DIGITAL EDITION

NON-TRADITIONAL HOUSES

Identifying non-traditional houses in the UK 1918–75

Harry Harrison, Stephen Mullin, Barry Reeves and Alan Stevens

IHS

bre

Contents of this CD-ROM

Non-traditional houses – *digital edition*

The Non-Trad Spreadsheet Search Tool

See last page of this booklet for instructions for running the Spreadsheet Search Tool

Key BRE and government reports *(pdf files)*

Moir Committee Report on new methods of house construction,1920
Burt Committee Reports on house construction: First Report, 1944; Second Report, 1946; Third Report, 1948
The corrosion of steel in steel houses, 1951
Prefabrication: a history of its development in Great Britain,1965

Other BRE publications

How to use Non-traditional houses – digital edition

Systems described in the Handbook are grouped into four sections classified by form of construction: Metal Framed Houses (prefixed 'M' in the numbered reference to each system), Precast Concrete Houses (prefixed 'P'), In-Situ Concrete Houses (prefixed 'S') and Timber Framed Houses (prefixed 'T'). In each case, the class of construction refers to the loadbearing structure of the dwelling, which will not necessarily be of the same material(s) as the external visible cladding.

The guide overleaf explains in detail the function of the text, photograph and isometric drawing in each double page spread. Where sufficient information on a particular house type is not available to provide either a photograph or a drawing, the system is included in an Appendix at the end of the construction class section, and further prefixed 'A' (e.g. numbered references to the Appendix to Metal Framed Houses are prefixed 'AM').

Colour photographs have been taken within the last 30 years. Those in black and white are from archive material.

While in some cases it will be possible to identify a particular system through the name only, because of the multiplicity of alternative names used for many systems, or because this information is not available, in the majority of cases it will be necessary to use the Search Engine on the CD-ROM to arrive at a definitive identification. The Search Engine classifies all the systems covered by the Handbook by Construction Class, by the Local Authorities and Regions in whose area the system has been reported, by Name or Alternative Name(s), and by Identification Characteristics. Any or all of these classifications can be used in combination to narrow down the search, depending on the amount of information available.

The lists of house types by Local Authority are drawn from a number of surveys carried out since 1980 for the (then) Department of the Environment, and the Northern Ireland, Scottish and Welsh Offices, supplemented by BRE's own research and information provided by others. Although every effort has been made to ensure that this information is correct, it should not necessarily be assumed that it is fully comprehensive. Where the information received does not fully specify a named system (e.g. *Unity*), all possible systems are listed (e.g. *Unity Type I*, *Unity Type II*).

The CD-ROM contains copies of key reports on non-traditional housing published by BRE and its predecessors, and by central government. These are referenced in the text and listed in the *References* section on pages xxxii–xxxiv.

Another CD-ROM (Ref: AP 149) is available from IHS BRE Press, which contains over 80 BRE reports on particular house types. Details are given on page 7 of this booklet.

How to use Non-traditional houses – digital edition

Each house type is listed alphabetically by ***Name****, and numerically by the Reference in the top right hand corner. The name is that most commonly used by the manufacturer. The suffixes 'Mk' and 'No' are those used by the manufacturer. The suffix 'Type' is used to differentiate between different forms of construction covered by the same manufacturer's name.*

Orlit Type II

Alternative names known to have been used are listed.

Manufacturer: Orlit Ltd **Alternative name:** Orlit

Designer:

Names of the ***Manufacturer(s)*** *and* ***Designer(s)****, where known, are given.*

Period built: 1940s–1950s

Number built: 17,000 (Types I and II)

Where dates for ***Period built*** *are available, these are listed; otherwise dating is by decade (e.g. '1960s').*

Numbers built *are drawn from various sources; although every effort has been made to verify the figures, their accuracy cannot be guaranteed.*

The ***Photograph*** *shows a representative view of the house type. However, many house types used a variety of claddings (see* ***Identification Characteristics*** *and* ***Variants****). In addition the house may have been re-clad (see* ***Designated defective*** *houses, overleaf).*

IDENTIFICATION CHARACTERISTICS

Bungalows and 2-storey semi-detached and terraced houses.
Medium pitch gable roof covered with tiles or flat roof covered with asphalt or bituminous felt.
External walls of PRC slabs throughout.
Gable apex tile hanging.

NOTES FOR SURVEYORS

The ***Designated defective*** *stamp is explained overleaf.*

DESIGNATED DEFECTIVE

Main PRC columns and beams have only up to 30 mm cover, carbonation depths 10–20 mm and sometimes significant chloride content.
Cracking of OPC and HAC stitches.
Low quality HAC concrete in stitches.
Cracking of secondary beams and carbonation depths up to 20 mm.
Significant levels of chloride in beams.
Deterioration of other PRC components.

The system was also used for flats.

REFERENCES

BRE Report BR 36
PWBS No. 25

References *list reports and journal articles for each house type. For details see pages xxxii–xxxiv.*

Identification Characteristics *lists features in standard format to help visual identification. 'Chalet bungalows' refer to 2-storey houses with the upper floor rooms wholly contained within a gabled or hipped roof pitch.*

Roof pitches *are: 'STEEP', 45° or greater; 'MEDIUM', between 23° and 44°; or 'SHALLOW', less than 23°.* ***Claddings*** *listed are those known to have been used in the original construction: they do not include those used in subsequent alterations.*

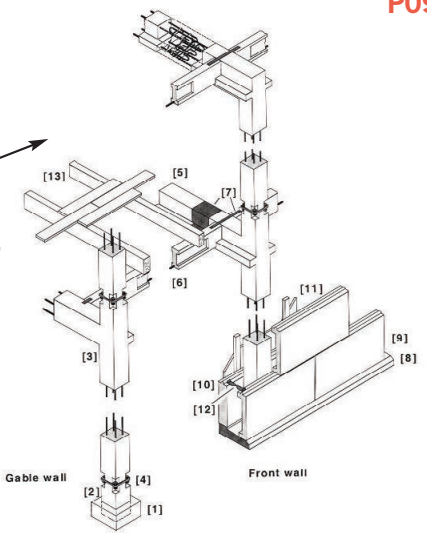
If the house type has been investigated by BRE ***Notes for Surveyors*** *lists defects found. Such defects will not necessarily have been encountered in every house surveyed, and they are listed to alert surveyors to areas requiring particular examination. If the house type has not been investigated by BRE, this is noted, with references to appropriate BRE publications on survey and assessment.*

If the system is known to have been used for ***flats****, this is noted. The construction for flats may not be identical to that for houses.*

How to use Non-traditional houses – digital edition

*Each house type is identified numerically by the **Reference number** in the top right hand corner. **M** indicates metal framed houses, **P** precast concrete houses, **S** in-situ concrete houses and **T** timber framed houses. Reference numbers for houses listed in the Appendix to each part are prefixed by 'A'.*

P092



*The cutaway Isometric Construction Drawing is keyed by number to the **Construction** notes. The form of construction shown in the drawing and described in the notes is that most commonly found.*
If the house type has been investigated by BRE the notes are based on the BRE investigation. Otherwise, they are drawn from various published and unpublished sources, and their accuracy cannot be guaranteed.

CONSTRUCTION

Substructure: Pad foundations **[1]**. PC stub columns cast into foundations **[2]**.
Frame: 5 ½" x 5 ½" PRC columns with integral beam stubs **[3]** and bolted steel flange connectors **[4]**. 7 ½" PRC primary **[5]** and secondary **[6]** beams with concrete cover **[7]**.
External walls: 2" PC base bonding units **[8]**, 2" PC slabs **[9]**, 2 ½" lightweight PC slabs **[10]**, timber framing lined with plasterboard **[11]**. Galvanised ties **[12]**.
Separating wall: PRC frame infilled with foamed slag aggregate concrete blocks.
Partitions: Lightweight concrete slabs.
Ground floor: Concrete.
First floor: Timber boarding on timber beams **[13]** on PRC secondary beams.
Ceilings: Plasterboard.
Roof: PRC beams, timber wall plates, timber trusses and purlins and tiles.

