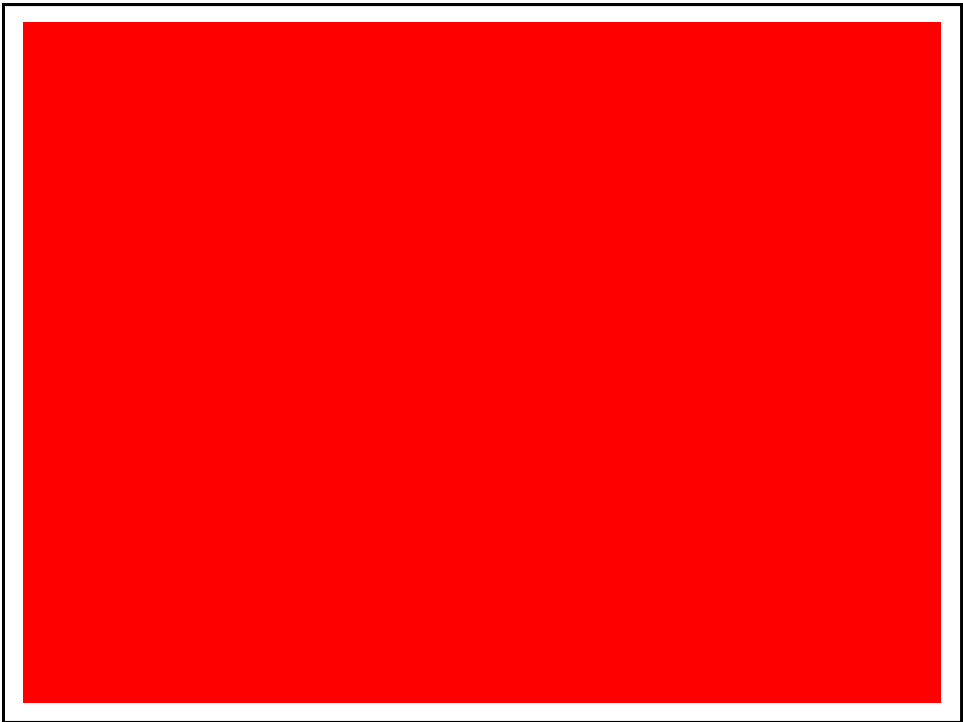


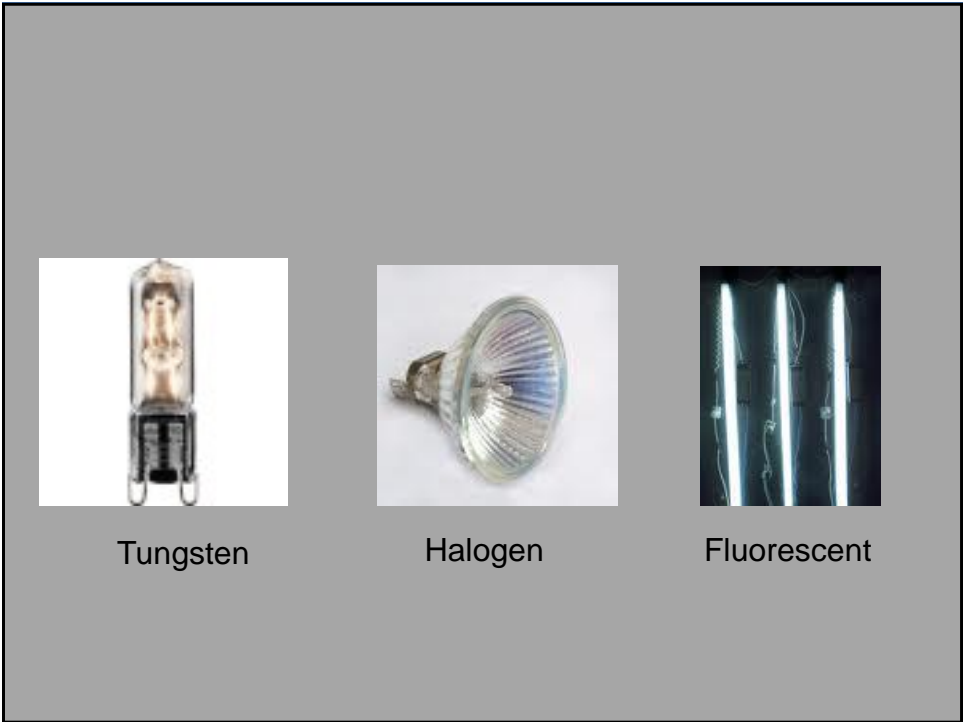
