Homes for people with learning disabilities and sight loss

A guide to providing safe and accessible environments

RNIB Cymru

Yn cefnogi pobl
â cholled golwg

Supporting people
with sight loss

RNIB

No matter at what stage of life or how long individuals have been experiencing problems with their sight, living with sight loss can be challenging. Royal National Institute of Blind People (RNIB) provides support, advice and products to help people living with sight loss to remain independent. Whether you want to know more about eye conditions, buy a product or publication from our shop, join our library or talking book service, find out about possible benefit entitlements, be put in touch with a trained counsellor, or make a general enquiry about living with sight loss, we're only a call away.

For information and support:

call 0303 123 9999

or email helpline@rnib.org.uk

RNIB Cymru – consultancy, training, accreditation and research

RNIB Cymru's vision is to have housing and buildings in Wales that are inclusively designed and accessible for all. Our aim is to help ensure that all people, including those who are blind and partially sighted, can access the built environment safely and independently. In order to meet this vision, our Supporting Independent Living team carries out access consultancy, training, research and accreditation.

We are a not-for-profit consultancy service who offer a pan disability approach to assessing and auditing the built environment. The service has been involved in several unique projects including the development of Extra Care Homes, refurbishing sheltered and general needs housing, development of community centres, health boards inpatient services, care and support settings, including those that specialise in learning disabilities.

Visibly Better Cymru Accreditation

Visibly Better Cymru is RNIB Cymru's accreditation scheme for housing and services in Wales. Organisations work towards six standards, which focus on different aspects of accessibility and service delivery, and receive Bronze, Silver, Gold and Platinum levels of accreditation as they progress through the standards.

Training

We offer a wide selection of training courses on sight loss and the built environment. The courses will equip people with the knowledge and skills to future-proof services and the built environment.

Research

Our continuing research seeks to ensure that the needs of those with sight loss are identified and met.

For further information, contact
visiblybettercymru@rnib.org.uk

Supporting organisations

United Welsh Housing Association

United Welsh is a not-for-profit organisation providing housing and related services to people in South Wales. They offer a range of homes including family houses, apartments and bungalows. The organisation currently manages over 4,000 homes across 11 local authorities.

They work with over 30 support providers to supply homes for people with diverse additional support needs, including those with learning disabilities, individuals of all ages who are homeless, young people leaving care, women and men escaping domestic abuse, those recovering from substance-misuse, and people with mental health problems.

United Welsh also directly manage accommodation for people with a range of support needs at their Promoting, Re-settling, Enabling, Progression (PREP) projects and at their Cardiff hostel, Oak House, and provide tenancy support services to their general needs tenants.

Dimensions

Dimensions support people with learning disabilities and people with autism. A not-for-profit organisation, they are a leader in the sector, supporting around 3,500 people and their families throughout England and Wales. Dimensions' purpose is to enable people to be part of the community and make their own choices and decisions about their life.

RNIB, Visual Impairment Learning Disability Service (VILD)

The prevalence of sight loss among people with a learning disability is far greater than that in the general population. Of the 1.5 million people in the UK with a learning disability, one in 10 have significant sight loss.

When a learning disability is the main condition, sight loss is often overlooked, or the signs of sight loss are mistakenly assumed to be a part of the learning disability and or complex needs. This can result in eye conditions going untreated as well as inappropriate expectations of a person's capabilities; both will diminish a person's quality of life.

If you provide services to, or work with people with a learning disability or dementia, our Visual Impairment and Learning Disability Service (VILD) can help you:

- recognise the signs of undiagnosed sight loss
- understand the impact of undiagnosed sight loss
- improve referral pathways
- provide appropriate care and support
- deliver staff training and consultancy.

We have specialist expertise in providing person-centred vision assessments, using a range of alternative testing methods for people with a learning disability, and in training optometrists to support people with a learning disability to access the eye examination.

We offer the following services for professionals who work with people with learning disabilities and sight loss:

- learning disability and sight loss training for social care
- learning disability and sight loss consultancy services for commissioners
- learning disability and sight loss training for optometrists.

VILD also provides high-quality, outcome-focused direct care services for people with learning disabilities and/or complex needs at various locations in Scotland.

To find out more about VILD and our award winning training and consultancy services:

email learningdisability@rnib.org.uk

call us on 0141 772 5588

or visit rnib.org.uk

Foreword

I welcome the publication of this guidance funded by the Welsh Government and written by RNIB Cymru, who are the leading experts in housing design for people with sight loss.

People with learning disabilities are 10 times more likely to have serious sight problems than other people. They may not know they have a sight problem and may not be able to tell other people. Many people who know a person with a learning disability think that they can see perfectly well. People with learning disabilities and sight loss may live in housing that is not designed or adapted to take account of sight loss and this can lead to a loss of independence and endanger their safety.

The changes that are needed to make accommodation accessible are often quite simple and easy to implement, but can make a huge difference to a person's quality of life. This publication provides guidance and practical advice on the design and refurbishment of supported housing schemes to ensure that the accommodation will meet the needs of people with sight loss and learning disabilities. It links the design and refurbishment of accommodation with how the space is used and managed, and also provides advice on accessing eyecare services.

This guidance will help housing providers meet the needs of people with sight loss and learning disabilities both now and in the future. It is vital to ensure that people with sight loss and learning disabilities stay safe, maintain their independence and have the best possible quality of life.

Ceri Jackson

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Section 1 – Introduction

People with learning disabilities are 10 times more likely to have serious sight problems than other people.
Emerson and Robertson, 2011

The high prevalence of sight problems coupled with associated difficulties of accessing the eyecare health service means that this group experience poorer eye health than other groups. This can lead to a loss of independence and safety especially within housing that is not designed or adapted to take account of sight loss.

1.1 Aim and preparation of the guidance

The primary aim and main focus of this publication is to support housing professionals and other related housing disciplines when designing, adapting, refurbishing, and maintaining new and existing homes for people with learning disabilities. In particular, it will support housing organisations that provide supported housing for people with learning disabilities. It is based on the principle of providing a fully inclusive environment that supports people with learning disabilities and sight loss to live as independently and safely as possible within their own home. The guide will also be a valuable tool for housing care and support professionals as research into this guidance and feedback from the focus groups highlighted that care and support professionals are often involved in the decision making of adapting and refurbishing homes for people with learning disabilities. In addition, the principles laid out in this guidance can be applied to other buildings such as GP surgeries, community centres, day services and health authority inpatient services.

The information within this publication provides an introduction to learning disabilities and sight loss, designing an environment to meet the needs of people with learning disabilities. It provides information on staff training, care planning and the eye health service to provide a one-stop-shop publication. It will support the many inter-related disciplines and roles involved with providing housing for people with learning disabilities.

Following on from the research into the publication and feedback from the steering and focus groups, information on eye health service has been provided to support housing professionals in ensuring tenants with learning disabilities have access to the eye health service and an up-to-date vision assessment. The information gained from a vision assessment has a direct impact on how the environment should be designed or adapted to meet the needs of an individual with learning disabilities and sight loss.

The document has been written in such a way that each of the sections can be read in isolation. However, in order to gain a thorough understanding and overview of learning disabilities and sight loss, and how to design, adapt, refurbish, and maintain housing for people with learning disabilities and sight loss, we recommend the whole publication is read and considered.

Following feedback from the steering group members, top tips sections have been incorporated to provide a summary of key areas to consider, and assist housing and care professionals when making decisions on housing for people with learning disabilities and sight loss.

Photographs, case studies and quotes illustrate good and poor practice examples of how to achieve an accessible and safe home environment for people with learning disabilities and sight loss. Sources of further information have been provided throughout the publication. A glossary of terms section has been included to provide further information on learning disabilities and associated eye conditions and age-related changes to the eye and associated eye conditions.

The advice in this guidance document, although not mandatory, is designed to complement the Welsh Housing Quality Standard (WG, 2008) for existing homes and the Development Quality Requirements (WG, 2005) for building new homes and rehabilitating homes using Social Housing Grant.

Homes for people with learning disabilities and sight loss builds on the principles laid down in the RNIB Cymru's publications Housing sight, (RNIB Cymru/Rees and Lewis, 2003), Adapting homes (RNIB Cymru/Rees and Lewis, 2003) and Colour and tonal contrast (RNIB Cymru/John, 2007) and where necessary, expands and provides further detailed information on the previous guidance (see Section 1.4 for further information).

Homes for people with learning disabilities and sight loss is based on a literature review, current regulations, guidelines and good practice. The publication has been further informed by research gained from:

- specialists in the fields of learning disabilities, sight loss and housing design
- workshops and training on learning disabilities and sight loss with Housing Association technical and development staff, support staff and carers
- people with learning disabilities and sight loss
- audits and recommendations for change and refurbishment of housing that provides accommodation and support for people with learning disabilities and sight loss
- evaluation of changes made to assess the effect of recommendations.

In addition, to gain a Wales-wide view, focus group members and individuals have been interviewed from across Wales from both urban and rural areas. Without the support of the focus group members and individuals, this research would not have been possible.

1.2 Background

The main objective of RNIB Cymru's Independent Living Team is to ensure:

"That housing in Wales will enable people with sight problems to live safely and independently and enjoy the right to privacy, comfort and security in their own homes." This objective is reflected in all our recommendations within this publication.

RNIB Cymru published "Housing sight" (RNIB/Rees and Lewis, 2003) and "Adapting homes" (RNIB/Rees and Lewis, 2004). These publications raised awareness of how to provide safe and accessible home environments for people with sight loss. In 2005, a number of recommendations from "Housing Sight" were incorporated into the Welsh Government's Development Quality Requirements (WG, 2005) which registered social landlords have to meet in order to gain social housing grant funding. Since 2003, RNIB Cymru's Independent Living Team have continued their work to help ensure their main objective is achieved through access consultancy, research, training and the Visibly Better accreditation scheme. In 2014, RNIB Cymru published "Homes for people with dementia and sight loss: a guide to providing safe and accessible housing for people with dementia and sight loss" (RNIB Cymru/John, 2014).

For a copy of this design guide, contact visiblybettercymru@rnib.org.uk

1.3 The guidance in relation to the Welsh Government strategy and policy context

The Welsh Government's Housing Strategy

The Welsh Government's housing strategy "Improving Lives and Communities – Homes in Wales" (WG, 2010) recognises the link between health, wellbeing and housing, and seeks to address this by improving standards for the design of new homes, the condition of existing homes and designing new homes that are flexible (WG, 2010 p19). The Welsh Government also recognises that "making changes to homes can help people to live independently for as long as possible thus preventing or reducing the demand for health and care services or facilitating early release from hospital. This contributes to the major health objectives of independent living, reduced bed blocking, and reduced hospital admissions" (WG, 2010 p20).

Welsh Government Learning Disability Strategy

The service principles within Section 7 of the Welsh Government Learning Disability Strategy (WG, 2004) say "people with learning disabilities should normally be able to have the option to live in the community independent of the family home". As well as "receiving services and support commensurate with their needs to enable them to live independently in their own homes" (WG, 2004, p17).

Statement on Policy and Practice for Adults with a Learning Disability

In 2007, the Welsh Government issued a new "Statement on Policy and Practice for Adults with a Learning Disability", quoting:

"All people with a learning disability are full citizens, equal in status and value to other citizens of the same age. They have the same rights to:

- live healthy, productive and independent lives with appropriate and responsive treatment and support to develop their maximum potential
- be individuals and decide everyday issues and life-defining matters for themselves joining in all decision-making which affects their lives, with appropriate and responsive advice and support where necessary
- live their lives within their community, maintaining the social and family ties and connections which are important to them
- have the support of the communities of which they are a part and access to general and specialist services that are responsive to their individual needs, circumstances and preferences" (WG, 2014a, p12).

Framework for Action and Independent Living

The Framework for Action and Independent Living sets out the Welsh Government's vision "of an inclusive and enabling society, which recognises the rights of disabled people to self-determine their lives..." (WG, 2013, pp7).

"...in which disabled children and adults enjoy the right to independent living and social inclusion" (WG, 2013, 17).

The Framework lists nine key actions that the Welsh Government is undertaking to deliver improvements:

1. Access to good quality and accessible information and advice.
2. Improved access to independent advocacy services.
3. Improved access to adapted and accessible housing.
4. Disabled people having more control over their lives by being able to make choices in the care and support they receive.
5. Improving access to technology that supports independent living.

6. Improving access to public transport.
7. Improved access to buildings, streets and public places.
8. Increased employment rates for disabled people.
9. An increase in the number of disabled people having access to a Centre for Independent Living in Wales.

This guidance fully supports the Welsh Government's priorities and aims set within Improving Lives and Communities - Homes in Wales, Section 7 Learning Disability Strategy, Statement on Policy and Practice for Adults with a Learning Disability and the Framework for Action and Independent Living.

1.4 Standards, regulations, policy, guidance and the Equality Act

1.4.1 Welsh Housing Standards

The guidance within this document aims to complement the current Welsh Housing Standards. Whilst the advice in this guidance is not mandatory, it is designed to be used in conjunction with the Welsh Housing Quality Standard (WG, 2008) for existing homes and the Welsh Government Development Quality Requirements (WG, 2005) for new build homes and rehabilitated homes using Social Housing Grant.

1.4.2 Welsh Housing Quality Standard

The Welsh Housing Quality Standard was introduced in 2002 by the Welsh Government. The Welsh Government's aim is to ensure that existing housing owned by registered social landlords is of good quality, in a good state of repair and suitable for the needs of existing and future tenants (WG, 2008). This guide will be particularly useful for those carrying out Welsh Housing Quality Standard refurbishments of homes for people with learning disabilities. For example, if a housing organisation is refurbishing kitchens and bathrooms in a supported housing scheme for people with learning disabilities, the advice in this guide in Section 3 can be taken into account in relation to lighting, colour and tonal contrast, and surface finishes to ensure that the refurbishment will meet the needs of current and future tenants.

1.4.3 Development Quality Requirements

Since 2005, the Welsh Government has required registered social landlords, who construct new homes and rehabilitated homes funded by a Social Housing Grant, to meet the Development Quality Requirements (WG, 2005). The aim is to have good quality, well designed, flexible and adaptable housing that meets the needs of present and future tenants. To help ensure that housing in Wales is socially, environmentally and economically sustainable, the standards require new build homes to meet the standards within the Code for Sustainable Homes, Lifetime Homes, Secured by Design and RNIB Cymru Housing Sight Standards.

Homes for people with learning disabilities and sight loss aims to be complementary to the current mandatory RNIB Cymru Housing Sight Standards within the Development Quality Requirements. This guide will be particularly useful for housing organisations designing and developing new build supported housing schemes for people with learning disabilities.

Lifetime Homes

The Welsh Government requires that all new social housing is built to standards that incorporate Lifetime Homes principles. The Lifetime Homes Standard, developed in 1991 and revised in 2010, sets out 16 design criteria to enable general needs housing to provide, either from the outset or through simple and cost-effective adaptation, design solutions that meet the existing and changing needs of diverse households. Housing that is designed to the Lifetime Homes Standard will be convenient for most occupants, including some (but not all) wheelchair users and disabled visitors, without the necessity for substantial alterations (Lifetime Homes, 2013). The advice within **Homes for people with learning disabilities and sight loss** is designed to be compatible with Lifetime Homes.

Further information

lifetimehomes.org.co.uk
The Lifetime Homes Design Guide
(Goodman, 2011)

Secured by Design

Secured by Design is a UK-wide police initiative that seeks to encourage the building industry to "design out crime" and create a safer, more secure environment when building and refurbishing buildings (ACPO, 2004; ACPO, 2009). The advice within this guidance document is designed to be compatible with Secured by Design.

Further information securedbydesign.com

Environmental sustainability

The Welsh Government requires registered social landlords to meet the environmental and management standards within the Code for Sustainable Homes (DCLG, 2010) for individual new homes, and BREEAM Multi Residential 2008 (BREEAM, 2008) or the multi residential requirements of BREEAM New Construction for new large scale supported housing schemes (BREEAM, 2014 and 2011) funded by Social Housing Grant.

Designers and technical staff from housing organisations have highlighted that they have found difficulty in combining some requirements for accessible homes with environmental standards – for example accessible lever taps versus low flow taps, and dimmable lighting that

is environmentally sustainable. Such possible or perceived conflicts are considered in the relevant areas of Section 3 of this document. The Building Research Establishment (BRE) and the Welsh Government Department for Natural Resources have both been consulted in order that this publication can provide guidance which will enable housing providers to meet both accessibility and environmental sustainability requirements.

BREEAM standards include consideration of end user requirements, for example, BREEAM New Construction 2011; Management issue Man 04 requires the design, plan and delivery of accessible, functional and inclusive buildings in consultation with current and future building users.

Where a potential conflict is identified between meeting the accessibility requirements of tenants and environmental standards, the BRE assessor should be consulted at an early stage.

As outlined below in 1.5.6 the Welsh Government in July 2014 published a revised Part L (Conservation of fuel and power) of the Building Regulations. The proposed changes to Part L are a further step to delivering the European requirement of zero carbon and nearly zero energy by 2020. In July 2014, the Welsh Government also published an update to Technical Advice Note 12: Design, along with Practice Guidance – Planning for Sustainable Buildings, to provide guidance on sustainable buildings (WG, 2014b).

Given the Welsh Government's commitment to sustainable development, including the long-term wellbeing of people and communities, it is anticipated that these good practice requirements will remain relevant.

1.4.4 Welsh Planning Policy

Sustainable development is the central organising principle for the Welsh Government. Planning Policy Wales (WG, 2014c) sets out the current land use planning policy for Wales, supplemented by Technical Advice Notes. The sections set out in Section 3 are complementary to those set out in Planning Policy Wales and Technical Advice Note 12: Design (WG, 2014b) – promoting the principles of inclusive design which, "places people at the heart of the design process, acknowledges diversity and difference, offers choice where a single design solution cannot accommodate all users, provides for flexibility in use, and, provides buildings and environments that are convenient and enjoyable to use for everyone", (WG, 2014, Planning Policy Wales and Technical Advice Note 12: Design p6).

1.4.5 Building Regulations

In England and Wales, the design and construction of buildings are covered by Building Regulations. Building Regulations are supported by Approved Documents which give guidance on how to meet the regulations.

In England, changes to the Building Regulations in 2013 include updated guidance on Approved Document M – Access to and use of Buildings – as well as other regulatory and Approved Document changes (HM Government, 2013). Details of these changes can be obtained on the Gov.uk website. In Wales, Approved Document M, published in 2010, currently remains in use (HM Government, 2010).

The needs of tenants with learning disabilities and sight loss may sometimes potentially conflict with the requirements of the building regulation standards. This should be discussed with Building Control at the earliest possible convenience to ensure that there is an equitable agreement.

1.4.6 Good practice guidance on inclusive design

When designing, maintaining and refurbishing properties, we recommend that, in addition to following the guidance in this document, that you consult the good practice guidance within BS 8300 Design of buildings and their approaches to meet the needs of disabled people – Code of practice (BSI 2009+A1:2010).

BS 8300 is an excellent source of information for the provision of fully inclusive and accessible environments to meet the needs of people with a range of disabilities.

1.4.7 Wheelchair housing design guides

The Wheelchair Housing Design Guide (Thorpe and Habinteg Housing Association, 2006) and Wheelchair accessible housing: designing homes that can be easily adapted for tenants who are wheelchair users (Mayor of London, 2007) provide detailed comprehensive advice to assist organisations when they are building or refurbishing housing. Designing housing to these recommendations will enable housing to be flexible and adapted to changing support needs.

1.4.8 Equality Act 2010

The Equality Act 2010 replaces the previous Disability Discrimination Act. The Equality Act requires providers to ensure that no one using their service is discriminated against because of a disability.

Making reasonable adjustments – The Equality Act 2010

Service providers in Britain have a legal duty to make “reasonable adjustments” to ensure that people are not prevented from using their services because they have a disability. Deciding what a reasonable adjustment is will vary depending on individual circumstances. Service providers need to consider issues such as the cost of the adjustment, the practicality of making it, health and safety factors, the potential benefit to other service users, the size of the organisation, and whether it will achieve the desired effect. (CAE/ Grant, 2012, p6-10)

Reasonable adjustments can be physical changes to a building

The design guidance in this document will help organisations to meet their duties under the Equality Act, by ensuring that the physical aspects of housing are accessible to people with learning disabilities and sight loss. However, an organisation should be aware that compliance with this guidance does not of itself offer full compliance with the Act. The provision of additional physical changes, extra services, policies and procedures will also need to be considered to ensure that your organisation meets the requirements of the Act.

Section 2 – Learning disability and sight loss

This section provides an introduction to learning disability and sight loss. It will help you to gain an insight into how learning disability and sight loss may affect someone's experience of what they can see, how they might compensate for their sight loss, and how the environment impacts on their abilities and capabilities.

This section is divided into 6 sections

2.1 What is a learning disability?

Learning disability is a collective term used to describe the difficulties that some people have in learning things that society expects them to learn at certain stages in their lives.

Learning disability is not an illness; it is a permanent condition.

Some people are much more profoundly affected than others. It affects people from all social classes and all races. The nature and severity of a person's learning disability can differ greatly. Some people with learning disabilities get married and have a family, many have a job, some run a business, drive a car or become actors or sportspeople. Some people with learning disabilities will require intensive support all their lives.

Definition of learning disability

"A significantly reduced ability to understand new or complex information, to learn new skills (impaired intelligence), a reduced ability to cope independently (impaired social functioning), and having started before adulthood, with a lasting effect on development." (Department of Health, 2001).

Learning disabilities can happen for several reasons and may occur at various stages of development:

- Before birth (pre-natal)
- During birth (peri-natal)
- After birth (post-natal).

Those disabilities which occur before birth (pre-natal) are known as congenital causes, such as Down's Syndrome and Fragile X Syndrome.

Impairments that occur during birth (peri-natal) can be caused by oxygen deprivation and can result in conditions such as cerebral palsy.

After birth (post-natal) causes can occur because of illness, injury or environmental conditions, for example; meningitis, brain injury.

For many individuals and their carers, the cause or origin of their learning disability may never be known.

It is important to remember that whether a learning disability is genetic or environmental, or whether a person has been placed in the category of having a mild/moderate or severe/profound learning disabilities, people still have potential to develop skills within their capabilities.

2.2 Learning disability and sight loss

What is learning disability and sight loss?

Sight loss is used to describe a range of sight difficulties and eye conditions such as severe long or short sightedness, cataract, strabismus (squint), kerataconus, glaucoma, nystagmus etc. Many types of learning disability have associated eye conditions. For example, Edwards syndrome, Fragile X, Cerebral Palsy and Down's Syndrome have a range of eye conditions that are commonly found in people with these conditions.

Sight loss can affect individuals in many different ways, varying from people who have never seen to those who have experienced deterioration in their vision. Only four per cent of people who are described as blind or partially sighted (severely sight impaired or sight impaired) have no sight whatsoever – the majority have varying degrees of sight, depending on their particular sight condition (Bruce et al, 1991). However the prevalence of sight loss in people with learning difficulties is much higher than the general population, and the more profoundly disabled a person appears, the more likely they are to have sensory disabilities such as sight loss, hearing loss or dual sensory loss.

2.3 Learning disability and sight loss, hearing loss and dual sensory loss – key health messages

Sight is the key to communication, movement and learning about the environment around us. If someone already has problems in these areas because of a learning disability, then sight loss will have more of an impact. In people with a learning disability, sight loss often goes undetected, since many individuals may not have the capacity to recognise or communicate problems with their sight. Sight loss may manifest itself in withdrawal or as a change in behaviour. Sight difficulties are therefore frequently unidentified, and treatable conditions may worsen unnecessarily.

People with learning disabilities have a greater likelihood of being born with sight loss, which often goes undetected by those who care for them. They are also likely, as is the rest of population, to develop age-related changes to the eye such as glaucoma or age-related macular degeneration, which result in different types of sight loss.

For further information regarding age-related changes to the eye, common sight conditions in older people, learning disabilities and associated eye conditions, please see Glossary of terms.

2.3.1 Key statistics relating to learning disabilities and sight loss

There are about 1 million adults in the United Kingdom with a learning disability.

- People with learning disabilities are 10 times more likely to have serious sight problems than other people. People with severe or profound learning disabilities are most likely to have sight problems.
- People with learning disabilities may not know they have a sight problem and may not be able to tell people about it. Many people think that the person with a learning disability that they know can see perfectly well.
- Six in 10 people with learning disabilities need glasses and often need support to get used to them.
- People with learning disabilities need to have a sight test every two years, sometimes more often. Regular sight tests and wearing glasses help people stay healthy and get the most from life.

(Emerson and Robertson, 2011)
(RNIB Research Briefing, 2011)

2.3.2 Learning disability and sight loss in Wales

The estimated number of adults aged 20 plus, with a learning disability in Wales is around 49,600.

Sight loss

The number of people with learning disabilities and sight loss (excluding blindness) in Wales in 2011 was estimated at 4,628.

Blindness

The number of people with learning disabilities in the population with blindness in Wales in 2011 was estimated at 1,253.

Refractive errors

The number of adults with learning disabilities in the population with refractive error (myopia, hyperopia and astigmatism) in Wales 2011 was estimated at 27,674.

Myopia

The number of children (aged 0 to 19) with learning disabilities and myopia in Wales in 2011 was estimated at 1,576.

The number of adults with learning disabilities in the population with severe myopia in Wales in 2011 was estimated at 1,063.

Hyperopia

The number of children (Age 0-19) with learning disabilities with hyperopia in Wales was estimated at 2,692. The number of adults with learning disabilities in the population in Wales in 2011 with severe hyperopia was estimated at 1,487.

The above figures have been extracted from "The prevalence of Visual Impairment among people with learning disabilities in the UK" (Emerson E and Robertson J, 2011).

2.3.3 Learning disability and hearing loss

"It has been suggested that almost 40 per cent of adults with a learning disability will have hearing loss yet for many people the loss will not be diagnosed because audiology services are not accessible to them.

For many, the loss will be identified but the support they receive may not be adequate for them to benefit from a hearing aid. The consequences can be a double disadvantage, their learning disability precludes them from receiving adequate support for their hearing loss and the failure to address their hearing loss will in turn exacerbate the effects of their learning disability" (Sense Cymru/Action on Hearing Loss/ RNIB Cymru, 2012, p27-28).

The design guidance within Section 3 in relation to Acoustics (3.6) Multi-sensory wayfinding (3.7) and Signage (3.8) provides guidance to develop an accessible home environment to support those with learning disabilities and hearing loss.

Dual sensory loss

"There are no statistics available for people with a learning disability and dual sensory loss because most people do not distinguish between people who have a learning disability and people who have a dual sensory loss. Presentation can be similar. This lack of statistical data clearly will impact on the delivery of appropriate services." (Sense Cymru/Action on Hearing Loss/RNIB Cymru, 2012, p27-28).

The design guidance within Section 3 provides guidance to develop an accessible home environment to support those with learning disabilities and dual sensory loss.

2.4 Identifying sight loss

Sight is key to communication, movement and learning about the environment around us. The more people with learning disabilities can see, the easier it is for them to understand and control their environment.

As discussed earlier, people with learning disability are at a higher risk than the general population of having sight problems. Some sight problems are linked to the person's learning disability syndrome or condition. For example, people with Down's Syndrome are at higher risk of long and short sightedness, cataract, keratoconus, strabismus (squint), nystagmus and blepharitis.

People with learning disabilities are living longer, and as discussed in Section 2.2, they may also develop age-related changes to the eye that commonly occur in older people such as macular degeneration, cataracts, glaucoma and diabetic retinopathy.

It is important to remember that everyone with a learning disability and sight problems is unique and that everyone's experience of sight loss is different.

The following tips will help you to identify sight loss and changes in the person's vision.

Top tips to identify sight loss

- Holding objects close to face
- Unusual head movements eg, shaking head from side to side
- Eye poking or pressing
- Observe hesitation or clumsiness in sunlight, bright light, low light or both.
- Increase in knocks, trips or falls
- Anxious when negotiating or missing steps/kerbs or stairs
- Difficulties in navigating when in unfamiliar places
- Searching for objects with hands.
- Knocking over table top items
- Physical changes in the appearance of the eye such as redness, swelling or discharge.

(RNIB Visual Impairment and Learning Disability Team, 2013a)

2.5 Visually related behaviours and the environment

There are many visually related behaviours associated with sight problems and these may provide an indication of an undetected sight loss.

