Research Group for Inclusive Environments

Research - Standards and Regulations

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Research Group for Inclusive Environments
The Research Portfolio

Colour and Contrast
Emergency Lighting
Emergency Escape Signs
Lighting in the Home
Transport Infrastructure
Rail Vehicles
Assistive Technology
Effectiveness of the Building Regulations
Part M 1999
Macular Degeneration
Emergency Wayguidance Systems
Performance in Smoke

Overhead

and

Wayguidance
Colour and Contrast
Colour and Contrast

Munsell Colour Space
showing
10 major hues
(5 principal & 5 intermediate)

Hue

Chroma

Value

Note: Fold and punch page as Fold-Out Insert.
Figure 1 Light Reflectance Value Comparison
A design guide for the use of

colour and contrast

to improve the built environment
for visually impaired people
The Partially Sighted Community

Codes and Regulation

- Revisions to Part M of the Building Regulations 2004
- Amendments to BS 3800: 2001 (2005) Code of practice for the design of buildings and their approaches to meet the needs of disabled people
- Frequently asked questions – ODPM Website April 2005
The Department for Transport
Funded Project

Use of Contrast to enable visually impaired people to use rail vehicles
- The RVAR Implications
Stage 1
Establish effectiveness of current colour contrast on trains
Stage 2
Establish a definition of adequate contrast and any additional regulatory requirements

Stage 3 (Optional)
Drafting revised Guidelines
The Society of Light and Lighting Recommendation

LIGHTING FOR PEOPLE WHO ARE VISUALLY IMPAIRED

This sheet gives some basic information. More detailed guidance is in preparation.

Society of Light and Lighting recommendations

The recommendations published in Society of Light and Lighting and CIBSE guidance documents were produced for a standard adult building user who has normal sight and is between 40 and 50 years old.

The human eye loses sensitivity during life, and the cornea yellows. As a result, in general, the 70 year old eye can require up to three times as much light as the 20 year old eye for the same visual performance. In addition, the eye loses flexibility, so that adaptation to changes in lighting level, or illuminance, takes longer.

For premises to be occupied predominantly by individuals significantly older than 50 years, some adjustment to recommended task illuminances will therefore be appropriate. In addition, sudden changes in illuminance should be avoided to prevent adaptation difficulties.

The light transmission qualities of the eye also deteriorate with age. It is therefore very important to minimise glare.

The Society is only able to provide general recommendations for lighting for people who are visually impaired because the nature and extent of particular vision problems often requires individual lighting solutions. The role of lighting control is important in providing an acceptable lighting solution for people who are visually impaired.

Important aspects of lighting for the visually impaired

For many visually impaired individuals, an increase in illuminance will lead to increased visual performance. However, for a significant minority an increase in general illuminance will actually lead to reduced visual performance. It is therefore normally wise not to increase the average maintained illuminance in a space above the figure recommended in the SLL Code for Lighting 2004, but instead to provide localised or task lighting to assist those who find it useful.

If the type of visual impairment is known, e.g. for an individual in their own home, the illuminance can be adjusted as appropriate. However, localised lighting for specific tasks will still normally be better than increasing the overall illuminance to that necessary for all tasks.

There are circumstances, such as communal dining facilities, workshops, kitchens where localised lighting is not practicable and the general lighting should be provided at illuminances above those recommended in Society of Light and Lighting and CIBSE guidance documents, but with suitable dimming controls.

Ensure that stairs, ramps and slopes are lit so that they can easily be identified when approaching in either direction. Low level lighting can put light onto the tread without glare, but care is needed to ensure that it provides adequate differentiation between treads and risers.

Glare should be strictly controlled, whatever the type of visual impairment. Light sources should always be shielded from view at normal angles. Task lights should be chosen which provide good shielding of the source.

All localised luminaires emit heat. Since the head of the user will probably be very close to the luminaire, great care is needed to choose luminaires, which are cool to the touch. These will normally use compact fluorescent rather than incandescent lamps.

Colour rendering - Colour and luminance contrast

Just as important as the lighting itself is the choice of décor and ensuring that there is colour and luminance contrast between, e.g. doors and their handles. Approved Document M of the Building Regulations 2000 gives a requirement for contrast between doors, door furniture and door edges, and uses the term ‘contrast visually’. However the continued overleaf
Managing Inclusive Design - A British Standard

Background to the BSI 7000 Series
Wider than the built environment
A Management culture
Sequence in a Management System
To Produce an Inclusive Design
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