*from* The Second Forbes Lecture "Nathaniel Saltonstall and America's First Solar Movement," presented by Kim David Markert, AIA, at Historic New England, May 6, 2009

In postwar America, Nathaniel Saltonstall (1903-68) had a reputation as a motel architect. From our perspective, the motel represents a low, a fatal American fascination with the automobile. From the perspective of the early modernists, the automobile represented the triumph of the machine, the triumph of velocity. Modernists considered motels a legitimate, standard, architectural type. The "motor hotel" joined houses as bread and butter work for Nathaniel Saltonstall and his business partner Oliver Morton.

At MIT, Saltonstall received a Beaux-Arts education with an intensive study of historical precedents. The Beaux-Arts tradition taught that symmetry and massing were more important than the functional and spatial experiences of a building. By the early thirties, Nat Saltonstall was practicing with Putnam & Cox, known for its Georgian classical buildings, but during the Great Depression the firm began to design in the Art Deco style. Through his association with MoMA and from frequent travels abroad, Nat was exposed to the lessons of modernism.

His synthesis of these strands of influence can be seen in the Medfield house he designed for himself in 1937, a year before the Gropius House. Saltonstall acknowledges modernism in this building but still understands it through the eyes of his Beaux-Arts training and the Art Deco architecture of the 1930's.

In 1949, Saltonstall opened the Mayo Hill Colony Club on Cape Cod, his ensemble of private cottages created as a center for wealthy art patrons. The Colony is one of Saltonstall & Morton's more strictly European Bauhaus projects and their most influential work. The Colony marks a short period in the forties when Saltonstall was trying to adhere more strictly to the teachings of modernism, naturally, since he was building for himself and a set of chosen friends. It is fitting that the cottages resemble closely the Country House for a Bachelor (1931) by Mies van der Rohe, for Nat was Boston's designing bachelor. Many aspects of these cottages inform us about Saltonstall's interests at the time in passive solar design.

The principles of passive solar architecture are simple. Create large double-paned windows, "the picture window," to capture the radiation of the sun. Direct sunlight is absorbed and reradiated as heat energy within the room: the "greenhouse effect." Architectural features, such as overhangs, can be constructed to block more direct sunlight during summer and the depth of a shading device can be calculated to allow sunlight in during the winter when the sun is at a lower angle. Concrete walls and slabs have high thermal storage capacity and can cool or warm. One of the hallmarks of modernist architecture is the use of light to define space and volume. As Corbusier said: "Space and light and order. Those are the things that men need just as much as they need bread or a place to sleep." Solar heating strategies are the next logical step.

Saltonstall constructed several solar prototypes in the forties. The first house was linear in plan; regularly occupied spaces—living room, dining room, bedrooms—were placed on the south side. Fixed floor-to-ceiling glass took advantage of southerly views and sunlight. This "functional dwelling" was simple with a flat roof and four-foot deep overhangs on the south elevation. From a length of thirty feet of glass, you could look out over a deep, open yard and terrace. A concrete floor functioned to cool the house in summer. This small house was entered on the utilitarian, service side that faced the street. Direct sunlight was in the backyard. Form follows function.

The estimate for this first prototype exceeded Veterans Administration price guidelines. In the process,

Saltonstall and his cohorts ran afoul of Federal and local policy and were thrust into the confusion of the main economic and domestic problem of postwar America: the housing crisis. These guidelines encouraged the frantic construction of “package suburbs” with units that could fall within the VA cost restrictions. Unfortunately, simple, small houses are vulnerable to demolition or radical modifications. All of Saltonstall's prototypes have been demolished.

Since the first prototype would be too expensive, the partners turned to industrial technologies. Saltonstall was not alone among modernist architects to employ prefabrication. The most articulate champion of the single industrial house was Carl Koch whose popular book At Home with Tomorrow was published in 1958. The book summarized Koch's experiences with factory built housing after World War II. His most familiar projects were the Acorn House and the Conantum projects in Boston's western suburbs. Koch argued that “nature is not afraid of repetition.” Walter Gropius urged his students to “learn how to compose beautiful buildings” from industrialized parts, a notion that influenced a generation of architects. Modernists embraced the machine.

The prefabricated house met VA price guidelines but local building officials objected to the technology. Prefabricated panels did not allow for the customary inspections. The officials were also bowing to considerable neighborhood opposition to the size and style of the prefabricated houses.

A second prototype was rolled out after the debacle with prefabrication. The building footprint was more compact, an economic move since every turn in a foundation requires custom fitted forms, and some regularly occupied spaces—a bedroom and a dining area—lacked exposure to the south for solar heat gain. A full basement was added; the floor was framed in wood, not concrete. The siting of the house was again strategic. A large lot was provided for the appropriate relationship to the sun and to allow for privacy. Modernist architects also believed in creating economic, multifunctional spaces. As standards for housing have changed over the decades and as houses have grown larger, these small, efficient houses have become vulnerable to remodeling, expansion or tear down, especially when built on large lots.

Few of the planned solar houses were ever constructed. Compared to the great postwar “merchant builders”–developers such as Ed Eichler and Bill Levitt–Saltonstall's projects lacked the economies of scale that would have made development profitable. Bill Levitt turned out three to five thousand units per year in the 1950's. Federal restrictions on the size, cost and even the design of the houses limited Saltonstall's freedom, and housing companies that tried to use prefabricated panels were stymied by local jurisdictions. American designers have never truly accepted the potential of prefabrication and American consumers have never felt comfortable with industrialized building and associate it with trailer courts and derelict living. Postwar America also failed to articulate clear goals for providing housing in whatever form, public or private. Such ambiguities persist in our own time and often to disastrous results. America's first solar energy movement was not intended to be a “green” movement. Current thinking encourages density of development, not the wasteful dispersion of housing through suburban developments. The interests of America's first solar movement were economic and capitalistic without any comprehensive demand for social or personal change. The history of this early movement, however, does illustrate how economic incentives can drive environmental sustainability.

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