For someone with a learning disability, there is a real risk of diagnostic overshadowing. This happens when the behaviour is automatically attributed to the person's learning disability or condition. It is vital that any behaviour is understood and that all behaviour is recognised as a form of communication.

It is crucial that everyone with a learning disability has access to eyecare services to ensure that sight problems are identified, diagnosed, treated and importantly, that the effects of the vision problems and the impact this may have on the person's learning disability is understood. (See Section 4 for guidance on accessing eyecare services).

Without an understanding of a person's vision, carers may not recognise potential visually related behaviours. If these are not understood and recognised, then it is possible for these to be perceived as challenging. If undetected or unsupported, this could potentially lead to self harm and difficulty in being understood. This may be particularly evident within environments that are unfamiliar to the individual, or when involved in new activities.

Types of visually related behaviours

Close viewing

This is when the person brings the object they wish to look at very close to them. For example, when the person has their face almost down on the tabletop when carrying out activities like looking at pictures or other table top activities; during mealtimes, when the individual's face is very close to their plate. Close viewing helps magnify what the person is looking at.

In terms of communication and the social norms, someone coming very close to your face may seem quite daunting. However, if the person has blurry vision because they have an uncorrected refractive error, then they need to be close to you to see the detail of your face. For the individual, this is an appropriate response to maximise vision.

People who have cerebral vision impairment (which is caused by damage to the vision part of the brain and makes it difficult for a person to understand what they see) may also opt to close view. Closeviewing limits the amount of visual information taken on board by cutting out distracting surroundings, making it easier to interpret the object.

Light gazing

People with a learning disability may gaze at intense light sources for example projector lights, spot lights. They may position themselves extremely close within centimetres to such light sources. Or the person may position themselves in the sunniest part of the room and then gaze out at the light source.

This can be an indication of cerebral vision impairment or severe visual impairment, as only such bright light sources have a high enough contrast to attract visual attention.

Eye pressing or eye rubbing

A person may rub their eyes simply if they are tired, if their eyes are itchy, or uncomfortable.

Someone who eye presses might be communicating that they are in pain, as applying pressure to an area can be an effective way of controlling pain. Eye pressing may also be an indicator of visual stimulation by triggering light flashes. If there is too much going on in the environment for someone with a profound learning disability, they may be overloaded with information and withdraw into themselves. The action of eye pressing is one way to have some control over an environment or situation they have little or no control over. Conversely, the reward of visual stimulation may lead the person to eye press if interactions are limited and there is little visual stimulation within the environment. Further optometric investigation would be required to check for signs of infection or other underlying health and or sight problems.

Body movement

Body rocking, head shaking and hand flapping have potential to be visually related behaviours, and can be a way to maximise remaining residual vision. Some people require a moving image to best utilise their vision. Behaviours like body rocking and head shaking are ways of inducing movement and increasing the visibility of objects around you.

Body positioning and head tilts

Sometimes you will see people who adopt an unusual head position or head tilt when they are undertaking a task. There can be several reasons for this. Sometimes if the head is held straight, the person experiences double vision, so he or she adopts head turn or tilt in order to see singly.

If the person has Nystagmus, an involuntary repetitive movement of the eyes, adopting an unusual head position can minimise or eliminate the nystagmic movement. This is known as the null point and can significantly improve the person's ability to see detail.

If the person has a lower field loss they may choose to look down and position themselves with head down.

Many of these body positions and head tilts can be wrongly attributed to the person's learning disability or physical condition, and people often do not consider these to be potentially vision-related warranting further investigation.

Light sensitivity

There are many visual problems commonly found in people with learning disability, which may cause a person to be light sensitive or prone to glare, for example:

- Cataracts, in which the clear lens becomes cloudier.
- Corneal scarring or corneal opacity can make the cornea cloudy in one part of or all over the cornea, making objects less visible
- Keratoconus, in which the cornea thins, causing the central part of the cornea to bulge forwards in the shape of a cone.

It is also important to consider medication, eg, anticonvulsant medication which may induce light sensitivity.

You may observe a person screwing their eyes up, or squinting in excessive bright light, or turning away from bright light sources like windows or lamps, or taking a long time to adjust when moving from a dimly lit room to brighter environments and vice versa (See Section 3.1 Controlling glare and 3.2.7 Adaptable lighting).

Hesitancy and increased levels of anxiety at external doorways is common when the person is moving from a dimmer lit environment out into a brighter environment (see Section 3.1.5 Transitional lighting). Unless the effects of the sight problem have been explained to the person and their carers, they may not understand why the person is anxious and hesitant.

If the person has difficulties with glare, they may have no idea where their foot is going to land. Practical strategies that would support should be tried, for example using a peaked cap, building in extra time, reassurance at lighting changes and sighted guiding techniques.

(See Design Guidance Section 3.1 and 3.2 within this guide for guidance on managing levels of glare and light sensitivity in relation to natural and artificial light.)

Depth perception

Many people with learning disabilities have problems with depth perception.

On a functional level, people with learning disabilities can have significant problems at step, stairs and kerbs. Changes in surface colour and surface texture can be perceived as a change in depth.

Depth perception issues are also prevalent for many people who have poor contrast sensitivity and really struggle to detect the small changes in contrast between an object and its background.

An example may be stepping down from a grey pavement onto a slightly lighter grey road surface. The person may not be able to see the edge of the kerb and have no idea where their foot is going to land.

There are practical solutions that can support people with learning disability who have depth perception problems. These include putting contrasted edging on steps (nosing) on the edge of the step (See Section 3.3 and 3.5.6 and 3.5.7), using handrails if they are available (See Section 3.3 and 3.9), mobility training to use a long cane and ensuring that supporters are competent in their guiding skills. (For guidance on highlighting changes in surfaces, please see Section 3.3 Colour: using contrast. For guidance on highlighting edges of steps and stairs, please see Section 3.5.6 and 3.5.7.)

Therefore, it is vital that we understand as much as we can about the vision of a person with a learning disability, as it may help to explain some related behaviours and what support is required. (RNIB, Visual Impairment, Learning Disability and Complex Need Services, 2013)

Environmental tips to support a person with a learning disability and sight loss

- Maximise use of natural light where possible (see Section 3.1.1).
- Use vertical blinds to control adverse effects of natural light (see Section 3.1.2).
- Lighting levels should be consistent, even and controllable (see Section 3.2).
- Avoid lampshades that allow people to look directly at the bulb (see Section 3.2.4).
- Make things bigger and use good colour contrast (see Section 3.3).
- Avoid highly patterned wallpaper, carpets and furnishings
- Avoid reflective surfaces to minimise confusion (see Section 3.1.3 and 3.5).
- Encourage a clutter free environment to avoid trip hazards (see Section 3.5, 3.7.3, 3.13).
- Use of individual recognisable tactile signifiers to aid location (see Section 3.7 and 3.8.4).
- Use of well contrasted and consistent pictorial and written signage (see Section 3.8).
- Offer guidance and support where appropriate (see Section 3.10).

(RNIB Visual Impairment and Learning Disability Team, 2013b Handy Tips Series)

Providing additional environmental information

People with learning disabilities may need environmental information tailored specifically for them. Many people may find braille and large print signage helpful. However, if you do not have braille or literacy skills, it is important to remember that everyone needs access to the same environmental information and more creative ways may need to be used.

For example, additional environmental information can be provided by:

- enlarged photographs
- symbols or tactile objects of reference
- talking buttons
- static sound clues
- static olfactory (aroma) clues.

There are many different ways to provide environmental markers for individuals. Think about the information you need to find your way around an environment and then remember that a person with a learning disability and sight loss needs the same information in a way that makes sense to them (See Section 3.7 and 3.8 for advice on multisensory wayfinding and signage).

2.6 Conclusion

The strategies detailed in Section 3 of the Design Guide to improve the environment have the potential to make a huge difference to the lives of many people with a learning disability and sight loss.

Implementing some simple changes to the environment and supporting the person to use their senses to understand their surroundings can have a lasting impact without costing lots of money.

If you support someone with a learning disability, you should find out as much as you can about their vision and support the individual to access eyecare services. Vision outcomes should form an integral part of care and support planning documentation. (See Section 4 for further guidance). This will be of particular importance when personal plans and personal budgets are being agreed.

Further information on learning disability and sight loss

rnib.org.uk
seeability.co.uk
mencap.co.uk

Section 3 – Design guidance

Managing the home environment is a key area that can reduce the impact of having learning disabilities and sight loss. This section discusses the key design guidance to consider when designing new homes or refurbishing existing homes for people with learning disabilities and sight loss and is divided into the following sections:

3.1 Lighting: natural light, glare, reflections and shadows

3.2 Lighting: an inclusive lighting system

3.3 Colour and tonal contrast

3.4 Creating colour schemes

3.5 Surface Finishes

3.6 Acoustics

3.7 Wayfinding

3.8 Signage

3.9 Mono-functional rooms, distinctive rooms/ areas and storage

3.10 Handrails and rest areas along routes

3.11 Products and controls

3.12 Assistive technology

3.13 Accessible gardens and external areas

The design guidance within Section 3 is based on the following values:

- Reduce the impact of learning disabilities and sight loss.
- Maximise independence, safety and enjoyment of the home environment.
- Ensure risks are minimised and tenants are safe and secure.
- Reduce accidents and falls.
- Promote a good quality of life.
- Promote people's dignity.
- The environment is calm, familiar, predictable and makes sense (Dodd et al, 2009.)
- Homes should be flexible in order that they can be changed and or altered to suit people's needs
- Involve current and future tenants in decisions throughout the development, refurbishment or maintenance process in order that the home is designed to support and meet their needs.

“40 per cent of people with learning disabilities say they would like more say into what goes on in everyday life”

Emerson et al (2005)

Vision assessment

Assessment of someone’s vision is vital in terms of getting the environment right and providing someone with the right visual and non visual clues” (RNIB, undated).

When designing, maintaining and refurbishing homes for people with learning disabilities, it is essential that a vision assessment takes place prior to the construction, refurbishment or maintenance process. Information gained from the vision assessment can then inform development, maintenance and support staff about required changes that may be needed in the environment to meet tenants’ needs. Section 4 gives further information and guidance on vision assessments.

3.1 Lighting: natural light, glare, reflections and shadows

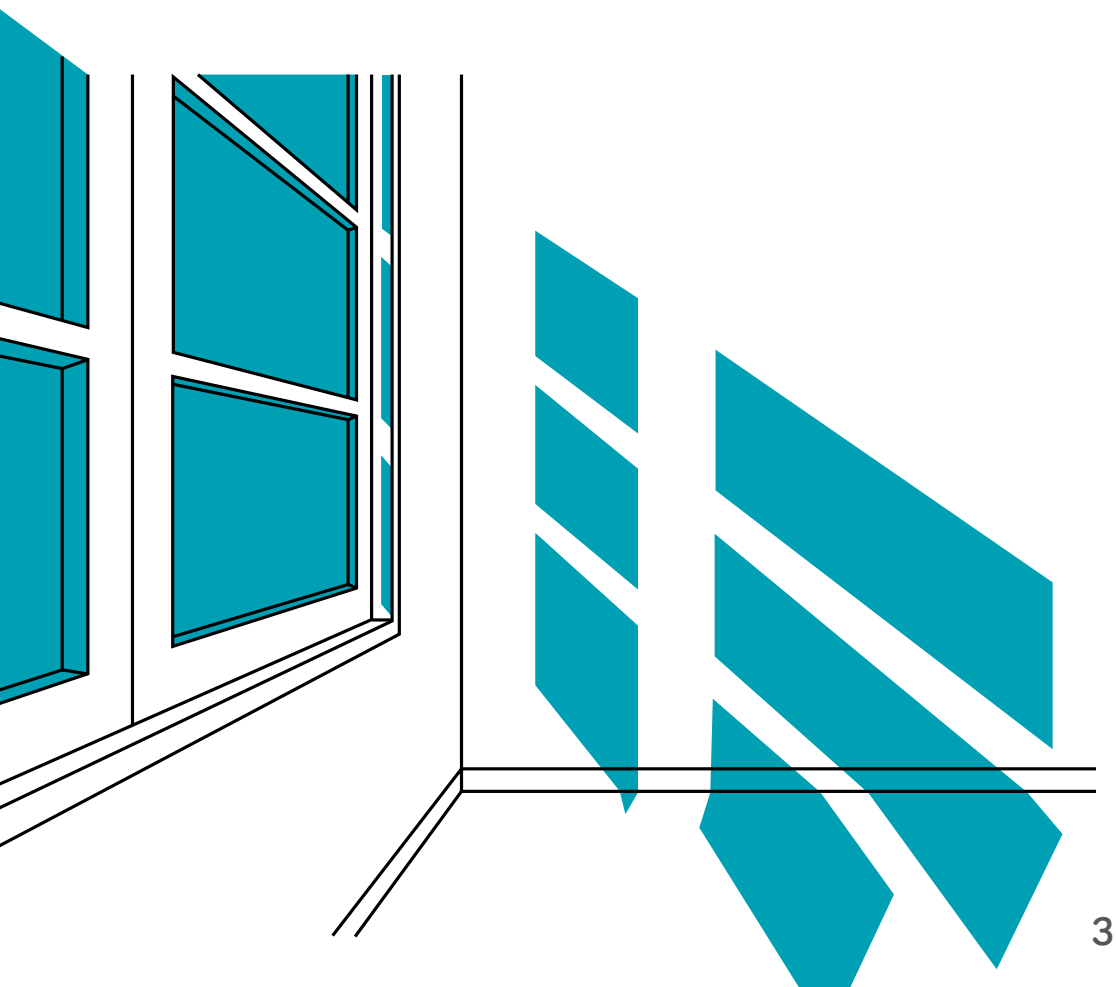
This section explores the following design considerations:

3.1.1 The importance of natural light and views

3.1.2 Controlling glare

3.1.3 Reducing reflections – glazing

3.1.4 Minimise shadows



3.1.1 The importance of natural light and views

Natural light is the best form of light for people with learning disabilities and sight loss, as it gives a true colour rendition of the environment which helps people to see as clearly as possible.

Natural lighting can, however, be an unreliable source of light which can change throughout the day depending on a building's orientation and the time of year. Natural light can also be a source of glare and can cause reflections and shadows which can make it difficult for people with learning disabilities and sight loss to interpret the environment clearly. What is needed within a building is a comprehensive way of harvesting natural light whilst ensuring that any potential negative effects can be minimised (Bright and Cook, 2010).

Views to the outside

Views to the outside are essential for people with learning disabilities and sight loss as they reinforce seasons, times of day, and enable people to view external areas such as gardens and communal areas even if they are unable to go outside.

Top tips: Natural light can be harnessed through

- Use of windows, sun pipes, glass blocks, roof windows, glazed doors.
- Installing curtains and blinds that do not obscure the windows and are able to be pushed back or up to maximise natural light.
- Use of light coloured blinds if blinds are closed.
- Use of lighter fabrics, room surfaces and furnishings.
- Use of low window sill levels – for views from a seated position.
- Provision of single bank corridors, where possible, to enable views to the outside.

3.1.2 Controlling glare and light sensitivity

"The person who has difficulties with glare may have no idea where their foot is going to land.

You may see a person screwing their eyes up or squinting in excessive bright light or turning away from bright light sources like windows or lamps."
Linda Mitchell, VILD

People with learning disabilities and some eye conditions can be sensitive to light and glare and find glare very uncomfortable, painful, and disorientating. For example in some cases, glare "may literally blind them and cause pain", obscure vision and put people at risk of falling (Gray et al, 2007, p4). It must be noted that people with learning disabilities and sight loss may experience glare and or light sensitivity when others with ordinary vision do not find it particularly bright (Gray et al, 2007, p4). Care must be taken that light levels can be managed within the home to ensure that natural light does not cause glare.

“High levels of sunlight causes a tenant to stop and appear to be confused.” Support worker

A person who is sensitive to glare and light may become anxious and hesitant. Carers should be made aware of this in order they can provide guidance and reassurance when necessary. Care and support staff need to ensure light levels are managed within their scheme and should be aware of individual needs in order that the environment can be adapted or they can provide care, guidance and support when necessary.

Given the nature and constant use of bedrooms and communal areas, particular attention should be paid to ensure that the levels of sunlight and glare can be controlled throughout the day, or at certain times of the day and certain times in the year (CAE/RIBA, 2006, p15). Controls should be easy to use to enable an individual within their own home to be able to adjust light levels to suit their individual requirements.

There are two forms of glare – disability glare that causes vision to be impaired, and discomfort glare that causes discomfort to the person. These can occur independently or together.

Disability glare – for example often occurs when objects are viewed (silhouetted) against a window at the end of a corridor.

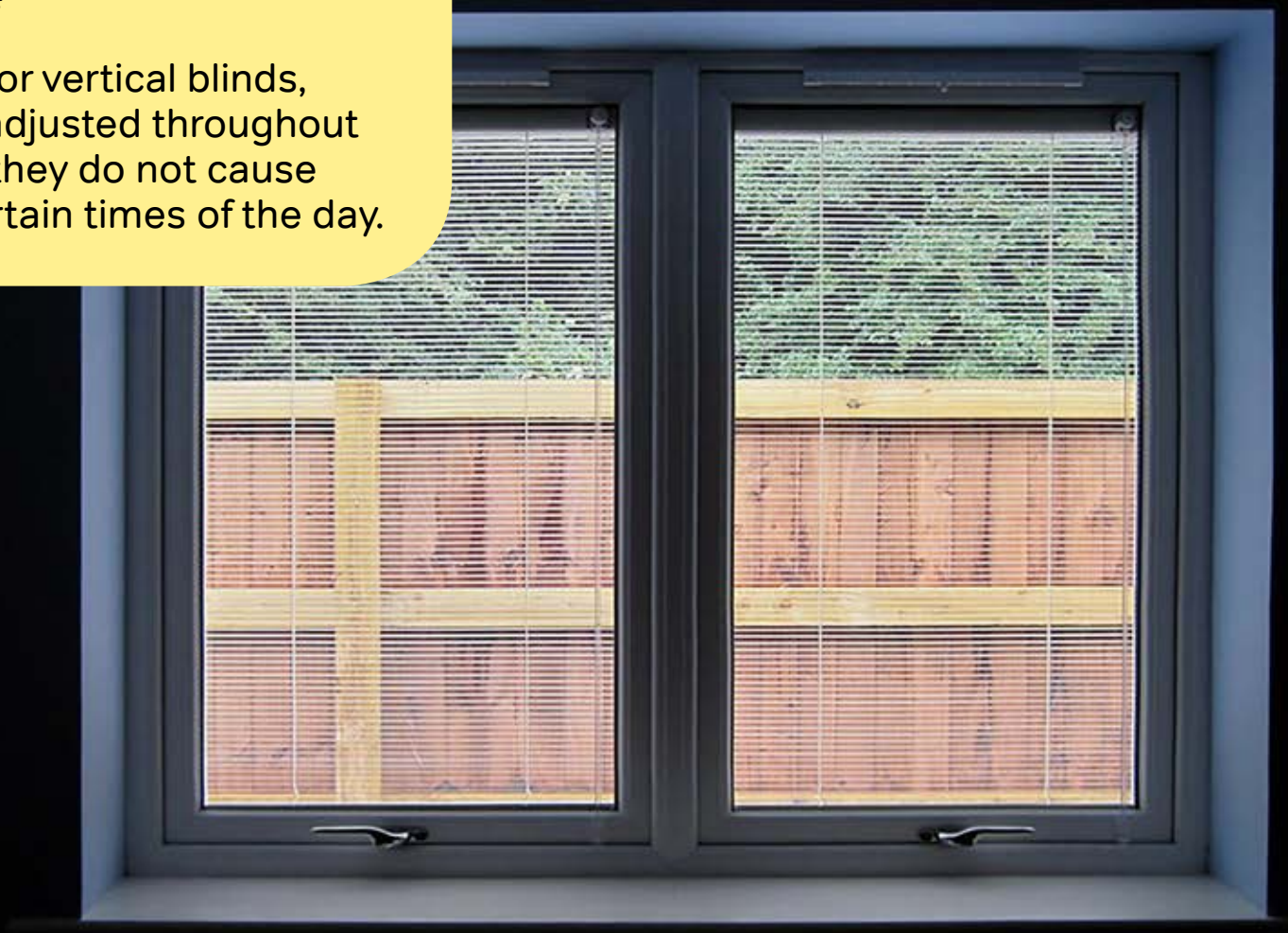
Discomfort glare occurs when the source of illumination, such as sunlight or light bulb, is in the direct field of view.

Top tips: Glare/effects of glare, can be reduced by

- Carefully placed windows.
- Tinted glass – lighting levels and thermal requirements will need to be considered as these can be affected by tinting. This option should be used with caution if the windows face onto communal areas or access routes as they are likely to be highly reflective and cause a mirror-like effect
- External sun louvres – note these may reduce the daylight factor.
- Blinds, brise-soleil, low eaves or bioclimatic design – to allow glare control without blocking out all daylight.
- Light diffusing blinds – when using horizontal or vertical blinds ensure that these do not cause shadows at certain times of the day.
- Fitting windows with internal blinds set within the glass. Whilst these may be an expensive option, they create a permanent feature that cannot be removed, one that gives privacy and glare control.
- Light diffusing curtains - curtains that are thin in material that let light through but block glare.
- Avoiding use of glossy or shiny surfaces – as they can be reflective and cause glare. Eg avoid use of UPVC and gloss paint on window sills (See Section 3.5.2).
- Arranging the room such that the sky is not in the immediate view of an object. For example, not placing a television in front of a window.
- Use of reflective coated glass which reflects a proportion of daylight. This option should be used with caution if the windows face onto communal areas or access routes.
- Use of anti-glare film that reflects or absorbs some of the daylight.
- Reducing contrast against the window and the wall by having splayed reveals and having a light coloured wall around window. (CAE/RIBA 2006, pp15-17).

Top tip for care staff

When using horizontal or vertical blinds, these may need to be adjusted throughout the day to ensure that they do not cause shadows or glare at certain times of the day.



Window fitted with integral blind in a kitchen of a supported living scheme for tenants with learning disabilities and sight loss. The blind enables tenants to control natural lighting and glare to meet their individual lighting needs.

Photograph courtesy of Grwp Cynefin

Case study: light sensitivity and controlling glare

Susan is a lady who has Down's Syndrome and Keratoconus, and is registered as partially sighted (see glossary of terms for definition of Keratoconus.)

Susan did not like walking past the half glazed side door in her kitchen as it let in lots of light and created pools of glare on the floor. Susan's carers reported that this made her anxious to cross the floor surface. As an interim solution, the carers put up a net curtain which only slightly reduced the light from the door. Following advice from the RNIB, the housing association changed the door for a half glazed frosted door which lets in light but does not cause a pooling of light on the floor. Susan now walks past the door with no problem.

Case Study: controlling sunlight and artificial lighting, colour contrast (see Section 3.3) and surface finishes (see Section 3.5)

Paul has Lowes Syndrome and dense central cataracts.

Paul's support staff were concerned that he was bumping into furniture around his flat and that he was shading or screwing up his eyes when entering and sitting in his living room. RNIB suggested some simple environmental changes to Paul's flat which his carers implemented. This included fitting vertical blinds, which allowed them to control light entering the room from the window at different times of the day. The sofa was moved to face the other way so Paul's back was to the window rather than facing the light source, which caused discomfort and glare problems.

Placing strongly contrasted cushions on the couch and chairs has made them easier to identify. Placing a red table cloth on the coffee table has made this stand out and Paul rarely bumps into this now.

Paul is no longer screwing his eyes up when he enters the living room, the incidence of bumping into his furniture has reduced and he is now enjoying his home.

When the flat was redecorated six months later, staff were provided with advice from RNIB regarding lighting and colour contrasted schemes with plain and matt finishes. This assisted Paul in choosing plain, contrasted matt finishes for the paintwork to make key features easier to see. Dimmer switches were fitted in order that lighting could be controlled to suit Paul's needs.

3.1.3 Reducing reflections – glazing

People with learning disabilities and sight loss can find reflections confusing and disorientating. It is important that glazing both internally and externally does not create distracting reflections (HM Government (2010) Approved Document M; CAE/RIBA, 2006, p17).

Top tips: Ways of reducing reflection

- Position glazing so that it is not seen against a dark background.
- Provide similar lighting levels on either side of the glass.
- Avoid use of glass opposite a window.
- Use tinted glass only where it cannot act as a mirror.
- Use matt surfaces to minimise reflections.
- Use blinds to minimise reflections.

(CAE/RIBA, 2006, p17-18).

Highlighting the presence of glazing

Large areas of transparent glazing in doors and screens can represent a risk of injury, through collision, to people with learning disabilities and sight loss who may be unaware of the physical barrier (CAE/RIBA, 2006, p11). Large areas of glazing should be highlighted by manifestation, and the presence of doors should be emphasised by colour contrasted large frames, transoms, large handles or push plates (CAE/RIBA, 2006, p19).

Manifestations should be set at two levels from 850mm to 1000mm and 1400mm to 1600mm so that they can be seen by wheelchair users, persons of small stature, and children, as well as at adult eye level (BSI 2009+A1:2010).

Any logos or decorative features should be at least 150mm high and form a virtually continuous band across the glazed area. They should contrast visually with their backgrounds and be seen through the glass in all light and weather conditions. For entrance doors, on approaching the building from the outside, the markings must contrast visually with the entrance foyer floor. From inside the building, the background colour is likely to be that of the approach route to the building. This can be difficult to achieve with a single tone material and therefore a two tone manifestation will be more likely to "provide effective visual contrast viewed against a variety of backgrounds" (CAE/RIBA, 2006, p12).

Top tips: Highlighting glazing

Glazing can be highlighted by applying stickers or manifestation to windows and glazed doors/glazed panels. There are a wide range of manifestations available – some of these can be highly patterned which could cause confusion for people who are blind or partially sighted and have learning disabilities. It is therefore advisable to go for a simple design that still highlights the presence of windows.

Case study: highlighting glazing

A house manager manages a team of support workers who care for two gentlemen who both have learning disabilities and sight loss. The tenants kept on bumping into the patio door windows. The house manager and her team solved this problem by putting stickers on the windows to highlight the glass. (See image below.) As a result, the gentlemen do not bump into the patio doors anymore.

Further reading

Glass in buildings: Specifiers handbook for inclusive design. CAE/RIBA, (2006).

Mirrors in lifts

When considering lifts, thought should go into whether the use of a mirror is necessary. There are however occasions where mirrors in lifts are essential. In smaller lifts, where lifts have one door and have the minimum dimensions of 1100mm by 1400mm, it is essential that a half height mirror is incorporated to enable wheelchair users to manoeuvre in and out of the lift. Full length mirrors can be seen as an open corridor which can cause confusion for people with learning disabilities and sight loss and therefore should be avoided. Mirrors should not extend below 900mm so as not to cause confusion for people with learning disabilities and sight loss.

3.1.4 Minimising shadows

Glazed areas are a good feature within a building as they provide connections with outside areas; however, thought should go into minimising the effects of shadows on walls and floors.

Areas of glass such as glazed atria, glazed entrances and curtain walling, can cause shadows and reflections on floors and walls, particularly if floors are light coloured. For example, when light shines through windows with glazing bars, reflections and shadows may be seen on walls and floors.

These shadows can be confusing for people with learning disabilities and sight loss, and they may disguise key features in a building. In some cases where the shadow forms stripes, they may be seen as a series of steps which could cause someone with learning disabilities and sight loss to fall.

Shadows can be reduced by providing shading and having a matt, non-reflective floor (CAE/RIBA, 2006, p17-18).

Environmental sustainability and natural lighting

This section helps designers to meet the requirements of:

- The Code for Sustainable Homes (DCLG, 2010) Health and Wellbeing issue Hea 1 – Daylighting
- BREEAM New Construction Multi-residential Scheme, Health and Wellbeing issue Hea 01 – Visual Comfort (BREEAM 2014 and 2011)
- Hea 1 – Daylighting under Multi Residential 2008 (BREEAM, 2008).

While the Code for Sustainable Homes and BREEAM require a daylight factor of two per cent, in order to support people with learning disabilities and sight loss we recommend, if achievable this is increased to between two per cent and five per cent. This should decrease the need for artificial lighting during daylight conditions.

