

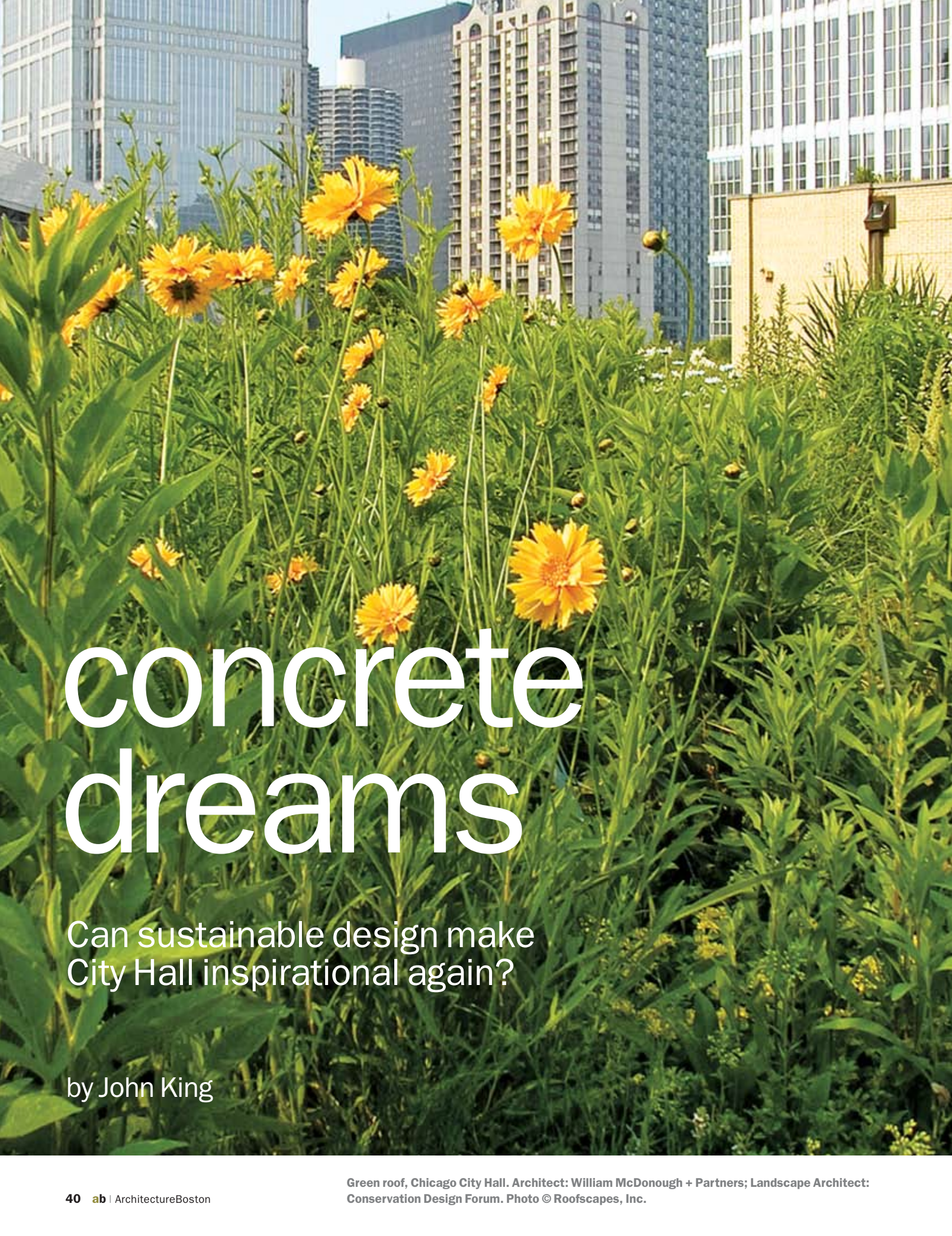


Published by the Boston Society of Architects
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www.architectureboston.com

September/October 2007, Vol. 10 No. 5, “Re-Imagining City Hall”

“Concrete Dreams”

Pages 40–43



concrete dreams

Can sustainable design make
City Hall inspirational again?

by John King

When it opened in 1968, Boston City Hall symbolized the New Boston — an aged metropolis reinventing itself in forceful and unapologetic ways.

