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# Remodelling





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# Contributors

## INCH

INCH Architecture + Design is a dynamic social enterprise architecture and research practice based in Glasgow, Scotland.

INCH was established to assist & support third sector organisations, charities and communities to further their ideas and ambitions in realising capital projects and improving the constructed spaces in which we inhabit. Underpinning all our projects is our social intent and objectives – these define the company and our long-term aspirations.

INCH Director Lesley Palmer and principal contributor to this research has extensive experience of working closely with housing associations and registered social landlords throughout Scotland on both new-build and refurbishment projects for Scotland's dedicated older people's housing stock.

## UrbanPioneers

UrbanPioneers | Stadtpioniere is a Landscape Architecture and Art Practice founded by Marion Preez and Liane Bauer specialising in projects that are unique by creating enduring designs that fit best the parameters of the project, context and client.

UrbanPioneers | Stadtpioniere encompasses analysis, planning, design and management of the open spaces and explore creative and innovative thinking. With the combined background of landscape architecture and art they generate functional, coherent and site specific concepts that are playful, capture the users, create interest, educate and connect people and communities. Bespoke elements representing typical features of the surrounding, its history, telling a story or underlining specific functions are characteristic for their designs, thus creating identification, ensuring the success of the project and long-term benefits to the local community.

UrbanPioneers | Stadtpioniere work in public realm design, way-finding, interpretation, public art projects, regeneration, public squares and learning spaces.

## Graphical House

Graphical House is a design consultancy based in Glasgow, producing thoughtful, crafted work across digital, analogue and environmental applications. We have specialist experience in way-finding, signing and landmark creation.

We believe that design is a dialogue. It must be intuitive, functional and memorable to be effective.

We read, collaborate, research and discuss, spending time with our clients and reaching out to their audiences to ensure that we have the best possible understanding of their needs and aspirations. Our approach is specific to every project we undertake.

Graphical House carries out projects of varying scales and scopes, both locally and internationally.



## Trust Housing

Trust has been operating since 1973 and is now a market leader in the provision of social housing, care and support services for older people across the whole of Scotland. Much has changed over this time period and whilst the core values remain the same how we deliver services is unrecognisable from our origins back in the 1970's and we understand that we will look very different again in the next 40 years. We recognise that the needs and aspirations of our customers are changing and we will require to provide accommodation and services which are flexible and able to cater for a divergent customer group.

The Older People's Change Fund was established as part of the Reshaping Care for Older People Programme for Change 2011-2021 as a means to provide the opportunity for developing and trialling initiatives to reshape older people services. North Lanarkshire Council agreed to fund these studies from their Change Fund resources with a view to focussing on what we can do with existing assets.

Trust has been delighted to be part of the team producing these studies and we are already implementing some of the practical suggestions flowing from this work with great impact.

## North Lanarkshire's Health and Social Care Partnership

Planning for an increasing older population is a key priority for North Lanarkshire's Health and Social Care Partnership and for our partners from other services and organisations. By working together we can help ensure there are a range of options and supports available for older people in North Lanarkshire to help people live safely and well and as independently as possible in their own home for longer.

We recognise the importance of high quality, well designed, affordable housing in helping older people continue to live for longer in their own home and recognise the particular contribution that specialist housing for older people has in respect of providing additional housing support to help older people stay socially connected and supported in their daily activities.

The provision of well designed, high quality specialist housing for older people is crucial in meeting the housing and support needs of older people and is becoming even more important as we continue to support more older people at home as opposed to long term care.

Therefore this research is welcomed by the partnership, improving our understanding of the impact the environment of specialist housing has on older individuals and crucially what changes or modifications we can consider to improve the environment and subsequent outcomes for older people living across sheltered and very sheltered housing in North Lanarkshire.

# Preface

We are in a transitional period in relation to the future of older people housing, the types of housing we provide and the way in which we design. Society's demand for an integrated community is driving statutory design policies to become fully inclusive. As a result, the differences between specialist housing design, such as sheltered or amenity housing and general housing design, are being designed-out.

Traditionally, it has been considered that 'older people' housing caters predominately for the +65, but who are the +65 and what are the implications of their needs on our existing housing stock?

The +65 can no longer be considered as a homogeneous group of people, they are an increasing demographic who are mobile, vocal in their demands and in the future many may still be employed.

Lifetime Homes Principles is one of the most influential pieces of design guidance published and it informed how we design today.

In Scotland, the principles were integrated into our Building Technical Standards with the result that all housing (both public and private) must comply to the space standards and construction method requirements. The principle being that our homes are designed and constructed to adapt over time to suit the changing needs of the tenant.

Therefore, in theory, we should be moving into a period of housing construction whereby the housing which we build today should be able to support the tenant and their changing needs for their future. With the exception of acute care needs, our general amenity housing today should be the older people housing of tomorrow

This has the potential to change the role of older people housing in the future. Rather than being a housing model which is designed to suit care support, it will be designed to suit quality standards, which has the potential to support a variety of care models.

This design guide has been commissioned by Trust Housing Association with grant funding from North Lanarkshire's Health and Social Care Partnership in recognition of the changing future needs of an ageing population; changing best practice and design principles for older people housing and the desire by Trust to invest in it's existing housing for the benefit of current and future tenants.

This design guide has been prepared to help unravel the complexities of remodelling existing older people housing to make our housing developments more attractive and accessible for everyone, regardless of age or ability.

It will provide a foundation of practical knowledge to aid clients and developers to make practical alterations to existing older people housing developments.

The guide forms part of a collection of design guides which review best policy and practice, design and practical alterations to existing older people housing.

The design guide is divided into 4 parts: the importance of daylight and types of daylight spaces; best practice design principles; design guidance; and recommendations for moving forward. Included in each section are illustrated examples of the points raised.

These documents represent the culmination of four years research and design collaboration, and we hope you find them of interest.

# Introduction

Trust Housing Association has a number of existing services which it will be remodelling over the course of the next 10 years and is looking to establish an aspirational standard for this work moving forward.

This research project will provide the commissioning agency and any partners with clear principles which should always be considered in any remodelling works. The guidance will work to the following principles:

- Create timeless, attractive, welcoming but also modern developments
- Which has all the functional requirements in terms of facilities such as laundry, lounges etc.
- Where the different elements work together to ensure specific day to day functionality
- And where developments/ buildings have cross service applicability so services can be flexible and change over time with new methods of working being introduced or where service users needs change

This work will specifically focus on the challenges associated with existing housing stock and a will arrive at guidance which can be considered by elements such as communal facilities, access, and technological support options. The study is not intended to be prescriptive but will seek to be a good checklist and support decision making for the commissioning body, moving forward.

The recommendations within this guide are intended as supplementary guidance and do not preclude the need to comply with the building technical standards or building regulations for the UK.

## Scope & form of guidance

This guidance relates to the remodelling of existing housing developments for older people (very sheltered, sheltered and amenity). It does not make reference to development or dwelling size but instead makes assumptions on design attributes prevalent in such developments.

A number of site visits were made by the design team to existing older people housing developments during the initial research stages of the project and observations made which helped inform the guidance within this document.

In addition a period of desktop analysis and research was undertaken, considering examples of other older people and amenity housing throughout Europe. This enabled the design team to make comparisons of current attitudes to best practice and design in a wider context.

Illustrations are provided throughout the design guide. These are intended to demonstrate possible, not definitive solutions and other arrangements may be equally appropriate.

# The Context for Remodelling

## An ageing population

The Projected Population of Scotland statistics issued in 2012 (National Records of Scotland) indicate that the number of people aged 75 or over is expected to increase by around 85% in the next 25 year period to 0.78million. However this increase it is not expected to spread evenly across all age groups. The pensionable age group (taking account of changes in the proposed increase in state pensionable age) is set to increase at a rate disproportionate to others.

It is recognised therefore, that the number of older people living in Scotland is set to increase dramatically over the next 25 years, and that the number of people over the age of 75 is also set to increase. This represents a significant shift in the demographic make-up of Scotland.

It is widely understood therefore, that this shift towards an ageing population will have an impact on the quantity and quality of older people housing provision – both existing and new.

Therefore, to consider how best to respond to the increased demand for older people housing, it is important to review the provision and condition of our existing housing stock and to examine principles for improvement.

## Existing older people housing provision

Existing older people housing provision within Scotland is categorised as follows: (Scot Gov. 2010.)

### 1. Amenity housing

This category of housing is generally considered suitable for older people, although there is no direct service provision within the building.

### 2. Housing with a community alarm

The design of this category of housing is considered suitable for older people and in addition each property is linked to a central call centre which responds on activation of either a personal or communal alarm. The dwelling or apartment in this type of housing does not require to be part of an overall development.

### 3. Housing with a warden service

This category of housing, often referred to as 'sheltered housing' is commonly built as a development of apartments and often includes communal facilities such as residents lounge, assisted bathing and cooking facilities. In addition a 'warden' or 'Coordinator' as is currently referred is usually available during working hours to assist tenants and organise tenant activities. Historically the 'Warden' would live on-site, these have tended to be replaced by part-time or full-time coordinators who live off-site. A community alarm is also provided for this type of housing. Sheltered housing accounts for the largest supply of older people housing in Scotland with about 36,000 dwellings.

### 4. Extra care housing

'Extra care' housing, also known as 'very sheltered housing' is similar to 'sheltered housing' but is traditionally for tenants with greater support needs. 'Extra care' housing may also have communal accommodation such as a lounge and assisted bathing. In addition, it is usual for this category of housing to provide a meal service to each of the tenants and therefore communal dining and catering kitchens are larger in size. However, it should be noted that there is no single model for this type of housing. Provision for 'very sheltered' can also be accommodated within 'sheltered housing' with 'very sheltered' tenants being offered a support service specific to their needs.

### 5. Alternative housing models

In addition to the above categories of older people housing alternative housing models are available such as: retirement housing, independent living with care and co-housing (a form of co-operative housing).

It should also be acknowledged that many older people choose to remain in the family home and not within dedicated older persons housing such as sheltered or extra care housing developments.

The Joseph Rowntree Foundation Task Group on Housing identified that 9 out of 10 older people live in typical housing and not in care homes, hospitals or sheltered housing. (Joint Improvement Team. 2005)



According to the 'Review of Sheltered housing in Scotland' (Scottish Government, 2010) an overview of the supply, age and condition of dedicated older people housing (sheltered, extra care) is provided as follows:

- Most local authority housing was built circa 1970 onwards
- Most extra care housing was built circa 1990 onwards
- Most new-build housing developments since 2000 have been built by Housing Associations or the private sector
- The majority of accommodation is one-bedroom apartments
- Bedsit or studio accommodation accounts for a small proportion of the existing stock

The report identified that 68.8% of local authority respondents identified that their existing sheltered housing stock needed remodelling. Varying forms of remodelling identified, including:

- Converting bed sits with one – or two-bedroom flats
- General modernisation, refurbishment and upgrading
- Bringing accommodation up to SHQS
- Additional provision of lifts and common rooms

## The impact on our existing older people housing provision

Against a backdrop of a decline in sheltered housing and an increase in the ageing population reinvestment in our existing housing stock is necessary to safeguard a suitable level of housing provision for the conveying number of our older people.

It is widely acknowledged however, that many of our existing dedicated older people housing developments (where space standards are smaller) are prohibitive in their design and configuration to suitably meet the needs and level of care required by the tenants changing needs.

A strategic phased programme of remodelling and adaptations offers the opportunity to safeguard the tenant and their tenancy by making key alterations to the property and/or the development.

## Adaptations & remodelling

It is estimated that from 2013 - 2023 there will be a 20% increase (to 87,600) pensioner households with a need for adaptations. (Bield)

The Scottish study, 'Spend Now Save for the Future: A Social Return on Investment Study of Adaptations' evidenced that adaptations have a significant, positive social return. It concluded that:

- Each adaptation saves the Scottish health and social care system over £10,000
- An overall reduction in the need for social care of 88 hours a year per adaptation
- A one third reduction in hospitalisations for tenants
- Significant increase in confidence, autonomy and independence for the tenants
- An increase in length of tenancy post adaptation

The most common reasons for persons seeking adaptations to their homes was summarised by Heywood (2005) as:

- Difficulties climbing stairs to access a toilet or bathroom
- Problems using the bath, shower or toilet
- Access in and out of the home
- Fear of falling or worries about accidents
- Pain
- Difficulties in supplying care to others
- Wanting to avoid admission to residential care

The Scottish Housing Condition Survey data identified the following adaptations being required (in order of requirement):

- Specially designed/ adapted bathroom/shower
- Handrails
- Stair lift
- Specially designed/ adapted toilet
- Ramps
- Door entry phone
- Specially designed/ adapted kitchen
- Relocated light switches and power points
- Extensions to meet disabled person's needs
- Door widening
- Special furniture
- Individual alarm system
- Through floor lift

In further support of the findings of Heyward, the Scottish Housing Condition Survey asked “what, if anything, is there about your home the limits your activities (or anyone else)?” (SHCS) the following responses were noted (in order of response):

- Bath/shower very difficult to access/use
- Difficulty answering/opening door
- Too small/need more rooms
- Can't leave house because of stairs to house
- Toilet difficult to access/use
- Rooms too small
- Cannot get up/down stairs inside house
- Heating controls are difficult to reach/use
- Electric lights/sockets are difficult to reach/use
- Restricted movement/can't get around the house due to design
- Doors too narrow
- Cupboards/shelves are difficult to reach/use
- Cannot open windows
- Cannot get into/use garden

In light of the above, it is evident that there is a clear pattern of the key adaptations required within our older people housing – irrespective of the housing model.

Therefore, in the context of this publication, recommendations for remodelling will focus on those adaptations and restrictions identified as being most common. Design principles will be presented principally in respect of multiple occupancy housing developments such as sheltered or extra care. However the recommendations given may also be applicable to other older persons housing types.

## The Older Individual & Their Environmental Needs

The +65 are a diverse group of people, whose housing, care and environmental requirements are not specific to their demographic but rather their individual needs. Therefore it is not appropriate to assume a common 'standard' of need or universal approach to the design of their environment.

There is however, a common understanding that as we age our functional abilities deteriorate. In the context of this report, the following physical abilities are considered as having the greatest significance on the older persons ability to perceive and interact with their physical environment:

- The ageing eye
- Limited mobility

### The ageing eye

"Sight loss affects people of all ages but especially older people: 1 in 5 people aged 75 and 1 in 2 aged 90 and over are living with sight loss." (Access Economics, 2009)

As we get older the functional abilities of the eye deteriorate, which affects our ability to 'see'. In addition, the functional abilities of the components of the visual system (processing visual information) also deteriorates, and this affects our ability to 'perceive'.

Accurate vision (seeing & perceiving) requires the co-ordination of every aspect of the functional abilities of the eye and the functional abilities of the components of the visual system.

### Normal age related changes in vision can include:

- Reduced visual acuity
- An increase in the amount of light needed to see
- An increase in the negative effects of glare
- More time required to adapt to marked changes in light level
- A reduction in size of the peripheral visual field
- Decreased contrast sensitivity
- Decreased depth of perception
- Changed colour vision (gradual loss of the blue/violet part of the colour spectrum)
- Blurring from 'floaters'
- Light flashes or momentary distortion of images

"As well as the effects of normal ageing on the visual system, a number of visual disorders are commonly associated with ageing. These include cataracts, glaucoma, macular degeneration and retinal complications from diabetes. These can all result in changes such as blurring, partial loss of visual field, through to genuine visual hallucinations and complete blindness. Use of alcohol and other recreational drugs can also affect vision, as can withdrawal from them. Sometimes medications can cause or contribute to visual difficulties. A surprising number of medications commonly taken by older people can have visual side-effects. They include some drugs from the following categories: cardiovascular, non steroidal anti-inflammatory, antibiotics, anti-parkinson, and even eye medications." (Clasper, K. 2014)

### Visuo-perceptual difficulties

The Alzheimer's Society in their study of Visuo-perceptual Difficulties (2013) noted that some of the repeated visual errors made by people with visual difficulties as being:

- Difficulty re-adjusting one's spatial orientation when moving around (even in familiar environments)
- Difficulty judging the height of the floor when the colour flooring changes
- High-stepping over carpet rods or shadows, thinking they signify a change of level
- Difficulty problem solving visual illusion effects (for example, when going downstairs – determining how many steps there are, and where the next one is)
- Resisting walking on shiny flooring because it looks wet or slippery
- Walking on the darkest patterns (or shadows) of flooring to avoid falling
- Misinterpreting reflections in mirrors, windows or shiny surfaces (refusing to go into a toilet because reflections make them appear to be occupied)
- Difficulty in locating people or objects because of other distracting or competing visual information (such as patterned wallpaper)
- Inability to find a particular item even though the item is in front of a person and appears to be in their field of vision

- Difficulty in positioning oneself accurately to sit down in a chair, on the bed, on the toilet (note that such difficulty may be mistaken for incontinence)
- Inability to find objects or places because of a lack of colour contrast (for example, not seeing pasta on a white plate, or not seeing doors painted the same colour as the walls)
- Restlessness from visually over-stimulating environments (eg too many shiny ornaments, decorations or patterns)

## Limited mobility

Mobility refers to the ability to move freely and easily, most commonly by way of walking and in the context of older people this may also include the use of an aid such as a walking stick or wheelchair.

Limited mobility occurs when the individuals ability to move freely falls below an acceptable level, which results in an inability or difficulty in participating in normative activities. This is widely accepted as a physical disability commonly associated with biological ageing.

## Environmental adaptations

Adapting the individuals environment (their home and its surroundings) can have a significant, positive impact on how the older person utilises and enjoys their home.

The following chapters set out recommendations for adaptations and remodelling works which if implemented in consultation with the tenants, their family and referring agent, will assist the individual to live a more independent life.

# Adapting Communal Areas

Communal accommodation is widely understood as being quintessential to the older persons housing development and the provision of such is most often linked to the care model provided. The quality of these spaces is key to their success, frequency of use, and the future desirability and viability of the housing development.

Communal areas commonly consist of:

- External gardens, parking and access roads
- Entrance & reception
- Internal circulation
- Residents Lounge and/or Dining area
- Activity rooms such as hairdressers, laundry & crafts
- Welfare facilities such as assisted bathing, tea preparation & communal kitchens

To help ensure that our existing older person's housing developments meet the needs and aspirations of the future general of older tenants it is important that the design and overall quality of the communal areas is considered. The aspiration being, that communal areas communicate a positive, welcoming statement to tenants, visitors and staff alike; support and encourage independence, safety and security; and enhance the living experience.

The following design principles outline general recommendations for improvements to communal areas which, can assist housing providers to make a positive change to their housing developments:

- Improving access and approach
- Enhancing communal circulation areas
- Upgrading the communal recreational areas
- Improving welfare and activity facilities

## Access & approach

The main approach to the property provides guests and tenants with their first impression of the development and therefore it is important that a clear coherent message is communicated both in the design of the approach and ease in which access is provided.

An accessible, direct route should lead to the main entrance from the parking area or principle site entrance. Where this is restricted due to the existing design, directional signage should be provided.

The main entrance should be clearly defined either by the provision of an architectural object such as a canopy, lobby or defined path.

Routes should be without ramps or slopes to allow easy access for all mobilities and should contain no barriers e.g. kerbs, steps or other objects. Any external furniture should be located out-with the width of this route.

Where signage is required to identify the building name or number, this should be limited in quantity, be consistent in it's design and location and meet the recommendations given in section 11 of this document.

If barriers or bollards are being used to avoid use of paths for other than pedestrians they should be installed at minimum distance of 900mm centres. These elements should be in contrast to the surroundings so as to be clearly visible.