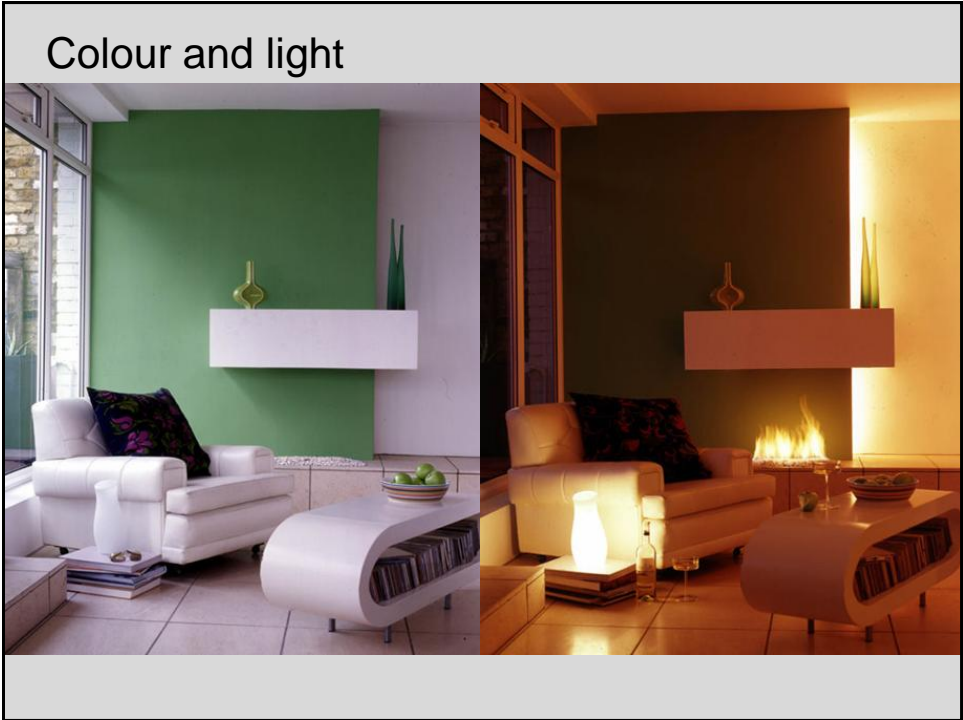


