Design of Lifetime Homes

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Typical Speculative Housebuilder Example adjusted to be Lifetime Homes Compliant
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Appendix
The purpose of these diagrams is to represent the range of flats and house to which the Lifetime Homes Standards will be applied and to set in context the examples which we are testing in this report.
Matrix of Typical Speculative Housebuilder House Types

Indicates examples analysed in this report
Purpose of the Report

The aim of this report is to assess the implication on size and cost for private sale house builders incorporating Lifetime Homes Standards for a limited number of common house types.

Scope of the report

The report assesses three common house types with two, three and four bedrooms.

Each house type is assessed in two parts:

- Firstly information is presented on the sizes of typical houses not compliant with Lifetime Homes by four of the largest UK housebuilders for comparison with the compliant examples. Additionally information on existing guidance and standards for private sale housing is provided as a table for comparison.

- Secondly an example of a non-compliant Lifetime Homes house type is compared with two compliant examples. The first compliant layout is derived from enlarging and adjusting the non-compliant layouts. The second compliant layout (referred to as the alternative layout) is derived from first principles to achieve the smallest possible footprint whilst maintaining the same habitable room sizes.

Each house example is a two storey design without built-in garages which could be configured as a detached, semi-detached or terraced house.

Executive summary

The report demonstrates the implications on house sizes of incorporating Lifetime Homes Standards in typical private sale houses. The examples show that if the layout is considered from first principles that the amount of area increase needed to comply is less than if an existing typical layout is modified to comply.

However designing for the most economical area may impact of the market value of the houses. Examples of factors which would effect market value would include the position and outlook of the living area, removing the entrance lobby to enter directly into the living area and the position of the downstairs WC. Also the overall appearance of the house should be considered. For example the overall roof design and position and appearance of the staircase in the four bedroom semidetached house would be a significant factor to the market value.

The size of the house used for comparison has a considerable effect and we would recommend testing a larger three bed house with an en-suite bathroom and also a smaller four bed house with a narrower frontage. In conclusion we recommend that to fully understand the cost implications of incorporating Lifetime Home Standards a wider range of houses may need to be analysed following discussions on setting guidelines on which market factors would need to be maintained.
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**Guidance Areas**

- **EP(HCA) Min Standard**
  - 2 4 77 829
- **HQI Band**
  - 2 4 67-75 721-807

**Study Examples**

- **Typical House Builder Example**
  - 2 2 4 62.0 667 3.9 8.0 semi or detached Narrow Front-Medium
- **Typical House Builder Example adjusted to LTH**
  - 2 2 4 65.7 707 4.3 7.7 semi or detached Narrow Front-Medium
- **Alternative Example adjusted to LTH**
  - 2 2 4 63.2 680 4.2 7.5 semi or detached Narrow Front-Medium
A typical two bedroom house type

This layout is typical of a two bed private sale house and is slightly smaller than the average identified in our comparative schedule. The kitchen is the minimum size that will fit a sink and the hall and stair have been minimised to their most efficient.

The narrow front design allows for an efficient plot layout when used in terrace with the living areas orientated towards the rear garden.

Although this example does not include an ensuite bathroom to the master bedroom this is a common feature for dwellings in this category. It is recommended that a further 66 SqM alternative version with an ensuite is considered in future phases of this work.
Quick Summary of change to the house footprint

The house becomes 430mm wider to accommodate the 300mm nib to the front door and the minimum 1200mm advised between the kitchen units and the opposite wall.

Summary of changes by Lifetime Homes Criteria

(1) Car Parking Width  No change to house layout
(2) Access From Car Parking  No change to house layout
(3) Approach Gradients  Note added stating level approach or 1 in 12 gradient
(4) Entrances  a) Note added about lighting  
   b) Note added stating level threshold  
   c) Canopy extent indicated
(5) Communal Stairs & Lifts  N/A to houses
(6) Doorways & Hallways  All upstairs doors increased to have 750mm clear when the approach is head-on or 775mm clear when the approach is not head-on. Refer to note on door sizes in appendix.