Now there's a chance to make the structure the symbol of a cultural shift equally profound. It can symbolize *another* new Boston, a green Boston — becoming a showcase unlike any in the world. A re-imagined City Hall can pay tribute to the city's resilient ingenuity while showing how architectural icons of the past can benefit from today's emphasis on ecological concerns and sustainable design.

To be sure, the sculptural drama of the design by Gerhard Kallmann and Michael McKinnell has worked against Boston City Hall over time. It represents assertive Modern architecture and sweeping urban renewal in the heart of a historic city, conceived and constructed even as those concepts lost favor. Structurally, meanwhile, the thick concrete walls and puzzle-like floorplates have an intricacy that thwarts the building's ability to evolve and change in the way that old masonry warehouses can be reinvented with relative ease.

Yet City Hall's very presence is part of its power; the building rises from the landscape with sculptural force, every bit as commanding as Notre-Dame on the Ile de la Cité. The functions inside underscore this: they are the stuff of democracy and dissent, crass politics and aspirational ideals — high stakes that transcend retail fads or the short-term real estate market.

That fusion of architectural power and civic stature is what makes the potential so vast.

"It would be fabulous if the ultimate lesson in green design could be City Hall," says Jean Carroon, a preservation architect at the Boston firm Goody Clancy and a former member of Mayor Menino's Green Task Force. "It could be such a visible case study for a really creative approach to showing how a building can make less of an impact."

At the very least, Boston City Hall could be a laboratory where the public learns how existing structures can be transformed, re-imagined, by green practices. This isn't a new idea: architect Henry MacLean has been touting it since 1997, when he led a studio at the Wentworth Institute of Technology where faculty and staff found that City Hall — which has suffered from deferred maintenance since the early 1970s — at the time consumed more than twice the energy, on a per-square-foot basis, than would a conventional office tower.

"The building was so avant-garde for its time, and it has such a central location, that we saw the potential for showing how it can play a role in solving the climate crisis," said MacLean. Since then, he has applied for further grants and met with city officials — all to no avail, though at least twice in the past decade there have been announcements of plans to create task forces to "green" City Hall.

Clearly, there's room for exponential improvement. A smart, sustainable upgrade would boost the building's energy efficiency, create a more healthful environment, and conserve resources. Every bit of progress could be measured, charted, and studied as part of an ongoing public demonstration project; new technologies could be incorporated later as they become available. Standard steps to improve air quality could be taken, such as use of low-VOC (volatile organic compounds) carpeting and paints.

The iconographic strength of the building calls out for more: adventurous experimentation, a holistic and even triumphant approach to the concept of sustainability that in the process re-imagines what Boston City Hall can be.

There could be more distinctive gestures as well, such as placing a skylight atop the central atrium as part of a larger retooling of the building's air circulation system. The building could also go the increasingly popular "green roof" route, with a water-conserving landscape.

"The way all the buildings and skyscrapers come around it, City Hall would be such an ideal place to have an extraordinary green roof," says Karen Weber, a green-design consultant whose firm Earth Our Only Home has proposed making City Hall the subject of an international sustainable-design competition.

Another way to create a sustainable roof would be to use it as a solar-energy farm, covering it with solar panels or photovoltaic systems and then sending the energy into Boston's power grid. Even if a solar roof wasn't practical because of the Washington Street towers to the south, photovoltaic panels could be applied to portions of the east and west building façades — surfaces that are flooded with sunlight on clear days, because of Government Center's low-slung urban design.



Mills College Natural Science Building, Oakland, California. Architects: EHDD Architecture in collaboration with Karen Fiene Architects. Sculpture in collaboration with artists Archie Held and Dorothy Lenehan. Image courtesy, EHDD Architecture.

