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# Colour & Wayfinding



The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This not only helps in tracking expenses but also ensures compliance with tax regulations.

In the second section, the author provides a detailed breakdown of the company's revenue streams. This includes sales from various product lines and services. The analysis shows that while one product line is currently the primary source of income, diversification into new markets is essential for long-term growth.

The third section addresses the company's financial health and liquidity. It highlights the need for a robust cash flow management strategy to ensure that all operational needs are met. The author suggests implementing regular financial reviews to identify potential risks and opportunities early on.

Finally, the document concludes with recommendations for future strategic planning. It suggests investing in research and development to stay ahead of market trends and to explore new business models. The author also stresses the importance of maintaining strong relationships with suppliers and customers to ensure a stable and profitable business environment.

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# Contributors

## INCH

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

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

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

## UrbanPioneers

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

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

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

## Graphical House

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

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

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

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



## Trust Housing

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

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

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

## North Lanarkshire's Health and Social Care Partnership

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

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

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

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

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# Preface

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

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

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

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

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

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

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

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

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

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

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

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

This design guide is divided into two parts: colour design and theory; and wayfinding and signage. Included in each section are illustrated examples of the points raised.

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# Introduction

Experience has suggested to Trust Housing Association that the colour schemes used within the communal environments can make a vast difference to the level of comfort felt by tenants and their families, and the perceived functionality of these facilities. As such the colour palettes employed can improve the attractiveness of developments as client homes, and the perceived professionalism of the service as a whole.

This design guide will consider the following issues:

- Sight loss in older people and the key elements required to ensure safety and legibility of the domestic environment
- The key elements to opportunities for older people to use the spaces as independently as possible
- The key elements of improving the use of colour and signage within communal areas of a shared residential environment
- The attractiveness of the developments as contributed to by colour and signage throughout the communal areas

This research project will provide the commissioning agency and any partners with clear guidance on how the application of colour and design of signage around housing developments can be designed for older people to greater effect. The recommendations within this guide are intended as supplementary guidance and do not preclude the need to comply with the Building Technical Handbook building regulations for the UK.

## Aims & objectives

This guidance sets the context for the application and design of colours and signage within older people housing developments. It considers the effects of visual impairments prevalent within the +65 population and the impact this has on the way in which the physical environment is viewed and perceived.

The document sets out guidance on the following:

### Visual Contrast

This explains the principles of visual contrast and sets out the requirements of visual contrast in providing universally accessible environments.

### Colour as a tool for creating attractive, legible environments

This outlines the benefits of bold colour in comparison to pattern and explains general principles for application of colour within an older persons housing development.

### Colour choice and specification

This explains the importance of a holistic approach to colour choice and specification, and the need to consider contrast in multiple elements when doing so.

### Signing & signing for dementia

This outlines the importance and purpose of signing in communal areas and the need to consider more onerous design solutions which take cognisance of an increase in people with dementia in our future ageing population.

## Signage design and application

This explains best practice principles for signage design, colour, legibility, placement and form. Examples are given to illustrate the recommendations for signage design and application.

## Scope & form of guidance

This guidance relates to the design of colour and signage. It does not make reference to the site specifics, which would be required to be established as part of a detailed design review and signage strategy.

This guidance covers the design of existing housing developments for older people. It does not make reference to development or dwelling size but instead makes assumptions on design attributes prevalent in such developments.

A number of site visits were made by the design team to existing older people housing developments during the initial research stages of the project and observations made which helped inform the guidance within this document. In addition a period of desktop analysis and research was undertaken, considering examples of other older people & amenity housing throughout Europe. This enabled the design team to make comparisons of current attitudes to Best Practice & Design in a wider context.

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## Definition of terms

**Cap height:**

The height of a capital letter of a type face.

**Chroma:**

The vibrancy & purity of a colour or hue.

**Development:**

Any building or grouping of buildings for residential use.

**Directional:**

A sign that points in a particular direction, for example 'exit this way'.

**Directory:**

A sign listing information.

**Identifying:**

A sign that explains what something is, for example 'toilet'.

**Informative:**

A plan, or a sign that informs, for example 'opening hours'.

**Hue:**

Colour or shade.

**Light Reflectance Value (LRV):**

LRV is based on a scale of 0:100, where 0 = black and 100 = white.

**Luminance:**

The intensity of light emitted from a surface per unit area in a given direction.

**Muted:**

(with reference to colour) – a colour or hue which has been diluted and appears duller and less intense than saturated colours.

**Pictorial elements:**

Any part of a sign that is either illustrated, a graphic drawing or photograph.

**Saturation:**

Strength or intensity of the colour (a saturated colour is in its purest form. It has not been diluted by any other hue or colour or by black or white).

**Type face or type style:**

The term to describe a printed letter, or reference to its designed characteristics – often referred to as a font.

**Value:**

(with reference to colour) – the amount of light that the surface can reflect.

**Visual contrast:**

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

**Wayfinding:**

Negotiating obstructions and navigating within the built environment.



**Figure 01**

Illustrations showing variety of colours utilised in the communal areas of a single housing development.





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**Figure 02**

Illustrations showing variety of colours utilised in the communal areas of a single housing development.



**Figure 03**

Illustrations showing variety of colours utilised in the communal areas of a single housing development.





**Figure 04**

Illustrations showing variety of colours utilised in the communal areas of a single housing development.



# The Ageing Eye

As we get older the functional abilities of the eye deteriorate, which affects our ability to 'see'.

In addition, the functional components of the visual system (processing visual information) also deteriorate and this affects our ability to 'perceive'.

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

Normal age related changes in vision can include:

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

"As well as the effects of normal ageing on the visual system, a number of visual disorders are commonly associated with ageing. These include cataracts, glaucoma, macular degeneration and retinal complications from diabetes. These can all result in changes such as blurring, partial loss of visual field, through to genuine visual hallucinations and complete blindness. Use of alcohol and other recreational drugs can also affect vision, as can withdrawal from them. Sometimes medications can cause or contribute to visual difficulties. A surprising number of medications commonly taken by older people can have visual side-effects. They include some drugs from the following categories: cardiovascular, non steroidal anti-inflammatory, antibiotics, anti-Parkinson, and even eye medications." (Alzheimers Society, 2003)

## Visuo-perceptual difficulties

The Alzheimers Society (2003) in their study of visuo-perceptual difficulties noted that some of the repeated visual errors made by people with visual difficulties as being:

- Difficulty re-adjusting one's spatial orientation when moving around (even in familiar environments)
- Difficulty judging the height of the floor when the colour flooring changes

- High-stepping over carpet rods or shadows, thinking they signify a change of level
- Difficulty problem solving visual illusion effects (for example, when going downstairs – determining how many steps there are, and where the next one is)
- Resisting walking on shiny flooring because it looks wet or slippery
- Walking on the darkest patterns (or shadows) of flooring to avoid falling
- Misinterpreting reflections in mirrors, windows or shiny surfaces (refusing to go into a toilet because reflections make them appear to be occupied)
- Difficulty in locating people or objects because of other distracting or competing visual information (such as patterned wallpaper)
- Inability to find a particular item even though the item is in front of a person and appears to be in their field of vision
- Difficulty in positioning oneself accurately to sit down in a chair, on the bed, on the toilet
- Inability to find objects or places because of a lack of colour contrast (for example, not seeing pasta on a white plate)
- Restlessness from visually over-stimulating environments (eg too many shiny ornaments, decorations or patterns)

Research undertaken by Project Rainbow (1997) 'Colour, Contrast & Perception' identified that the five most common eye pathologies in the UK were:

- Macular Degeneration
- Cataract
- Glaucoma
- Retinitis Pigmentosa
- Diabetic Retinopathy

Further analysis identified that visual impairments could be divided into three classifications of field loss:

- Central visual field loss
- Peripheral visual field loss
- General/sporadic visual field loss

Each classification relates to how a particular person's ability to perceive colour and detail is distributed across the visual field and the method they are likely to adopt in searching for visual clues.<sup>1</sup>

## Common visual impairments

A summary of the three most common visual impairments in adults in the UK is provided below along with their associated classification of field loss and a brief description of how the impairments may affect vision.

### 1. Central Visual Field Loss – Age-related Macular Degeneration (AMD)

AMD is an eye condition which leads to the gradual loss of central vision and usually affects both eyes,

but the speed at which it progresses can vary between eyes. AMD is the leading cause of visual impairment in the UK and it estimated that 1 in 500 people aged 55–64 have AMD, to 1 in 8 in people aged 85 or over.<sup>2</sup>

ADM can result in difficulty recognising people's faces, blurring of images, distortion and colours appear less vibrant.

### 2. General Visual Field Loss – Cataracts

Cataracts are cloudy patches in the lens that can make vision blurred or misty and a general loss of normal field.

