



Workshop on Improving Building Design for Persons with Low Vision

We negotiate and appreciate the world around us – the natural and built environments – with all our senses, but for those of us with sight, it is our vision on which we most depend. Whether we are fully sighted or when vision is less than optimal, visual clues aid us in our interactions with our surroundings – supplemented by non-visual clues such as acoustic, thermal and tactile ones.

Any lack of clarity of the visual clues or defect in our ability to see can reduce our abilities to navigate the constructed environment safely and to understand it.

The National Eye Institute (NEI) of the National Institutes of Health (NIH) estimates that, currently, more than 38 million Americans age 40 and older experience blindness, low vision (the term, “low vision” may also be rendered as “visually impaired”) or eye disease such as macular degeneration, cone rod dystrophy, glaucoma, diabetic retinopathy, or cataracts. This number is expected to grow to more than 50 million Americans by year 2020. NEI further states:

Low vision is defined as a visual impairment that is not corrected by standard eyeglasses, contact lenses, medication, or surgery and that interferes with the ability to perform everyday activities. It is most commonly described in terms of remaining visual acuity (central vision) and visual field, peripheral, or side vision.¹ Loss in central vision causes difficulty in detail discrimination (e.g., reading and discriminating fine detail and color). Peripheral vision loss causes orientation and mobility problems, such as having difficulty seeing curbs/steps or difficulty seeing in lowlight conditions.

Source:

1. American Academy of Ophthalmology Vision Rehabilitation Committee. (2001). *Preferred Practice Pattern: Visual Rehabilitation For Adults*. San Francisco: American Academy of Ophthalmology.
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As low vision affects an increasing percentage of the population, the need to accommodate persons with low vision in the constructed environment is critical and must be addressed.

Many modern buildings, including many federal buildings, are designed with large areas of glass for daylight and views and with extensive artificial lighting. Glare from both sources is a major source of distraction, discomfort and impediment to vision for many who use these buildings. Also, many newer building interiors favor monochromatic or low-contrast treatments that are difficult for persons with low vision to negotiate.

While the pathologies and treatment of low vision disorders are biomedical research and medical issues, assuring optimal access to the built environment for persons with low vision is a design issue. Design of natural and artificial lighting to minimize glare is beneficial to all sighted persons, and use of color and value contrast to improve visual clarity of the environment is especially helpful to persons with low vision.

Whereas many issues of accessibility have been addressed by the Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA), accessibility for persons with low vision has not. It is the goal of the General Services Administration (GSA), working through the National Institute of Building Sciences (NIBS) and with the U.S. Access Board, to begin a process of improving building design to better accommodate all types of sighted persons.

To that end, NIBS proposes to host a workshop in Washington, D.C. on September 29th and 30th with participants from the fields of medicine (specialists in ophthalmology and low vision), architecture, engineering, interior design, lighting design, professional associations, government, academia, advocacy, research and development with the following objectives:

1. Identify existing guidance for design and obtain expert recommendations for new guidance for the following.
 - i. Medical expert definition of eye conditions that impact a person's ability to navigate, interpret and use the built environment.
 - ii. Mitigation of large changes in lighting levels such as between the outdoors and the interior, from one level of interior illumination to another when moving from space to space, and within spaces between one surface and another.
 - iii. Mitigation of glare from daylight through windows and other openings, from artificial lighting fixtures, surface reflections, etc.
 - iv. Mitigation of visual confusion due to poor contrasts of color and value in surfaces and forms, including wall finishes, work surfaces, furnishings, etc.
 - v. Improvement in building spatial organization to assist in wayfinding by persons with visual impairments.
 - vi. Enhancement of safety and ease of use by persons with visual impairments in areas such as toilet rooms, offices, doorways, corridors, stairs, elevators and escalators.
 - vii. Enhancement of occupant performance and productivity in work spaces where reading accuracy (e.g., visual acuity) is important
2. Identify research that would be useful in developing and advancing this guidance.

From the results of the workshop, a plan of action will be proposed to develop draft guidance for GSA to consider for inclusion in its publication, *Facilities Standards for the Public Buildings Service*, and for the U.S. Access Board to consider for inclusion in the *ADA/ABA Accessibility Guidelines*.