   Front door increased to be 800mm clear and 300mm nib shown. This combined with the enlarged 1st floor bathroom increases the overall width of the house by 430mm. Refer to note on door sizes in appendix.

   300mm clear access zone shown to all ground floor doors
(7) Wheelchair Accessibility  1700 x 1400mm turning circles added to living/dining room  

   Kitchen increased to allow 1200mm between units and wall
(8) Living Room  No change to house layout
(9) Entrance Level Bedspace  Entrance level bed-space shown dashed
(10) Ent. Level WC & Shower Drainage  a) WC nominally increased in size to allow for future shower. The existing Part M compliant WC is acceptable for a dwelling with two or less bedrooms  

   b) Drainage gully added with space for future shower
(11) Bathroom & WC Walls  Notes added stating walls to be capable of taking handrails
(12) Stair Lift/Through-Floor Lift  a) 700 x 400 and 200 x 400mm zones for a stair lift shown at ground and 1st floor

   Stair widened to be 900mm from wall to handrail  

   b) Through floor lift zone shown dashed at grd and 1st floor
(13) Tracking Hoist Route  Tracking hoist shown to 1st floor bathroom
(14) Bathroom Layout  1st floor Bathroom increased from 1950 x 1855mm to be ease of access 2000 x 2050mm
(15) Window Specification  No change to house layout
(16) Controls, Fixtures & Fitting  No change to house layout
Alternative two bedroom house type

This layout achieves Lifetime Homes compliance in a footprint which is 1.24 SqM larger than the non-compliant example.

The most significant change from the non-compliant example is that the living room moves to the front of the house and the kitchen and dining area are combined at the rear.

The narrow front design allows for an efficient plot layout when used in a terrace with the living areas orientated towards the rear garden.

To minimise circulation space (which is most effected by LTH) an ‘open plan’ living room is positioned at the front of the house. To achieve an overall area as close to the original size a number of compromises have had to be introduced. Specifically the entrance is no longer lobbied and the downstairs utility space/ WC is no longer separated from the kitchen by a hall.
Alternative two bedroom house type (option 02)

This layout is a variation on the previous design. The variations are to provide more privacy to the downstairs WC via a lobbied utility / storage space off the kitchen and to improve the second bedroom. The through the floor lift has been relocated to the rear of the house to provide improved circulation once installed in the bedroom.

This variation is presented as a second option as it is a slight deviation from the base due to the variation in distribution of space between the master bedroom and second bedroom.
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Guidance Areas

- EP (HCA) Min Standard: 3 5 93 1001
- HQI Band: 3 5 82-85 882-915

Study Examples

- Typical House Builder Example: 3 3 5 67.6 727 4.4 7.6 semi or detached Narrow Front-small
- Typical House Builder Example adjusted to LTH: 3 3 5 72.0 775 4.8 7.4 semi or detached Narrow Front-small
- Alternative Example adjusted to LTH: 3 3 5 70.8 762 4.6 8.1 semi or detached Narrow Front-small
A typical three bedroom house type

This layout is typical of a three bed private sale house with an area representative of the average for this category of house.

This layout has a separate dining room and has reasonable-sized bedrooms with an ensuite to the master bedroom.

The entrance to the house is via a central hall which gives a medium sized frontage width, which is common to two storey houses.

The medium frontage design allows for a reasonably efficient plot layout when used in a terrace with the living areas orientated towards the rear garden.
Quick Summary of change to the house footprint

The house becomes 400mm wider to accommodate the 300mm nib to the front door, the wheelchair accessible entrance level WC and the 900mm clear stair width. The plan increases in depth by 471mm as a result of the through floor lift in the master bedroom and allowing enough space around the bed.