Colour and surface area





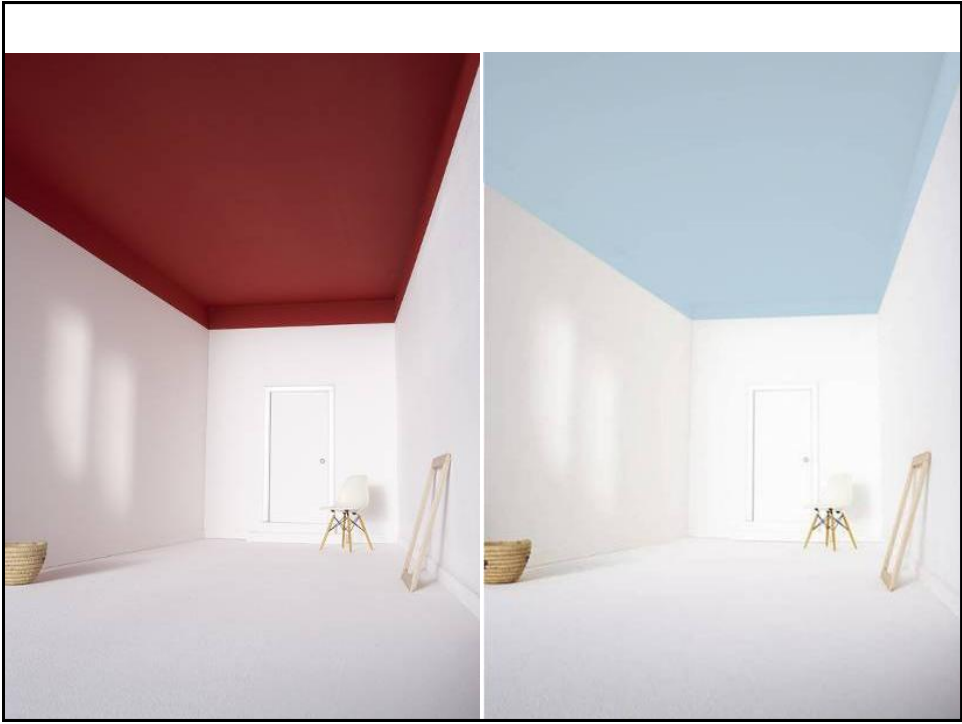






Saturation affecting perception





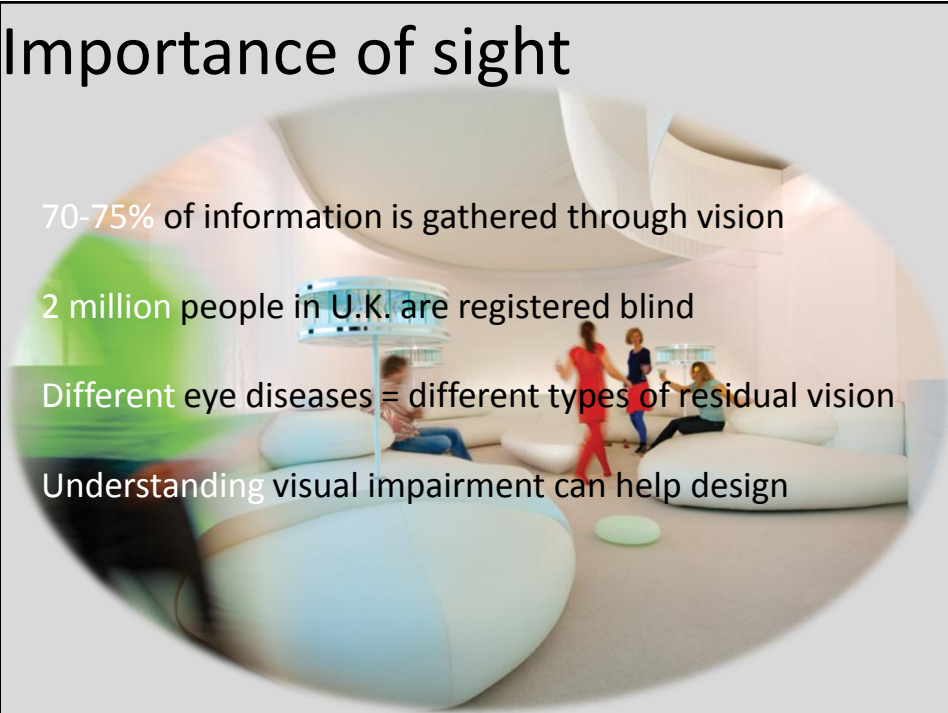


# Importance of good design

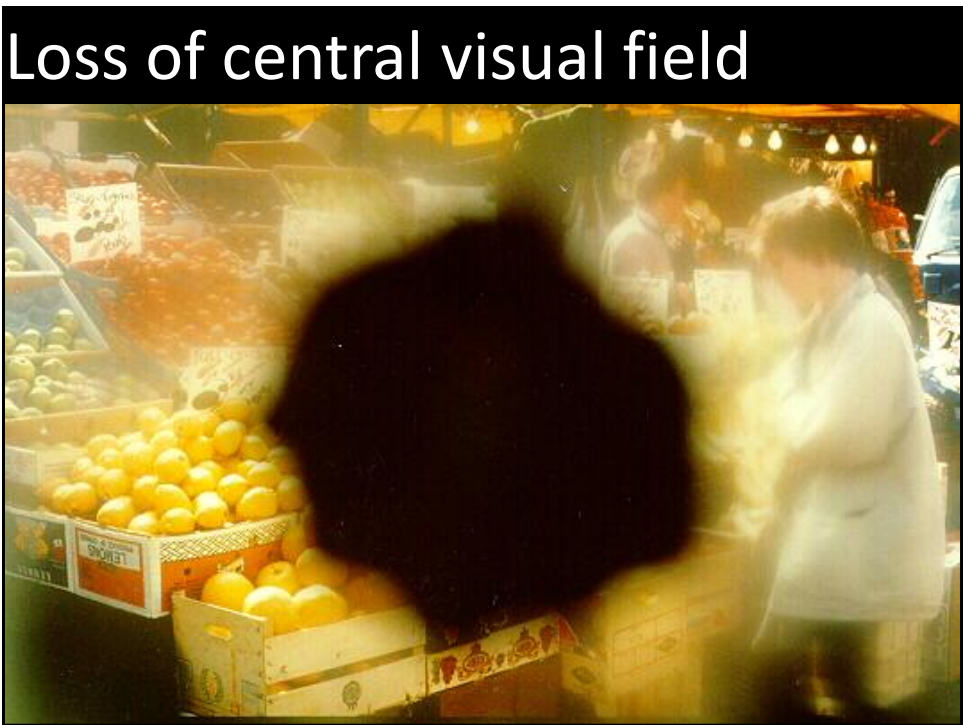


- Considerate design and colour specification is important to all users especially those with reduced vision
- Confidence can be improved
- Independence can be increased
- Aesthetic environments can be created for all users

# Importance of sight



- 70-75% of information is gathered through vision
- 2 million people in U.K. are registered blind
- Different eye diseases = different types of residual vision
- Understanding visual impairment can help design



## Loss of peripheral field vision



## General/sporadic loss of visual field





## Colour selection is important



Environments can be designed and managed to:

Maximise the use of residual vision & make use of navigation techniques

