The Three Stages Of Open Building Implementation

During the past few decades, what is formally known as Open Building has progressed through several stages. A substantial literature now exists chronicling these developments in the English, Dutch, Japanese, Chinese, French, German, Spanish and Finnish languages.

Open Building constitutes a set of principles and practices drawn from the recognition that human habitation – and built environment more generally - has always and will continue to sustain itself by gradual but constant change. Taking account of new technical and organizational forces at work in contemporary built fields, Open Building offers a number of tools for practitioners to use in guiding the built environment's continued transformation.

For millennia, built environment has come into existence as a largely local phenomenon, supported by shared patterns, types and ways of building, whose gradual transformation to meet cultural aspirations has been complemented by individuals and organizations taking action and responsibility in their private territories. This balance changed in the upheavals of the early 20th century. With the advent of modernism and functionalism, increasing and comprehensive control came to be exercised by large corporations and central governments over the production of built environment, and the vital role of the individual inhabitant and small-scale user was undermined or thwarted in too many cases; in other cases, the opposite took place, leaving those without control to cope with built environment disruption on their own without institutional support.

Ordinary environment resulting from these imbalances were, all too frequently rigid and unsustainable, or else chaotic and difficult to sustain. Everyday citizens began to loose respect for the large and anonymous housing projects built by central governments in which they had no responsibility but were forced to live. Or, in even more places, everyday processes of making habitat were entirely bottom-up, with little or no support from governing institutions. Social and built-environment distress and dis-function were often the result. The excessive cost of maintaining and upgrading the large institutionalized housing estates – to meet newly improved living standards and new demographics – caused financial pressures too large to manage. In still other countries, inhabitants started to move out of the rigid buildings, to live in housing where they could exercise control over their direct material world. This caused housing corporations to loose money, and at the same time to search for answers. In contrast, built environment driven by commercial interests (office and retail developments) seemed to largely avoid the rigidities that characterized centrally controlled residential development.

It is now widely recognized that these pathologies did not have their roots in technique or technology, but arose from either excessive centralization of control accompanied by the elimination of the individual inhabitant from the housing process, or, alternately, the lack of higher-level institutional support for individual initiative.

Gradually, in different places, largely autonomous responses to the negative impacts of these imbalances have been taking form, for various reasons, especially in the housing arena but more generally in large projects subject to change over time. Open Building is part of that continuing story, and its evolution and positive lessons are outlined in these notes.

Initially, what is now called Open Building constituted of a set of speculative principles and aspirations that led to research, followed by a number of built projects. In the second stage, open building began to be initiated by clients – certainly in office and retail markets where this practice has long been conventional and unremarkable – but increasingly in housing and healthcare facilities. In the third stage, open building came to be public policy. During all these stages, research (in academia, government and industry) and teaching has continued on a wide range of open building issues – including design methods, finance, building technology, and user engagement.

First Stage: During the exploratory years, studies were undertaken and projects initiated to demonstrate and try out a new practice for residential construction

Of several hundred early exploratory projects, the first significant project on record was the 'Molenvliet' project (1974) in Papendrecht, the Netherlands, by architect Frans van der Werf. It features a four-story base building principle that is deployed as a continuous structure on an urban scale, forming streets and courtyards. The users could select the location and size of their subsidized rental units and also could decide on the fit-out of their dwelling units individually as well as parts of the façade of each dwelling. It is still attracting visitors from abroad. Other projects in Japan, Austria, France, Switzerland, the US and Mexico were built during this initial stage.

Also during this stage, studies were made and important experimental projects undertaken to address the problem of reactivation of the existing building stock. These developments took place in Japan and the Netherlands, among other countries.

The apotheosis of the first stage is the internationally famous NEXT21 project in Osaka, Japan. Initiated by the Osaka Gas Company in 1994, it remains an ongoing investigation in energy systems, fit-out, technical adaptation and new ways of urban living. It was designed by a team under the leadership of Professor Yositika Utida, who called the project 'three dimensional urban design' and who, consistent with that idea, invited thirteen different design offices to do the fit-out of the dwellings.

Second Stage: The commercial stage in which the OB approach is demanded by developers and clients for economic and marketing reasons

The path-breaking project in this stage resulted from a competition organized by the city of Helsinki, Finland in 2005. Architect Esko Kahri submitted the winning scheme, in cooperation with Tocoman, a data management company. This team pioneered the managerial and logistical aspects of open building for a for-sale project (Arabianranta) where all units were designed in close collaboration with would-be buyers. The Sato Development Company executed the project. When all units, different in size and fit-out were bought and finished within the budget and on time, Sato offered Kahri a contract for yearly implementation for this approach. Other Finnish architects are doing client-driven and award-winning open building projects as well.