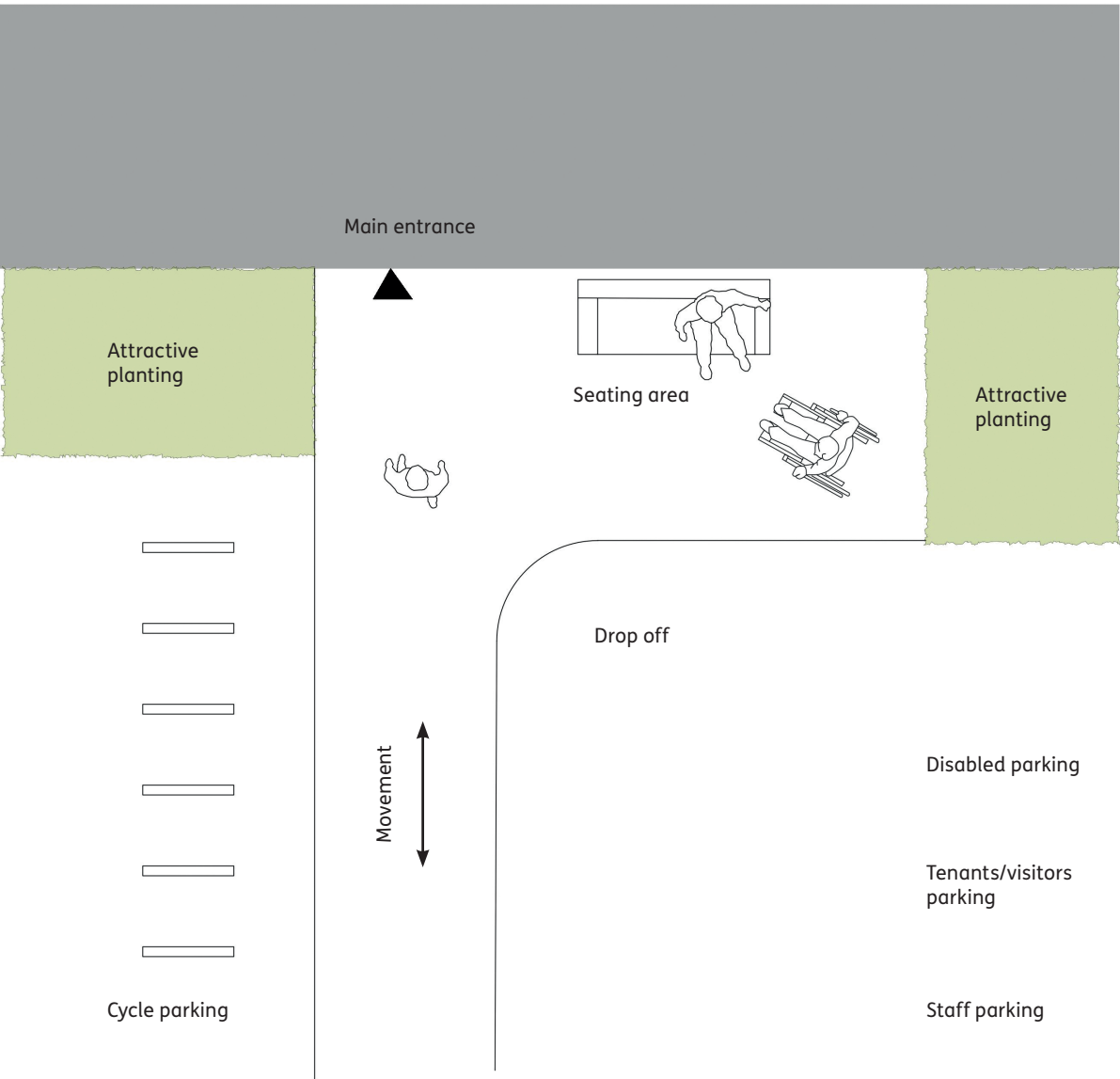
Within the area of the main access pedestrian and vehicles spaces should be clearly distinguishable either by change of material or ground markings. Narrow roads without adequate turning space should be avoided.

The provision and location of parking will be determined by the existing site boundary, road layout and occupancy. However, where there is opportunity to re configure or adapt existing parking the following aspects should be considered:

- Avoid positioning parking spaces in front of tenants bedrooms
- Sheltered bike parking should be provided for visitors and staff at entrances
- Visitor parking spaces should be provided further away from the front of building. Priority should be given to tenants vehicles.

Wheelchair parking spaces should be located as close as possible to relevant entrances and must be to be marked or delineated clearly.

**Figure 01**  
Example of zoning for Entrance Spaces



## Enhancing the communal entrance

The communal or principle entrance area performs a dual role of: welcoming new visitors and supporting existing tenants. It is a semi-public space serving both visitor and tenant. The former requires an aesthetic which communicates professionalism, is contemporary and also inviting. The visitor may be new to the development and first impressions are important. Information on staff, the building layout and the housing provider are all valuable and should be easily accessible. In contrast, the tenant (who may pass through the communal entrance on a regular basis) will not require the same level of professional aesthetic or corporate communication. This is the entrance to their home and a more timeless, comfortable aesthetic may be more appropriate.<sup>1</sup>

As a semi-public space with a dual function, the following design principles aim to achieve a balance.

An area for seating which is sheltered from the draughts of the opening entrance door but which provides a view to the principle vehicular access could provide a welcomed place to sit and wait for visitors, taxi's or to engage in conversation with passing guests or neighbours.

An entrance lobby will help shelter those inside from draughts and driving rain. This will also enhance the area immediately inside of the entrance door for visitors, or tenants socialising/waiting in this area.

The entrance lobby or reception area should be clear of visual clutter. Notice boards with posters, announcements and regulation notices if positioned out-with the immediate site-line of the entrance door (but located within the entrance area) will help reinforce that the development is principally a place to live.

Directional signage and an over view of the development plan would provide visitors with sufficient information to enable them to navigate. It is recommended that this is located within close proximity to the entrance doors (for further design recommendations in relation to signage, refer to section 11)

## Enhancing the communal circulation

Communal (internal) circulation areas serve a similar role to the communal entrance and should offer a bright, timeless, comfortable environment for visitors and tenants to move freely without barriers or difficulty in navigating.

To achieve this, the following design principles are recommended:

1. It is recommended that circulation areas are decorated in a matt paint finish with sufficient contrast provided where required (refer to section 10 Colours & Contrast). The matt finish will help prevent glare from adjacent light sources and offer a wipeable finish for ease of cleaning and maintenance.

2. Bold patterned wall papers should be avoided as this can have a negative effect on individuals with hearing and visual impairments (refer to section 10 Colours & Contrast)

3. A low-pile carpet or acoustic vinyl floor finish is recommended and where entrance matwells are required these should not provide any visual contrast between adjacent flooring. Transitional strips and or threshold bars should not be reflective and if possible be as visually unobtrusive as possible.

4. Framed pieces of art mounted in circulation areas will assist in achieving a welcoming environment and can offer a point for discussion. Continuity in the medium and presentation methods (ie all black frames) will help to ensure a higher level of decoration.

5. Dead-end corridors should be avoided.

6. Doors to ancillary accommodation such as 'Cleaners Stores' or 'Plant Rooms' can be painted-out to match the wall finish. If possible architraves and ironmongery can be removed to help conceal the door.

<sup>1</sup> Trust HA staff. Personal interview. Descriptive adjectives provided during a colours workshop.



7. Opportunities to pause and sit along the length of the circulation can offer a place for casual conversation or just to rest en-route. Caution should be exercised where circulation routes serve as part of the fire escape route, as these should be kept clear of flammable items such as armchairs or book cases and should not be reduced in width by loose fittings or fixtures. Fixed benches integrated into window recesses or at wider points in the circulation can overcome fire safety concerns. This is subject to the existing situation. Early consultation with the statutory authorities/local fire safety department is recommended prior to undertaking the work.

8. It is recommended that handrails are provided to both sides of the circulation areas to assist those with limited mobility. A round timber handrail (of approximately 45cm diameter) is preferred, as this offers a smooth, warm to touch finish. Any support brackets should be fixed from beneath so as not to impede on the users grip position.

9. Circulation routes should be clearly signed to assist with navigation between and across each floor. Where possible objects or large numerals should be used to differentiate floor levels as opposed to change in wall colour. These should be positioned opposite lift and stairwell entrances, so as to be easily viewed (refer to section 10 & 11).

10. Increase light levels (natural and artificial) within corridors and where possible provide movement control sensors to reduce energy consumption (refer section 9.0 lighting design).

### Improving the communal lounge & dining area

The communal lounge or dining room provides a vital space for tenants to relax, socialise, entertain and to connect (visually, socially or physically to the world outside).

A review of sheltered housing in Scotland by the Scottish Government (2008) identified that one of the most common adaptations carried out by housing associations was to increase communal lounge and dining areas. This can often be as a consequence of a change in service model whereby a meal service is required for each tenant or as a result of local partnering and integrated communal facilities with a neighbouring housing development. However, it is not always the case that an increase in gross floor area provides a higher quality, functionally improved space. For example, in some instances providing two lounges may be more beneficial than doubling the existing lounge area.

**Figure 02**

Examples of tenants utilising the circulation areas to create opportunities to meet



**Figure 03**





To decide upon how best to enhance the communal lounge or dining areas it is best to understand for what purpose will the space be used for and at what times in the day? For example is the dining room solely a place to eat or can it adapt out-with meal times to provide a secondary lounge or activities room? Is the lounge a room to retreat and read a book or to engage in group activities?

During our research, we identified that the communal lounge & dining commonly consists of one of three arrangements: the multi-purpose lounge & dining room, the dedicated lounge & the dedicated dining room. Both rooms perform a similar role and are similar in their aesthetic but are dependent upon their relationship to each other i.e. adjoined, adjacent or separate in their location. The activities and subsequent recommendations for design improvements vary.

#### **The dedicated lounge or dining room:**

The dedicated lounge or dining room consist of a single room devoted to one task; to lounge or to be nourished.

Often, these rooms are deep plan spaces designed to accommodate large numbers of occupants. Domestic sized windows are commonly used (to be in keeping with the design of the surrounding dwellings) and are subsequently dressed with curtains, pelmets and blinds, which can result in areas of poor natural daylight.

In many developments the lounge & dining room are decorated in heavy, patterned wallpaper & dark carpets, which can intensify the sense of the underlit space & can make the rooms feel dark and small.

To alleviate this and to create an environment which is inviting, encourages activity and a feeling of wellness & security, the following design principles provide recommendations for their enhancement.

Both the lounge & dining room are similar in their environmental requirements & design aspirations – to provide bright, friendly spaces which are timeless in their design and create a feeling of comfort and security – and for this reason are subject to similar specification for colour & finishes. A palette of fresh neutral colours is recommended with the occasional vibrant hue from a feature wall, furnishings or from the objects and ornaments which decorate the space. According to Wolf.K et al (2011), reds and golds are most frequently chosen to create a warm, inviting yet timeless environment and general recommendations for colour and finish are provided in section 10 of this document. A more detailed study of the appropriate use of colour is given in the supporting document 'Colours, Signing & Wayfinding'.

**Figure 04**

An example of a multi-purpose lounge & dining room



**Figure 05**

An example of the dedicated dining room



Avoid busy patterns in fixed decoration within communal rooms as this can have a negative effect on individuals with visual and hearing impairments and can cause confusion in the way the environment is perceived.<sup>2</sup>

Where possible, increase daylight penetration into the room. This can be achieved through a simple method of removing heavy drapes or widening the curtain rail so that the fabric stacks out-with the glazed area of the window. Alternatively, where opportunity exists, consider increasing window openings to create a greater window:wall ratio (refer to section 6.0).

Reinforce the connection between inside and outside. Increased window areas and doors to adjacent gardens provide both visual and physical connections to the outside. The opportunity to take a meal or a game outside in the sunshine is made more appealing and accessible if direct access is provided, which does not require a long walk or asking for a key. Further recommendations for providing barrier free access to the outdoors is provided in the supporting document 'Barrier-free access to daylight spaces'.

Increase light levels. It is commonly understood that older people require almost twice as much light as the 30-50 year old adult. Increasing both artificial and natural light will assist tenants to perform tasks safely and without frustration; move freely and with less risk of tripping; improve appetite, lethargy and the desire to be social.

Further recommendations are given in section 6.0 & 9.0 of this document.

A tea preparation area should be provided in both the lounge and dining room for tenants who wish to make hot drinks without requiring access to the commercial kitchen.

A smaller dining area could be provided which could double as an activities space, overflow for the dining room or be booked for 'family dining' where tenants wish to invite family or friends for dinner and where their apartment does not permit such large gatherings.

#### **Multi-purpose lounge & dining room**

The multi-purpose lounge & dining room (as illustrated opposite) consists of a single room which performs both the role of the dining room and the lounge and whilst similar in their overall aesthetic, the activities undertaken and their environmental requirements can vary and in some instances present a conflict. The following recommendations are made to help alleviate any conflict and enhance the overall performance of the space:

The multi-purpose lounge & dining room offers tenants with a space to sit in an armchair and relax or sit at a table and participate in an activity or meal. This variety of activity, which this type of room configuration supports helps to increase it's likely use throughout the day. Therefore sub-division of the space is important and the opportunity to alter the layout of fixtures and fittings to suit multiple

uses is key to its performance. Sliding or folding partitions which are integrated into the fabric of the room and offer acoustic separation are a useful tool to create activity zones or areas for privacy. Glazed screens can also be utilised which have the added benefit of enabling natural light into subdivided areas.

It is important when specifying internal screens or doors that the overall weight of the door and folding/sliding mechanism is accessible to older people who may have limited mobility and reduced strength.

The tenant's choice of activity may conflict at certain times. For example someone may wish to play a jigsaw on a table, which is later packed-away to make space for dining. Providing supplementary tables for activities in addition to the number of tables required for dining can alleviate this disruption.

An impervious, non-absorbent, washable and non-toxic floor surface is required in the dining area, whereas a carpeted finish which can assist with controlling ambient noise levels is often preferred in the lounge area. In the multi-purpose lounge & dining room it is likely that both finishes will be required and will therefore abut each other.

Where two or more floor finishes abut within the one space, avoid visual contrast between the floor surfaces. This will help to eliminate the perception of a change in floor level, which can often result in tenants 'high-stepping'.

<sup>2</sup> Bright, K. (2005)

If the dining area is of a substantial area and acoustics are a concern, acoustic vinyl are available in safety flooring ranges and can also assist with acoustic absorption. (It was noted in our review of existing housing developments that the dining room vinyl flooring also acted as a dance floor for social evenings).

A variety of light sources should be provided in the multi-purpose lounge & dining room. Task lighting for reading and above tables should be complimented with natural light sources and overhead lighting (Refer to section 9.0 for lighting recommendations).

The catering kitchen which often supports the dining room can often be noisy. Extraction fans, cooking appliances and food preparation can generate high levels of noise before, during and after meal times. Where the kitchen is located within or adjacent to the multi-purpose room, it can be very distracting or cause unnecessary stress for tenants wishing to relax. To alleviate this, a mechanism for acoustic and visual separation can be provided such as, a roller shutter, sliding doors or screening. Alternatively, reducing the opening between the kitchen servery and dining room can also assist.

### Recommendations for the design

When embarking on works which involve altering an existing communal dining room or lounge area the following should be considered:

- A survey of the existing development to determine: structural layout, services, provision and routes; window locations, adjoining buildings and orientation
- A review of all existing building information (existing surveys, services, maintenance contracts, specialist service provision
- Early consultation with the statutory authorities to determine the impact (if any) on window positions (overlooking, daylight), fire escape strategies and general suitability of the proposals
- Position of existing structural openings such as entrance doorways, windows and internal openings. Try to minimise structural alterations and disruption to communal circulation by utilising (where possible) the existing structural grid.
- Location of windows and opportunity to maximise daylight (refer to section 6.0 accessing daylight for recommendations for internal window alterations.

- The potential for internal walls to bear a structural load and the implications of their removal on the wider structural stability of the overall building i.e. dead loads, environmental loads and other loads such as settlement
- Integration & extension of existing services.

The following general recommended areas per person can be applied when considering an increase in communal area:

- 1.9 m<sup>2</sup> per person for dining areas
- 0.6 m<sup>2</sup> per person for catering kitchen areas
- 2.3 m<sup>2</sup> per person for lounge areas<sup>3</sup>

## Improving ancillary activity spaces

In many housing developments ancillary spaces are provided such as the laundry room or hairdressing salon in addition to the communal lounge or dining room. The provision of these services can increase the developments desirability and safeguard its viability in the future. However in addition, these ancillary spaces can often provide useful places for tenants to engage with each other, without the social pressures which may be experienced in a room such as the lounge or activity room. Therefore it is important that the design and functionality of these rooms is well considered and any opportunity for social interaction & general enhancement encouraged.

### Communal laundry

It is recommended that communal laundries are provided on the ground floor and have direct access to a drying green.

1.7m of clothes line should be provided per apartment and be set at varying heights to suit individual needs.

The drying green should not be overshadowed and should benefit from a southerly aspect.

Where possible, the drying green should be located within view of the communal lounge to enable tenants to relocate to the lounge (if desired) while maintaining a view towards their washing. Seating is recommended both inside and outside of the laundry to allow tenants to sit and wait/socialise.

The laundry should be sized to facilitate washing, drying and ironing activities (a good sized laundry is approximately 20m<sup>2</sup>).

A communal toilet could also be located adjacent to and accessed from the laundry, which could double for tenants using the garden.

## Improving bathing facilities

Supported older people housing developments such as sheltered or extra care housing have traditionally provided communal assisted bathing facilities which typically consist of an accessible bath with grab rails and hoist provision.

The increase in adaptations to individual tenant bathrooms however, has resulted in the improvement of accessible bathing facilities within the individual dwelling, which has reduced the principle need for a communal assisted bathroom. Therefore the opportunity exists for a review of the role of the communal assisted bathroom and the added value which it can bring to future tenants.

The existing 'assisted bathing' could be re-titled 'spa bathing' and it's value quantified by the opportunity for luxury as opposed to necessity. The practical requirements of grab rails, an accessible bath with hoist provision and seat for changing could still be provided but the standard of finish and quality of the environment improved.

In support of this, the following design principles are recommended:

1. A lighting design is provided which offers a selection of 'moods' and light levels
2. A tiled finish is recommended on the walls to achieve a higher level of finish and antibacterial grout used to reduce maintenance demand
3. A homogeneous contrasting floor finish is provided which offers a suitable wet room slip resistance but which avoid dimpled or raised textures
4. Chrome grab rails are provided where required (consideration should be given to the wall finish to which the handrail are fixed, to ensure visual contrast)
5. A curtained area is provided at the entrance door to provide discretion and privacy to the occupant
6. A comfortable upholstered seat is provided
7. Soft furnishing and or curtains are provided to reduce noise levels and offer greater discretion to the user and increase 'luxury' and 'warmth' of the room

# Access Adaptations

“All buildings should be designed and constructed so as to permit safe, convenient and unassisted access by all occupants and visitors.” The above is an extract from the Building Scotland Technical Handbook (Standard 4.1)

## Accessible entrances

Each common entrance and at least one entrance to a dwelling should be an accessible entrance.

An accessible entrance to a building should:

- Have an unobstructed entrance plat of at least 1.2m by 1.2m, with a cross fall of not more than 1:50, if required to prevent standing water and
- Have a means of automatic illumination above or adjacent to the door and
- Have an accessible threshold and
- Have a door leaf giving a clear opening width of at least 800mm in accordance with the diagram below and
- If fitted with a door closing device, be operable with an opening force of not more than 30N (for first 30° of opening) and 22.5N (for remainder of swing) when measured at the leading edge of any door leaf and
- If not a powered door, have an unobstructed space to the opening face of the door, next to the leading edge, of at least 300mm.

## Accessible doors

When designing an access door, either for a new door opening or replacing an existing, the following should be considered:

- The performance and role of the door in the event of a fire. For example, does the door form part of an escape route and is it required to be fire rated or fitted with fire escape ironmongery?
- The direction of the door swing. This can be determined by many factor such as; the fire evacuation requirements of the room or circulation which the door serves; internal floor area, orientation, exposure & weathering.
- The location of the door relative to its context
- The clear opening width. For refurbishment projects this is often determined by the existing structural opening width
- The extent of glazing. Performance and specification of the glass.
- Door material & finish
- Ironmongery & automatic opening requirements
- Integration of existing secured entry/assistance call systems
- Visual contrast of the door, it's frame and ironmongery

In accordance with the current technical standards, an accessible door should have a minimum clear opening width, relative to corridor width, as outlined in the table opposite.

| Minimum corridor width at door (mm) | Minimum clear opening width (mm) <sup>1</sup> |
|-------------------------------------|---|
| 1500                                | 800   |
| 1200                                | 825 <sup>2</sup>                              |
| 900 <sup>3</sup>                    | 850 <sup>2</sup>                              |

- 1. The projection of any ironmongery that extends across the width of a door leaf should be subtracted when calculating the clear opening width.
- 2. The clear opening width may be 800mm where a door is approached head-on
- 3. A corridor width of less than 1.2m is not permitted within new buildings but may be found within some existing buildings.

However, in older people housing developments where walking aids are commonplace the following minimum clear opening widths provide an enhanced standard:

| Location                       | Minimum clear opening width (mm) |
|--------------------------------|----------------------------------|
| Communal Entrance              | 1000                             |
| Apartment Entrance             | 900 <sup>4</sup>                 |
| Internal Corridor              | 1000                             |
| Internal Pass Door (apartment) | 900                              |
| Internal Pass Door (communal)  | 1000                             |

- 4. An independent care needs assessment should be carried out to determine individual requirements of a tenant (particularly where walking aids or a wheelchair is used

## Accessible ramps

It is mandatory that an accessible entrance be provided to all buildings and every dwelling. This may be in the form of a ramp

A ramp by the definition of the technical standards is a surface with a gradient of 1:20 to not more than 1:12. A gradient of less than 1:21 is not considered a ramp.

A surface with a gradient of greater than 1:12 is considered too steep to negotiate safely and is not recommended.

A pedestrian ramp should be constructed in accordance with figure 06.

The effective width of a ramp should be designed relative to the intensity of its use and whether it forms part of an escape route.

The minimum required effective width (distance between handrails) of a ramp should be in accordance with figure 07.

