Is the Typical Modern House Designed for Future Adaptation for Disabled Older People?

J. P. FRAIN, P. H. CARR

Summary

Independence in their own homes is desirable for most people but illness and disability in later life may make this impossible unless aids are provided and adaptations made to the home. The cost of these changes may be high. The most recent proposals for revision of the United Kingdom Building Regulations include provision for making all new homes adaptable so that occupants who become disabled may continue living in them. A letter was sent to the largest British house-building companies to assess the extent to which their homes are capable of easy modification in the future. This was followed by a telephone survey of non-respondents. The response rate overall was 88% with 49% providing written replies. Only 3% of companies had designed and built adaptable housing; these are still at the trial stage. Many companies will modify houses if requested to do so in the construction phase but demand for such alterations is low. Most companies accept that houses can be adaptable but economic reasons largely prevent them from doing so. Adaptable housing for those seeking 'homes for life' is not a high priority of building companies.

Keywords: Housing, Old age, Disability.

Introduction

The 1991 census showed that just less than 8¼ million pensioners were living in just over 6 million households (one in three of all households) [1]. In addition to the physical comforts, many appreciated the closeness of friends and social facilities, personal independence and autonomy, and so important are these that elderly persons prefer to remain in their own homes [2]. Indeed, in 1970 the Chronically Sick and Disabled Persons Act made it a 'duty' of local authorities to make arrangements for the 'provision of assistance .... in arranging for the carrying out of any works of adaptation in [a person's] home or the provision of any additional facilities designed to secure his greater safety, comfort or convenience.' The NHS and Community Care Act of 1990 supports this choice and has theoretically reorganised services to effect it [3].

Maintenance of the home becomes more difficult with increasing disability, extreme age [4] and falling income. Failure to achieve regular maintenance may lead to more extensive repairs in the future. The mortality of older people living at home is affected by housing conditions [5]. Of the pensionable population living in independent households in 1991, 40% were regarded as having long-term limiting illness [1]. Disability and disease limit mobility within the home perhaps to the point where a person is unable to use stairs and is therefore confined to a downstairs room. If the bathroom and toilet are upstairs the elderly may not be able to bathe as often as they would wish [6, 7]. Some may even become trapped in a standard bath [8]. Exercise is related to the number of rooms available in a dwelling [9] and this in turn is related to mortality [10].

Some of these problems might be overcome by adapting the home. The cost for such adaptation, together with technical aids for the mild to moderately disabled, may postpone or even avoid institutionalization or the need for care services [11]. However, for the more severely disabled and for certain houses, this may be expensive and influence the decision to move. The cost of adaptation could be reduced if the house was potentially adaptable to meet future needs.

The UK National Housing Building Council has recently produced a draft of proposed amendments to the House and Building Regulations to cover 'visitability' and 'adaptability' standards [12]. A 'visitable' home would incorporate standards to enable even those with severely restricted mobility to go outside. An 'adaptable' home would be one 'in which the changing needs of the occupants through illness, disability or ageing, can be specifically accommodated without major structural alteration and expense'. The recommendations do not cover specific needs but consider general points such as access from a car to the dwelling, entrance to the dwelling, internal circulation, kitchens, toilet facilities, stairs, bedrooms, and access to service controls. If accepted, these provisions could become mandatory in all new houses. The purpose of this study was to assess the extent to which companies already
design and build houses which can be readily adapted in the future, should their elderly occupants become disabled.

Method

The Building Employers Confederation in London was asked to provide a list of the largest house-building companies in England. The list for 1992 contained 80 names. Eight of the companies were involved in take-overs and mergers and were excluded. The final sample was thus 72 companies.

A letter was sent to the Managing Director of each company. Each was asked to comment on a list of provisions he or she considered important when designing a house to be adaptable (Table I). Some of these are included in the draft amendment to the building regulations. Comments were also invited about factors affecting adaptable housing design. Following the postal survey, the non-respondent companies' design departments were telephoned and asked 'Is your typical house for the mainstream market designed for future adaptation by a disabled elderly occupant?' If they gave a positive response, further details were requested.