VARIANTS

Flat roof of profiled PRC eaves units, screed and asphalt or bituminous felt.

*Variations from this form of construction known to exist are listed in **Variants**.*

*Most of house types were designed using **Imperial** measurements, so most dimensions are given in feet and inches. For the very few systems built to **Metric** measurements, Metric dimensions are used.*

***Construction** information is presented in a consistent format for each house type, generally moving upward from the foundations to the roof, and from the outside inward. **Dimensions** of components are shown in the order height x width x depth.*

*A key to the **Acronyms** used for components and materials is on page xxvi.*

Revisions to the digital edition, October 2012

Hyperlinks added to:
- Contents list (page ix)
- List of house types (page xxxvi – xli)
- Index (pages 950 – 958)

Spreadsheet Search Tool updated with amendments to the text and made compatible with Windows XP.

Minor typographical corrections made.

Page xxv. Additional text added to Note 22.

Page xxx. Photos replaced.

P075 Lilleshall. Colour photo included

P076 Livett-Cartwright. Correct photo included

T028 Colt. Colour photo included

T057 Hertfordshire County Council. Correct drawing included

AS019 RCC. Additional information included

Four housing systems added:
- ADM001 Span Type K
- ADP001 Occident
- ADT001 Douglas Special
- ADT002 Swedish Sectional Timber

For further detailed information on non-traditional house types...

Special offer to purchasers of Non-traditional houses – digital edition – save 50%

All the BRE Reports listed on pages xxxii and xxxiii can be found on the

Non-traditional housing CD-ROM
(Ref: AP 149) available from IHS BRE Press.

A unique collection of exclusive information, in total the CD-ROM gives you 82 previously published BRE Reports – many now unavailable in printed format – covering a wide range of house types. The publications include guides to constructional details; assessments of the structural condition of existing dwellings; and guidance on surveying, maintenance, rehabilitation and repair.

The housing types covered are reinforced concrete (cast-in-situ, prefabricated reinforced concrete (PRC) and large panel systems (LPS)), steel framed and steel clad, and timber framed. The guides were prepared by BRE staff as part of an extensive programme of investigations carried out in the 1980s and 1990s. They will be of particular use by owners, financial organisations, surveyors and engineers responsible for all types of housing stock.

They are in pdf format and can be read on screen or printed. The CD-ROM is suitable for use on PCs with Windows™.

To order your copy at the special price of only £75 + VAT (normally £150*+ VAT) contact IHS BRE Press, quoting publication code AP 149, and mentioning that you are a purchaser of *Non-traditional houses – digital edition*.

IHS BRE Press Tel: 01344 328038,
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* Price correct at time of going to print.

From reviews of the book

"This magnum opus is one of the outstanding housing books published in recent years. Although largely consisting of photographs and diagrams of some 450 house types it offers an extraordinary insight into the many ways in which both the public and private sectors in Britain have sought over the years to respond to chronic housing shortages. Given the current drive by government to see housing supply increased and not least through the use of innovative housing techniques this book provides a powerful antidote to those who may be tempted to let their enthusiasm run wild. This provides a detailed and scholarly technical appraisal of what can go wrong."

Housing Studies, Vol. 21, No. 3, May 2006

"Given the recent scares, somewhat inflated, about the structural state of post-war housing in this country, this book will be of immense value to anyone interested in clarifying the real condition of the housing stock, excluding flats. With admirable restraint, the preface notes that 'ill-considered work to such houses, without proper understanding of the principles which need to be followed, could lead to much wasted investment.' … a work of impressive scholarship…"

The Architects' Journal, 3 February 2005

USING THIS CD-ROM

This CD-ROM should autorun on most PCs. If the CD-ROM does not autorun, double-click on the pdf named 'START'.

Note: If you do not have autorun enabled you will also need to enable the macros for the spreadsheet tool by following these instructions.

Click on ***Run Spreadsheet Search Tool*** button. You will be given a security warning message about launching/opening the file.

Click on ***Open***. You will see a security warning below the toolbar which displays the message 'Macros have been disabled'.

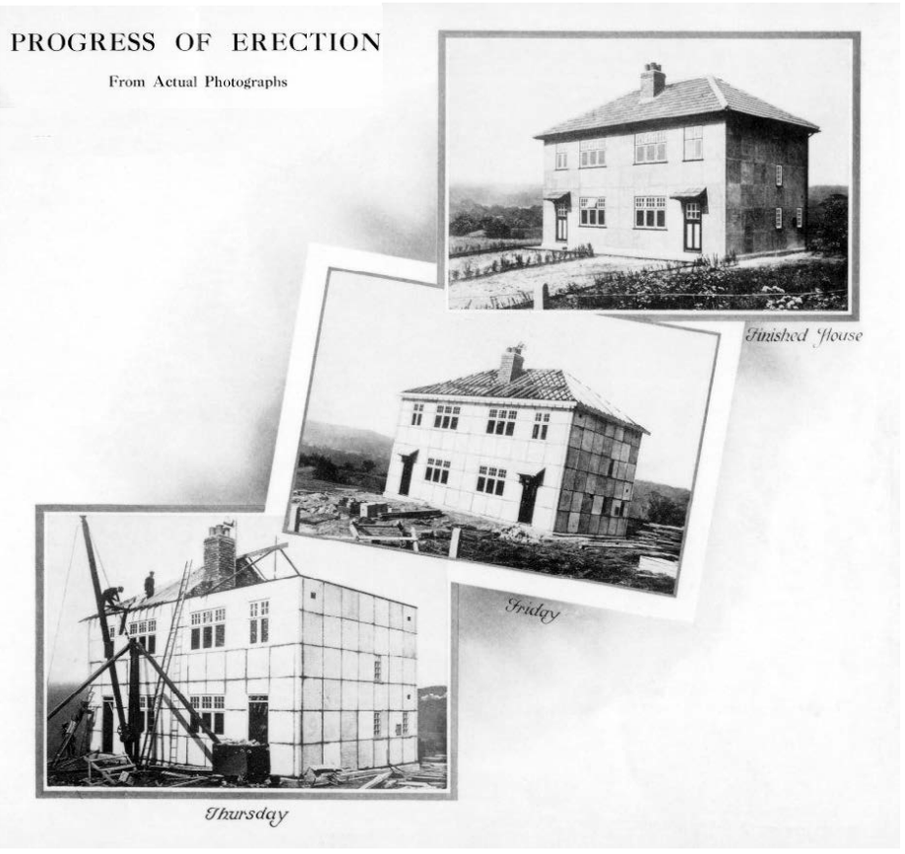
Click on the ***Options*** button. A window entitled 'Security Alert - macro' will open.

Change the options to 'Enable this content'.

Click on ***OK***. This opens the 'Search Programmes' window.

Choose one of the 4 options and click on ***Continue***.

Non-traditional houses



Thorncliffe cast-iron houses under construction: from the manufacturer's brochure.

"I find it incredible that there will not be a sweeping revolution in the methods of building during the next century. A few energetic men might at any time set out to alter all this."

H G Wells, *Anticipations*, 1902

"There has been altogether too much buncombe associated with the factory-built home. Publishers everywhere have accepted too freely the idea of pre-fabrication and have given it much publicity. Students of the problem should consider critically what has been proposed..."

John Burchard 2nd, in *The Evolving House*, Vol. III (A F Bemis), 1936

"Down in the jungle, living in a tent,
better than a prefab – no rent."

