

Why is  
**construction**  
so  
**backward?**



**James Woudhuysen and Ian Abley**

Foreword by Martin Pawley

# **Why is construction so backward?**

James Woudhuysen and Ian Abley

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To Julie and Kate

‘When one observes how here in London alone a greater quantity of manure than is produced by the whole kingdom of Saxony is poured away every day into the sea with an expenditure of enormous sums, and when one observes what colossal works are necessary in order to prevent this manure from poisoning the whole of London, then the utopian proposal to abolish the antithesis between town and country is given a peculiarly practical basis. And even comparatively insignificant Berlin has been wallowing in its own filth for at least 30 years.’

**Frederick Engels, *The Housing Question*, 1872**

‘*The minimum dwelling* has become the central problem of modern architecture and the battle cry of today’s architectural avant-garde. As a slogan, it is announced and promoted by modern architects, because it sheds light on a situation that has reached a point requiring the radical reform and modernization of housing; as a battle cry, it calls for answers to the question of the current crisis of housing.’

**Czechoslovakian modernist  
architect and critic Karel Teige,  
*The Minimum Dwelling*, 1932;  
author’s emphasis**

‘Executives often discount the value of management theory because it is associated with the term *theoretical*, which connotes *impractical*. But theory is consummately practical. The law of gravity, for example, actually is a theory – and it is useful. It allows us to predict that if we step off a cliff, we will fall.’

**Harvard Business School  
professor Clayton Christensen  
and Deloitte Research  
director Michael Raynor,  
*The Innovator’s Solution*, 2003**

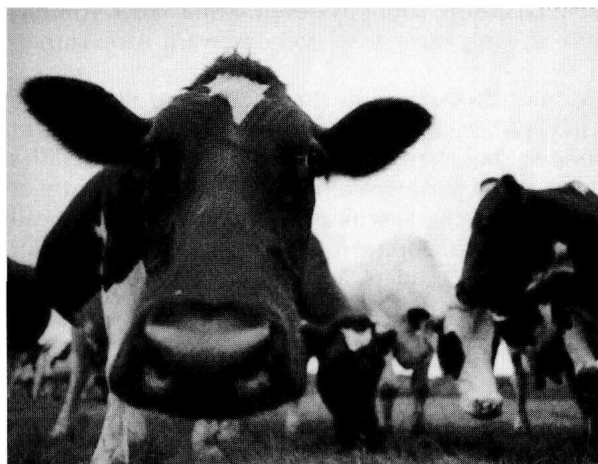
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*Simon Punter*  
p h o t o g r a p h y



Jonathan Schwinge. Photo by Jenny Back

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# Foreword

Martin Pawley

Because most of human life is conducted in buildings, everyone has an opinion about the construction industry. In recent years the housing market alone has ensured that every homeowner has become a Do It Yourself expert as well as a venture capitalist, well acquainted at some level with the 'backwardness' that is the subject of this book.

Nonetheless, despite this progressive consumerising of the issues discussed in the following pages, when it comes to answering the central question posed by the book's title we must rely on our expert authors. For as the reader will soon discover, it is a mistake to take the broad assumption of backwardness at face value when there are other questions as yet unasked that bear on the discourse of everyone concerned with building.

Questions that give pause to the entrepreneurial developer and the construction professional at the top, even as they touch the lowliest sub-contractor and site operative at the bottom.

Questions so secret that a £70 billion industry employing nearly two million people treats them as shibboleths of the world of fame and ennoblement, property, architectural genius, awards, honours, public inquiries, arbitrations, claims, toppings out, health and safety regulations, and trade disputes that altogether make up the universe of building.

Is construction really backward? Anecdotally the charge seems impossible to refute, but it is not. Even the most determined attempt to think it through soon runs into contradictions and turns back upon itself. For, in the end, who can truly say that construction is any more backward than the markets it serves? Anyone old enough to remember the labour-intensive building sites of the 1950s, with their rows of batch mixers discharging into wheelbarrows to be pushed and pulled up ramps of scaffold boards to distant formwork, would have to concede that today's tower craned and weatherproofed construction site, served by trucks making just-in-time deliveries of pre-mixed concrete and pre-engineered assemblies, represents a tremendous advance in organisation and methods.