Cataracts can result in difficulties in the focussing of light onto the retina, which increases the likelihood of glare. It is also common for there to be a reduction in the persons ability to perceive short wavelengths (blue spectrum), although yellow and orange can be intensified.

### 3. Peripheral Visual Field Loss – Glaucoma

Glaucoma is a term which describes a group of eye conditions which result in an increase in intra-ocular pressure in the eye. The outcome is a gradual decrease in the extent of visual field, until a loss of peripheral vision is detected at the later stages of the disease – commonly referred to as 'tunnel vision'.

Glaucoma can result in difficulties in spatial perception as the individual would require to scan the environment in order to understand their surroundings.

## Environmental adaptations

Adapting the physical environment can help people with visual impairments. A brief summary of some adaptations is provided below, although not intended to be exhaustive

- Increase light levels. Improved lighting is considered instrumental in preventing falls
- In addition, visually impaired people normally use the ceiling as an uncluttered area to assess the size and shape of a room on entry. Where the ceiling is poorly lit this is a more difficult task
- Provide even lighting (to prevent people going near to dark areas in corridors and rooms)
- Minimise/eliminate shadows
- Minimise busy patterns on walls and floors
- Try to eliminate the use of rugs
- Avoid shiny floor surfaces
- Highlight important objects and visual cues (signposting/wayfinding)
- Minimise visual obstacles such as changes in floor finishes
- Minimise visual clutter such as notices, signage, ornaments
- Maximise visual contrast in objects and the environment

1 Colour, Contrast & Perception, K Bright et al, 1997

2 Statistic provided by NHS UK

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# Colour in Context

## Colour & the ageing eye

We have previously outlined the effects ageing has on the eye and visual perception. However, in relation to changes in perception relative to colour perception & wayfinding the following provides a general overview of current findings:

- Colour perception or colour discrimination diminishes with age
- A yellowing of the eye lens occurs which makes it harder to differentiate between colours in the green and blue spectrum. In addition less blue light is absorbed by the lens, which renders the individual's view of their environment almost as though they are viewing through a yellow filter
- Confusion & difficulty understanding environments which are 'visually cluttered'.
- Ability to view objects at height is diminished
- Ability to differentiate some texts/fonts is diminished

## Basic colour terms

Basic colour terms (BCT's) are the descriptive terms used to discriminate between different colours.

Berlin & Kay identified 11 basic colour terms: white, black, red, green, yellow, blue, brown, purple, pink, orange and grey, which were supported in many languages throughout the developed worlds.

Their research identified that languages of highly industrialised places such as Europe and Asia use all 11 BCT's. In contrast, countries which are less industrialised, with smaller populations, a maximum of 4 BCT's were used.

This presents an interesting, direct correlation between industrialisation, growth and development (as a nation) and our ability to articulate differences in hue (colour).

## Colour semantics

The vast majority of papers presented in the field of colour studies address the issues linked to the specific vocabulary used when describing colours and the implications these could have in influencing colour perception and preference.

'The power of colour term precision' (Steinval, A. 2011) showed that common colour terms are defined in different ways and that there is no unanimous view of the colour these terms represent. For example sea blue can be perceived with varying saturation.

Palmer & Schloss (2011) study into ecological valence & human colour preference supports the theory that colour terms affect colour preference and suggest that gender and age also affect our perception and preference of colour.

"The ecological valence theory (EVT) is based on the assumption that people's color preferences result from an evolutionary process whose net effect is to 'steer' them towards beneficial objects and situations and away from detrimental ones". (Palmer & Schloss, 2011)

The EVT theory assumes colour preference as an evolutionary process culminating in absolute colour preference by older age. However, Palmer notes, systematic changes in colour preference can occur depending on changes in culture, contemporary trends etc.

Meanings are also subject to continuous negotiation and influenced by personal experience. It is noted that both over simplification or under simplification of colour nuance affects our interpretation. But, where is the balance?

One recommendation is to remove basic colour terminology from colour discussion, using only the visual representation of the colour or a numeric digit code to identify.



Evidence suggests that a more accurate understanding of actual 'preference' can be achieved by removing opportunity for subjectivity based on colour terminology or colour association to an object

For example the colour 'saffron' is associated with the spice, which is very expensive and therefore, the colour considered exclusive. The same colour described as 'shanghai smog' conjures negative connotations and would be unlikely to be considered anything more than inappropriate.

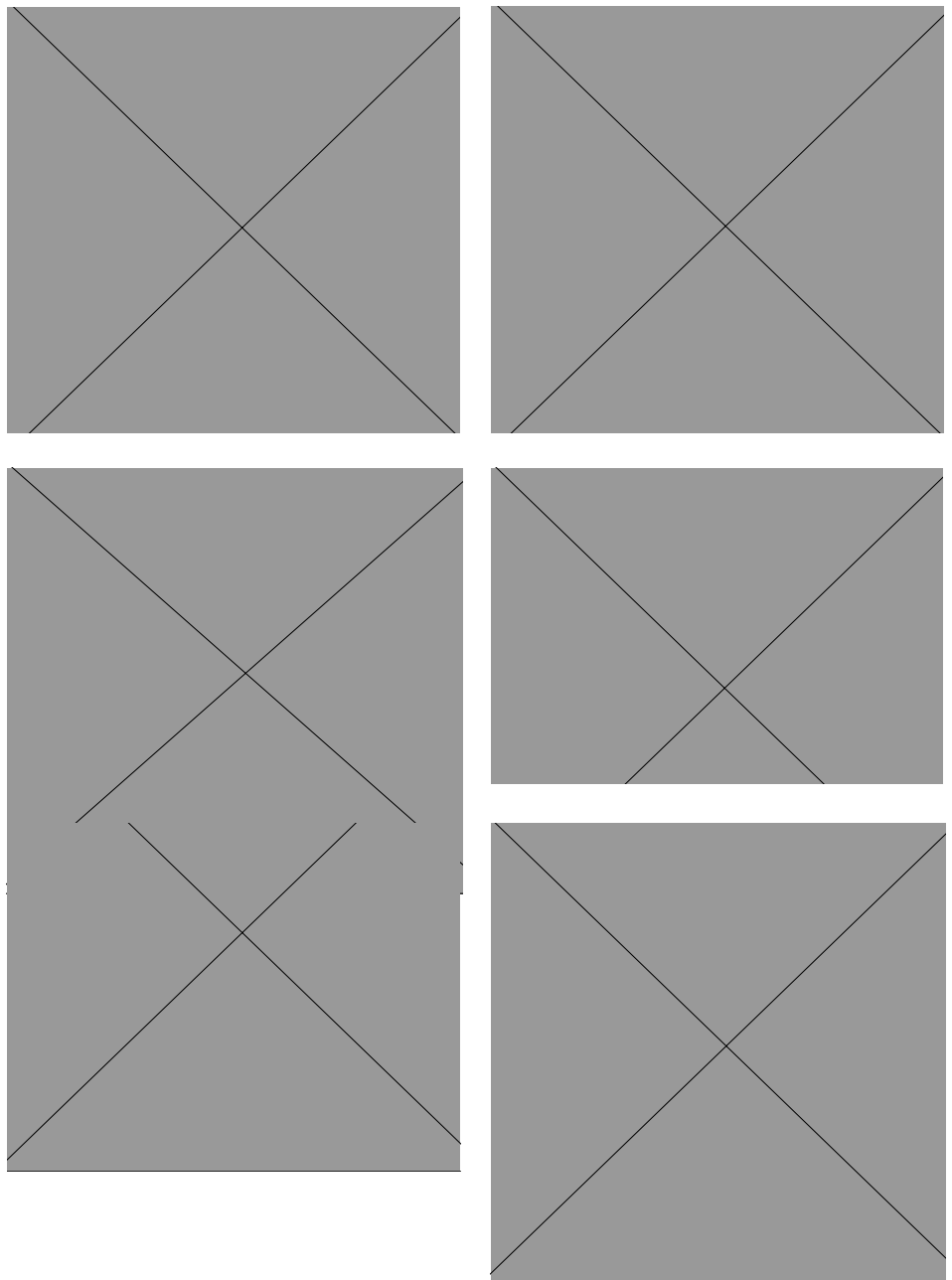
### Colour coding

Colour coding or colour numbering is a standardised method within the print and built environment for differentiating colour and ensuring colour continuity in specification, such as RAL or Pantone.

By removing any opportunity for colour bias, on the basis of colour terms and semantics, colour coding could be applied. This could reduce opportunity for subjectivity or colour preference borne from learned word association or the assumed 'mood' of any one colour.