Charlie Chester, *Stand Easy*, BBC Light Programme, 1946

Non-traditional houses

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BRE

OFFICE OF THE DEPUTY PRIME MINISTER

BUILDING RESEARCH HOUSING GROUP

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or
IHS BRE Press
Willoughby Road
Bracknell RG12 8FB
Tel: 01344 328038
Fax: 01344 328005
brepress@ihs.com

Published by IHS BRE Press

AP 294

First published 2004 as BR 469
Digital edition 2012
ISBN 978-1-84806-275-7

Foreword

The Building Research Housing Group (BRHG) – a self-help club for innovative and enterprising social housing providers run by a BRE secretariat – is very aware of the great value of this book to housing maintenance teams. In fact, BRHG owes its existence to concerns over renovation problems with non-traditional housing (NTH) in the early 1990s, in anticipation of the ending of the Housing Defects Scheme of Assistance.

The Group's inaugural conference in April 1992 began with a discussion on precast reinforced concrete NTH; this was followed by a day-and-a-half workshop on house reinstatement, which included a site visit to a BISF house under refurbishment near Swansea. This interest started a wave of enquiries on NTH, which has continued to this day.

During our early years, we were aware of the large survey undertaken by BRE in the 1980s on the condition and performance of NTH. During this period, the Group hosted presentations from BRE experts on the development of its Government-commissioned register of upgraded NTH, which would serve both as a guide to identification and provide information on whether past refurbishment work had changed house type identification characteristics. Our members were among those local authorities and housing associations sent questionnaires to gather data on type of system, numbers owned and changes carried out and planned.

The BRHG membership, over its 12-year partnership with BRE, has always recognised the benefits of sharing knowledge. In a spirit of pooling expertise and resources, BRHG members have provided access to properties for investigation by BRE researchers, for example, to Reema Hollow Panel houses to measure temperature, humidity and oxygen levels before and after over-cladding.

Consequently, in its recognition of the hard work that has gone into amassing all the detail in this splendid book, the Group has enthusiastically sponsored its production. We know that it will help to answer such questions as whether the repair or improvement of a non-traditional house of any type is possible and can be justified.

As responsible housing practitioners, the BRHG welcomes this publication and we are keen to share these valuable technical details on housing construction, maintenance, refurbishment, renewal and repair. Our aims as a Group are to provide value-for-money through cost-effective technical solutions and we are pleased to promote this book to those ends.

Phil Hallman
BRE Associate and Advisor to the BRHG Secretariat

Information on the BRHG can be obtained from its website www.brhg.org.uk, *which contains a password-protected 'members-only' section, with a discussion forum for sharing day-to-day experience on housing technical and management matters.*

For Bucky, Cedric and Peter

Contents

The Editors

Harry Harrison is a former Superintending Architect at the Building Research Establishment, responsible for the Construction Practice Division, including the Housing Defects Unit and the BRE Advisory Service. He has been heavily involved in assessing the performance and durability of all kinds of non-traditional houses (and, indeed, of other building types) for over 50 years, but with a special interest in metal framed systems.

Stephen Mullin is a former Principal Architect in the Department of the Environment, and its successor Departments. From 1986 onwards he was responsible for the Department's programme of research into non-traditional dwellings, and for the technical implementation of the Housing Defects legislation. He was the DOE nominated officer for the research contract which DOE placed with BRE for this book.

Barry Reeves is a Principal Engineer in the BRE Centre for Concrete Construction. He has been particularly involved over the last 20 years with research on the performance and durability of in-situ and precast concrete systems of construction, and currently advises owners and their professional advisers on the condition of non-traditional dwellings.

Alan Stevens is a former Senior Scientific Officer with the Building Research Establishment, and has been particularly involved over the last 25 years with research on the performance and durability of metal framed and timber framed systems. He was the BRE nominated officer responsible for the research contract which DOE placed with BRE for this book.

Preface

In the early 1980s defects in design and construction were discovered in a number of house types designed and built before 1960. These were subsequently designated as inherently defective under the Housing Defects legislation.

Although these house types formed only a relatively small proportion of the entire UK non-traditional stock (some 1 ½ million dwellings in all), lending institutions were concerned that similar defects might be present in other types of construction. They recognised that their surveyors and valuers had little or no experience of the inspection and assessment of non-traditional houses; since before the advent of the Right to Buy virtually none of this stock had ever been in the private sector.

Accordingly, in 1986 the Department of the Environment commissioned a comprehensive research programme from BRE, aimed at providing owners, valuers and building professionals with aids to identification of the main types; information on their construction; advice on their inspection and assessment; and guidance on best practice in their maintenance, repair and improvement.

Some of this information has already been published, but much remained unpublished or relatively inaccessible to potential users. This book seeks to remedy this and make unpublished information available to building professionals. It draws together all BRE's research and survey experience in this field and is aimed not only at the private sector, but at housing associations and local authorities as well; since much of the public sector stock which would typically currently fall under review for improvement, because of its age, is of non-traditional construction. Ill-considered work to such houses, without proper understanding of the principles which need to be followed, could lead to much wasted investment.

The book does not cover flats. Although many of the systems described here were used for the construction of other forms of housing, and are so noted where this is the case, the appraisal of multi-storey blocks usually calls for a different level of expertise from that commonly possessed by building professionals involved in the survey of individual houses.

However, a CD-ROM containing all 82 BRE reports and leaflets on non-traditional housing of all forms in pdf format, covering constructional details, assessments of condition, maintenance and repair is available separately from BRE Bookshop (Ref. AP 149). Further information is given elsewhere in this book.

Also excluded from the scope of the book are 'rationalised traditional' systems, where the primary structure is of loadbearing brick; or of blockwork where the size and weight of components is such as to allow for the traditional one-man lift (as opposed to precast panels requiring a two-man lift or mechanical aids). Nevertheless, where proprietary names are known to have been used for such construction they are listed in the Appendices to obviate futile searches. But be warned that manufacturers in the 1960s and 1970s often used the same name for traditional and non-traditional systems. Check with the Index at the back of the book and the Search Engine on the CD ROM.

Nor are house types developed after 1975 included. This is because 1974 saw major changes to the Building Regulations which drew on the experience of previous years, and also because very few new systems were developed after that date. Those that were have been relatively recent, and there has therefore been insufficient time to adequately assess their performance in use.

Help us

Nevertheless, the Editors are well aware that there may still be some house types which do

fall within the scope of this book, and may not have been recorded. In addition, there is scanty information on many other house types, either in technical details, or in the form of a proper photographic record. If readers have information which could help us remedy these omissions for a later edition of this book, or for supplementary information which could be made available on the Internet, such contributions should be sent to *www.nontradhouses.org.uk*.

Acknowledgements

The generous financial support of the Office of the Deputy Prime Minister and the Building Research Housing Group is gratefully acknowledged.

The list of people who have contributed to this book in one way or another is endless, but special mention must be made of the BRE staff who either had direct involvement in the investigations of various house types, or made a significant contribution to the book:

Alan Butler, Alan Covington, Ray Cox, Marilyn Edwards, Peter Finch, Ian Freeman, Eddie Grant, Ken Harling, Ian McIntyre, Ros Redman, Cy Robinson, Jim Thomson.

Many private individuals and local authorities also generously contributed archive photographs and documents, technical information, and news of previously undiscovered house types: in particular, Michael Dyson, Ronald Green, Dr Richard Moore, the late Frank Newby, Dr John Parkinson, the late Sir Philip Powell, Martin Rogers, Mike Fisher of the Halifax Building Society, officers from Birmingham, Leeds, Liverpool and Portsmouth City Councils, and colleagues in the Northern Ireland, Scottish and Welsh Offices; without whose help this book would have been much the poorer.

The photograph opposite is by Ian Smith, and those used in entries T114 and T128 are by Jon Broome and Terrapin Ltd, respectively.

A number of black and white archive photographs have been reproduced from widely used promotional material bearing no copyright acknowledgement, including the annual CIBSA directories, the IBSAC magazine and National Building Agency certificates. It is understood that these photographs were supplied to the original publishers by the system sponsors, nearly all of whom by now have been out of business for many years. Every effort has been made to trace extant copyright ownerships, largely without success, and the publishers will be glad to hear of any inadvertent infringement and will acknowledge the source.

