Manufactured houses are assembled in a factory and transported to the building site, either as modules (sectional homes) or as complete houses (mobile homes). It has been estimated that manufactured housing accounts for a third of all single-family residences built in the United States today. The other two-thirds are built on-site, but they, too, are industrial products—individual components made in factories are nailed, screwed, bolted, stapled, or glued together. Lumber is precut, entire walls are delivered as panels, roof structures come as prefab trusses, doors and windows arrive complete with frames, even fireplaces are factory-made. Prefabrication—partial or total—is central to the modern housing industry.

An in-depth history of prefabricated housing is the subject of this topical exhibition at the Museum of Modern Art, organized by Barry Bergdoll, the chief curator of architecture and design at the museum, with curatorial assistant Peter Christiansen. They have collected some sixty projects, which are usefully arranged chronologically, from 1833 to today. The show, which portrays examples of factory-produced housing, prefabs, house kits, and mass-produced houses, interweaves two distinct themes. The first is that of innovation in the off-site fabrication of houses by inventors and entrepreneurs, the second concerns the modernist architectural culture of prefabrication. Since the advent of modernism, many architects have sought an architectural equivalent to the automobile assembly line; Le Corbusier alluded to this by naming his otherwise conventionally constructed 1920 Citrohan house project after the Citroën car. The motives for the search were sometimes economic—to apply the financial benefits of mass production to housing—and sometimes qualitative—to achieve the precision that accompanied factory production. But the impetus was also ideological, for modernist designers saw in prefabrication a chance to explore architectural concerns, especially an overarching interest in standardization.

The diverse assortment of artifacts displayed at the Modern include a large period model of an ingenious single-pour concrete house patented by Thomas Edison in 1919; catalog pages from Sears, Roebuck and Company, which sold more than 100,000 precut homes in the early part of the twentieth century; a reconstructed section of the all-metal Lustron house, which was manufactured in the 1940s (yes, it is rusty); and several full-size components of a building system designed by the pioneering French engineer Jean Prouvé. The "architectural culture of prefabrication" is represented by Le Corbusier’s famous drawing of the Dom-ino house, in some ways the ur-prefab; a model of Buckminster Fuller’s Dymaxion Dwelling Machine; photographs of Matti Suuronen’s flying-saucerlike Futuro House; and a preliminary model of Moshe Safdie’s Habitat ’67, the modular concrete housing project that was the centerpiece of the Montreal world’s fair. There are also a number of conventionally

Exhibitions

Home Delivery: Fabricating the Modern Dwelling
Museum of Modern Art, New York
20 July–20 October 2008

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Figure 2. Installation view of model homes at MoMA. Left to right: Cellophane House, Micro Compact Home, and Instant House. Photograph by Richard Barnes, © 2008 The Museum of Modern Art
built projects such as Frank Lloyd Wright’s Jacobs house, Charles and Ray Eames’s own house and studio, and Le Corbusier’s Unité d’Habitation, although these seem out of place in an exhibition dedicated to prefabrication, as do an Erector set and LEGO blocks. At times, the eclectic selection of material displayed is confusing rather than enlightening. Prefabrication, for example, does not necessarily mean either mass production or standardization, yet the exhibition tends to conflate the two.

Most of the striking architectural models on display—Konrad Wachsmann and Walter Gropius’s extremely complicated Packaged House, David Greene’s NASA-like Living Pod, and Richard and Su Rogers nifty Zip-Up Enclosures—represent unbuilt projects. Indeed, the history of prefabrication presented here is in large part a history of unrealized dreams and recurring disappointments. For example, production had not started on Wachsmann and Gropius’s Packaged House when their client, the General Panel Corporation, went bankrupt; despite 37,000 orders, the publicly traded company that was to manufacture Fuller’s Dymaxion Dwelling Machine also failed; the Lustron Corporation managed to build only 2,500 houses before that company collapsed; and Safdie’s Habitat, despite the attendant publicity, had no successors. At least Habitat is still standing. The exhibition includes a delicate balsa-wood model of Paul Rudolph’s 1971 Oriental Masonic Gardens, a low-income housing development in New Haven that used mobile home modules. This project was built, but it proved expensive, technologically deficient (the roofs leaked), and so unpopular with its occupants that it was demolished after only a decade.