### Figure 05

Colour selection across the existing upholstery colour palette of commissioning body-note a clear preference towards pink & purple





# Colour Preference

We have previously outlined the opportunity for colour preference to be influenced by colour terms and subsequent word association. There is also empirical evidence which supports the theory of colour preference relative to sex, age and perception.

## Preference across age & sex

Ling & Hurlbert (2001) identified that few studies have been undertaken to compare colour preference across multiple age groups and in particular across elderly subjects. In response, they carried out a systematic examination of preference across children, young adults and the elderly.

Over a period of 2.5 years, four age groups were tested (Age 8–9, 11–12, 18–22 & 61–88 yrs). A series of detailed, controlled experiments were carried out to examine colour preference using a series of visual stimuli, such as colour cards to rank 'pleasantness' or to select favourite colours by a process of elimination. A simplified overview of their findings is noted below.

- The results indicated a significant sex difference in colour preference in ages 8–9, which increased for the 11–12 year group and was still notable in the 18–22 year group
- This effectively vanished for the 61–88 year group, although it was noted that there was a 'weak trend' towards an increase preference of females for 'red-purple'. Male & Female preference weighted highly towards the blue–yellow axis

- Violet colours were preferred to yellow–green colours
- Females weighted more positively towards red–green and males towards blue–green

In elderly housing, where there is typically a higher number of female tenants it is interesting to note the trend towards colour preference in the red–purple spectrum.

## Perception & sensation

"Colours cause sensations like cold and warm, heavy and lightweight, fragile and solid, which in turn generate feelings, which means a qualitative assessment such as pleasant or unpleasant, friendly or unfriendly, uplifting or indifferent. These feelings are followed by intuitive notions containing an automatic search for previous perceptions or feelings with an experience-based nature. Reflection comes at the end." (Wolf et al, 2011, p.)

A recent study by Wolf et al, commissioned by RAL GmbH (an industry colour matching company) into colours for health & care, investigated the psychology of colours and identified that certain colours trigger identical collectively effective perceptual and behavioural patterns.

The study involved an empirical analysis of 70 people aged between 18 and 83 years, who were asked to select their individual colour preference from 340 individual colours for 120 adjectives, such as 'beautiful', 'soothing' 'pain-free'. A series of pie charts were formed,

which order colour relative to colour preference percentage response.

In addition a series of matrix were prepared, which outline colour synaesthetic, colour association and colour attitudes & action. The result is a structured colour fan of 120 hues title 'Colours of Health & Care'.

## Mood & emotion

"When asked about the associations they make between certain colours and certain emotions, most people will happily express a strong opinion. For example, we conventionally associate red with anger, green with envy and blue with sadness." (Simmons, 2011. p.)

The colour semantic differential study carried out by Valdez & Mehrabian (1994) aimed to establish if there are systematic links between particular colours and particular emotions. A sample of 250 participants were asked to rate each sample (colours of varying saturation and brightness) using alternative word associations such as 'happy' or 'pleasant'. The participants were presented with a colour and asked to map where on a spectrum of happy to cruel it made them feel.

The conclusion was that saturation and brightness dominated emotional responses to colour. Hue (100% colour) accounted for less than 30%. In simplified terms, the shade of colour effected the individuals perception of mood as opposed to the basic colour.

# Colour Contrast

The ageing eye and individuals with visual impairments find it difficult to discriminate between colours and as such, the use of contrast is an effective tool to assist with their interpretation of their physical environment.

Until recently, the perception was that opposing colours (for example red and yellow) would provide sufficient contrast to aid someone with a visual impairment to distinguish between two objects or surfaces. However, despite the difference in hue, the luminosity of the colour may be the same. For example a deep red with a light reflectance value (LRV) of 50 will appear the same as a yellow with the same LRV.

## Contrast in colour

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

The LRV scale runs from 0, which is perfectly absorbing surface that could be assumed to be totally black, up to 100, which is perfectly reflective surface that could be considered to be the perfect white.

## Measuring contrast

Colours which appear to be different from one another in colour can be very similar tonally and therefore, do not give sufficient contrast. A simple (but not scientific) method of judging good contrast is to take a black & white photograph of the scene or a photocopy of a colour photograph. A good contrast will show up black & white, poor contrast will show up as grey.

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

In many cases the LRV of the colour samples can be obtained from the manufacturer who produced the colour swatches.

Several manufacturers identify the LRV of a product and from this contrast between finishes can be determined accurately by the specifier.

A table of LRV ratings for materials commonly used by the commissioning body is provided in appendix B and a sample material:LRV matrix is provided in appendix C to aid appropriate selection of different materials & colours.

## Specifying contrast

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

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

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



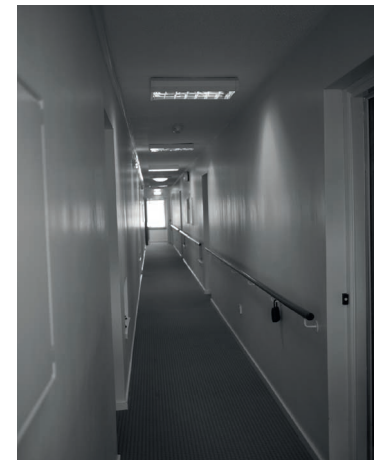
**Figure 06**

- 1 Upholstered seat and carpet contrast : case study
- 2 Existing floor – skirting – wall contrast : case study
- 3 Existing floor – floor contrast : case study

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**Figure 07**

Case study: contrast in communal circulation





# Colour Versus...

## Pattern

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

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

“The presence in general of busy patterns on the floor or wall is disliked by deaf and hearing impaired people. This is due to the problem with balance that people who have problems with their ears may have.” (Bright. p72)

## Signage (in wayfinding)

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

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

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

## Objects (in wayfinding)

“It should be emphasised that landmarks are more important than colour in assisting wayfinding”. (Dementia Services Development Center)

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

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

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

Indeed the use of both colours and numerics for differentiating floor levels will ensure both wayfinding strategies are offered.

Detailed information on wayfinding and signage is provided in Sections 9–13.



	Colours							
	Green, Yellow, Turquoise	Violet, Earthy, Gold	Rose, Viola, Apricot	Beige, Grey, White	Black, Grey, White	Deep Red, Red, Orange	Blue, Light Blue, Aqua	White, Light Grey
<b>Skin sensation</b>								
Warm		X				X		
Cosy								
Cool	X						X	
Neutral				X				
<b>Spatial feeling</b>								
Cosy		X						
Cool							X	
<b>Health and care</b>								
Clean							X	
Professional								X
Warming							X	
Calming				X				
<b>Time orientation</b>								
Stable	X	X		X	X	X	X	
Medium								X
<b>Room types</b>								
Sedate		X		X				
Luxurious		X						
Gentle				X				
Functional					X			
Minimalist								
Conscious						X		
Clear							X	
Factual								X

**Figure 08**  
Adjective-boards (left)

Outcome from a workshop with Trust Housing Association employees. Each group was asked to prepare adjective boards to represent their aspirations for the mood and feeling of each area.

**Figure 09**  
Colour mood, perception  
& sensory associations

(reference to 'Colours of Health & Care' RAL, 2011)

**Figure 10**

Table identifying rooms which require more than one floor finish. Where required recommendations for both floor finishes is given in the corresponding mood board & consideration given to ensuring similar contrast is achieved to prevent 'high-stepping' over a perceived change in floor level.

Rooms	Public				Public/Semi-public			Semi-public			Private
	Entrance	Circulation / Stairs	Dining Room	Laundry	Lounge	Activities Room	Hairdressers	Guest Bedroom	Assisted Bathroom	Staff Office	Kitchen
<b>Floor finish</b>											
Vinyl flooring		X	X	X		X	X		X		X
Carpet flooring	X	X			X	X		X		X	
Matwell flooring	X										

**Figure 11**

Table identifying the aspirational adjectives identified in the staff workshop, their colour association and corresponding room. This information informed the colour palettes within the mood boards.

Rooms	Public				Public/Semi-public			Semi-public			Private
	Entrance	Circulation / Stairs	Dining Room	Laundry	Lounge	Activities Room	Hairdressers	Guest Bedroom	Assisted Bathroom	Staff Office	Kitchen
<b>Adjective/ mood/colour</b>											
Green, Yellow, Turquoise			X								
Violet, Earthy, Gold						X		X	X		
Rose, Viola, Apricot							X				
Beige, Matt, Cream	X		X			X			X		
Black, Grey, White	X	X					X			X	X
Deep Red, Red, Orange					X	X		X			
Blue, Light Blue, Aqua	X	X		X	X						X
White, Light Grey	X	X		X			X			X	



# Colour Principles in Application

We have discussed in detail the principles of colour choice, preference and contrast. However to benefit fully from colour in our built environments it is important that the principles of application are understood. This will not only ensure appropriate colour placement but it will also aid designers and clients to use colour as a tool to create better accessible environments.