Photographs throughout this book have been reproduced from the files of *Architectural Review* and *The Architects' Journal*, by permission.

Preface to the Digital Edition

In preparing the Digital Edition, the Editors have taken the opportunity to revise and expand existing entries and to add a number of new systems which have come to light since the original publication, These are detailed in the Addendum to the Digital Edition on page 937, after Section 4.

They have also noted the growing number of new non-traditional housing systems which have emerged over the last ten years as a result of the Government's Modern Methods of Construction (MMC) initiative. While these remain outside the scope of this book, for the reasons detailed above in the Preface, nevertheless building professionals involved in inspection and assessment will increasingly need to be aware of the constructional details of such systems, as properties return to the market.

Introduction

Why 1918? After all, practically every form of construction used in housing has at one time or other been seen as non-traditional, from the evolution of the mediaeval timber frame to the introduction of machine-made concrete and terracotta blocks and tiles. But before the 20th Century such changes had been relatively gradual, allowing plenty of time for assessing the performance in use of materials and components brought together in a novel and unfamiliar way.

However, when the pace and volume of innovation overtook the timescale needed for evaluation, then housebuilders entered uncharted territory. So there are good reasons for choosing 1918 as a starting point. But the full story, of course, begins a little while earlier.

The impact of the Industrial Revolution on structural innovation is well documented elsewhere, most succinctly, perhaps, by R B White[1], and readers will no doubt be familiar with the 19th Century use of cast iron to provide prefabricated buildings, including houses, for shipment to the colonies. Less well known, perhaps, is the experimentation in concrete construction that occurred at the same time. The earliest known pair of no-fines concrete houses, on the Isle of Wight, has been dated 1852; and throughout the latter half of the 19th Century and the early years of the 20th Century development continued[2], so that by 1918 it was possible to compile a whole book on the various forms of concrete construction available for domestic use[3].

No-Fines houses at East Cowes, Isle of Wight, built by Richard Langley in 1852.

Homes for heroes

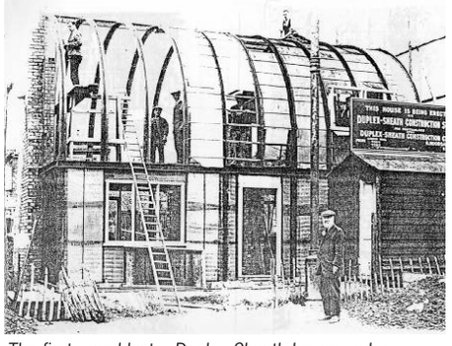
It was an opportune moment for such a publication. The Great War had just ended. Housebuilding had virtually ceased over the previous four years, and Richardson and Aldcroft[4] have estimated that nearly 900,000 new houses were needed simply to make up the backlog; and over twice that number to provide for new households over the next ten years. All this, without taking into account the need for slum clearance. Yet Lloyd George had promised "homes fit for heroes". How could his new Coalition government meet the challenge?

Traditional methods of construction seemed unequal to the task. There was a severe shortage of orthodox building materials, which was to continue for the next four years[5]. Skilled labour was at nearly half the prewar level, and union obstruction meant that progress in training newly demobbed soldiers was slow. But wartime growth in the armaments industry had produced a considerable spare production capacity, along with technological advances in construction equipment which could allow the use of unskilled labour. The government saw a combination of financial incentives and technical innovation as a way of capitalising on these resources.

The Addison Act of 1919 introduced generous subsidies for local authorities, with an additional financial carrot for houses that embodied new forms of construction. At the same time, the Ministry of Health launched a fortnightly magazine[6] which dealt with all aspects of the housing drive, from the financial framework of the new legislation, through the model house plans and housing layouts envisaged by the 1918 Tudor

Walters Report, to innovative methods of house-building.

The task of identifying and approving such systems was entrusted in 1920 to Sir Ernest Moir as Chairman of the Committee for Standardisation and New Methods of Construction. The First Interim Report of the Committee in 1924 [7] catalogued a bewildering array of proposals, 88 in all, ranging from fully prefabricated house types to ingenious variations on standard concrete block construction (the latter therefore being mostly outside the scope of this book). Some of the systems described would raise eyebrows today, yet a surprising number of them, like the *Duplex Sheath* house (M038*) were actually built, at least in prototype form.



The first – and last – Duplex Sheath house under construction.

The systems which emerged during this period fall clearly into two parts: those (utilising steel, timber and large component precast concrete) which capitalised on skilled workers in factory and shipyard production, like *Atholl* (M010), *Dorlonco* (M037), *Telford* (M093), *Weir* (T137), *Scano* (T110), *Boot* (P026), and *Parkinson* (P094); and those which employed a combination of small scale on-site precast concrete and in-situ concrete (*Duo-Slab* (S022), *Winget* (P137), *Fidler* (S027)), or climbing or permanent shuttering for in-situ concrete (*Boswell* (S007), *Dry Walls* (S021), *Easiform* (S023, S024), *Forrester-Marsh* (S030), *Universal* (S056)) to maximise the use of unskilled labour.

** The numbers after the house types refer to the entries in the main part of the book.*

Dorlonco houses under construction.

Major cities which had pioneered council housing before the war were among the first to adopt such systems of construction, notably Manchester, Birmingham, Leeds, Bradford, Bristol, Liverpool (which also developed its own systems [8]), and, in particular, the London County Council [9]. But other, smaller local authorities proved equally innovative. Acton Urban District Council, in West London, driven by an energetic Surveyor, and pressed with a housing shortage caused by the construction of factories nearby, erected 70 *Dry Walls* bungalows in an unusual and highly attractive layout.

At the same time, they compulsorily purchased a site in East Acton which they offered as a demonstration site for new forms of construction. The Acton site, despite the depredations of the double glazing salesman, and the recent loss of a poured concrete house, remains an evocative Garden City reminder of the Ministry's suggestion that "a visit…would prove interesting and instructive to those Councils whose schemes are being delayed through lack of bricklayers" [10].

Parkinson houses under construction.

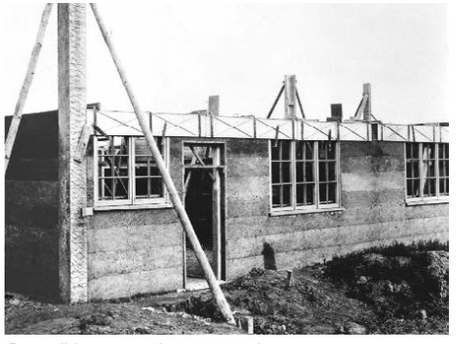
One of the local authorities which made a series of such visits (though not, apparently, to the Acton site) was a Sub-Committee of Norwich City Council, who were instructed "to inspect and report on housing systems that will employ an amount of unskilled labour, with the object of erecting quickly a larger number of houses per annum than is being erected at the present time" [11]. After interviewing a number of entrepreneurs in London, with whom the Sub-Committee appears to have been somewhat unimpressed ("The system appears to be in its experimental stage and the Company in its infancy") they visited Leeds, Wakefield and Glasgow, before making their final shortlist.

They identified four house types "the building of which is on really commercial lines": *Duo-Slab*, *Underdown* (P123), *Winget*, and *Weir*. The first three, all utilizing a mixture of precast and in-situ concrete, were, they noted, "not systems of housebuilding, but of wall building only"; however, they "find a large proportion of work for unskilled men". The Weir house, by contrast – timber framed and steel clad – "provides a very small proportion thereof but has the virtue of extreme expedition in erection…The whole point of Lord Weir's scheme is complete standardisation of a high class rapidly produced product…"

As one might expect from their brief, the Sub-Committee were divided on the merits of the Weir house, but recommended purchase of 100 each of the other three types. Their conclusions seem not untypical of many local authorities, and it is difficult to disagree with the view of an American commentator a decade later that "most, if not all, of the alternate systems were employed by the Ministry of Health and the Local Authorities primarily as a club to wield over the bricklayers, who, aware of the housing shortage and the Government program, seemed from time to time to be on the point of demanding exorbitant wages" [12].