Good colour and lighting design is crucial for visually impaired people to navigate a building

## Good practice?



# Colour & contrast in design

An obvious response might be to maximise colour and luminance contrast between different objects

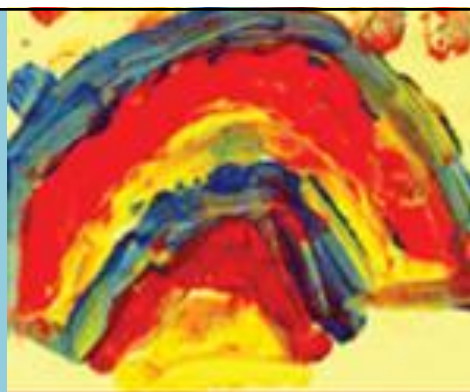


## Project Rainbow

Project Rainbow Research 1997 - ICI Paints, RNIB, University of Reading & Guide Dogs for the Blind, established how colour and contrast can enhance spatial awareness and identify key building features without compromising on aesthetic appeal

### Findings

Adequate Colour difference  
Critical Adjacent surfaces should be differentiated.



Guide Dogs



30 years of extraordinary partnerships




University of Reading



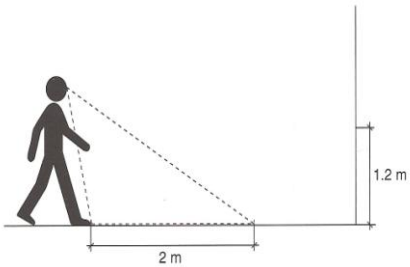
Paints

## Visual contrast aids navigation

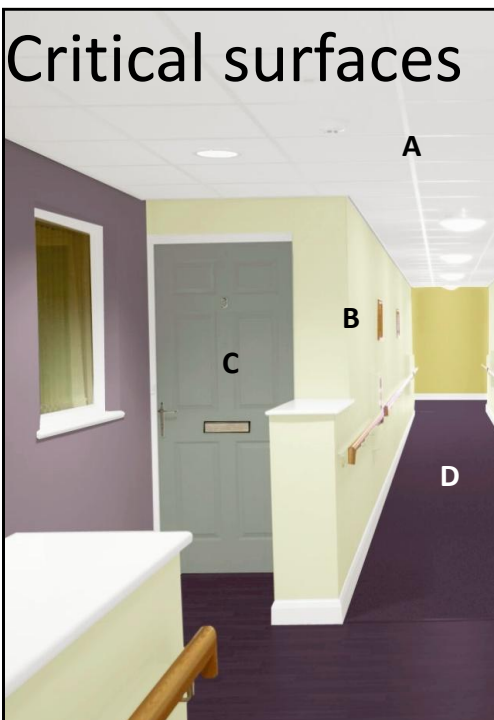


All Visually Impaired People utilise their residual vision to find their way around