Home Delivery characterizes Oriental Masonic Gardens as “Rudolph’s bold embrace of the vernacular” and does not mention its subsequent fate. That is the problem with museums: everything that hangs on their walls is, by definition, “certified.” Museums do not grade an artist’s work. Thus, this sprawling exhibition does not discriminate between success and failure, nor between plausible proposals and pipe dreams. The Modern does discriminate at another level: the unspoken message is that “good design” is worthy of attention, even when it fails, and ordinary design is best ignored, even when it succeeds. Perhaps that’s why this thorough and otherwise thoughtful exhibition has nothing to say about mobile homes, which are the most successful prefabs of recent times. Nor does it address the interesting question of why commercial home builders have embraced prefabrication with success, while architects have been generally left grasping at straws. The contrast may have something to do with the fact that the commercial builders’ prefabricated products are both inexpensive and largely indistinguishable from other houses, while architectural prefabs always seem to end up costing more than they should, and invariably look odd—or, at least, unconventional.

The last two points are brought home in the second part of the exhibition, which consists of five full-size model homes that were commissioned by the museum and built on an empty lot next door. The Modern has a tradition of building exhibition houses, starting in 1949 when Marcel Breuer designed a house that was erected in the museum’s sculpture garden. The current group of model homes demonstrate various approaches to prefabrication. The Micro Compact Home is a cube, measuring 8 feet on each side, that is delivered in move-in condition from a factory in Austria. A cross between a railroad sleeper and a Volkswagen bus, it crams in a kitchen, shower, toilet, and two fold-down double beds. Designed by London-based Richard Horden, with Haack + Höpfnner Architects of Munich and London, the tiny module is marketed as a ski shelter or beach cottage, although at roughly $50,000 it is considerably more expensive than a micro travel trailer such as the Airstream Sport. System3 is roomier. It is assembled on site—at the Modern it took only an afternoon—out of panels and three-dimensional components that arrive (likewise from Austria) in a shipping container. The stylishly minimalist design is the work of architects Oskar Leo Kauffmann and Albert Rüff.

The other three houses are not, strictly speaking, prefabricated, but are assembled on site out of precut components. The five-story Cellophane House (trendy names are de rigueur for prefabs), designed by Stephen Kieran and James Timberlake of Philadelphia, is a combination of three-dimensional modules, panels, and frames. The aluminum frame is bolted together and filled in with a variety of screw-on and snap-in components: polypropylene sheet walls, glazing, exterior skin, and a thin film wrapper with embedded photovoltaic cells. The Cellophane House is constructed out of off-the-shelf parts, but two other houses demonstrate some architects’ current obsession with custom-made digital fabrication. The traditional-looking Instant House, designed by Lawrence Sass and a team of students from the Massachusetts Institute of Technology, is intended for New Orleans. Although the rudimentary shelter (it inexplicably lacks a bathroom or a kitchen) resembles an old-fashioned gunboat house, it is built out of plywood sheets whose laser-cut grooves and joints enable the pieces to be connected without nails or screws. It is unclear why it is advantageous to build this way, and whether it is really a good idea to leave all those plywood edge joints exposed to the weather. The Burst008 house, designed by Jeremy Edmiston and Douglas Gauthier, is likewise composed of several hundred plywood pieces, also laser-cut according to a computer program, and also laboriously assembled like a huge jigsaw puzzle. The quoted price of $250,000, for what is a rather crudely built beach shack, will strike most people as excessive. But, as this exhibition amply demonstrates, architectural experiments in prefabrication have never come cheap.

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