3.2 Lighting: an inclusive lighting system

This section explores the following design considerations:

3.2.1 The importance of providing good lighting

3.2.2 Even spread of light (ambient lighting)

3.2.3 Multiple light fittings

3.2.4 Diffused lighting

3.2.5 Transitional lighting

3.2.6 Colour rendering

3.2.7 Adaptable lighting

3.2.8 Task lighting

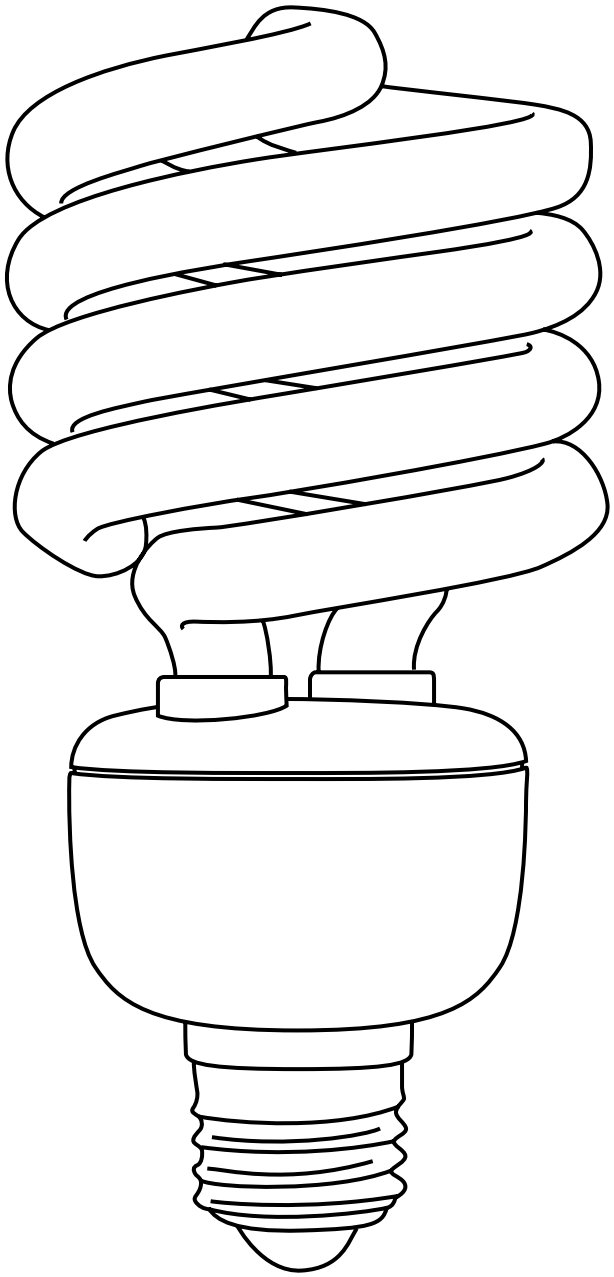
3.2.9 Sufficient lux levels

3.2.10 Lighting maintenance

3.2.11 Environmental sustainability and choice of bulbs

3.2.12 Additional considerations:

- Light switches and sockets
- Sensor lighting
- Night time lighting
- Colour and furnishings



3.2.1 The importance of providing good lighting

> "The lack of sufficient lighting in our home has a negative effect on the independence of our service users."
> **Support worker**

Providing a system of "good lighting is one of the best low vision aids available" (Rumney, 1992). A good lighting system helps keep everyone safe and independent and, in particular, helps ensure that people with learning disabilities and sight loss can make the most of their vision and see the environment as clearly as possible.

Good lighting has been shown to:

- reduce the incidents of falls and accidents
- reduce cases of incontinence in the night time
- support wayfinding and security
- assist with identification of access routes, landmarks, spaces and objects within rooms
- help ensure that people and their facial expressions can be seen clearly
- assist with undertaking daily living activities safely and independently, such as opening a door, washing, cooking and cleaning.

While a good lighting system will support people with learning disabilities and sight loss, lighting cannot compensate for a lack of colour and tonal contrast in the environment. It is therefore vital that the environment provides a system of good lighting alongside sufficient levels of colour and tonal contrast to define the size, shape and key features within a room or space. (Please see design guidance on colour and tonal contrast in Section 3.3.)

As we get older we need more light, with a 60 year old needing around three times as much light as a 20 year old. While most people with sight loss need and benefit from enhanced lighting, there are some eye conditions which cause people to experience glare problems in normal lighting levels, which could be uncomfortable or even intolerable for them. Some people find that, when they go from a bright room to a dark room it may take several minutes for their eyes to adjust to the new light levels.

Due to the varied nature of learning disabilities and sight loss, there is not one way of lighting a room that is perfect for everyone. In general, providing a good, even spread of light that is fully diffused and flexible to meet people's individual needs can promote the safety and independence of people with learning disabilities and sight loss.

Top tips: Key principles when designing a lighting system

- Provide an even spread of light.
- Consider natural and multiple artificial light sources.
- Ensure lighting is fully diffused or positioned so that bare bulbs cannot be viewed.
- Incorporate transitional lighting.
- Ensure lighting gives good colour rendition.
- Provide adaptable lighting controls whenever possible.
- Install portable and permanent task lighting where necessary.
- Ensure sufficient lux levels are provided in specific areas.
- Incorporate a lighting maintenance and replacement plan.
- Consider environmental sustainability.

These principles are discussed in a little more detail in the following sections.

3.2.2 Even spread of light (ambient lighting)

A good, even spread of light (ambient lighting) across internal and external routes, and within rooms, is vital for people with learning disabilities and sight loss, to help reduce the incidences of falls and maximise people's independence and safety.

Case study: lighting, colour contrast (see Section 3.3) and wayfinding (see Section 3.7)

Caroline is a young lady with profound learning disabilities, Cerebral Palsy and who has Cerebral Visual Impairment (CVI).

Caroline is supported by a residential care provider and her mobility around her home was a concern for staff as she was regularly having falls. She was also having difficulties in locating her bedroom door as there were a number of other doors along her corridor. Following her assessment, several environmental changes were recommended, which included increasing the lighting in the hallway leading to her bedroom by using stronger bulbs and changing the light shades to a paper globe type which distributed the light evenly along the corridor, and a contrasted guide rail to help support her finding her way to her room.

Caroline's door was painted in a contrasting colour to stand out and be different from the other doors. A signifier, which she chose herself, was also added to Caroline's bedroom door handle to help her locate her own door independently. Following these simple adaptations, Caroline was immediately able to find her way unsupported to her own room – which she had never been able to do previously. Caroline's confidence has improved so much that she is now able to move around her home with minimal support, giving her the independence, choice and control she so desired.

3.2.3 Multiple light fittings

In larger communal areas such as corridors, lounges and dining areas, to gain a good even spread of light, we recommend considering multi light sources throughout. For example, pendant, wall, table and standard lamps are all used within one setting or room to create an even spread of light that highlights key features within the room or area, the size and shape of the room or area, and provides task lighting where necessary.

Smaller rooms in flats or bedrooms are normally lit by one central light. Rather than using one very bright light bulb to light the room, it may be necessary to use two or more pendant lights and, if necessary, increase lighting in the room with wall lighting and table lamps.

Spotlights should not be used as the sole light source in an area since this method of lighting creates "pools" of light and dark and they can also be a source of glare. However, recessed closely-grouped spotlights can be effectively used to supplement ambient lighting. Care should be exercised when installing feature lighting in reception areas, to ensure that shadows are not being cast over people's faces, making lip-reading especially difficult.

3.2.4 Diffused lighting

Lighting should be chosen and positioned to prevent glare when viewed from the normal viewing angle. The position of lamps should make it impossible to look directly at a lamp or, alternatively, the lamp should have a cover that fully diffuses the bulb in order that the bulb cannot be viewed through the diffuser or shade.

Glare is being emitted from the undiffused light. The issue is made worse by the application of satin paint which is causing pools of light on the wall (see Section 3.5). Fitting the light with a cost effective paper globe shade would help distribute the light and diffuse the lighting. Using a matt paint would prevent the pooling of light on the wall.

3.2.5 Transitional lighting

"Hesitancy and increased levels of anxiety at external doorways is common when the person is moving from a dimmer lit environment out into a brighter environment."
Linda Mitchell, VILD

Adapting to changes in the level of lighting (such as moving from light areas to dark areas) is a real problem for people with certain eye conditions (Gray et al, 2007). As we get older our eyes take longer to adapt to sudden changes in light levels – from dark to light and from light to dark. When coming in from the outside, it can take five to 30 minutes for an older person's eyes to adapt to the change.

Designers need to provide a gradual decrease in lighting when people move from the inside of buildings to the outside after dusk, and a further gradual decrease when moving away from the building. When entering a building in daylight hours, lighting designers need to provide for a gradual decrease in the lighting from the point of entry into the building (Thomas Pocklington Trust and Habinteg Housing Association).

This assists everyone and particularly those with sight loss by providing gradual eye adaption times.

Providing waiting areas internally and externally close to entrances and exits can support people to sit and rest whilst they are waiting for their eyes to adapt to the change in lighting levels. For example, a bench could be placed outside an entrance of a home.

3.2.6 Colour rendering

Lighting can have an effect on how colours are seen. It is advisable to use bulbs that give a light as close to daylight as possible in order that the true colours are seen and good colour rendering is achieved. For example, in a dining room it is very important that lighting achieves good colour rendering to ensure that food colours are replicated and food appears inviting and satisfying.

Colour rendering is given as an index between 0 and 100 Ra, where lower values indicate poor colour rendering and higher ones good colour rendering. Ensuring the bulb has a colour rendering index of 80 or above will achieve good levels of colour rendering.

3.2.7 Adaptable lighting for different eye conditions

"It is vitally important that people can control the lighting around them, the amount of light, and how it is shone on to an object or activity."
Gray et al, 2007

"Bright is not always best."
Linda Mitchell, VILD

Adapting to changes in light levels is a real problem with certain eye conditions. Dimmer switches can be very useful to control levels of illumination and glare, and can create a system of lighting design that is suitable for an individual.

Some bulbs are not dimmable and this should be taken into consideration when purchasing light fittings and designing lighting schemes. Delays in lighting coming on when detected by a sensor may put some people with learning disabilities and sight loss at risk. **We recommend using bulbs with no warm-up time to ensure areas are lit immediately** (See Section 3.2.11 Choice of bulbs).

"Dimmer switches help tenants to adjust lighting to suit their own needs."
Support worker

"Lighting is adjusted greatly during winter months and bedside lamps are left on during the night so that the tenant can see his way to the toilet."
Support staff

3.2.8 Task lighting

"Pelmet lighting helps support tenants when preparing food."
Support worker

"Task lighting is switched on to increase lighting levels and meet the needs of the tenant."
Support staff

Daily living activities such as reading, cooking and brushing teeth need focused lighting to help people with learning disabilities and sight loss carry out tasks. Increasing the amount of light on the task can make it easier to see, less tiring to do and may help people with sight loss concentrate better on the task (RNIB and Thomas Pocklington Trust, 2012).

Task lighting should not emit glare and must be positioned so that it does not cast shadows. If the task light is within easy reach, care must be taken with the choice of bulb used. Halogen bulbs can get very hot so a compact fluorescent bulb or LED (Light emitting diode) bulb should be considered as these are cooler to the touch.

Top tips: Task lighting

- Wardrobe lighting.
- Moveable lamps to support tasks such as reading, writing etc
- Under-cupboard lighting to wall units in kitchens to highlight the worktop. A pelmet is likely to be needed on the base of the wall unit to shield the user from glare.
- Lighting over sinks, toilets and either side of the mirror in bathrooms.
- Ensure task lighting position is not causing shadows and can be manoeuvred if necessary to direct light in the right place e.g. when reading.
- Ensure the task light is not too bright or insufficient.
- Ensure that the task light is not producing too much heat.
- Ensure that if required that the light fitting can be independently turned off by the service user (Gray et al, 2007).
- Battery operated stick on LED lighting is a cost effective way of adding additional task lighting where needed.

The photographs display task lighting fitted under the kitchen wall units in a supported housing scheme for people with learning disabilities and sight loss. A pelmet has been used to ensure that the under cupboard lighting cannot be viewed directly.

Photographs courtesy of United Welsh Housing Association.

3.2.9 Sufficient lux levels

"The light above the door helps tenants find their way and locate the door handle in the dark."
Support staff

Lighting levels need to be sufficient for people with learning disabilities and sight loss to clearly see the environment and carry out specific tasks. A common measurement of light in an area is the lux level. To ensure there are sufficient levels of light within an area, there are recommended lux levels for certain areas which should be adhered to when planning lighting schemes. Please see the following lux levels recommended by the Thomas Pocklington Trust for guidance.

Table of recommended illuminances at the floor of each room

Area	Recommended Range (Min-Max)
Internal area – Hallway	100-300
Lounge	100-300
Kitchen	100-300
Bathroom	100-300
Bedroom	100-300
Stairs	100-200
External area – Ramps	100-200

Recommended task lighting illuminance

The figures below show the range of lux levels recommended in an area where the task is to be undertaken. It is important to remember that task lighting should be adjustable in the amount and distribution of the light to suit an individual's needs and these recommendations offer general guidance. Specific requirements at distinct task areas are given within the report and are also listed in the following table.

Task	Recommended lux levels
Brushing teeth	200-300
Finding keys	100-300
Writing	200-1000
Cooking	200-1000
Washing up	200-500
Using telephone	100-400
Washing in bathroom	100-300
Putting on shoes	100-300
Reading	200-1000
Eating	200-500
Making a cup of tea	200-1000

Extract from Housing for people with sight loss: A Thomas Pocklington Trust design guide (2008) by kind permission of the Thomas Pocklington Trust.

Further reading on lux levels

The Colour, Light and Contrast Manual: Designing and Managing Inclusive Built Environments. Bright and Cook (2010, pp85-95).

Housing for people with sight loss: A Thomas Pocklington Trust design guide. Thomas Pocklington Trust and Habinteg Housing Association (2008).

The SLL Code for Lighting. CIBSE (2012)

3.2.10 Lighting maintenance

Having a range of many different types of bulbs can cause maintenance problems, and fitting incorrect bulbs can undo all the work of a lighting engineer and put tenants at risk. Providing a clear lighting schedule and room layouts for staff can help ensure the correct bulbs are used when bulbs are changed.

Light bulbs start to lose output after periods of time and therefore the quality of light will decrease, which could put tenants with sight loss at risk if lighting is not sufficient (Pollock et al, 2008).

Maintenance plans should incorporate light bulb cleaning and replacement schedules. Light bulbs should be regularly cleaned and replaced when they start to lose output to ensure that lux levels within a home are maintained.

Please refer to Light and lighting design for people with dementia (Pollock et al 2008, p350 for recommended maintenance schedules).

3.2.11 Environmental sustainability and choice of bulbs

Wherever possible, energy efficient lighting should be used.

There are three main types of energy saving light bulb:

- Halogen bulbs are the cheapest energy saving light bulbs, but they are the least energy efficient and the least durable. Halogen bulbs are not sufficiently energy efficient to meet the standards within Part L building regulations or the Code for Sustainable Homes.
- Compact fluorescent lamps (CFLs) are currently the most common energy saving light bulbs. They are energy efficient and durable.
- LED (light emitting diode) lights are the most energy efficient and the most durable, but can be the most expensive.

Halogen and LED bulbs light up immediately whereas CFL bulbs can take time to come on, and to get up to full brightness. There are some quick start CFL bulbs but others may take up to five minutes to reach full brightness. Immediate lighting is particularly important in hallways, on stairs, and in bathrooms.

Evolution of lighting from the candle, to the tungsten bulb to the compact fluorescent to today's solution, the LED bulb.

The controllability of lighting is important in order for people to adapt lighting to suit their own needs. Some CFL and LED bulbs cannot be dimmed so it is essential to check this before making your choice. Where timers and light or movement sensitive (photocell) lights are required, these can be used with halogen and LED bulbs, but not currently with CFL.

Lighting is such a crucial part of enabling a person with learning disabilities and sight loss to be able to use an environment safely and efficiently, that the aim should be to achieve energy efficient lighting that also meets the needs of people with learning disabilities and sight loss. LED lighting has the ability to meet both agendas and provide energy efficient lighting that meets the needs of people with learning disabilities and sight loss.

Previously LED lighting only gave relatively low levels of light output, could not be offered in many colour options and many could not be dimmed. However the technology is advancing, they can now be purchased in supermarkets and there are many types of LED bulbs that can be used in domestic situations. Light levels have now been increased and they can now give the same and even better light levels than other types of lighting such as the traditional tungsten bulb, halogen, and compact fluorescent lighting. They are available in a range of colour options, some are dimmable and some have good colour rendering properties. Although the initial outlay for the lamps is relatively expensive compared to other types of bulbs, they are very cost efficient to run and can last as long as 25 years.

Using LED lighting can meet Part L and BREEAM standards while also ensuring that lighting can meet the needs of people with learning disabilities and sight loss.

Domestic type LED lighting that can replace tungsten, halogen and CFL bulbs.

Case study: insufficient lighting, glare from lighting and the needs to control lighting levels

Susan is a lady who has Down's Syndrome and Kerataconus and is registered partially sighted.

Susan loves cooking and carrying out other daily living tasks and therefore it is vital that her kitchen is safe and accessible. Due to Susan's sight condition, she needs diffused lighting and an even spread of light across a room.

The kitchen ceiling lighting in her shared house is a series of halogen spot lights which are not practical as they cause issues for Susan and the staff. The lighting system is providing insufficient lighting (lux) levels, is not evenly spread, is undiffused and causes glare. For the staff, the lighting system causes costly and timely maintenance issues as the halogen bulbs keep failing. Fitting lighting that was fully diffused and provided an even spread of light needs to be considered if lighting is to be altered in the future. LED lighting could be a more cost-effective option in the long run due to their longer life span, low running costs, and the ability to be dimmed and create sufficient lux levels.

Susan has had under cupboard task lighting fitted in her kitchen to support her with tasks. The idea of the under cupboard lighting is great in principle, but the lighting is undiffused and emitting glare, as no pelmet has been provided to the wall unit. This causes a problem for Susan who loves to use the kitchen. Susan will not allow these lights to be on and it appears to cause her discomfort as she shields her eyes. It would be better if a pelmet was added to shield the glare but still provide lighting on the worktop. This would then allow Susan to benefit from this good lighting feature.

The photograph displays unshielded task lighting that is emitting glare in a kitchen of a supported housing scheme for tenants with learning disabilities and sight loss. Unfortunately, this potentially beneficial lighting feature cannot be switched on as one of the tenants find that the glare causes them pain. Fitting a pelmet at the base of the wall unit would shield the glare and potentially alleviate this issue and enable tenants to benefit from this lighting feature.

Further information on choosing light bulbs

Choosing energy saving light fittings for your home (RICA, 2014)

rica.org.uk

Make the most of your sight – Improve the lighting in your home (RNIB and Thomas Pocklington Trust, 2012).

Environmental sustainability and artificial lighting

This section helps designers to balance the requirements of Code for Sustainable Homes (DCLG, 2010) and BREEAM NEW Construction (BREEAM 2014 and 2011) whilst also meeting the needs of people with learning disabilities and sight loss.

With regards to new build housing being assessed by the Code for Sustainable Homes (DCLG, 2010), Energy and Carbon Dioxide emissions ENE 6 requires all external space lighting, including lighting in common areas, is provided by dedicated energy efficient fittings with appropriate control systems.

This guide recommends that this is done in conjunction to ensuring that lighting meets the recommendations within Section 3.2, such as sufficient lux levels and diffused lighting, whilst also being energy efficient in order to meet the Code for Sustainable Homes requirements.

With reference to buildings being assessed by BREEAM UK New Construction (BREEAM, 2014), the Health and Wellbeing Hea 01 section aims to ensure best practice visual performance and comfort for building occupants, and therefore has particular relevance for lighting designers when putting together a lighting specification in a large scale supported housing scheme for people with learning disabilities.

HEA 01 Visual Comfort requires that all fluorescent and compact fluorescent lamps are fitted with high frequency ballasts which increases the rate of flicker from 50Hz to about 30,000Hz which cannot be perceived. This credit, if met, will help ensure that any fluorescent lighting is visually comfortable for people with learning disabilities and sight loss.

HEA 01 Visual Comfort requirements recommends that Internal lighting in all relevant areas of the building is designed to provide an illuminance (lux) level appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. This can be demonstrated through a lighting design strategy that provides illuminance levels in accordance with The Society of Light Code for Lighting (CIBSE, 2012) and any other relevant industry standard. This design guide recognises that, for supported housing schemes housing people with learning disabilities and sight loss, the lux levels within the Code for Lighting will not necessarily meet all the requirements of people with sight loss, so the lux recommendations within Section 3.2.9 should also be followed.

3.2.12 Additional considerations

This section looks at:

- Acoustic considerations – interference of lighting and electric cabling with hearing aids
- Light switches and sockets
- Sensor lighting
- Night time lighting
- Colour and furnishings

Acoustic considerations - interference of lighting and electric cabling with hearing aids

"Some fluorescent lights create a magnetic field which can cause a humming sound in hearing aids. Therefore this type of lighting should be specified with care and only used for locations where it cannot inconvenience people with hearing aids."
(CAE/Grant, 2012, p122)

"Incoming mains cabling coming into a building can cause a humming sound in hearing aids and therefore where possible should be positioned away from the public areas within a building."
(CAE/Grant, 2012, p118)

Light switches and sockets

There should be sufficient sockets around rooms to provide flexibility to enable task lighting to be used as and when necessary. Light switches should be a large rocker type as these are easier to operate than standard rockers for people with limited hand dexterity. They should be located in a logical position and should contrast in colour with its background, and the rocker should contrast with the backplate of the switch.

Contrasting switches in a supported housing scheme for people with learning disabilities and sight loss.

Images courtesy of United Welsh Housing Association and First Choice Housing Association.

Top tips: advice for housing management, care and support staff

Coloured stickers or tactile “bump-ons” can be added onto switches for tenants to help individuals identify which switch turns on which lamp or further support identifying the position of the switch. This adaptation can be made as and when necessary to meet the needs of the individual tenant. In addition, sockets with integrated lighting can support people to locate the position of the switch.

Bump-ons can be sourced on the RNIB website rnib.org.uk in a variety of shapes, colours and sizes.

Sensor lighting

Lighting activated by sensors is an excellent feature that can reduce electricity bills, service charges and promote environmental sustainability. When planning lighting activated by sensors, care should be taken to ensure the areas are lit immediately. Bulbs should be carefully chosen and positioned to provide sufficient immediate lux levels and an even spread of light.

Considerations when choosing sensor activated lighting include:

- Sensors should be positioned so that routes and areas are immediately lit with no time lag.
- Sensors should be set to people’s movement, not on a timer, as lighting set on a timer may go out if people walk slowly or are in a room for a long length of time.
- External lighting should be set to daylight sensors rather than timers to ensure lighting comes on as dusk starts.

Night time lighting

Lack of lighting can mean a normally continent person can experience problems managing their continence during the night, if the journey to the toilet is not made clear and easy.

Top tips: To promote continence at night time, lighting should be considered

- To promote ease of wayfinding to the bathroom, a night light left on in a bathroom that increases in lighting level when someone enters the bathroom could support independence and promote continence by showing people where the toilet is. If a light is to be left on in a bathroom, consideration should be given to installing a fan that is sensor activated when someone enters a bathroom in order that the fan is not on all night.
- Consider sensor lighting that is turned on when someone leaves the bed to light the way to the toilet. Note: this lighting will need to turn on gradually to avoid startling the individual while still being sufficient to light the route to the toilet.
- Using a plug-in night light could be a cost effective way of providing some light at night time if funding is unavailable to alter lighting.

External lighting

Lighting in gardens is important as it will allow maximum use of garden areas. For example, the use of lighting could allow tenants to make use of a garden at dusk in summer months.

Colour and furnishings

Keeping the furnishings and walls as light as possible, whilst still achieving sufficient light reflectance value differences between key surfaces and features, will help ensure light is reflected back into the room (see Section 3.3.2 for further advice on light reflectance values).

Painting the ceiling colour white with paint that has a high light reflectance value helps ensure that the light that reaches the ceiling is directed back into the room. For example, both Crown and Dulux make some paints with Light Reflectance Values (LRV) of 90 and above. Alternatively, if acoustic ceiling tiles are used, select a tile with a high LRV above 80.

Further reading

Lighting Solutions Guide: Improve the lighting in your home. RNIB and Thomas Pocklington Trust (2013)

Good Housing Design – Lighting: A guide to improving lighting in existing homes. Thomas Pocklington Trust (2010).

The Colour, Light and Contrast Manual: Designing and Managing Inclusive Built Environments. Bright and Cook (2010)

3.3 Colour and tonal contrast

This section looks at:

3.3.1 The importance of colour and tonal contrast

3.3.2 Achieving effective colour and tonal contrast

3.3.3 Using colour and tonal contrast to highlight specific areas

3.3.4 Using colour and tonal contrast to highlight potential obstructions

3.3.5 Additional considerations:

- Surface finishes
- The effect lighting has on colour
- Colour and wayfinding
- Colour to increase food intake.

3.3.1 The importance of colour and tonal contrast

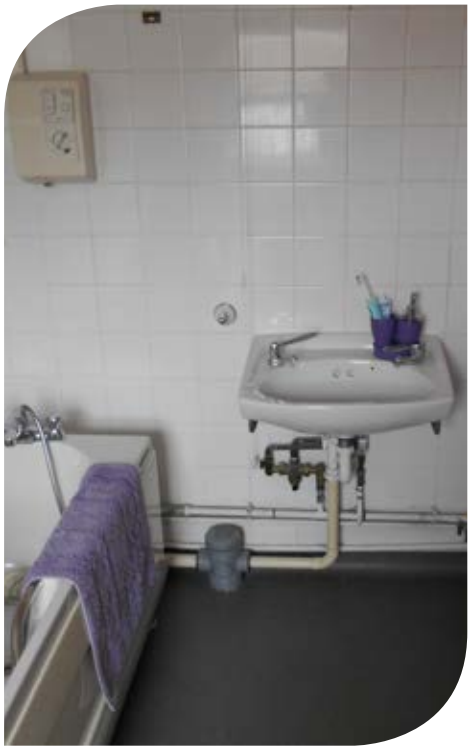
> "An effectively contrasted environment will reduce the risk of injury by enabling people to see edges between surfaces and perceive depth and difference more easily."
> **Linda Mitchell, VILD**

People with learning disabilities and sight loss often have a loss of some colour vision, while others may have colour deficiencies. The loss of some colour vision or colour deficiencies can mean people find difficulty finding objects that are the same colour (lack of tonal contrast). For example, they:

- can't locate a white rocker on a white light switch
- can't find the way to their bedroom if the door is the same colour as the wall
- can't see the toilet pan if the toilet seat is white and the toilet is white (resulting in a tenant missing toilet when urinating).

A well-contrasted environment can help maximise vision and make the difference between seeing and not seeing the environment and key features within it. When planning a well-contrasted environment, consideration should also be given to ensuring that the chosen colours promote wellbeing within an environment. The promotion of wellbeing through colour schemes is discussed in Section 3.4.

Poor colour contrast, particularly with inappropriate lighting (see Sections 3.1 and 3.2), can prevent an individual from functioning safely and independently (Gray et al, 2007). An example of this is frequently seen in bathrooms where the toilet, toilet seat, cistern, bath, sink, grab rails, toilet paper, towels etc are often white, in a room tiled with shiny white tiles, with a white ceiling and door. Such an environment can make it difficult for individuals who have limited or no colour vision to find items in the bathroom that are essential to maintain independence. These sorts of environments are made more difficult because people find it hard to use their hearing to make sense of sound clues because noises bounce off hard surfaces and walls (Gray et al, 2007).



Bathroom in a supported housing scheme. The bathroom has no contrast between the sanitary ware, grab rails and white tiles. The tiles are a gloss finish which is causing glare and reflections (see Sections 3.3.5 and 3.5).

Colour and tonal contrast should be used throughout the home alongside good lighting to:

- Emphasise the size and shapes of rooms by highlighting the difference between the walls, floor and ceiling. Outline routes by contrasting walk ways against surrounding surfaces.
- Highlight key features – for example the difference between the worktop and floor, door against the wall. A coloured door and door frame will make it easier to find the door if the colour contrasts against the surrounding walls (Gray et al, 2007).
- Highlight furniture, such as the position of chairs and tables against walls and floors. In a dining room or kitchen, a coloured cushion on a seat can help people to find their own chair (Gray et al, 2007).
- Highlight key safety features such as nosing on stairs, grab rail against wall, handrail against wall. For example,

a contrasting handrail on stairs will make it easier to find and hold on to (Gray et al, 2007).