## Principles for colour choice

We have previously outlined in our review of current colour research & theory, that social, cultural and physiological factors play an important part in our colour preference development.

As argued by Wolf et al, certain basic colours trigger a collective response and preference. The origins of this collective response remain unknown & widely debated.

However, what is apparent is that colour preference becomes more individual when choice of colour saturation increases. For example women in their later years are recorded as preferring the colour violet to yellow-green. Establishing which shade, saturation and luminance of the colour violet could be widely debated within the group and a unanimity never achieved.

A degree of objectivity might come for example, if it was agreed collectively that the common lounge should be 'violet' (adopting violet as a basic colour term).

The decision on saturation or luminance could therefore be made by the commissioning party or designer and a decision made in parallel to ensuring the requirements of contrast are met in their selection of adjacent walls, floors and ironmongery etc.

## Principles for perception, sensation & mood

The research undertaken by Wolf et al indicates a collective response in colour synaesthesia (sensory experience) – blue rooms are perceived as being colder than red rooms for example.

With this in mind a collective agreement on the associated 'experience' or 'mood' of a room could be sought and from this appropriate colour schemes developed.

This was further explored with the commissioning body during a one-day workshop whereby representatives were asked to prepare mood boards for typical communal rooms using adjectives which they believed best described their aspirations for each room.

In addition each group was asked to make a decision on whether a room was public, semi-public or private.

A brief summary of the results are provided below:

- 11 mood boards were prepared for 11 communal rooms
- The entrance, circulation areas, dining room and laundry were considered 'public' areas
- The lounge, activities room and hairdressers were considered 'public/semi-public' areas
- The guest bedroom, assisted bathroom and staff office were considered 'semi-public'
- The kitchen was the only room identified as being 'private' (to staff)
- 'Clean', 'bright' and 'warm' were the most commonly used adjectives
- 'Contemporary' ranked higher in aspirations to 'relaxing'

The collective aspirational adjectives for each area are noted in the following tables:

#### Public areas

Airy, appealing, attractive, bright, clean, cool, corporate, flexible, functional, informative, inviting, light, practical, safe, tidy, ventilated, warm, welcoming.

#### Public/semi-public areas

Airy, bright, clean, clear, clinical, comfortable, contemporary, flexible, functional, professional, relaxing, safe, spacious, timeless, ventilated, vibrant.

#### Semi-public areas

Ambient, bright, calm, clean, comfortable, confident, contemporary, corporate, cosy, functional, inviting, organised, practical, private, professional, safe, tidy, warm, welcoming.

#### Private areas

Bright, clean, cool, functional, light, linear, shiny, sterile, tidy, ventilated, well-planned.

As an example of how this information could be integrated into colour choice, the entrance and circulation areas are both considered 'public' and similar aspirations. Both should predominately be airy, bright and clean. Therefore a colour palette which best reflects the collective understanding of the mood and feeling (synaesthetic) of these spaces could be applied – 'cool' being predominately greens and turquoise.

## Principles for achieving contrast

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

#### Wall:Wall & ceiling

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

It is assumed in all cases that the ceiling will be a painted surface, coloured white. The light reflectance value of white is 100 (or close to) and therefore any walls adjoining the ceiling must have a maximum LRV rating of 70.

In addition, wall:wall contrast is recommended where colour is being utilised as a tool to assist wayfinding. In this instance wall colours should be chosen which provide visual contrast to each other, in addition to contrast to ceilings, floors and doors, signs etc.

#### Wall:Door

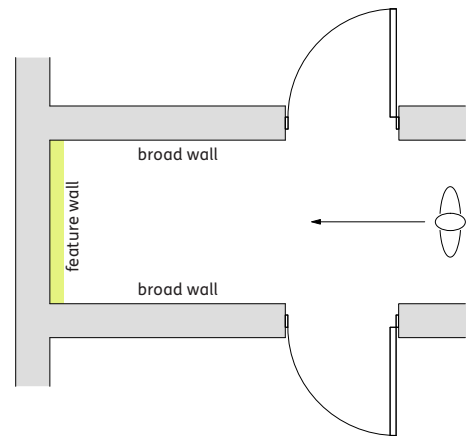
Visual contrast should be provided between a door and the wall it is located within. Be careful to ensure ironmongery fitted to the door face contrasts with the door finish.

#### Wall:Skirting

It is recommended that visual contrast be provided between the wall – skirting and skirting – flooring, to assist the visually impaired understand the spatial arrangement of the room and navigate within it.

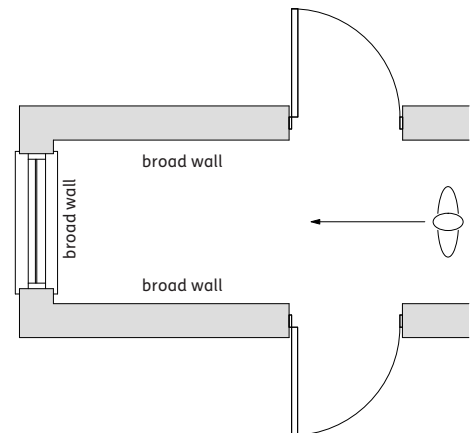
**Figure 12**

Colour application to 'dead-end' corridors



**Figure 13**

Colour application to 'window-end' corridors



If skirtings are painted throughout to brilliant white (as recommended for ceilings) a greater choice of wall colour is available i.e. with an LRV rating of 70 or less.

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

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

#### Floor:Door

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

#### Floor:Floor

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

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

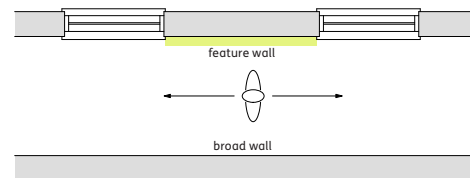
#### Floor:Upholstery

As noted previously, some visual impairments result in individuals experiencing difficulty in positioning themselves accurately to sit down in a chair, on the bed or on the toilet.

Therefore it is important to consider the flooring and the object (chair, toilet, bed) together when specifying a finish or colour. This is relatively straight forward when selecting the colour of a toilet seat or a solid colour for a painted chair for example. However, it is currently not common practice for fabric manufacturers to provide (or obtain) light reflectance values. Therefore diligence should be taken when specifying upholstery colours and floor finishes to ensure adequate visual contrast.

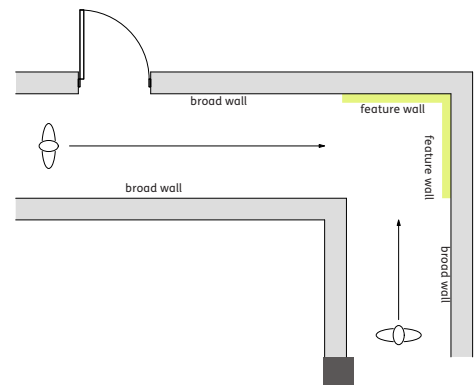
**Figure 14**

Colour application to corridors where signage is required along it's length (where no signage is required broad wall to all areas)



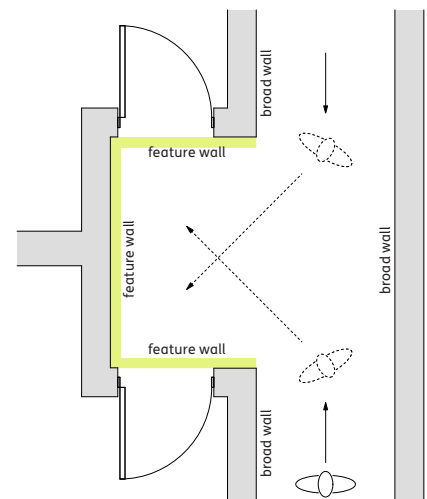
**Figure 15**

Colour application at 90 deg corners where signage is required



**Figure 16**

Colour application to recessed areas



## Principles of application

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

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

### Wall finishes

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

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

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

Paint finishes are also available in a variety of colour choices, which increases opportunity to provide visual contrast<sup>1</sup>. A matt finish is preferred as this will also help to reduce glare. Paint is easy to maintain and repair if damaged and water-based matt paints are available which are also cleanable.