And so of course it does, but not to the exclusion of changes of a different order that have had as great an influence. As late as the 1950s, the men employed on building sites were more likely than not to include trained craftsmen, expert in the handling of traditional materials. If the modern building site has become a model of labour-saving mechanisation since those days, it has done so at a price, leaving the traditional relationship between designer and executor far behind and adapting itself to an itinerant labour force made up of subcontractors and operatives handling precision finished assemblies and new materials.



Taken in isolation, these site and labour changes might on balance be considered favourable for fast construction, but they are not the sum of the changes made over the same 50 years.

Upstream of the improved logistics of the building site a vast bureaucracy of building regulation and statutory and advisory controls has grown up – a source of endless postponements and delays, smothering the once straightforward act of building in an impenetrable fog of overlapping responsibilities. The effect of these two levels of change, despite the industry's on- and off-site modernisation, is that construction has not yet attained an overall speed of process – from design to completion – that can keep pace with the dot com speed of global business. Still less can it match the rate of production of prefabricated houses attained in the 1940s by the public sector.

Shortcomings like this are particularly striking when one sees that, half a century ago, a disorganised and war-ravaged British building industry nonetheless contrived to produce 60,000 new prefabricated council houses; repair and refurbish 100,000 bombed dwellings; and build 34,000 new private houses, all in 15 months between April 1945 and July 1946 – a performance that can be compared to the miserable total of 130,000 new houses from all sectors that were completed in 2001, the lowest annual output since the 1920s.

Such comparisons are shocking but salutary, not least because they should remind us that the falling productivity of the housebuilding industry in recent years cannot simply be attributed to 'backwardness', but must take account of demographic and economic factors as well.

For example at the end of 2002, when it was calculated that the average mortgage debt per household in Britain stood at £40,000, a sum hypothetically secured on a modest 1952 suburban semi originally costing £1,000, that mortgage debt should have bought 40 such houses. Instead, by 2002, with each house commanding a price of £500,000 or more, it cannot pay for even one. Why has this happened? Because to have held house prices at their 1952 level for half a century would have required the sustained annual production, not of a paltry 130,000 new dwellings as at present, but of at least a million units per year.

In the tax-advantaged owner-occupier market that has dominated housing policy over the last 40 years, it would be difficult to imagine anything other than a magnificently sustained social housing programme that could have made a lower price to posterity more attractive than successive owner's capital gains. That is why, at the time of writing, an outer London suburban house can cost as much as a house in Kensington Gardens would have done in 1952. And that is why the supposed 'backwardness' of the construction industry is a more complex phenomenon than may at first appear.

What can be done to remedy the sort of institutionalised backwardness that shows up so clearly in the housing market? The celebrated German architect Cristoph Ingenhoven poses a stark choice in his book *Energies*:

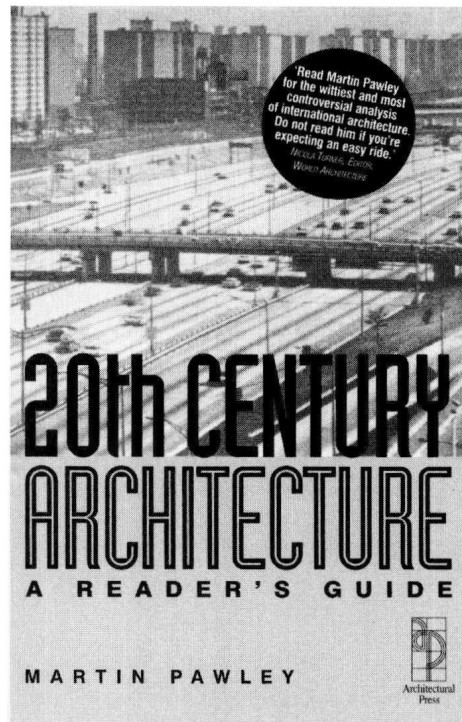
We have only two alternatives in the matter of building. We can fake the past, or we can industrialise the future. The first is impossible because the past cannot be built again – certainly not when traditional craftsmanship is all but extinct. But, by the same token, industrializing the future will only work if we are able to attain a precision and complexity at least as impressive as what was achieved by the trained craftsmen of the past.<sup>1</sup>