Haseko Development Company in Japan is one of several companies building "skeleton-infill" projects for both the rental and for-sale markets and is conducting research with business partners into new technical solutions for infill systems.

The two path breaking SOLIDS projects have been built in Amsterdam West (designed by Tony Fretton from the UK) and IJburg (designed by the Austrian firm Baumschlager Eberle). Initiated by Frank Bijdendijk as director of the housing corporation Stadgenoot, they are based on the potential of open building for long-term investment with a base building that will last at least a century.

Also taking place in this stage is an ongoing investigation by the US Government Defense Health Agency to change its methods for acquiring and managing the hundreds of hospitals it runs across the world, from rigid functionalism to adaptation and sustainability over time. Stephen Kendall, coordinator of the OB network from 1996 to 2015 is a principal investigator in the consulting research team working out proposals for implementation.

Third Stage: The institutional stage in which the OB approach is translated into formal policies. Giorgio Macchi, director of the Canton Bern Office of Properties and Buildings in Switzerland, which acts as client for all public buildings in the Canton Bern, decided already in the mid '90's to require a distinction of three 'systems' with use-life expectancy of respectively 50, 20, and 5 years - corresponding with base-building, fit-out, and equipment. The INO project at the Inselspital Medical campus in Bern was the first full implementation of this approach. First a competition was called for the base building design without giving a detailed functional program. When the winning scheme was under construction a second competition was held for the fit-out. Later, a third selection was made for the medical equipment. The building has been in use for several years, but in the meantime Macchi had formalized this "System Separation" approach and re-organized the Canton Bern Office of Properties and Buildings to acquire all the buildings under its supervision in the same manner. More than twenty buildings have been acquired this way.

In December 2009 the Japanese national legislature approved the "Long Life Housing Law." It offers incentives for residential construction that can function up to two centuries. The law comes with technical guidelines that define the many sub-systems a building is made of, and seeks to achieve a building stock in which replacement of those subsystems that need to be replaced - for wear-and- tear or to serve user's preferences – can be accomplished with minimum disturbance of other sub-systems. A number of specific technical design suggestions are offered. The owner of a house or dwelling unit that conforms to the law's requirements gets a substantial tax break. By now many thousands of units have been built using this incentive. Initially most applications came from companies building single-family homes, but by now the large building companies have adjusted to the law and are building many multi-family buildings following the new law.

In Tokyo, more than ten companies, some allied with real-estate companies, now offer one-unit-at-a-time residential fit-out in the renovation of existing residential buildings, on time, quietly and on budget.

Recently, the South Korean government has initiated phase-two of a Long-Life Housing research program based in part on Japanese experience. In China, a number of experimental projects have been realized in the last decade. A major governmental agency has now built a half-dozen so-called "Skeleton-Infill" projects modeled on Japanese and international know-how, and is now laying the ground-work for an "infill" industry in China. Several advanced "interior decoration" companies have emerged, one of which has already developed a sophisticated manufacturing and logistics strategy and has delivered more than 30,000 residential infill units. It is now branching into infill for hospitals. Dozens of "free-plan" apartment buildings have been and continue to be realized in Russia, initiated by developers to meet a new market demand. Centers of research in Latin America and South Africa are working to shift government and investor policies toward open building

It is clear that open building implementation is occurring around the world, very often using other terminology and being undertaken by investors and architects who had no idea of similar developments elsewhere. Making an adaptive building stock - balancing permanence and change, and distinguishing what is shared and what is to be individually decided – increasingly seems the pragmatic thing to do.

What sprang up in many places as autonomous responses to real problems of excessive rigidity and uniformity led to theory – that is, an effort to explain what is happening in the real world. These theoretical writings led in turn to practical work, in the best cases backed-up by clear and transferrable methods. But much remains to be investigated and worked-out in practice. Additional design and management tools, and new financing and regulatory measures are needed. New technical solutions are ready to be applied and more will be brought to market as demand solidifies.

These largely unreported but important international developments in the field – whether called open building or not - require continual monitoring and analysis, to test the explanatory theories and to develop better ways of working in support of a humane, open and capacious built environment.

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(Written on the suggestion of John Habraken)