### Floor finishes

Flooring to communal areas for older people housing should be:

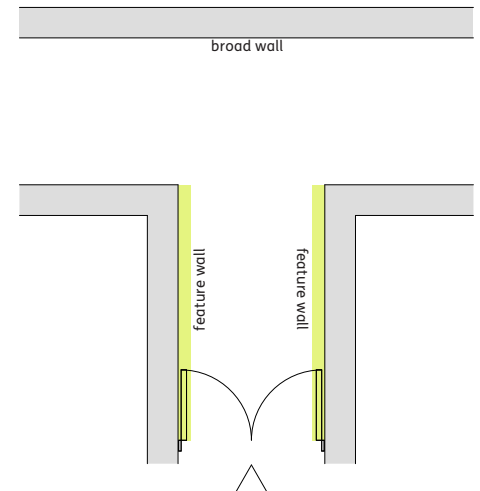
- Slip resistant
- Easy to maintain & clean
- Low to medium pile (carpets)
- Avoid patterns, floral designs, speckles or flecks and strong geometric design
- Be matt in finish (avoid shiny finishes due to problems with glare and the perception that they are wet)
- Have the same or similar LRV where two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

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

- Flooring accessories (trims, edging, tactile warning surfaces).
- Barrier matting/entrance matting
- More than one floor finish to any one area
- Kickplates, grabrails, edge protection

**Figure 17**

Colour application at entrances



<sup>1</sup> A review of Dulux Trade Colour fan indicated paint finishes varied in LRV ratings from 5 - 87

## Doors & frames

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

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

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

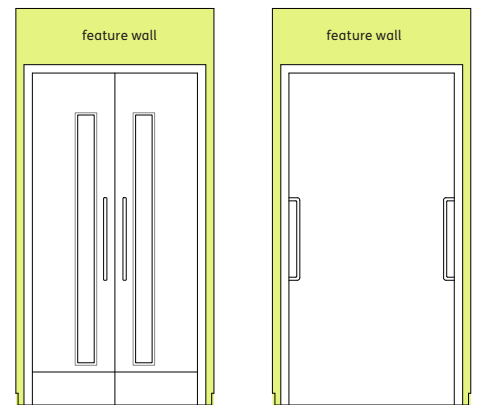
## Upholstery

Upholstered chairs should:

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

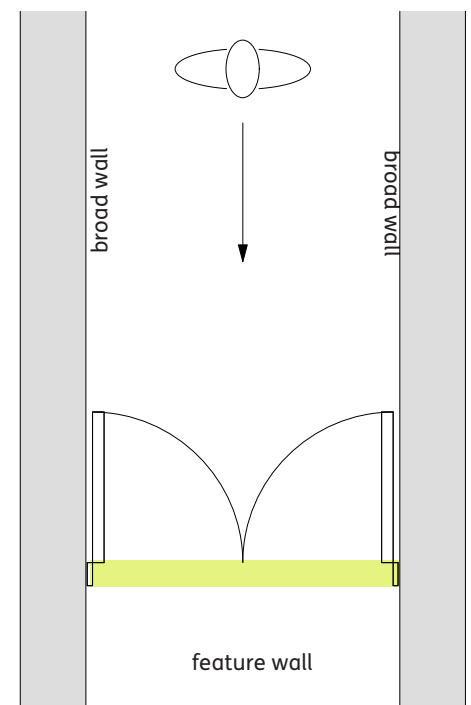
**Figure 18**

Colour application at smoke control doors to corridors



**Figure 19**

Colour application at smoke control doors to corridors



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# Sample Boards & LRV Matrix

A requirement of the commissioning body brief was for the production of sample boards for typical communal areas, which incorporate the design principles, statutory requirements and staff consultation.

The following sample boards are provided as general guidance and are specific to the requirements of the commissioning body.

Sample boards have been prepared for communal rooms and areas typically found within an older persons housing development.

These are as follows:

- Entrance
- Circulation/Stairs
- Dining Room
- Laundry
- Lounge
- Activities Room
- Hairdressers
- Guest Bedroom
- Assisted Bathroom
- Staff office
- Kitchen (commercial for preparing meal service)

Each sample board has been developed to incorporate the commissioning body's existing floor & upholstery specification. From this appropriate, contrasting colours were selected for each area.

The overall 'mood' for each room was developed following the outcome of a one-day workshop with the commissioning body whereby representatives prepared 'adjective boards' to best articulate their aspirational mood, function and feeling of each room. From this and with reference to the colour research appropriate colours were selected.

For each material or finish, manufacturers light reflectance values are noted (where known).

A general rule of +/- 30 units has been adopted to provide contrast between:

- Broad & feature walls
- Walls & skirting
- Walls & floor
- Floor & floor (where some rooms require more than one floor finish i.e. vinyl & carpet or carpet and matwell)
- Floor & trim

Upholstery recommendations have also been made but it is noted that LRV's for upholstery were not available from the manufacturers at the time of preparing this guidance.

LRV matrix were also prepared which account for all colours within each sample range. Dashed lines identify appropriate material matches, relevant to LRV and aesthetic.

# Signing

## What function do signs have?

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

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

## Why sign in this context?

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

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

## What is signing in this context?

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

## The purpose of these signs

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

## Types of signs

Directional, informative and identifying signs all perform fundamental functions.

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

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

## Fire, Health and Safety Statutory Signs

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

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

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

Figure 20

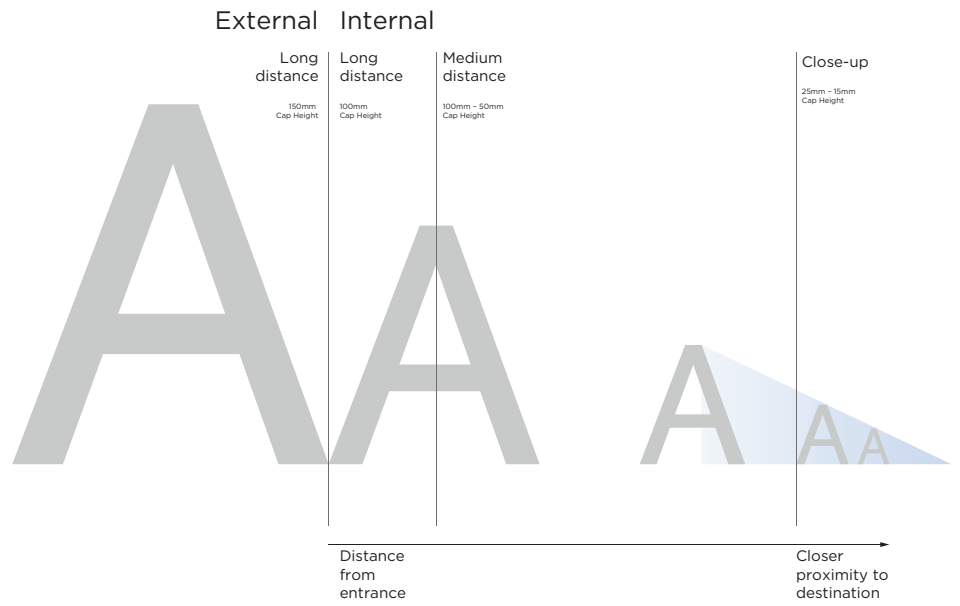
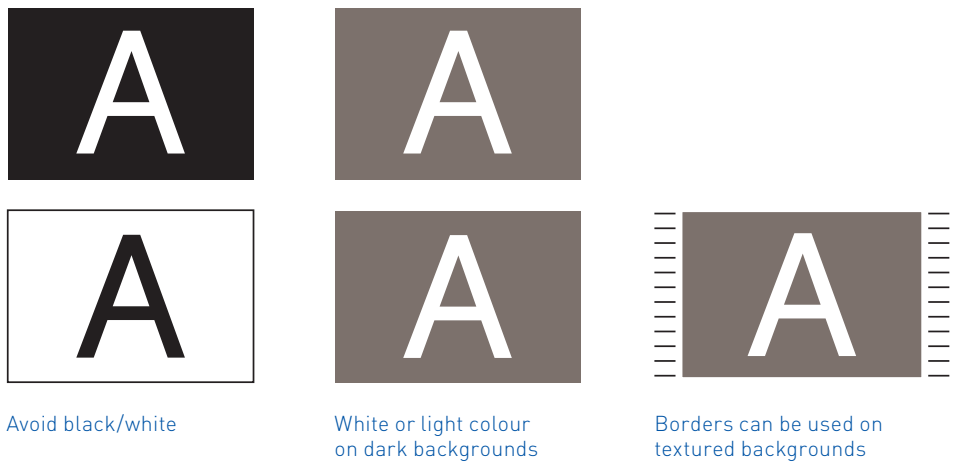


Figure 21





# Signing for dementia

## Principle

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

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

## Current market

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

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

Whilst they might serve as a good solution for dementia specific environments they could be regarded as intrusive in more widely used spaces designed for a range of residents, with varying levels of care needs. (See figure 18).

## The sign environment

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

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

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

## Pictorial elements

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

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

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

## Colour coding

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

## Colour highlighting

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

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

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

# Design principles and aspirations

## Legibility

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

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

## Size

There is a direct correlation between the size of text on a sign and its legibility over distance. An appropriate choice of size – for both sign and choice of type size – should be made depending on the location and use of the sign. (See figure 20).

