Different people have different orientation skills; therefore already the design of the building must take into account those least able to navigate in a foreign environment. Readability of spaces lies in the conceptualisation and logic of the layout of every single building. The aspect of easy orientation in the building is often neglected, but unconsciously generates a summary of feelings, either negative or positive in the visitor. To a certain extent (especially in complex operations) understanding of the place is facilitated by the guidance system. It is necessary to realize that **the main focus, however, remains on the clear and transparent concept of the building being designed**.

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FACILITY MANAGEMENT IN RELATION TO PROVISION OF CONDITIONS FOR USE OF BUILDINGS BY PEOPLE WITH VISUAL HANDICAP

Within the management of objects and maintenance of buildings, as partial performance of Facility Management, we must, among other things, ensure a safely functioning property that is managed. When talking about safely working facility, we also mean safety in everyday use by the tenants. One of the specific groups of potential users are people with visual limitations that may have a variety of disorders of visual perception:

- visual acuity;
- disturbances of color perception;
- failure to adapt to darkness and glare;
- contrast sensitivity disorders;
- difficulties in processing visual perceptions;
- disorder of spatial vision, double vision, etc.

Each of these disorders provides us with ideas on creating the optimal environment so as to minimize to the greatest extent possible the handicap of such persons. Basic general technical requirements in the CR are subject to legislative regulation – Decree no. 398/2009 Coll. on general technical requirements enabling the use of barrier-free buildings.

Supportive elements, which help the people with visual limitations to move independently in the building, are the following:

- ensuring tactile and acoustic access to objects;
- choosing a clear and well-arranged layout, preferably in a rectangular system;
- possibility to use the latest technology (intelligent stick) for the object;
- emphasize the dangerous areas with contrast markings;

– pictograms and info tables with sufficient contrast and of appropriate size;
– reduction of glare of interior, flooring, and hole fillings;
– marking of important areas also for blind people (sanitary facilities etc.).

People with visual limitations, or respectively suffering from any of the above disorders, must overcome obstacles in the form of low-contrast materials, excessive glare, inappropriate lighting and brightness. Requirements for lighting are determined by the needs, type of activity and distance over which this activity is performed (table 1). Areas where we expect communication or work of visually handicapped people and elderly people must be equipped with a higher intensity of lighting.

Table 1

Requirements for lighting

Category	Requirements for lighting	Need to distinguish details at a distance		Illumination (lux)
		0,35 m, in mm	1 m, in mm	
1	Extraordinary	0,1	0,3	more than 5000
2	Very high	0,1–0,2	0,3–0,6	2000–5000
3	High	0,2–0,4	0,6–1,2	600–2000
4	Average	0,4–0,8	1,2–2,3	250–600
5	Low	0,8–1,5	2,3–4,4	100–250
6	Very low	1,5–3,0	4,4–8,8	25–100

Brightness is another important variable in the process of vision and the perception of **contrast brightness** is very important for vision (fig. 1). The ability to distinguish luminance depends on the adaptation luminance, and if this ability is low, the eye of such user distinguishes only by high contrasts. Higher contrasts highlight that what we need and thereby support the orientation and safety of our user. Low contrasts of colour surfaces and dull colours on the other hand make the orientation for these people impossible. It is important to take it into account in designing communication areas, including stair space, glass surfaces, furniture, doorways, controls (switches), handrails, handles, etc.

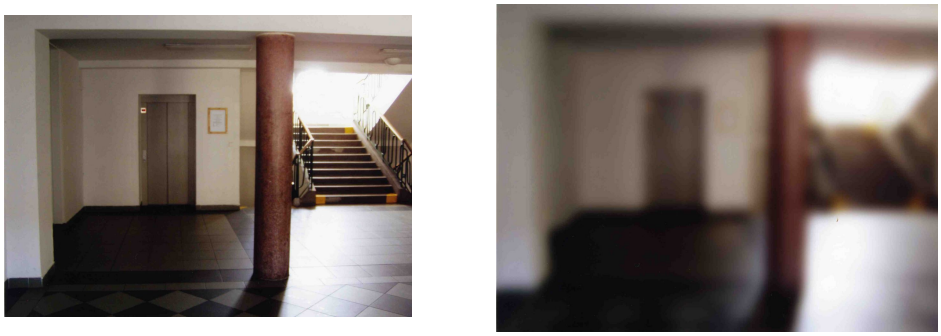

Fig. 1. Glare from the mezzanine of the staircase communication space complicates orientation in space to people with visual handicap. This situation can be remedied by means of blinds

To support the vision of visually impaired people the experts advise contrasts of vibrant colours such as yellow plum-blue, yellow-black, green-black, white-black as the main colours. You can also use the following combinations: pink-black, red-white, blue-white, etc (fig. 2).