These bold words, echoing Le Corbusier's *Je ferai des maisons comme on fait des voitures*, and the conclusions of Walter Gropius's comparative studies of house and car prices in the 1920s, have been paraphrased by many since Henry Ford set the world's first automobile production line in motion in 1914. But thus far the application of his

basic idea to building has either been too tentative, too underfinanced or politically unacceptable – an example of the last being the concrete panel system-built apartments extensively produced in Eastern Europe prior to the end of the Cold War.

With such unhappy precedents to guide them today's prefabrication pioneers are understandably exigent about their ground rules for successful 'de-backwardisation'. John Prewer, the man behind the 1990 iteration of the microflat, a container-sized single person dwelling whose structure was based on prefabricated lift shaft components with an interior fit-out by a firm of car stylists, has distanced himself from heavy system and panel building altogether with a 30-point plan for lightness and speed in modular house construction. His emphasis is on downsizing plan areas and volumes, eliminating wet trades (including excavated foundations), reducing waste by using uncut materials in standard sizes, and (significantly) doing without contractors and construction professionals. All measures he means to employ in his current project, a new modular Peabody Trust housing development in London's Harrow Road.

When Britain's best-selling broadsheet newspaper launched a new weekly tabloid supplement on housing in the autumn of 2002 it was healthily endowed with adver-



Martin Pawley gave the opening speech to the conference, held in July 2000, which inaugurated the Audacity website. His and other speeches to the conference are posted on [www.audacity.org/Activity.htm](http://www.audacity.org/Activity.htm). Pawley is a writer and critic best known for his weekly column in the *Architects' Journal*. He studied architecture at the Ecole Nationale Supérieure des Beaux-Arts, Paris, and the Architectural Association, London. A former editor of the weekly newspaper *Building Design*, he was later architecture critic of *The Guardian* and *The Observer*, and most recently editor of the international magazine *World Architecture*. His most recent books include *Theory and Design in the Second Machine Age*; *Buckminster Fuller: a critical biography*; *Future Systems: the story of tomorrow*; *Norman Foster: a global architecture*; *Terminal Architecture*; and *20th Century Architecture: a reader's guide*.

tising. It not only carried national and local house price data, graphs of demographic and construction trends, market activity, ratios of buyers and sellers and so on, but also featured such arcane subjects as an article about the superiority of East European-trained building workers, a teach-in on using the right power tools when refurbishing an ancient manor house, how to buy a brand new apartment off the drawing board, and the usual full-page furniture ads and celebrities showing off their designer pads. In short, this supplement promised an integrated overview of the consumer end of the housing market in the 21st century.

Only one aspect of the new supplement slipped a gear and betrayed its wish-fulfilling obsolescence and that was its name – *Bricks and Mortar* – a term as antique as it is universally understood. A term that, on its own, explains why the building industry will not match the productivity of the motor industry until it is radically reformed, and the pages of every building supplement start to carry headlines like 'Inside the new Tartan 306', or 'Autohouse ships 200,000 modulares in record year'.

#### NOTE

- 1 Cristoph Ingenhoven, *Energies* (Basel, Boston, Berlin, Birkhauser, 2003) p 30.

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# 1 An industry that barely deserves the term

## 1.1 Construction becomes a mainstream political issue

Infants build little towers of wooden bricks.

When the bricks fall over, little hands build them up again, but higher.

Then, as infants grow up, they may move from bricks to sandcastles and, after that, to toys like Lego.

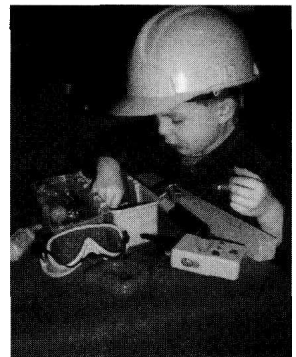
It is human to want to extend the possibilities of building – just as human as it is to want better places to live and work. The idea is simple: to be more ingenious in construction. Of course, beavers build dams and bees build hives, but only human beings generate blueprints, improve on their designs over time, and pass down their ideas to future generations.