But the way to make City Hall a green showcase isn't *just* to bring the interior systems and materials into the 21st century, or *just* to apply variations of solar panels and green roofs that can be found elsewhere in the city. The iconographic strength of the building calls out for more: adventurous experimentation,

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Imagine, for instance, piping all the water running off the roof and terraces back into use within the building (in fact, some consultants suggest that collecting as much water as possible would have more of an ecological benefit than would a green roof). Now imagine displaying the water's movement and storage. There could be a water tank on the atrium floor; there could be a series of containers attached to atrium walls. More provocatively, the water could travel from roof to tank through clear pipes with artistic detours along the way — so that during rainstorms or as winter snow melts, that journey is on view for all to see.

Outlandish? Not at all. At Mills College in Oakland, California, the architectural firm EHDD has designed a rain-water reuse system for a new laboratory building that captures water in a head box at the parapet and then sends it tumbling down a sculptural wall of small bronze orbs into the water tank. The runoff is filtered in the tank and put to use for toilets and other functions; the architects estimate this should reduce the building's water use by 30 to 40 percent.

City Hall's stocky heft also could support a procession of wind turbines along the edge of the roof. Not the windmill-like contraptions with swirling blades that are lethal to birds, but new-generation turbines featuring corkscrew-like rotors. The technology exists, and prototypes developed by one manufacturer, Aerotecture, have performed well atop buildings in Chicago. Here they could turn ocean winds into energy for a historic seaport; they'd be architectural accents as well, capping City Hall's profile with a line of motion that would catch the eyes of the tourist masses at Faneuil Hall Marketplace.

Architectural purists might argue that this sort of green-tinted retrofit would demean the unadorned Brutalism and emphatic grandeur of Boston City Hall. In a narrow aesthetic sense they might even be right. But if that grandeur is part of the iconic appeal, it's also a reason why so many people loathe the real-world outcome of the 1962 design competition won by Kallmann and McKinnell. They see an imposition that is cold and detached, a structure with no consideration for the workers inside or the historical context nearby. In their eyes, Boston City Hall is foreign and aloof — and therefore unloved.

But a City Hall imbued with the sensibilities of sustainable design could play a different role in the city. It would be an icon softened by today's urgent realization that the global ecology is tied to how our cities live and grow — and that each building plays a constructive or destructive part in how our environment

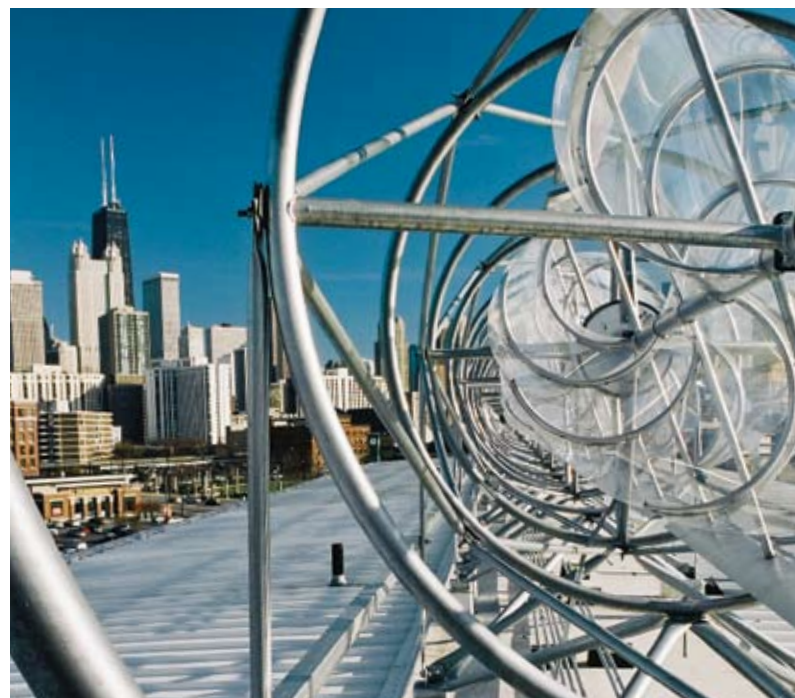
fares in the decades to come. If people saw wind turbines spinning on the roof, or glimpsed a green roof from above, or watched water spill through an atrium retooled to serve as an ecological learning center, they'd be engaged by the building in a way that now seems inconceivable.

