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POSITIONING PRESERVATION IN A GREEN WORLD



HISTORIC PRESERVATION AND GREEN BUILDING: FINDING COMMON GROUND

By Richard Moe

This speech was presented at the U.S. Green Building Council (USGBC) Greenbuild Conference in Boston, Mass., on November 20, 2008.

The National Trust's overall mission can be summed up in a single sentence: to encourage people to appreciate the importance of the historic buildings, neighborhoods, and landscapes that tell America's story, and to give them the tools they need to keep our heritage intact and playing a meaningful role in our lives. To put it even more succinctly, the National Trust helps people protect, enhance, and enjoy the places that matter to them.

You'll note that the terms "sustainability" and "green building" don't appear in that brief description—but that doesn't mean the concepts are new and unfamiliar to us. Back in 1980, long before the word "sustainability" came into widespread use, the National Trust issued a Preservation Week poster that depicted an old building in the shape of a gas can—a reminder that reusing an existing building, instead of demolishing it and replacing it with a new one, is a good way to conserve energy.

The fact is, preservationists are not gate-crashers at the green-building party. There is a strong relationship between sound old buildings and new green ones, so there is—or ought to be—a strong relationship between preservationists and green-building

advocates. We share a determination to find effective ways to address the defining issue of our time: climate change. We have a lot in common, and there is much we can learn from one another.

I'd like to tell you about the perspective that preservationists bring to the table in discussions of green building and sustainable development. I'd also like to share with you the ways in which the preservation community is reexamining its own practices and embracing change, especially in the area of improving energy efficiency in older and historic buildings.

Let's begin with some facts.

The United States, which has only 5 percent of the world's population, is responsible for 22 percent of the world's greenhouse gas emissions. Discussions on this topic usually focus on the need to reduce auto emissions. It's true that transportation—cars, trucks, trains, airplanes—accounts for 32 percent of America's carbon emissions. But here's a fact that's getting more and more attention, thanks in part to the hard work of USGBC and others in the field: According to The Pew Center on Climate Change, 43 percent of America's carbon emissions come from the operation of buildings—and this doesn't include the carbon that is generated by extracting, manufacturing, and transporting building materials.

If nearly half of the carbon we send into the atmosphere comes from our buildings, it's clear that any solution to climate change must include being wiser about how we design and use our buildings.

I'm talking about stewardship—and that's what preservation is all about.

At the risk of sounding smug, I believe that preservationists know how to take good care of buildings. It's our job, and we've been doing it in this country for more than 150 years. The tradition of stewardship that we've always embraced, the knowledge that we've gained from decades of experience—these can be of enormous help in efforts to transform our built environment to one that is more sustainable.

Preservationists are sometimes accused of being sentimentally fixated on the past—but, in fact, preservation is strongly future-oriented. Our goal is to ensure that our historic built environment—our legacy from the past—survives so that future generations can experience it, learn from it, and be inspired by it. This kind of focus on the future is at the very core of sustainable development.

Preservationists are also sometimes accused of wanting to freeze buildings in time—but, in fact, our goal is to keep old buildings viable so that they can play meaningful roles in community life. Anthropologist Ashley Montague has said that the secret to staying young is to die young—but the trick is to do it as late as possible. All over the United States, preservationists are showing that old buildings put to new uses can stay young to a ripe old age. They're demonstrating that buildings are renewable—not disposable—resources. If that's not sustainability, I don't know what else to call it.

In early November, the nexus between historic preservation and sustainable development was the focus of a conference involving preservationists, architects, green builders, and energy experts. Meeting at the historic Rockefeller estate at Pocantico Hills, N.Y., this group developed what we're calling the Pocantico Proclamation on Sustainability and Preservation.

This proclamation, the text of which is still being word-smithed and vetted among the preservation community, outlines six preservation-based guiding principles to sustain our built environment. We believe these principles can inform and strengthen efforts to reduce the environmental impacts—especially carbon emissions—that are associated with buildings.