- Switches and controls such as sockets, switches, lift buttons, heating controls.
- Promote food intake and nutrition. Contrasting against plate, and liquid against cups, and plate against a table mat, can help tenants locate the plate and the food on the plate.
- Promote sleeping. Using colour and tonally contrasted bed covers and a headboard that contrasts with the walls and floors can help people to locate the bed and getting back into bed.
- Promote continence and independence for people using bathrooms. Colour contrasted toilet seats and sanitary ware can help people locate items within the bathroom.

Case study: colour contrast

Maggie is 43 years old, and has a moderate learning disability. She is very short-sighted and opts not to wear her glasses.

Maggie was requiring more support at home from her elderly mum to use the bathroom. Maggie was reluctant to enter the bathroom alone and she was becoming increasingly anxious and agitated when she had to enter this space. The bathroom furniture was white and the wall tiles and grab rails were white making it very difficult to find the key features.

Simple cost effective use of contrast has been implemented. Navy blue handrails have been used and this highlights them against the white background. Maggie can now locate these. The toilet seat was changed from white to navy, which has enabled Maggie to use the toilet independently. Contrasting toilet roll and towels were also recommended so Maggie was able to locate them against the white walls. Matt, navy blue tile paint was used on the tile splash-back to highlight the sink area, which has aided Maggie to locate the sink.

Recommendations regarding lighting were also made for the hallway. The door frames to all rooms were painted in a contrasting colour to the doors, and contrasting door handles were fitted on all doors within the house.

Maggie's mum now reports that she seems to be "looking where she is going and finding things for herself rather than relying 100 per cent on me."

3.3.2 Achieving effective colour and tonal contrast

"For most people with adequate vision, difference in hue (the nature of the colour) or chroma (the intensity of the colour), provide adequate visual contrast. The main feature of a surface which appears to be strongly correlated with the ability of visually impaired people to identify differences in colour is the amount of light the surface reflects, or its light reflectance value (LRV)."
BS8300 (BSI 2009+A1:2010)

As discussed in Section 3.3.2, people with learning disabilities often have a loss of some colour vision, while others may have colour deficiencies. Therefore, we cannot rely on the perception of a difference in colour as a means of determining effective colour contrast, for example red against blue (two different hues). Effective colour contrast is determined by the difference between the LRVs of adjacent critical coloured surfaces.

Light Reflectance Value (LRV)

Some manufacturers have names and codes for the colours and products they make. These names and codes are not standard, and may be specific to that manufacturer or sector. Other manufacturers refer to colour standards such as BS4800, NCS-Natural Colour System®©, Munsell or RAL to communicate their colour product ranges. All colours have a LRV which is a separate notation.

LRV is expressed on a scale from 0 to 100 where zero is a perfect black and 100 is a perfect white. In practice, however, black may have an LRV reading of about 6 and white about 85.

LRV is the term used to describe the proportion of visible light reflected by a surface, weighted for the sensitivity to light of the human eye.

It is measured with a spectrophotometer under specific conditions recognised internationally by the CIE (Commission Internationale d'Eclairagje). The spectrophotometer measures several values including CIE Y and CIE L*. LRV is CIE Y, and should not be confused with CIE L* (Lightness). These two measurements give very different values. The CIE L* measurement should not be used.

As effective colour contrast is determined by assessing the LRV of two adjacent surfaces, it is essential at the planning stage to know how much of a difference is needed. Approved Document M (HM Government, December 2010), which currently applies in Wales, states that sufficient contrast is achieved when the difference in light reflectance value of the two surfaces is greater than 30 points.

BS 8300 (BSI 2009+A1:2010) and Approved Document M (HM Government, 2013) (which only applies to England) recognise that the difference in two adjacent surfaces should be 30 points, but acknowledges where there are lux levels around 200 lux, there is evidence that a 20 point difference will be acceptable. BS8300 and Approved Document M (HM Government, 2013) also draw on further research that looks at the role that shape and form can have in highlighting differences.

As lighting levels cannot be guaranteed within the built environment at all times, RNIB recommends that achieving the standard of "30 points" difference is best practice. This helps ensure that, even if lighting fails, is switched off, or if lighting levels are insufficient, the areas will still be contrasted sufficiently. In practice, when creating attractive environments, and depending on what materials

are available, this can sometimes problematic. If this cannot be achieved, then it is better to get as close to 30 points difference as possible, while also achieving an attractive environment. It is likely that a difference in excess of 20 points will give adequate contrast in most light conditions, while a difference in excess of 30 points is likely to give adequate contrast in all light conditions.

Determining Light Reflectance Values

Light Reflectance Values are precise readings and cannot be guessed at.

There are four practical ways of determining LRV:

10. Measurement by a laboratory.
11. Contact the manufacturer.
12. Reference to standards with known LRVs.
13. Visually matching the colour to one whose LRV is known.

For further information please see RNIB Cymru/ John (Colour and tonal contrast: The process from guidance to accessible housing, a supplement to "Housing Sight" 2007)

Please also refer to BS8493: 2008 Light Reflectance Values: Method of Test. British Standards (BSI) (2008).

Critical surfaces and key features

Effectively colour contrasting an environment involves ensuring a 30 point difference between critical surfaces and key features (see light reflectance value section above.)

Determining critical surfaces and features involves understanding how people will use an environment and levels of functionality.

1. Large critical features are doors, ceilings, walls and floors. These features help with navigating through a space
2. Medium-sized critical features are, for example, architraves, bath panels, cupboard doors and kitchen surfaces
3. Smaller significant features include grab rails, light switches, door, drawer and cupboard handles.

For larger surfaces, there should be 30 points difference between:

- the ceiling and the walls
- the walls and the floor
- doors should be contrasted from the surrounding walls and the leading edge should be contrasted from the rest of the door.

For medium and smaller features, there must be a sufficient colour contrast between:

- work surface to the floor
- switches and sockets to the walls
- cupboard handles to the cupboards
- door furniture and the door itself
- sanitary ware to the wall and floor
- grab rails to the walls
- handrails to the walls
- stair nosings to carpet.

(RNIB Cymru/John, 2007, p. 27; WG, 2005; BSI 2009+A1:2010)

3.3.3 Using colour and tonal contrast to highlight specific areas

Rooms/hallways

"She can't see the door handles against the door and keeps missing them."
Support worker

"He keeps on bumping into the edges of doors."
Support staff

Top tips: Contrast in rooms/hallways

- Contrast wall and floor
- Contrast ceiling and floor
- Contrast door to wall

The photographs display a fully contrasted corridor in a supported housing scheme for tenants with learning disabilities and sight loss. Flooring, wall and ceiling finishes have been selected to ensure that wall, floors and ceilings contrast. The doors have been highlighted by a contrasting architrave. Walls, floors, ceilings and doors are highlighted even when the lighting is switched off and the corridor is lit by a light tunnel.

Photographs courtesy of Grwp Cynefin

Top tips: Contrasting doors

- Use an architrave that contrasts between the door and the wall and/or contrasting the door surface against the wall surface.
- The handle and door furniture should contrast sufficiently with the door for ease of identification.
- The leading edge of the door should contrast against the face of the door.

The leading edge of the door has been painted to contrast against the face of the door to highlight the position of the door when it is open.

Image courtesy of United Welsh Housing Association

Kitchens

"Handles that contrast against kitchen doors would support the tenant's independence when using the kitchen."
House manager

Top tips: Key adjacent areas to consider when contrasting kitchens

- Handles to unit.
- Sockets to tiles.
- Worktop to floor.
- Worktop to units/tiles.
- Tiles to wall units.
- Units to floor.

The photograph displays a kitchen in a supported housing scheme for people with learning disabilities and sight loss. The finishes of the kitchen units, plinth, worktop, tiles and sockets have been chosen to ensure the kitchen is fully contrasted and highlight the difference between key adjacent surfaces.

Photograph courtesy of United Welsh Housing Association

Bathrooms

"She can't see the grab rail in her shower area and keeps missing it because it is white on white." **Support worker**

"We placed a grab rail that contrasts against the tiles to help the lady distinguish where she is in the bathroom." **Support staff**

Top tips bathrooms:
Key adjacent areas to consider when contrasting bathrooms

- Wall to floor.
- Ceiling and wall in larger bathrooms.
- Sink and toilet to wall.
- Sink and toilet to floor.
- Shower tray to wall.
- Bath to wall.
- Shower controls and shower head to wall.
- Toilet paper/toilet dispenser.
- Hand drier to wall.
- Soap dispenser to wall.

The photograph displays a bathroom in a supported housing scheme for people with learning disabilities and sight loss. The finishes of the flooring, tiles, toilet seat and grab rails have been chosen to ensure the bathroom is fully contrasted and highlight the difference between key adjacent surfaces.

Photograph courtesy of United Welsh Housing Association

The photographs display a bathroom in a supported housing scheme for people with learning disabilities and sight loss. The finishes of the flooring, tiles, and grab rails have been chosen to ensure the sanitary ware, grab rails and shower are highlighted against the key adjacent surfaces. In this large bathroom, a combination of two tiles have been used to highlight the position of the toilet, sink and grab rails and shower.

Photograph courtesy of Grwp Cynefin.

Stairs

"Highlighting the edges of stairs using nosings helped support the safety and independence of tenants as they could see the edge of the steps on the stairs."
Support worker

Top tips: Key adjacent surfaces to consider when contrasting stairs

- Stair surfaces should contrast against the wall.
- Walls should contrast with the ceiling at the top of the stairs.
- Handrail should contrast against the wall.
- Nosings should contrast against both the tread and the riser. It is preferable to use a lighter coloured nosing that gives sufficient contrast as a dark nosing can give the wrong message.

Top tips: Key areas to consider when contrasting lifts

- Lift car door should contrast against the wall.
- Walls of the lift car should contrast with the floor.
- RNIB recommends a lift floor colour that is higher than 20 LRV. Below 20 LRV results in a dark floor that could be perceived by someone who has learning disabilities and sight loss as an open lift shaft or a hole.
- Control panel should contrast against the walls both internally and externally.
- Lift buttons, numbers and writing should contrast against the control panel.

A lift floor and wall that has been colour and tonally contrasted.

Photograph courtesy of RNIB Cymru

Bedrooms

Choosing bedding and furniture that contrasts against the flooring and walls makes it easier to see the edge of a chair or bed, and also highlights the position of the bed when light levels are low.

Bedding has been chosen to contrast with surrounding finishes and highlight the position of bed to support the tenant with learning disability and sight loss to independently locate the bed.

Photograph courtesy of United Welsh Housing Association

3.3.4 Using colour and tonal contrast to highlight potential obstructions

> "To support the service users' independence and promote safety, it is vital that steps and paths are clearly highlighted using colour and tonal contrast."
> **Care manager**

Any obstructions or hazards should be removed to ensure they are out of walkway routes. If this is not feasible, they should be highlighted appropriately, for example by using tactile flooring and/or colour and tonal contrast. Any dangerous elements such as sharp corners should be covered.

For blind and partially sighted people, hazards can be highlighted by the presence of warnings that can be detected during the sweep of a cane, and a tactile change in the floor surface that can be detected underfoot. In the absence of projections and overhangs, which cannot be detected at ground level, a good colour and tonal contrast with the background will reduce the risk of colliding with items located along an access route. Colour and tonal contrast must be effective when viewed from any direction from which the item may be approached.

The following issues should be considered to remove or highlight potential obstructions:

- Highlight all potential obstructions or hazards by ensuring they contrast against their background when viewed from all directions.
- Ensure all routes are free of potential obstructions where feasible.
- Highlight a column or pillar by incorporating a contrasting band 150mm deep with the bottom edge 1500mm from the ground.
- Low objects, such as bins and plant pots, should be 1000mm high with a contrast band 150mm deep at the top.
- Provide hazard protection, where an object projects into an access route or walkway and the lower front edge is more than 300mm above the floor, by visual contrast and a tapping rail, with its underside no higher than 150 mm above floor level.
- Provide manifestations on glazed doors and screens.
- Contrast the leading edge of doors, including glazed doors, so they are visible when open.

3.3.5 Additional considerations

This section looks at:

- Surface finishes
- The effect lighting has on colour
- Colour and wayfinding
- Colour to increase food intake.

Surface finishes

When planning colour schemes, surface finishes and patterns must be considered carefully at the design stage. Satin or matt finishes are preferable to high gloss, which can cause confusing reflections, and reflect bright light into people's eyes.

Patterned and striped surfaces are often preferred by designers for aesthetic appeal. However, large patterns/striped surfaces can cause confusion. For further information on surface finishes, please see Section 3.5.

The use of textured fabrics, wallpapers and wallcoverings should be considered to provide tactile feedback, support wayfinding, and provide interest within an interior design scheme. For further information on wayfinding, see Section 3.8.

The effect lighting has on colour

Lighting is a key factor when choosing colours as different types of light bulbs can greatly affect the appearance of colours. Therefore a colour scheme that works well and is harmonious in a design studio may not work well on site due to the effect of different lighting.

Different types of lighting can have different effects on colours. For example, incandescent and warm white fluorescent bulbs “intensify warm colours and neutralise cool colours” (Calkins, 2002, p21) and cool white fluorescent bulbs intensify cooler colours such as green and blue.

When selecting colours, it is always best to do this in conjunction with planning lighting schemes or on site if the lighting is already in-situ. Obviously, this is a more difficult process if the lighting is not in-situ but it is well worth setting up an area in an office to test colours using portable light fittings with bulbs that are intended to be used on the scheme. This gives designers an idea of the effect the lighting is likely to have on a planned colour scheme and enables the designer to make any changes if necessary.

If light fittings and bulbs are yet to be specified, it is advisable to use lamps that give a light close to daylight in order that the true colours are seen and not affected by light bulbs. Ensuring the bulb has a colour rendering index of 80 to 90 for general lighting and 60 for lamps will help colours appear close to daylight (Pollock et al, 2008). For further information on lighting, please see Section 3.2.

Colour and wayfinding

Colour can be a good way to provide a theme for a room or corridor in order to support wayfinding (see Section 3.7). However, it should not be used on its own as a wayfinding tool as it cannot be guaranteed that people with learning disabilities and sight loss will be able to determine individual colours (Bright and Cook, 2010).

Instead, colour should be used in conjunction with other wayfinding tools and locational markers to support as many people as possible in wayfinding and orientation (Calkins, 2002).

Colour to increase food intake – advice for housing management, support and care staff

Contrasting kitchen worktops and different colour equipment i.e. toaster, plates means that a person can see where they are and pick them up.

> "Eating was made easier by using contrasting food with dinnerware: mashed potatoes on a dark plate, gravy on a white plate etc."
> **Support staff**

People with learning disabilities and sight loss who have limited or who have limited colour vision may find it difficult to locate a plate on a table, food on a plate or liquid in a container, such as mashed potato on a white plate. Providing visual contrast of crockery against tables, and foods and liquids against crockery can enhance food and liquid intake (Dunne et al, 2003).

When purchasing crockery, it is advisable to consider what foods are likely to be served and to purchase a range of different coloured crockery to ensure that food can be seen clearly against the plate. Cutlery with handles that contrast against crockery and tablecloths can also be purchased to help tenants locate their position on a table.

In kitchen areas, contrasting storage jars can be purchased to highlight the position of tea, coffee and so on. Existing crockery can be highlighted by purchasing contrasting table cloths, table mats and coasters.

A coloured matt and cutlery with coloured handles have been used to help highlight the position of the plate against the table and the cutlery against the matt.

Photograph courtesy of VILD, RNIB Scotland

Storage jars and a kettle have been chosen to highlight the position of the jars against surrounding surfaces, so to support the tenants to independently locate the items in the kitchen in this supported housing scheme for people with learning disabilities and sight loss.

Photograph courtesy of First Choice Housing Association

If photographs of food are used in addition to a written menu, it is advisable that the food is clearly contrasted against the plate to enable as many people as possible to identify the food on the menu.

Case study: colour contrast and management issues

Three ladies with learning disabilities live in a supported housing scheme. Two of the ladies have sight loss.

Following on from training the support staff received on the importance of using contrasting colours, they noticed the ladies were struggling at meals time to locate food on the plate. The support team bought contrasting plates and cutlery. This makes it easier for the ladies to see their cutlery and food, which in turn makes it easier for them to eat independently and enjoy their meals.

One lady really likes the colour purple. The support team managed to find a purple toilet seat, and this provides a good contrast to the white toilet (see image on next page). The lady can now easily locate the toilet, and use this on her own.

Image courtesy of First Choice Housing Association

When the kitchen was recently refitted, the new flooring chosen was a non slip flooring that contrasted with the worktops and kitchen units. However, this particular flooring is extremely difficult to clean. Whilst the colour and tonal contrast is essential for the ladies to move around and use the kitchen, consideration needs to be given to the type of flooring chosen in terms of wear and tear, maintenance and cleaning in such a busy area.

Further reading

Colour and Tonal Contrast. RNIB Cymru/John (2007)

The Colour, Light and Contrast Manual: Designing and Managing Inclusive Built Environments. Bright and Cook (2010)

3.4 Creating colour schemes

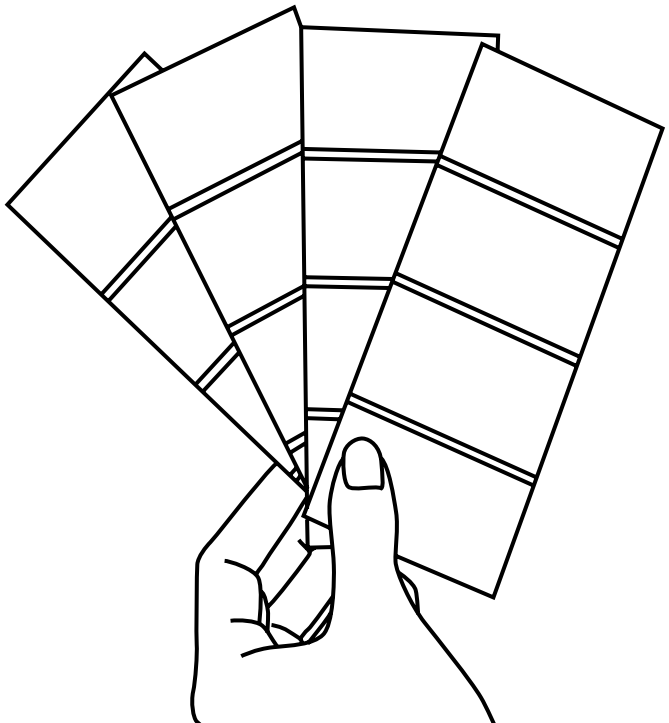
People have personal preferences for colour and, where possible, colour should be planned with involvement and consultation with individuals.

Colours may need to be changed in a scheme at a later date to fit in with personal and cultural preferences as new tenants move in.

This section looks at:

3.4.1 The effects of colour on mood, physiological effects of colour and colour associations.

3.4.2 Creating a harmonious scheme.



Colour can be used to improve an environment and contribute to people's wellbeing. Colour can affect people's moods and can also have physiological effects. Consideration needs to be given to the space and the type of feeling or experience that you want to create in the home.

There is a need for research based on how colour is applied in the home environment to try to understand how people with learning disabilities and sight loss respond to colour, and if there are any which they prefer. For the present, it is appropriate to use the same rules regarding colour and the effects that colour can have on people that can be applied to the general population. This should be done in conjunction with highlighting features, using different colours or tones with sufficient Light Reflectance Value difference (section 3.3.2), to ensure that someone with limited or no colour vision can determine the key features of an area (Bright and Cook, 2010).

The effects of colour on mood

Different shades/tints of lightness or darkness (value) of the same colour (hue) can provoke different feelings, and research should be done on a colour palette before putting it in place to ensure that the particular shade or tint of colours (chroma) will provide a positive atmosphere within an area (see general guidelines on colour below.)

"We used calming, pastel colours in the home – the positives were that the tenant was calmer, slept better and reduced behaviours."
Support staff

Physiological effects of colour

Some colours can have a positive or negative physiological effect on people when they enter a room (see general guidelines on colour below for further information.) If someone is in the room for many hours, the effect may wear off. The effect of colour on the body will have more significance if an individual visits the area rather than stays in it for many hours.

Case study: creating harmonious colour schemes

Andrea has learning disabilities and sight loss. Andrea has limited speech.

The support staff team spent a lot of time working with Andrea and her family in making choices and redecorating her personal rooms in her house. Andrea loves lilac, so this colour was used in her bedroom and it worked really well. It seemed to provide a calming space for Andrea.

In Andrea's lounge, bold, bright and highly-patterned wallpaper was chosen to go on the chimney breast. The support staff team noticed that after this, Andrea became unsettled and anxious when in her lounge. This had not been seen before. After some time, the support staff team considered that the redecoration may have had a negative effect on Andrea. The bold wallpaper was removed and the wall was painted in a calming neutral colour to match the rest of the room. Soon after this, Andrea seemed to be more content is using her lounge.

Colour association

Below are some general guidelines to use as an introduction to thinking about how to use colours.

Colours are often referred to as being warm or cool. For example, greens, blues and purples are cool colours and reds, browns, oranges and yellows are warm colours.

Blue certain lighter and mid shades of blue, can have a calming effect on people when applied in a room. Too much blue or darker shades of blue may be seen as providing a depressing atmosphere. Blue is thought to depress appetites so should not be used in a dining room. Blue can make a room appear larger than it is and can make a room feel several degrees cooler.

Green can reduce central nervous system activity and is one of the most calming colours to use in an area and can make a room appear larger. Bright shades of green can help foster a lively atmosphere. Darker shades of green can have the opposite effect and create rooms that are not relaxing to be in.

Yellow can be associated with joy and happiness. Bright yellow can be associated with danger and cause friction as it is often used to highlight hazards. Yellow can stimulate the brain and make people alert.

Orange can be seen as a warm, earthy colour. Bright shades of orange can bring an energising effect to a room but certain shades or too much orange may produce a room that is not pleasant to sit in. Orange is an appetite stimulant and aids digestion so may be appropriate in a dining room.

“Peters bedroom was decorated in a vibrant orange colour. We realised he didn’t like orange and didn’t like spending time in his bedroom. We have now changed his room and painted in greys, black and whites and he is much more relaxed in his bedroom and spends much more time in his room.”
Support staff

Red can be viewed as an exciting, energising colour, but also as a violent and aggressive colour which can increase brain wave activity and stimulate the production of adrenaline. Red can decrease the apparent size of the room and increase the apparent temperature of a room (Calkins, 2002).

Pink may be seen as a romantic, cosy colour but to others may be seen as sickly and gaudy. Pink can induce feelings of calm and protection and in some cases lessen irritation and aggression.

Purple can be seen as a sensual, sophisticated, dignified and rich colour. Lighter colours such as lavender can be seen as more romantic colours. Violet can suppress hunger and balance the body's metabolism.

Brown can produce a room that is earthy, warm and rustic. Darker browns can be seen as appetising and rich. Some shades of brown can be seen as bland.

White can be seen as a pure, innocent, fresh colour but to others may be seen as stark and boring.

Grey can be seen as a classic, steadfast colour with timeless qualities but can also be seen as depressing.

Cream can be seen as a classic neutral colour but can also be seen to some as bland.

Black may be seen as a stylish and modern colour but to others may be seen as depressing.

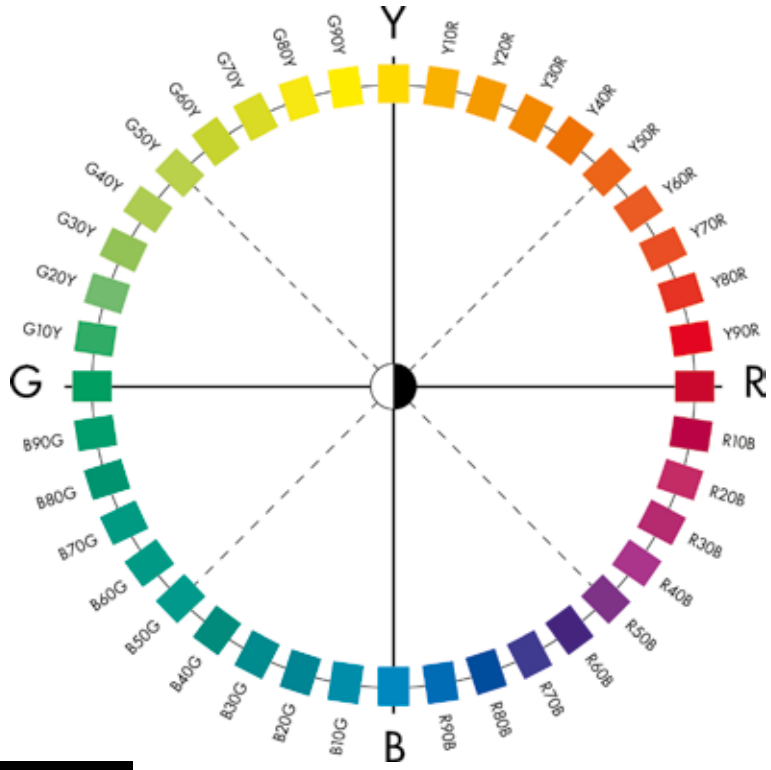
(Sources: Eiseman: 2006; Bonewitz, 2000; Stone et al, 2006; Calkins, 2002)

3.4.2 Creating a harmonious scheme

There are a number of ways of putting together a harmonious colour scheme, such as using colour wheels or copying a combination that works.

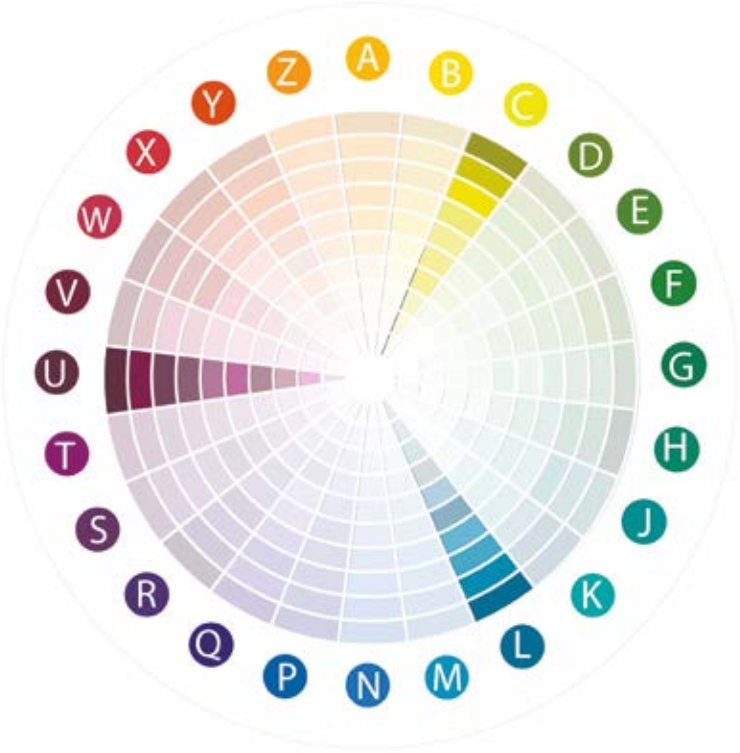
Using a colour wheel

Using a colour wheel can help when planning colour schemes and create harmonious schemes that work well together.



Monochromatic/tonal colour scheme – using colours that are different shades and tints of a single colour. This scheme uses colours from the same 'hue' but which vary in saturation and lightness. The monochromatic scheme is very easy on the eyes, and can produce a calming and soothing effect especially with blue or green hues.

Triadic scheme – using colours that are spaced evenly around the colour wheel can help create a harmonious scheme. As above, it would be appropriate to use one main colour and bring in the two other colours as accent colours.



Contrasting scheme – using shades that are opposite each other on the colour wheel. Equal amounts of the colour should not be used as they can produce a scheme that is too vibrant and clashes, which may not produce a relaxing home environment. It is better to have one main colour and use the other colour for an accent wall, or to pick out smaller features such as cushions, table mats and so on.

Analogous/harmonious scheme – The analogous colour scheme uses colours that are adjacent to each other on the colour wheel. One colour is used as a dominant colour while others are used to enliven the scheme.

Culture and personal preference

Colours can have positive and negative connotations for certain cultures.

Therefore, consideration will need to be given to who will be living in the home. For example, the following colours are seen by different cultures as colours of mourning:

- red – Africa
- blue – Iran
- yellow – Egypt.

In Japan and China white is considered a funeral colour, and in Latin America, purple indicates death (Stone et al, 2006).

