

Sekisui Heim M1: Its Place in Modern Architecture

Sekisui Heim M1 epitomizes the international modern movement's search for a detached house made in a factory. When it appeared in the Japanese market in 1970, the first of a line of "box-unit" detached house types, it marked the first sustained, commercial success of an architectural dream already many decades old at that time — the mass-produced house. That this development happened in Japan is significant and should be more fully studied.

Modernism has not been particularly successful in regards to harnessing the power of factory production to housing. Its one signal accomplishment is the production of the mass housing that came into being in Europe after WWII, characterized by uniform floor plans and large concrete panels produced in factories. However, this stock of so-called "industrialized" building is now widely seen as a one of the key disasters of the modern movement.

Prior to and during the same period of the M1's evolution, we find the work of others, in Japan, North America and Europe, who followed the dream of factory production of housing. Notable among them are Kurokawa, Kikutake and others in the Metabolist Group. Other large Japanese companies, such as National, experimented with the "box-unit" in multi-family applications. In Europe, Yona Friedman and the Archigram group also developed schemes of large housing developments in which the individual dwelling could be both individualized and industrially produced. Safdie's Habitat in Montreal was one of the only such buildings to be realized and, while being celebrated for its unique architecture, it is now understood to be quite the opposite of industrialized housing. In the USA, the Lustron House failed to become a commercial success in the detached house market. Operation Breakthrough, the large US government initiative of the late 60's and early 70's, failed to realize the dreams of its supporters, but did set in motion the US equivalent of the "box-unit" — the HUD Code "Manufactured House", now delivering nearly 20% of total detached house starts in the US using standard 2x4 construction. Prior to any of these, Gropius and Wachsman's General Panel House experiment pursued the idea of totally integrated factory made houses with ideological fervor. None — except the misnamed "manufactured house" in the US — succeeded beyond a prototype or a few hundred units.

The European model for industrialization emphasized uniformity, concrete panels and centralized control as a means to produce multi-unit buildings. Japanese manufacturing know-how, developed in response to the demand for steel during Korean War, was able to harness light gauge steel frame construction to produce a large variety of parts at relatively small volumes of production (compared to electronics and automobiles) for the production of detached houses.

Sekisui Heim and its architects — chiefly Katsuhiko Ohno — realized that the Japanese market of homebuyers, familiar with the systemic and individualized way of building traditional houses, would not accept uniformity. Unlike their contemporaries in Europe and North America, Sekisui's architects decided to work with this consumer demand. They further recognized the fundamental shift in Japanese social structure and the resultant decline in skilled workers, thus accelerating the movement of production into the factory. And, true to Modernism's design principles, the M1 expresses the Cartesian aesthetic of clearly articulated joints, technical precision and the flat roof. The decision to use the "box-unit" was part of this attachment to Modernism. This clearly represented a break from traditional Japanese houses but a sufficiently large market was created by powerful marketing to accept this international style as part of the general trend toward westernization.

In what can now be recognized as a revolutionary development, the M1 type was designed to respect and capitalize on the design role of the individual user. Unlike other building systems developments in which architects played a major role, this development broke with the ideology of centralized control and accepted user control while also harnessing industrial production. The result was a technically sophisticated kit of parts, taking the form of the now ubiquitous "box-unit" house, that, when linked to equally sophisticated production processes, marketing and service, succeeded in Japan where it had failed to take root anywhere else in the world.

Today this is called "mass-customization". In this sense, Sekisui Heim's M1 was a pioneering development that was able to take root along with a number of other shifts in Japanese society. The relationship of large corporations to the individual consumer is part of the success story of the M1 and its lineage of houses, a story that may not be replicable outside Japan.

The next step in the evolution of the factory-made “box-unit” may well be a further “disentangling” of the box itself from the subsystems that make such boxes habitable — the pipes, wires, ducts and equipment that go inside the boxes. The distinction of “life-cycle” of subsystems, first pioneered in Japan in the Century Housing System and now being developed further in S/I housing, may prove to add value to the basic premise of the M1 approach. It may be that the next generation of the M1 will implement the S/I distinction, thus bringing it into line with the “stock-maintenance” philosophy taking root in Japan.

In closing, remarkably little has been written in English about Sekisui Heim’s M1, Japanese factory-produced detached housing, or S/I housing. This unfortunate circumstance makes efforts to draw lessons from and to compare these developments with other housing in the era of the modern movement all the more difficult.

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Stephen Kendall joined Ball State University in 1999 as Director of the Building Futures Institute (www.bsu.edu/bfi) and as a faculty member in the Department of Architecture. He has a professional degree in architecture from the University of Cincinnati, a Masters of Architecture and Urban Design from Washington University in St. Louis, and a PhD in Design Theory and Methods in Architecture from the Massachusetts Institute of Technology. Before entering academia, Dr. Kendall was an architect in professional practice.

He has published more than 30 articles and papers, has lectured in the US and abroad, and is co-author of a book titled RESIDENTIAL OPEN BUILDING (Spon, 1999). He is the joint coordinator of an international commission (CIB W104) focused on research and implementation of open building. Those studying open building see the built environment as a man-made artifact under constant change, and advocate the development of theories and methods to manage the resulting technical and organization complexity. Among the subjects of study include distributed design, consumer choice, disentangled systems, supply chain logistics and construction processes supportive of adaptable buildings.

Dr. Kendall is a design educator and scholar whose work in design methods seeks to bridge the often-noted gap between the qualitative insights of “reflective practitioners” and the more empirical findings of the science-based research traditions that focus on the built environment. He studies methods for designing and building adaptable, user oriented buildings characterized by high levels of “churn” and consumer-sensitive demand. Recently this work has broadened and includes the application of open building principles to both the design and construction of residential architecture and medical facilities.