PRINCIPLE #1: PROMOTE A CULTURE OF REUSE

We know that the way we use our buildings causes big problems—but incredibly, we keep trying to solve the problem by constructing more and more new buildings while largely ignoring the ones we already have. That makes no sense. In addition to building green, we have to make wiser use of what we've already built.

One of the basic truths we acknowledge about climate change is that it is fundamentally the result of overconsumption of natural resources—namely carbon-intensive resources such as oil and coal. We often think of this in terms of the oil needed to power our cars, and the coal that powers many of our buildings—but constructing buildings is also an energy- and carbon-intensive activity. 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 "embodied energy."

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 place of the demolished one uses more yet.

Let me offer an example. Boston City Hall has about 500,000 square feet of space. The amount of energy embodied in that building is about 800 billion BTUs. That's the equivalent of about 6.5 million gallons of oil—and if the building were to be demolished, all of that embodied energy would be wasted. What's more, demolishing City Hall would create about 40,000 tons of debris. That's enough to fill more than 250 railroad boxcars—a train nearly 2½ miles long, headed for a landfill that's probably almost full already. Finally, constructing a new 500,000-square-foot building on the City Hall site would release about as much carbon into the atmosphere as driving a car 30 million miles—or 1,200 times around the world.

One final point: Don't assume that the energy expended in manufacturing a building is offset by the efficient operation of new green buildings. In fact, a recent study from the United Kingdom found that it takes 35 to 50 years for an energy-efficient new home to recover the carbon expended in constructing it.

It all comes down to this: We can't build our way out of the climate-change crisis. We have to conserve our way out. No matter how much green technology is employed in its design and construction, any new building represents a new impact on the environment. The greenest building is one that already exists.

PRINCIPLE #2: REINVEST AT A COMMUNITY SCALE

In its early years, preservation in America was primarily concerned with saving individual buildings, especially the grand architectural landmarks that some people call "the homes of dead rich white guys."

We've come a long way since then. Today we recognize that buildings are important—but context matters too.

For example, the most energy-efficient building doesn't help our cause much if it sits in a remote location accessible only by car. USGBC has recognized the importance of context in LEED 2009 by increasing the number of points available for buildings in "smart" locations—that is, those that are transit-accessible. This commendable action acknowledges that the way our communities are laid out is just as important as the quality of our buildings—and plays an equally important role in our efforts to address global warming.

Instead of building more and more highways and strip malls and subdivisions, we ought to be reinvesting in the communities we already have. LEED Neighborhood Development has an entire section—*Green Infrastructure & Buildings*—that focuses on this. LEED-ND, which just came out for public comment in November, includes very important language that encourages

preservation and reuse of older buildings instead of demolition.

I believe you can't have smart growth without preservation. In fact, preservation *is* smart growth. Here's why:

- Smart growth emphasizes density of development, mixed uses, and a pedestrian orientation. These are major characteristics of older neighborhoods. Saving them is smart growth.
- Communities have a major investment in the infrastructure of older neighborhoods—the streets, schools, water and sewer lines, and so on. Making good use of this investment, instead of leaving it underused and duplicating it elsewhere, is smart growth.
- Reuse of older buildings allows for growth without consumption of land. Revitalizing Main Street means less demand for a new strip mall. Converting a warehouse into 40 dwelling units reduces the demand for new houses on 10 acres of farmland. That's smart growth at its best.

This is an area in which preservationists have lots of experience. We've been fighting sprawl and encouraging smart growth for years—and our message has been heard. More and more cities are using preservation as an effective tool for improving the quality of life in older neighborhoods and allowing older buildings to shelter people instead of pigeons. Creating viable alternatives to sprawl by turning urban backwaters into lively, attractive places to live and work—that's what sustainable development is all about.