Nevertheless, by the end of the first post-war decade, when the subsidies payable under the Addison Act and its successors were finally phased out, some 50,000 'non-traditional' houses had been built, all but a tiny minority by local authorities. And not all of these were low-skill systems: steel and timber framed houses accounted for over 20% of the total. In numerical terms White may well be correct in commenting that "the impact on the country and the building industry of all this pother was relatively slight" [13], but the wider impact on consumers, producers and building professionals should not be underestimated.

Duo-Slab houses under construction.



Boswell houses under construction.

By the 1930s, the idea of cheap, off-the-peg prefabricated timber bungalows, clad in sheet materials like asbestos cement, had proved widely attractive to the general public, particularly as holiday or retirement homes. Writers like Clough Williams-Ellis might fulminate against their effect on the countryside [14], but they did demonstrate that non-traditional construction was not only acceptable to consumers, but could offer definite advantages in terms of cost and speed of erection. And, at the same time, a new generation of architects was to see factory production, and, in particular, the standardisation of components, as a logical step towards achieving the social and political goals of the Modern Movement.

OTHER PUBLICATIONS [in chronological order]

*PDF files of publications marked **CD** are included on the CD ROM in the back of this book.*

Moir Report **CD**
Ministry of Health. *Particulars of systems of house construction approved up to April 1920.* Report of the Committee on new methods of house construction. London, HMSO. 44pp.
[The only report of value that survives from the 1920s. Contains drawings and photographs of 76 housing systems and 12 items of ancillary equipment approved by the Ministry.]

PWBS No. 1 **CD**
Interdepartmental Committee on House Construction. *House Construction.* Ministry of Works, Post-War Building Studies No. 1. London, HMSO, 1944. 156pp. (Burt Committee 1st Report).
[Detailed information on 19 house types built between 1919 and 1939.]

PWBS No. 23 **CD**
Interdepartmental Committee on House Construction. *House Construction, Second Report.* Ministry of Works, Post-War Building Studies No. 23. London, HMSO, 1946. 84pp. (Burt Committee 2nd Report).
[Reports on the first tranche of proposals for construction after the war, built in prototype form and assessed. Includes photographs of houses under construction.]

PWBS No. 25 **CD**
Interdepartmental Committee on House Construction. *House Construction, Third Report.* Ministry of Works, Post-War Building Studies No. 25. London, HMSO, 1948. (Burt Committee 3rd Report). 86pp.
[Reports on 10 house types, all approved for use by local authorities. Includes photographs of houses under construction.]

White R B, *Prefabrication* **CD**
Prefabrication. A history of its development in Great Britain. National Building Studies, Special Report No. 36. HMSO, London, 1965. 368pp + 52pp illus.
[Valuable narrative account of the technical and political development of prefabrication up to 1962. Numerous photographs and references.]

NTHSc
Scottish Office Building Directorate. *A Guide to Non-traditional and Temporary Housing in Scotland (1923-1955).* Edinburgh, HMSO, 1987, reprinted 2001. 260pp.
[Covers more than 90 Scottish systems built up to 1955. Company information and plans are useful for identification purposes.]

Interbuild. System Building.
Published in 1963 and 1964 by Interbuild.
[Describes and illustrates 21 (1963) and 31 (1964) systems. Also covers European and non-housing applications.]

IBSAC
The Industrialised Building Systems and Components Magazine. Published between 1964 and 1970.
[Useful 'snapshots' of systems available at the time of publication.]

CIBSA
Deeson A F L (ed). *The Comprehensive Industrialised Building Systems Annual.* Product Journals, West Wickham. Published annually between 1965 and 1970.
[Useful 'snapshots' of systems available at the time of publication. Many of the entries include a photograph or drawing.]

NBA and **Scottish NBA**
National Building Agency. Certificates were issued between the mid-1960s and 1972. Dates of NBA appraisal certificates are given where known. The BRE collection of these certificates is not complete, but a full set is thought to be housed in ODPM Archives.
[Very detailed information and construction drawings of proposed systems, which may have been modified for production.]

NFBTE
British Systems Yearbook 1977–78. National Federation of Building Trades Employers, London, 1977. 64pp.
[Brief information and photographs of 46 housing systems.]

Further reading

Anthony, Hugh. *Houses: Permanence and Prefabrication*, Pleiades Books, 1945. 64pp.

Bemis, A F. *The evolving house.* Vol. 3. *Rational design.* MIT Press, Cambridge, Mass. and Batsford, London, 1936.
[Includes descriptions of systems designed and built in the UK in the 1920s.]

Building Research Station. *Structural requirements for houses.* National Building Studies Special Report No. 1. London, HMSO, 1947.

Cox, B H. *Prefabricated houses.* London, 1945.

Demonstration Houses, HMSO, 1944.
[Detailed description of houses on the Ministry of Works demonstration site at Northolt, London, with many construction photographs.]

Hans van der Heijden and Barbara Klomp, *Tuindorp Kethel Schiedam*, Thoth, Bussum, Netherlands, 2004.
[Contains a detailed account of the use of the Airey system in the Netherlands.]

Lakeman, Albert. *Concrete Cottages Bungalows and Garages*, Concrete Publications Ltd, 2nd edn 1924.

Madge, Charles (Ed.) Clarence Crescent, *Pilot Papers*, Vol. I, No. 4, Pilot Press, 1946.
[Photo-journalist account of life on an estate of Seco temporary bungalows.]

Madge, John (Ed.) *Tomorrow's Houses: new building methods, structures and materials.* London, Pilot Press, 1946. 336pp.

Ministry of Health. *Housing*, Vols I and II: July 1919–June 1921.

Ministry of Works. *New methods of house construction (1945–47).* National Building Studies Special Report No. 4. London, HMSO, 1947.
[Analyses labour content and costs.]

Ministry of Works. *New methods of house construction*, Second Report (1947–48). National Building Studies Special Report No. 10. London, HMSO, 1948.

Richardson, Harry W and Aldcroft, Derek H. *Building in the British Economy between the Wars*, Allen and Unwin, 1968.

Rubinstein, Antonia, Andrews, Andy and Schweitzer, Pam (Eds). *Just like the Country*, Age Exchange, 1991.
[Oral history of the LCC interwar cottage estates, with many archive photographs of non-traditional houses on the Becontree, Downham and Watling Estates.]

Some new methods of construction: a brief survey. *The Structural Engineer*, Vol. 03, 1925. pp174–184.
[Various types of industrialised building briefly described and illustrated.]

Saunders, C E. Some effects of prefabrication on post war building. *The Structural Engineer*, Vol. 35, No. 8 August 1957. pp277–296.

Sheppard, Richard. *Prefabrication in Building*, Architectural Press, 1946. 148pp.

The corrosion of steel in steel houses. National Building Studies Special Report No. 16. London, HMSO, 1951. 44pp. **CD**
[Examines corrosion in steel clad and steel framed houses built between 1920 and 1927.]

The durability of reinforced concrete in buildings. National Building Studies Special Report No. 25. London, HMSO, 1956.

Timber Development Association. *Prefabricated timber houses. A statement of the principles and practice of prefabrication.* London, [1944?], 26pp.

Timber Development Association. *Prefabricated timber houses. A review of constructional methods, including in situ and prefabricated constructions.* London, 1947, 39pp.

Vale, Brenda. *Prefabs: a history of the UK temporary housing programme.* London, Spon, 1995. 192pp.