However, it is recommended that for people with limited mobility who may use mobility aids or be assisted to walk, the minimum effective widths are shown in figure 08.

**Figure 06**

| Maximum gradient of flight | Maximum length of flight | Maximum rise    |
|----------------------------|--------------------------|-----------------|
| 1 in 20                    | 10 Metres                | 500mm           |
| 1 in 15                    | 5 Metres                 | 333mm           |
| 1 in 12                    | 2 Metres                 | 166mm           |
| More than 1 in 12          | Not recommended          | Not recommended |

1. The maximum flight length can be interpolated as follows: 3m long for a gradient of 1:13, 4m long for a gradient of 1:14 etc.

**Figure 07**

| Location of ramp  | Minimum effective width (between handrails) |
|---|---|
| Serving an access to a single dwelling                        | 1 metre                                     |
| Serving a communal access                                     | 1 metre                                     |
| Serving a communal access which forms part of an escape route | 1.2 metres                                  |

**Figure 08**

| Location of ramp   | Minimum effective width |
|--|-------------------------|
| Serving an access to a single dwelling                             | 1.1 metres              |
| Serving a communal access  | 1.2 metres              |
| Serving a communal access which forms part of an escape route      | 1.5 metres              |
| Serving a communal access which permits 2 wheelchair users to pass | 1.8 metres              |



A clear, level landing should be provided at the top and bottom of each ramp flight and be constructed to meet the following requirements:

- Permit manoeuvring of a wheelchair without the need to obstructing passage or the need to encroach onto a ramp flight
- Have an effective width not less than the effective width of the ramp
- Have an unobstructed length of no less than 1.5m (1.8m if the entire ramp flight is not visible from either the top or bottom of the ramp)
- Be clear of any door swings

Where the overall change in level of the ramp is less than 600mm a handrail need only be provided to one side. However, it is recommended in older people housing, where tenants may have limited mobility, that a handrail is provided to both sides

A handrail to a ramp should be provided at a minimum height of 840mm above the pitch of the flight and should continue 300mm beyond the flight length.

## Accessible thresholds

All entrance and external doors to a dwelling and all communal entrance and external doors should have an accessible threshold, including doors to balconies and roof terraces.

An accessible threshold should have an overall maximum change in level of 15mm. Slopes on cills supporting the threshold should not exceed 15 degree (running away from the door).

## Chair & platform lifts

Often, in existing older people housing developments where there is not a passenger lift or where the passenger lift is of a significant distance from a tenants apartment, adaptation requests can be received for the installation of a chair or platform lift.

In individual dwellings where the stair is deemed a 'private stair' ie it services accommodation solely within the one property, this is a relatively straight forward adaptation. However, where the stair services more than one property (as is often the case in an older persons housing development), or where the stair is located within a communal area, the stair is no longer considered a 'private stair' but communal and in most conditions serves as an escape route. In this context, the installation of a chair lift or platform lift is subject to statutory consultation.

The installation of a chairlift can provide a much needed improvement for tenants with limited mobility and help maintain their independence. However, the following should be considered when assessing the viability of the proposals:

- The width of the existing staircase. Current building technical standards require a minimum effective width of not less than 1m and where the stair serves as an escape stair it's minimum width is dependent upon the total occupancy of the building (but not less than 1m). The installation of a chair lift or platform lift will reduce the effective width of the staircase and therefore it is not advisable to fit a chairlift to a stair with less than 1.5m width.
- The number and location of existing stairwells in relation to the fire escape strategy. Where more than one staircase is provided and subject to the overall escape distances, the installation of the chairlift may not have a detrimental impact on the existing fire escape strategy and could therefore be considered (this is site specific and subject to statutory consultation).

It is recommended that early consultation with the statutory authorities is sought and approvals received (where necessary) prior to any installation.



# Access to Daylight

Research has indicated that older people need to obtain greater levels of vitamin D, contained in sunshine, to prevent metabolic deficiencies and insulin resistance. However, the value of outdoor spaces to many specialist older people services is often undervalued and many older people housing developments in the UK are not daylight-conscious and overlook the importance of providing access to daylight for the older tenant.

There is significant research into the positive effects exposure to sunlight or daylight has on the human body and mind.

Noted below is a brief summary of some of the benefits:

- Most of our Vitamin D is obtained from exposure to sunlight and this is needed to help our bodies to regenerate bone. This is vital for elderly people because a deficiency in vitamin D, adds to the risk of injury as a result of falling
- Increased exposure to daylight has been attributed to improving the circadian rhythm (body clock) and also improving appetite, lethargy and the desire to be social – common ailments of an ageing person
- Daylight provides high luminance and permits excellent colour discrimination and colour rendering. Good levels of daylight provide a good environment for better viewing

To increase opportunity for older tenants to access daylight we must consider the design of 'daylight spaces' that is, spaces which permit exposure to natural light – be that an internal or external space.

Types of daylight spaces can be categorised into the following:

- External spaces
- Transitional spaces
- Internal spaces

**Figure 09**

Robinia trees throwing a light shade, Therapy Animal Park Eckenstein, Basel



**Figure 10**

Fixed seats, Rottenrow Glasgow



## External spaces

External spaces are spaces open to the elements. They provide an escape from the internal environment, contribute to stress relief, bring joy and provide opportunities to increase physical activity in easy and accessible ways.

It is generally understood that the provision of green or external spaces has a positive effect on the physical and mental health of all (regardless of age or generation): being outdoors supports stress relief and boosts individual well-being. Irrespective of the size of the site the external spaces should offer diversity.

### External spaces

- Provide escape from internal environment
- Provide stress relief and boost well-being
- Support day-night rhythm
- Increase physical activity and stimuli of senses

### To ensure access to external spaces

- It is essential that an accessible entrance is provided to all entrances providing access to the outside
- An unobstructed, direct route outside should be provided
- Security measures should permit free-movement between inside and out
- The external space itself must be barrier-free i.e. designed to be accessible

## Design principles for external spaces

External spaces should be designed to meet the following design principles:

- 1. Make the outdoors accessible**  
(Barrier-free access, handrails, lighting, furniture, design suits residents needs, use of existing materials and planting, toilet access)
- 2. Diversify the outdoor spaces**  
(Quiet areas, communal areas, areas to allow a variety of activities, areas for a variety of people)
- 3. Enhance the planting**  
(All year interest, biodiversity, consider view heights)
- 4. Stimulate all senses**  
(Sound, sight, touch, smell and taste)
- 5. Design for change**  
(Ensure quality maintenance, anticipate changing conditions)

To achieve the above design principles, certain factors need to be considered:

### Site-specific requirements and response

Each property and every site is unique in its setting, users and demands. While some properties might require a long-term, staged improvement plan; for other properties smaller interventions might be all that is needed.

Quite often potentials are not recognised and are usually under-utilised such as a sheltered areas, which could easily be turned into a quiet area or a bleak wall or an uninviting fence which could be planted.

The first step to improve the open spaces is to recognise both opportunities as well as challenges.

Surveying the existing external spaces – ideally as a team – in relation to position, exposure, neighbourhood, views, existing conditions and buildings, as well as user demands and user options on site gives an understanding of the qualities, potentials and challenges of the site.

### Common qualities and challenges:

- Keep or reinstate well tried elements
- Levels and access
- Limited outdoor space or proximity of external spaces to functional spaces such as toilets, kitchen storage rooms or communal indoor spaces
- Climate and elements (shelter against wind/rain/cold)
- Bleak and monotone outdoor spaces

### Orientation

Every site is unique with its climatic and micro climatic conditions. External spaces should be designed to suit the sun-path and local wind and micro-climate conditions. In order to optimise the use and activity of these spaces the following aspects should be considered:

- Analyse sun-path to determine sunny and shady areas during the day and over the effect of sun-path and wind condition on the external spaces.

### Seasons

- Provide several areas to maximise sun access at all times of the day and sunlight during winter months.
- Determine prevailing wind direction in order to provide shelter.
- Create transitional spaces to provide shelter as well as maintaining thermal comfort internally

### Proximity to building

Accessible, external spaces close to buildings provide independent and communal use of the outdoors. In buildings with several levels, terraces offer external spaces for less mobile tenants.

External spaces at ground level should include:

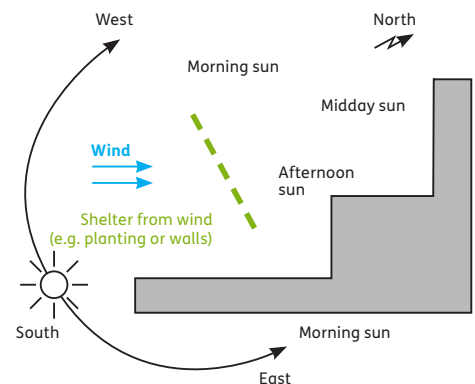
- Clear overview and give safe access for residents and staff
- Connection to the main exit of the building
- Meeting point within communal area in front of building as starting point for activities.
- Short distance to communal area to allow access for all people of mobilities
- Seating areas
- Connection to path network
- Spontaneous meeting for all people of mobility possible
- Well signed public toilet in close proximity
- Paths with different length of tours
- Level topography in areas close
- Edible plants or fruits
- Storage for garden tools/ workshop/blankets etc. close by
- Room/space to get changed/with coats, hats etc.

External spaces which are further away from buildings allow spatial distance and retreat from everyday life. Nevertheless with views to the building they allow safety and contact. Attractive destination points which are visible from the building can be used as inspiration for a visit.

As a special space those areas are attractive points for independent and mobile tenants and encouragement movement when resting points are given in between.

**Figure 11**

Effect of sun-path and wind condition on the external spaces.



## Transitional spaces

Transitional spaces are the places, areas and rooms which occupy the space between the inside and the outside, acting as both buffer zone and physical link.

In its simplest form, the transitional space has the principle function of facilitating the transition between the inside and outside. However, as an architectonic tool, it also has the important task of acting as a buffer zone, providing shelter and a place to pause before leaving the comforts of the indoors.

The well designed transitional space will provide an opportunity to 'break-out' from the inside world, to observe, to gain confidence or readjust to the change in temperature. It should encourage movement and interaction with the outside world and provide a safe, pleasant and convenient route out. As such, the transitional space plays an important role in ensuring barrier-free access to external space and consideration should be given to the design of transitional spaces in relation to their role, the existing context and the relationship between the inside and outside spaces, which it will connect.

The design of transitional spaces is very important to ensure the transition from inside to outside is efficient in terms of environmental performance (heat, light, energy consumption & comfort) and practical in its design and aesthetic.

A well-designed transitional space should:

- Provide a clear, direct route between the inside and outside
- Be clearly visible from the outside
- Provide a clear visual connection between the inside and outside (This can help reinforce a feeling of security and allow users to pre-empt weather conditions).
- Provide overhead cover at the entrance door
- Have an accessible entrance
- Have artificial lighting both internally and externally which illuminates the entrance door
- Provide a draught lobby which is fully accessible and designed to allow a person to pass between each door clear of any obstructions
- Doors to transitional and garden areas should be designed to maximise light whilst maintaining privacy to those inside
- Include for the design of a storage area adjacent to the entrance or exit for ease of access. This area should allow for sufficient storage of items such as blankets, coats and outdoor shoes
- Have a slip resistant floor surface or entrance matwell

Transitional spaces commonly consist of:

- Porch or entrance lobby
- Balcony or terrace
- Sunspace

### Porch or entrance lobby

A porch or entrance lobby can provide a buffer zone to shelter from the external elements. It can also help reduce heat loss if one door is permitted to close before the opening of the next. A lobby at an entrance should:

- Have an accessible entrance & threshold
- Have a clear, unobstructed area to pass/manoeuvre of 1800mm x 750mm between the entrance doors
- Have a means of automatic illumination above or adjacent to the doors
- Have a door leaf giving a clear opening width of at least 900mm
- Have an unobstructed level access plat of a minimum of 1.5m x 1.5m to each common external entrance or 1.2m x 1.2m to each private external entrance

### Balcony or terrace

The balcony or roof terrace is an enabling space. They provide a safe secure place to enjoy the physical and psychological benefits of being exposed to daylight; to experience the seasons and; to observe life outdoors.

Recent good practice design guidance suggests that a private balcony accessed directly from a tenants apartment can help increase an elderly persons independence.

A communal balcony retrofitted to an existing development can provide an additional external amenity space on an upper level. The structure of the balcony will also provide a covered and shaded area beneath which could benefit communal areas on the lower level. Retrofitting private balconies to individual dwellings would provide a much sought after amenity space, improving the quality of life of the tenant.

There are several construction methods for retrofitting balconies to existing buildings and some leading window manufacturers offer a 'bolt-on balcony service'.

Two appropriate methods of retrofitting balconies to existing buildings are noted below:

- A built-on free-standing balcony which is anchored to the existing facade
- A cantilever balcony which is suitable where foundations are not an option due to site constraints

The design of any balcony should take into consideration the following:

- The size of the balcony will be dependent upon the number of people who will be using the balcony at any one time and the activities that will be possible
- A projecting balcony should have a manoeuvring space of at least 1.5m in diameter.

- The aspect & orientation of the balcony to maximise exposure to sun. A south facing balcony will receive the most direct sunlight and an east facing balcony will benefit from morning sun
- Shelter from rain & wind
- Views & optimising the outlook with a good balustrade design
- The flooring should be level, non-slip, well drained but does not allow water to pass through to the balcony below and be easy to clean and maintain

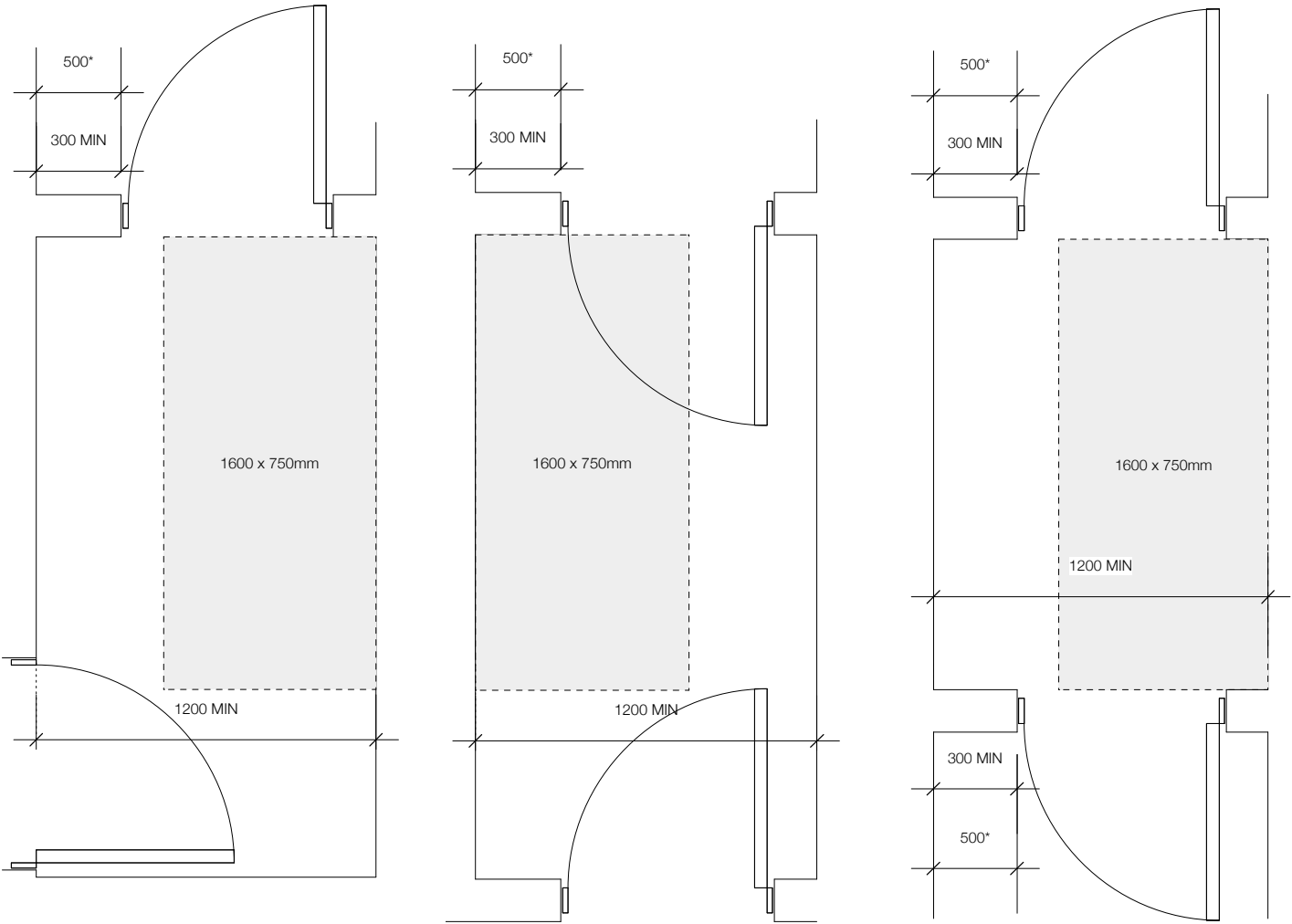
### Sunspace

A sunspace is an unheated glazed area located outwith the insulated fabric of the building. It is a form of passive solar design. The space naturally heats & cools, depending on outside temperatures, allowing daytime temperatures to rise higher and night time temperatures to fall further than the inside temperature and levels of isolation of adjoining rooms.

The addition of a sunspace to an existing development can realise significant health benefits and gains in energy efficiency, although this is dependent upon location, orientation, latitude, construction and forms of linkages to interior spaces.

The design and subsequent benefits of a sunspace can vary and these are dependent upon it's application, orientation, integration with the insulated envelope of the building and any additional mechanical or passive design feature.

**Figure 12**  
Accessible lobbies



## Internal spaces

We have previously outlined the importance of exposure to daylight on our health & wellbeing and discussed this in relation to providing access to outside spaces. However, it is also important, where possible, to maximise exposure to natural light whilst indoors and in particular it is important to do so where tenants are less mobile and more likely to remain at home.

Maximising opportunity for natural light to penetrate into internal rooms is an important design consideration. However, the practicalities of re-configuring the internal layout of an existing development are limited. Disruption to tenants, services and cost being prohibitive. Therefore the following areas have been identified which can be reasonably adapted or added to optimise daylight:

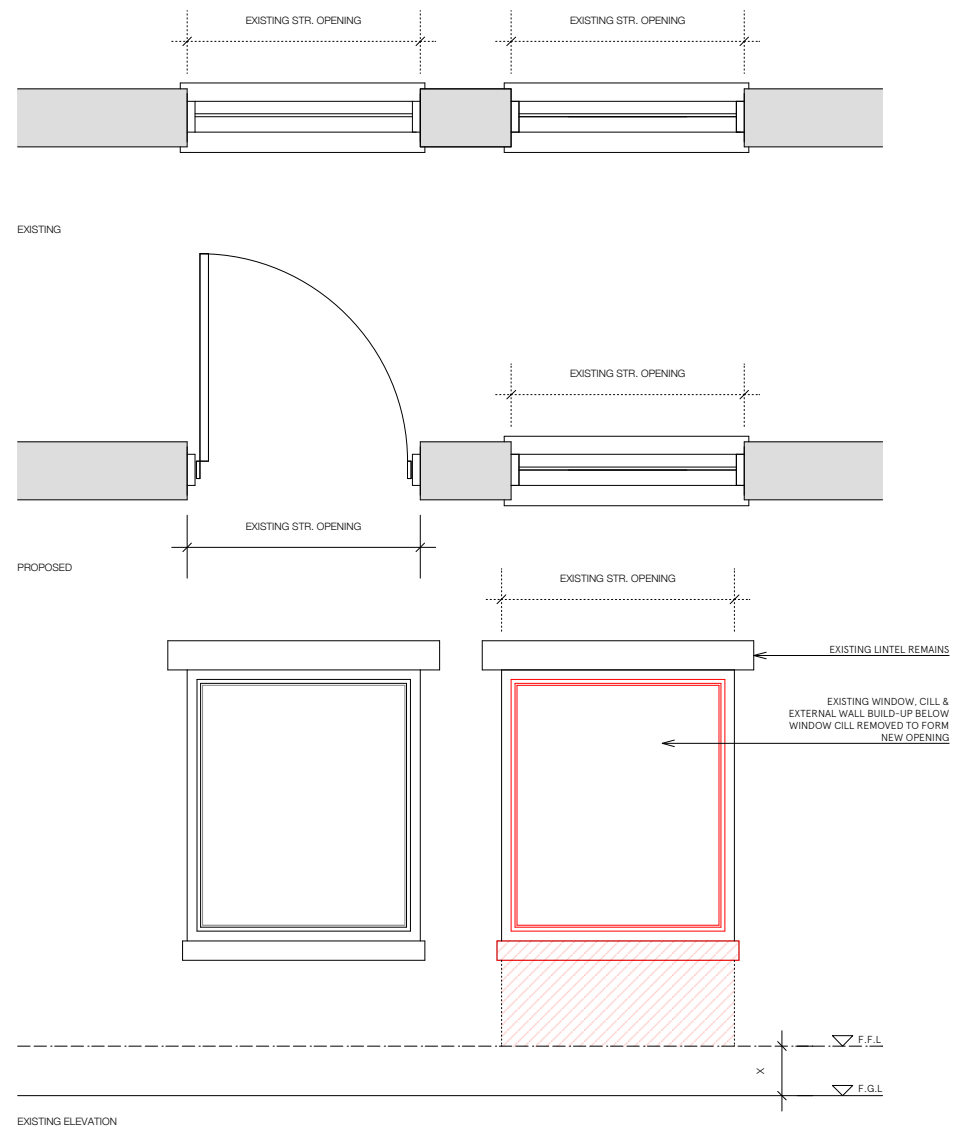
### Windows

Where there is not a door providing direct access from the communal room to the outside, existing window cills can be lowered to form a new access to the communal gardens, deck, balcony or roof terrace.

