

AUDUBON HOUSE

Building the
Environmentally
Responsible,
Energy-Efficient
Office



National Audubon Society

Croxton Collaborative, Architects

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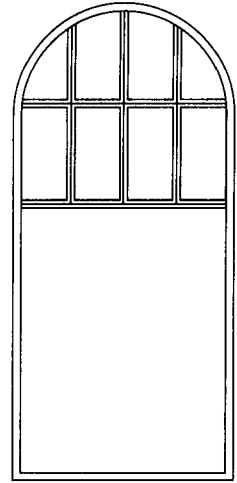
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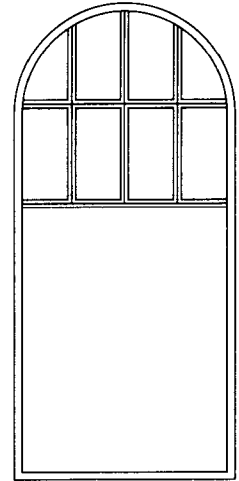
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Foreword

BY PETER A. A. BERLE
President & CEO, National Audubon Society



When the National Audubon Society began its search for a new home in the early days of 1988, we had only a vague notion of what an environmentally responsible office building could be. And we could scarcely imagine the enormous impact that creating such an office would have. In the year since Audubon has occupied its new headquarters at 700 Broadway in lower Manhattan, Audubon House has been featured on network television, in *Time* and *Newsweek*, the *New York Times* and the *New Yorker*, and in nearly every architecture and interior design publication. It has drawn visitors from every corner of the globe, hundreds of whom have toured the building asking perceptive questions. In a very real sense, Audubon House has spurred a new worldwide interest in “green” architecture.

We could not ask for a better outcome. The dedicated work of the team of professionals who saw this project through to completion acquires significance in direct proportion to the number of corporate CEOs, public-sector facility managers, planners, developers, architects, interior designers, and others who take the ideas embod-

ied in Audubon House and incorporate them into their work. While Audubon House itself makes but a small contribution to mitigating the environmental impacts of building, hundreds of thousands of buildings renovated or constructed along the same lines could make an indelible difference in the economy and the environment—saving millions of dollars of energy costs, reducing the need to exploit new sources of energy, recycling valuable natural resources and thus alleviating the growing solid waste crisis, and creating healthy, productive workplaces.

It is particularly in the economic benefits that the redesign of Audubon House stands out. As the CEO of a nonprofit organization, I understand only too well the importance of watching the bottom line. For Audubon, money saved means more money for protecting wildlife, studying and restoring ecosystems, and campaigning for a better environment. So the fact that the renovation of Audubon House could be achieved within a reasonable cost and that its energy-saving design reduces operating costs by nearly \$100,000 a year gives Audubon an enormous “competitive” advantage that is passed directly to our environmental work.

I personally appeal to the CEOs of both profit and nonprofit corporations in America and around the world to consider this competitive advantage when building decisions come up. Figuring the environmental aspects of building into such decisions makes eminent fiscal sense. That is what we have learned from the Audubon experience. Being “green” is also an increasingly compelling way to sell one’s business or services to a public that is ever more concerned about environmental issues. Doing business the environmental way is no longer the wave of the future: It has arrived.

The creation of environmentally responsible offices is a natural expression of the National Audubon Society’s environmental goals and deep environmental commitment. Audubon’s work focuses on the protection and restoration of vital habitats for wildlife and the promotion of sustainable development to ensure a healthy environment for people as well as wildlife. We believe that taking

a broad “ecosystem” approach is essential. This approach aims to preserve the natural world while recognizing that human beings shape and are shaped by it. In ecosystems as diverse as the Florida Everglades, the Pacific Northwest, and the Great Lakes, Audubon has sought to find a balance that preserves the natural biological richness of these systems while taking into account the role of humankind.