Summary of changes by Lifetime Homes Criteria

(1) Car Parking Width  No change to house layout
(2) Access From Car Parking  No change to house layout
(3) Approach Gradients  Note added stating level approach or 1 in 12 gradient
(4) Entrances
   a) Note added about lighting
   b) Note added stating level threshold
   c) Canopy extent indicated
(5) Communal Stairs & Lifts  N/A to houses
(6) Doorways & Hallways
   All upstairs doors increased to have 750mm clear when the approach is head-on or 775mm clear when the approach is not head-on. Refer to note on door sizes in appendix.
   Front door increased to be 800mm clear and 300mm nib shown. This combined with the enlarged 1st floor bathroom increases the overall width of the house. Refer to note on door sizes in appendix.
   300mm clear access zone shown to all ground floor doors
(7) Wheelchair Accessibility  1700 x 1400mm turning circles added to living room and dining room
(8) Living Room  Increases in size as a result of the through floor lift to bedroom above.
(9) Entrance Level Bedspace  Entrance level bed-space shown dashed
(10) Ent. Level WC & Shower Drainage
   a) Entrance level WC increased in size to be fully accessible
   b) Drainage gully added with space for future shower
(11) Bathroom & WC Shower Walls  Notes added stating walls to be capable of taking handrails
(12) Stair Lift/Through-Floor Lift
   a) 700 x 400 and 200 x 400mm zones for a stair lift shown at ground and 1st floor
   Stair widened to be 900mm from wall to handrail. Resulting in a 35mm overall increase in depth
   b) Through floor lift zone shown dashed at grd and 1st floor
(13) Tracking Hoist Route  Tracking hoist shown to 1st floor bathroom and knock out panel. (Nb. could be in hall way to avoid knock out panel)
(14) Bathroom Layout  1st floor Bathroom increased from 1940 x 1890mm to be ease of access min 2000 x 2050mm - actual size is 2155 x 2050mm as a result of stair widening.
(15) Window Specification  No change to house layout
(16) Controls, Fixtures & Fitting  No change to house layout
Alternative three bedroom house type

This layout achieves Lifetime Homes compliance in a footprint which is 2.9 SqM larger than the non-compliant version.

The most significant change from the non-compliant version is that the downstairs WC moves to the middle of the ground floor. The result is two full width living spaces, the open plan living room at the front and a combined kitchen / dining room at the rear of the house.

The plot width is kept to a minimum. It is 400 mm narrower than the non-compliant version. The overall dwelling depth has had to increase by 1000 mm to maintain the matching living areas.
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Guidance Areas

- **EP (HCA) Min Standard**: 4 6 106 1141
- **HQL Band**: 4 6 95-100 1022-1076

Study Examples

- **Typical House Builder Example**: 4 6 112.2 1207 6.9 8.2 semi or detached Wide Front-Medium
- **Typical House Builder Example adjusted to LTH**: 4 6 125.5 1350 7.1 8.9 semi or detached Wide Front-Medium
- **Alternative Example adjusted to LTH**: 4 6 113.8 1224 5.3 11.2 semi or detached Narrow Front-Medium
A typical four bedroom house type

This layout is typical of a four bed private sale house and as set out previously we have chosen an area slightly smaller than the average in this class. There is a generous kitchen which might be used for everyday dining with a separate dining space to accommodate a family. The largest bedroom has an en-suite bathroom.

The double frontage design with a central stair would be used in a detached or semi-detached layout, often with a garage attached to the side.
Quick Summary of change to the house footprint

The house becomes 100mm wider on each side to accommodate the 300mm nib to the rear external door, the wheelchair accessible entrance level WC and because of the larger doors to the first floor landing. The house increases in depth by 700mm to allow for the future provision of the stair lift at the top and bottom of the staircase.