PRINCIPLE #3: VALUE THE LESSONS OF HERITAGE BUILDINGS AND COMMUNITIES

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. When the General Services Administration examined its nationwide building inventory in 1999, it found that utility costs for historic buildings were 27 percent less than for more modern buildings. In fact, data from the U.S. Energy Information Agency suggest that buildings constructed before 1920 are actually more energy efficient than those put up between 1920 and 2000.

It's not hard to figure out why. Many older buildings have thick, solid walls, resulting in greater thermal mass (i.e., the capacity to store heat) and reducing the amount of energy needed for heating and cooling. Buildings designed before the widespread use of electricity feature transoms, high ceilings, and big, operable windows for natural light and ventilation, as well as shaded porches, overhanging eaves, and other features to reduce solar gain. Architects and builders used careful siting and landscaping as tools for maximizing sun exposure during the winter months and minimizing it during warmer months.

Most older buildings were constructed so that their individual components—such as windows, for example—can be easily repaired or replaced when necessary. Even more important, unlike their more recent counterparts that celebrate the concept of planned obsolescence, older buildings were generally built to last. Because of their durability and “repairability,” they have almost unlimited “renewability.”

There's also much to be learned from traditional communities that were constructed

before the automobile took over our lives. These places offer a vision for how our cities and towns should function in a post-auto-dependent world. No wonder smart-growth advocates and New Urbanists embrace the principles these communities embody.

In short, we can learn a lot from our heritage buildings and communities, which were constructed with respect for traditional practices that allow man-made places to exist in harmony with the natural environment. In recent decades, with the advent of new materials and technologies, we've lost touch with the building lessons of the past—and that worries me. I'm concerned, for example, that many new buildings employ tech-heavy systems for heating and cooling, when lower-tech, passive systems might work fine. I'm concerned, too, that many new materials and systems may prove to be much less durable than their earlier counterparts.

Don't get me wrong. I'm enormously heartened by the spirit of innovation and enthusiasm that is so evident within the green building community, and I know that what we can learn from history—however useful—won't be enough to solve all of today's problems. But I'm convinced that innovation in the green-building arena must be grounded in the hard-learned design lessons of the past.

PRINCIPLE #4: MAKE USE OF THE ECONOMIC ADVANTAGES OF REUSE, REINVESTMENT, AND RETROFITS

The current economic downturn has everyone scrambling to identify ways to stimulate local economies and create jobs. The situation reminds me of what a British statesman told his colleagues during the darkest days of World War II: "Gentlemen, we are out of money; therefore, we shall have to think."

This is another area in which preservationists can make a meaningful contribution. Over the years, we've discovered some important things related to the economics of reusing buildings and reinvesting in existing communities.

Here's the basic message: Dollar for dollar, rehabilitation creates more jobs than new construction. Several studies and an economic input-output model developed by Carnegie Mellon University demonstrate that preservation activities create more jobs than new construction. For example, one study found that \$1 million invested in the rehabilitation of an existing building creates 9 to 13 more jobs than the same \$1 million invested in new construction. Why? Quite simply, rehabilitation activities are more labor-intensive than new construction—that is, they require more man-hours and fewer materials. This has other implications for our conversation about sustainable development as well. An economy that is more labor-intensive and less materials-intensive is a greener economy.

Here's another point to consider: Much of the work involved in building rehab requires skilled craftsmanship—which means that historic rehab, combined with job training programs, can build a corps of workers with bankable skills that will serve them well for a lifetime.

It's highly likely that the creation of more "green" jobs will be a cornerstone of economic stimulus packages that come down the line in the next few months. Most of these "green" jobs will probably focus on developing things such as solar panels, wind turbines, and other highly technical solutions—but we shouldn't overlook the wisdom of a statement in Van Jones's new



As the first project in United States to receive both LEED Platinum certification and federal historic rehab tax credits, the rehabilitation of the Portland Armory, in Oregon, completed in 2006, showed that preservation and sustainability goals can go hand-in-hand. Photo by Ralph DiNola, Green Building Services, Inc.

book, *The Green Collar Economy*. He suggests that “the main piece of technology in the green economy is a caulk gun.”