When forming a new doorway within an existing window opening, consideration should be given to the resultant effective width of the opening as there is no guarantee that the original window opening width will be sufficiently wide to permit the passage of a wheelchair or mobility scooter.

**Figure 13**

Forming a new door within an existing window opening to increase daylight penetration & improve access to garden areas.

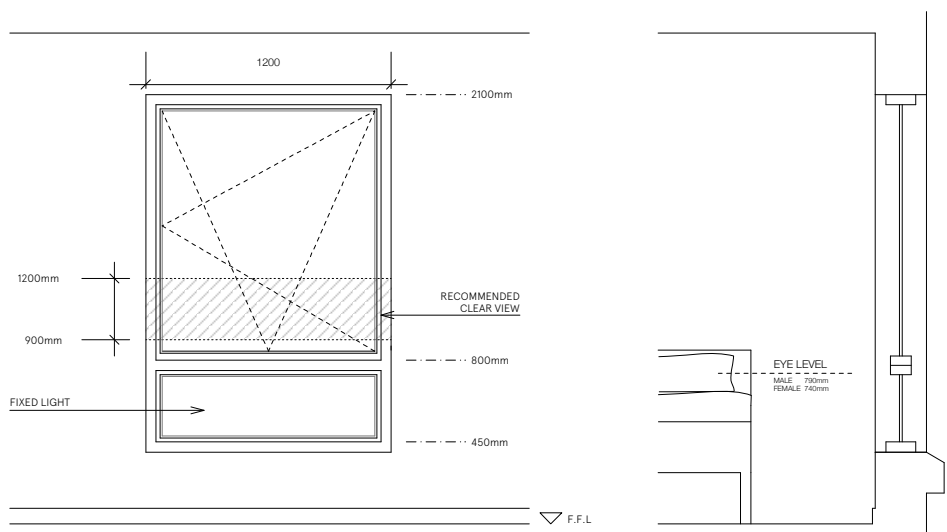


Where it is not considered desirable to form a new door opening, increased levels of daylight can be achieved by lowering the existing window cill and increasing the effective daylight opening area. It is worth noting that a nominal drop of 400mm will increase the daylight opening of a typical 1200mm wide window by 30%.<sup>4</sup>

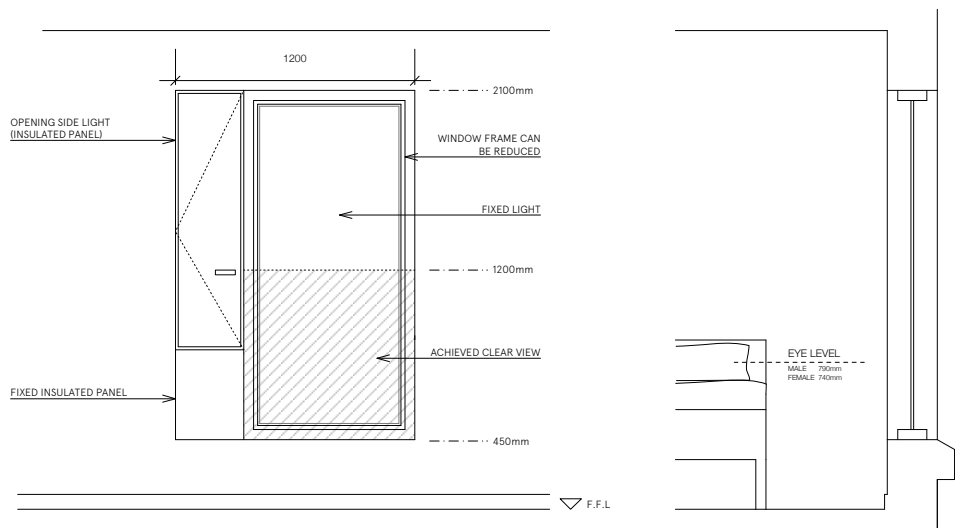
Lowering the window cills to private dwellings can help to provide views from a seated or lying position. This can be desirable where tenants are frail and unable to get outdoors or when an individuals are confined to their bed.

**Figure 14**

Opening window arrangements to enhance uninterrupted view from seated or lying position



In the above arrangement the window cill is low. However the view out is restricted by the transom



In the above arrangement the transom is removed and an enhanced clear view out is achieved



### Window dressing

Windows to communal areas are often dressed with curtains or blinds and in some cases pelmets.

Where curtains are fitted, the curtain track has a tendency to be fitted to match the width of the window and therefore the curtain stack will sit in-front of a portion of the glazed window. The result is a reduction to the overall effective area that light can penetrate through the window.

To increase the effective daylight opening of any window, it is recommended that curtain tracks are extended beyond the width of the window by the overall stack-back, to enable the curtain to sit fully opened without impeding the glazed area.

Pelmets should generally be avoided as these reduce the overall effective daylight area of a window.

### Circulation areas

Circulation within multiple-apartment housing developments is often designed to be 'double loaded' i.e. the apartments are located along both lengths of the corridor. This can be preferable due to the economies of scale and reduction in capital build costs. However, the result is often an internalised circulation route with little or no access to natural light, which can be problematic if artificial light levels are insufficient. Reliance on artificial lighting requires commitment to maintenance cycle and increased energy costs.

On the upper floor level the installation of a natural daylight system such as a sun-pipe could be utilised to introduce natural light into circulation routes. In addition, some proprietary sun-pipes provide an integrated natural ventilation system, which rely on passive ventilation principles and therefore do not require power.

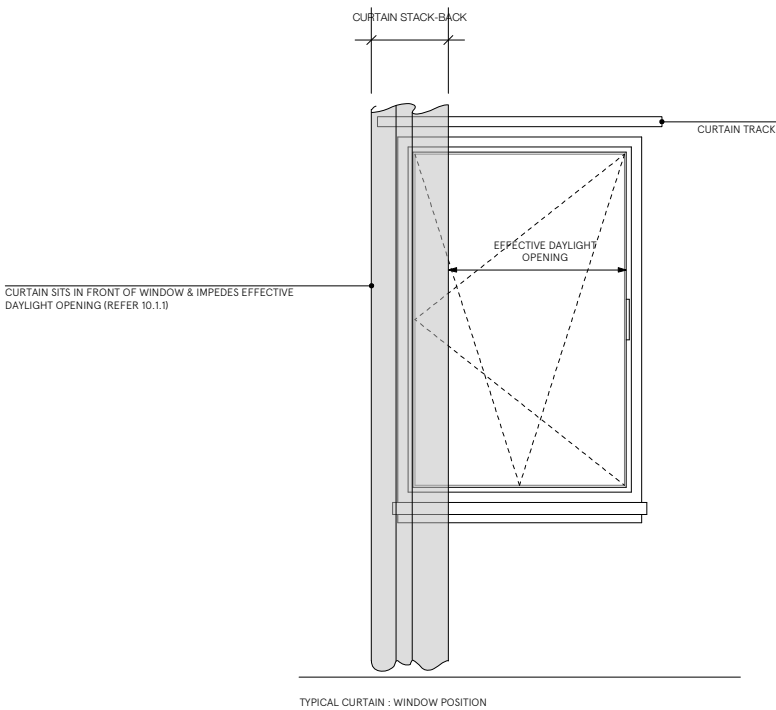
Integrating glazed screens into existing partitions provides an effective methods of bringing borrowed light into internal rooms or corridors. This can also provide a useful method of wayfinding if positioned at a corner junction, thus allowing a view to perpendicular routes. Care and attention should be given to ensure the existing fire and smoke integrity of the original partition is maintained and where the partition is full-height, manifestation is required. Integral blinds can also be incorporated into glazed screens to provide privacy as required.

**Figure 15**

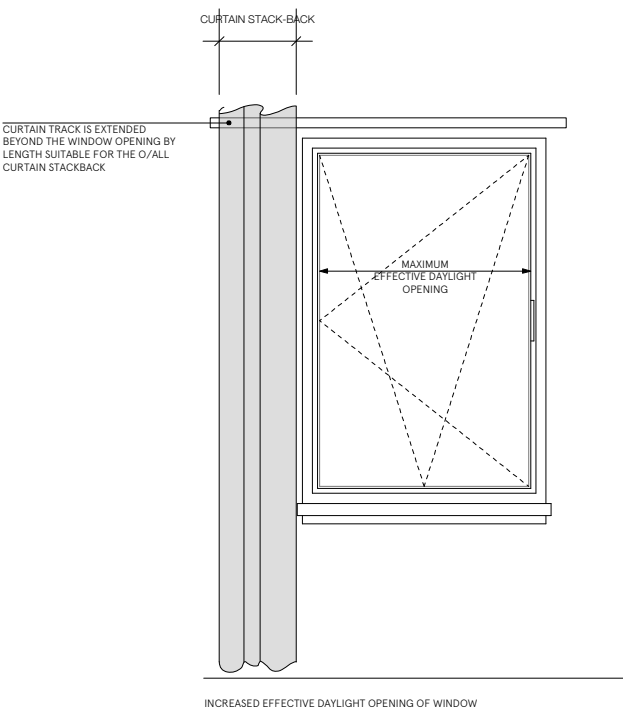
Pelmets and heavy drapery reduce the effective daylight opening of a window



**Figure 16**  
Increasing the effective daylight opening of a window



**Figure 17**  
Increasing the effective daylight opening of a window



# Adapting Individual Apartments

Housing within the United Kingdom is commonly marketed by the number of bedrooms and not by the gross internal floor area. As such, the provision and quality of 'space' is not often communicated as being valuable to the consumer.

In the context of older people housing, our existing studio and one bedroom apartments are proving too small to cope with the demands of specialist care equipment, visiting family members or for the accumulation of a lifetime of possessions. Space for dining, entertaining, hobbies and past times is provided for within communal areas (such as the communal lounge or dining room) and often in a compensatory manner to the gross internal floor area of the individual apartment.

Remodelling and/or adapting our existing studio and one-bedroom apartments can improve housing quality standards, quality of space and increase the desirability of this apartment typology.

## Current market space standards

A review of the average minimum gross internal floor areas of new-build private older people housing was undertaken as part of this study and comparisons made to the recommended internal dwelling areas for 'elderly housing', as provided within current best practice design guidance.

This analysis indicated that internal space standards were more generous across the private sector. For example, a one bedroom apartment within the private sector was found to be on average 5 square metres larger than the recommended minimum for 'elderly housing' and 18 square meters larger than some of the case study studio apartments visited during the research period for this report. This is the equivalent of an additional bathroom or living room, respectively.

A move towards qualitative space standards would help to ensure that quality of space in addition to sufficient area for activity is provided when embarking on any future remodelling.

## Space planning

In general, the design of buildings makes certain assumptions based on the size and ability of the individual which is then translated into industry space standards such as door openings, hallway width or heights of kitchen units.

When designing for older people or making general adaptations for specific needs industry space standards are not always sufficient. It is also important that the size and proportions of the individual are considered. This is because the proportions of the body in its environment will change dependent upon the ability of the individual. A person with a walking aid will require more area to circulate than an able bodied person without a walking aid.

As an example: if we understand the height of someone's eye level when seated or lying down, we can ensure the placement of a window cill permits a clear view out. Similarly if we know the height of an individual we can assess through their anthropometric data, a suitable height for a kitchen worktop or their area of reach, which can in turn feed back into the design of the kitchen layout.

Standard anthropometric data is provided in the the illustrations overleaf. This is for guidance only. Information obtained on proportion and sizes of the individual will provide a more detailed understanding of their body space requirements in their environment.

Qualitative Space Standards

Figure 18

|          | Minimum internal dwelling area (MIDA) m²<br>(London Space Standards) | Average minimum internal dwelling area (MIDA) m²<br>(Recommended for Elderly) | Average minimum internal dwelling area (MIDA) m²<br>(Specialist elderly/retirement private house builder) |
|----------|--|---|---|
| 1 Person | 37   | 35  | 40.5  |
| 2 Person | 44   | 55  | 56  |
| 3 Person | 57   | 60  | 56  |

Figure 19

Gross Internal Area (m2) comparison.  
[Table extract taken from 'The Case for Space, RIBA, 2011]

| Gross internal area (GIA) m² | 1 Bed 1 Person | 1 Bed 2 Person | 2 Bed 3 Person | 2 Bed 4 Person |
|------------------------------|----------------|----------------|----------------|----------------|
| London Housing Design Guide  | 37             | 50             | 61             | 70             |
| Dublin City Development Plan |                | 55             | 65             | 85             |
| Germany                      | 48             | 60             | 70             | 88             |

Figure 20

Qualitative Space Requirements. [Table taken from London Space Standards 2006]  
Minimum living room area as stipulated in Denmark & Sweden is 20m2.

| Bedrooms   | Kitchen/Dining/Living  |
|--|--|
| 7m² for a single bedroom & 12m² for a double or a twin | 21.75m² for a 1 person or 2 person dwelling with an extra 2.5m² for each additional person |

---

The overall area of the room is also an important design consideration and typically the overall area and proportions of a room takes into account the aggregate area of the furniture required, the necessary space needed to access this furniture and any other objects (such as windows, doors or radiators).

When designing for older people housing the space needed to access furniture or to circulate unobstructed within the room is greater and can vary depending upon the needs of the individual. Therefore the overall area of the room can also vary depending on both activity and the individuals proportions and ability. It is for this reason that providing 'typical' space standards can be difficult.

In light of the above, the aggregate area of the room can often become an exercise of:

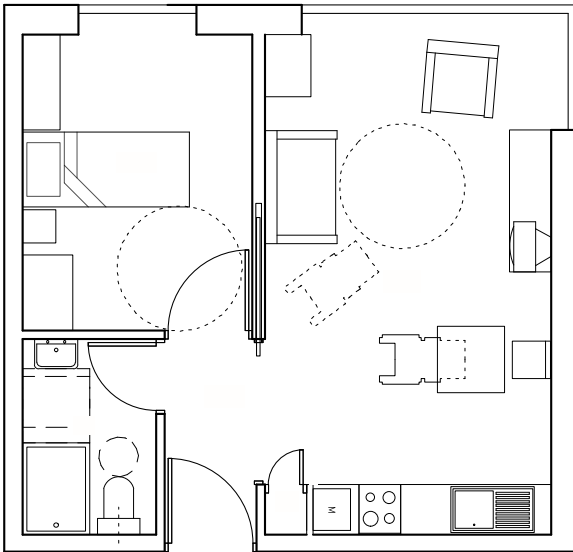
- Establishing the activities which will be undertaken
- Establishing the size of furniture required
- Establishing the proportions of the individual and understanding their mobility restrictions (if any)
- Establishing the activity spaces required for each activity/item of furniture (or applying general recommended activity spaces if this information is not easily obtained)
- Calculating the circulation widths and turning paths required for the individual to move freely without obstruction
- Determining the total aggregate area for the above & establishing the optimum room area

Guidance on activity spaces associated with individual furniture items is provided in the publication 'Housing for Varying Needs'. This guidance is useful when planning proposed room areas or furniture layouts for general adaptations/remodelling.

## Qualitative Space Standards Apartment Examples

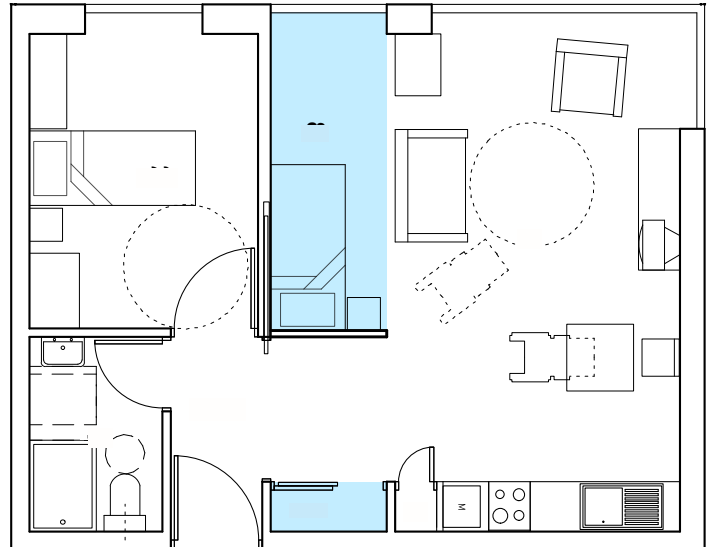
### 38m<sup>2</sup> 1 person/2 apartment

Example of an apartment which provides minimum recommended activity spaces: area



### 46m<sup>2</sup> 1 person/2 apartment

Example of same apartment, with an additional +8sqm. A study/guest bed area & additional storage can be achieved.

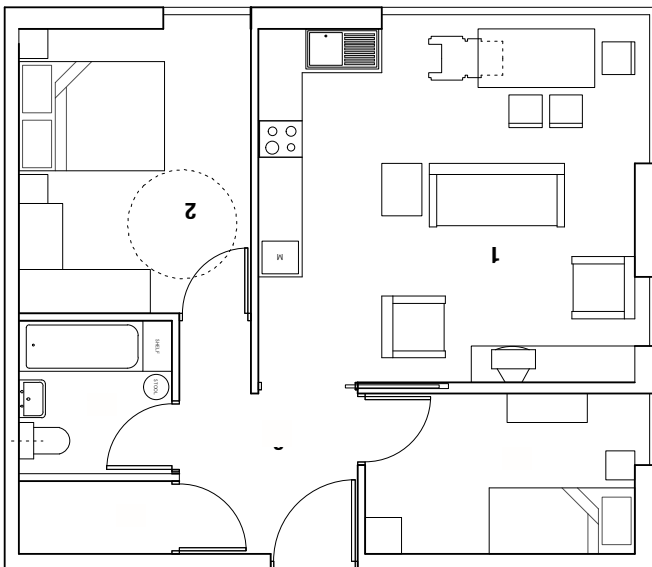


### 46m<sup>2</sup> 1 person/2 apartment

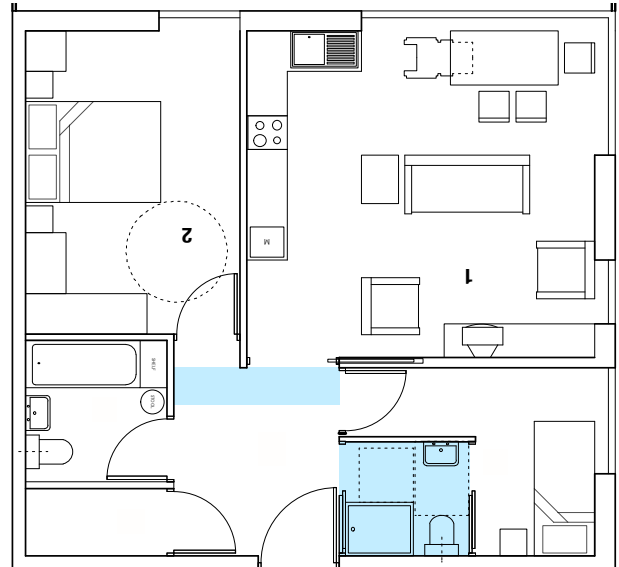


**61m<sup>2</sup> 3 person/3 apartment**

Example of an apartment which provides minimum recommended activity spaces: area

**66m<sup>2</sup> 3 person/3 apartment**

Example of same apartment, with an additional +5sqm. Additional manoeuvring space is provided within the hallway and an ensuite option to the guestroom for guests or overnight care support use.