## Typeface

Choice of typeface is critical. Overly decorative, italic, script, condensed or extended typefaces must be avoided. San serif typefaces prove to be the best option.

Preference is given to typefaces with consistent weights and letter spacing, which is a characteristic of sans serif type. (See figure 22).

## Contrast

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

However, stark contrast such as the use black and white must be avoided.

The use of borders around the outer edge of a sign can be used, when there is no alternative to fixing that sign on a background that is textured, or where the background colour cannot be affected. (See figure 21).

## Placement

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

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

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

## Consistency

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

## Colour

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

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

## Form & material

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

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

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

The use of embossing or raising of the content can help in the tactile recognition of that content.

For example, the inclusion of a raised illustration of a male figure on a sign depicting a male toilet, means that the outline of the figure would be recognisable to those who may use touch to help find their way. (See figure 23).

## Language

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

## Layout

Hierarchy in the layout of information is important, though may vary from site to site.

Depending on location it may be more important to guide visitors to a reception or provide an obvious prominent direction to a nearby toilet.

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

## Directional arrows

Placement of directional arrows should be orientated next to the text in the direction they are pointing. For example, a left pointing arrow will fall to the left of the text. (See figure 24).

## Use of braille

Where braille is to be used it should be located directly below or adjacent to the text it is interpreting.

An embossed or raised signal must be included in the sign to the left of the braille text marking it as an area that braille is available to be read. (See figure 25).

Figure 23



Figure 22

## Sans Serif

~~DECORATIVE~~

~~Italic~~

~~Script~~

~~CONDENSED~~

~~Extended~~

Figure 24



Figure 25



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# Design guidance

The following design guidance sets out aspiration design standards and their expected outcomes.

This guidance is based upon the culmination of our research from and adopted: site visits; design workshops; research workshops; client meetings; written research; surveys from plan; sign placement studies on plan; consultation with industry expertise; desk based and internet research.

The extent of written research for the design and application of signage is limited to a small number of Royal National Institute for the Blind (RNIB) and Sign Design Society publications.

Consequently, a significant part of the guidance has been drawn from professional experience and research in related graphic design fields.

By adopting the best principles and adapting them to the needs of dementia specific solutions. We can then set goals for the creation of a system of signing that fits both the requirements for dementia and the rest of the residential community.

## Planning

A full survey and signing plan must be conducted for every property that is to be signed.

Placement of directional signs, directories informational signs need to be assigned and plotted.

Care also needs to be taken in ascertaining whether all areas are to be signed or if specifics are to be left unsigned or not highlighted.

For example, it may not be desirable to draw attention to staff only areas or to a developments plant rooms. (See figure 26).

---

Figure 26



## Reduction of visual clutter

If areas are visually cluttered – especially those in relation to entrances and circulation areas – for example with the use of general notice boards, there should be effort to de-clutter. Given that research suggests a calm and ordered space is beneficial in easing the restlessness of those with visual impairments, clearing the signing of these areas in particular will benefit not only the spaces but also the understanding of those spaces and the initial impression of the interior.

As part of the site planning a visual survey should be conducted of the existing signs and other elements that impact on the flow through a development.

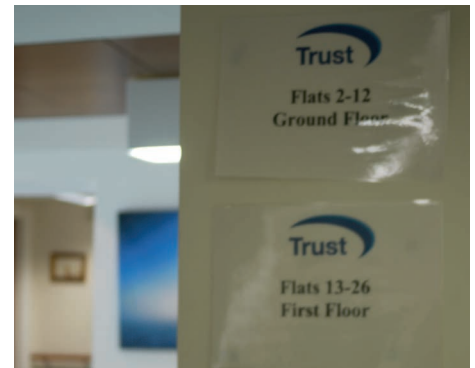
A take down or replacement list needs to be collated, with the goal of allowing any newer signing to be visible and effective. (See figure 27).

Temporary signing should be removed and assessed as to its life span. Any temporary sign that has been in existence for over 6 weeks – or any other arbitrary period – should be determined whether it is of use and to become a permanent sign. (See figure 28).

Figure 27



Figure 28



## Positioning & placement

A combination of site visit, information garnered at design workshop and a series of drawn elevation and plan based assessments have informed the following guidance on placement and positioning of signing.

Industry expertise was also sought with the regard to sign positioning, resulting in a plan based positioning exercise.

Conclusions were similar however some aspects of cultural precedent were brought to the fore, position on door as opposed to next to door, but specific design decision on this aspect should be made with information from a site survey of any particular development.

### Suggested placement and types of signs:

#### Directional:

Wall mounted at appropriate junctions, access points, doorways, entrances, stairways and halls or courts.

#### Informational:

On or next to doors, at entrances, floor numbering.

#### Identifying:

On or next to doors, floor numbering.

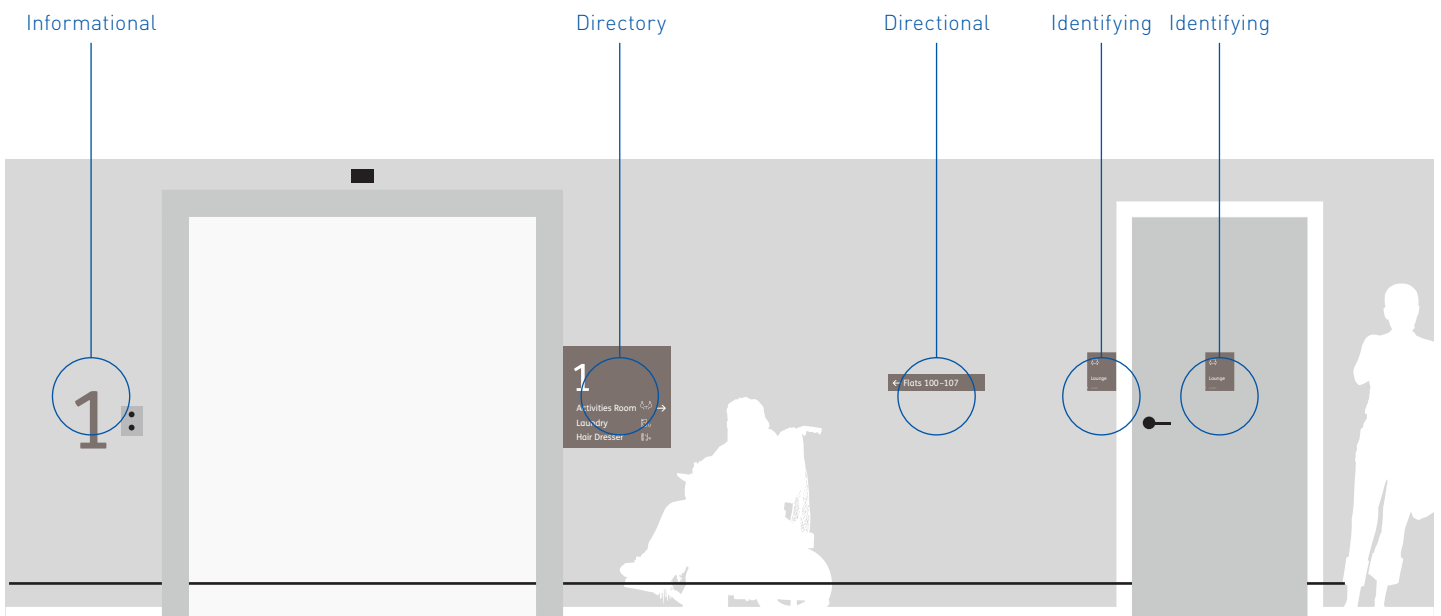
#### Directories:

Inside and adjacent to lift exits, lifts, entrance to and inside stairwells and at entrances.

#### Plans:

Within entrances to developments. (See figure 29)

**Figure 29**



## Type size

### Long distance

For example external of large scale signs – minimum 150mm cap height.

### Medium distance

For example internal signing or entrances – minimum 50–100mm cap height.