People also have personal preferences for colour and, where possible, colour should be planned with individuals in mind or in consultation with individuals. Colours may need to be changed in a scheme at a later date to fit in with cultural and personal preferences as new tenants move in.

Copy a combination that works well

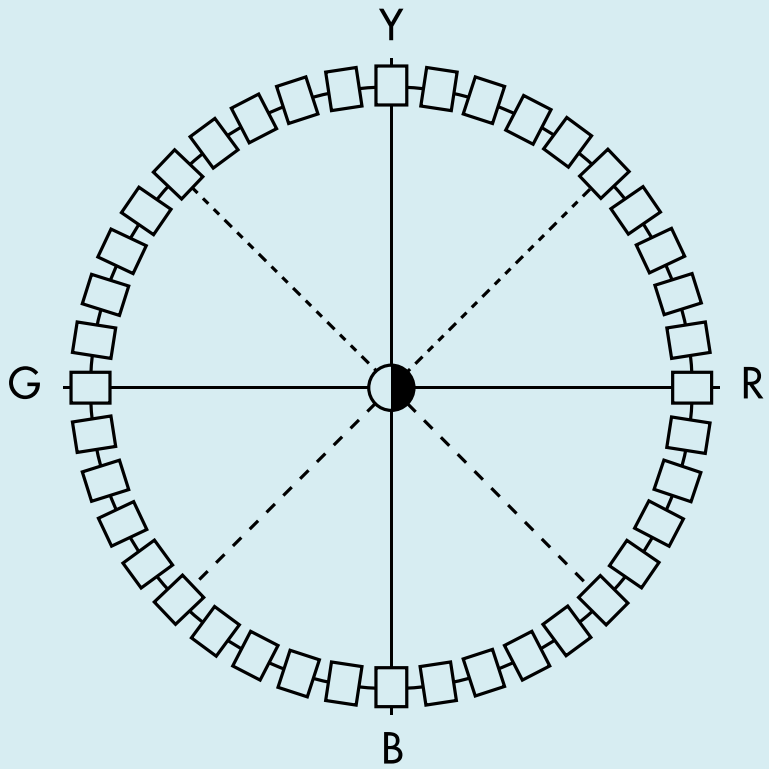
Taking inspiration from an interior design magazine, painting, an image or nature with a series of colours that work well together can be another way of pulling out colours to create a harmonious scheme.

The designer is using paintings and images as inspiration to develop two sets of colour palettes that work well together. This has been done in conjunction with colours having a range of LRVs to ensure key features can be highlighted.

Top tips for choosing colours and interiors

- Plan colours in consultation and involvement with tenants, as people often have a wide and varied dislikes and likes of certain colours.
- When planning colour schemes this should be in conjunction with ensuring things contrast where necessary e.g. if painting a wall, ensure doors will contrast against wall (see Section 3.3 for further advice).
- Keep colours as light as possible whilst still ensuring sufficient contrasts with key adjacent surfaces (see Section 3.3 for further advice).
- Limiting the colour palette to two or three colours can help reduce visually busy environments (Dalke et al, 2004) but beware of overusing one particular colour. For example, the use of only one colour of blue in a bathroom could produce a depressing environment.
- If the whole environment is not being changed, try to co-ordinate colours of existing materials when using paints and selecting other finishes (Dalke et al, 2004).

- “Greyed colours can be very relaxing and stress reducing” (Dalke et al, 2004, p7). Using a colour and adding grey can create a more calming effect in the room that is easier on the eyes. For example, whilst someone may like a vivid pink, the reality is that a room this colour may not produce a calming effect – greying down the colour would create a colour that is more calming and relaxing to the eye when someone is spending long periods of time in a room. The room could then be furnished using accents of vivid pink in the cushions and curtains.
- Purchase testers and paint on wall/A4 paper as paint colours can often look very different on a small sample and under different light conditions (see Section 3.3.6).
- In a new building, test samples under planned lighting finishes (see Section 3.3.6) and in an existing building test colours onsite.
- When looking at samples of interiors, try and get as large a sample as possible as often small samples can look very different on a larger scale.
- Use a range of textures and materials (whilst ensuring that the colours harmonise) to produce a tactile and visually interesting but not a busy environment (Dalke et al, 2004) (see Section 3.7.4).
- Ensure finishes are not shiny, glossy and not too busy (see Section 3.5).



Further reading

Colour: A workshop for artists and designers. Hornung (2005)

Colour, environment and human response: an interdisciplinary understanding of colour and its use as a beneficial element. Manke, (1996)

Colour: messages and meanings. Eiseman (2006)

Colour design workbook: A real world guide to using color in graphic design. Stone et al, (2006)

Lighting and colour for hospital design. Dalke et a (2004)

3.5 Surfaces

This section considers the impact of:

3.5.1 Patterns

3.5.2 Finishes

3.5.3 Change in surface

3.5.4 Acoustic and frictional qualities

3.5.5 Thresholds

3.5.6 Changes in levels

3.5.7 Nosings on steps and stairs

When choosing products, fixtures and fittings, and putting together specifications, much care should be taken to ensure surfaces do not cause difficulties for individuals with learning disabilities and sight loss. Surfaces used should be plain, safe, easy to clean and anti-slip even when wet.

3.5.1 Patterns

"Patterned interiors, busy kitchen worktops and white on white in bathrooms cause problems for tenants"
Support worker

"When we first moved in, there were highly patterned carpets. We installed handrails, plain carpets, objects of reference and textured walls to support wayfinding, and made sure furniture had rounded edges and doors had hinge protectors. As a result, the lady with learning disabilities and sight loss was able to have more confidence when walking from her room to her kitchen."
Support staff

Busy and geometric patterns can cause confusion, distraction, and affect how someone uses a space and hinder wayfinding for people with learning disabilities and sight loss. For example:

- some individuals will find it very difficult to walk on patterned or striped flooring. A busy floor surface can lead to someone falling or stumbling
- speckled worktops in kitchens can make it difficult for some individuals to locate items on a work surface.

This does not mean the environment has to be plain and uninteresting. The use of fabrics and wall coverings with varying textures and tonal changes can help create interesting interior design schemes (Calkins, 2002).

Patterns with subtle colour changes are acceptable. Care should be taken that the colour changes are subtle and that the colours within the pattern have a difference of less than 20 Light Reflectance Value (LRV) points if lighting is 100 lux, and 15 points if lighting reaches 200 lux, which are below the minimum levels at which contrast is discerned (Bright and Cook, 2010). However, as lux levels can sometimes vary due to bulbs failing or losing output over time, it is recommended that using colours with 15 LRV points difference would be the better option to help ensure that a patterned surface will not cause problems for someone with learning disabilities and sight loss. For example, using different tones in patterns with similar LRV points would provide a more subtle option. Section 3.3.2 explains more about colour contrast.

Case study - speckled worktops and high/low worktop issues

Susan has Down's Syndrome and Kerataconus.

Susan loves cooking and she loves to be independent when preparing food, making hot drinks and carrying out other daily living activities in the kitchen. The kitchen work top had a highly speckled pattern and when Susan placed items on this surface, they disappeared. She couldn't find them unless she searched and swept them with her hand to locate them tactilely. Having the opportunity to observe Susan making a cup of tea in the kitchen illustrated the difficulties she had within the kitchen environment.

The worktop unit was split level and there was no differentiation to indicate the end of one surface or to highlight height difference. This resulted in Susan placing items on what appeared to Susan to be a continuous surface area when in fact there was a drop of around 40cm. This was hazardous and potentially dangerous when placing items on the surface such as a boiled kettle or cup of tea.

Having observed Susan, RNIB recommended changing the worktop for a plain worktop and omitting the height adjustable lower worktop. Although keeping the height adjustable worktop would future-proof the property for future tenants, it is likely that the current tenants will be living in the property in the long term. On consultation with the Housing Association maintenance manager, the house manager and her support team, they felt the space underneath could be better utilised within the current kitchen set up and provide much needed storage. More importantly, as Susan was having problems with the different levels of kitchen worktops, a level surface would alleviate this problem.

The worktop was changed for a plain worktop that contrasted with both the units and the flooring. The new work top is trendy and modern, but more importantly is plain and matt, and Susan can more easily identify and pick up objects. The change in worktops and level work surface, alongside the purchase of contrasting items, has made it possible for Susan to be more independent when preparing and cooking food and making cups of tea and coffee.

Top tips: Avoid patterns, speckled surfaces and stripes

- Patterned carpets may cause confusion as they may be seen as a change in level or steps.
- Carpet tiles can cause geometrical patterns which could cause confusion to some individuals.
- Strong contrasting borders that cross over entrances to rooms may be seen by some individuals as steps.
- Avoid bold patterns.
- If in doubt, it is best to avoid a patterned surface and select a different finish rather than building in a potential problem.
- Avoid patterned or speckled worktops in kitchens as individuals may not be able to find items on the surfaces.
- Avoid stripes on floors as they could be seen as a series of steps.

3.5.2 Finishes

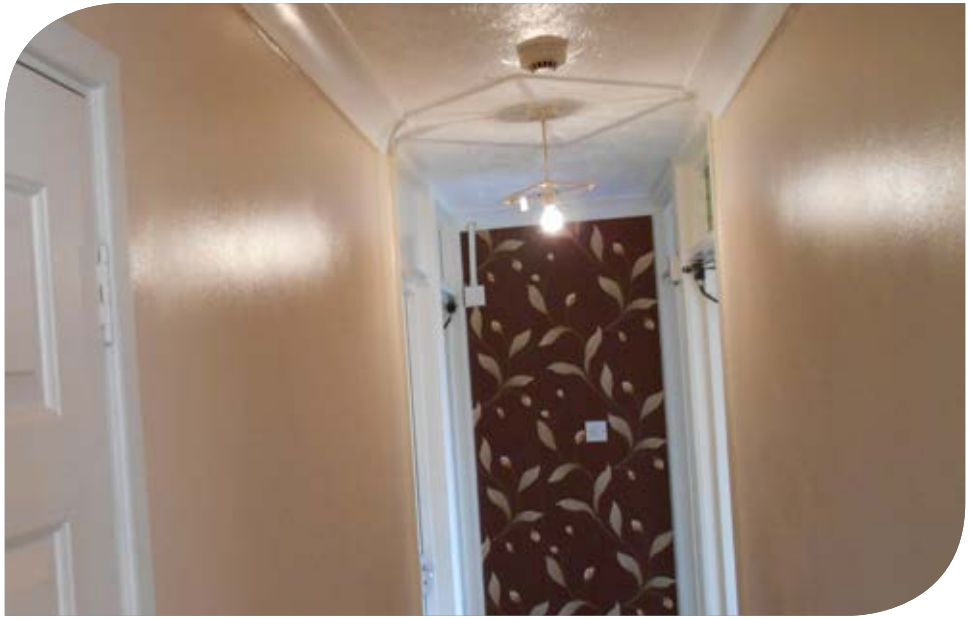
"Shiny surfaces reflect light and patterned surfaces affect the task which causes difficulties for the tenants with learning disabilities and sight loss."
Support worker

"Sometimes makes it more difficult for service users to see objects on shiny surfaces."
Support staff

Shiny and gloss surface finishes should be avoided as they can be a source of glare and reflections, and cause confusion for people with learning disabilities and sight loss. The use of matt surface finishes will minimise risk.

Using a range of different materials such as wood, rather than using glossy surfaces, can help ensure areas are interesting but will not cause problems for individuals with learning disabilities and sight loss.

Note: The use of gloss and mid-sheen paint is often preferred over matt paint for maintenance reasons. Matt paint is less hard-wearing, and tends to need more regular upkeep. Where possible, use matte surfaces, as even mid-sheen surfaces can cause pooling of light, which can be confusing for people with sight loss and learning disabilities.



Pools of light on wall caused by the use of a satin paint finish. The patterned finish on the wall at the end of the corridor could cause confusion.

Reflections on tiles caused by the use of tiles in a gloss finish.

Case study: patterned and shiny surfaces

Following visual awareness training by RNIB, the manager of a learning disability day service made simple and low cost changes to the dining room. The manager changed the tablecloths in the dining room, which were originally shiny and highly patterned. She changed them to plain self-coloured matt finish which contrasted against the floor.

With a bit of thought and using what she had in the cupboards she was able to plan mealtimes and ensure that contrasted plates and cutlery was used dependant on the meal being prepared, for example macaroni cheese on a blue plate so that it stands out. She says “gone are the days of orange juice in an orange cup!” She reports that mealtimes are now a much more pleasant and relaxed experience for everyone.

Top tip: Surface finishes

When choosing any product or finish for the home, where possible, matt and plain surfaces should always be selected.

3.5.3 Change in surface

Changes in texture underfoot provide excellent orientation clues (Gray et al, 2007).

For people with learning disabilities and sight loss the use of tonal contrast and/or change of texture on floor finishes can assist determination of location, definition of areas, and help locate particular features, such as the location of bedroom or kitchen. For further information, see Section 3.7 Wayfinding.

"Using the same flooring in communal areas, and then using carpet in the bedrooms, helps assist tenants in knowing they are in their bedrooms."
Carer

3.5.4 Acoustic and frictional qualities

Different flooring emits different sounds when walked on. The different acoustics assists some blind and partially sighted individuals in the identification of rooms, orientation, and navigation when they are in the room. For example, different flooring in the bedroom to the rest of the house would help someone know that they were in the bedroom due to the change in sound and change of texture underfoot.

Changes in floor surfaces that have different friction coefficients can cause people to stumble, fall or lose balance. Care must be taken that surfaces abutting each other have similar frictional characteristics. If surrounding surfaces do not have similar frictional characteristics, the two surfaces should contrast visually to highlight the change in surface and reduce the potential for an incident (BSI 2009+A1:2010). That is, the two surfaces should have LRV that are different by 30 or more (see Section 3.3). This highlights the change in surface and reduces the potential for a slip, trip or fall.

However, for some people with learning disabilities and sight loss, changes in flooring surfaces can increase visual-spatial difficulties that cause people to avoid areas, step or jump over areas. Carpet rods, changes in colour of surfaces, threshold strips, dark contrasting borders and manholes can cause individuals to think there is a change in level, step or hole which can lead to falls and other accidents. While the recommendation in the above paragraph supports most individuals by highlighting the change in surface, it may cause problems for other individuals with learning disabilities and sight loss, who may find the change in surface difficult to interpret and see the change in surface as a step. For this reason, handrails should also be provided for support, and carers should be made aware that such areas could cause difficulties for some individuals.

Manholes can be perceived as obstructions or holes. A manhole cover in the same material as the paving slab would be preferable. The manhole cover in the picture on the right has been covered using the same material as the surrounding surface which is a good feature.

This manhole cover in the picture on the right has been covered using the same material as the surrounding surface.

3.5.5 Thresholds

Unless suitably designed, the entrance/exits into buildings can often be a barrier to access for people with learning disability and sight loss. We recommend level thresholds at entrances to support people with a learning disability and sight loss in negotiating entrances.

Threshold strips at entrances to buildings can often be trip hazards and a barrier for wheelchair users. In new buildings, and when refurbishing or maintaining housing, we recommend level thresholds in accordance with the recommendations within Part M and BS8300 (BSI 2009+A1:2010).

Part M Building Regulations recommend that thresholds should be level or, if this is unavoidable, they should have an up-stand height of up to15mm (HM Government, 2010 and HM Government, 2013). If raised, the threshold should have as few up-stands and slopes as practicable. Any up-stand more than 5mm high should have exposed edges chamfered or pencil rounded (BSI 2009+A1:2010). Where raised thresholds are in accordance with the above recommendations, ensuring they are the same colour as the surrounding area would help prevent a threshold strip becoming a visual barrier.

Where thresholds cannot meet this standard in an existing building, they have the potential to cause a trip or fall. These areas should be highlighted in a contrasting colour to the surrounding area of 30 points or more to highlight the potential hazard (see Section 3.3).

However some people with learning disabilities and sight loss could find the highlighted area a visual barrier. For the majority of users, however, they are necessary to highlight the potential trip hazard.

Case study: level thresholds and uneven surfaces

Peter has a profound level of learning disability, where behaviours can be challenging. He communicates using vocalisation, and has a diagnosis of tunnel vision. He lives in a shared house with John, who also has learning disabilities and sight loss. Recently, John had to start using a wheelchair.

The carers have asked the Housing Association maintenance department for a level threshold leading from the patio door to the lounge, as Peter likes to independently go out into the garden in the summer but he keeps tripping over the high threshold of the patio door. The maintenance department have told the care team that due to the construction of the building, they cannot provide a level threshold via the patio door. Creating level access via the lounge through the patio door would support Peter's independence, and promote safety by allowing him to be able to access the garden safely and independently. Additionally, as John uses a wheelchair, he is unable to go outside directly through the patio door and has to use the front door. The level threshold would be of great benefit to both John and support staff as John could be taken directly outside. Due to the construction of the building, this could be an expensive option. However, it is something that should be considered to promote Peter and John's independence and quality of life and future-proofing the property in the long-term.

Within the garden, there is an area of decking that butts onto a tarmaced area – currently the two surfaces are not level and they are a trip hazard for Peter when he is in the garden. Peter has tripped over this change in surface. As Peter enjoys using the garden, ideally this area should be re-levelled to promote his safety and independence.

3.5.6 Changes in levels

Changes in levels such as steps, ramps and pedestrian crossing points should be highlighted by clearly contrasting surfaces. Where appropriate, tactile surfaces should be used in line with the guidance for pedestrian crossing points and external steps.

Caution: When using tactile flooring to highlight the position of external steps, “the friction coefficient of the corduroy surface should be a ‘similar friction coefficient’ to the surrounding surfaces to reduce the potential for stumbling or falling” (Alderson, 2010, p38).

Generally, tactile flooring at the top and bottom of internal stairs is not recommended, as it can be difficult to source a tactile corduroy surface that has similar frictional characteristic to internal flooring surfaces.

It must be noted that tactile flooring surfaces may cause problems for some individuals with a learning disability and sight loss who may have difficulty interpreting and walking on the change in surface. For the majority of users however, they are necessary to highlight that there is a change in level, or a crossing point.

Tactile paving at pedestrian crossing points is often laid incorrectly and sometimes unsuitable materials are used. This can cause confusion for blind and partially sighted people and also pose a potential trip or slip hazard.

When designing pedestrian crossings and using tactile paving, please refer to Guidance on the use of tactile paving surfaces (DfT and Scottish Government, 2005, revised 2007).

3.5.7 Nosings on steps and stairs

People with learning disabilities and sight loss often have great difficulty with depth perception and in particular when using steps and stairs. In order to highlight the edge of the steps and stairs, it is highly advisable that nosings are fitted.

Steps

Consideration will need to be given to highlighting the edge of the steps and stairs with nosings. Care needs to be taken that fitting nosings on top of steps/stairs do not cause a trip hazard in itself. We recommend that nosings need to sit flush with the surrounding surface so not to cause a trip hazard. This may involve resurfacing the rest of the steps. (Please see BS830, BSI 2009+A1:2010 for further recommendations). Paint could be used, but care will need to be taken that it does not create a

slippery surface when it is wet. Paint is also likely to need constant maintenance as it can wear off if the route is in continual use.

The edge of the step/stair should be fitted with a colour contrasted nosing on the edge of each tread and riser that continues across the full width of the step (RNIB/Rees and Lewis, 2003). Nosings should be contrasted in colour and tone against the step finish (with an LRV point difference of over 30). The material/paint should be 50mm to 65mm wide on the tread and 30mm to 55mm on the riser (BSI 2009+A1:2010). The whole tread or the nosing should incorporate a slip resistant material, starting as close as practicable to the front edge of the nosing and extending the full width of the tread.

Colour contrast will aid with identification and help ensure a clear distinction can be made between each step and riser. The use of reflective materials, such as metal strips, are not suitable as they can be slippery and also produce glare that can be visually uncomfortable.

Edge of steps on stairs highlighted by contrasting nosings and handrail highlighted by a colour that clearly contrasts with the wall. The colour contrasted nosing that wraps around both the tread and the riser of the step is an excellent feature that clearly highlights the position of the edge of the step against the carpet. This assists people in locating the edge of the steps when going up and down the stairs.

Photograph courtesy of United Welsh Housing Association

Further guidance and reading

Guidance of the use of tactile paving surface. DfT and Scottish Government (2005, revised 2007)

The Design of Streets with Older People in Mind: Design Guide 003 – Tactile Paving. IDGO (2012)

BS8300 Design of buildings and their approaches to meet the needs of disabled people – Code of practice. (BSI 2009+A1:2010)

Stairs, ramps and escalators: Inclusive Design Guidance. Alderson (2010)

3.6 Acoustics

This section looks at:

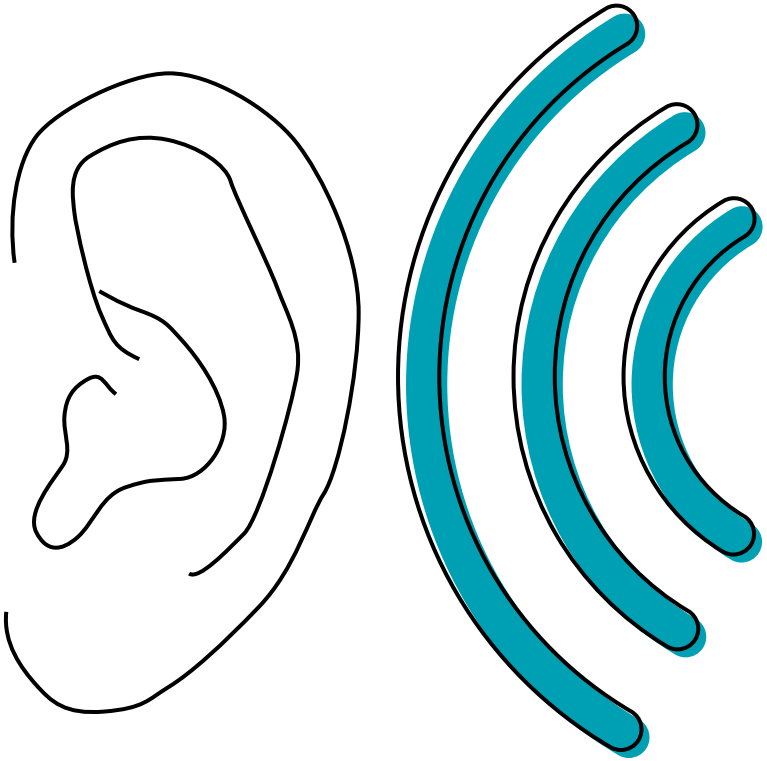
3.6.1 Planning the environment to create good acoustics

3.6.2 Materials with acoustic absorbing properties

3.6.3 Transmission and insulation

3.6.4 Management of excess noise

3.6.5 Hearing enhancement systems



3.6.1 Planning the environment to create good acoustics

“ Acoustics needs to be thought of, as people with learning disabilities and sight loss may also have hearing loss. Echoey areas with lots of hard surfaces can be difficult to manage in a home situation, where there are a number of people, carers, and the television is on or it’s tea time and noisy areas can create confusing situations for tenants. Carers need to be aware of this and reduce the number of appliances, such as washing machines, being used at meal times to reduce sounds.”
Manager, Vision Homes

Creating a home with good acoustics can help ensure that people with learning disabilities and sight loss and/or hearing loss can maximise their understanding of the environment by using their hearing/or available hearing as effectively as possible.

The hard materials that are often used in buildings for ceilings, walls and floors can reflect sound and create a noisy environment, making noise ‘bounce around’. For people with learning disabilities and sight loss, who may also have hearing loss, this can make effective hearing difficult or impossible, can cause confusion, auditory over-stimulation, agitation and distress, which in turn can make it difficult for people to hear what is being said and to interpret the environment around them.

“I believe that service users who are blind or partially sighted find it very difficult to cope with too many noises and high levels of noise. It affects their ability to listen, concentrate, take part in an activity, relax and sleep.”
Support worker

“High levels of noise disrupt concentration, causes irritation and block verbal communication.”
Support worker

“Noisy rooms can cause service users to be over stimulated, not focused, become agitated and be vocal and sometimes start crying.”
Support staff

When planning finishes, it is important that the acoustic design is taken into account so that excessive noise is reduced, reverberation and echo effects are minimised, individual spaces are private, and speech can be heard against background noise (BSI 2009+A1:2010).

There are three areas to consider when planning for good acoustics:

- Absorption – the extent to which sound is absorbed through a material
- Transmission – the extent to which sound is carried from one area to another
- Insulation – the extent to which walls, floors and ceilings can prevent the transmission of noise (McManus and McCleganhan, 2010)

3.6.2 Materials with acoustic absorbing properties

Materials can be chosen to absorb noise and provide a building that has good acoustics. Acoustic ceiling tiles can help absorb sound, but if the room is filled with other hard surfaces that do not absorb sound, then the sound "will reverberate for a long time before the ceiling has any effect" (Briller et al, 2001, p29).

Therefore acoustic treatments should be considered for walls and floors in addition to the ceiling.

Acoustic ceiling tiles used in an extra care home dining room.

Photographs courtesy of Grwp Cynefin

Materials that reduce reverberation times are essential, particularly for larger spaces such as reception areas, communal lounges and dining areas and also in bathroom areas where acoustics can be a problem. Materials that reduce reverberation times absorb sound and minimise the amount of reflection, reducing the amount of reverberation in an area. This reduces the ambient noise level and improves speech intelligibility (Acoustics at Work, 2011).

Top tips: Acoustic treatments to consider

- Acoustic non slip flooring.
- Acoustic wall panels.
- Acoustic ceiling panels.
- Fire proofed wall hangings.
- Carpets.
- Soft furnishings used on chairs and sofas.
- Blinds.
- Curtains in addition to blinds.
- Fabric pelmet over window in bathroom.
- Use fabric table clothes to absorb sound.
- Lined curtains.

3.6.3 Transmission and insulation

Considerations whilst planning and constructing a building:

- Consider the acoustic separation of noisy rooms such as laundries, lift motor rooms, plant rooms and other communal spaces from tenants' living, sitting and sleeping areas (Nicholson et al, 2008).
- Consider having a separate utility area to keep out the noise of the washing machine and tumble drier.
- If layout permits, try to ensure that the living rooms of two adjoining flats are next to each other, and bedrooms of adjoining flats are next to bedrooms (Nicholson et al, 2008).
- Ensure individual rooms are sound insulated to prevent noise from bedrooms/flats transmitting to other rooms or communal areas.
- Use materials with high sound insulation value such as those with a high mass. This includes concrete, dense plaster boards and brickwork.
- Ensure that there are no gaps around doors and seal doors.

- Fill open mortar joints between walls and ceilings.
- Two skins of brickwork with a gap.
- Floating floors.

(McManus and McCleganhan, 2010)

3.6.4 Management of excess noise

Excess noise can greatly affect people with learning disabilities and sight loss, particularly for those with hearing loss who have hearing aids, as the devices can magnify the sound (Briller et al, 2001). For example, having the television on in a communal area can cause difficulties, for some people with learning disabilities who find constant background noise irritating. Some may not be able to screen out the sound in order to hear other sounds. Ideally, in a home there would be a utility room to keep noise away from other areas and rooms, and two lounges to ensure that if a tenant wanted peace and quiet, they had the opportunity to get away from noise without having to go to their bedroom (see Section 3.9 Mono-functional rooms).

Case study: acoustics

Susan is a lady who has Down's Syndrome and Kerataconus and is registered as partially sighted. Susan will not turn her bathroom light on at all as it is connected to the fan. Susan told us she does not like the sound of the fan. If the light is not turned on, this could put Susan at risk of falling and accidents, especially at night time.

Fitting a silent/quiet extractor fan could help alleviate this problem and enable Susan to use her bathroom safely.

Top tips to minimise background noise

- Use table mats, tablecloths and coasters to reduce noise at mealtimes.
- Using vibrating call systems and personal pagers.
- Setting mobile phones on vibrate.
- Turning down volume on phone rings where appropriate.
- Keeping noisy tasks, such as using the vacuum, tumble drier and washing machine when tenants are not socialising
- Positioning activity and dining areas away from bedrooms
- Keeping noisy activities away from communal areas such as main communal kitchen and delivery points.
- Create reserved quiet areas without televisions where tenants can hold conversations.
- Sound proofing waste ducts and pipes to limit sounds.
- Using doorbells or door entry systems that do not ring throughout the building.
- Purchase quiet white goods and products e.g. low vibration washing machines, dishwasher with quiet cycle, thermal fast boil kettle, soft close toilet seat, and silent extractor fan.