Ingenuity in building today commands the interest of millions. Yet the simplicity of the idea stands in sharp contrast to the real world of construction. In the early 21st century, it seems more difficult than ever to get a house or workplace built.

Construction is backward. It is atomised in industrial structure, poorly managed in practice, and endlessly weighed down by regulations. To get a kitchen or bathroom fitted, a small extension added, or a new building commissioned costs a lot of money and frequently involves recourse to the law.

Residential floor space commands more and more of a premium. On top of that, the business of buying a house can be expensive and time-consuming. Yet behind the backwardness of the whole property sector is a wider crisis of capitalist innovation. It is possible to define innovation in technological terms – in terms of *product* and *process*. Innovation also takes place when new forms of *organisation* emerge. But while some products of the construction industry are innovative, property developers routinely bemoan the antediluvian processes and forms of organisation that surround their industry.

They are not alone in their concern. In large parts of the world, and hand in hand with transport infrastructure, *the quality and quantity of the building stock has become a mainstream political issue.*



Alex and Holly play Bob the Builder



Construction has long been important economically; in Britain, it accounts for about eight per cent of Gross Domestic Product (GDP).<sup>1</sup> Property has also long been important to the rich – even today, multi-millionaires in land and property make up no fewer than 150 of the top 1000 richest people in the UK.<sup>2</sup> But the broad social impact of the construction industry now goes further than all this. In Britain and America, millions of householders follow interior design. More important, millions follow the market for residential property; and they are joined in this by tens of thousands of government officials, economists and bankers.

Today the significance of property to young members of the Western middle classes is so great that estate agents even offer sexual partners to those in search of the flat that has everything.<sup>3</sup> In Britain, a national infatuation with property has had unexpected consequences. At 60 per cent of GDP, UK mortgage debt is well above the average for the EU. The British Medical Association has publicised the idea that such debt is bad for people's health.<sup>4</sup> And when Chancellor Gordon Brown declared, on 9 June 2003, that the time was not right for Britain to abandon the Pound for the Euro, the idiosyncrasies of that country's housing market, and in particular the crisis in its housing supply, formed one of the key risks in his mind.<sup>5</sup>

Property has also long been linked to financial speculation of a dubious character. But at a time when the trustworthiness of financial services and financial engineering is under the spotlight, prop-

erty has become a financial instrument much more central to national life. In the second quarter of 2003, General Motors earned three times as much from selling mortgages as it did from selling cars.<sup>6</sup> And over the much longer period 1995–2003, America's 50 top banks raised the share of their portfolios held in mortgage-backed securities from 47 per cent to 62 per cent. In so doing, they exposed themselves to the dangers of what *Business Week* called 'refi-madness' – US consumers' willingness to refinance their affairs by borrowing more on their homes with the help of declining interest rates.<sup>7</sup>

Those financial institutions that have offered cheap loans on property have received an enormous and much-needed boost to profits. In June 2003 it was revealed that one of the largest of such institutions in the US, the Federal Home Loan Mortgage Corporation, popularly known as Freddie Mac, had indeed deliberately understated its profits by billions of dollars. Why? It wanted to keep profit levels smooth beyond the early years of the new millennium – so fearful was it of the risk of a later *property crash* and ensuing profits collapse.

As the financial edifice erected on property has grown, so has the scale of American homes, housebuilding and house sales. The median size of an American home rose from 5.2 to 5.8 rooms in the decade before the US Census was published in August 2001. Then, 17 million US homes had eight rooms, up from 13.5 million in 1990.<sup>8</sup> By July 2003 the seasonally adjusted annual rate of constructing single-family homes, at 1.52 million, was the highest in 17 years and the third highest in the history of the US.<sup>9</sup> It was matched only by the annual rate of sales of existing single-family homes in the US. In July 2003 that reached, on a seasonally adjusted basis, no fewer than 6,120,000 units – an all time high.<sup>10</sup>

In China too, property is a political issue. In 2003, officials despatched from Beijing to Shanghai detained Zhou Shengyi, a property tycoon with two companies listed on the Hong Kong stock