They continuously search for and compare any colour contrast between large areas



## Critical surfaces



Critical surfaces are the most important elements in gathering information and understanding a space in terms of its dimensions and size

Such critical surfaces include:

- A. Ceilings
- B. Walls
- C. Doors
- D. Floors



## Special features highlighted

Allows the building to be used effectively by visually impaired people

- Improves navigation
- Safer environment
- Avoids confusion

## Doors

Doors need to be visually contrasting with the surrounding wall

Architrave can either visually contrast with the wall or door or be the same colour

Doors in an open position can be a hazard to Visually Impaired People



## Trim

Trim includes:

1. Coving
2. Skirting
3. Architrave
4. Dados

## General obstacles & furniture

Minimise obstructions

Differentiate from floor & walls

Strong contrast needed for features that extend beyond base supports



## Lighting

In many interiors there are lighting conditions which produce glare and shadows creating an environment which is uncomfortable for Visually Impaired People

Visual contrast can be reduced with ineffective lighting design

Illuminance (Lux)

General minimum: 100 Lux

## Lighting

Natural light is a good source of illumination, but it causes shadows & can make the environment difficult for partially sighted people to use independently





# Equality Act 2010

The purpose of the Act is to streamline and combine previous anti-discrimination legislation and extend the areas covered to:

- Age
- Disability (which includes mental health and obesity)
- Race
- Religion or Belief
- Gender

## Equality Act Design Guidelines


**Project Rainbow** led to the development of visual contrast design guidance identified in:

**Building Regulations Approved Document Part M**



New Build & major refurbishment  
Minimum visual contrast of 30 points LRV

**BS8300:2009**

Best practice guidance for all buildings  
Minimum visual contrast of 20 LRV, however 30 is preferred



# Colour & Contrast – good design





Part M & BS8300 only advise on levels of visual contrast

They do not advise on how to put colours together

# Colour notation aids selection

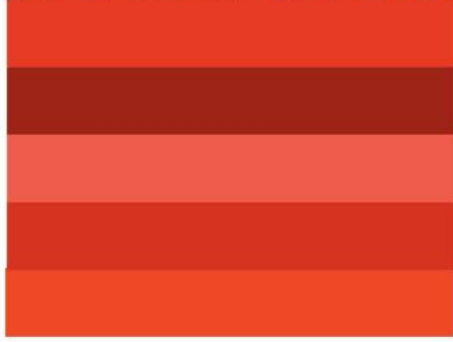
- Good notation reflects colour qualities
- Aligns with how the eye sees colour
- Helps you to visualise the colour
- Identify and communicate types of colours





# Colour Language

Can you express a colour?



# Dulux Trade Colour Palette

The notation system developed by ICI Paints is now applicable all over the world

The role of the notation system is: to make every colour precisely identifiable globally & make colour scheming easier

