seven of them (Breuer I, Breuer II, Robinson, Stae helin, Annunciation Priory, Baldegg, and the façade composite) was Marc Gehde from the Vitra Design Museum’s own workshop. Another four (De Bijenkort, Bregnish Hall, the Whitney, and the Atlanta Library) were made by Remmele’s students at Basel’s Hochschule für Gestaltung und Kunst: Daniel Christen, Valerie Hess, Raphael Hoghammer, and Markus Kammer. The model of St. Francis de Sales was made by Ursula Burla and Oswald Diller, professional model makers in Basel. And the model of St. John’s was made by Dirk von Kolln and Horst Steinem of Universität Dortmund.

8. Other important Breuer exhibitions have included one at the Museum of Modern Art, New York, in 1981, curated by Christopher Wilk, and one at the Bauhaus Archive, Berlin, in 1992.

Eero Saarinen: Shaping the Future
Museum of Finnish Architecture, Helsinki
6 October–12 December 2006
National Museum of Art, Architecture, and Design, Oslo
20 January–18 March 2007
International Centre for Urbanism, Architecture, and Landscape, Brussels
19 April–7 October 2007
Cranbrook Academy of Art, Bloomfield Hills, Michigan
17 November–30 March 2008
National Building Museum, Washington, D.C.
3 May–23 August 2008
Minneapolis Institute of Art and Walker Arts Center, Minneapolis, Minnesota
14 September 2008–4 January 2009

Mildred Lane Kemper Art Museum, Washington University, St. Louis, Missouri
31 January–26 April 2009
Museum of the City of New York, New York
10 October 2009–3 January 2010
Yale University Art Gallery and Yale University School of Architecture, New Haven, Connecticut
13 February–2 May 2010

Eero Saarinen was not only the most successful architect of his day, with more major commissions and victories in competitions than any of his contemporaries, he was also (occasionally) the most maligned and, after his untimely death at 51, the most quickly forgotten. In the 1950s and early 1960s, when his last buildings were being completed, a dozen or more articles were published on his work every year, but by 1968, they had trickled to one, and in 1973, 1974, 1982, and 1986, not a single reference to him appears in the Avery Index.

This informative and entertaining exhibition is part of an attempt to reassess his career, and it comes not a moment too soon, as several of his most important buildings—Bell Laboratories, the American Embassy Office buildings in London and Oslo, the TWA Terminal at Kennedy Airport—are threatened. Fortunately, the show provides a superb introduction to a body of work that ranges from chairs to master plans and from thin glass-walled rectangles—like those at the General Motors (GM) Technical Center, the IBM factory, and Bell Labs—to sculpturesque concrete tours de force—like the Yale Hockey Rink, the TWA Terminal, and Dulles Airport.

The show begins by introducing Saarinen the man (1910–61). In a short, beautifully edited film, the architect himself appears in vintage footage, and colleagues who survived him—Florence “Shu” Knoll Bassett, Ralph Rapson, Vincent Scully, Glen Paulsen, Leonard Parker, Gunnar Birkerts, Balthazar Korab, Cesar Pelli, and Kevin Roche—describe his ambitions and approach. Then he is characterized in artifacts and personal effects—family photographs, a passport, “To Do” lists, student work, travel sketches, and a handsome wrought-iron gate he designed for Cranbrook School before he left for college.

At Cranbrook Saarinen’s first works can be found in context—decorative reliefs at Cranbrook School, chairs and windows at Kingswood School, the master bedroom at his parents house (which is now a museum). Cranbrook was where Saarinen’s father, the well-known Finnish architect Eliel Saarinen, came when the boy was fifteen to design an art academy, schools, and museums. It is where Eero Saarinen returned after graduating from Yale to practice with his father and to teach, and he remained in Bloomfield Hills after his father’s death in 1950 to lead his own firm.