Summary of changes by Lifetime Homes Criteria

1. Car Parking Width
   No change to house layout

2. Access From Car Parking
   No change to house layout

3. Approach Gradients
   Note added stating level approach or 1 in 12 gradient

4. Entrances
   a) Note added about lighting
   b) Note added stating level threshold
   c) Canopy extent indicated

5. Communal Stairs & Lifts
   N/A to houses

6. Doorways & Hallways
   All upstairs doors increased to have 750mm clear when the approach is head-on or 775mm clear when the approach is not head-on. Overall width of the house increase by 200mm to accommodate larger doors. Also results in a 50mm wider landing at the top of the stair to allow for the side approach to bathroom door. Refer to note on door sizes in appendix.
   Front door increased to be 800mm clear and 300mm nib shown. Refer to note on door sizes in appendix.
   Utility room widened to allow 300mm nib to rear door
   300mm clear access zone shown to all ground floor doors

7. Wheelchair Accessibility
   1500mm turning circles added to living and kitchen/dining room

8. Living Room
   No change to house layout

9. Entrance Level Bedspace
   Entrance level bed-space shown dashed

10. Ent. Level WC & Shower Drainage
    a) WC increased in size to be wheelchair accessible.
    This combined with the stair lift zones results in an overall increase in the depth of the house by 700mm
    b) Drainage gully added with space for future shower

11. Bathroom & WC Walls
    Notes added stating walls to be capable of taking handrails

12. Stair Lift/Through-Floor Lift
    a) 700 x 400 and 200 x 400mm zones for a stair lift shown at ground and 1st floor
    Stair widened to be 900mm from wall to handrail
    b) Through floor lift zone shown dashed at grd and 1st floor

13. Tracking Hoist Route
    Tracking hoist shown to ensuite bathroom- increases in size to be ease of access compliant. Also requires airing cupboard to be relocated to the other side of the stair

14. Bathroom Layout
    1st floor Bathroom increased from 1950 x 1855mm to be ease of access 2000 x 2050mm

15. Window Specification
    No change to house layout

16. Controls, Fixtures & Fitting
    No change to house layout
Alternative four bedroom house type

This layout achieves Lifetime Homes compliance in a footprint which is 1.6 SqM larger than the non-compliant example.

We have approached the alternative four bedroom type slightly differently than the two and three bedroom alternatives. To try to get the unit footprint as close to the original as possible we have combined the living and dining to allow an overall reduction in area for the living spaces (reduced from a combined area of 45.5 to 44.7 Sqm). Circulation space at first floor remains a significant challenge as the requirement to serve 5 rooms from one hall inevitably results in a less efficient plan. We therefore propose that a further study may look at the possibility of locating one bedroom downstairs.

The most significant change from the non-compliant example is that the footprint of the building has been altered to become a narrow frontage. The recessed entrance reduces the footprint but increases the complexity of the design and therefore may effect construction cost. Also the staircase has been moved away from the centre of the plan and the living and dining rooms are combined which may influence the sale value. However the narrow front design allows for a more efficient plot layout when used in a terrace.
Example 1

General Notes:
This example of a small block of flats would typically be from three upto six storeys high

This example has flats which are representative of typical housebuilder unit sizes.

The common area is a relatively generous size with a large service risers core.

Notes on construction:
This example was designed to be constructed using a volumetric construction system but it would also be commonly be built using traditional masonary construction. For the purpose of costing the following construction methods can be assumed: Beam and Block floors, pitched roofs and pre-cast stairs.
1B2P Flat Type
A: 45.55 Sq. m

2B4P Flat Type
A: 67.62 Sq. m
**Example 1**

Summary of changes:

In this example the two bed unit does not need to increase in size to accommodate the requirements. The one bed unit increases in depth as a result of the larger bathroom.

The communal area does not increase in size as a result of the larger lift.

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**Unit Areas:**

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**Example 1**

1B2P AREA: 47.07 sqm (+1.51 sqm)

2B4P AREA: 67.62 sqm (+0.00 sqm)
TYPICAL SPECULATIVE HOUSE BUILDER EXAMPLE ADJUSTED TO BE LIFETIME HOMES COMPLIANT
1 & 2 BED FLATS - COMMUNAL AREAS AND BLOCK CHANGES

Drawing Title: Lifetime Homes Compliant House Range Plans
Job Reference: CGL-LTH-001

Drawing Number: AL 10X
Scale: 1:50 @ A3
Revision: -

Notes:
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- Use figured dimensions only. Check all dimensions on site prior to commencing work. Drawings to be read in conjunction with other relevant consultant information.
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LTH Compliant Communal Areas

Existing Block
Area: 414.26 Sq. m

LTH Compliant Block
Area: 415.96 Sq. m

HTA
HTA Architects, 106-110 Kentish Town Road, London NW1 9PX
Tel: 020 7485 3335 Fax: 020 7485 1333
Email: hta@hta-arch.co.uk Web: www.hta-arch.co.uk
Example 2

General Notes:
This example of a small block of flats would typically be three storeys to six storeys.

