It's often alleged that historic buildings are energy hogs - but in fact, some older buildings are as energy-efficient as many recently-built ones, including new green buildings. Data from the U.S. Energy Information Agency suggests that buildings constructed before 1920 are actually more energy-efficient than buildings built at any time afterwards - except for those built after 2000. Furthermore, in 1999, the General Services Administration (GSA) examined its buildings inventory and found that utility costs for historic buildings were 27% less than for more modern buildings.

"... I believe that climate change is the defining issue of our time - and will be for a long time to come. What's at stake is nothing less than life as we know it on this planet. The fact that the threat is not immediate does not mean that it's not urgent. The experts tell us we have no time to lose. The debate is over, the facts are in, and it's time to act. Today, most of the important and innovative work on this issue is being carried out by state and local governments and the private sector. Precious little leadership is being offered by the federal government, which isn't even doing much to promote and coordinate fundamental research... It makes no sense for us to recycle newsprint and bottles and aluminum cans while we're throwing away entire buildings, or even entire neighborhoods. This pattern of development is fiscally irresponsible, environmentally disastrous, and ultimately unsustainable.

"... Finally, we need to improve green-building rating systems to ensure that they recognize the importance of building reuse... The National Trust and others are working with the U.S. Green Building Council - at their invitation - to improve these and other points... Preservation has always sustained America. By protecting and enhancing the buildings, communities and landscapes that tell America's story, preservation allows us to maintain tangible contact with the places where our identity as a nation was established and our character as a people was shaped... Now, in the face of unprecedented climate change, we're prepared to demonstrate

that preservation is an essential tool for sustaining the environmental viability of the planet as well as the quality of life for ourselves and our children."

Today, we can individually do more to limit the release of greenhouse gases simply by saving an historic building than by anything else we might do. When all of us really get it about embodied energy and that we must be aware of all of the ways we produce greenhouse gases, we will then be able to come up with other significant ways to limit them.

You can read Al Gore's acceptance speech at http://nobelprize.org/nobel_prizes/peace/laureates/2007/gore-lecture_en.html

You can read Richard Moe's acceptance speech at http://www.nationaltrust.org/news/2007/20071213_scully.html