Also at Cranbrook the very different talents of father and son are apparent. Eliel, who studied painting as well as architecture, had a scenic sensibility. Eero was a sculptor at heart. He studied sculpture in Paris before he went to architecture school. These differences, as well as generational ones, show up in a large wood, stone, aluminum, bronze, and plastic model of a scheme for the Smithsonian Art Gallery on the Washington Mall of 1939 for which Eero was the lead architect, though he entered the federal competition for it with his father, brother-in-law Robert Swanson, Charles Eames, and Rapson. It contrasts tellingly with Eliel’s flat-roofed, symmetrical Cranbrook Art Museum of around the same time where it is displayed. Eliel’s beautifully proportioned and detailed museum has more traditional grandeur and delicate, spare ornament. The Smithsonian design, while refined, shows influence of the International Style. It is asymmetrical, unadorned, and more visibly thin-skinned. Perhaps for that reason, it was never built in a conservative place like our nation’s capital.

Because of his sculptural propensity, Saarinen used models to design more extensively than perhaps any other architect. Working for GM, he learned to use
full-scale models the way they do in the automobile industry. Although the show contains relatively few models and only a smattering of original drawings, curator Donald Albrecht describes what Saarinen did and how he did it in oversized photographs, reproduced sketches, furniture (which shows his feeling for three-dimensions and color), and black-box animations of various kinds. A linear digital one analyzes the geometry of the Massachusetts Institute of Technology (MIT) Chapel, Auditorium, and the historic domed buildings nearby. A colorful romantic period film made for Chevrolet celebrates the GM Technical Center. A recent digital animation describes Deere & Company’s exposed Cor-ten steel structure and exterior sunscreens. An NBC movie about the TWA Terminal expands the coverage on the Today Show the day it opened. Black boxes also show a series of Saarinen’s façade studies for the North Christian Church in Columbus, Indiana. Although there are some wonderful color photographs, most are black and white, as most photographs were in Saarinen’s time. Despite the period feel, some of the projects, especially North Christian Church and the Morse and Stiles colleges at Yale, would be understood better in color, because color is so engrained in their character. These “new” Yale colleges relate to the older ones largely through their coloration.

North Christian Church, however, comes alive in the black box. Showing a number of Saarinen’s sketches in sequence describes his way of working, which was very much a matter of trial and error. It involved hundreds and hundreds of trials, quite unlike that of his father who envisioned a scheme from the beginning and drew in detail at the outset what would eventually be built.

There is something more modern, scientific even, about Saarinen’s approach. It is also more vigorous, passionate, and daring—a sensibility that was almost perfectly tuned to the years after World War II when he did his most important work. The types of projects he undertook epitomize the time too—furniture for daring new buildings, campuses for the burgeoning college population, suburban corporate compounds for the institutions that were literally changing the world (GM, IBM, Bell Laboratories). For every one he developed new materials—replaceable sandwich-panel walls for GM, thinner ones for an IBM factory, mirrored glass for Bell Labs, Cor-ten steel for the Deere & Company headquarters. He also built an unusual faceted skyscraper for CBS, the Repertory Theater at Lincoln Center, American Embassy Office buildings in London and Oslo, airports (TWA, Dulles, and Athens), and the St. Louis Gateway Arch, which may be the most potent symbol of his era.

The Arch and the airports, which were his crowning achievements, provide the show’s grand finale in a gallery where cuts from Charles Guggenheim’s 1968 film, Monument to the Dream, are projected on the entrance wall and its optimistic sound track resounds. The Arch launched Saarinen’s independent career when he won a 1947–48 competition that his father—and just about every other architect of note—had also entered. Large models of the Arch, TWA Terminal, and Dulles Airport help explain these buildings’ complex forms. Photographs portray the full-scale design model for the TWA Terminal. Huge reproductions of the elaborate construction documents and oversized construction shots by Abba Tor, the engineer on the job from Ammann & Whitney, explain how it was realized before computer-aided design.

Although they too have soaring streamlined concrete beams, Dulles Airport outside Washington, D.C., the first jetport, and an airport Saarinen designed in Athens, Greece, which is no longer in use, both appear as expressive modernistic versions of classical works of architecture suited to their locales.

