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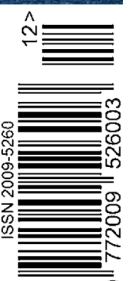
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A housing boom without houses?

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Case study houses: 1945 - 1962

In his latest piece on the evolution of low energy design, Dr Marc Ó Riain focuses on a postwar architectural movement that fused passive solar design with innovative materials in an attempt to deliver scalable, quality housing.

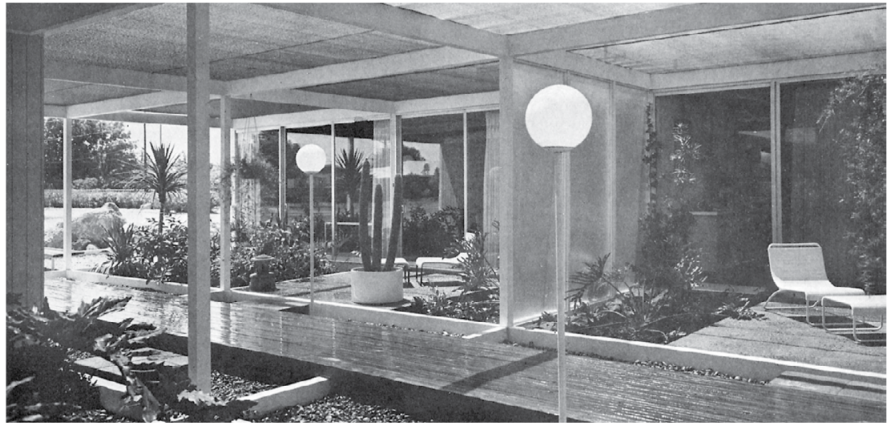
By the end of WW2, many European architects had relocated to the US forming a new definition of modern architecture. In the US Gropius had argued for an architectural regionalism, varying solutions to local climates.

The technology and knowledge of solar houses were being promoted to architects and their clients by publications like 'Tomorrow's House' (1945) and 'Your Solar House' (1947) illustrating that architects of the time were well aware of the principles and technologies of solar architecture. Orientation, overhanging shading devices, double glazing, concrete floor slabs, thermal mass, underfloor heating, and water attenuation for evaporative cooling were all known and applied solutions. But the war period had resulted in limited housing production, a shortage in materials and a lack of skilled labor, and as WW2 ended the US was facing into an immediate oil and housing shortage.

One-off housing would not be able to address the housing shortages that faced the US as soldiers returned from war. Developers were best positioned to respond to this housing crisis in a meaningful way through larger housing developments known as 'tract' housing. John Entenza's Arts & Architecture sponsored a 'case study house program' over a 17-year period around Los Angeles to illustrate how modern architecture could be harnessed to address this housing need.

Fearing the potential dominance of developer-led housing, and their focus on conservative or well-established vernacular architecture, Entenza sponsored a program of low cost, small single-family housing from 1945-1962 (McCoy 1962) with standardised elements, using modern materials and new technologies which had arisen for the war. The aim of the 'Case Study House Program' (McCoy 1962) was to create template-comfortable modern houses that could be replicated as tract housing and adopted by developers. These houses were designed by young architects like Eames, Saarinen, Koenig, Neutra, Elwood and Soriano. The Eames house is well known but atypical of the rest of the program, in that it did not address the key functional needs of providing accommodation for a young family with two children.

Talented young architects were challenged to develop modern solutions to middle class living. The case study houses were small (1,600-2,000 sq ft), but elegantly planned,



with two bedrooms and two bathrooms, close in ethos to the social planning of Wright's Usonian houses.

The designs which can be loosely divided into steel frame and timber frame post and beam structures were all located in the suburbs around LA. The architects demonstrated a strong sense of climate awareness and were very challenged by the lack of materials and technological limitations. Most of the designs were single-storey, based on flat underfloor heated floor slabs, with floor to ceiling glazing (some single and some double). They were oriented towards the sun and garden, and away from the street, with large overhangs to create solar shading. The architects designed the houses with informal open plan kitchen / living room spaces, eliminating corridors and gaining bathrooms for each bedroom. Outdoor spaces were integrated intelligently into the designs and often part of the internal plan, with Ralph Rapson's 1945 Greenbelt house split by an internal garden. Smith's 1945 'Loggia House' used Adobe to insulate the building from "warm Pasadena Summers" (McCoy 1962) and Wurster/Bernardi's 1949 case study house had 1/3 of the roof glazed with louvres for sun control.

The case study houses were opened to the public with the first six houses attracting 368,554 visitors or about 20% of the city's population. Disproving the lenders and the developers some of the houses sold for 90%-125% more than their build costs in the early 1960s. Entenza had intended to create buildings that could change developer-led tract housing, but this was never realized outside of a small development in La Jolla, and some apartment schemes in the mid 60s. Despite this, the principles of planning, materiality and design remain a core part of



(above) Killingsworth, Brady, Smith & Associates' 'Triad' apartment scheme in La Jolla was part of an attempt to change developer-led tract housing. Photo: Arts & Architecture

today's architect's response to the design of houses. Wouldn't it be wonderful if we could produce passive houses today with the joy and lightness of these buildings? Perhaps we can! Ester McCoy's or Taschen's books on case study houses are great for more detail.

Whilst the case study houses signaled a departure towards modernism in US residential architecture, other programs and other architects were moving toward a more scientific method of designing housing.

In the next issue we will look at emergent trends in science of housing design in the post war period. ■

Dr Marc Ó Riain is a lecturer at the Department of Architecture at Cork Institute of Technology, one of the founding editors of Iterations design research journal and practice review, a former president of the Institute of Designers in Ireland, and has completed a PhD in low energy building retrofit, realising Ireland's first commercial NZEB retrofit in 2013.