**66m<sup>2</sup> 3 person/3 apartment**

Anthropometric Data

Figure 21  
Anthropometric detail of a wheelchair user

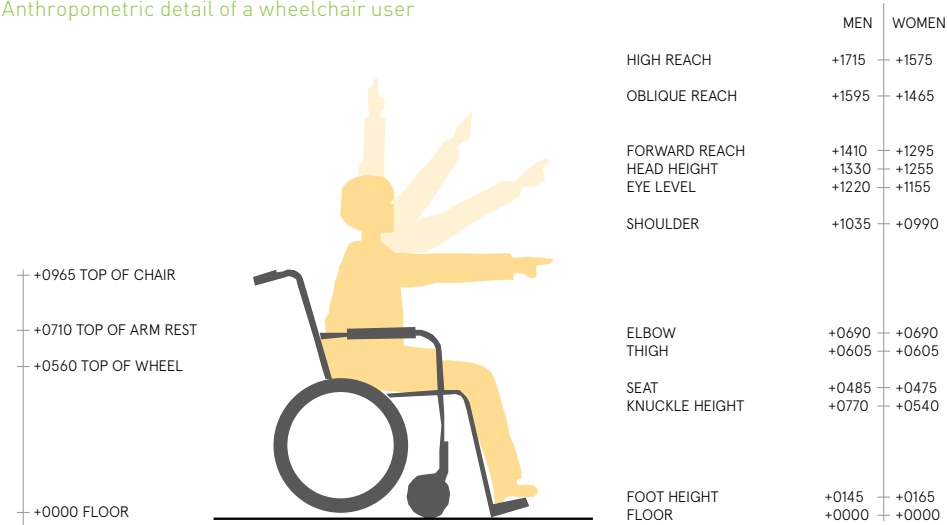
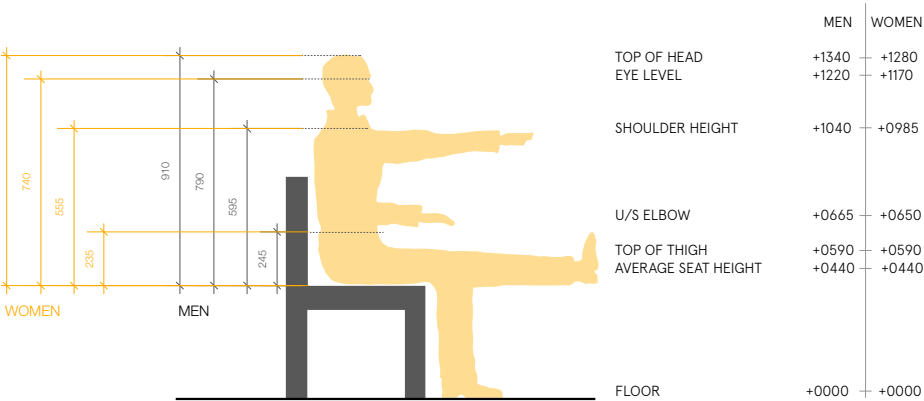
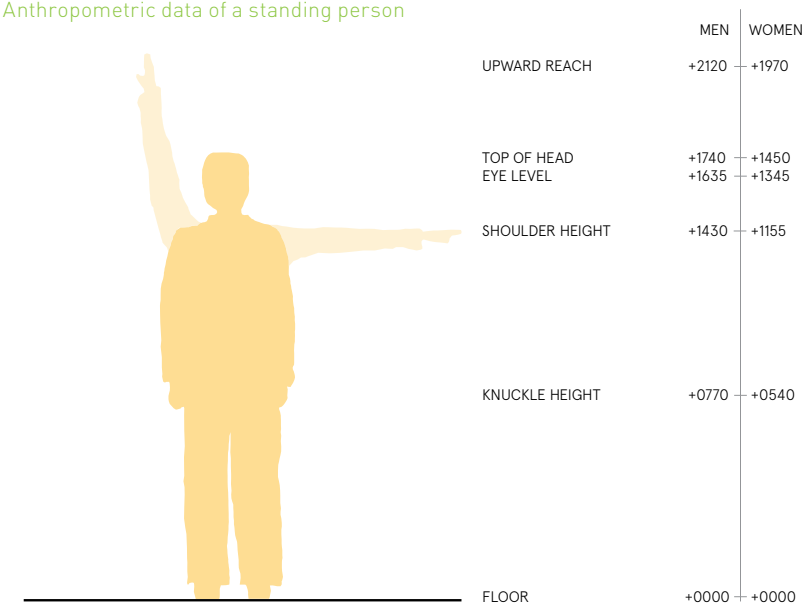


Figure 22  
Anthropometric data of a seated person

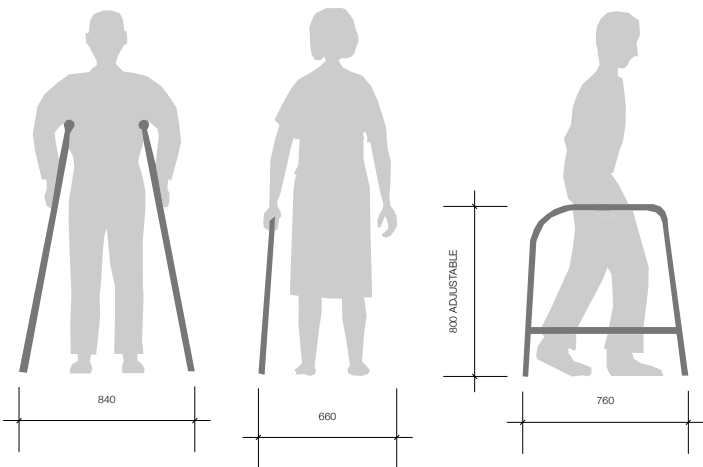




**Figure 23**  
Anthropometric data of a standing person

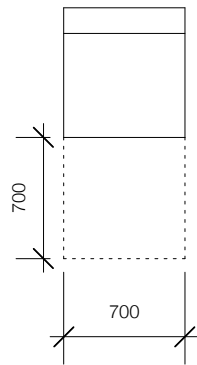


**Figure 24**  
Anthropometric data persons with walking aids

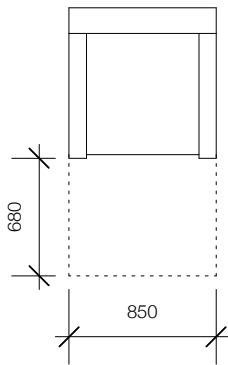


Recommended Activity Spaces

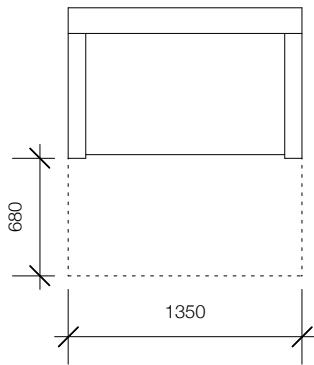
EASY CHAIR



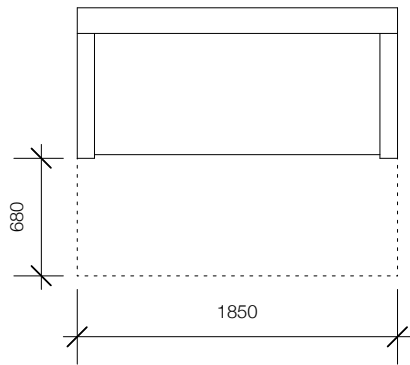
ARMCHAIR



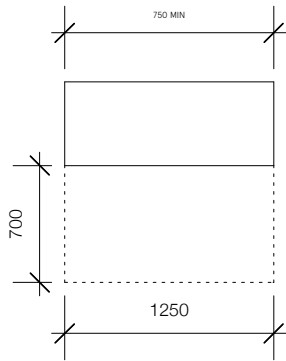
2 SEAT SOFA



3 SEAT SOFA



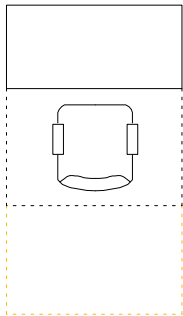
STORGAE UNIT [1500mm HIGH]

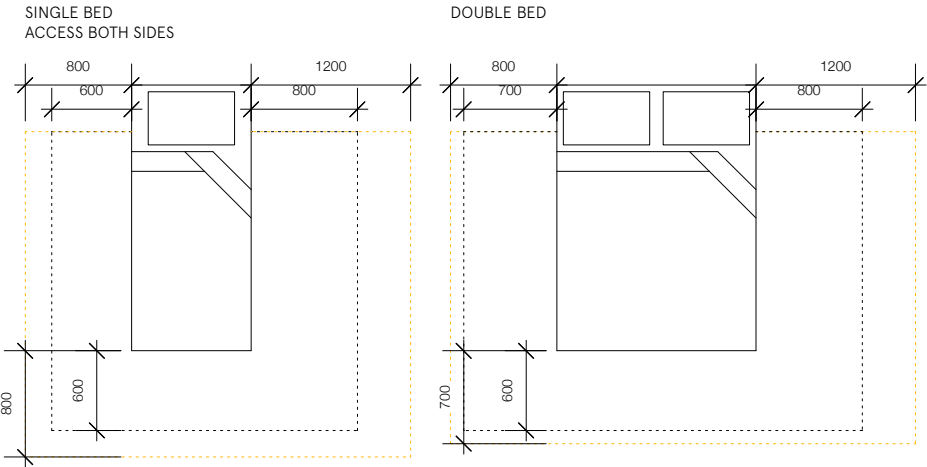
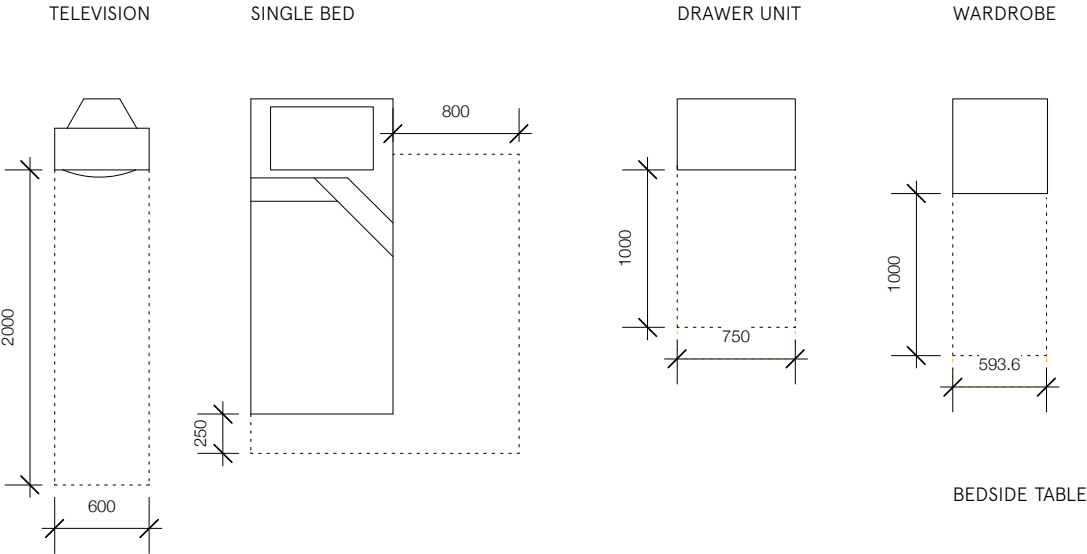


OCCASIONAL TABLE



WORKSPACE





## Remodelling the bedsit

The conversion of 'bedsit' or studio apartments to form one or two-bedroom apartments was identified as a common adaptation by local authority and housing associations within the Scottish Government 'Review of Sheltered Housing 2008'.

In addition there has been a notable increase in the number of option appraisals commissioned by housing associations which, examine the potential of adapting existing bedsits to form more desirable one-bedroom apartments.

From our experience, remodelling this type of apartment falls within one of the following three strategies:

**TYPE A** – Re-configuring the existing internal layout, within the confines of the existing footprint to form better, more usable space but still maintaining an open-plan, studio layout

**TYPE B** – Re-configuring the existing internal layout within the confines of the existing footprint to form a one-bedroom apartment

**TYPE C** – The conversion of two or more adjacent bedsits to form one or more larger apartments (one- or two-bedrooms)

Illustrated examples of the above remodelling works are provided on pages 48 – 55.

When embarking on a remodelling project the following should be carried out:

- An assessment of existing housing provision and demand to determine the most appropriate apartment type ie one – or two-bedrooms
- A survey of the existing development to determine: structural layout, services, provision and routes; window locations, adjoining buildings and orientation
- A review of all existing building information (existing surveys, services, maintenance contracts, specialist service provision
- Early consultation with the statutory authorities to determine the impact (if any) on parking provision, window positions (overlooking, daylight), fire escape strategies and general suitability of the proposals

The following design principles provide a guide to achieving the most from our existing bedsits, with illustrated examples which outline the practicalities associated with this type of remodelling:

### Identity and memory

A clearly visible, personalised front door assists with wayfinding throughout the development but also helps those with visual impairment or dementia to identify the door to their apartment.

The colour of the door should contrast with the wall in which it sits and clearly visible numerals or an illustration can be used for differentiating the apartment door from others in the corridor (further guidance is given in section 10 of this document along with detailed guidance in the ('Colours, signage & wayfinding' design guide).

### Enhance the entrance hallway

The entrance hallway is a functional space for greeting visitors, circulating between rooms or locating electrical boxes and water heaters, which may require access for maintenance without the need for the service operator entering the private rooms of the apartment. The hallway is therefore a semi-private space which acts as a buffer between the outside and inside world. It should offer:

- a degree of privacy
- storage space for services, outside jackets & shoes
- unobstructed space for manoeuvring freely between adjoining rooms
- borrowed light

A good example of this is shown on page 53, where the hallway is a place to meet guests and store books.

### Increase liveable space

"Extending standards to address 'liveability' and the needs of occupants supports the Scottish Government's aim of promoting a more inclusive built environment and will better address the changing needs of occupants over time. This approach to the design of dwellings ensures that Scotland's housing stock can respond to the needs of our population, now and in the future." (Scottish Government 2013. Pg. 198)

To increase 'liveable' space within a studio or one-bedroom apartment, where space standards are minimum can be difficult. However, the following design options, offer innovative ways to increase the gross internal floor area and increase space to live:

- Overlap activity spaces and circulation areas where the occupancy profile is sufficiently small (one person) to increase room sizes
- Provide open-plan kitchen and living arrangements. The required activity spaces for kitchen appliances can encroach into the overall room area
- Provide space for dining in addition to the living and kitchen area
- Design-out the need for corridors or doors. Storage walls & book cases can provide successful room dividers, which offer privacy to the bedroom area

- Install sliding doors where floor area is limited and a swing door would encroach on usable floor space (consideration should be given to the size and weight of the door as the action of sliding can sometimes be more difficult for elderly tenants) as it required a strong core or arm strength.

### Provide privacy

It is important to maintain privacy to the bed area/bedroom to enable tenants to entertain visitors in their apartment without exposing their sleeping habits.

Where space within the bedsit is limited & the tenant relies on the dual functioning couch-bed for sleeping and daily living, the daily routine of making the couch-bed can become burdensome (not to mention requiring additional storage for duvets, pillows etc.). Therefore it is recommended that a separate sleeping area is provided as a priority in any remodelling works. Pages 53 & 55 show two examples of where this has been achieved.

### Maximise storage

Maximise storage within the apartment. The following minimum storage should be provided:

- A minimum of 1m<sup>3</sup> of kitchen storage
- A minimum of 1.7m of clothes line area for drying of clothes inside
- A minimum of 600mm of wardrobe storage for hanging of clothes per person

The aforementioned list is not intended to be exhaustive, further storage will be required and this should be considered in relation to the apartment size, volume and occupancy capacity.

### Provide an accessible shower room

The Scottish Housing Care Standards Survey (2010) identified bathroom adaptations as the most common adaptation undertaken. This is not surprising, given that many dwellings were constructed at a time when accessible living was not considered a priority and bathrooms & toilets were designed to minimum space standards.

Where possible, an accessible shower room with w.c and wash hand basin should be provided within each apartment. This will better enable tenants to remain in their home as their circumstances change. Also if these works are undertaken as a pre-emptive measure, this will help to reduce cost and disruption overall.

Detailed guidance on providing accessible sanitary accommodation is provided in section 'Bathroom Adaptations'.

---

**Provide flexibility with the space**

Where the design of the apartment allows for flexibility in furniture layout and use, this will assist in creating a more sustainable dwelling, which can better adapt to tenants future changing needs. Some considerations in respect of providing flexibility are noted below:

- Is there sufficient space within the bedroom for a hospital bed and for care equipment to be situated next to the bed?
- Should the tenant become bed bound, is there sufficient space within the principle living area for the tenants bed? The principle living room can often provide a more suitable environment for the bed bound tenant, as space is greater and therefore visitors can sit comfortably, with access to the kitchen area. Also window cills tend to be lower which can provide greater opportunity for views out
- Can the bedroom & living room be adjoined to provide one larger living area, should the tenant become bed bound and can this be done with minimum disruption to the tenant?
- Are routes through the apartment suitable for a person using a hoist to navigate safely and without obstruction?

**Construct for future adaptability**

To achieve flexibility in the apartment design it is important to ensure that construction methods enable future adaptability with minimum disruption to the tenant. To achieve this, it is recommended that internal walls are non-load bearing and can therefore be removed with relative ease and speed. This will also ensure that adjoining apartments do not experience any disruption, as removing a load bearing internal wall can often result in additional structural work to adjoining apartments.

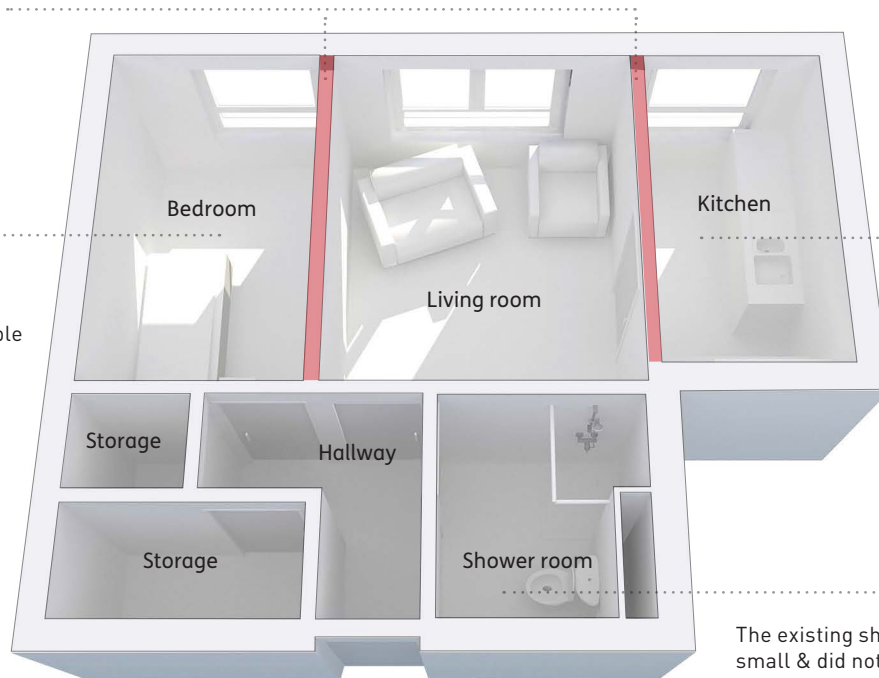
## When designing for any remodelling works the following should be considered:

- The location of existing drainage outlets and the overall distance to proposed new sinks, showers, toilets et. The floor construction and depth of available service void can impact on the maximum overall length of pipework and therefore early investigations into the existing floor construction is recommended. The location of rooms requiring drainage will be largely dependent upon achievable drainage runs
- The location of any rooms which require mechanical ventilation/extract and their proximity to vertical service voids or external wall. Extract ducts should provide a clear route to extract externally and should not connect with any other neighbouring extract
- The location of any existing service pipes such as water supply, heating pipes, drainage. Within existing housing developments there is the potential for pipework and ductwork which services neighbouring apartments to cross over or connect. Therefore it cannot be assumed that services within one apartment solely service that apartment. Existing service routes should be identified early in the design process and the removal, redirection or disconnection avoided where possible
- The potential for internal walls to bear a structural load and the implications of their removal on the wider structural stability of the overall building ie dead loads, environmental loads and other loads such as settlement
- Joist span, centres to joists and the location and direction of proposed new partitions (supporting struts may be required where a new partition runs parallel and between joists)
- Position of existing structural openings such as entrance doorways, windows and internal openings. Try to minimise structural alterations and disruption to communal circulation by utilising (where possible) the existing structural grid
- Integration of all services (call assistance, fire alert & detection, assisted technologies) to suit the new layout
- Location of windows and opportunity to maximise daylight to principle habitable rooms such as living rooms & bedrooms
- Avoid adjacency of bedrooms to living/kitchen areas between neighbouring apartment. Where possible bedrooms should be positioned adjacent to neighbouring bedrooms and living rooms to living rooms
- Avoid positioning bedrooms close to existing parking, access roads or near service plant/lifts as the noise associated from these spaces can have a negative impact on the tenants ability to sleep
- Maximise borrowed light into internal rooms by integrating fanlights or sidelights to doors or sunpipes to upper floors
- Ensure the recommended activity spaces (as outlined in pages 42 & 43) are achieved and minimum recommended furniture/fittings provided.

## Existing Plan

Existing masonry load bearing partitions were removed & replaced with non-load bearing timber partitions, which are less costly, timely & disruptive to remove at a later date, should the tenants needs require.