This exhibition helps destroy the postmodern myth that modern architects had no interest in history or respect for the architectural context. Drawings here prove that Saarinen was not only interested in the past but learned a great deal from it. A series of sketches he made for Florence Schust, when she was visiting...
his parents’ home in Finland as a girl, show that he could conjure up images of historic buildings from memory. Unfortunately, they are mislabeled “Sketches of Roman architecture from letter to Florence Schust (later Florence Knoll Bassett), ca. 1935,” which implies that they were travel sketches done on site. But Bassett told this writer that Saarinen created the drawings on the spot to teach her the history of architecture because he felt she needed to know it. This is a case where the use of reproductions veils the intent, for the original has only a single crease made when the drawings were put in a folder, not a series of folds as a letter inserted in an envelope would.

Because of the duration of the show, institutions were reluctant to lend original drawings, and insurance was costly. The contents will change slightly from venue to venue. But given the resources at hand, Albrecht has done a superb job. The show complements its catalog, which derives from a symposium held at Yale in 2005. The catalog, which received the Philip Johnson Award from SAH in 2008, contains a series of essays on various aspects of Saarinen’s career, but it does not provide an introductory survey of Saarinen’s work. Clearly, the show itself was intended to do that. The catalog does have a biographical chronology at the end and, in the middle, a valuable list of the 104 Saarinen projects known to exist since Kevin Roche donated the Eero Saarinen and Associates firm archive to Yale in 2003. Most, but not all, are illustrated. The gift of the firm’s working drawings, with all the tubes labeled noting the dates the projects began, has been particularly useful for redating the projects. It also helped expand the list of known unbuilt projects.

For many years, rumor maintained that it was impossible to do research on Saarinen because the archive was not available. In fact, the Yale University Library already had substantial Eero Saarinen Papers that had been donated by the architect’s widow, and there were very significant resources in the Cranbrook Archives as well as at the Archives of American Art, MIT, Brandeis, and other institutions where Saarinen worked. And all the buildings were published, most many times.

The reason little attention was paid to Saarinen was that he was not around to evolve, while Louis Kahn was, and Kahn’s quiet, rather mysterious buildings struck a chord in the anxious late 1960s and 1970s in a way Saarinen’s zealous ones of the 1950s did not. In the 1990s, when another optimistic, technologically adventurous era appeared, interest in Saarinen’s work resurfaced, partly because it seemed to prophecy that of Frank Gehry and other architects in the news, and partly because it was attuned to the times again. Saarinen’s furniture became popular once more. Monographs began to appear, and the Museum of Finnish Architecture started planning this exhibition with the Finnish Cultural Institute in New York. Roche’s gift encouraged the Yale School of Architecture to join the effort, and the National Building Museum became a sponsor. Yale assistant professor Eeva-Liisa Pelkonen headed the research team and coedited the exhibition’s massive catalog with Albrecht, who was hired as curator. Yale students produced the animations he used to describe the buildings at MIT and for John Deere.

This exhibition, which presents Saarinen’s impressive oeuvre clearly, entertainingly, and accurately, will no doubt stimulate further study, encourage architects to work a little harder and take a few more risks, and provide a much fuller picture of architecture in the mid-twentieth century. Hopefully, it will help preserve the threatened buildings as well.

JAYNE MERKEL
New York City

Related Publication
Note

Sorry, Out of Gas
Canadian Centre for Architecture, Montreal
7 November 2007–20 April 2008

In the autumn of 1973, in connection with the so-called October War between the Arabs and Israelis, the Organization of Petroleum Exporting Countries drastically increased (eventually quadrupled) oil prices, cut production, and imposed embargoes on countries aiding Israel. These measures produced what came to be known as the Oil Crisis, among whose outcomes was that service stations ran out of gasoline, hence the title of this exhibition. The subtitle of the exhibition catalog is Architecture’s Response to the 1973 Oil Crisis. The response referred to is not the double glazing and R-20 insulation that became the standard for North American housing, but a neglected episode in American building: the technological exploits of the youth counterculture of the 1960s. Part polemic and part nuts-and-bolts invention, this movement (if that is not too grand a word) was variously referred to as alternative technology, radical technology, low-impact technology, or soft technology. The Canadian Centre for Architecture (CCA) exhibition documents this small piece of history with a large quantity of mostly ephemeral material, such as book jackets, pamphlets, television film footage, and taped interviews. As far as I know, this is the first time that the subject has been formally exhibited in a museum and in such a comprehensive manner.