In almost every way imaginable, the rehab and retrofit of existing buildings is essential—not only in fighting climate change but also in addressing the economic crisis and bringing good, skilled jobs back to American communities. We need to make sure that Congress and our new president connect these dots. Any meaningful economic stimulus package must include provisions to reinvest in our failing infrastructure and retrofit our buildings.

PRINCIPLE #5: RE-IMAGINE HISTORIC PRESERVATION POLICIES AND PRACTICES AS THEY RELATE TO SUSTAINABILITY

Obviously, this portion of my message is directed primarily at preservation practition-

ers. I mention it to you as evidence that we understand the gravity of the threat of climate change—and we take seriously our responsibility to do whatever we can to reduce the impact of buildings on the environment. In its early years, preservation focused on keeping buildings from being torn down. Now we understand that just saving them isn’t enough—we also have to do our best to improve their energy efficiency and ensure that their impact on the environment isn’t harmful.

Happily, there is a growing number of projects that show how historic buildings can go green. There’s a great example in Portland, Ore., where an armory built in 1892 was turned into a state-of-the-art performance space—and in the process became the first historic building to receive both LEED Platinum certification and federal historic rehab tax credits. I’m especially proud of another

example in Washington, D.C.: Last spring, the National Trust opened President Lincoln's Cottage to the public—and just a few yards away from the Cottage, the Visitors Education Center is housed in a renovated historic building that will be LEED Gold certified.

Examples such as these—and there are many others—show that we're making progress, but this is an area in which preservationists can't pretend to have all the answers. We know that we have much to learn from the green building community about how to be smarter about preserving and reusing historic buildings. We will learn—and we'll put what we learn into action.

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That brings me to my final point:

PRINCIPLE #6: TAKE IMMEDIATE AND DECISIVE ACTION

It's not enough to talk about how historic preservation can inform green building, or how green building practices can be integrated with preservation practices. We must roll up our sleeves and put these principles into practice. Education and outreach will be key to our success—but action, especially in the public policy arena, is critically important.

I'd like to commend the work of the USGBC, which has done a great job of focusing attention, especially in the building community, on the issue of green building.

LEED standards are being adopted by more and more state and local governments—and many of us expect that these standards will eventually be incorporated into municipal and state codes throughout the country.

Over the years, preservationists have expressed some concerns about LEED—specifically, that it is biased toward new construction and doesn't offer enough credit for reuse, and that there is too much focus on individual buildings and not enough on the context—or location—of buildings. To address this concern, the National Trust formed a Sustainable Preservation Coalition which includes the American Institute of Architects, the Association for Preservation Technology, the Environmental Protection Agency, the National Park Service, the General Services Administration, and the National Conference of State Historic Preservation Officers. This group has been working with the USGBC to ensure that the benefits of reusing existing buildings are better recognized in future versions of LEED—and some great progress has been made. Initially, green building standards grew out of some loose ideas about what would make for a more sustainable built environment; with LEED 2009, USGBC is shifting to a rating system that is based on the science of building and the quantifiable impact of buildings on the environment.

As many of you know, LEED 2009 will incorporate a system in which credits are weighted according to Life Cycle Assessment indicators that are based on environmental impacts and take into consideration the durability of materials. The new rating system is also more context-sensitive than the previous version, awarding many more points for constructing or reusing buildings in environmentally responsible locations.

Finally—and this is very important—the new rating system will incorporate what USGBC calls an “alternative compliance path” that we anticipate will award more points for the reuse of existing buildings than was the case with previous versions of LEED.

Once LEED 2009 is finalized, the National Trust and USGBC will begin working on the next version of LEED—which will incorporate even more changes. For one thing, in addition to the durability metric that will already be in place, we’ll apply a new overlay of cultural, social, and preservation metrics that will provide direct recognition of the importance of things such as preserving sites of historic and cultural significance, reinvesting in existing neighborhoods, and providing affordable housing.