The existing bedroom proportions were not sufficient for an adjustable /hospital bed



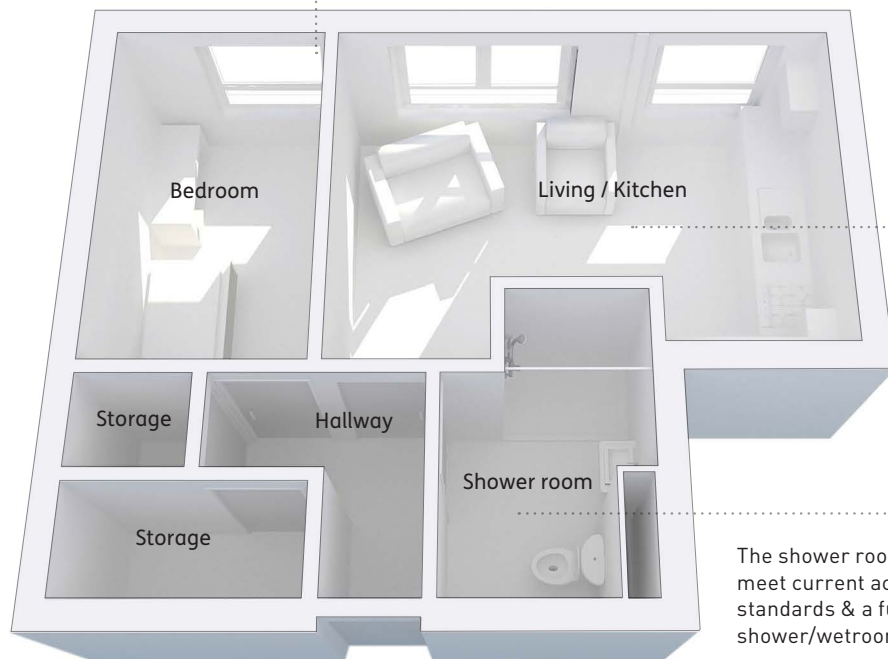
The existing kitchen activity areas were insufficient & did not meet current standards.

The existing shower room was small & did not meet "accessible sanitary" standards.



## Proposed Plan

A new non-load bearing timber partition was installed which could be removed with relative ease at a later date, should the tenant become bed-bound or require an adjustable /hospital bed. A full open-plan arrangement could be provided.



An open-plan living & kitchen layout was formed which provides more daylight into the room, achieves recommended activity areas to all furniture & appliances.

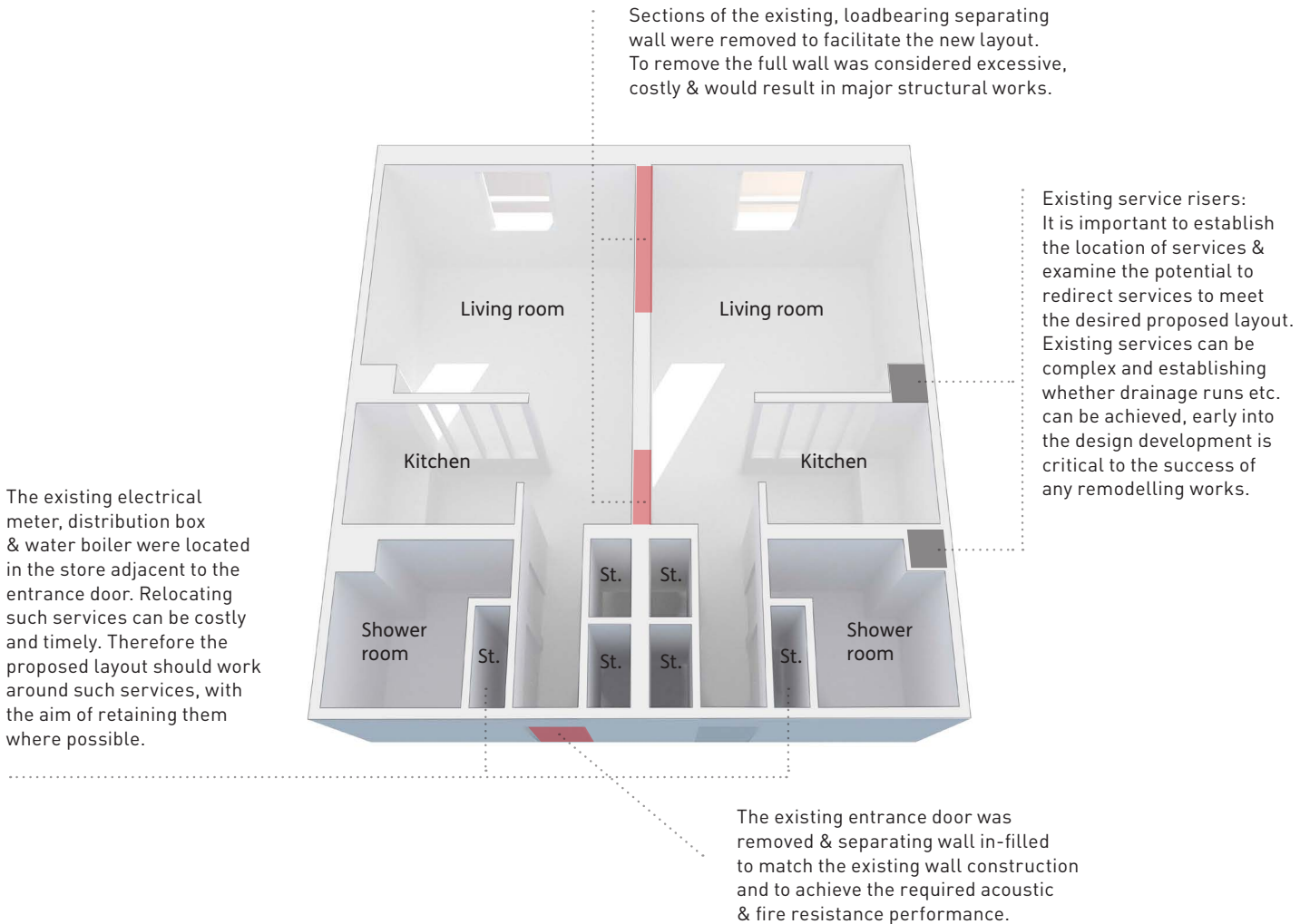
The shower room is increased to meet current accessible sanitary standards & a full level access shower/wetroom installed.

### Type A:

Reconfigure the existing internal layout within the footprint of the existing apartment to form more usable space.

In this example the existing shower room area is increased to provide an accessible shower room; the living & the kitchen were altered to form an open plan arrangement.

## Existing Plan

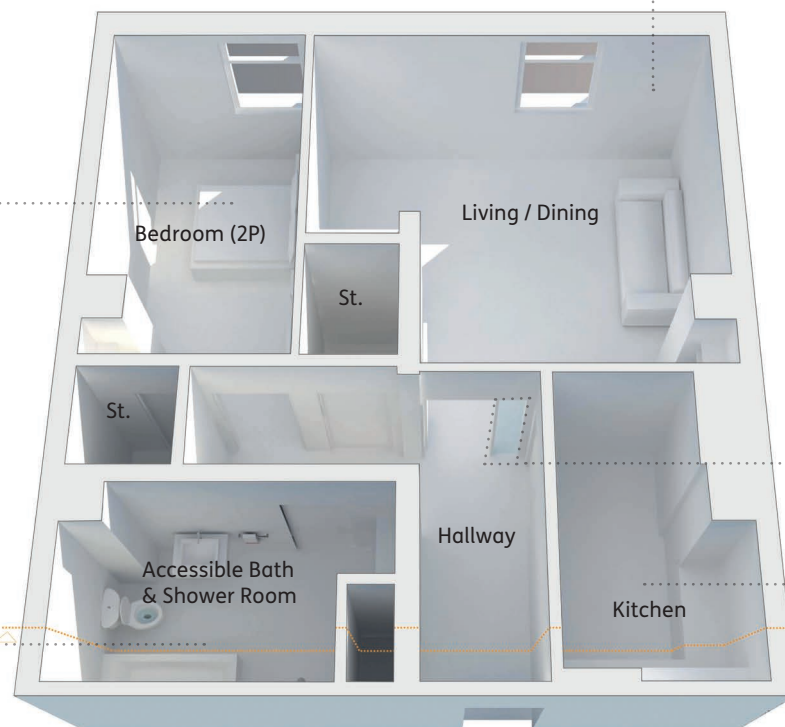


## Proposed Plan

In this example the existing window positions & heights were retained. However, additional windows could be considered, or a lowered cill could be provide to maximise daylight to the living area.

A two person double bedroom was formed.

Accessible bathroom with level access shower.



Doors with glazed side lights are utilised where possible to maximise borrowed light.

An accessible kitchen is formed.

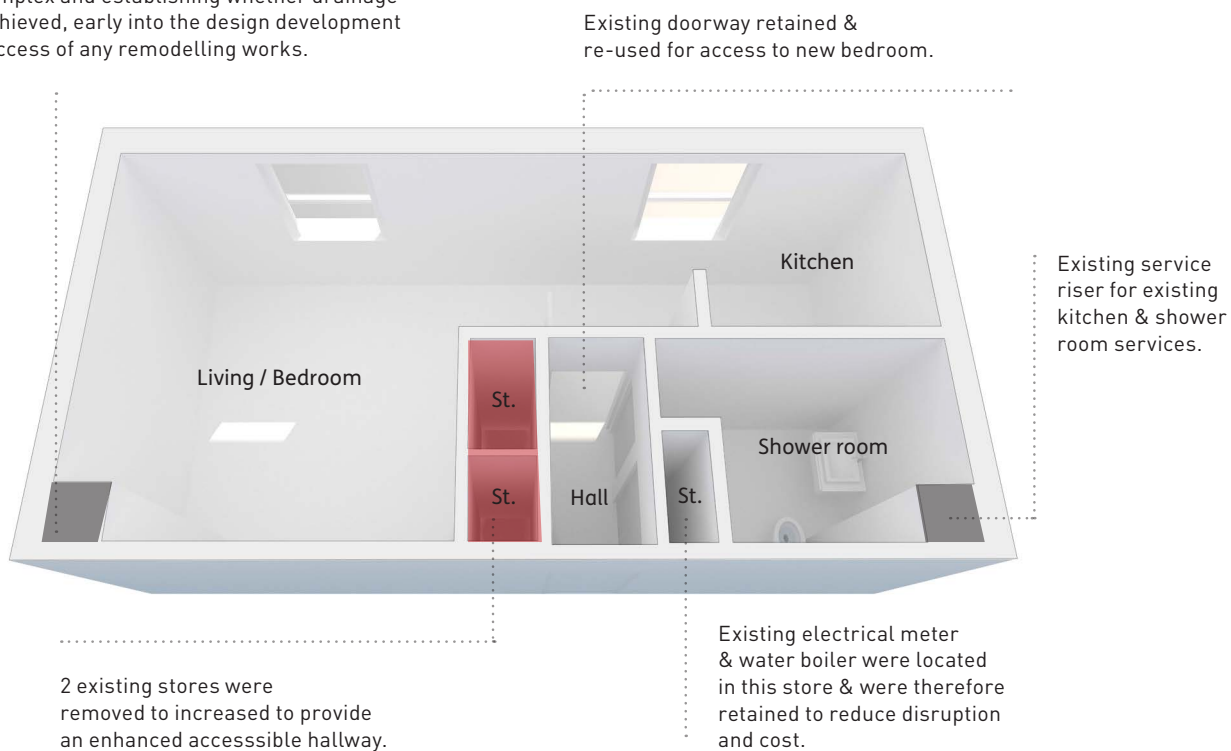
## Type B:

The conversion of two or more adjacent bedsits to form one or more larger apartments (one- or two-bedrooms).

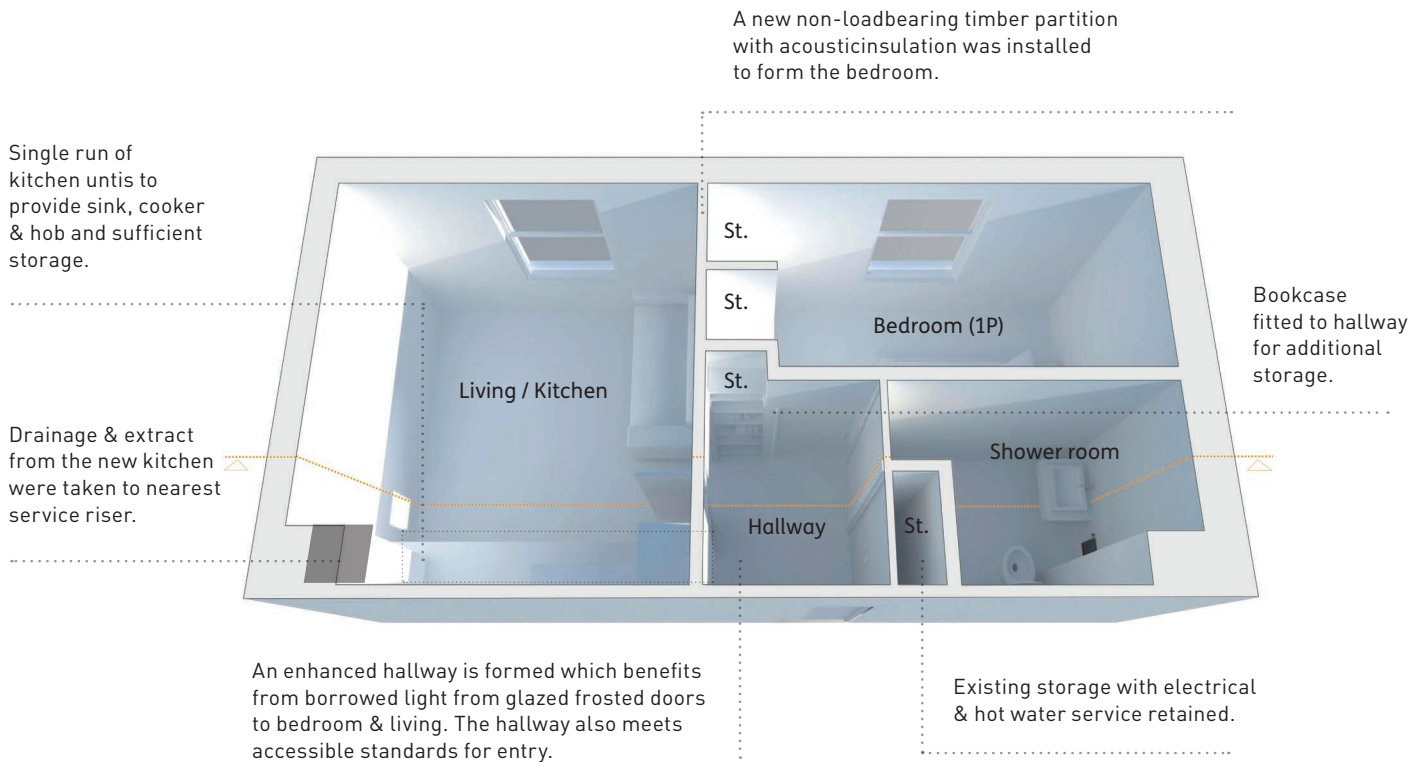
In this example two existing bedsits were combined to form a 2 person 3 apartment dwelling with accessible bath & shower room, a living/dining room which also has sufficient space for a desk/additional bed for guests.

## Existing Plan

Existing service risers: It is important to establish the location of services & examine the potential to redirect services to meet the desired proposed layout. Existing services can be complex and establishing whether drainage runs etc. can be achieved, early into the design development is critical to the success of any remodelling works.



## Proposed Plan



## Type C:

Reconfigure the existing internal layout, within the footprint of the existing apartment to form a one-bedroom apartment or improve living accommodation.

In this example the existing bedsit was reconfigured to provide a one-bedroom apartment with open-plan living/kitchen and an accessible shower room.

## Existing Plan



The proposed doorway is relocated & therefore the existing door opening is in-filled with a construction which matches the acoustic & fire performance of the existing separating wall.

## Proposed Plan



### Type D/D1:

Reconfigure the existing internal layout to provide more usable space or to form a one-bedroom apartment.

## Proposed Plan



## Type E:

Single Aspect Apartment  
which utilises open-plan layout  
to maximise daylight & views

Reduction on number of doors  
used in the design

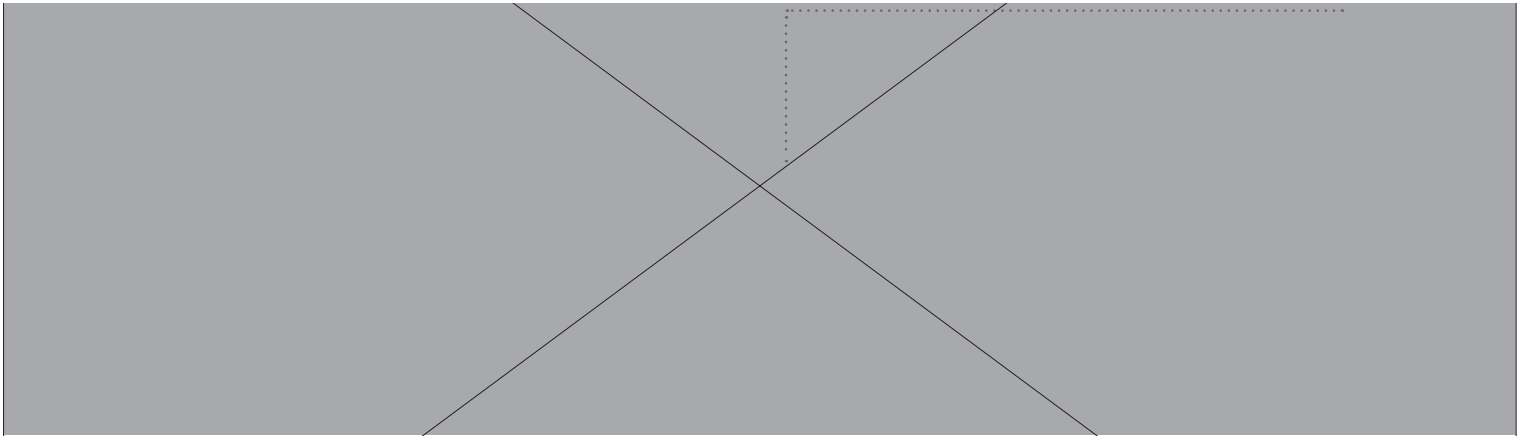
Activity spaces & circulation  
overlap to maximise space



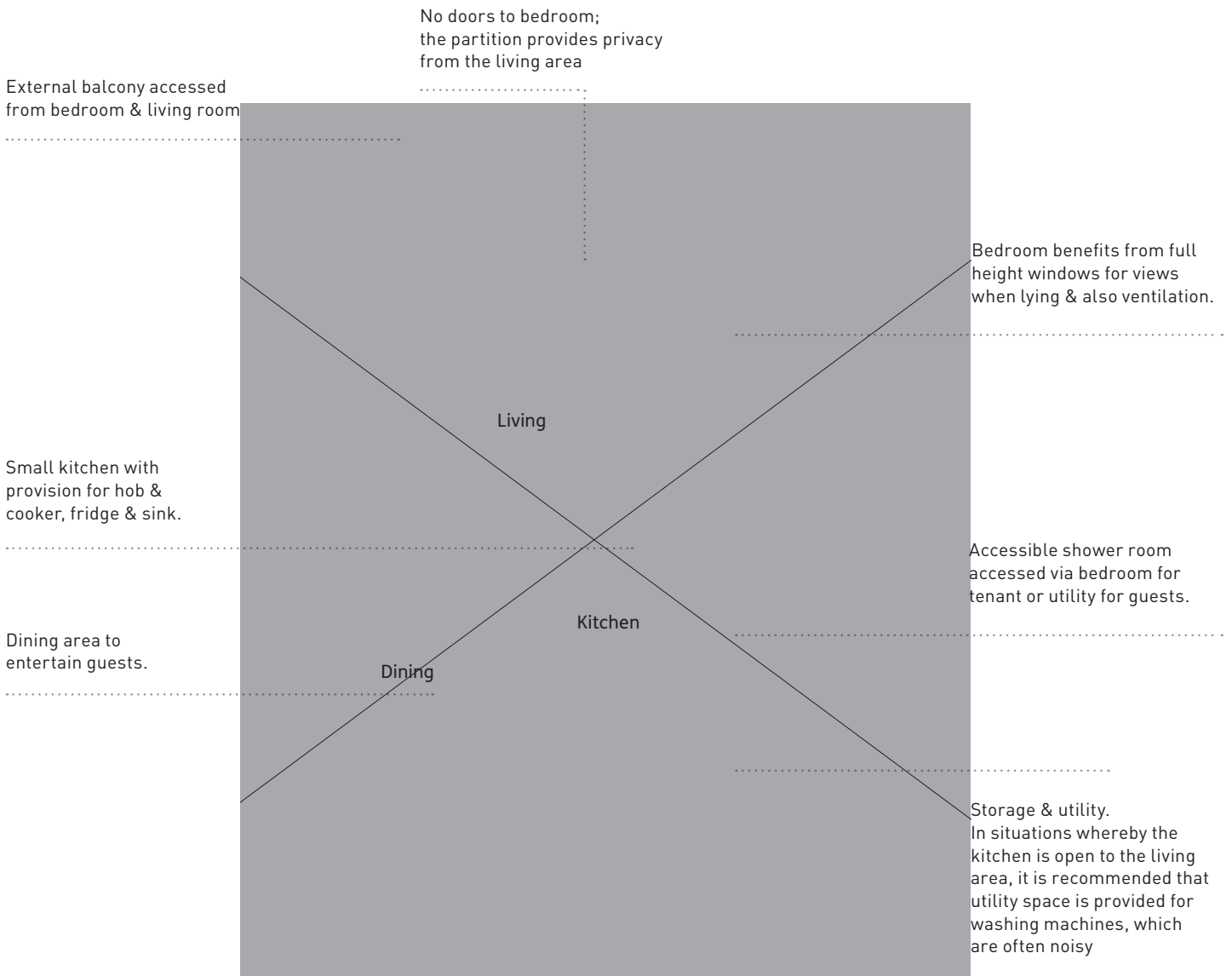
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## Proposed Section

Enhanced hallway provides space for hanging jackets, storing shoes etc. It's layout also provides privacy to the apartment.