In truth, very few of the leading figures of the alternative technology movement were architects. Alternative technology attracted mostly engineers, scientists, and self-taught inventor-tinkerers; architects were more likely to be interested in Louis I. Kahn and Philip Johnson, or in the Postmodernism of Robert Venturi and Charles Moore. But buildings were definitely at the center of alternative technology. Paramount among its obsessions was the solar house, that is, a house heated entirely by the energy of the sun. Research in solar heating goes back to 1939, when the first in a series of test houses was built at the Massachusetts Institute of Technology. Further solar prototypes appeared in the postwar years, mostly in Arizona and Colorado, parts of which have cold winters with many cloudless, sunny days. These experimental structures incorporated large south-facing, glass-covered, solar collector panels through which water was circulated. Since these panels were tilted to the sun, they produced a characteristic “wedge-of-cheese” shape.

The solar houses of the late 1960s were different. In 1967, a French scientist, Félix Trombe, invented a simple solar heating device using a thick, glazed south-facing concrete wall. During the day, the glazing trapped the sun’s rays and the wall (usually painted a dark color) heated up; at night the back of the wall radiated the heat into the house. Since this simple technology did not require pumps or fans, it was called a passive system. Steve Baer, an American engineer, produced an ingenious version in 1971, using water-filled oil drums instead of concrete, and large insulated shutters. In the winter, the shutters were opened during the day, the water heated up, and at night the shutters were closed and heat radiated into the house; during the summer, the process was reversed. Douglas Kelbaugh built a more conventional Trombe-wall house in Princeton, New Jersey, in 1975. A much earlier passive system (not in the CCA show) was designed by the inventor Harold Hay in Phoenix in 1967. Hay used a rooftop water pond covered by sliding insulated panels to trap the heat at night, which produced a similar result, except via a radiant ceiling. During the summer, the panels were open at night and the water, which had absorbed the heat of the house during the day, radiated heat into the sky.

Another alternative technology favorite was the autonomous house: a self-sufficient dwelling that was not simply heated by the sun, but also recycled water and waste, and produced its own energy and food. Autonomous houses also sometimes included methane digesters, greenhouses, solar water heaters, and wind machines. The motivation was a combination of resource conservation and antiestablishment “getting off the grid” sentiment. The CCA show includes a number of interesting examples: McGill University’s Ecol Operation in Montreal (with which this reviewer was associated); the Integrated Life Support System (ILS) Labs in Tijeras, New Mexico; the Farallon Institute’s Integral Urban House in Berkeley; the New Alchemy Institute’s Ark in Prince Edward Island; and the University of Minnesota’s Ouroboros Project. Notable about these projects is that they were largely individual efforts, produced on a shoestring budget.

Exhibitions on architecture are hampered by the absence of the central artifacts—the buildings themselves—and this exhibition is no exception. There are so many photographs, posters, diagrams, self-help pamphlets, and book jackets that one comes away with the false impression that alternative technology was a publishing movement rather than a hands-on, do-it-yourself project. Yet, the archival material collected here will prove invaluable to future researchers. Although Canadian and European examples are included, the material is chiefly American, which is as it should be, since the alternative technology episode followed in the tradition of the Wright brothers and Thomas Edison, not to mention Rube Goldberg, although the latter quality of alternative technology is not evident in the CCA show.

There are clearly parallels between the 1960s and 1970s fascination with solar energy, composting toilets, and wind machines, and present-day con-