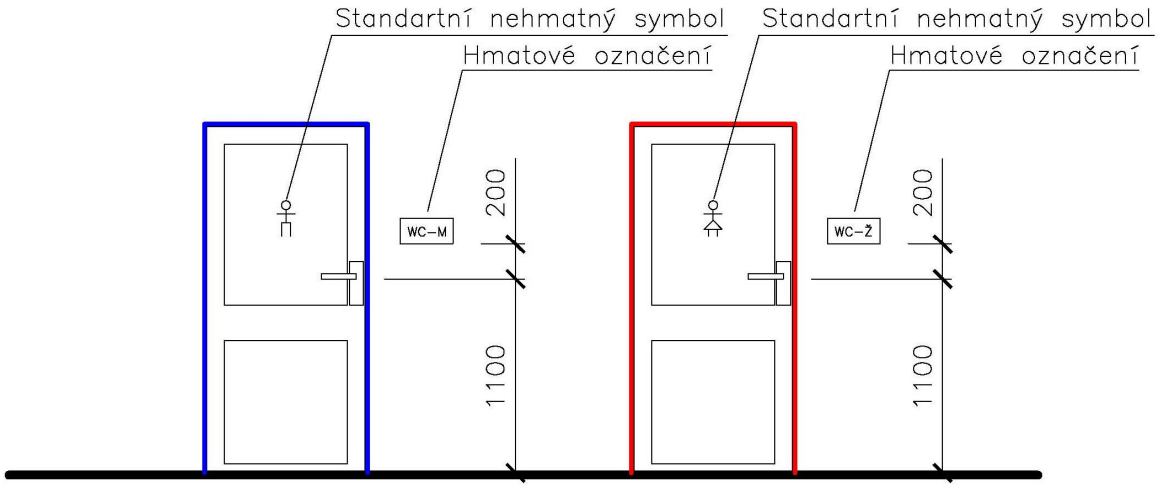

Fig. 2. An example of colour contrast of door by means of a frame of different color and necessary identification of hygienic space in Braille – tactile markings on the handle

Colour contrasts must also be used to solve orientation elements and systems in the interior and exterior.

If the retina is exposed to greater brightness than to which it is adapted, the individual is **dazzled**, which can be distracting and disturbing for the visual comfort. On the other hand, limiting glare makes it difficult for the users to distinguish details, causes a feeling of uncertainty, decreased work performance and increased fatigue. Dazzling is caused by bright areas (work interior, flooring) and uncovered light sources (window openings, lights – light bulbs, fluorescent lamps).

When creating information boards it is necessary to respect the principles of text creation for people with visual limitations. This is an issue of color contrast, font size, and an important role is also played by suitable font (table 2). When creating textual information for the visually handicapped Arial or Arial Black sans serif fonts have proven to be the best. Serif fonts are more difficult to read for these users, because the small distance between adjacent characters´ feet causes a sensation of fusion to the visually impaired, seen as a more rounded or vertically structured shapes side by side. Equally inappropriate fonts are italics and decorative fonts.

Table 2

Font size depending on the height from the baseline and horizontal distance

Height from the baseline, mm	Horizontal viewing distance, mm	Minimum character height, mm
1015 – 1780	less than 1830	16
	more than 1830	16 plus 3,2 per every 305 of horizontal viewing distance greater than 1830
1780 – 3050	less than 4570	51
	more than 4570	51 plus 3,2 per every 305 of horizontal viewing distance greater than 4570
more than 3050	less than 6400	75
	more than 6400	75 plus 3,2 per every 305 of horizontal viewing distance greater than 6400

This paper briefly recapitulates the list of the essential conditions for independent movement and orientation of visually handicapped people in the building, which are based and are derived from the requirements of various visual disorders. To express and to clarify the needs for some modifications the text is accompanied by photographs with simulation of vision of people with low vision acuity which help to clarify the measures necessary for operation of any object.

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ТЕХНОЛОГИЯ СОЗДАНИЯ ЭЛЕКТРОННЫХ УЧЕБНО-МЕТОДИЧЕСКИХ КОМПЛЕКСОВ ДЛЯ E-LEARNING

В системе дистанционного образования наилучшим решением проблемы методического и дидактического обеспечения студентов и слушателей, обучающихся по дистанционным технологиям, является создание электронных учебно-методических комплексов (ЭУМК) как в локальном, так и в сетевом исполнении.