There's another green argument for keeping City Hall: the devastation that would come from tearing it down. The energy embodied in the original construction is immense: "My hackneyed rule is, if a building is made out of three-foot-thick concrete, leave it alone," says architect Carl Elefante, co-chair of the Technical Committee on Sustainable Preservation of the Association of Preservation Technology. "So much energy already has been expended to construct it — and knocking that building down would have to consume so much more energy" that all the LEED-sanctioned techniques that might be incorporated into a replacement (such as reusing some of the concrete in the foundation of a new tower on the site) couldn't begin to right the environmental balance sheet.

Ultimately, Boston City Hall won't be saved by guilt trips and legal strategies. We need to turn back the clock to 1962 — when the visceral modernity of this still-startling building showed that Boston was determined to push past decades of decline. The challenges are different now — the threat of global warming has replaced the threat of terminal decay — but the urgency is every bit as strong. In this context, City Hall is uniquely suited for a new role, offering a vision of a future that recasts the city we know in creative, sustainable ways.

Boston City Hall was an inspiration once. It can be an inspiration once again. ■

John King writes on architecture and urban design for *The San Francisco Chronicle*. He spent much of the 1980s inside City Hall as a reporter for several newspapers, including *The Boston Globe*.



Rooftop Aeroturbines, Chicago, Illinois, created by Aerotecture International. Photo by Kurt Holtz, Lucid Dream Productions.

On the Boards: **GREEN PRESERVATION**

By Thomas C. Jester AIA

Two major renewal projects that are currently in the planning and design stages demonstrate the sustainable design potential for Modern buildings. In Washington, DC, the headquarters of the American Institute of Architects, designed by The Architects Collaborative (TAC) and completed in 1973, has been the subject of an extensive renewal and greening study prepared by Quinn Evans | Architects. In Manhattan, a consortium of architects under the preservation leadership of Einhorn Yaffee Prescott (EYP) has undertaken the comprehensive rehabilitation of the United Nations headquarters, designed in 1947 under the direction of Wallace Harrison by a "board of design" including Le Corbusier and Oscar Niemeyer. Both projects are applying historic-preservation best practices to ensure that the upgrades to the buildings will not result in a loss of historic character while reducing their carbon footprints.

At the UN complex, now well into design development, broad efforts are being made to integrate sustainable design into the 2.3 million-square-foot complex. While reduced energy consumption was part of the early planning for the renovation, more advanced sustainability options are now also being explored for the site and building envelope, with support from the new Secretary General.

The recently completed renewal study for the AIA headquarters addressed the AIA's commitment to a 50-percent reduction in fossil-fuel consumption by 2010 and leadership in sustainability. The design team's recommendations, based partially on a three-day "greening charrette," also address a comprehensive renewal of the building that will also preserve its historic character; create a healthier, more collaborative work environment; and provide more efficient use of the space. A key finding of the study was that no single element dominates the energy consumption; a host of modifications will be required to meet the energy-reduction targets. This includes lowering task and ambient lighting to .75 watts per square foot, installation of daylighting sensor controls, lowering plug loads with Energy Star replacements, upgrades to a variety of mechanical systems and controls, introduction of solar hot water, and insertion of photovoltaic arrays and vegetation on the roof. The lobby's structural glazing system was determined to be architecturally significant and will be preserved, but recommendations include replacing the upper-level glazing with a high-performance window system and considering additional sun control with sunscreens or light shelves. Other recommendations include upgrades to the building envelope and a rainwater-harvesting program.

The profession is still learning about the challenges and opportunities in making buildings from this period more livable, affordable, and, ultimately, sustainable. We can be certain, however, that design rigor is as essential as engineering in developing successful sustainable rehabilitation strategies. ■

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