## Proposed Plan



### Type F:

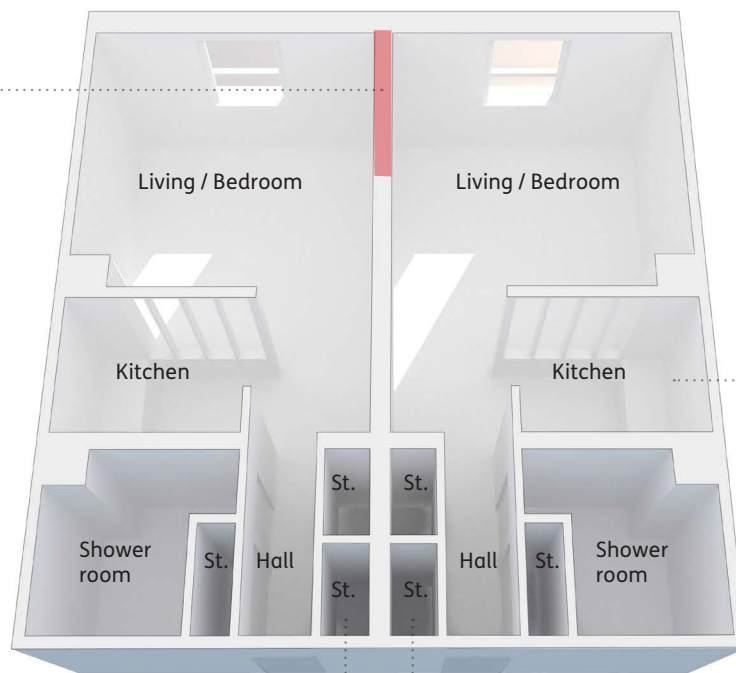
Single Aspect Apartment which utilises open-plan layout to maximise daylight & views

Reduction on number of doors used in the design

Activity spaces & circulation overlap to maximise space

## Existing Plan

The existing separating wall is a structural wall & therefore the number of openings / extent of demolition along this wall is kept to a minimum.



The kitchen area is restrictive & not "accessible" by current standards. In addition it was open to the hallway / living area & noises from appliances disturbed tenants during the night.

The existing electrical meter, distribution box & water boiler were located in the store adjacent to the entrance door. Relocating such services can be costly and timely. Therefore the proposed layout should work around such services, with the aim of retaining them where possible.

## Proposed Plan



### Type G:

The conversion of two or more adjacent bedsits to form one or more larger apartments (one-or two-bedrooms).

In this example two bedsits were combined to form a 3 person 4 apartment dwelling.

## Existing Plan

Existing masonry load bearing partitions were removed & replaced with non-load bearing timber partitions, which are less costly, timely & disruptive to remove at a later date, should the tenants needs require.

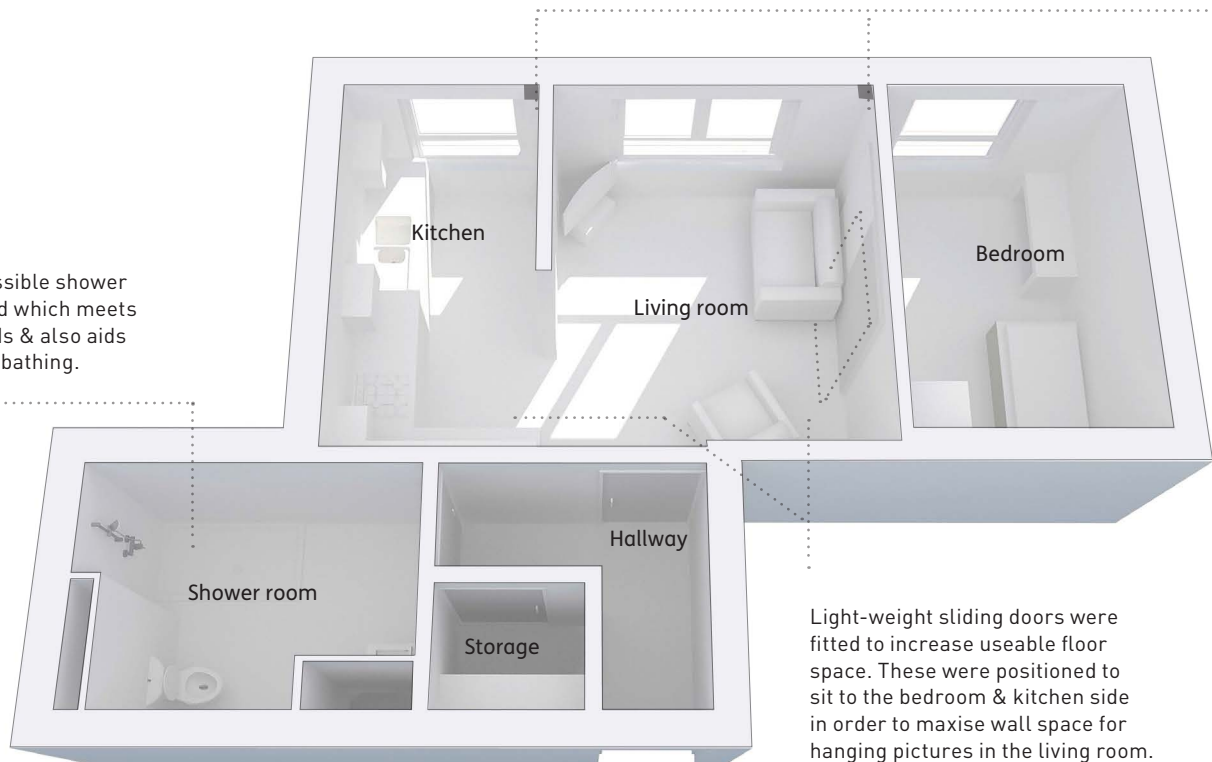


The existing store & masonry internal wall to the shower room was removed to increase the overall area of the shower room, to meet current standards for accessible shower rooms. A full wet room is provided.

## Proposed Plan

New non-load bearing timber partitions were installed, which can later be removed to provide a full open-plan living/kitchen/bedroom arrangement. This was considered particularly important for the Client, in the eventuality the tenant become bed-bound. (wind posts were required to maintain structural integrity of the external wall)

A new fully accessible shower room was formed which meets current standards & also aids independence in bathing.



Light-weight sliding doors were fitted to increase useable floor space. These were positioned to sit to the bedroom & kitchen side in order to maximise wall space for hanging pictures in the living room.

### Type H:

Reconfigure the existing internal layout within the footprint of the existing apartment to form more useable space.

In this example the existing shower room is increased to form a wet room & kitchen & lounge construction altered to provide for future adaptability.

## Bathroom adaptations

Bathroom adaptations are the most commonly stated adaptation at approximately 44,000 households in Scotland (Scottish Housing Care Standards, 2010) and a summary of common alterations is provided below:

- Installing a level access shower ie forming a wetroom
- Installing a bath which permits the use of a mobile hoist
- Increasing the height of the w.c
- Installing grab rails
- Installing lever taps
- Increasing the overall floor area

In accordance with the Building Technical Standards, Scotland every dwelling is required to provide at least 1 accessible w.c, or waterless closet, and wash hand basin and at least 1 accessible shower or bath. Where works to alter or extend an existing dwelling are proposed, physical constraints in the size or form of the existing dwelling may mean that meeting the technical standards is not always possible.

Accordingly it is recommended that this guidance is met as far as reasonably practicable.

Accessible sanitary accommodation should have:

- A manoeuvring space that will allow a person to enter and close the door behind them. This should be at least 1.1m long by 800mm wide, orientated in the direction of entry, and clear of any door swing or other obstruction and
- Except where reduced by projection of a wash hand basin, unobstructed access at least 800mm wide to each sanitary facility and
- an unobstructed height above each activity space and above any bath or shower of at least 1.8m above floor level and
- walls adjacent to any sanitary facility that are of robust construction that will permit secure fixing of grab rails or other aids and
- at least one recognised form of unassisted transfer from a wheelchair to the WC

## Wetroom

The most common difficulty stated for bathroom adaptations is accessing the bath or shower. This is often due to difficulty in high-stepping or general limited mobility or strength. A wetroom is a common and effective method of overcoming this difficulty.

A wetroom is a shower room which does not require a step up or down within the showering area. Typically the wetroom shower area consists of a homogeneous floor finish with a gradual fall or gradient towards the drain (or gully) within the floor.

The gradual drainage fall is created using either a preformed shower tray or a tray former which is filled with a concrete screed mix to restricted (and predetermined) heights and smoothed to create the fall. The floor finish is then fitted across the shower area, continuing across the bathroom floor area. It is common for wetrooms to have a coved skirting detail, although this is not necessary, where a tiled finish is used and a tiled skirting providing.

The installation of a level access shower requires:

- Approximately 25mm of depth for the shower tray former to sit flush with the finished substrate level
- Sufficient depth within the floor build-up to achieve the required fall for drainage pipes to connect to the vertical drainage outlet. Where the floor build-up is restrictive and gravity drainage gradients cannot be achieved, a pumped drainage solution could offer an alternative solution.
- A vinyl or tiled (homogeneous) floor finish

There are a number of drainage options available with proprietary shower tray formers offering integrated drainage outlets, which can be rotated within a limited circumference to help achieve closer drainage connections and shorten drainage pipe runs.

Linear drainage channels also offer a more aesthetic drainage solution and proprietary tray formers with integrated drains are available for ease of installation.

A shower curtain or supported toughened glass panel can be fitted to prevent water spraying into the bathroom area. This is particularly useful where bathroom sizes are small and the shower tray size minimal.

Where the installation of a level access shower is not possible, a low-profile shower tray could provide an alternative solution. The low-profile tray sits approximately 15mm above the finished floor level and is therefore not dependent upon alterations to the floor substrate or construction. Consideration should be given to the specification of the finished floor material to ensure visual contrast between the shower tray and floor surface.

#### **Baths for use with mobile hoists**

In some instances it is not always desirable for a bath to be removed in lieu of a level access shower. Where this is the case, a bath with a void between its supports can be installed to accommodate a mobile hoist. The void enables the supporting legs of the hoist to slide beneath the bath, therefore ensuring the hoist can sit up to the edge of the bath.

Several proprietary baths with adapted bath panels are available by leading sanitary ware manufacturers. When specifying a bath for use with a mobile hoist the following should be considered:

- Ensure there is sufficient floor space within the bathroom (between sanitary fittings) for manoeuvring the hoist. This should include space for the care provider operating the hoist.
- Ensure the distance between the supporting legs of any hoist and the void beneath the bath is compatible

#### **Increasing the height of the WC**

The typical height of a WC varies depending upon the manufacture and method of installation i.e. close coupled, back-to-wall or wall mounted. Therefore it can often be difficult to determine the appropriate height of a raised WC when considering a request for an adaptation without firstly knowing the height of the existing WC which is causing difficulty.

There are limited options for providing a raised toilet seat level. However the following three options provide solutions which, when combined can achieve varying raised WC heights:

- Installing a proprietary raised toilet (which sits approximately 480mm above the finished floor level)
- Fitting a raised toilet seat to an existing WC (this can increase the overall seat height from 25-100mm)
- Install a raised plinth beneath the WC. Plinths are available in 50, 75 & 100mm heights.



### Installing grab rails

The installation of grab rails is a common adaptation within the bathroom environment.

The specifics of height and location will be determined by the individual needs of the tenant but in general it is good practice to install grab rails at the following locations:

- A vertical grab rail within the shower area adjacent to the shower rail and a horizontal grab rail on the adjacent wall
- A vertical rail at either side of the wash hand basin
- A horizontal rail to the inside of the WC (a pull-down arm can be fitted to the outside of the WC if required)

A variety of grab rail lengths are available and in some instances grab rails are manufactured with an angle to provide both horizontal and vertical grab positions.

The material finish and level of grip of grab rails also varies and consideration should be given to the individual needs of the tenant when specifying.

It is also important to ensure that there is visual contrast between the grab rail and the wall finish which the grab rail is fixed to. An explanation of 'visual contrast' and specifying contrast is provided in section 14 of this document.

### Lever taps

Lever handle taps offer an ergonomic solution to water use, where the individual has limited use of their hands.

A lever tap has an extended control (lever) of approximately 150mm which allows the tap to be turned on/off with a simple push motion either by the hand, wrist or arm. This therefore negates any need to grip.

Lever taps are provided to suit many tap types, such as single taps, mixer taps, monobloc, pillar and deck.

Often in cases of adaptations, where there is the risk of scalding a single lever mixer tap is preferred. The mixer tap is set to a thermostatic value (of approximately 41 degrees) at the point of manufacture and in some cases the tap is designed to always commence at a cold temperature. This helps provide greater user safety.

## Kitchen adaptations

Similar to specially adapted bathrooms kitchen adaptations require careful attention to detail, close consultation with the User (and where applicable their Occupational Therapist) and a knowledge and understanding of the products and ranges available on the market.

A summary of some of the most common kitchen adaptations is provided below:

- Reducing the height of the worktop
- Reducing wall unit heights
- Providing activity space beneath the sink/hob/preparation area for a seated position
- Increasing visibility within the kitchen environment

### Reduced height worktops

The standard kitchen worktop height is approximately 900mm above the finished floor level and in some instances this can be restrictive either because of the individual's height, their ability to reach across the depth of the worktop or ability to stand or remain standing whilst being active in the kitchen.

There are several methods to reduce the height of the kitchen worktop and the decision for which is most suitable will largely be dependent upon a combination of the tenant's needs, household profile and available budget. An overview of the options is provided opposite.

- A fixed lowered kitchen is a type of kitchen range which consists of smaller base units wall mounted onto specially designed brackets, which can be adjusted incrementally to suit the user's required height. Once the height has been determined the worktop and base units are fixed in place. Typically this type of kitchen range can be lowered to approximately 750mm above the finished floor level. This type of kitchen provides a lowered solution to both the worktop and base units, which can be adjusted to suit the user and readjusted to suit future tenants. This is particularly suitable for households where this is only one occupant (where the worktop height does not need to be adjusted to suit each user) where the user is able to stand whilst carrying out kitchen tasks and where there is likelihood for the tenancy to change (as the kitchen height can be adjusted with minimal disruption and without replacing the kitchen)
- A fixed section of lowered worktop can be provided where the user requires to be seated at work stations such as at the cooker, sink or food preparation area or where there is more than one occupant and worktop heights vary depending on the user. The installation of a lowered section of worktop is a simple joinery process and can be integrated with standard kitchen ranges and fixed lowered kitchen ranges
- Adjustable worktops (automatic or manual) offer a versatile solution to providing an adaptable kitchen environment for more than one user. The worktop height is able to be adjusted by the user as required. Sinks, cookers and power points can all be integrated into the worktop. This solution is suitable for kitchens where there is more than one occupant, requiring varying worktop heights and where there is no need for base units beneath
- Pull-out worktops can also be provided and the height positioned to suit the user

In all cases where the worktop height can be adjusted, it is recommended that the height of the splashback is taken from the lowest worktop height to ensure sufficient coverage for each position.

### Reduced wall unit heights

Kitchen wall units are typically positioned 400mm above the kitchen worktop. This provides sufficient space for locating appliances such as microwaves, kettles & toasters beneath.

Where the typical wall unit height is restrictive, the wall unit can be lowered or pull-down wall units/storage shelves can also be fitted and provided with automatic actuation.

Care should be given when fitting lowered wall units to ensure sufficient space is provided above the worktop for appliances.

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**Activity space beneath the workstation**

Sufficient space should be provided beneath the worktop at workstations where the user will be in a seated position. This space should be clear of services and any obstructions to ensure that safe passage of the users legs.

At a sink location, flexible drainage pipes and micro waste traps should be fitted to increase leg space. Cover plates should be provided to conceal services and prevent catching. In addition fascia mounted taps and waste controls can be provided to assist users who have difficulty stretching across the depth of the worktop.

Where under-counter activity space is required at the cooker location, consideration should be given to the position of the oven, as the space beneath the cooker will be used for leg space. Fascia mounted integrated cooker controls can be also be provided to prevent stretching over the hob.

**Increasing visibility within the kitchen environment**

To assist those with visual impairment or for individuals with dementia, it is recommended that the kitchen environment is made more visually accessible.

Recommendations for dementia design suggest that increasing task lighting to worktops, replacing solid kitchen unit doors with glazed doors and avoiding work surfaces with a speckled pattern can increase the users ability to read and understand their kitchen environment. Further recommended reading on this subject is provided within the appendix.

# Technologies within the Home

There has been a surge in the development of technologies used within our home environments within the last twenty years. Since public access to the internet became available in the early 1990s communication technologies within the home have changed significantly.

Developments in computer technology have improved our access to information and education online, and our ability to communicate in real time across the world. Developments in wireless technology also ensure that we can access this information and communication technology at any time and in any location. Developments in assistive care technology have also ensured older people can stay at home longer, living as independently as possible. Developments in remote environmental control systems such as heating & lighting controls have also increased, although predominately in the private housing sector.

The architects & engineers of our forefathers generation would therefore have been unable to predict the implications of this technological boom on the design and construction on our existing housing. Likewise, it is challenging even now to predict the technologies of the future and how best to remodel our current dwellings to support such technological developments. What is clear however, is that the technologies which the younger generation enjoy today, will become the base-line provision for our future older people housing.

Therefore, as a minimum requirement it is important that our older people housing developments of today support and provide access to current technologies such as:

- Access to the internet
- Digital Inclusion
- Access to assistive technologies

And, that they do so by providing:

- User friendly controls and interfaces

## Access to the internet

Since its invention in 1989 the internet has attracted approximately 2.4 billion users.<sup>1</sup> It is considered a vital method of communication, a tool for ensuring economic growth and stability and improves access to education. In the context of the older person, the internet can also help to reduce isolation, strengthen social relationships and increase independent living through online shopping etc.

In addition to the above benefits, we must also consider the practicalities of daily living without access to the internet. For example, the internet is becoming the default for accessing public services and may in the future, become the platform for paying rent, organising personal care packages or managing personal funds. As such providing access to the internet could be considered a future basic utility and it is not unforeseeable that service costs could eventually be combined with rent and heat costs as a basic housing rental package.

## Digital inclusion

In 2014 the UK Government published the 'Government Digital Inclusion Strategy' which sets out 10 actions to reduce digital exclusion so that by 2020 everyone who can be digitally capable, will be. The strategy identified that:

- 37% of those that are digitally excluded are social housing tenants
- Over 53% of people who lack basic digital skills are aged over 65

To meet the target of digital inclusion by 2020 it is therefore important that our older people housing developments are able to meet the needs and demands of its future digitally skilled tenants.

A recent Digital Inclusion pilot project was undertaken by North Lanarkshire Council and Trust Housing Association and free wireless broadband access was provided along with access to tablets and desktop computers within the communal lounge of one of Trust's existing housing developments. Training workshops were provided as part of this project to support tenants learning development and encourage trust in the use of the internet for banking and online shopping etc. The pilot was successful & many tenants have continued to develop their skills and share knowledge amongst their neighbours.

<sup>1</sup> UK Government Publication. (2014).

A review of this pilot project and the implications the built environment had on its delivery was carried out and it was concluded that very few physical alterations would be required to support this scheme as a utility, provided throughout the development. At the most, it was recommended that signal boosters be provided to extend the wireless signal.

In developments, where it is not appropriate or desirable for a communal internet provision, the installation of an ethernet network within each apartment was recommended to provide tenants with network points throughout the home.