Audubon also has a strong commitment to the principle of environmental justice. For too long, the conservation movement has bypassed the concerns of urban communities, the working class, the poor, and people of color. We view the urban environment and its inhabitants as having the same rights to environmental protection as do their suburban and rural counterparts. That is why Audubon’s conscious choice to remain in New York City takes on such significance. We are proud to be a part of this vital urban center at the same time that we are showing that an urban office building can leave a smaller footprint than is typically believed.

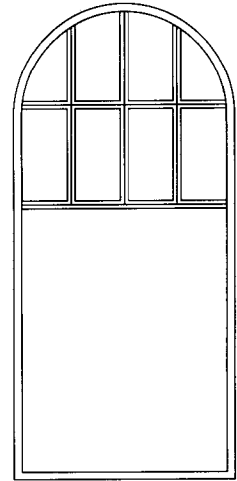
Audubon House takes a big step on the path toward sustainable development. The project team left no stone unturned in looking for ways to “green” the building. Even the choice of wood furniture was carefully considered; we used only rainforest wood that had been grown sustainably, demonstrating the importance of sustainable use of resources. The recycling program at Audubon House illustrates another facet of sustainability—reducing our load on the waste stream and curtailing the waste of resources. What other office building boasts plantings on its rooftop that will feature compost made on-site?

I take enormous satisfaction in coming to work every day in a place that is comfortable and attractive to look at, where the air is fresh and the interior full of natural light. I delight in presiding over a staff that is rejuvenated by their physical workspace instead of repelled by it. And I feel great pride in knowing that Audubon House is truly an environmentally responsible edifice.

Read and enjoy this account of how Audubon House was conceived and executed, and take its message with you wherever you go.

Foreword

RANDOLPH R. CROXTON, AIA
Croxton Collaborative, Architects



Many people have commented that having Audubon as a client must make it relatively easy to sell an “environmental” approach. Their next observation is almost always. “Sure this makes sense for Audubon, but what about a client who doesn’t have the environment as their central mission?”

We always felt that the answer to this question would be central to the long-term success of the project. Building on an approach originated with the Natural Resources Defense Council Headquarters in 1988, we constantly “tested” our decisions against the realities of the marketplace and stayed focused on value for every dollar spent. We knew that at the core of every strong environmental concept, there is an economy: the ability to “do more with less.” However, to address real-world applications, we focused on demonstrated reliability and on market availability for all the basic technologies employed. Other avenues, not requiring ground-breaking technologies, led to the massive improvements in building and environmental performance that you will find described herein.

Our first advantage in this undertaking grows out of

the unbelievably poor level of energy efficiency, comfort, and indoor air quality that characterizes buildings as they are typically designed, constructed, and maintained. We see the symptoms every day in the expanding number of complaints and lawsuits by workers for poor indoor air quality, repetitive stress injury, high glare/high stress lighted environments, and hazardous materials or practices in the workplace. Even more visible are the numerous personal fans and portable heaters people bring to work, expending even more energy trying to overcome the failure of the building to maintain comfort. Building management, as well, is often engaged in an endless attempt to balance the air-conditioning system as the sun's rays bear down on the east, south, and then west faces of the building each day.

A more intangible, but equally powerful failing is the isolation of most of a building's population from any sense of orientation, view to the outside, sense of time of day, change of season, or change of weather. Typical office design seems to approach the workplace as somewhere we "visit," a place where visual interest can be imparted through the design of the interior in isolation from the outside, as might be appropriate for some restaurants or the design of a theater. The workplace, however, is where we "live our lives," or at least the major portion of them. Therefore, there is a fundamental need to be "grounded" in the natural course of sun, weather, and season.

The possibility that design strategies to enhance these "internal" dimensions of the building could be fully integrated with the "external" or global environmental strategies addressing resource conservation, ozone depletion, acid rain, and so on, seemed somewhat remote but very challenging when we started down this road in 1988. We have since articulated these various goals as being the object of a "value-driven" design process: the three dimensions of that value being the sustainable, environmental, and humanistic dimensions.