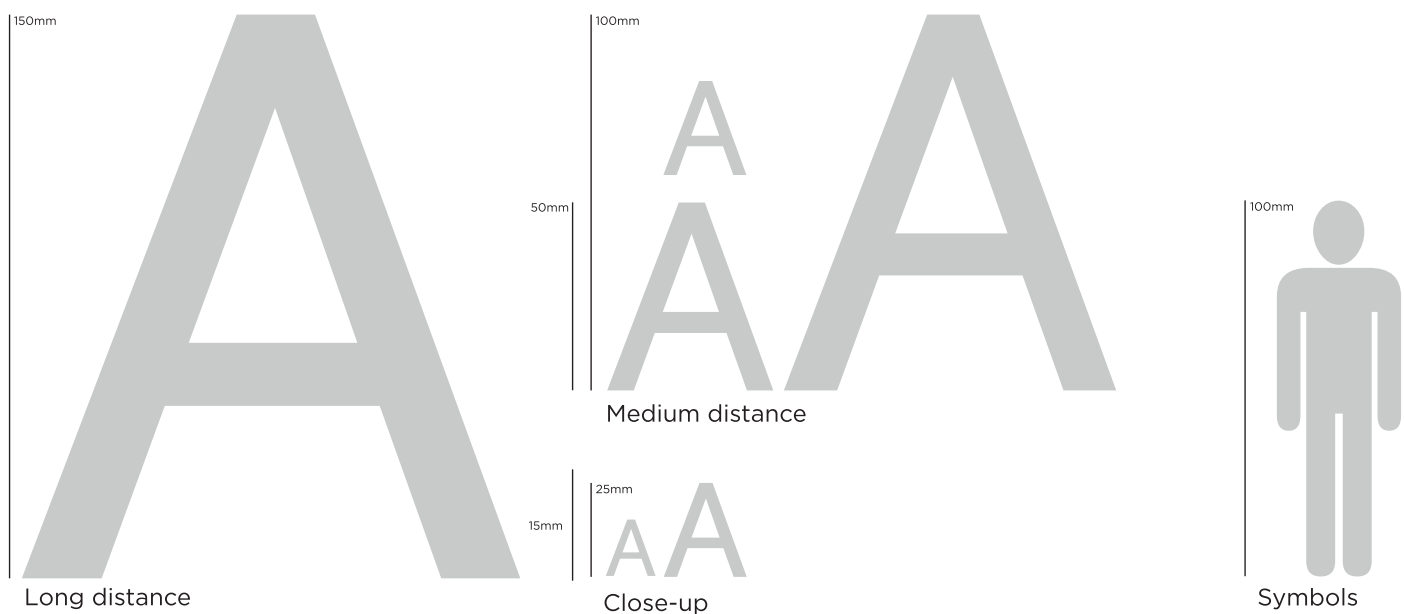
### Close-up

For example directory signs, identifier signs minimum 15–25mm cap height.

### Symbols

Suggested minimum 100mm in height overall when used (See figure 30).

**Figure 30**



## Contrast

Contrast between letter and background will be used to help increase legibility and visual impact of the signing. The following principles will be referenced;

- Avoidance of black on white or white on black
- There will be good contrast between background and letter
- Borders will be used on edges where there is texture behind a sign or, where the background colour cannot be affected
- Minimal amount of colour will be used
- No use of colours of the same or similar hue
- White or a light tone plus one or two additional colours is regarded as best for a system of signing and way finding

## Colour

Firstly, a neutral colour palette will be developed to allow the signing to function across dispirit development environments.

Secondly, a series of further palettes are available that will exist, which will be complimentary to and developed to be used in conjunction with the 'Colours' environment research findings.

## Form

The signs will allow for the inclusion of the following elements to be contained within the structural form;

- Text
- Multiple colours on one sign
- A pictorial element
- Raised text and illustration
- Symbol, annotations and directional arrows
- Include braille and braille marker to the edge of the signs

## Layout

The layout of all the elements contained within a sign will be based on the application of a systematic grid structure.

A rigid, logical and structured hierarchy of information will also be applied.

## Consistency

By designing a sign scheme from best principles forward – we can ensure there is a level of consistency across all signing in any given development.

Consistency will also be key to recognition. A sign will be recognisable in its function, if it is designed as part of a coherent and interconnected solution.

An unified visual relationship will exist between the signs across and between developments.

## Comprehension

The inclusion of pictorial and directional elements to aid comprehension.



## Pictorial elements

Inclusion of a pictorial element to the signing for those with dementia is key.

These will be included at every opportunity, where their relevance is beneficial to understanding.

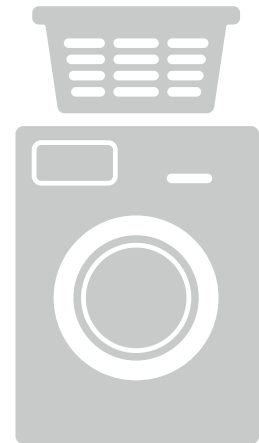
Illustrated or graphic elements are included in the design solution as opposed to photographic. Due to simplicity of form and the ease of production as a raised element in the signing. (See figure 31).

## Construction & production

The following items are significant to the design of the signing and consequently will determine the production methods employed.

- Colour production is intrinsic to the designs and must be accurately reproduced
- Pictorial elements will be included
- They will make use of raised text, raised illustration and braille.
- The use of materials must be sympathetic to the designed environment
- Signs will be flush mounted no fixtures should show
- Signs must be durable and permanent

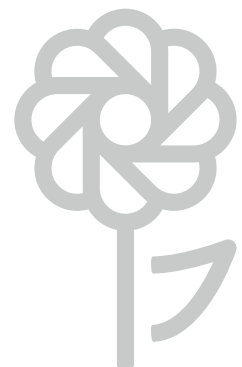
### Illustration



### Photographic



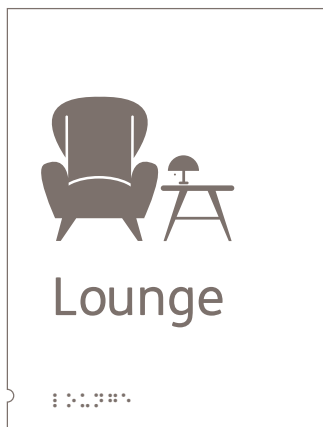
### Graphic



# Examples

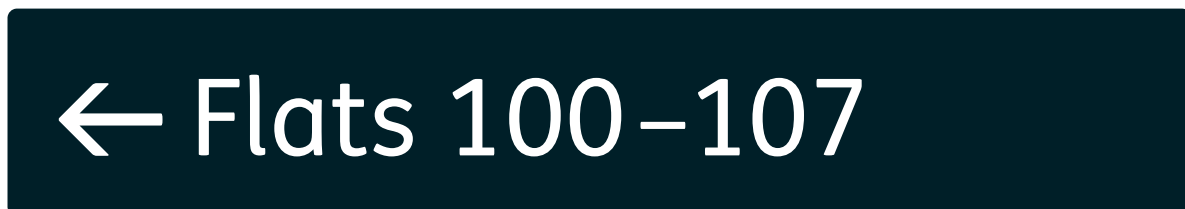
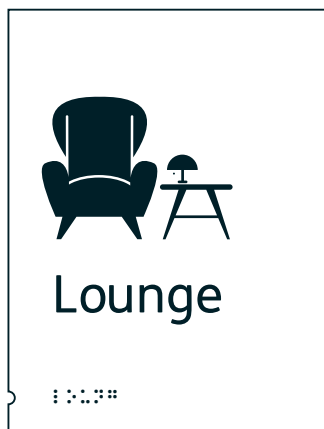
**Figure 31**

Colour application at entrances



**Figure 32**

Typical 'colours' palette



# A

## Appendix

### Statutory regulations

The following regulations and stated sub-clauses are applicable to the contents of this study:

- Equalities Act (2010)
- Scottish Building Technical Standards

**BS8300** states minimum visual contrast as 20, preferably 30, points difference in LRV. However, this can lead to monochromatic, unappealing colour schemes and potentially little scope for colour choice.

#### **BS8300:2009+A1:2010:**

Each step nosing should incorporate a:

- Permanently contrasting continuous material for the full width of the stair on both the tread and the riser to help blind and partially sighted people.
- Appreciate the extent of the stair and identify individual treads.
- The material should be 50mm to 65mm on the tread and 30mm to 55mm on the riser, and should contrast visually with the remainder of the tread and riser.'

#### **BS8300:2009+A1:2010:**

'To give advance warning of a step, tactile paving with a corduroy hazard warning surface should be provided at the top and bottom of each flight. Where the approach to the stair is wider than the flight, the tactile surface should extend beyond the line of each edge of the flight.'

#### **BS8300:2009+A1:2010:**

"To avoid giving the wrong impression about the size of a room, skirtings should have the same LRV as the wall so that the junction between the skirting and the floor marks the extent of the room."

#### **BS8300:2009+A1:2010:**

A handrail should be finished so as to provide visual contrast with the surroundings against which it is seen.' 'Large, repeating patterns that incorporate bold, contrasting colours should not be used for the wall surfaces in parts of the building where visual acuity is critical.'