(Briller et al, 2001; Bakker, 2003)

3.6.5 Hearing enhancement systems

There are a number of hearing enhancement systems such as an induction loop, infrared or radio transmissions, that can be incorporated in communal areas to assist people with hearing loss. In a home site, an induction loop system or infrared system can be used. An induction loop system is often a popular choice as they assist people with hearing aids and do not need specialist equipment. However, they can prove problematical and pick up overspill from other rooms, be susceptible to electromagnetic interference such as dimmer switches and fluorescent lighting, and produce an unpredictable sound for the user. Infrared systems can provide an alternative option but they will need a neckline transmitter which will need to be purchased by the housing organisation.

When sourcing the correct type of hearing enhancement system, specialist advice should be sought as early as possible during planning of new builds/refurbishment/maintenance, to ensure any cables and devices can be built into a scheme. For example:

- Induction loop systems should be installed in the TV rooms, in communal rooms and in reception areas
- Telephones used should be fitted with induction loops or specially designed for people with hearing loss.

(Action on Hearing Loss/Echalier, 2012).

Further Advice on hearing loop systems

The UK's leading hearing loss charity, Action on Hearing Loss, can advise on hearing loop systems. For more information go to **actiononhearingloss.org.uk/supporting-you/products-andequipment/loop-systems.aspx**

3.7 Wayfinding

This section looks at:

3.7.1 Multi-sensory wayfinding

3.7.2 Examples of multi-sensory cues

3.7.3 Design issues to be considered

3.7.1 Multi-sensory wayfinding

"My client has no vision and therefore tactile features, multisensory wayfinding tools, level thresholds, and ramped areas, rather than steps and handrails, are vital to foster his independence and support wayfinding both in the home and in the garden."
Support staff

"Artwork is often developed by tenants to support wayfinding."
Support worker

"Where necessary thought is given to tactile markers that signify activity and places. Keep furniture in the same place because if it is moved, this could cause difficulties for someone who is using furniture as a landmark. Obstructions, bins, doors, windows left ajar, low coffee tables and electrical leads can be hazards – these things should be kept off trails or routes for individuals. Landmarks used by service users are clear of obstructions and are not to be moved."
Manager, Vision Homes

The promotion of appropriately placed layers of multi-sensory wayfinding cues, in addition to signage (see Section 3.8) that represent all the senses, can help support individuals to orientate themselves around the internal and external environment. Sounds, touch, sight and smells can all be used as a wayfinding strategy to help people with orientation of place, time and day. They can also help to make use of residual vision and other senses, tactile, auditory and olfactory (touch, sound and smell).

Many wayfinding tools can be integrated into the home at minimal cost e.g. wind chime by back door, individual pictures in each room, textured border to aid trailing, paint feature wall by front door. This can be developed with tenants to ensure what is put into the home will support wayfinding.

Due to the wide and varied effects of learning disabilities and sight loss, and the fact that some people with learning disabilities and sight loss may also have hearing loss, there is not a prescriptive way that will help all individuals with wayfinding. Some people need or prefer more tactile sensory input, whilst others need more visual sensory input. It is therefore important to incorporate layers of wayfinding cues in buildings to help maximise the number of individuals who will be able to orientate themselves around the home environment.

While homes can be built to meet the needs of people with learning disabilities and sight loss, they should also be flexible in order that they can be changed/altered to suit people's needs. For example, wayfinding pictures should go in afterwards in conjunction with the tenant.

Buildings contain permanent landmarks such as doors and walls and clues which may be temporary or appear and disappear such as waste paper bins, the smell of food, or the sound of tea being prepared, television (Gray et al, 2007). Temporary clues can be misleading and, where possible, smells and sounds should be consistent to support wayfinding and orientation e.g. water feature should be switched on permanently in a hall.

A textured piece of artwork has been placed within a newly refurbished bathroom to support wayfinding. The artwork was in the bathroom before it was refurbished. The blue and green colours were used as a basis for choosing the new colour scheme of the tiles, flooring and paintwork and the artwork was kept in the new bathroom scheme to provide familiarity and support wayfinding.

Photograph courtesy of United Welsh Housing Association

Artwork depicting coffee cups have been placed on the walls in a kitchen to promote wayfinding.

Photographs courtesy of United Welsh Housing Association

3.7.2 Examples of multi-sensory cues

Top tips: Multi-sensory cues

- Design features which help make external and internal areas distinct. For example, front entrance has distinctive features and is finished in different materials to highlight the front entrance, different colours in corridors/rooms, feature walls, distinctive murals, pictures, distinctive furniture, doors in a bright colour/distinct colour can be used throughout building.
- Distinctive features of door such as colour, door design, coloured alcoves, clear door number.
- Feature walls in different colours – these should have an LRV difference of 20 or more if possible to enable those with limited colour vision or no colour vision to identify the feature walls (see section 3.3).
- Non-glare lighting above or to the side of front door.

- Seating needs to be in the right place and must not be an obstruction or hazard – people need to feel they have a reason to sit there. For example, outside an entrance, outside a lift, in a recessed area along a corridor to provide a resting place along routes, overlooking views to the outside.
- Designing zones in lounges for specific activities would produce easier to understand areas, such as a reading area/library or a computer area (Torrington, 2009).
- Layouts of rooms should stay the same – this will aid people with trailing and support wayfinding.
- Storage should be provided to reduce clutter, and ensure items used for activities are not on permanent display, which can confuse the space.
- Underfoot cues – For example tactile walkway or paving in a garden, and different flooring in bedroom to denote that you are in the bedroom (see Section 5.3)
- Tactile features can be incorporated into an environment. For example, handrails, tactile studs at ends of handrails, and tactile wallpaper placed at the end of a corridor.
- Adding an object of reference that can be touched and examined outside a room to highlight the room's purpose such as, a sponge outside a bathroom, a hairbrush outside a hairdressers. These should be placed at a height suitable for tenants and should be securely fixed so not to cause an obstruction or trip hazard if left on the floor.
- Rooms have distinctive signage with symbols. Examples include picture of book placed on library door, picture of scissors placed on hairdresser's door (see Section 3.8).
- Remove Perspex/glass from pictures to prevent glare.
- If signs are laminated, use a matt finish laminate
- Personalisation of someone's bedroom/ apartment door can help support people to find their way independently back to their room (RNIB/Rees and Lewis, 2003). Memory boxes or shelf/sill placed outside door with personal artefacts. Tenants should be encouraged to personalise their doors to help ensure they are able to locate these wayfinding tools. Placing a name on front of a door on A4 page in large print.

- Wind chime placed near the door so that when door opens the wind chime makes a sound to signify to people someone is entering a particular room.
- A water feature in garden.
- Large distinctive ticking clock at the end of a corridor.
- Scented plants.
- Using electric scented plug-ins or scented sachets with particular scents for particular rooms could help some recognise where they are by the scent.
- Using specific cues for different activities can help tenants identify when a specific activity or part of the daily routine is about to commence and can support wayfinding e.g. specific piece of music played before a daily exercise routine, large musical note placed on wall and aromatherapy oil used to signify music session.

Note: any wayfinding tools should be placed out of the main line of walk and should not be an obstruction.

Photograph – Plants are placed behind handrails in order that people can feel them when they brush past them. This signifies to some individuals that have little or no residual sight that they are by the door to the corridor that leads to the toilet and lift.

Photograph courtesy of Shaw Trust

A rope has been placed on the end of the handrail to act as a tactile marker and indicate a change of direction.

A tactile marker has been placed along a corridor to aid trailing and support wayfinding.

Photographs courtesy of VILD, RNIB Scotland

3.7.3 Design issues to be considered

When planning any wayfinding cues please ensure:

- Wayfinding tools can be seen from as many directions as possible.
- That wayfinding tools stand out from their environment. For example, for a wayfinding tool such as a clock or a picture to be seen, it must stand out against its background.
- Ensure the wayfinding tools are free of visual clutter around them. For example, do not place a wayfinding tool next to a notice board.
- Set any wayfinding tools back from the main line of walk so that they are not obstructions.
- Wayfinding tools should be permanent features to ensure that they can be relied upon, e.g., scented plug-in always left on, water feature always left on in a hall.
- Use colour and tonal contrast alongside good lighting.

- When using sounds in an environment, it is important to consider the needs of people with hearing loss to ensure that sounds do not cause agitation or cause sounds to resonate in someone's ear.
- Too much sound in an environment can be confusing and may prevent people from picking up useful pieces of sound information. For example, having a television permanently on in a room can reduce the impact of other useful sounds.

Visual clutter– advice for housing management, care and support staff

"Minimal clutter in the home makes it easier for tenants to use areas."
Support staff

"Too much equipment and furniture in an area limits service users and has a negative effect on service users safety and independence."
Support staff

A complex visual environment can overload individuals with visual stimuli, which can act as barrier to individuals finding their way around the environment and/or determining a room's function or use. The strategy "less is more" is one to adopt when designing areas and choosing furnishings and accessories (perkins.org, 2013). The design and layout of a home should be easy to understand and interpret. Furnishings and accessories should be chosen and placed carefully to ensure that an area is not visually cluttered.

3.8 Signage

This section looks at:

3.8.1 Introduction to signage

3.8.2 Different types of signs

3.8.3 Placement of signs

3.8.4 Additional considerations:

- Use of symbols
- Colour coding of signage
- Objects of reference
- Visual clutter
- Additional markers
- Display/Notice boards

Signage systems may not be applicable in its entirety for individual houses for people with learning disabilities and sight loss, as many small scale homes do not have or require signage systems. In many cases, designing “home-made” signage and/or symbol systems can be an excellent tool to aid wayfinding and orientation around the home – where possible this should be done by involving and consulting tenants to maximise wayfinding around the home. The principles within this section provide guidance when designing any signage system from small-scale individual homes to large-scale housing schemes.

3.8.1 Introduction to signage

Signage can play a key part in helping people with learning disabilities and sight loss to find their way around internal and external environments. Signage in conjunction with other multi-sensory wayfinding cues (see Section 3.7) can also play a part in helping people maximise their independence.

The basic principles of good signs and sign systems are the same for people with learning disabilities as everyone else.

Signs should be:

- Clear (easy to see and understand)
- Concise (simple, short and to the point)
- Consistent "(signs meaning the same thing should always appear the same)" (DRC, 2004, p. 11; Barker and Fraser, 2000).

Top tips for planning an accessible signage system

- Sans serif text should be used.
- Lines of text should be ranged left (unjustified).
- Letters, symbols and pictograms should contrast visually with the signboard. Light colour text and symbols on a dark background are the preferred option.
- The sign board should contrast against its background. If this is not achievable, then a visually-contrasting border should be placed around the sign.
- "A difference in LRV of 70 points between the letters, symbols or pictograms and the signboard, and between the signboard and the background, ensures good visual contrast" (BSI 2009+A1:2010, p68).
- Signage for information or direction should not be similar colours to safety signage.

- Sentences or single word messages should begin with an upper case letter and continue with lower case letters. Words entirely in upper case type (capitals) should be avoided. Start each main word with a capital, ie: Therapy Room.
- Messages should be kept as simple as possible. Information should be kept as concise as possible with the maximum of 12-14 letters per line or two to three words per line.
- Tactile symbols incorporated within the design of a sign such as a bath, toilet or television, could greatly assist people with the purpose of rooms. Additionally, braille lettering could be placed around the home/development to further assist in wayfinding for those with sight loss.
- Braille can be integrated into the accessible sign. Tactile symbol, tactile text with Grade I braille directly below ranged left below the text.
- The placement of signs should be consistent in terms of height and position (1400mm – 1700mm from finished floor level) and should be placed on the door and/or next to the door latch, where the door will regularly be open to allow the sign to be seen at all times.

Note: When designing “home made” signage/ and or symbols, these heights may need to differ to suit specific tenants needs.

- Signage should have a non-glare coating to make signs easy to read. Signage should be positioned not to receive glare from natural daylighting and artificial lighting. Suspended signs should not be placed against a light source to avoid glare.
- Where suspended signs are used, lower level tactile signs should also be considered as suspended signs can be very difficult for users with a visual impairment to locate and read.
- Where signage is placed externally, it should be lit by diffused light fittings that do not cause glare.

Note: When considering signage it is often more cost effective and aesthetically better to start with an accessible sign that includes the raised symbol, raised text and braille rather than trying to retro-fit after.

3.8.2 Different types of signs

There are four main types of signage that can form part of the external and internal wayfinding strategy to help tenants, staff and visitors negotiate their way around the environment.

Information signs are the main signs for orientation, eg building and car park signs, directory, map. They should include brief instructions to help people find lifts, ramps and staircases.

Directional signs direct people to destinations using arrows and text. Corridors should have signs at each point of entry and key decision points.

Identification signs are used for numbering or naming rooms.

Safety signs are warning or prohibition signs, positioned at strategic points to give safety information or warn of a hazard.

Photographs courtesy of MK Design

Audible signage may be considered to help highlight a room's position or location within a building. Its volume must not be too loud to cause auditory clutter. Care should also be taken that the voice used is gentle and that signage does not startle or frighten tenants. Audible signage can be integrated into the accessible signage however, the method of triggering is to be considered. If triggered by motion sensors or infra-red, then the sign can be playing all the time. If triggered by push button, then the user needs to be able to find the activation button.

"We use different pictures outside each rooms depicting the rooms, purpose to support wayfinding, for example a picture of a kettle outside the kitchen."
Support worker

Top tips: laminating homemade signs – advice for housing management, care and support staff

If homemade signs are to be laminated, do not use a glossy finish laminate. Instead, use a matt laminate to prevent glare.

Homemade sign placed outside a dining room to support wayfinding

Photograph courtesy of RNIB, VILD Scotland

3.8.3 Placement of signs

A building should incorporate signage at key destinations such as:

- approach from main road to main entrance/ parking
- parking and disabled parking
- setting down points
- garden/courtyard
- wheelchair/buggy store
- entrance/exit/front door
- main lobby or reception
- communal facilities such as w/c and main communal area
- apartments/individual rooms where necessary
- fire exits.

(Barker and Fraser, 2000, p. 24)

Signs should be placed on the door unless the door is likely to be open a great deal. If the door is permanently open, one sign placed adjacent to the door may be more appropriate.

Photograph of signage in an Extra Care Scheme – Perspex signs are very reflective and can be a source of glare from lighting, making the sign difficult to read. There is no contrast with the sign against its background, making it difficult for some individuals to identify. The text should be left-aligned to make it easier to read.

Information sign displaying glare, reflections and block capitals, making it difficult to read.

Please see Section 3.1 for more information on glare and reflections.

3.8.4 Additional considerations

Use of symbols

Currently the research is not conclusive in recommending the most recognised type of pictographic signs/symbols. However, research has found “that common symbols are recognised by people with a learning disability and should be used wherever applicable, as opposed to developing ‘specialist’ pictographic signs” (DRC, 2004, p. 13; ODPM, 2005). Therefore, whilst a wide variety of symbols such as widget, makaton, or self designed symbols can be used, it may be advisable to consider using standard symbols such as those detailed in BS 8501 Graphical symbols and signs (BSI, 2002) and ISO 7001 Public Information Symbols (ISO, 2007) (DRC, 2004; ODPM, 2005). This could help prepare people to become independent outside of their home by being able to recognise nationally and internationally standard symbols.

However, this will need to be balanced with the current needs of the tenants in maximising their independence within their own homes. In some cases a self designed “home made” signage and/or symbols system that is preferably designed by involving and consulting tenants could be the best option to ensure tenants understand the purpose of rooms.

In large scale supported housing schemes, when commissioning and designing a new signage scheme, it is important that symbols should not be used in isolation to text. Symbols should be simple and include a tactile element. Braille should also be incorporated into the sign (Barker and Fraser, 2000; ODPM, 2005). These symbols, if used on information and directional signage, should be consistent around the site. On large scale supported housing schemes, it also advised that the signage and symbol system is designed and implemented by involving and consulting tenants.

Colour coding of signage

When commissioning new signage the colour of the signage system will need to be considered whilst also ensuring that the sign contrasts sufficiently against its background and that lettering and symbols contrast against the background.

Colour coding/zoning of specific areas within signage has been shown to help people with learning difficulties (DRC, 2004; ODPM, 2005). However, for people with limited or no colour vision, this may not be useful, as they may not be able to detect the differences in colours unless the colour coding has sufficient contrast. For example, “a difference in LRV of 70 points between the

letters, symbols or pictograms and the signboard, and between the signboard and the background, ensures good visual contrast" (BSI 2009+A1:2010, p68) (see Section 3.3.2 for further information on Light Reflectance Values).

If colour coding/zoning is used, the number of colours used should be kept to absolute minimum in order that the signage system is kept as simple as possible. Colours should have easily identifiable names such as purple rather than lavender (Dalke et al, 2004).

Objects of reference – advice for housing management, care and support staff

Objects of reference can be placed directly below a sign to further highlight the room's purpose. These items give tactile feedback as they can be touched, picked up and examined. These should be securely fixed so as not to become a trip hazard or obstruction.

Visual clutter

For signage and wayfinding tools to be fully effective, it is important that corridors and rooms are kept free of visual clutter in order that wayfinding tools and locational markers can be easily identified. Fixing permanent notice boards can help keep visual clutter in corridors to a minimum.

Additional markers– advice for housing management, care and support staff

In addition to a signage system, people may need additional markers created especially for them to know where they are along a route. For example, building in a reminder such as a sign that says "this is the way to the dining room" with an arrow or putting a tactile marker on a handrail in varying shapes can support people to know where they are along a route (Gray et al, 2007). Care needs to be taken that additional markers do not create a visually cluttered environment. See Section 3.7 Wayfinding for further information.

Display/Notice boards

When managing a building, in order that signage and wayfinding tools are not disguised by visual clutter caused by display/notice boards, the following should be considered:

- Displays should be clearly separated from each other.
- Displays are rationalised.
- Displays are printed following RNIB's Clear print standards
- Items are displayed against a clear, plain background which provides good background contrast.
- Doors are not used as notice boards.
- Notice boards are fitted to walls and notices do not stray outside these areas.
- Perspex is removed from notice boards to avoid glare

(RNIB, 2006).

Further reading on signage

Sign Design Guide: a guide to inclusive signage. Barker and Frase (2000)

See it Right: Making information accessible for people with sight problems. RNIB (2006)

Improving signs for people with a learning disability. DRC (2004)

Final report for signage and wayfinding for people with learning difficulties. ODPM (2005)

Symbols and colours chosen by service users more success in people finding their way around a building. (1000livesplus.net, 2014)

Hywel Dda Health Board's signs project in Withybush Hospital won an NHS Wales Award in 2013.(1000livesplus.net, 2014)

3.9 Mono-functional rooms, distinctive rooms/areas and storage

People with learning disabilities find it difficult to screen out noise and other activities. In the research we carried out, and from the homes we visited during the research, we observed that the tenants often had varying needs and hobbies and there was a real need for areas where they could carry out activities on their own. This is often difficult as there is normally only one lounge. For example in one of the case study houses visited there was one central room for tenants – it was difficult for those who did not want to view the television to get away from the noise, other than being in their bedroom.

Support staff throughout the research reiterated this point and expressed a real need for an area where a tenant could go and carry out an activity away sit quietly away from the noise of the television or the kitchen other than their bedroom (many of these views are reflected in the quotes on the next page. Support staff also indicated the real need for storage throughout the home to ensure clutter was kept to a minimum.

Mono-functional rooms

Television, radio and other white goods, such as washing machines and tumble driers, can often be noisy and create background noise and echoes which can prevent a person making sense of what he or she hears, and make effective hearing difficult or impossible (Gray et al, 2007). This can cause also cause difficulties as people with learning disabilities and sight loss can often find it difficult to screen out noise (see Section 3.6). Additionally, there are some instances where tenants are living together but do not like to spend time together and would prefer to relax in a room away from other tenants.

For that reason a utility room, two lounges/ conservatory area/ or a quiet room would be of great benefit in many situations and improve the quality of life for tenants within a home. Alternatively providing a quiet area elsewhere in the house or providing two seating areas in a lounge/dining room could be another option where space does not allow for two lounges.

Whilst an additional area in a home, such as a utility room or lounge, may not be practical or cost effective and is not normally included in most homes, we recommended this client group to consider it as it can have great benefits for the tenants' quality of life.

"It's easier for people with learning disabilities and sight loss to understand if each room has a specific task - keep dining and kitchen area separate and dining area and lounge separate as it's easier to understand. It also separates off noise."

"We recommend a quiet room plus lounge to enable tenants to sit quietly but not have to do this in their bedrooms."

"Tenants prefer to have different rooms for different functions. One tenant likes his own space and prefers to go into lounge after mealtimes as he does not like the clatter of dishes and pans and kitchen area."

"Separation of functions is advisable to give more privacy and enable tenants to be able to relax and unwind."

"I would prefer to have a separate dining room/lounge to eliminate the amount of noise during mealtimes. Also smells influence users, mood and behaviour. A quiet room would be a perfect space to carry out all sorts of activities."

"Separate areas gives people an idea of where they are in a home as they are easier to identify."
Managers and support staff, Vision Homes

Whilst an additional room may not be practical or cost-effective, it is something that should be considered at the development stage as it can have great benefits for the tenants quality of life.

Two seating areas have been created within a lounge in a supported housing scheme. This enables tenants to sit and relax away from the television if they wish to or enables two separate activities to be carried out within the lounge.

Photograph courtesy of Grwp Cynefin

Distinctive rooms and a predictable layout

"A predictable layout helps with orientation around the house, improves mobility and independence and improves life." Support worker

The home environment should have a simple, predictable layout and the rooms, function, should be distinctive to support wayfinding (see Section 3.7.2). The environment should also be as consistent as possible, for example, furniture should always be in the same place or if an activity is carried out, the activity should be put away if possible afterwards, so not to clutter the room or take away from the main purpose of the room.

The following areas should be considered within housing to provide a simple and predictable layout where a room's function can be easily identified:

- Where possible, provide more than one communal area to accommodate different types of activities.
- Mono-functional rooms are preferable to multi-functional rooms (SCIE, ARUP and the Thomas Pocklington Trust, 2012). Designing zones in lounges for specific activities would produce

easier to understand areas such as a reading area/library, computer area (Torrington, 2009).

- Provide small areas for quiet activities separate from the main communal lounge, where there is a television in the main communal lounge. Eg a sofa area in the dining room or kitchen.
- Rooms with an obvious function work well for people with learning disabilities, where they are defined by their fittings. The décor of the area/room should reflect its primary use or be adaptable where used for different activities, eg use of displays or wall art/posters to emphasise an activity.
- Storage should be provided in lounges/dining areas to reduce clutter and ensure things used for activities are not on permanent display which can confuse the space.
- To assist people with orientation and moving around the environment, furniture should be left in permanent positions. Furniture layout plans should be set up for all staff, to ensure that if furniture is moved for cleaning or a particular activity, it is put back in the same place.

Case study: the need for two lounges

John has a profound level of learning disability, he has sight loss and behaviours that can be challenging and communicates using vocalisation. Dean has a profound learning disability and communication difficulties and shares a house with John.

On interviewing the support workers, they expressed a wish for two separate areas for the tenants to use other than their bedrooms, commenting, “John was much happier when Dean was in hospital as he could have the lounge to himself. John likes to sit quietly and watch television in peace. When Dean is around he cannot do this as Dean is very vocal and noisy when watching television. The tenants don’t get on at all generally. Two separate areas other than their bedrooms would be of great benefit. A conservatory area or an area off the kitchen would really help the tenants be able to carry out activities or watch the television independently.”

Case study: separate activity areas

In a house that is home to three people with learning disabilities, two of which have learning disabilities and sight loss. One gentleman has cerebral palsy, hydrocephalus, and suffers from epilepsy, is registered blind and uses a wheelchair. Another gentleman suffers from epilepsy and has cerebral palsy, is registered partially sighted and uses a wheelchair. In this home, two seating areas have been accommodated in the lounge to enable different activities to take place or someone to sit away from television.

Storage

When planning a home for people with learning disabilities and sight loss, storage is a critical element to be help promote a predictable and understandable layout, where a room's function is easily identified and obstructions and clutter is kept to a minimum.

Many homes have the need for storage for wheelchairs, sensory equipment and staff items. In a kitchen area, the need for storage for rubbish and recycling is critical to ensuring the home is not visually cluttered and free from obstructions. These points are reflected in the following case-study and comments. To use another example in one of the case study houses, additional lockable storage was needed in the kitchen as one of the tenants had a wheat intolerance due to celiac disease, so could not use the same items as the other tenants.

Case study: storage

Support workers, who manage a home where three ladies live, two of which have learning disabilities and sight loss, emphasised the need for storage and recycling facilities to be incorporated into the home when planning kitchens. The home recently had a new kitchen fitted and would have greatly benefitted from built in units that incorporated household waste and recycling facilities to ensure bins were not an obstruction. Currently, the bins are placed just outside the kitchen area and are a potential obstruction for the tenants, but there was nowhere else to put them.

"Incorporating storage inside and outside the home is essential. Storing wheelchairs is a big issue – it is crucial to ensure that wheelchairs can be stored safely away."

"We would like better storage for personal equipment, sensory equipment, wheelchairs."
Manager and support staff, Vision Homes

3.10 Handrails and rest areas along routes

This section looks at:

3.10.1 Handrails

3.10.2 Benches/seating areas

3.10.1 Handrails

Handrails can greatly assist a person with learning disabilities and sight loss with wayfinding and/or provide support to help them to navigate around the access routes easily. They also allow people to rest and steady themselves along the route (RNIB Cymru/Rees and Lewis, 2003).

External handrails can support mobility and encourage tenants to use the external areas of the site with the knowledge they can use the handrail if they need to rest along a route.

"For my client handrails to steps would support their independence."
Support staff

"Tenants have a handrail from car to garden and rail at front door which enables them to access routes and steps independently.
Support staff

"Tenants use handrails to assist them in wayfinding. We've used different objects along routes to support wayfinding. For example, when they come to the scarf this means they are outside the lounge."
Support staff

A handrail supports tenants to be able to independently negotiate the pathway along a route to the front door.

Photograph courtesy of VILD, RNIB Scotland

Case study: handrails

In a home where three ladies with learning disabilities live, amongst which two have sight loss, the support team indicated that that the tenants needed supported guidance when going to and from the front of the property. The front of the property had a number of uneven surfaces and tenants often strayed off the path and found difficulties with independently walking to the front door.

RNIB recommended at the very minimum that the edges of the paths were highlighted using white paint to provide guidance for the tenants. As part of a Physical Adaptations Grant, the Housing Association went one step further and supplied colour contrasted handrails (see photograph below). As a result, the tenants can independently walk to the front door without the need for guidance.

Images courtesy of Dimensions and First Choice Housing Association

Top tips for handrail design

- Handrails should be placed on the approach and at key points along route.
- Handrails should be oval or round in profile and contrast against their background (see Section 3.3). This would aid people physically by giving support along route and also act as a visual wayfinding tool by contrasting with its background.
- Where possible, right and left hand rails should be incorporated to accommodate people who may have a weakness on a particular side.
- Handrails should be warm to touch. Often particularly in external environments galvanised steel handrails are used which can be very cold to touch depending on weather conditions - this can render a handrail un-useable as it can be too cold to touch. The introduction of a nylon coated handrail or timber handrail that would be warmer to the touch and easier to grip is advised.
- Two sets of handrails set at different heights may support tenants of differing heights and abilities. The height of between 900mm to 1100mm is advised – however this may need to be adjusted depending on individual tenants needs.
- Any ends of handrails should be designed to minimise the risk of clothing being caught. Ie, they should return back on themselves.
- Hand rails should be placed out of the main line of travel.
- Externally handrails can be incorporated into fencing/boundary walls to support people along access routes.
- Handrails should be continually graspable without any obstructions along the entire length
- Individual signifiers can be incorporated at the end of handrails and along routes to support an individual to know where they are along routes).

Further reading on handrail design

BS 8300 Design of buildings and their approaches to meet the needs of disabled people – Code of practice. BSI (2009+A1:2010).

3.10.2 Benches/seating areas

Benches and seating areas should be considered for external and internal communal areas to enable tenants to rest along route.

Any seating areas/benches should be placed off the main line of walk and set back from any fire exits. Seating should have back and arm rests to allow ease of access when sitting, resting and rising.

Thought should go into where they are placed along routes to promote areas of interest and provide natural resting areas. For example, seating could be placed along corridors, outside a lift or close to the main entrance.