At this point, six years later, it is clear that measurable, quantifiable improvements in the productive capacity of the atmosphere, water system, basic resources, utility grid, sanitation system, transportation system,

solid waste management system, building mechanical and electrical systems, indoor air quality, lighted environment, and above all, the health, well-being, and productive capacity of people can be implemented through a comprehensive reconsideration of the process of design. Although none of us present Audubon House as an example of perfection, you will see in this case study a framework within which deeper levels of quality, performance, and value can be pursued.

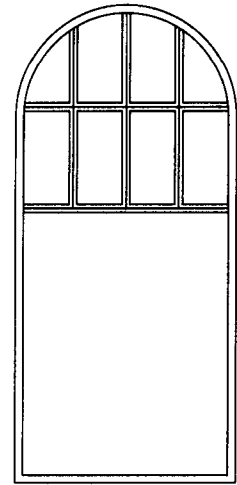
If one word could summarize the approach used on Audubon House, it would be “optimization.” If one word could summarize the lost opportunities in how we typically build, it would be “compliance.” Buildings are increasingly delivered as products: “fast and cheap with a pretty face.” Developers, construction managers, and owners will sometimes brag that their building “meets every code.” In fact, if that is all they do, it is a confession. A more appropriate statement would be: “If I built this building any worse, it would be against the law.”

Within Audubon House there are enhanced levels of energy efficiency, indoor air quality, pollution avoidance, CFC avoidance, solid waste management, water conservation, visual comfort, light quality, thermal comfort, and an enhanced awareness of time of day and season, and of orientation, which are achieved within an overall market rate budget for a building of this type on this site.

In Audubon House a new pattern of priorities in the investment of budget dollars is at work (no marble lobbies, rare wood paneling, or bronze handrails). Money is invested in people—in their comfort and well-being—and the payback will be in greatly enhanced productivity, due to reduced absenteeism and workplace-related illness, and the elimination of the environmental barriers to the task at hand.

Audubon House poses a challenge to our current public policy at the city, state, and national level. Clearly, there are achievable levels of massive enhancement in the way we build and renovate buildings. The question remains: When are we going to redirect the priorities and incentives of public policy to reap these rewards?

Preface



Vision, a term frequently overused, nonetheless may be the single word that best sums up the subject of this book: the remodeling and redesign of a century-old building to become the new headquarters of the National Audubon Society. The vision that guided this undertaking is all about seeing the act of building in a new way—thinking about its ramifications on the environment, looking for alternatives to traditional methodologies, and reconciling those objectives with the practical, business-oriented goal of economy. The result of this vision is Audubon House, a model of energy-efficient and environmentally sound building achieved at a market-rate cost.

The vision for Audubon House did not spring to life fully formed. It evolved gradually from the National Audubon Society's need to relocate to new offices in New York City and from the progressive thinking of its leaders, especially Peter Berle, who saw a singular opportunity to meld this necessity with the environmental mission of the organization. It also developed over the course of many years in the thinking and work of Randolph Croxton and Kirsten Childs, co-directors of Croxton Collaborative, Architects. Before Audubon House was ever conceived, Croxton Collaborative had already established itself among the most forward-looking architectural firms in the world.

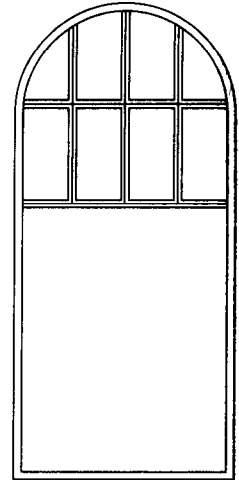
The joining of Audubon and Croxton Collaborative in the inception of Audubon House produced that rare kind of synergy from which new ideas flow. Indeed, the collaborative process is at the very heart of the project, and that teamwork constantly shaped and reshaped the original vision even as work on Audubon House proceeded. More than the physical reality of Audubon House itself, the evolving process behind it constitutes the major purpose of this book. It is hoped that by understanding both the vision and process, the reader will have a framework from which to move toward the ideal of energy-efficient, environmentally sound building design.