This example has flats which are nominally smaller than the previous example with a very efficient layout in the communal areas.

Notes on construction:
This example was designed to be constructed using a volumetric construction system but it would also be commonly be built using traditional masonry construction. For the purpose of costing the following construction methods can be assumed: Beam and Block floors, pitched roofs and pre-cast stairs.

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Unit Areas:

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TYPICAL SPECULATIVE HOUSE BUILDER EXAMPLE
1 & 2 BED FLATS

---

**182P Flat Type**
A: 40.61 Sq. m

**284P Flat Type**
A: 62.14 Sq. m

---

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**Drawing Title:** Lifetime Homes Compliant House Range Plans
**Job Reference:** CGL-LTH-001
**Drawing Number:** AL 10X
**Scale:** 1:50 @ A3
**Revision:** -

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HTA Architects
106-110 Kentish Town Road
London NW1 9PX
tel: 020 7485 8555  fax: 020 7485 1232
email: hta@hta-arch.co.uk  web: www.hta-arch.co.uk
Example 2

Summary of changes:

In this example both the one and two bed units increase in size as a result of incorporating the LTH requirements.

The communal area also has to increase in size to accommodate a larger lift shaft to accommodate the 1100 x 1400 car size.
1B2P Flat Type
A: 41.33 Sq. m

2B4P Flat Type
A: 62.67 Sq. m

TYPICAL SPECULATIVE HOUSE BUILDER EXAMPLE ADJUSTED TO BE LIFETIME HOMES COMPLIANT
1 & 2 BED FLATS

Drawing Title: Lifetime Homes Compliant
House Range Plans

Drawing Number: AL 10X
Job Reference: CGL-LTH-001
Scale: 1:50 @ A3
Revision: -
Notes:

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Appendix

Lifetimes Homes Criteria
The following text taken from www.lifetimehomes.org states the requirements only and not the additional good practice recommendations. Please refer to the website for further details and frequently asked questions.

(1) Car Parking Width
Where there is car parking adjacent to the home, it should be capable of enlargement to attain 3300mm width.

Stated specifications and dimensions required to meet criterion:
The general provision for a car parking space is 2400mm width. If an additional 900mm width is not provided at the outset, there must be provision (e.g. a grass verge) for enlarging the overall width to 3300mm at a later date.

(2) Access From Car Parking
The distance from the car parking space to the home should be kept to a minimum and should be level or gently sloping.

Stated specifications and dimensions required to meet criterion:
It is preferable to have a level approach. However, where the topography prevents this, a maximum gradient of 1:12 is permissible on an individual slope of less than 5 metres or 1:15 if it is between 5 and 10m, and 1:20 where it is more than 10m*. Paths should be a minimum of 900mm width.

* Providing there are top, bottom and intermediate level landings of not less than 1.2m excluding the swing of doors and gates.

(3) Approach Gradients
The approach to all entrances should be level or gently sloping.

Stated specifications and dimensions required to meet criterion:
As Criterion 2

(4) Entrances
All entrances should:
4a) be illuminated
4b) have level access over the threshold and
4c) main entrances should be covered.

Stated specifications and dimensions required to meet the criterion:
The threshold up-stand should not exceed 15mm.

(5) Communal Stairs & Lifts
Not applicable

(6) Doorways & Hallways
The width of the doorways and hallways should conform to the specifications below.