- BS8300:2009+A1:2010: 'Floor patterning that could be mistaken for steps, e.g. stripes, should not be used for floors in corridors'
- 'Deep pile carpet should not be used on stair treads'
- 'Differences in LRV should be used to assess the degree of visual contrast between surfaces such as floors, walls, doors and ceilings and between key fittings/fixtures and surrounding surfaces'
- The LRV of a wall should be 30 points different from that of the ceiling and of the floor'
- 'Large, repeating patterns that incorporate bold contrasting colours or simulate steps should not be used for any floor surface'

Building Regulations Approved Document Part M (England) specifiers are advised to contrast visually adjacent critical surfaces such as walls, ceiling, doors and floors by differentiating the colours used by a light reflectance value (LRV) of more than 30 points.

**BS8493:2008** stipulates that a spectrophotometer (apparatus) is used to measure the LRV using CIE Tristimulus Y, Illuminant D65 (natural daylight) and the 10° colorimetric observer. Further to this, the standard details the number of measurements that need to be taken from each specimen, using a measurement grid (see figures 1 and figure 2 below).

The standard states that the results of the LRV measurements shall then be put into a test report.





		Interface Saturn Carpet Tile: Heuga 493																		
LRV Rating	Lava	Tamarind	Orchid	Glacier	Basalt	Teak	Lavender	Deep Sea	Lead	Auburn	Parade	Peppermint	Mercury	Gravel	Bluebeard	Rainforest	Seashell	Brass	Trueblue	Basil
01																				
02																		X		
03																				
04														X						
05																				
06	X												X							
07		X	X					X								X				
08		X			X					X	X			X	X					
09												X							X	
10																				
11																				
12																				X
13				X		X	X													
14							X										X			
15									X											
16																		X		
17													X							





# Bibliography

- Adler, D. (1969) *Metric Handbook: Planning + Design Data*. Architectural Press.
- Bern, K. and Bern, S. (2006) *Gestaltung von Aussenanlagen für Demenzkranke*, Stadt Bern: AVA.
- Bramwell, E. (2011) 'Colours in the Community', in Biggam, C. (ed.) *New Directions in Colour Studies*, Amsterdam: John Benjamins Publishing Company.
- Bright, K. (ed.) (2005) *Disability: Making Buildings Accessible*, 3rd edition, Cambridge: Workplace Law Publishing.
- CARE UK, (no date). *As easy as ABC*, Colchester: CARE UK.
- Clasper, K. (2014) Visuo-perceptual difficulties in dementia, Alzheimer's Society. [Internet] <http://ken-kenc2.blogspot.co.uk/2014/05/visuo-perceptual-difficulties-in-dementia.html>
- Croucher, K. Hicks, L. Bevan, M. Sanderson, D. (2007). *Comparative evaluation of models of housing with care for later life*. University of York: York.
- Ebbert, V. (ed.) (2012) *Design for Aging Review*, 11th edition, Australia: The Images Publishing Group Pty Ltd.
- Fauler, H., Hemmelmeier-Händel, B. and Schauer, K. (2010) *Freiräume für Pflegeheime, Land NÖ, Gruppe Raumordnung, Umwelt und Verkehr, Abteilung Umweltschutz und Raumordnungsförderung und Gruppe Gesundheit und Soziales*, St. Pölten: Abteilung.
- Fedderson, L. (2009) *Living for the Elderly: A design manual*, Germany: Birkhauser.
- Franklin, A. and Sowden, P. (2011) 'Colour and autism spectrum disorders', in Biggam, C. (ed.) *New Directions in Colour Studies*, Amsterdam: John Benjamins Publishing Company.
- Feddersen, E. (et al) (2009) *Living for the Elderly - Principles & Processes*, Berlin: Birkhauser Verlag AG.
- Goodman, C. (2011) *Lifetime Homes Design Guide*, IHS BRE.
- HATC Limited (2006). Mayor of London: *Housing Space Standards*. Greater London Authority, London
- Heiss, O (2010) *Barrier-Free Design: Principles, Planning, Examples*, Birkhauser Architecture.
- Joint Improvement Team (2005). *Essential Connections: Linking Housing, health & social care*. [Internet] <http://www.jitscotland.org.uk/publications-1/housing/>
- Kamp, D. (2011) *Design Considerations in the Design of Outdoor Spaces for Elder Populations*, [Online], Available: <http://uvadesignhealth.org/resources/031411-Design%20Considerations%20by%20David%20Kamp.pdf> [27 June 2013].
- Landschaftsarchitekten, H. (no date) *Gärten für Senioren*, [Online], Nullbarriere.de. Available: [www.nullbarriere.de/senioren-garten.htm](http://www.nullbarriere.de/senioren-garten.htm) [28 March 2013].
- Levitt, D. (2010) *The Housing Design Handbook: A guide to good practice*, London: Routledge
- Ling, Y. and Hurlbert, A. (2011) 'Age-dependence of colour preference in the U.K. population', in Biggam, C. (et al) *New Directions in Colour Studies*, Amsterdam: John Benjamins Publishing Company.
- Marshall, M. (ed.) (2010) *Designing balconies, roof terraces and roof gardens for people with dementia*, Stirling: DSDC.
- McNair, D et al. (2013) *Light & Lighting Design for People with Dementia*. Dementia Design Guidance: University of Stirling
- Mönnikes, J. and Ufer, P. (2006) *Garten und öffentlicher Freiraum im Leben alter Menschen*, Dresden.

- NAPA Living Life. (2010) *Activity at the heart of care - A guide for managers*, London: Bondway Commercial Centre.
- National Institute on Aging. (2005) *Exercise & Physical Activity* [Online], Available: <http://www.nia.nih.gov/health/publication/exercise-physical-activity-your-everyday-guide-national-institute-aging-1> [23 March 2013].
- Palmer, S. (2011) 'Ecological valence and human colour preference', in Biggam, C. (ed.) *New Directions in Colour Studies*, Amsterdam: John Benjamins Publishing Company.
- Pitchford, N. (et al) (2011) 'Look and Learn: Links between colour preference and colour cognition', in Biggam, C. (ed.) *New Directions in Colour Studies*, Amsterdam: John Benjamins Publishing Company.
- Pollock, A. and Marshall, M. (ed.) (2012) *Designing outdoor spaces for people with dementia*, Greenwich: Hammond Press.
- Pollok, R. (2012) *Designing interiors for people with dementia*, Stirling: Dementia Services Development Centre.
- Pollok, R. (2013) *Improving the design of housing to assist people with dementia*, Stirling: Dementia Services Development Centre.
- Rodiek, S. and Schwarz, B. (ed.) (2005) *The Role of the Outdoors in Residential Environments for Aging*, New York: Haworth Press.
- Schittich, C. (ed.) (2012) *Housing for Seniors*, Germany: Detail.de.
- Shackell, A. and Walter, R. (2012) *Greenspace design for health and well-being*, Edinburgh: Forestry Commission.
- Scottish Government. (2013) *Building Technical Handbook - Domestic*.
- Scottish Government. (2010) *Impact of Population Ageing On Scotland*. APS Group Scotland
- Scottish Government. (2011) *Scottish Housing Conditions Survey Key Findings 2011*. A National Statistics Publication for Scotland. APS Group. Scotland
- Scottish Government. (2012) *Scottish Housing Conditions Survey Key Findings 2012*. A National Statistics Publication for Scotland. APS Group. Scotland
- Simmons, D.R. (2011) 'Colour and Emotion', in Biggam, C. (et al) *New Directions in Colour Studies*, Amsterdam: John Benjamins Publishing Company.
- Stenvall, A. (2011) 'The Power of Colour Term Precision', in Biggam, C. (ed.) *New Directions in Colour Studies*, Amsterdam: John Benjamins Publishing Company.
- Sustrans. (2013) *Inactive lifestyles kill an estimated 36,815 people in England each year*, [Online], Available: <http://www.sustrans.org.uk/press-releases/inactive-lifestyles-kill-estimated-36815-people-england-each-year> [28 March 2013].
- UK Government Publication (2014). 'Government Digital Inclusion Strategy'. Available from: <https://www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy#people-who-are-digitally-excluded> [accessed 14 May 2014]
- UK Government Publication (2014). 'Government Digital Inclusion Strategy'. Available from: <https://www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy#people-who-are-digitally-excluded> [accessed 14 May 2014]
- University of Stirling (2012). *The Dementia Services Development Centre (DSDC)*. [Internet] <http://dementia.stir.ac.uk/design/design-guides>
- Vern L, B. (ed) Silverstein, M. (ed) Putney, N. (ed) & Gans, D. (ed) (2009). *Handbook of Theories of Aging*. Springer Publishing Company, New York
- Wolf, K. (ed.) (2011) *Colours of Health & Care*, Munich: Callwey.
- Wulf, H. (2008) 'Wohnen mit Zukunft', In Rau, U. (ed.) *Barrierefrei - Bauen für die Zukunft*, Bauwerk Verlag.