Results

The combined response rate to both parts of the survey was 88% with 49% replying in writing. Nine of the companies replied that they were unable to answer the survey fully due to lack of time but five of these nine conceded that they had no policy on in-built adaptability of their homes. Twenty-six companies (36%) sent information answering the points raised in our letter. In speaking to 32 companies, thirty-one did not design their houses to be adaptable, although two-thirds of the telephoned sample would allow a modification at the construction phase to meet individual needs as outlined in the letter.

Telephone survey: The design departments of 37 companies were contacted by telephone. We succeeded in speaking to 32 companies. Thirty-one did not design their houses to be adaptable, although two-thirds of the telephoned sample would allow a modification at the construction phase to meet individual needs as outlined in the letter.

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The remaining company had a development in which one of the downstairs rooms had an interchangeable floor plan to allow installation of toilet and bathroom facilities. Modifications similar to those itemized in our letter meant that the house was suitable for future use by disabled elderly occupants.

Written survey: In the written survey, seven companies actively considered the needs of the disabled and elderly when designing their houses. However, alterations were made at the design or construction phase and were therefore included in the completed house rather than being possible in future adaptations. A further five would allow customers to make changes to the house—provided these were requested at the construction phase. The items which could be adapted were the width of doors, position of power points and light switches, heights of worktops and a choice of kitchen and bathroom suites. Only one company would make such alterations for disabled customers free of charge. Nineteen companies had no policy on adaptation of housing.

One company was beginning a trial of adaptable two- and three-bedroomed houses at one of its sites. Adaptations consisted of altering walls, door widths and thresholds. Power points and light switches were lowered to be within easier reach of wheelchair users. Consideration was given to appropriate siting of control systems, such as heating switches. The houses were being sold before the installation of kitchen and bathrooms to meet customers' individual requirements.

Access for wheelchairs requires easily negotiated gradients and thresholds, wide enough doors and handles low enough to allow users to open them. Many companies felt the use of ramps to be limited by gradients and thresholds. Power points and light switches were lowered to be within easier reach of wheelchair users. Consideration was given to appropriate siting of control systems, such as heating switches. The houses were being sold before the installation of kitchen and bathrooms to meet customers' individual requirements.

Toilets were provided downstairs as standard only in the larger properties; in smaller houses, no plumbing provision is made for future installation of a toilet. No company installed standard downstairs showers but three thought that a shower could be installed by modifying plumbing for an existing toilet. This would probably mean removing the toilet. No company made provisions for wheelchair access to downstairs toilets.

The provision by the companies of other items considered important when designing a house to be adaptable in the future is displayed in Table III. An item was more likely to be provided if its presence was

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**Table I. Items for consideration when designing a home to be adaptable in the future**

1. Wheelchair access.
2. Structure of walls to allow handrails or chairlift to be installed.
3. Plumbing facilities for downstairs toilet or shower.
4. Position of electrical switches and power points.
5. Gradient and dimensions of stairs.
6. Design and use of bathroom suites.
7. Lighting of passageways.
10. Access to heating controls and availability of individual controls in each room.
12. Provision of telephone points.
13. Use of energy efficient systems.
14. Use of fire-resistant materials.
15. Cavity-wall and loft insulation.

**Table II. Number of building companies who designed houses for future wheelchair access**

<table>
<thead>
<tr>
<th>Provision for wheelchair access</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Door width</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Steps/ramp</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Door handles</td>
<td>8</td>
<td>18</td>
</tr>
</tbody>
</table>

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helpful to people of all ages and abilities. Items of specific concern to older people such as stair design, adequate lighting of passageways, multiple switches in bedrooms and position of meters and control panels were unlikely to be taken into consideration. Baths designed for older people are apparently unattractive to able-bodied customers. Most modern baths are shallower than formerly and have grab handles to facilitate getting in and out. One company commented that corner baths, currently fashionable, provide easier access than the traditional type and are an acceptable alternative. However, these require more space. No company took into account that many older people might prefer showers to baths anyway.

Discussion

A number of housing options exist for elderly and disabled people. These include purpose-built flat complexes and sheltered housing which offer increased security, reduced maintenance and lower running costs. However, this may involve an unwelcome move to considerably smaller accommodation. Home Improvement agencies exist throughout the UK, co-ordinated nationally by 'Care and Repair'. The 'Staying Put' (e.g. Anchor Housing Association) and 'Care and Repair' schemes offer advice to older people about home adaptations to meet their changing needs. Unfortunately, these schemes, although expanding, are not yet well known by either the general public or health workers. Our survey looked at the possible alternative of designing normal houses which would be easily adaptable to future needs, and is therefore applicable to tomorrow's elderly population.