These are great steps forward, but there’s more work to be done. The science that informs the USGBC’s standards—and, indeed, all green rating systems—is still evolving. We must ensure that this science is accurate, especially when it comes to understanding the embodied energy and embodied carbon in buildings, and the life cycles of buildings and materials.

On the federal level, we are at a critical juncture for new policies related to climate change and the built environment. President Obama has made it clear that he wants to address the threat of global warming and will make reducing carbon emissions a priority in his new administration. I’m very encouraged by this.

Many of you are familiar with the Lieberman-Warner Cap & Trade bill that Congress failed to pass last summer. In addition to mandating a cap on carbon emissions in the United States, this bill included many other

provisions related to carbon mitigation and the environment—but it would have done little to provide incentives for retrofits to reduce carbon emissions by buildings. That’s a serious oversight that must be corrected in any climate change legislation that comes up during the next session of Congress.

USGBC, the American Institute of Architects, the National Resources Defense Council, and others have begun to develop proposals to address this issue. We need a bill that recognizes that reducing carbon emissions means being smarter about how we construct, use, and re-use our buildings. All of us—green builders, preservationists, architects, smart-growth advocates, and others—all of us must work together to support measures that will make this happen.

WORKING TOWARD OUR SHARED GOAL

I believe there is a powerful synergy between green building and historic preservation. But I also know there have been tensions between our two fields. Some of you may see preservation as a roadblock to going green—and there’s no denying that occasionally there are very real conflicts between preservation and sustainable development goals. Here are some examples:

- We know that part of the solution to global warming is the development of renewable energy such as wind power—but sometimes the development of wind-mill farms threatens viewsheds and sites of cultural significance.
- In many cases, solar technologies can be accommodated in historic rehab projects—but there are other instances in which aesthetics or concerns about historic fabric make their use undesirable.

- Higher density is a key element of sustainable development—but efforts to increase density, especially in urban locations accessible to mass transit, sometimes put historic buildings and neighborhoods at risk.

Situations such as these pit “good guys against good guys”—but we can’t let them cripple our efforts. Be assured that preservationists are committed to reexamining our practices, committed to thinking critically and creatively about how they can be improved to reflect the realities of the climate change crisis.

As an indication of our commitment, we will soon open the National Trust for Historic Preservation Green Lab on the West Coast. The Preservation Green Lab will undertake demonstration projects to retrofit historic buildings to achieve high levels of energy efficiency and reduce other environmental impacts. The Clinton Climate Initiative, which recently announced an Energy Efficiency Building Retrofit Program, is a partner in this effort, having committed to provide technical assistance, materials at cost, and favorable financing through participating lenders.

The Preservation Green Lab will also work with state and local governments to make sure that municipal plans, building and zoning codes, and “climate action plans” incorporate principles that support reuse, reinvestment, and green retrofits. Here’s a specific example: In Seattle, many landmarked buildings are exempt from high-performance energy requirements that are imposed on new construction or major rehabilitation projects. To address this concern, the Green Lab will work in partnership with the City of Seattle to develop code language that encourages energy efficiency in historic

buildings while providing the flexibility needed to deal with historic fabric and other complexities associated with older buildings. This is just one way in which we intend to make our Green Lab a true laboratory for generating creative policy and technical solutions to help integrate preservation and green building practices.

The preservation and green building communities share a common goal: securing a viable, sustainable, meaningful future for our children and the generations that will follow them. We stand on common ground—but to ensure that we don’t lose our footing, two things are needed:

First, a recognition of the importance of balance between the need to preserve our heritage and the need to address global warming and the degradation of our environment;

And second, a commitment to honest, open, and ongoing dialogue to identify points of difference and find ways to overcome them.

In the face of an unprecedented global challenge, we have an opportunity to forge an unprecedented partnership. Working together, we can make a real difference.

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