# Science behind the notation

Colour, as perceived by the eye, is tri-dimensional

- Hue
- Light Reflectance Value
- Chroma

LRV defines visual contrast in Part M and BS8300

Colour palette notation reflects these 3 dimensions

# Colour Palette - Hue

30BB 08/263

HUE LRV CHROMA

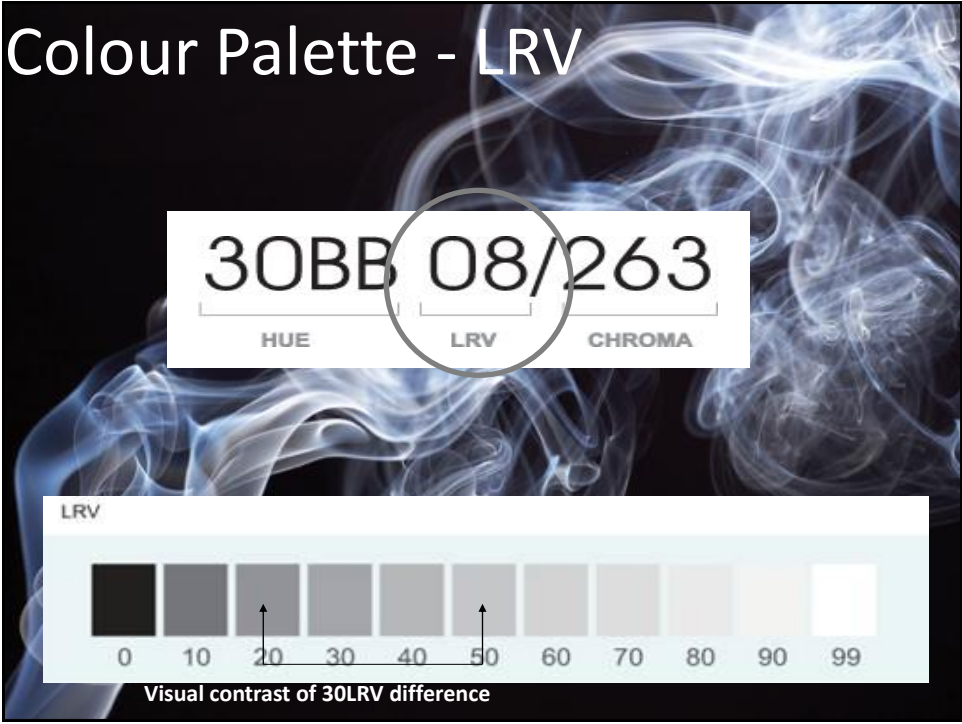
Color wheel labels: Yellow, Orange to red, Red to magenta, Magenta to violet, Violet to blue, Blue to turquoise, Turquoise to green, Green to lime, Yellow.