Seating areas which use distinctive features such as different chair design, fabric textures and colours can also help support wayfinding along routes (see Section 3.7 Wayfinding).

3.11 Products and controls

This section looks at:

"Household items and their purpose should be easily identified by service users."
House Manager

"A safe and secure environment with appropriate adaptations, temperature controls on hot water, secure doors and windows, are important to promote safety and independence."
Maintenance officer

Within the home safety, security and usability of products are of upmost importance and this should be borne in mind when purchasing any products for the home to maximise tenants' safety and independence. For example, a washing machine with dials with a "bump-on" placed by the dial indicating the preferred temperature could be easier to operate for some people with learning disabilities and sight loss, than one with touch-activated screen. Choosing the right product can determine whether or not a tenant can independently carry out a daily living activity such as washing their clothes or flushing the toilet.

Top tips to promote determine whether or not a tenant can independently following issues should be considered when purchasing products and controls

- Ensure products are easy to identify, use and control.
- In the majority of cases, instructions or a manual should not need to be read to operate products and controls, eg choose a microwave with one dial that turns rather than one that is operated by a range of buttons and dials.
- Logical controls will assist people with learning disabilities who may find it difficult to learn new things.
- Products and controls should, where appropriate, provide good visual and tactile contrast and where necessary incorporate braille.
- Specify products that contribute to the homely feeling desired in the setting rather than of institutional appearance.
- Simple adaptations such as a coloured tape, tacti-mark or bump-ons, can help ensure that controls can be easily identified and operated. For example, putting a bump-on on a dial to indicate which temperature to use. Bump-ons and tacti-mark can be purchased on the RNIB website at **rnib.org.uk**

“An eye-leveloven enables our tenants to cook.”
Support staff

“To support tenants’ independence in a kitchen, basic things like a microwave with dials and an up down sink would be of use.”
Support staff

“The top of the double oven is too high for the current tenant to use, and we need lower wall units in the kitchen.”
Support staff

“Luminous pull cords assist tenants in locating the cord and putting on the light.”
Support staff

3.11.1 Door entry systems

Door entry systems should be accessible and easy to use so that tenants with learning disabilities and sight loss, where appropriate, can enter and exit the building and gardens independently.

The operation of many door entry systems on the market poses a real problem for many people, including some people with learning disabilities and sight loss. Numbers and buttons are often difficult to decipher and are too small with no tactile or contrasting features, which makes locating the correct buttons difficult.

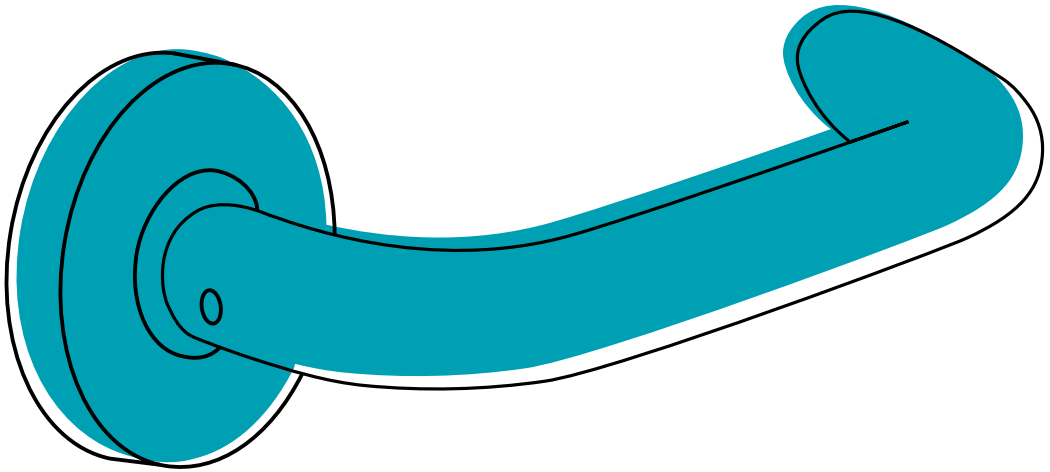
Top tips to consider when specifying door entry systems

- Any door entry system fitted should clearly contrast with its background and should be located on the latch side at a height between 1000mm to 1200mm from the finished floor level.
- Have tactile buttons that are easily distinguishable through the use of colour contrast and tactile identification.
- Provide audible feedback when buttons are pressed.
- Have a speaker that is easily identifiable.
- Have instructions that are clearly presented in appropriate formats, constructed in a robust, non-perishable and non-fade material (RNIB Cymru/Rees and Lewis, 2003; Thomas Pocklington Trust, 2008).

3.11.2 Door furniture

"Chunky, contrasting handles assist tenants in easily locating and gripping the door handles."
Support staff

Specification and provision of door furniture that is easy to locate and use will support the independence of people with learning disabilities and sight loss.



Top tips to consider when specifying door furniture

- Ensure door furniture products are easy to identify, use and control.
- Door furniture should contrast in colour or tone with the door (See Section 3.3.3).
- D-shaped lever handles that return to the door should be specified on all doors to prevent clothes from being caught on the end of handles.
- Locks on doors should be simple to use and should not require more than one hand.
- Where possible, locks to doors should be fitted above handles.
- Incorporate large contrasting door numbers to make individual flats/rooms easier to identify.

In this supported living scheme for tenants with learning disabilities and sight loss, the housing association has specified colour contrasted D shaped lever handles. They have used a dark architrave to highlight the position of the door.

Photograph courtesy of Grwp Cynefin

3.11.3 Bathrooms

Bathrooms and, particularly, assisted bathrooms can often appear very sanitised, clinical and uninviting for the user. It is recommended that bathrooms are made as homely as possible and give off more of a spa feel than an institutionalised bathroom.

We would advocate the incorporation of sensory stimulation to help ease the trauma of assisted bathing. This could include items such as domestic style tiling, plush fabrics used as window treatments, bath oil, bath foam and aromatherapy oils where appropriate, fluffy towels, provision of bath robes, dimmer switches to control light levels, bathers, favourite music and pictures of nature placed around the room. Heat lamps can be incorporated to keep tenants warm before and after bathing.

Bathrooms can often be noisy and create echoes due to the large number of hard surfaces within them. This can make bathing a difficult experience for people with learning disabilities and sight loss who are unable to screen out noise. Acoustic absorbent surfaces and treatments should be considered to reduce the echo and reverberation effects of noise often found within the bathroom (see Section 3.6 Acoustics).

Top tips to consider when specifying bathrooms

- Use colour, materials and products that make the bathroom attractive and homely.
- The bathtub should replicate a residential bath as much as possible, while supporting assisted bathing.
- Consider acoustic absorbent surfaces and treatments to reduce the echo and reverberation effects of noise often found within the bathroom (see Section 3.6).

3.11.4 Taps and flushes

“Lever taps assist tenants in easily turning taps on and off.”
Support staff

Taps and flushes should be easy to identify and use by all tenants, including those with learning disabilities and sight loss. This will assist in promoting independence, hygiene and wellbeing.

The specification of taps and flushes should meet the guidance in BS8300 (BSI 2009+A1:2010).

Top tips to consider when specifying taps and flushes

- Separate hot and cold lever taps should be fitted to sinks and baths.
- Colour and tactile features should be used to highlight hot and cold taps.
- Ensure toilet flushes are easy to identify, reach and use. Large paddle flushes are recommended.

Many toilets today are fitted with dual flush push buttons. These can be difficult for some people, including people with learning disabilities and sight loss, to identify and use. Large paddle flushes are the preferred option as they can enable people with limited dexterity to operate the toilet independently.

Dual flush push button can be difficult to decipher and operate.

Paddle flush can enable someone with limited dexterity to flush the toilet.

Environmental sustainability considerations:

Housing Associations have raised concerns that the choice of lever taps and paddle flushes available will not meet the water saving standards within the Code for Sustainable Homes (DCLG, 2010) or the BREEAM Multi-residential scheme (BREEAM, 2008) . Among the issues raised is that many paddle flushes cannot meet the low flush requirements of the Code for Sustainable Homes, and many lever taps cannot be fitted with flow restrictors. In all cases, to promote the independence of people with learning disabilities and sight loss, we would advocate that products are sourced that meet both standards. If taps and levers are not accessible for tenants, they will be unable to use them.

Careful specification is needed, for instance, some product brochures such as Green Building Store include low water use toilets with 'lever flush for disabled people'. In the case of lever tap systems, this issue can be overcome by fitting lever taps with a flow restrictor within the supply pipe work.

BREEAM New Construction (BREEAM, 2014 and 2011) technical Manual under WAT 01 Water consumption, states that, for healthcare facilities, the flushing control for each WC/urinal in a healthcare facility must be suitable for operation by patients with frail or infirm hands or activated by electronic sensors. Designers may wish to also consider the suitability of flushing controls for tenants with learning disabilities and sight loss in a care home environment.

The specification of accessible products would also be in line with requirements to consider end users, such as BREEAM New Construction Management Man 01 issue which requires consideration of the end user requirements.

3.11.5 Lifts

Lifts are an excellent way of supporting tenants who are not able to manage stairs. However, some individuals with learning disabilities and sight loss find difficulties with using lifts and do not like using lifts due to their design, e.g. mirrors, shiny chrome surfaces and very dark flooring. Additionally, lift controls are often small, lack contrast and are difficult to locate and use. To minimise the use of lifts, regularly used communal facilities should ideally be located on the ground floor.

Lift specifications should meet the standards within BS8300 (BSI 2009+A1:2010) to provide for all users. Means of escape from upper and lower floors and the provision of refuges must be considered when providing a lift. The following issues should be considered when specifying lifts:

- Lift surfaces should be matt or mid sheen.
- The use of chrome/stainless steel should be avoided – coloured matt walls would be a more appropriate choice than stainless steel.
- The lift car door should contrast against the wall.
- The walls of the lift car should contrast with the floor.
- When selecting flooring, specify a lift floor that is higher than 20 LRV, as anything below 20 LRV is a dark floor that could be perceived by someone who has learning disabilities and sight loss as an open lift shaft or a hole (see Section 3.3 for information on LRV).
- Lift doors must stay open long enough to allow the slowest person to gain entry, with a minimum of 20 seconds. This can be overridden by pressing a floor call button.
- Door sensors should continue down to a low level (around 125mm above floor level) to prevent guide dogs from being trapped between the doors.
- The control panel should contrast against the walls both internally and externally.
- The lift buttons, numbers and writing should contrast against thecontrol panel.
- The lift text should be large and should clearly contrast against the buttons to assist people with learning disabilities and sight loss in locating the floor they wish to use.
- The numerals and symbols on the buttons should be embossed and braille should be provided. For this reason, the buttons should not be touch sensitive.

- Buttons should illuminate to register a call.
- Audible information should be provided. The voice tone and pitch should be considered and the volume controllable to avoid startling tenants with learning disabilities and sight loss.

Top tips: Highlighting lift buttons

The addition of coloured ‘bump-ons’ in various shapes and sizes could help assist some individuals in locating the lift buttons. Support staff should work alongside tenants in order to select the shape and colour bump-on that provides the best form of identification for them.

Some individuals did not like to use the lift in the photograph on the right hand side due to large amount of reflective surfaces and full height mirror. A selection of matt finish for the walls is recommended as displayed in the following image.

The addition of a green coloured bump-on is used to help the buildings users to locate the lift button against its background.

Photographs courtesy of RNIB Cymru

3.12 Assistive technology

Assistive technology is any product or service designed to enable independence for people (Kings Fund, 2001). Assistive technology can involve low-level technologies such as an audible liquid level indicator, or high-level technology such as telecare packages.

Low tech assistive technology:

Talking measuring jug and audible liquid level indicator.

For further information, please visit **rnib.org.uk/shop**

Technology, such as smart technology, and the technology within a smart home are constantly evolving. For this reason, this section does not explain how specific examples work or name specific examples, but considers how assistive technology may be used to support the independence of individuals with learning disabilities.

Assistive technology can keep people safe and independent. It can also enable them to carry out daily living activities and help individuals stay in their own home or as independent as possible within a care setting. Using technology such as smart technology can allow people to carry out daily living activities within their own home whilst at the same time being automatically monitored for early warning in health changes, and alert carers of any possible risks or danger that a person may be facing. It can help to ensure people with learning disabilities do not put themselves and others at risk and/or enhance the support provided by carers. It can be used to prevent fires, flooding and falls (Beech and Roberts).

Case study: assistive technology

In a home where three ladies with learning disabilities live, amongst which two have sight loss, the support team used assistive technology on a small scale to promote safety and to provide the necessary support.

"One lady often gets up at night time. The dining room door has exit sensors located on the door that will alert staff at night should anyone enter the kitchen. We can then ensure the ladies are safe and well at night, and provide the necessary support to them. We have purchased a telephone with large dial numbers so the tenants can independently dial and use the telephone (see images below). We use a pressure mat in a bed for another lady to alert us if she has an epileptic fit."
Support team

It is advisable to consider the use of assistive technology as early as possible when building or altering a home. This will help ensure homes are future-proofed and are able to respond to future demands.

Assistive technology can be used to:

- Support orientation in a room and assist with activities, eg using audio labels. These can be purchased from the RNIB shop at **bit.ly/1PnmQrM**
- Provide audible or visual prompts to remind people to do things.
- Alert carers/individuals that the cooker has been left on.
- Alert carers/individuals of a gas leak, high levels of carbon monoxide or smoke.
- Alert carers/individuals that a bath is overflowing.
- Monitor water temperature.
- Alert carers/individuals to a tap has been left on.
- Automatically turn on a light when someone gets out of bed, to prevent falls.
- Alert carers that someone has fallen
- Door contact – alert carers when tenants have exited flats at night.

- Seizure monitor – alert carers if someone has a seizure.
- Medication reminder and dispenser.
- Detect movement in bedrooms to alert carers that tenants may have got up at night by using pressure mats/infrared detectors.
- Assist care staff in reducing their paperwork by monitoring care times and enable carers to focus on spending more quality time with individuals.

The following issues should be considered regarding assistive technology:

- Consider the use of assistive technology to support the independence of people with learning disabilities and sight loss and/or to enhance the support provided by carers/staff
- There are ethical considerations to be taken into account when introducing assistive technology. For advice on what should be taken into consideration, please see **Telecare and Learning Disabilities: Using telecare effectively in the support of people with learning disabilities**. DSDC/JIT and University of Stirling (2010).

Further reading and useful links:

Telecare and learning disability: Using telecare effectively in the support of people with learning disabilities. DSDC/JIT/University of Stirling (2010)

Wales Social Services Improvement Agency
ssiacymru.org

Telecare learning and improvement network
telecarelin.org.uk

Information and general advice from the Disabled Living Foundation
livingmadeeasy.org.uk/telecare-167/

Home Farm Trust is a national charity supporting people with learning disabilities and their families.
hft.org.uk/What_we_do/Assistive_technology

AT Dementia – (although aimed at people with dementia this site has some excellent resources and advice) AT Dementia is an organisation providing information and advice about what kind of devices are available and has a database of suppliers. AT Dementia has produced an interactive guide – that can support people in choosing suitable AT to meet individual needs.
atdementia.org.uk

3.13 Accessible gardens and external areas

This section looks at:

3.13.1 Planning external areas

3.13.2 Landscaping

"It is important to provide safe and accessible outside space for gardening and the enjoyment of summer months."
Support staff

Handrails, rest areas, scented plants and level pathways within the garden are very important to promote tenants' independence.

To promote safety, independence and enjoyment of the garden for tenants, I recommend raised beds, gardens all on one level, flowers and herbs that give off an aroma, clearly marked seating areas, planting to give privacy from neighbours and sound breaks contrasting garden furniture and lighting.

"Sensory equipment, wind chimes and different plants for smells and touch promote wayfinding and enjoyment of garden areas."
Manager and Support staff at Vision Homes

The criteria below should be considered when planning external areas to help encourage maximum use of the gardens whilst keeping tenants safe:

- Plan garden design with involvement and consultation with tenants.
- Sensory experiences such as wind chimes, water features or plants that rustle in the wind, can provide a multi-sensory environment and help tenants with learning disabilities and sight loss orientate their way around the garden.
- Plan for all year colour and fragrance to permanently support wayfinding.
- Raised flowerbeds set back from main line of walk. Raised beds can be used to support wayfinding but using them in several places can mean they may lose their distinctiveness in orientation clues (Gray et al, 2007)
- Frequent resting places along pathways.

- Consider providing additional seating that is undercover to enable those who are sensitive to the sun and heat to sit outside.
- Handrails along pathways.
- Landmarks for orientation.
- Adequate width of paths for passing with sighted guides and wheelchairs.
- Paths clearly contrasting and defined from their surrounding surfaces and roadways.
- Smooth, level and non-slip pathways.
- Limited changes in surfaces and levels.
- Ensure changes in surfaces and levels are accompanied by handrails.
- Changes in level such as ramps or steps are clearly highlighted in conjunction with the recommendations with BS8300 (BSI 2009+A1:2010).
- Manholes covered in the same material as the surrounding surface.
- Night time illumination.
- Street furniture such as benches and bins set off main line of walk.
- Use fencing and hedges to act as acoustic barriers.
- Avoid creating deep shadows by careful siting of dense planting and wayfinding tools (Goodman and Watson, 2010).
- Ensure any wayfinding tools or objects placed in the garden are set back from main line of walk and are not trip or collision hazards.
- Avoid windows opening over paths.
- Ensure there is no overhang from trees, shrubs, hedges etc. This can not only scratch people but reduce their confidence and effectively 'push' them away from a wall they are trying to use to guide them (Gray et al, 2007).

The photograph is of a sensory garden that has been designed by service users of the building. Sensory plants, a handrail, a clearly defined pathway, lighting, tactile paving and benches all help make to maximise the enjoyment of the garden.

Photograph courtesy of VILD, RNIB Scotland

Case study on the need for safe external pathways

In a house where two gentlemen with learning disabilities and sight loss live, the surface adjacent to the parking area is very uneven underfoot. As a result of the uneven surface, the tenants need to be guided by support staff to the front door. Re-levelling the pathway could support tenants to safely and independently access their home.

Case study on the need for safe external areas

In a home where three ladies live, of which two have sight loss, one lady in particular loves carrying out daily living activities. In the rear garden there was a pebbled area in front of the clothes line that she did not like crossing – there were also plant pots within the garden area which were potential trip hazards.

RNIB recommended that the plant pots were set back off the main line of walk and the pebbled area removed and replaced with a safe non slip surface to help ensure her safe and independent access when hanging up clothes. The Housing Association carried these improvements and

the plant pots have been moved back off the main line of walk. The ladies can now safely and independently cross this area and hang up clothes (see photograph below).

3.13.2 Landscaping

Colour coded areas, scented plants and a contrasting paved area could help the tenant know where they are in the garden.

"I recommend raised beds to give the opportunity for tenants to garden and grow fruits, herbs and vegetables." Support staff

Appropriately chosen and located planting of a distinctive shape and/or texture, colour, sound or fragrance set within landscaping and planters can act as navigation aids, and offer wayfinding assistance around the external environment (RNIB Cymru/Rees and Lewis, 2003, Thomas Pocklington Trust, 2008). For example, plants such as bamboos and grasses, and some shrubs and trees, such as willows, can add a sonic dimension to a garden.

Plants with texture can add another sensory dimension to a garden. Other examples include hanging baskets, sweet smelling plants at doorways, strong smelling plants at exits, and planting at entrances that are distinctly different in colour, form and shape from other plants.

Care must be taken when positioning sweet-smelling plants to avoid a confusion of perfume. Care must also be taken that plants are not poisonous, prickly and that they can be safely touched as some plants cause allergies or irritate the skin.

When designing the landscaping, it is recommended to plan for year round colour, shape and fragrance to promote wayfinding. These should be placed at the main entrance, the exit and at key points around the external areas of the home to provide permanent wayfinding clues. Distinctive trees can be planted, plants can also be placed on either sides of entrance doors to help highlight entrances (provided they are not hazards or obstacles).

Special attention should be paid to obstacles above waist height, since these are often not detected by people with serious sight problems using long canes. Tree branches and other foliage should be cut back to ensure a minimum clear headroom of 2100mm, preferably 3000mm.

The planting chosen should be easy to maintain in the future and positioned out of the travel route. Care should be taken that planting is well maintained so they do not become a slip hazard or collision hazard. Paths need to be kept clear of debris, and obstructions and creeping plants should be kept off paths, steps, ramps and signs. Root disturbance should be prevented as it can create a trip hazard.

Section 4 – Staff awareness, staff training, care planning, healthy eyes and lifestyle

This publication has focused on the physical built environment aspects of providing accessible and safe home environments for people with a learning disability and sight loss. This section first considers how well trained staff can maintain and enhance accessible environments. It will then turn to other issues relating to staff training and care plans for tenants with learning disabilities and sight loss. Information has also been provided on how to appropriately support a person with a learning disability through the eyecare pathway and how to promote healthy eyes through a healthy lifestyle. Section 4 concludes with a case study demonstrating how identifying and appropriately addressing the needs of people with learning disabilities and sight loss can improve their quality of life and support people to be as safe and independent as possible.

4.1 Staff training

> "We support service users, safety and independence by ensuring continuity, routine, good staff communication and that the environment does not change and that staff are given training to support individuals."
> **Supported housing manager**

Staff training is key to supporting people to live safe, full and independent lives. Within an individual's home, whether that be a person's own home, shared house or similar setting, effective training will ensure that the right support is provided to an individual both in terms of the built environment and the care they receive. It will ensure that a person's eye health is paramount, and that a person who has sight loss has their needs identified and met.

Staff training should include information on:

- learning disability and sight loss
- the effects of sight loss
- environmental considerations, eg lighting, contrast, layout, the use of non-visual information e.g. aroma, sound and tactile information; aids and adaptations
- maintaining an accessible environment
- the eyecare pathway
- effective vision support planning.

Maintaining an accessible environment:

"Maintenance staff are not aware of what suits people with learning disabilities and sight loss, and in the past, unsuitable highly-speckled worktops have been fitted."
Support staff

"Andrea uses the furniture as a way to move around the house, we cannot move the furniture, as she would then fall and trip over them. Both the staff and ladies are involved in cleaning the house, but we always check things are returned to the same place."
Support staff

"The ladies like to recycle, but we have found the various bins were a hazard. These are now stored under the kitchen sink providing a clear space for the ladies to walk around."
Support staff

Many accessible building features could be rendered at best less effective or at worst inaccessible, unless supported by management policies. Staff must be aware of the purpose and use of accessible features in order to ensure they are used and maintained correctly. Additionally, ongoing maintenance of an accessible environment is essential in terms of continuing to mitigate risk, promoting independence, dignity and wellbeing for an individual. It is critical there is a multi professional and multi-agency approach to maintaining homes. This will involve everyone from family, advocates, paid staff, housing association staff including housing management and maintenance staff.

The following information will assist those involved in maintaining an accessible environment.

Top tips: Maintaining an accessible environment

- Keep room layouts consistent, and avoid making lots of changes to rooms and furniture layouts. Movable features and furniture such as tables and chairs should not become obstructions. Room layouts should be recorded for cleaning, and for new members of staff to refer to.
- Manage room layout and seating arrangements to minimise background noise.
- At mealtimes or when activities are taking place in a room, refrain from using white goods such as washing machines or tumble driers, to keep background noise to a minimum.
- Cleaning schedules should ensure toilet rolls contrast against their background and flooring and surfaces are not cleaned with a product that will leave them with a shiny finish.
- Areas being cleaned where there are wet floors or trailing cables should be isolated to ensure others do not slip, trip or fall and allow a clear navigable route.
- When cleaning, do not move or tidy away items left in specific places, as this may aid a person's independence.
- External areas and paths should be kept clean, clear of leaves, moss, snow and ice, and headroom maintained by cutting back overhanging branches.
- Waste bins, street furniture and other external obstructions should be kept off access routes and away from drop kerbs. Paths should be regularly maintained, with uneven paving slabs and broken lights replaced.
- Doors and door entry systems should be in good working order.
- All areas should be decorated, and furniture arranged, to provide a welcoming homely environment.

- Rooms associated with an activity should have clear print signage, pictorial signage, tactile signage and objects of reference clearly displayed to indicate the function of the room.
- Storage, planters, bins etc. should not obstruct circulation space.
- Floor and wall surfaces should be safely maintained. When redecorating, maintain visual contrast between critical surfaces.
- Windows, blinds and lamps should be kept clean to maximise the available light.
- Burnt-out lamps should be replaced promptly.

Understanding sight loss and staff training

Care staff should be trained to understand an individual's sight loss and/or hearing loss condition and this should be integrated into their care plan. Understanding what is in a person's visual field can help optimise the physical environment, eg how colour tone and contrast will aid independence, optimise posture to enhance visual field, ensure the best use of vision aids, and ensure meaningful and symbolic objects are within visual range. Training will also help staff to approach and place themselves into the tenant's field of vision (Jones and van der Eerden, 2008, cited in RNIB Cymru/John, 2014). Equally, training staff to understand someone's hearing loss, and what hearing aids and assistance an individual may need, can help ensure individuals maximise their remaining hearing (Action on Hearing Loss/ Echalier 2012).

4.2 Sight tests and the eye health pathway

Sight tests

"Accessing sight tests and suitable spectacles is often a problem for patients with learning disabilities. RNIB has reported that many adults with learning disabilities have never had a sight test. This may be because they, or their carers, are not aware that they could have problems with their vision, and so do not seek a sight test. Or they may be reluctant to attend a practice through fear of the process, or their carers may feel that they would be unable to participate or read the letters on the letter chart. There may also be unnecessary fears over costs" **(Local Optical Committee Support Unit, 2012).**

A sight test is not just a test to see if glasses are needed; an eye test is a full health check for eyes. Early signs of sight loss can often be detected during regular sight tests before symptoms appear. Crucially, some of these sight conditions are treatable and further deterioration can be prevented. Additionally, if someone's sight condition and/or hearing loss condition is known, care and support plans and the environment can be adapted to suit their particular needs.

People with learning disabilities should have a sight test every two years. It may be that someone is advised by their optometrist to have a more regular check and it is essential that the person is supported to attend all appointments.

Eye Health Pathway

Ophthalmic assessment is often most successful when care staff have been trained to support people having eye tests, clinic appointments and surgery (Pilling, 2011).

A Pathway is a word used to describe what needs to happen for people to get the support they need around their eye sight.

The Pathway involves:

- preparation for a sight test
- having a suitable and effective sight test
- receiving feedback on a sight test
- implementing recommendations from a sight test.

Local optometrist or optician

Patients with learning disabilities should be supported to have an eye test with a community optometrist. Many optometrists are able to see patients with learning disabilities, so we recommend you contact your local optometrist and discuss the needs of the individual, as this will often be the most convenient option.

Additionally, SeeAbility maintains a database to support people and their carers in locating an optician or optometrists in your area. It aims to provide a register of those who have expressed a specific interest in providing eyecare and vision services for people who have a learning disability. For further information, please see: **bit.ly/1mQebXW**

If you are unable to find an optometrist locally who can help, then The Special Assessment Clinic at Cardiff University may be able to offer an appointment. The contact details are: CU Optometrists, Maindy Road, Cardiff, CF24 4HQ, and you can call them at **029 2087 4357**.

Enhanced sight tests for people with learning disabilities

Some people may need a more flexible sight test that might require:

- more or less time
- picture matching or preferential looking tests rather than conventional letter charts
- visits to get used to new people and settings
- an appointment at a time to suit the person.

Recognising the need to improve access to good eyecare services, the new Community Eyecare Pathway for Adults and Young People with Learning Disabilities has been developed by the Local Optical Committee Support Unit (LOCSU).

The pathway has been developed in conjunction with two leading charities, Mencap and SeeAbility. Visit **bit.ly/1IYFARW** for more information.

Sight tests at home

An eye examination at home is only available to people who are unable to be attend a high street optometrist unaccompanied. This may be because of a mental, physical or learning disability.

When considering a home eye test, bear in mind that a home eye test may be unlikely to provide the full range of testing equipment and resources nowadays to be found in a high street optometrist practice. Most people with learning disabilities, including those with multiple disabilities, can access high street optometrists with the support of someone who knows them well. (Extract from Welcome to the Optometrists and Opticians Database **SeeAbility.org**)

Search on the SeeAbility website to find local optometrists you can contact to enquire if they provide a domiciliary service.

bit.ly/1mQebXW

Alternatively, contact NHS Direct or your local GP for their list of approved domiciliary eyecare providers. In Wales, the Wales Eyecare Services website has a database where you can search for local domiciliary eyecare providers.

eyecare.wales.nhs.uk/page/68380

Supporting organisations and guidance through the eyecare pathway

There are a number of organisations and reference material that is available to support both people with a learning disability and professionals through the eyecare pathway.