Watson, Alexander. *Demonstration Houses: Sighthill, Edinburgh (1945–65)*, Scottish Special Housing Association, Edinburgh, 1987. 92pp.
[A review of the housing stock built for experimental and demonstration purposes at Sighthill, Edinburgh, from 1945 to 1965, with plans and construction details.]

List of house types

Note: Some systems built with different materials have the same name. Use of the Index of names and alternative names at the end of the book or the Search Engine on the accompanying CD ROM is therefore strongly recommended in searching for a particular house type.

PART ONE: METAL FRAMED HOUSES

M001 AGB Modular 6
M002 AIROH Temporary Bungalow
M003 Aluminium Bungalow BL8
M004 Aluminium House
M005 Arcal
M006 Arcon
M007 Arcon Temporary Bungalow
M008 Arrowhead
M009 Atherton
M010 Atholl 1926
M011 Atholl 1945
M012 Atholl 1951
M013 Beanland No 1
M014 Birmingham Corporation
M015 Birmingham Corporation Type ST
M016 BISF Type A
M017 BISF Type A1
M018 BISF Type B
M019 BISF Type C
M020 B-J
M021 Braithwaite
M022 British Housing
M023 Buchan
M024 Conatus
M025 Connell
M026 Cornes
M027 Coventry Corporation
M028 Craig Atholl
M029 Crane
M030 Cranwell
M031 Cruden
M032 Cussins
M033 Denis Poulton
M034 Dennis
M035 Dennis-Wild
M036 Discus
M037 Dorlonco
M038 Duplex Sheath
M039 Falkiner Nuttall
M040 Formula
M041 Gateshead Corporation
M042 Gee Walker & Slater
M043 Grenfell Baines
M044 Grid
M045 Hawthorn Leslie
M046 Hillcon
M047 Hills Presweld
M048 Hitchins
M049 Homeville Industrialised
M050 Howard Type A
M051 Howard Type B
M052 IBIS
M053 Integer
M054 Kelvin
M055 Keyhouse Unibuilt
M056 Kingstone
M057 Langlands
M058 Liverpool Corporation
M059 Livett-Cartwright
M060 Lowton-Cubitt
M061 Macfarlane
M062 Mark
M063 Minox
M064 MOHLG 5M
M065 Mucklow Plan
M066 Multispan
M067 New Georgian
M068 Nissen-Petren
M069 Northern Ideal Homesteads
M070 Nuttall Building System
M071 Nuttall Mk II
M072 Open System Building
M073 Paragon
M074 Phoenix Temporary Bungalow
M075 Portal Temporary Bungalow
M076 Procol
M077 Quality
M078 Reith
M079 Resiform
M080 Riley
M081 Roften
M082 Rothschild
M083 Rotinoff
M084 RTB Temporary Bungalow
M085 Rubery Owen
M086 Seco
M087 Shipston Aluminium
M088 Spaceway
M089 Steane
M090 Stewart & Lloyd
M091 Stuart
M092 Symplex
M093 Telford
M094 Thames
M095 Thorncliffe
M096 Trusteel 3M
M097 Trusteel Mk II
M098 Turner & Newall
M099 Unitroy
M100 Universal Temporary Bungalow
M101 Universal Type I
M102 Universal Type II
M103 WH
M104 Wilson

Appendix to Part One: Metal framed houses

AM001 Adams
AM002 Anchorloc
AM003 Anderson Permanent House
AM004 Arlon
AM005 Bailey Stratton
AM006 Boyd
AM007 Braby
AM008 Braddock
AM009 Broadway
AM010 Brodie
AM011 Buckwyn
AM012 Canister
AM013 Clements
AM014 Copeland
AM015 Coseley
AM016 Fewac
AM017 Fillod
AM018 Fincast
AM019 Fromson
AM020 Intercon
AM021 Mackay H & Sons
AM022 MC2
AM023 Modform
AM024 Opperman
AM025 Parcrete
AM026 Sanders-Foster
AM027 Scott & Middleton
AM028 Structural and Mechanical Engineering
AM029 Stuart Scheme II
AM030 Swiftplan Multiflex H
AM031 Thermostatic Steel House
AM032 Town & Vale
AM033 Trellit
AM034 TSB
AM035 Tubrick
AM036 Veneercraft
AM037 Waldic

PART TWO: PRECAST CONCRETE HOUSES

P001 Adams H1
P002 Adams HVA3
P003 Airey
P004 Alcrete
P005 AMcK
P006 Anglia Type A
P007 Argyll
P008 Arrow
P009 Atlas Stone
P010 Ayrshire County Council
P011 Balency
P012 Balfour Beatty
P013 Bates 4L
P014 Battery Cast
P015 BCCF
P016 BDG
P017 Beanland No 2
P018 Belfry
P019 Bellrock
P020 Bison Crosswall
P021 Bison Wall Frame
P022 Blackborrow
P023 Blackburn
P024 Blackburn Orlit
P025 Boot Beaucrete
P026 Boot Pier and Panel
P027 Broadmead
P028 BRS L-shaped panels
P029 Bryant Low Rise
P030 Bryant Low Rise System 4
P031 Building Systems Ltd
P032 Camus
P033 Carlton
P034 Channello
P035 Cheecol Keeland
P036 Concept 4
P037 Concrete Houses Ltd
P038 Cornish Flush Panel
P039 Cornish Unit Type I
P040 Cornish Unit Type II
P041 Cosmos
P042 Costain
P043 Crosby
P044 Dalcot
P045 Domkonstruado
P046 Dorran
P047 Dyke CCC
P048 East Knowle Special
P049 Fairweather
P050 Falcon
P051 Farlington Special
P052 Fram
P053 Glasgow Foamed Slag
P054 GLE
P055 Gregory
P056 Gregory Industrialised
P057 Hamish Cross Type I
P058 Hamish Cross Type II
P059 Hardy
P060 HDC
P061 Hertsmere Special
P062 Hexham Special
P063 Howells
P064 HSSB
P065 Industricon
P066 Jansel
P067 Jespersen 12M
P068 Kenkast
P069 Ketton
P070 Kincorth Mk III
P071 Kingsthorne Special
P072 Lecaplan Type A
P073 Lecaplan Type B
P074 Lightning Construction
P075 Lilleshall
P076 Livett-Cartwright
P077 Loudon Mk II
P078 Mac-Girling
P079 Malthouse
P080 Marley
P081 MeTraCon
P082 MFC
P083 Minniel
P084 MOD Special

P085 Modus
P086 Morrell
P087 Myton
P088 Natcon
P089 NCB
P090 Newland
P091 Orlit Type I
P092 Orlit Type II
P093 Orlit-Bellrock
P094 Parkinson
P095 Pemcrete
P096 Permabuilt
P097 Perma-Erecta
P098 Potters Bar Special
P099 Reema Conclad
P100 Reema Contrad
P101 Reema Hollow Panel
P102 Russell Leighton
P103 SB2
P104 Simplified Brickwork
P105 Siporex 6M
P106 Skarne
P107 Smith
P108 SNW
P109 Spacemaker
P110 Stent
P111 Stewart & Partners Type I
P112 Stewart & Partners Type II
P113 Stonecrete
P114 Stubbings Industrialised
P115 Tarran Temporary Bungalow
P116 Taylor Woodrow-Anglian
P117 Tee Beam
P118 Thornwall
P119 Token
P120 Tracoba Low Rise
P121 Truscon RD 27
P122 Ulster Cottage
P123 Underdown
P124 Uniment
P125 Unit-Built
P126 Unitroy
P127 Unity Type I
P128 Unity Type II
P129 Waller
P130 Wates
P131 Webb
P132 Wessex
P133 West's 5M
P134 Whitson-Fairhurst
P135 Wil-Mac
P136 Wilvan
P137 Winget
P138 Woolaway
P139 Woolaways Bungalow
P140 XW