# Colour Palette - Chroma

30BB 08/263

HUE LRV CHROMA

CHROMA scale: Neutral Grey to Full Chroma



# Improving colour confidence

Rich ★

Fresh ■

Warm ●

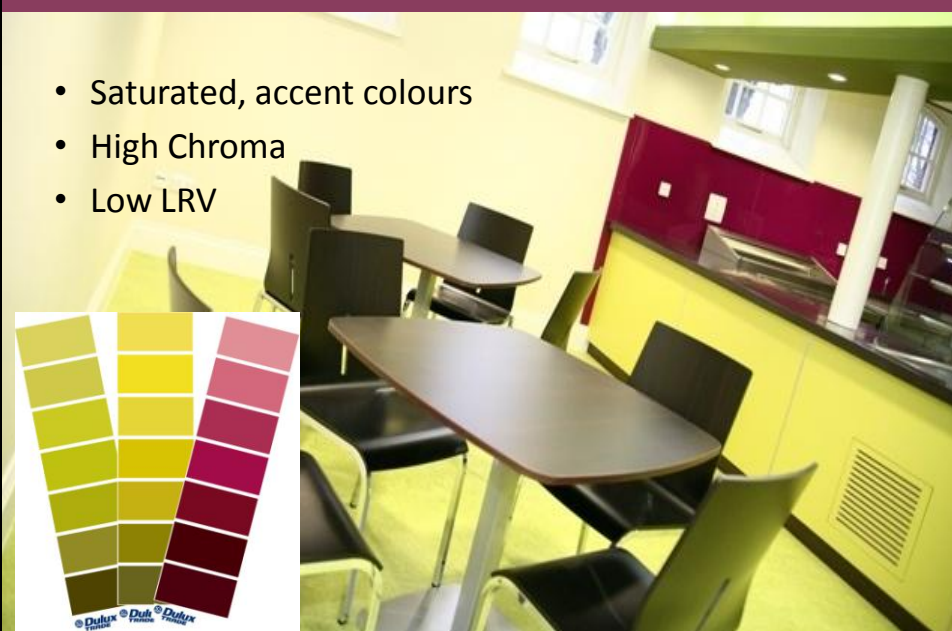
Calm ▲

Colour notation identifies colour qualities or moods

Colours from same mood make it easier to coordinate

## Rich

- Saturated, accent colours
- High Chroma
- Low LRV



## Fresh

- Pure, clean tones
- Medium chroma
- Higher LRV



# Calm



- Muted, greyed off colours
- Low Chroma



# Warm

- Soft colours for liveable spaces
- Medium Chroma

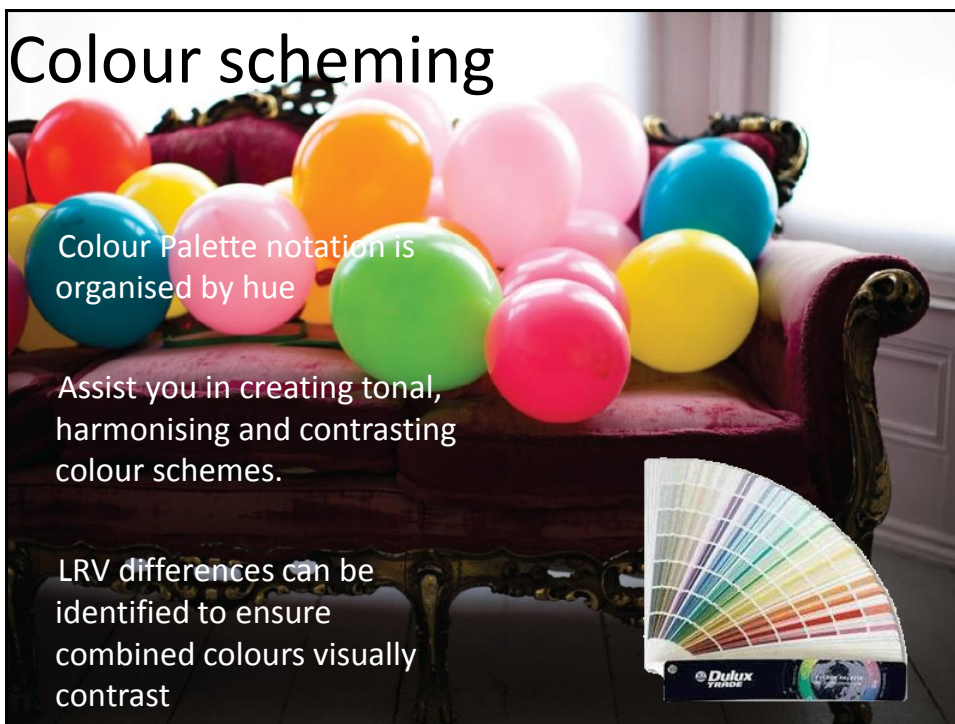



# Colour scheming

Colour Palette notation is organised by hue

Assist you in creating tonal, harmonising and contrasting colour schemes.