RNIB Visual Impairment and Learning Disability Service (VILD)

RNIB VILD services purpose is to identify sight loss in people with learning disabilities and to ensure that each individual can achieve their full potential and get the most out of life.

Supporting someone with a learning disability and sight loss requires specialist skills. RNIB can help you tailor care and support, provide training on learning disabilities and sight loss for carers and professionals, and also provide a range of information and supporting materials.

SeeAbility

SeeAbility is a national charity which provides specific support and information on eyecare and vision for people with learning disabilities. A range of information resources to support the pathway are available on SeeAbility's website. Information is available on "Preparing for an eye examination", "Information to be given to the optometrist",

"Feedback from the optometrist about my eye test", as well as easy to read information leaflets for people with a learning disability.

Top tips: Sight tests and eyecare appointments

- No one is too disabled to have a sight test.
- Remember to go to eyecare appointments or to have a sight test when you are reminded by your optician. This should be a minimum of every of two years.
- You don't need to be able to read or talk to have a sight test.
- Preparation is key. Visit the Optometrist a few weeks before the appointment, ask if the person can see the examination room, can sit in the chair, get the optometrist to dim the lights, and show the person the equipment like torches, test frames etc.
- Prepare information to take with you to the sight test. This should include concerns or issues in relation to sight or eye health, known family vision and medical history, general health, medication, how the person communicates, any previous vision information eg from ophthalmologist, how the person will tolerate the eye examination, any likes or dislikes. Visit SeeAbility website "Telling the optometrist about me": **www.seeability.org**
- Take any glasses that have previously been prescribed to an individual.
- Ensure the person going with the individual to their sight test knows them well, and has all the information available to them.
- Ensure written information is provided to the individual, including spectacle prescription, what methods of testing was completed, the health of the eye, any other health problems detected, what is happening with my eyesight, how clearly I can see things, what my colour vision is like, what my contrast sensitivity, how my eyes function in the light and dark, how to use any glasses prescribed and how to use any low vision aids prescribed. Visit SeeAbility Feedback from my optometrist eye test: **seeability.org**

Case study

An Optometrist at a Special Assessment Clinic informed us of the importance of getting the best information possible on the lead up to an eye test. She spoke about a time when she went to greet a gentleman with a learning disability for a sight test. The gentlemen became very distressed, and support staff reported that he had a phobia of mice, and the optometrist was wearing a blouse with a mouse on. Had this information been provided, she could have ensured that this had not happened. After a change in clothes, the gentleman was supported to have an eye test with no other problems.

Following on from a sight test

Following a visit to an ophthalmologist, some people need medication or treatment for eye problems, such as eye drops or ointment. Some people may need further treatment or an operation that may improve vision or prevent sight loss. Some people may not be aware that people with profound and complex disabilities can tolerate and benefit from surgery. This should always be explored, as many people with learning disabilities benefit from eye operations to improve their sight and quality of life.

Further information

Please contact RNIB VILD. Call **0141 772 5588**, email **learningdisability@rnib.org.uk**, or visit **www.rnib.org.uk** or refer to SeeAbility website for further information and support on this area.

seeability.org

CVI (Certificate of Visual Impairment)

Many people with a learning disability and sight loss are not being certified as being sight impaired or severely sight impaired. People with learning disabilities may not be registered, despite family and professionals knowing that the person was born with a visual impairment. Certification and registration help with accessing services and benefits, and are as important for people with learning disabilities as other patients. It alerts the local authority to a need to assess a person with a visual impairment.

For further information, see RNIB Factsheet “Starting out: Benefits, concessions and registration at **rnib.org.uk**

Rehabilitation officers for the visually impaired

Rehabilitation workers provide critical support to people with sight loss. They can be employed by Local Authorities, local or national voluntary societies and organisations for blind and partially sighted people. Help from a rehabilitation officer for the visually impaired (ROVI) can significantly improve people's quality of life. A CVI registration is a 'passport' to these services.

ROVIs provide an essential link between health and social care. When working as part of a team supporting a person with complex needs, a ROVI can provide invaluable advice and skills to people who may be struggling with coming to terms with sight loss, and provide practical solutions to everyday aspects of independent living.

In Wales, the Wales Eyecare Services website has a database where you can search for social services and ROVIs in your area.

eyecare.wales.nhs.uk/page/68380

Referral to low vision services

People with learning disabilities can benefit from low vision services. As some people with learning disabilities may not read or be able to use equipment, it is wrongly assumed that they will not benefit from a low vision assessment or have the ability to use any equipment recommended eg magnifiers, lighting. However, many people with learning disabilities need low vision aids to assist them in every day independent living tasks, such as carrying out hobbies and interests, leisure activities, food and drink preparations, to name but a few. Low vision assessment can also provide crucial advice on environmental adaptations to be made.

In Wales, the Wales Eyecare Services website has a database where you can search for low vision services in your area.

eyecare.wales.nhs.uk/page/68380

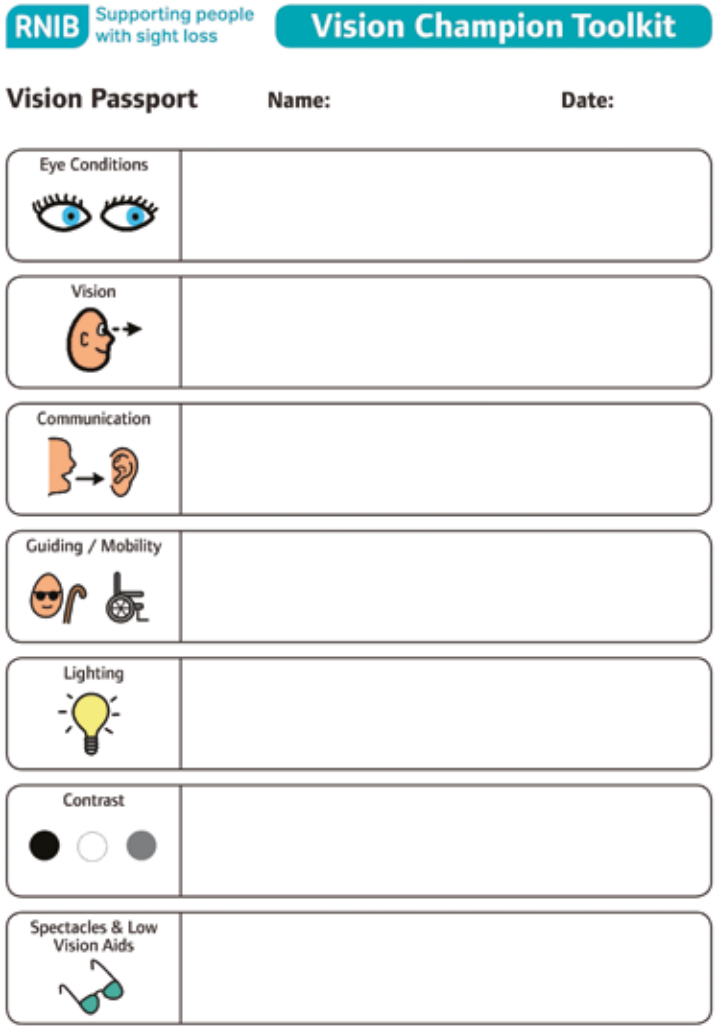
4.3 Care planning

"We need to ensure there is a good exchange of information so everyone knows what is best for the Emma. Everyone needs to know what the issues are around Emma's sight, and what they need to do in her house to support her. There will always be changes in staff, so we need to ensure this information is recorded."
Supported housing manager

A one page vision passport can be used as an integral part of support planning, so that carers can see at a glance the key things they need to know about how to support a person with learning disability and sight loss.

This will include information on eye conditions, vision, communication, mobility and guiding, lighting, contrast and glasses and low vision aids.

RNIB and SeeAbility have a range of documents that can support care and support planning. Below is one example:


RNIB Supporting people with sight loss

Vision Champion Toolkit

Vision Passport Name: Date:

Eye Conditions

Vision

Communication

Guiding / Mobility

Lighting

Contrast

Spectacles & Low Vision Aids

Bridge to Vision passport, courtesy of VILD, RNIB Scotland

4.4 Healthy eyes and lifestyle

Having healthy eyes helps avoid eye problems in later life. Healthy lifestyles lead to healthy eyes. People with learning disabilities may be at risk of developing serious sight problems in later life. Often people and their supporters or carers may not be aware of what steps to take to prevent serious sight problems like Age-related Macular Degeneration or Diabetic Retinopathy. Therefore looking after your eyes should be a key feature to any care plan.

Nutrition and exercise

Healthy eating, exercise and eating a balanced diet should be encouraged and promoted. There are direct links to obesity and health conditions such as diabetes, and this can then lead to problems with your sight. Much research has been carried out around the benefits of certain foods on eye health. Vegetables, fruits, eggs, nuts, seeds and oily fish can reduce the probability of developing eye conditions and blindness later in life. See RNIB factsheet on Nutrition and the eye at

rnib.org.uk

Protection from the sun

Much is known about the damaging effect of the sun on our skin, however the sun can also cause significant damage and problems to the eye. Some people may benefit from wearing sunglasses, a sun hat, using parasols and umbrellas or sitting in the shade to protect the eyes, and minimising the glare that may cause discomfort and pain. If sunglasses are worn they should incorporate UV protection. Care should be taken to ensure people are appropriately supported to protect themselves in the sun.

Case study on protection against the sun

Mary has sight loss and a learning disability. Mary loves the garden but really struggles with the bright light from the sun. The sun clearly caused her discomfort, as Mary will become very distressed and begin to self harm to communicate her needs. To counteract this we would support Mary to use sun cream, and a sunhat with a large brim to shelter her eyes. This worked better than sunglasses, as Mary would remove them. We would ensure that a large sun umbrella was always used for Mary to shelter under, and would ensure that Mary sat around the side of the house where there was a little more shade. This worked really well.

Smoking

There are direct links to smoking and developing sight loss later in life. It can cause problems such as cataracts, macular degeneration and cause problems with sore and inflamed eyes. Appropriate information should be given to individuals to ensure they are able to make informed decisions.

4.5 Conclusion

This publication has demonstrated that the built environment is just one aspect of a total person-centred care approach. The approach and attitude towards the eyecare pathway, care, and the delivery of care, are equally or more important than the built environment. The design and layout of buildings should allow, facilitate and add to the quality of care and to the quality of life of the tenants, their families and the people who provide care and support.

Ongoing research is currently being undertaken to show the value and improvements to an individual's life when there is a holistic service provided to people with learning disabilities and sight loss. Preliminary work has been carried out by RNIB VILD in this area, and the following case study clearly evidences the importance of identifying and appropriately addressing the needs of people with learning disabilities and sight loss disabilities.

Case study

Caroline is a 37 year old woman with a learning disability. Caroline lives in supported accommodation, and staff have concerns regarding her increased falls at home. Staff had been advised by rehabilitation staff to check if Caroline's hearing was affecting her balance, which they did and confirmed no hearing difficulties. Staff wanted to check if there was an underlying visual cause. The RNIB VILD project has supported Caroline to access eyecare which has involved a full functional vision assessment from a RNIB worker, support through optometry and the provision of a person-centred vision report.

The main concerns which prompted the referral were Caroline's mobility and her behaviour. Caroline was falling up to seven times in any given week, clinging onto walls when she was attempting independent mobility, and required the support of a care worker to be ambulatory around her living environment. Caroline also had poor posture with her head tilted to the right-hand side.

On occasions, staff found Caroline's behaviour frustrating as they felt she was over-reliant on their support. She would become disappointed and upset when there were no staff available to support her into and out of a taxi which meant she could not visit her friends.

Staff have admitted that they essentially thought Caroline "was simply being difficult" when they challenged her about behaviour and mobility difficulties, and attributed all of these to her learning disability and physical problems. She was recently referred to physiotherapy in an attempt to improve her posture. The physiotherapist had recommended that Caroline not hold onto the walls so as not to weaken her back, and for Caroline to hold her head up when walking. She advised staff to support Caroline by holding her left elbow joint because she leaned heavily on them when mobilising.

Intervention

Following a functional and clinical assessment of her vision, Caroline was found to have severe difficulties in focusing her eyes, in addition to a squint in her left eye. Caroline is not able to focus her eyes on any given image and seems to be processing information through sound and touch. This means Caroline may be considerably disabled in her ability to judge distances and depths because both eyes are not being used together and there was possible vision loss in her right eye. It was also found that Caroline is sensitive to glare.

Conclusions and Recommendations

It was concluded that Caroline's poorly-contrasted living environment was extremely disabling and reduced her independence. Dark walls and carpet, plus low lighting left only two white skirting boards as a visual reference. This was undoubtedly a contributory factor in her unusual gait and head posture.

Outcomes

Caroline's mobility around her supported housing has dramatically improved and staff are now only reporting two, if any, falls in a week. When adequate lighting was installed, Caroline was immediately able to find her way unsupported to her own room – which she had never been able to do. Caroline's mobility has improved so much that she is now able to visit her friends without support, giving her the independence, choice and control she so desired.

Staff have particularly noted a significant reduction in the need to manage Caroline's behaviour and have attributed this to improvements following assessment, and their awareness of the practical support needed to maximise the use of Caroline's remaining vision. Caroline is now much less reliant on support from staff, giving them more time to attend to other tenants.

With her improved mobility came a concomitant improvement in posture and as a result, Caroline has now been discharged from physiotherapy.

Impact

It has been estimated that prior to the identification of visual impairment, the staff hours listed next page would have been dedicated to the support of Caroline within her joint-occupancy supported tenancy.

It is estimated that the supported tenancy are saving 2 hours per week in support time. Support needs are reduced for her mobility around the home environment, also dealing with falls and their aftermath (accident reporting, casualty visits etc.)

Outcome/ Output	Cost before	Cost after	(Hourly rate)	Annual savings	Reduction
Support Staff Reduced	£14976.00	£13728.00	£12.00	£1248.00	24 reduced to 22 per week
Physio	£50.00	0	£25.00	£50.00	0.5 hrs over 4 weeks
Reduction in Falls	£14924.00	£2132.00	@ £41.00 per fall	£12792.00	7/week reduced to 1/week
TOTAL				**£14090.00**	

Glossary of terms

The glossary is split into four sections:

5.1 Learning disability and associated eye conditions

5.1.1 Batten's Disease

What is Batten's Disease?

Every person should get 23 chromosomes from their mother and 23 chromosomes from their father. These 46 chromosomes make the person unique. Chromosomes determine the type of hair, eye or skin colour a person will posses.
A person with Batten's Disease has a change on chromosome 16. The change on chromosome 16 causes changes to the central nervous system. The body loses its ability to rid itself of waste from the cells of the body. The cells in the brain and the eye become damaged.

The person may lose their ability to learn and use information. The person may also have seizures.

There are between 180 and 900 people with Batten's Disease in the UK.

How does Batten's Disease affect vision?

Summary:

Bull's Eye Maculopathy (see Section 5.2.2)

5.1.2 Cerebral Palsy

What is Cerebral Palsy?

Cerebral Palsy is when the brain is damaged around birth and causing parts of the body to not move in the ways they should. For example, the person may not be able to get their muscles to work together.

The person may need more time to answer questions.

There are about 72,000 people with Cerebral Palsy in the UK.

How does Cerebral Palsy affect vision?

Summary:

- Cerebral Visual Impairment (see Section 5.2.6)
- Nystagmus (see Section 5.2.11)
- Optic Nerve Atrophy (see Section 5.2.13)
- Pursuit Movements (see Section 5.2.14)
- Reduced Accommodation (see Section 5.2.15)
- Strabismus (see Section 5.2.16)

5.1.3 Down's Syndrome

What is Down's Syndrome?

Every person should get 23 chromosomes from their mother and 23 chromosomes from their father. These 46 chromosomes make the person unique. Chromosomes determine the type of hair, eye colour or skin colour a person has. A person with Down's Syndrome has an extra chromosome, giving the person 47 chromosomes. The extra chromosome is of chromosome 21.

There are between 36,000 and 60,000 people with Down's Syndrome in the UK.

How does Down's Syndrome affect vision?

Summary:

- Blepharitis (see Section 5.2.1)
- Cataract (see Section 5.2.3)
- Kerataconus (see Section 5.2.7)
- Nystagmus (see Section 5.2.11)
- Reduced Accommodation (see Section 5.2.15)
- Strabismus (see Section 5.2.16)

5.1.4 Edward's Syndrome

What is Edward's Syndrome?

Every person should get 23 chromosomes from their mother and 23 chromosomes from their father. These 46 chromosomes make the person unique. Chromosomes determine the type of hair, eye colour and skin colour a person will have. A person with Edward's syndrome has an extra copy of chromosome 18.

There are between 1,000 and 1,200 people with Edwards Syndrome in the UK.

How does Edward's Syndrome affect vision?

Summary:

- Coloboma (see Section 5.2.4)
- Strabismus(see Section 5.2.16)

5.1.5 Fragile X

What is Fragile X?

Every person should get 23 chromosomes from their mother and 23 chromosomes from their father. These 46 chromosomes make the person unique. Chromosomes determine the type of hair, eye colour or skin colour a person will develop. A person with Fragile X has a change on the 'X' chromosome.

There are between 4,763 and 7,145 males and between 3,356 and 3,775 females with complete Fragile X in the UK.

How does Fragile X affect the vision?

Summary:

- Hypermetropia (see Section 5.2.9)
- Nystagmus(see Section 5.2.11)
- Strabismus (see Section 5.2.16)

5.1.6 Lowes syndrome

What is Lowe's Syndrome?

Every person should get 23 chromosomes from their mother and 23 chromosomes from their father. These 46 chromosomes make the person unique. Chromosomes determine the type of hair, eye colour or skin colour a person will develop. A person with Lowe's has a change on a gene on the X chromosome. Males with XY chromosomes are affected and females with XX chromosomes are carriers.

There are about 36 people with Lowe's Syndrome in the UK.

How does Lowe's affect vision?

Summary:

- Cataract (see Section 5.2 .3)
- Corneal Keloids (see Section 5.2.5)
- Glaucoma (see Section 5.2.8)
- Nystagmus (see Section 5.2.11)
- Strabismus (see Section 5.2.16)

5.1.7 What is Prader Willi Syndrome?

Every person should get 23 chromosomes from their mother and 23 chromosomes from their father. These 46 chromosomes make the person unique. Chromosomes determine the type of hair, eye colour or skin colour a person will develop. Most people with Prader Willi Syndrome are missing chromosome 15 from their father.

There are between 767 to 7,642 people with Prader Willi Syndrome in the UK.

How does Prader Willi Syndrome affect vision?

Summary:

- Myopia (see Section 5.2.16)
- Hypopigmentation (see Section 5.2.10)
- Strabismus (see Section 5.2.16)

5.1.8 What is Rett's Syndrome?

It is a disorder of the brain. The person has a protein that does not work properly. The protein tells genes when to turn on and off. The protein does not do this properly.

There are between 900 and 1,800 females with Rett's Syndrome in the UK.

How does Rett's Syndrome affect vision?

Summary:

- Cataract (see Section 5.2.3)

5.2 Further information on how learning disabilities effect vision

5.2.1 Blepharitis

People with Down's Syndrome usually have eyelids that are further from their nose and at an angle. The tears stay for longer on the eye because it is hard for the tears to drain away. The tears offer less protection for the eye. This may cause the person to have blepharitis. Blepharitis occurs when the eyelid and/or eyelashes get red and crusty.

Crust forms at the base of the eyelashes. Sometimes eyelashes turn white or go missing. Small white bumps can appear on the lid. The tears can start to look frothy. The person may feel like there is something in their eye. The person may not like bright lights.

Blepharitis can be hard to treat. Some people may need medicines from their doctor. Keeping the eyelids and eyelashes clean can help to stop blepharitis.

5.2.2 Bull's Eye Maculopathy

The person may have circles of colour surrounded by other circles of colour at the back of the eye. These circles are called Bull's Eye Maculopathy.

A person with Bull's Eye Maculopathy may find it hard to see, especially in bright light during the daytime. The person might not like the glare from bright light. The person may also find it hard to see colours.

The person may like to see things in low light. Allow the person time, about 15 minutes, to get used to dimmed lights in a room. The person should avoid bright lights that cause discomfort, by wearing a skipped cap or tinted glasses.

There is no cure for what causes Bull's Eye Maculopathy.

5.2.3 Cataract

Cataract occurs when the lens inside the eye gets cloudy. The cataract stops light getting to the back of the eye. People with Lowe's syndrome may have the cataract removed as an infant.

If the cataract is not removed, the person may not see as well as they should. The person may have problems with glare from bright lights. Different types of cataract means that some people may see well and other people cannot see at all. If the cataract is not removed in childhood, the person may have amblyopia. Amblyopia occurs when one eye does not see as well as it could and glasses do not help. Amblyopia is also known to some people as a lazy eye.

The person should avoid bright lights that are uncomfortable for the eyes, by wearing a skipped cap or tinted glasses.

The person may be able to get an operation to remove the cataract. The removal of the cataract may cause glaucoma. Glaucoma occurs when a person cannot see around about them as well as they should.

5.2.4 Coloboma

The person may have a coloboma. Coloboma occurs when the person's eye does not form completely, before birth. This means there is usually a small gap at the bottom of the iris, the coloured part near the front of the eye. The gap can go from the iris to the back of the eye.

A person with coloboma may find it hard to see in bright light because there is less iris to prevent light getting into the eye. The person may find that a skipped cap, wide-brimmed hat or tinted glasses helps with bright lights.

Although here is no cure for coloboma there are some rehabilitation strategies to help maximize remaining vision.

5.2.5 Corneal Keloids

The person may have corneal keloids. A corneal keloid is a growth on the clear cornea at the front of the eye. The cornea can look milky and opaque.

The person may have dry eye, which can feel tired, gritty and sore.

The person may need dry eye drops like artificial tears or a gel for use at night when asleep.

The corneal keloid may be removed by surgery if it is interfering with vision. The person's vision may still be affected following removal.

5.2.6 Cerebral Visual Impairment

The person may have a cerebral visual impairment (CVI). CVI is a term used to describe damage to the part of the brain at the back of the head that makes sense of what the eye sees. This brain damage means the person has problems with how they see.

The person may:

- Not be able to see as well as they should
- Not be able to see around them as well as they should
- Have problems with the parts of the brain that understand the 'what' and 'where' of vision.

The person may find it better if any visual tasks are simple and clear and not crowded. The person should be allowed a lot of time to carry out tasks.

5.2.7 Keratoconus

The person may have keratoconus. Kerataconus is when the clear cornea at the front of the eye becomes weak. The weak cornea becomes cone shaped.

The cone shaped cornea makes the person's vision blurry. The person may find their eyes very itchy. The person may also find that bright lights cause discomfort. In time, the cornea may become swollen and scarred, and the person may only be able to see light and dark.

The person may or may not need to wear spectacles when they first get keratoconus. As the keratoconus develops, the person may need to wear soft contact lenses, and may need hard contact lenses later. If the keratoconus gets to the end stage, the person may need an operation to remove their cornea and get a new cornea.

Encourage the person to wear their spectacles or contact lenses. Support the person to avoid bright lights that hurt the eyes, by wearing a skipped cap or tinted glasses.

5.2.8 Glaucoma

The person may have glaucoma. Glaucoma occurs when the person cannot see around about them as well as they should. There may be high pressure inside the eye and damage to the head of the optic nerve.

The person has visual field loss when they cannot see around about them as well as they should. If medicine or surgery does not help, the person may only be able to see with 'tunnel vision'. Seeing with 'tunnel vision' means only being able to see objects directly in front.

5.2.9 Hypermetropia

Hypermetropia occurs when a person can see things far away better than near, without the use of glasses.

Some people wear glasses, some people wear contact lenses and some people may choose to get laser surgery to the cornea. These methods can correct the hypermetropia. The eye care professional can advise on the most appropriate method.

5.2.10 Hypopigmentation

People with Prader Willi Syndrome may have hypopigmentation of the eye. Hypopigmentation is a lack of pigment. For people with Prader Willi, there may be a lack of pigment in the coloured part near the front of the eye or at the back of the eye.

The lack of pigment means the person may not like bright lights.

The person should avoid discomfort caused by bright light by wearing a skipped cap or tinted glasses.

5.2.11 Nystagmus

The person may have nystagmus. Nystagmus occurs when the person cannot stop their eyes from moving. The eyes usually move from side, to side but can move up and down or in other directions.

The person may not see as well as they should.

The person may need large print books and may need to bring things up near to them. The person may find their eyes don't move as much when they hold their head a certain way.

Although here is no cure for nystagmus there are some rehabilitation strategies to help maximize remaining vision.

5.2.12 Myopia

Myopia occurs when the person can see near objects better than when they are far away, without any glasses.

Some people wear glasses, some people wear contact lenses and some people may choose to get laser surgery to the cornea. These methods can correct the myopia. The eye care professional can advise on the most appropriate method.

5.2.13 Optic Nerve Atrophy

The person may have atrophy of the optic nerve. This is when the optic nerve, which sends signals from the eye to the brain, is not as healthy as it should be.

The person may not see as well as they should.

The person may need eg books produced in large print and objects brought in close to their eyes for viewing.

Although here is no cure for optic nerve atrophy, there are some rehabilitation strategies to help maximize remaining vision.

5.2.14 Pursuit Movements

The person may find it hard to look at things they have been asked to, or to look at objects that are moving too fast.

The person may need a lot of time to find things they have been asked to, for example, following fast moving targets during a video game.

5.2.15 Reduced Accommodation

Accommodation is the eye's ability to focus on things up near, eg reading or table-top activities.

The person may not see things up close as well as they should. The person may find it hard to read books or carry out table-top activities.

5.2.16 Strabismus

A strabismus is also known to some people as a 'squint' or 'turn' in the eye. A strabismus occurs when the person's eye is pointed towards or away from their nose or sometimes up or down.

A person with a strabismus since childhood may have amblyopia. Amblyopia occurs when one eye does not see as well as it could and glasses do not help. Amblyopia is also known to some people as a lazy eye.

A person with strabismus may find it hard to judge depth. The person may find it hard to thread a needle, pour liquid into a cup or manage steps and stairs. The person should take plenty of time to judge depth and use magnifiers, larger objects and good contrast to carry out tasks.

The person could get an operation for strabismus to make the person look better but the eye will not see any better.

Information in 5.1 and 5.2 are extracted from VILD, RNIB Scotland Factsheets

5.3 Age-related changes to the eye

Due to natural age-related changes to the eye, the majority of people over 50 experience a steady decline in vision.

Natural age-related changes include:

- reduced contrast sensitivity – difficulties defining objects when against each other, difficulties defining boundaries, edges and objects against patterned surfaces
- reduced colour perception
- reduced peripheral vision
- greater glare sensitivity – bright sunlight and artificial lighting can be painful and disorientating, reflections of light from shiny surfaces can cause discomfort
- poorer dark adaptation – difficulties carrying out functions and finding things in low light levels, need for more light
- slower accommodation – more time needed to adapt to light changes, from dark to light and light to dark
- less effective depth perception – for example difficulties judging distances and changes in levels such as ramps, stairs and so on
- loss of visual acuity – close-up objects become blurred, difficulties with picking out finer details.

Therefore most older people will benefit from designs that maximise their vision, such as appropriate lighting schemes, colour and tonally-contrasted environments, non-reflective finishes, plain non-patterned surfaces and easy to understand layouts.

5.4 Common eye conditions in older people

As well as natural age-related changes, there are also sight conditions that are prevalent in older people. The simulations and common symptoms listed below give an insight into how a sight condition can affect an individual. (Rees and Lewis, 2004).

The four most common causes of blindness in the UK are:

Macular degeneration – no central vision, some remaining peripheral vision, wayfinding difficult, difficulty judging heights or distances, loss of colour vision, difficulty with carrying out tasks which require fine discrimination such as reading.

Cataracts – blurred vision, suffer from glare and find bright light uncomfortable, detail severely reduced, signs hard to read, key features start to merge.

Glaucoma – tunnel vision, too much bright light is painful and reduces vision, getting around may be a problem due to restricted view, may see things at eye level but miss obstacles at floor level, loss of colour vision.

Diabetic retinopathy – patchy vision, lack of sharpness of visual field, scene merges so almost impossible to see direction of travel.

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