## Access to assistive technologies

'Assistive technology' (AT) is a term which encompasses assistive, adaptive and rehabilitative devices. These devices are used to encourage greater independence by enabling the user to undertake a task, which they would previously have been unable to do without the support of the device. Common devices used within the older persons home are:

- Pillow alerts (to alert the user to a fire alarm detection)
- Assistive pull cords or pendants
- Bed occupancy sensors
- Flood detection sensors
- Fall detectors

The provision and installation of assistive technologies is unique to each individual and their care needs and therefore a universal design approach is not appropriate.

However, to ensure that our older people homes are capable of being adapted to accommodate AT's require a minimum of a telephone line with an ADSL filter.

## User friendly controls

It is important with all technologies within the our living environments that controls and user interfaces are simply designed and easy to use.

In the context of an older persons dwelling the following recommendations are given:

- Wall mounted controls such as light switches or sockets provide visual contrast. This can include a coloured switch mounted on a white backing plate or where the wall is light, the backing plate can be supplied in a contrasting colour.
- Light sockets are back lit/ illuminated from behind to help tenants locate the light switch at night. Proprietary back-lit light sockets are available on the market
- Multi-gang switch plates should have no more than two switches to assist those with poor dexterity
- Power sockets are located at a minimum of 400mm from the corner of a room
- Light switches are provided at a height of between 900mm–1050mm above the floor level
- Power sockets, tv sockets and telephone sockets are positioned between 500mm–1000mm above the floor level

# Lighting Design

In section 3.0 of this document we outlined the effects of the ageing eye and the environmental conditions which can be adapted to enhance vision and the individuals understanding of themselves in space.

Increased lighting levels is considered instrumental in assisting older individuals to understand and perceive their environments. Improved lighting design helps preventing falls, reduce glare and helps in carrying out everyday indoor tasks.

The most recent and relevant research into light and lighting design for older people was undertaken by the Dementia Services Development Centre, University of Stirling and the following sub sections of this chapter are adapted from the publication ‘Light & lighting design for people with dementia’. While it is understood that not all older people housing developments will have tenants with dementia, the conditions of the ageing eye are similar and may therefore benefit from the light levels and design recommendations given.

Lighting in older people housing can be improved by:

- Increasing lighting levels
- Minimising glare
- Increasing contrast (refer to section 11.0)
- Balancing light levels

## Increasing light levels

It is recommended that common recommended lighting levels are increased by a factor of two for older people. The following target light levels are recommended for housing for older people <sup>2</sup>

| Area                                     | Maintained average horizontal illuminance (in lux) not less than  |
|--|---|
| Living Rooms                             | 300   |
| Recreation                               | 300 supplemented by 300 daylight when available and 300 from free standing units when daylight is not available |
| Kitchens                                 | 600 (ensuring high lighting levels at worktops, sinks and server counters by positioning lights nearby)         |
| Bathrooms and Toilets                    | 300 (ensuring high lighting levels at wash-hand basins and WCs by positioning lights nearby)                    |
| Bedrooms                                 | 200 (ensure high light levels at headboards and dressing tables)  |
| Dining Rooms                             | 300 (ensuring high lighting levels at dining tables)  |
| Corridors - at night                     | 20–50 (no activity)<br>100–150 (activity)   |
| Corridors - daytime                      | 50 (no activity)<br>150 (activity)  |
| Corridors - mid point or at access doors | 200 (vertical)  |
| Offices                                  | 500   |
| Lifts                                    | 175   |

2 McNair. D et al. [2013]

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The figures shown above are for task areas. For zones between task areas, it is recommended that the light level is not less than half the average values shown above. For corridors and lifts the task area is applicable for the entire area.

## Minimising glare

To minimise glare, the following is recommended:

- The use of room surfaces with high diffuse reflectance can help reduce reflected glare from light sources (both artificial and natural)
- Use multiple light sources
- Avoid the use of high gloss finishes to surfaces
- Avoid lighting from below
- Use translucent luminaires to transparent
- Use light fittings with reflectors and screens

## Balancing light levels

It is important to balance artificial lighting with natural daylight. Wherever possible, natural daylight should be used and further guidance on achieving this is provided in section 6.0.

# Colour & Contrast

The ageing eye and individuals with visual impairments find it difficult to discriminate between colours and as such, the use of contrast is an effective tool to assist with their interpretation of their physical environment. Until recently, there was a common perception that opposing colours (for example red and yellow) would provide sufficient contrast to aid someone with a visual impairment to distinguish between two objects or surfaces. However, despite the difference in hue, the luminosity of the colour may be the same. For example a deep red can appear the same as a yellow hue with the same light reflectance value (LRV).

## Contrast in colour

To ensure visual contrast we must firstly understand contrast.

Visual contrast is given as a difference in light reflectance value (LRV) between two surfaces of greater than 30 points.

‘The LRV scale runs from 0, which is perfectly absorbing surface that could be assumed to be totally black, up to 100, which is perfectly reflective surface that could be considered to be the perfect white. Because of practical influences in any application, black is always greater than 0 and white never equals 100.’ (BS 8300:2009)

## Measuring contrast

Colours which appear to be different from one another in colour can be very similar tonally and therefore do not give sufficient contrast.

A simple (but not scientific) method of judging good contrast is to take a black & white photograph of the scene or a photocopy of a colour photograph. A good contrast will show up black and white, poor contrast will show up as grey.

However an accurate method of testing LRV is required when specifying products. The new British Standard BS8493:2008 specifies the method of test to determine the light reflectance value (LRV) of different surface materials. This standard stipulates the use of specialist sphere type spectrophotometer equipment which has been designed for the task. This equipment can accurately measure the LRV of flat and curved items and both matt and specular finishes.

Where it is not possible to carry out a specialist spectrophotometer test or when specifying new products the light reflectance values can be obtained from the manufacturers sample cards or written guidance.

A table of LRV ratings for materials commonly used by the commissioning body is provided in appendix B.

## Specifying contrast

The approved Document M of the Building Standards (applicable to England) stipulates the following in relation to visual contrast:

- All door opening furniture should contrast visually with the surface of the door and is not cold to the touch
- Doors, whether open or closed, should be apparent to visually impaired people through the careful choice of colour and material for the door and its surroundings. For example, when a door is open, people with impaired sight should be able to identify the door opening within the wall, as well as the leading edge of the door
- In order to help people with visual impairment to appreciate the size of a space they have entered, or to find their way around, there should be a visual contrast between the wall and the ceiling, and between the wall and the floor. Such attention to surface finishes should be coupled with good natural and artificial lighting design
- Signs indicating the location of a lifting device accessible by mobility impaired people should be clearly visible from the building entrance. Additionally, a sign identifying the floor reached should be provided on each landing in a location that can be easily seen from the lifting device and designed so that it contrasts visually with its surroundings



- Controls that contrast visually with their surroundings are more convenient for visually impaired people. The colours red and green should not be used in combination as indicators for switches and controls. It may be useful to use text or a pictogram to clarify the purpose and status of multiple switches and controls
- The surface finish of sanitary fittings and grab bars contrast visually with background wall and floor finishes, and there is also visual contrast between wall and floor finishes

## Colour versus...

### Pattern

It is recommended that pattern is avoided in areas where individuals may have a visual impairment as bold patterns or geometric designs can create too much visual stimulus, which in turn can cause confusion in the way the environment is perceived.

In addition to the potential negative effects pattern can have for individuals with visual impairment, recent studies suggest that communication through sign language against a highly patterned background is more difficult. As is, where strong colour differences are used across small areas.

“The presence in general of busy patterns on the floor or wall is disliked by deaf and hearing impaired people. This is due to the problem with balance that people who have problems with their ears may have.”<sup>3</sup>

### Signage (in wayfinding)

Colour can be used as an effective tool for navigating through a building. However this should not take the place of well-designed signage which will provide additional (often textual, numeric or pictorial) information.

The ease with which the sign is noticed is dependent of the use of colour, both in the signage design and the immediate environment in which the sign is placed. In general the following principles apply:

- A signboard should contrast visually with the wall behind
- The text, pictogram or numeric should contrast visually with the signboard. For example white lettering on a dark grey sign with a LRV difference of 30 units will provide visual contrast

### Objects (in wayfinding)

“It should be emphasised that landmarks are more important than colour in assisting wayfinding”.<sup>4</sup>

Research from the Dementia Services Development Centre at the University of Stirling suggests that objects are more effective than colour in assisting individuals orientate and navigate through their environment.

An appropriately placed object along a path, which has sufficiently good lighting and visual contrast to the surface behind will ensure that positive features can be clearly identified and assist individuals with wayfinding.

For multi-storey buildings the use of colour to differentiate individual floors is often used to assist with navigation. However, this should not negate the need for clear signage. Older tenants who have difficulty with colour discrimination or memory may not find colour navigation helpful. Instead clear numerals positioned opposite the lift doors, which are clearly visible and contrast with the wall behind provide a suitable alternative. Indeed the use of both colours and numerics for differentiating floor levels will ensure both wayfinding strategies are offered.

## Principles for achieving contrast

The following are general principles for achieving contrast in colour in key areas.

### Wall:Wall & Ceiling

In order to help people with visual impairment to appreciate the size of a space they have entered, or to find their way around, there should be a visual contrast between the wall and the ceiling.

If we assume that the ceiling is be a painted surface, coloured white (the light reflectance value of which is 100 (or close to) any walls adjoining or adjacent walls to the ceiling must have a surface with a maximum LRV rating of 70.

In addition, wall:wall contrast is recommended where colour is being utilised as a tool to assist wayfinding.

3 Bright, K. (2005:72)

4 Pollok, R. (2012)

In this instance wall colours should be chosen which provide visual contrast to each other, in addition to contrast to ceilings, floors & doors, signs etc.

#### **Wall:Door**

Visual contrast should be provided between a door and the wall it is located within. Be careful to ensure ironmongery fitted to the door face contrasts with the door finish.

#### **Wall:Skirting**

It is recommended that visual contrast be provided between the wall-skirting and skirting-flooring, to assist the visually impaired understand the spatial arrangement of the room and navigate within it. If skirtings are painted throughout to brilliant white (as recommended for ceilings) a greater choice of wall colour is available ie with an LRV rating of 70 or less.

Coved skirtings should contrast with the floor finish to better enhance the junction of the floor and wall.

Where skirtings are being replaced, consider installing deeper skirtings which will increase the visible line of the skirting.

#### **Floor:Door**

The junction of floor to door is also important when the door is in the closed position. If there is not sufficient visual contrast between these elements or if both elements are of a similar luminance, it will be difficult for visually impaired people to distinguish between.

#### **Floor:Floor**

Visual contrast between adjoining or adjacent floors should be avoided as this can be perceived as a change in height or void in the flooring.

When specifying two different floor finishes within one space, for example vinyl and carpet, reference should be made to the manufacturers written LRV rating to ensure both have an equal or similar rating. This will help prevent high-stepping over a perceived change in level.

#### **Floor:Upholstery**

As noted previously, some visual impairments result in individuals experiencing difficulty in positioning themselves accurately to sit down in a chair, on the bed or on the toilet. Therefore it is important to consider the flooring and the object (chair, toilet, bed) together when specifying a finish or colour. This is relatively straight forward when selecting the colour of a toilet seat or a solid colour for a painted chair for example. However, it is currently not common practice for fabric manufacturers to provide (or obtain) light reflectance values. Therefore diligence should be taken when specifying upholstery colours and floor finishes to ensure adequate visual contrast.

### **Principles of application**

Where and how to apply colour will depend upon the room, it's desired mood and the purpose for colouring e.g. to assist with wayfinding. It will also depend on the specifics of the site (orientation, layout, size, ceiling height).

The following principles for application are provided as general guidance. The merits and limitations of each project should be assessed on site and discussed with the design team, client and occupants prior to any redecoration.

#### **Wall finishes**

Guidance for accessible design indicates that patterned wall finishes and materials which enhance glare should be avoided.

Busy patterns not only make it difficult for the visually impaired to read their environment but research also indicates that pattern also affects those with hearing impairments and can restrict communication through sign-language.

A paint finish (without pattern) will provide a suitable finish to communal areas, which should be neutral in their decor and universally accessible in their design.

Paint finishes are also available in a variety of colour choices, which increases opportunity to provide visual contrast<sup>5</sup>. A matt finish is preferred as this will also help to reduce glare. Paint is easy to maintain and repair if damaged and water-based matt paints are available which are also cleanable.

### Floor finishes

Flooring to communal areas for older people housing should be:

- Slip resistant
- Easy to maintain and clean
- Low to medium pile (carpets)
- Avoid patterns, floral designs, speckles or flecks and strong geometric design
- Be matt in finish (avoid shiny finishes due to problems with glare and the perception that they are wet)
- Have the same or similar LRV where two floor finishes meet
- Avoid highly reflective threshold bars or transitional strips as this can be perceived as a change in level
- Should be provided with nosing to stairs, which contrasts visually with the stair tread and riser
- Have the same finished level where two floor finishes meet- this may require an alternative substrate or screed to each to ensure the finished floor levels match
- Be integrated with tactile warning surface (ribbed rubber matting use to indicate a change in level)

The light reflectance value of flooring should be considered when specifying:

- Flooring accessories (trims, edging, tactile warning surfaces)
- Barrier matting/entrance matting
- More than one floor finish to any one area
- Kick plates, grab rails, edge protection

### Doors & frames

"If the architrave has the same LRV as the door but a different LRV from the surrounding wall, it can outline the opening for some partially sighted users when the door is open" (BS 8300:2009:9.1.1)

The following principles provide general guidance on achieving visual contrast for door openings and the surrounding wall:

- The door face and architrave are painted to have the same LRV, which contrasts visually with the surrounding wall. As noted above, if the door is open, the architrave will provide visual contrast to the surrounding wall and therefore outline the door opening
- The architrave and skirting are painted to have the same LRV, which contrast visually with the surrounding wall and door face. If the door is open, the architrave will continue to provide visual contrast to the surrounding wall. This scenario involves greater consideration to the specified LRVs as three contrasting colours are required, as opposed to two in the aforementioned scenario

### Upholstery

Upholstered chairs should:

- Contrast visually with the flooring below to assist some individuals who have difficulty positioning themselves due to visual impairments
- Where possible the arms should contrast with the seat.

# Signing & Wayfinding

## Signing

What function do signs have? They direct, inform, identify and even warn.

By directing, they can tell us how to reach a destination. By informing, they can tell us what to expect behind the door of a particular room we may be about to enter. By identifying, they can tell us that we have reached our destination, or found something in particular. And, by warning they can tell us when we may be at risk.

But signs also, communicate, describe, imply and have an added tone about the environment they are in, whilst navigating you through that environment.

### Why sign in this context?

The older persons housing environment performs many functions, from the provision of a home to the care of individuals, it is also a workplace and a destination for visitors.

Clarity of direction and use is important in this context to define the spaces for either public or private occupation. It is important to direct tenants, visitors and staff with the minimum of impact on their environment whilst maintaining clarity for residents whom may be visually impaired or have difficulty in comprehending their environment.

### What is signing in this context?

Signs that tell you where you are, where to go, what you are seeing, where to find help, and what something might be. Entrance, reception, toilet, room or flat number, laundry, lounge and kitchen are some examples.

### The purpose of these signs

They direct, inform, orientate and identify but they also communicate, describe and add texture to their environment. In addition they can imply something about that environment by their tone, colour, language and material.

### Types of signs

Directional, informative and identifying signs all perform fundamental functions.

A palette of sign types is required to cover the expected uses and signing scenarios in this environment. A flexible system that allows for the signing of the following: directional signs; external signs; floor numbering; entrance and exit; signing of particular rooms.

For example: toilets; apartment or room numbering; floor-plan or floor directory; and internal lift signs.

### Fire, health & safety statutory signs

There is a legislative requirement for a standard of fire, health, safety and other statutory signs to be included in any building.

Their inclusion in any development are not part of the scope of this report. This is site specific and would therefore require detailed design input and consultation with specialist consultants.

However, their inclusion is essential, and the relevant documentation or expertise should be consulted as part of any signing project.

## Signing for Dementia

### Principle

To develop a signing solution that fits the requirements of the older-persons housing environment, being mindful of the likely increase in those with dementia as a longer term living condition.

To inclusively sign for the future needs of all future residents and specifically those with dementia.

### Current market

Proprietary signage products available use a combination of photography and illustration in conjunction with generic naming terms.

They are an attempt at a catch-all solution for a specific problem and by their nature do not take into account any particular set of local environmental factors.

Whilst they might serve as a good solution for dementia specific environments they could be regarded as intrusive in more widely used spaces designed for a range of residents, with varying levels of care needs. (See figure 7).

### **The sign environment**

Signing with dementia and the long term prospects of a development in mind – the nature of these properties is that they are populated by a variety of tenants with differing needs – suggests that careful intervention and adaptation of the signing is required.

It is possible to be inclusive utilising the themes from the policy and best practice – also with inclusion of elements that are considered as dementia specific. For example illustrated or photographic images and using raised tactile areas in signs.

Inclusion of these items into a design can still be achieved whilst producing a system that is sympathetic to the needs and use of all residents.

### **Pictorial elements**

Inclusion of pictorial elements within the sign systems is the best way to aid recognition and help instil the meaning of a sign for those with dementia.

Care has to be taken in the inclusion of the types of pictorial elements with regards to their clarity and level of recognition. Regardless of how these images are visualised.

For example, the image of a telephone may be used to represent an area where a telephone call can be made. But, there would be little point in depicting the latest smart phone in this situation. As this would not represent the universal image of a telephone that would be recognisable to someone whose formative impression of a phone pre-dates their dementia.

### **Colour coding**

Colour coding, whether drawing attention to general areas of a sign, showing the difference between use of spaces on plans, or defining different floors of a property by colour has no influence on those with dementia in terms of aiding their orientation.

### **Colour highlighting**

Whilst colour coding to signify spaces has little impact on those with dementia, highlighting significant items with the use of contrasting colour can be effective.

For example, the use of a contrasting colour on a door to highlight it against a wall or frame of another colour, can signify it as a door that may be accessed.

Conversely, if the desire is to not give access, then the door and frame can be painted out to match the background colour of the wall, reducing the perception of the door actually being there.

## **Signage design principles**

### **Legibility**

Legibility across all signing is the desired outcome. All signs should be clear, concise and consistent. The message of the sign should be easily understood – with the greatest possible clarity, no excess of language, minimal decoration, using a reduced and appropriate colour palette.

Maintaining similarity of signing across a development will aid the recognition of those signs and will benefit legibility.

### **Size**

There is a direct correlation between the size of text on a sign and its legibility over distance. An appropriate choice of size – for both sign and choice of type size – should be made depending on the location and use of the sign.

### **Typeface**

Choice of typeface is critical. Overly decorative, italic, script, condensed or extended typefaces must be avoided. San serif typefaces prove to be the best option. Preference is given to typefaces with consistent weights and letter spacing, which is a characteristic of sans serif type.

### **Contrast**

Contrast between a sign's text and its background will help to aid legibility. This also applies to the actual background that a sign is mounted to.

However, stark contrast such as the use black and white must be avoided. The use of borders around the outer edge of a sign can be used, when there is no alternative to fixing that sign on a background that is textured, or where the background colour cannot be affected.

### **Placement**

Placement of signing across a development should be consistent. This can be achieved through the same positioning of the signs in terms of height from the floor.

Logic should determine the placement of signs in positions that are expected to be signed.

If there is a desire, need or expectation for something to be signed then the sign should be there. For example, having a floor number adjacent to a lift door.

### **Consistency**

All the signing should be of similar size (depending on location), style, colour, material and applied in positions, that are set out to an expected visual standard, from first entering a development.

### **Colour**

Bearing in mind the optimum use of contrast – and the environment the sign is to be set within – consideration should be given to the colour of both the content and the background of the sign.

The use of a limited colour palette, one to three colours maximum, should be used across all signs.

### **Form and material**

A common approach to material, shape and form should be used.

Again, bearing in mind contrast, choice of material can also be made to aid the tactility and colour palette of the sign scheme. However, the use of reflective materials or glossy materials should be avoided.

A consistent form or shape can also aid in recognition and determining that something is a sign or being signed.

The use of embossing or raising of the content can help in the tactile recognition of that content. For example, the inclusion of a raised illustration of male figure on a sign depicting a male toilet, the outline of the figure would be recognisable to those who may use touch to help find there way.

### **Language**

Clear use of language is an important element. A policy of clear naming should be adopted. For example, use of the word 'toilet' as opposed to terms such as WC, rest room or bathroom (except, when a room includes a bath), should be adopted and used throughout.

### **Layout**

Hierarchy in the layout of information is important, though may vary from site to site. Depending on location it may be more important to guide visitors to a reception or provide an obvious prominent direction to a nearby toilet.

On multiple floor directories the structure should follow the system of lowest floor to the bottom, higher floors above, culminating with the uppermost floor at the top.

### **Directional arrows**

Placement of directional arrows should be orientated next to the text in the direction they are pointing. For example, a left pointing arrow will fall to the left of the text. (See figure 5).

### **Use of braille**

Where braille is to be used it should be located directly below or adjacent to the text it is interpreting. An embossed or raised signal must be included in the sign to the left of the braille text marking it as an area that braille is available to be read.



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