LRV differences can be identified to ensure combined colours visually contrast



# Tonal

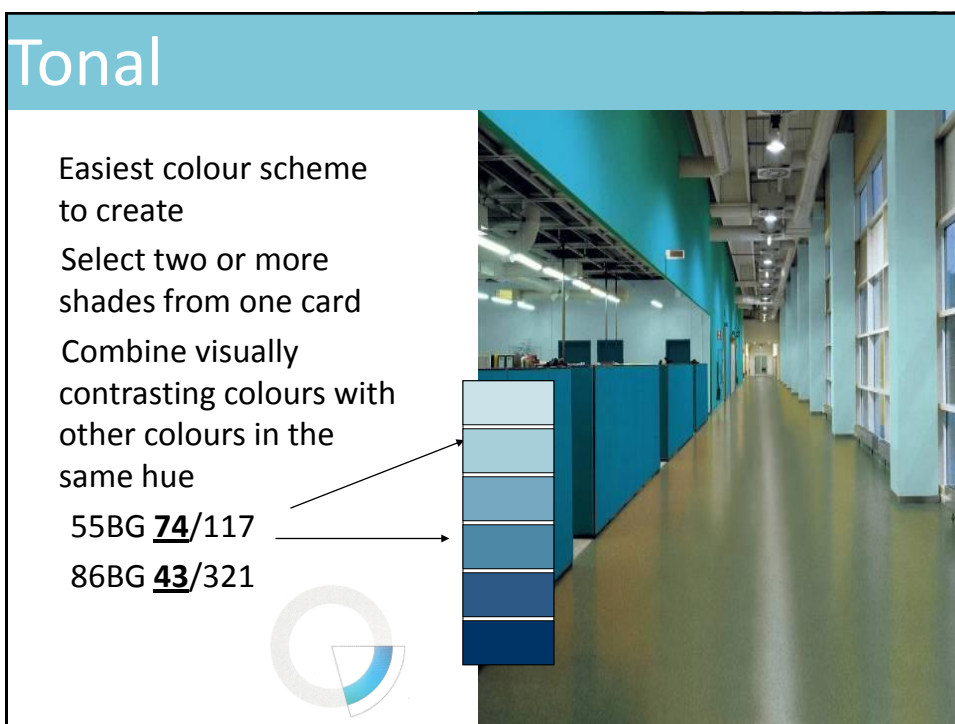
Easiest colour scheme to create

Select two or more shades from one card

Combine visually contrasting colours with other colours in the same hue

55BG **74**/117

86BG **43**/321


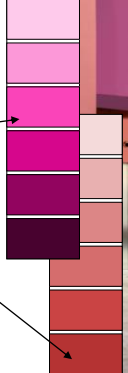



# Harmonising

Combine adjacent hues that have a colour in common  
 red (RR) & violet (RB)

Visually contrasting colours must have LRV > 30 (Part M)

62RR 21/444  
 85RB 53/237

# Contrasting

Two or more colours that are absolutely opposite from each other  
 Yellow (YY) and blue (BB)




Part M

Visually contrasting colours of 30LRV difference

54BB 41/237  
 06YY 75/218

Project Rainbow –  
 Choose opposite colours with the similar LRV

49BB 76/037  
06YY 75/218



# Colour scheming summary

Colour notation is key to identifying:

Colour type

Moods

Colour schemes



# Colour scheming tools

Fandeck

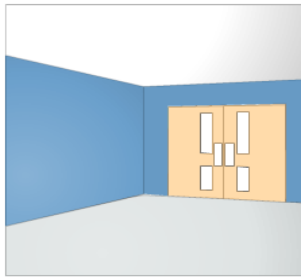
Colour wheel

Colour & Contrast CD



## Colour & Contrast CD

**Critical surface scheme**



wall 33BB 32/308

ceiling White

door 25Y 70/365

floor 09BB 77/019

**Special features**

radiator 35Y 81/233

exit door 10BB 73/045

cupboard door 33BB 32/308

**Guidance**

- DDA, (Equality Act 2010) Part M,
- BS8300, Project Rainbow
- Design and Colour Advice

Colour Schemes create visually contrasting schemes:

- 30LRV, 20LRV or Project Rainbow
- Start from pre-designs, popular colour or a colour name/code
- Palettes based on start colour
- Based around 4 critical surfaces add special features
- LRV confirms level of visual contrast
- Project Management feature

## Key learning points

- Importance of good design and visual contrast to increase independence and confidence
- Design considerations from Project Rainbow
- Colour differentiation, critical surfaces, special features, obstacles & trim
- The requirements of The Equality Act 2010, Part M and BS8300
- Importance of colour notation, understanding Hue, Chroma & LRV
- Importance of creating aesthetic colour schemes



## Further information

- The Equality Act 2010
- Building Regulations 2004 - Access to use of buildings - Approved Document Part M
- British Standard BS8300:2009 'Design of buildings and their approaches to meet the needs of disabled people'
- Key research publications on Project Rainbow and other related material on inclusive environments can be obtained via [www.keithbrightconsultants.com](http://www.keithbrightconsultants.com)
- Further training courses on Colour, Contrast and Accessibility is available from RNIB (JMU Access Consultants)
- Dulux Trade Colour & Contrast CD
- Contact the Dulux Trade Advice Line for more information on 08444 817818