Appendix to Part Two: Precast concrete houses

AP001 Addison
AP002 Allbetong
AP003 Andrews
AP004 Artmet
AP005 Barvis
AP006 Beale & Son
AP007 Bison Trimline
AP008 Bonding Block System
AP009 British Craft Homes
AP010 Cebus
AP011 Cemacrete
AP012 Clugston Cawood
AP013 Coignet
AP014 Concrete Utilities
AP015 Davis
AP016 Dudley Coles
AP017 Halls Mk III
AP018 Hardie
AP019 Hayes Interlock
AP020 Incon
AP021 Kent
AP022 Keylock
AP023 Kingston
AP024 Locarn
AP025 Luton
AP026 Maycrete
AP027 Neale
AP028 Oakridge
AP029 PAC
AP030 Palmer
AP031 Panelwall
AP032 Pearce
AP033 Pentagon
AP034 Plysyl Bungalow
AP035 Poolman
AP036 Prefacto
AP037 Rationalised Housing
AP038 RB2
AP039 Ridgeway
AP040 Ross
AP041 Shingleton Conslab
AP042 Simmcast
AP043 Speyroc
AP044 Strongman
AP045 Trentrox
AP046 Unit System
AP047 Weedon
AP048 Western System
AP049 WL Ring
AP050 Young RW
AP051 Ytong

PART THREE: IN-SITU CONCRETE HOUSES

S001 Aberdeen Corporation
S002 Alderton
S003 Arup
S004 Banton No-Fines
S005 Beco Wallform
S006 Blackburn No-Fines
S007 Boswell
S008 Boyd Gibbons No-Fines
S009 BRS Type 4
S010 Brydon No-Fines
S011 Cast Rendered
S012 Concrete Frames
S013 Conslab
S014 Cook
S015 Corolite
S016 Corvus
S017 Craftcast
S018 Dagenham Special
S019 Diatomite
S020 Doric
S021 Dry-Walls
S022 Duo-Slab
S023 Easiform Type I
S024 Easiform Type II
S025 Edinburgh Foamed Slag
S026 Farrans No-Fines
S027 Fidler
S028 Firmcrete
S029 Foamed Slag
S030 Forrester-Marsh
S031 Gadie
S032 Herald
S033 Incast
S034 Kirton
S035 Lamella
S036 Lowestoft Borough
S037 Maxim
S038 Miller No-Fines
S039 Miller Temporary Bungalow
S040 MOW Demonstration Expanded Clay
S041 MOW Demonstration Foamed Slag
S042 MOW Demonstration No-Fines
S043 Mowlem
S044 O'Sullivan
S045 Parkwall
S046 Permacrete
S047 Quikform
S048 Rumble
S049 Schindler
S050 Solvyt
S051 SSHA No-Fines
S052 SSHA Wartime Cellular Concrete
S053 Sunskeeme
S054 Tenaplas
S055 Unit No-Fines
S056 Universal
S057 Vine & Vine
S058 Wakefield Special
S059 War Office No-Fines
S060 Weir No-Fines
S061 Whatling
S062 Wimpey No-Fines

Appendix to Part Three: In-situ concrete houses

AS001 Calway
AS002 Combined Concrete Construction
AS003 Ctesiphon
AS004 Davies
AS005 Davis J
AS006 F3C and F4C Concrete Houses
AS007 Firth
AS008 Giles
AS009 Hughes
AS010 Intercon
AS011 Intrad
AS012 King & Howse
AS013 Laidlow Thornton
AS014 Lo Rona
AS015 MacKeown
AS016 Multilite
AS017 MWM
AS018 Rapirect
AS019 RCC
AS020 Sidney Stone
AS021 SSHA Commissioners Resumption
AS022 Tayton
AS023 Whitcon

PART FOUR: TIMBER FRAMED HOUSES

T001 Aberdeen Corporation
T002 Anchor 12M
T003 Andover
T004 Anvil
T005 Appleyard
T006 Arbor
T007 Arcal
T008 Arrowtrim
T009 Bennett
T010 Boro
T011 Boulton & Paul
T012 Bricket Wood Special
T013 Bullock
T014 Bur-Pal
T015 Burt Boulton
T016 Calder
T017 Caldervale
T018 Calverley Type I
T019 Calverley Type II
T020 Cameron
T021 Canadian Demonstration Homes
T022 Canadian Timber Type I
T023 Caspon
T024 Cedar Homes
T025 Cedarworth Homes
T026 Celtic Homes
T027 Challow
T028 Colt
T029 Cowieson
T030 Czechoslovakian Timber
T031 Devon Lady
T032 Edgell
T033 Eklectron
T034 Elementhus
T035 Elsworthy
T036 Engineered Homes
T037 Eurodean
T038 Facta
T039 Faculty
T040 Federated System 2
T041 Flexi
T042 Fontaberry
T043 Forfar Borough
T044 Frameform
T045 Fredericks Cedarwood

T046 Fredericks Frame System
T047 G Block Watne
T048 Goldcrest
T049 Grenfell Baines
T050 Grove Homes
T051 Guildway
T052 Hall
T053 Hallam Mk I & Mk II
T054 Hallam Mk III
T055 Hallam Volumetric
T056 Harvey Frame
T057 Hertfordshire County Council
T058 Hultsfreds
T059 Humphreys
T060 Jackson
T061 Jansel
T062 Jicwood Temporary Bungalow
T063 Ketton
T064 Kier BDC
T065 Lanark County Council
T066 Langlands Bungalow
T067 Langlands Mansard
T068 Langlands Terrazzo
T069 Langlands Type N2
T070 Lawrence
T071 LCC Mobile
T072 Linton
T073 Liverpool Special
T074 Lovell
T075 Macrae
T076 Macrae Plus
T077 Mactrad
T078 Maple Leaf
T079 McAlpine
T080 McDonald
T081 Medway Type I
T082 Medway Type II
T083 MeTraTim
T084 Meyer
T085 MHC
T086 Miller
T087 Minox
T088 Moelven Brug
T089 MOHLG
T090 Multicom
T091 Multigrid
T092 Newcastle Corporation
T093 Nokkelhus
T094 Norwegian Log
T095 Peak Homes
T096 Perren
T097 Prestoplan
T098 Purpose Built Type I
T099 Purpose Built Type II
T100 Puutalo
T101 Quikbild
T102 Reeves Frame
T103 Resiform
T104 Rileyform
T105 RMR
T106 Rowcon Type I
T107 Rowcon Type II
T108 Scano Type I
T109 Scano Type II
T110 Scano Type III
T111 Scotlog
T112 Scottwood
T113 Seco Temporary Bungalow
T114 Segal
T115 Shepherd
T116 Sherwood
T117 Silksworth
T118 Simms C-DA
T119 Simms Sons & Cooke SWPA
T120 Simms Sons & Cooke
T121 Solid Cedar
T122 Spooner
T123 Spooner Temporary Bungalow
T124 SSHA
T125 Swedish Timber
T126 Swift
T127 Swiftplan Multiflex H12
T128 Terrapin
T129 TRADA Type I
T130 TRADA Type II
T131 Trybo
T132 Unicorn
T133 Unit System 67
T134 USA Temporary Bungalow
T135 Wates
T136 Weir Postwar
T137 Weir Prewar
T138 Wellbuilt
T139 YDG
T140 Yorkshire Timber Frame
T141 Young Elizabethan
T142 Youngman
T143 Yuill

Appendix to Part Four: Timber framed houses

AT001 Anchor 600
AT002 Anchor Modular
AT003 ASD
AT004 Aspect
AT005 Austin Hall
AT006 Avonside
AT007 B & J
AT008 Barratt
AT009 Bayley Bartlett
AT010 Bigland & Mowat
AT011 Bradley
AT012 Brims
AT013 Brown of Wem
AT014 Bruce
AT015 Build Form
AT016 Canadian Timber Type II
AT017 Contrad
AT018 Cosmos
AT019 Cuckow
AT020 Cuyper
AT021 Daleholme
AT022 Domus
AT023 ECP Modular
AT024 Elliott

