# Foreword

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# between conventional and experimental

## Mass Housing and Prefabrication in Modernist Architecture

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# Foreword

The conference "Conventional to Experimental—Mass Housing and Prefabrication" on which this volume is based was hosted by the Technion-Israel Institute of Technology, DOCOMOMO Israel, DOCOMOMO Germany, and the EU COST-Action Middle Class Mass Housing (MCMH-EU) and held online on June 14 and 15, 2021. Mass housing and prefabrication are both recurring themes in architectural academic research and discourse, as well as prominent subjects in the daily debates on housing shortages and possible solutions for providing affordable and quality lodging in the near term. Today, the connection between prefabrication—a field of engineering—and mass housing worldwide is as real as it was in the early days of the modern movement in the interwar period. As early as in the 1920s, prefabrication was one of the solutions proposed by modern architects to answer the housing shortage and to provide affordable homes in Europe after World War I.

At the same time, prefabrication was an experimental field for architects and engineers looking for new materials and technologies for building private homes, who often demonstrated their exploration in design competitions and exhibitions. The 1933 *Homes of Tomorrow* exhibition, in which George Fred Keck presented the *House of Tomorrow*, was part of the Chicago World's Fair. In 1945, a Case Study House Program geared toward "using as far as is practicable, many war-born techniques and materials best suited to the expression of man's life in the modern world" was announced in the magazine *Arts & Architecture*.[1] Most of those Case Study Houses built from 1945 to 1966 were constructed using industrially produced steel and glass.

Large-scale production of private homes predated these types of experimental programs and exhibitions. Wooden prefabrication in Germany started in the early years of the nineteenth century with military construction and grew in the century's last two decades through the efforts of several companies, among them the famous Christoph & Unmack firm in Niesky with Konrad Wachsmann as the lead architect from 1926 to 1929.[2] Still, after World War I, Germany remained a country of massive (brick) houses, primarily because from 1914 to 1920, the prices of construction woods increased twentyfive-fold. In consequence, from 1926 on Walter Gropius and the Bauhaus promoted mass housing and prefabrication that utilized massive building materials as a rational approach in the building industry. Famous examples of Gropius's

work are the housing estates in Dessau-Törten that were built from 1926 to 1931 using large slag concrete hollow bricks and reinforced concrete beams. Similar settlements were constructed with moderate heights of three to four stories, accessible without a lift, in many German cities such as Berlin, Frankfurt, and Magdeburg; these served as models for the housing estates built after World War II. In the United States, Sears, Roebuck & Co. and the E. F. Hodgson Company designed traditional wooden kit homes in the 1930s, which were famously caricatured by Buster Keaton in his film *One Week*.[3] Several publications, including *Prefab* and *Das Haus für alle*,[4] documented the diverse history of prefabrication from the early nineteenth century on, and large architecture exhibitions brought the topic back into the contemporary discussion. Especially noteworthy are *Home Delivery* in 2008 at the Museum of Modern Art in New York and the 2010 exhibition at the Architecture Museum of the Technical University of Munich entitled *Wendepunkte im Bauen*, the title being a reference to Wachsmann's well-known 1959 book.[5]

Different types of prefabricated wooden, steel, and aluminum elements for framing private homes were reintroduced as successful fast housing solutions after World War II.[6] New developments such as Levittown in the United States (1947–1959) arose, and in the United Kingdom temporary prefab bungalows were built and nicknamed "Palaces for the People," as described by Elisabeth Blanchet in *Prefab Homes*.[7]

In parallel, precast concrete systems were developed in both the West and the East, which allowed for the building of large multistory housing estates from the 1950s on to solve the huge postwar housing shortage. Many of these constructions were designed for a short lifetime, to be replaced after twenty-five to thirty years.[8] Several generations of prefab systems were developed, for example, in Russia.[9] The Belgrade School in Serbia developed spatially optimized and flexible layouts for small apartments to provide each family with outdoor spaces, often lit from two sides.[10] In common to all of these postwar approaches was that prefabrication for mass housing was supposed to be *Wohnen für alle* (Housing for all) as part of the effort to provide equal standards of living and to solve the societal challenge of the time with "a wealth of social and spatial intentions."[11] Later, in the 1960s and 1970s, and under the influence of futuristic and metabolist theories, prefabrication was also used for experimental purposes, such as Kisho Kurokawa's Nakagin Capsule Tower (1972) in Tokyo in which the prefabricated units were "designed and marketed as 'business capsules,'"[12] and not for permanent occupancy.

Looking at these historic twentieth-century developments with their high standards and success with prefabrication for both private homes and large housing estates, it is surprising that there is still considerable mistrust and a perceived market resistance toward more prefabrication in mass housing

construction in Europe. Despite the many positive examples, prefabricated mass housing estates in both the Eastern and the Western world have suffered from technical problems and mistakes, in particular, the penetration of moisture, inadequate services, and acoustical and/or structural issues. Other problems have been social in nature, engendered by inappropriate cubatures and layouts, such as tower blocks for young families without suitable common spaces, broken lifts that deny access for the elderly and disabled, and insufficient or missing maintenance.

The urgent need for the rehabilitation of existing—often prefabricated—mass housing estates and neighborhoods worldwide invites us to rediscover and study past concepts, cases, and best practices. The program of the DOCOMOMO Israel-Germany Conference 2021 tackled these different aspects and challenges in a keynote address and in contributions from fourteen countries, which dealt with the spatial and technological, socioeconomic, and political dimensions of prefabrication in several sessions that now also guide the content of the present book:

– Prefabrication: Materials and Typologies
– Prefabrication for Nation Building and Disaster Relief
– Prefabrication at Exhibitions
– Prefabrication and Urbanization

DOCOMOMO International and its national working parties have been pioneering in the promotion of the study of modern building materials such as glass, concrete, metal, and plastic, and also of new and experimental construction technologies. It is a pleasure to see how this book sheds light on links among different disciplines and on the history of prefabrication and its relationship with modernist architectural design concepts and current societal challenges. The joint conference should serve as a kickoff for this new field, the first event in a series that will include further talks, conferences, and articles relating to the challenges involved in the rehabilitation and upgrade of existing mass housing and in constructing more affordable homes by making use of modern technologies. Kieran and Timberlake complain that "today's architects don't fully exploit transfer technologies,"[13] and suggest that, instead, we should start from where our modern forerunners stopped and combine their knowledge with our current innovative and digital practices.

Despite the proven economic and environmental advantages of large housing estates, prefabrication in many countries focuses on private homes. The "Dream of Owning a Home" is still dominant, although criticized owing to its increased energy consumption and land sealing compared to multistory housing. The potentials of prefabrication are not limited to optimized construction; rather, prefabrication "generally leads to fewer deliveries […] and

well-managed sites using prefabricated components can significantly reduce the impact of transport."[14] Furthermore, "prefabrication [also] offers an opportunity to […] improve both efficiency and sustainability" in "a new way of doing business in prefabricated buildings with CE [circular economy] integration."[15]

This book approaches the many aspects of prefabrication while also taking account of the socioeconomic issues related to social equity, quality of life, and functioning neighborhoods. The vision of affordable housing and good living conditions for all is central in the construction of the modern movement, which has continued to be as vibrant and as relevant as it was in the pre-, inter-, and postwar periods of the twentieth century.[16] The challenge confronting contemporary planners, architects, and engineers is to place the concept of prefabrication within the larger construct of the United Nation's Sustainable Development Goals (SDG) linked to climate change, resource efficiency, and equality in addressing the planetary problems and providing housing for all.

*Uta Pottgiesser*
*Berlin, February 1, 2024*

## Notes

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