The combined overall response rate to our basic questionnaire was 93%. The written response rate of 49% was more disappointing. However, points outlined by the companies who replied by letter were very similar and telephone conversations with design departments confirmed these to be the important issues. Furthermore, it has been shown that those who fail to reply to questionnaires more often reply in the negative on subsequent enquiry and again our telephone survey confirmed this [13]. The items we asked the companies to consider were similar to those of the NHBC draft document's standards.

Only two companies (3%) designed houses which might be suitable for future adaptation for an increasingly frail elderly occupant. All companies accepted that people may need to adapt their houses in the face of age and disability but most felt that designing houses to be adaptable would have to be mandatory before it became widespread. This was largely an economic argument. One company commented 'it is not cost effective to exceed minimum standards'. Most current designs would need re-working. Even smaller houses would require a substantial increase in floor space and would therefore be higher and less competitively priced. One company stated it had never received enquiries about such properties as people do not anticipate disability, accepting it only when it happens. Another commented that disabled people may prefer to live in a 'normal' house rather than one for the disabled, thus missing the point that the houses should be normal but have in-built adaptability. Even where companies allow customization for disabled persons at the construction stage, uptake rates are low: 0.3% of 8000 properties for Wimpey Homes in the 12 months to June 1994 (M. J. Stamp, Company Architect, Wimpey Homes; personal communication).

An adaptable home should have two design considerations. First, the fixed elements such as door width, presence of thresholds and stair design should be considered when the house is built [14]. Secondly, plumbing for additional toilets or showers, or wiring for additional switches and power points should be provided. If these designs were accepted as standard in all new houses then the unit cost of building would be reduced, a point recognized by several companies. Space is also a factor and many companies felt that modifications would be space dependent and therefore available only to more affluent people who live in larger houses. This is the experience of Denmark where efforts have been made to maintain elderly people in their own homes [15].

In 1997 the Department of Environment may introduce 'visitability standards' for short visits by disabled persons to domestic properties [16]. These, and the recommendations sited in the NHBC document, may lead to the development of regulations on

<table>
<thead>
<tr>
<th>Item</th>
<th>Consideration given</th>
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<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Position of power points</td>
<td>13</td>
</tr>
<tr>
<td>Stair design</td>
<td>1</td>
</tr>
<tr>
<td>Position of switches</td>
<td>8</td>
</tr>
<tr>
<td>Bathroom design</td>
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</tr>
<tr>
<td>Lighting of passages</td>
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<tr>
<td>Bedroom light switches</td>
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<tr>
<td>Position of meters</td>
<td>3</td>
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<tr>
<td>Heating controls</td>
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<td>Security</td>
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<td>Telephone points</td>
<td>9</td>
</tr>
<tr>
<td>Energy efficiency</td>
<td>5</td>
</tr>
</tbody>
</table>

* Wall structure to allow for installation of chair lift or hand rail. Stairs should have a clear run for the lift.
  b Above standard requirements to allow for visual impairment.
  c Additional switches to the standard switch inside the door.
  d e.g. individual radiator controls in each room.
  e In addition to standard requirements of door and window locks.
  f In addition to standard single downstairs point.
adaptable housing, not as a total solution, but one option in managing the challenges of an ageing population. It will require the joint effort of Government, the Building Authorities and health professionals to promote it as a viable option. Economic arguments and perceived lack of demand make the building companies reluctant to develop it further at this stage.

**Key Points**

1. Houses should be adaptable to allow elderly occupants to remain at home and minimize the cost of service care.
2. Most companies do not design their houses to be adaptable.
3. Demand for adaptable housing is currently low.

**References**

12. NHBC Standards, Chap 1.5: Accessibility [draft document].

**Appendix.** Useful addresses

Care and Repair, Castle House, Kirtley Drive, Nottingham, NG7 1LD

Anchor Housing Association, Anchor House, 269a Banbury Road, Oxford, OX2 7HU

**Authors’ address**

Department of Medicine, Darlington Memorial Hospital, Hollyhurst Road, Darlington, Co. Durham, DL3 6HX