AT025 Essihus
AT026 Factrad
AT027 Farquahar
AT028 Finnish Timber
AT029 Fleming
AT030 Formula
AT031 Forth
AT032 Framecourt
AT033 Fraser & McDonald
AT034 Fribohus
AT035 Gart
AT036 Glasgow Corporation
AT037 Goldenhomes
AT038 Grange
AT039 Gray
AT040 Grayholme
AT041 GT
AT042 Heath
AT043 Highland Tain
AT044 Howard Mersham
AT045 Interbild
AT046 Janes
AT047 Kingston
AT048 Lawrence Building Co.
AT049 Leyland Industrial
AT050 Lisset
AT051 Lothian
AT052 Louden
AT053 Ludford
AT054 M & J
AT055 Mactaggart & Mickel
AT056 Marley
AT057 Maxim
AT058 McLean
AT059 Mears Cowlin
AT060 MFC
AT061 Mitchell
AT062 Module Two
AT063 Modumould
AT064 Multispan
AT065 Neata
AT066 New Trend
AT067 Nuway
AT068 Papworth Permanent Bungalow
AT069 Potton
AT070 Pratten
AT071 Pre-Cut Norwegian
AT072 Pyrocol
AT073 Ramsjo
AT074 Redifice Bungalow
AT075 Reid
AT076 Rothwell-Perrin
AT077 RTE
AT078 Ryedale
AT079 Salveson
AT080 Scan
AT081 Scanda Plan
AT082 Scandev
AT083 Scandia
AT084 Scansiv
AT085 Scansystem
AT086 Scotfast
AT087 Shaddow Wall
AT088 Slingsby
AT089 Spacemaker Bungalow
AT090 Steinkjer
AT091 Stex
AT092 Supalite
AT093 Superhome
AT094 Surrey Grove
AT095 Sutherland
AT096 Swedale
AT097 Systemac
AT098 Taygon
AT099 Thain Capital
AT100 THUS
AT101 Timber Frame (UK) Ltd
AT102 Timcon
AT103 Toogood
AT104 Trussit
AT105 Unicom
AT106 Unistem
AT107 Unit
AT108 Variform
AT109 Varney
AT110 Waddington
AT111 Walemesh
AT112 Walker
AT113 Wallis
AT114 Walton
AT115 Wellgrave
AT116 Western
AT117 Whatlings Redwood
AT118 Wilson
AT119 Woodclad

Addendum to the digital edition

ADM001 Span Type K
ADP001 Occident
ADT001 Douglas Special
ADT002 Swedish Sectional Timber

CONTENTS INDEX BACK

AGB Modular 6

M001

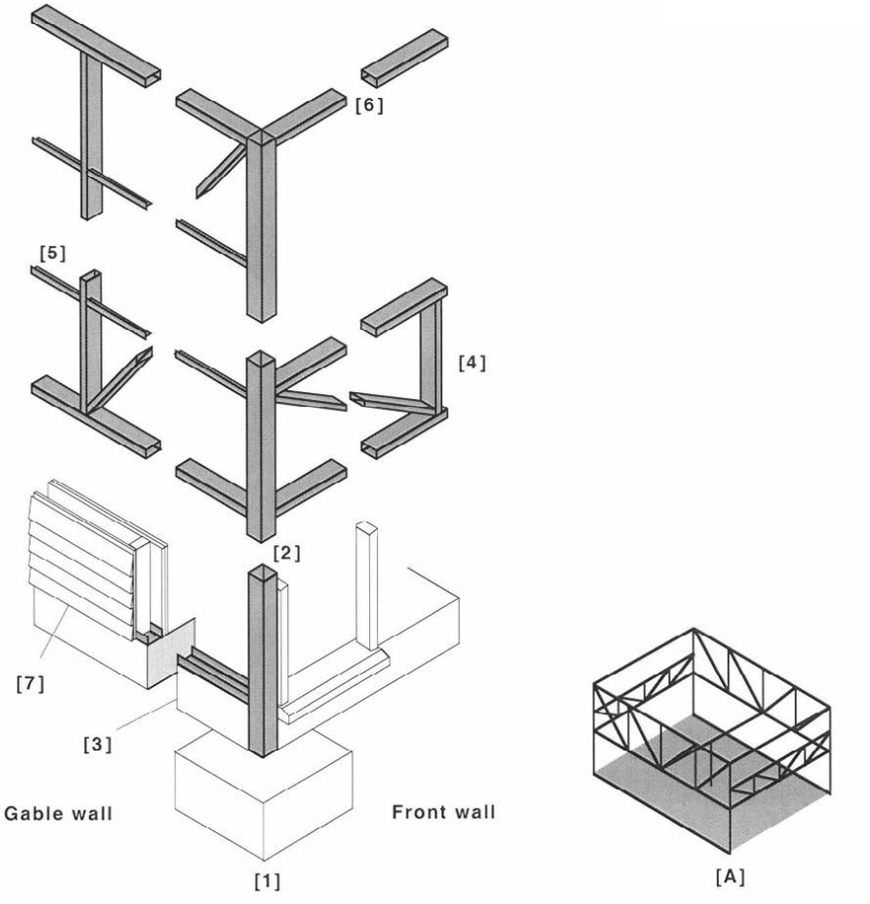
Manufacturers: Modular New Homes Ltd
A.G.B. Group
Dudley Coles Ltd

Designers: G R Vaughan Ellis
Brian L Godfrey

Alternative names: Dudley Coles
Modular 6
Modular Housing

Period built: 1965

Number built: 50



IDENTIFICATION CHARACTERISTICS

Bungalows and 2-storey terraced houses.
Medium pitch gable roof covered with interlocking concrete tiles or flat roof covered with bituminous felt.
Front and rear external walls of timber frame infill panels clad with horizontal or vertical profiled plastics-coated steel sheets, asbestos cement sheets, plastics boarding or tile hanging.
Gable wall of horizontally profiled steel sheets or rendered to eaves level and vertically profiled steel sheets or asbestos cement sheets at apex.
Terraced houses have single storey flat roof porch and store extension at front and rear elevation.

NOTES FOR SURVEYORS

Moderate corrosion of frame throughout.

The system was also used for flats.

REFERENCES

CIBSA 1970
NBA Certificate

CONSTRUCTION

Substructure: Concrete pads below stanchions. Concrete slab thickened around perimeter **[1]**. DPC.
Frame: 5 RS hollow box stanchions **[2]** (1 single storey), 2 RSC perimeter ties **[3]**, 1 RSJ floor support beam, 2 braced RS box spandrel beams **[4]**, 2 storey height braced RS hollow box spandrel beams **[5]**, 2 RSJ perimeter beams **[6]**, see frame layout **[A]**.
Protective coating: Zinc paint.
External walls: Storey height timber frame infill panels clad with profiled plastics-coated steel sheets over building paper **[7]** and asbestos cement sheets and plastics boarding. Lined with laminated plasterboard. Gable apex clad with vertically profiled plastics-coated steel sheets. Steel cover strips at corners and at separating wall.
Separating wall: Timber frame panel cavity wall lined with laminated plasterboard. Mineral wool insulation quilt in cavity.
Partitions: Timber stud lined with plasterboard.
Ground floor: Concrete.
First floor: Timber joists and chipboard.
Ceilings: Plasterboard.
Roof: Timber trusses, bituminous felt and interlocking concrete tiles. Mineral wool insulation quilt at ceiling level.

VARIANTS

Concrete strip footings along gable wall.
External walls clad with tile hanging or plastic boarding.
Gable wall of rendered block to eaves level and asbestos cement sheets above.
Separating wall in roof space lined with asbestos cement sheets.
Flat roof of timber joists, chipboard and bituminous felt.