Stated specifications and dimensions required to meet criterion:
Doorway clear opening width (mm) Corridor/passageway width(mm)
minimum
750 or wider.................................900 (when approach is head-on)
750 or wider.................................1200 (when approach is not head-on)
775 or wider.................................1050 (when approach is not head-on)
900 or wider.................................900 (when approach is not head-on)

(7) Wheelchair Accessibility
There should be space for turning a wheelchair in dining areas and living rooms and adequate circulation space for wheelchairs elsewhere.

Stated specifications and dimensions required to meet criterion:
A turning circle of 1500mm diameter or a turning ellipse of 1700mm x 1400mm is required.

(8) Living Room
The living room should be at entrance level.

(9) Entrance Level Bedspace
In houses of two or more storeys, there should be space on the entrance level that could be used as a convenient bed-space.

(10) Entrance Level WC & Shower Drainage
There should be:
a) A wheelchair accessible entrance level WC, with
b) Drainage provision enabling a shower to be fitted in the future.

Stated specifications and dimensions required to meet criterion:
The drainage provision for a future shower should be provided in all dwellings.

For dwellings with three or more bedrooms, or on one level, the WC must be fully accessible. A wheelchair user should be able to close the door from within the closet and achieve side transfer from a wheelchair to at least one side of the WC. There must be at least 1100mm clear space from the front of the WC bowl. The shower provision must be within the closet or adjacent to the closet.

Houses of two or fewer bedrooms
In small two-bedroom houses where the design has failed to achieve the above fully accessible standard WC, the Part M standard WC will meet this standard.

Figure 4 Spaces required for fully accessible WC
Figure 5 Typical fully accessible WC compartment with floor guilley for future shower
(11) Bathroom & WC Walls
Walls in the bathroom and WC should be capable of taking adaptations such as handrails.

Stated specifications and dimensions required to meet criterion:
Wall reinforcements (if required) should be located between 300mm and 1500mm from the floor.

(12) Stair Lift/Through-Floor Lift
The design should incorporate:
12a) provision of a stair lift
12b) a suitably identified space for a through-the-floor lift from the ground to the first floor, for example to a bedroom next to a bathroom.

Stated specifications and dimensions required to meet criterion:
There must be a minimum of 900mm clear distance between the stair wall (on which the stair lift would normally be located) and the edge of the opposite handrail/balustrade. Unobstructed 'landings' are needed at top and bottom of the stairs.

(13) Tracking Hoist Route
The design should provide a reasonable route for a potential hoist from a main bedroom to the bathroom.

Stated specifications and dimensions required to meet criterion:
Most timber trusses today are capable of taking a hoist and tracking. Technological advances in hoist design mean that a straight run is no longer a requirement.

Additional good practice recommendations:
The optimum 'reasonable route' would be to have a connecting door between the main bedroom (in which the through floor lift would arrive – see Criterion 12) and an adjacent bathroom (with the 'ease of access' facilities – see Criterion 14), or potential for a direct link enabled via a full height knock out panel.

(14) Bathroom Layout
The bathroom should be designed to incorporate ease of access to the bath, WC and wash basin.

Stated specifications and dimensions required to meet criterion:
Although there is not a requirement for a turning circle in bathrooms, sufficient space should be provided so that a wheelchair user can use the bathroom.

(15) Window Specification
Living room window glazing should begin at 800mm or lower and windows should be easy to open/operate.

Stated specifications and dimensions required to meet criterion:
People should be able to see out of the window whilst seated. Wheelchair users should be able to operate at least one window in each room.

(16) Controls, Fixtures & Fittings
Switches, sockets, ventilation and service controls should be at a height usable by all (i.e. between 450mm and 1200mm from the floor).

Stated specifications and dimensions required to meet criterion:
This applies to all rooms, including the kitchen and bathroom.

Note on doors
For the purpose of pricing please allow for the following Lifetime Homes compliant doors:

Entrance doors:
926mm metric door (1010mm structural opening), clear opening of 865mm ie greater than 800mmm.

Internal Door:
826mm metric door (910mm structural opening), clear opening of 765mm ie greater than 750mmm.

Internal Door when not a head-on approach and corridor width less than 1050mm:
836mm imperial door with a 932mm structural opening will give a clear opening of 775mm.