Because the Audubon project emphasized teamwork so thoroughly, in this book the key players on this team are generally referred to collectively as the Audubon Team. This is understood to mean not only Audubon staff but also the principal architect and designer and the engineers. In those few instances where one or more people were solely responsible for a decision, that person or persons is identified.

Fittingly, this book was also a team effort, and I would like to extend my appreciation and thanks to all those who participated, including Curtis Johnson, our building manager, as well as to the editors and publisher at John Wiley & Sons who have made this book a reality.

—FB

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The National Audubon Society wishes to acknowledge the following individuals, corporations, and foundations for their generous support of our new headquarters project. By their contributions to the successful Building for an Environmental Future Campaign, these special friends have helped not only to realize a home for Audubon, but also to create a model of environmentally responsible building design. We also wish to thank the more than 15,000 Audubon members whose support of the headquarters project demonstrated their conviction that the buildings we live and work in should and can function in harmony with the natural environment.

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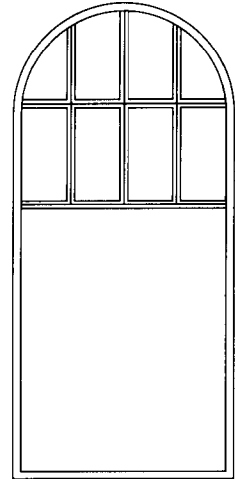
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The Audubon Team: Key Players



Peter A. A. Berle has been president and CEO of the National Audubon Society since 1985. Berle, an attorney, came to Audubon from Berle, Kass, and Case, a law firm he founded in 1971 that focuses primarily on environmental litigation. From 1976 to 1979 Berle was commissioner of the New York State Department of Environmental Conservation. Earlier, he served three terms in the New York State Assembly. Under Berle's leadership, Audubon has organized numerous national campaigns to protect key ecosystems such as the Arctic National Wildlife Refuge, ancient forests, wetlands, the Platte River, and the Everglades, and the society's annual operating budget has grown from \$25 million to more than \$45 million. Berle counts the renovation of Audubon House among his significant accomplishments. A graduate of Harvard University and Harvard Law School, Berle and his wife, Lila, have a working farm in Massachusetts. Berle enjoys cross-country skiing, running, canoeing, hiking, and fly-fishing.

James A. Cunningham is senior vice-president for finance and administration for the National Audubon Society. He has been with Audubon for 14 years. Mr. Cunningham is a certified public accountant in New York State. Working with Julian Studley & Co., Cunningham conducted the

search that led to the “discovery” of the new Audubon headquarters, and he developed and executed the tax-exempt financing plan for the purchase and renovation of the building. Cunningham has a B.B.A. in business from Iona College in New Rochelle, New York, and a diploma in publishing from the New York University School of Continuing Education.

Jan Beyea, Ph.D., chief scientist for the National Audubon Society, was the lead environmental consultant on the project. He played a major role in the design and implementation of the recycling system, studied alternatives for energy systems, and analyzed data on building materials. With Audubon since 1980, Beyea has specialized in energy and solid waste issues. He serves on the EPA’s Recycling Advisory Council and the Coalition of Northeastern Governors’ Source Reduction Council. He is a member of the Energy Engineering Board on the National Research Council and has advised the Department of Energy on numerous energy studies. Beyea earned his doctorate in physics from Columbia University in 1970 and did research on buildings at Princeton University’s Center for Energy and Environmental Studies from 1976 through 1980.

Randolph R. Croxton, AIA (American Institute of Architects), director of Architecture and Planning for Croxton Collaborative, Architects, was the chief architect for Audubon House. As such, he was responsible for coordinating the team of architects, engineering consultants, and lighting designers. He founded Croxton Collaborative in 1978 and is a nationally and internationally recognized leader in the area of environmental and sustainable building design. Besides Audubon, his many clients have included the Natural Resources Defense Council, Home Box Office, and the Riverside South Development Corporation, all in New York, and VeriFone of Costa Mesa, California. Croxton is currently a board member of the American Institute of Architects and chairman of the AIA/ACSA Research Council. He represented the AIA at the 1992 U.N. Conference on Environment and Develop-