

# Guideline universal design

## Sheet 20: Sensory accessibility



### What? <sup>1,2</sup>

Sensory accessibility includes the aspects of the physical learning environment that influence the sensory comfort of the user; think of:

- Indoor environment: e.g. acoustics, air quality, odor, temperature and lighting;
- ergonomics;
- atmosphere of the space.

### Why and for whom? <sup>1,6</sup>

Students spend a large part of the day in the educational learning environment, so we should set high standards for the physical learning environment. But this does not always happen, which means that certain environmental factors can disturb learning and even hinder it in the worst case. This can have adverse consequences, especially for people with a disability.

An example of the importance of **acoustics**: when one of the senses is not working optimally or is lost, the other senses become even more important. Just think of a visually impaired or blind student who has to rely on hearing in a room with poor acoustics. Good acoustics also ensure that, for example, students with ASD experience less disturbing incentives.

What is important with regard to these aspects of sensory comfort and why (see Table 1)?

	What is important	Why?
<b>Indoor environment</b>	acoustics, air quality, odor, temperature and lighting	ability to concentrate and comfort of student and teacher
<b>Ergonomics</b>	good posture for student and teacher, e.g. via adjustable tables and chairs (in height and flexible / mobile)	preventing neck, muscle and back complaints, facilitating basic operations, etc.
<b>Atmosphere</b>	pleasant room experience (indoor environment, decoration, number of students, etc.)	state of mind and sense of tranquility of student and teacher

Table 1: Overview of important aspects with regard to sensory comfort in the physical learning environment <sup>1</sup>

## Tips & Tricks <sup>1, 2, 3, 4, 5, 6</sup>

### Acoustics

- Sound absorbing elements** | Provide sufficient sound-absorbing elements, especially in large open spaces and in spaces where concentration is required. This increases intelligibility and prevents over-stimulation, disorientation and stress.
- Ring system** | Provide a ring system so that hearing impaired students can listen to the audio with a hearing aid without disturbing ambient noise.

### Air quality and odor

- Fresh air** | Ensure adequate ventilation and fresh air: concentration tasks require up to 15% more oxygen. This also prevents odor nuisance.

## Temperature

- **Temperature regulation** | Pay sufficient attention to climate regulation in the school buildings and classrooms. The ideal temperature depends on the function of the location. In a classroom, the ideal temperature is 21 degrees, for active tasks in, for example, practice classrooms, the temperature may be slightly lower.

## Lighting

- **Lighting** | Ensure that there is lighting for the entire room, with emphasis on the work and task surfaces and the instruction zone.
- **Light control** | Combine sufficient daylight with additional artificial light, ensure flexibility in lighting by making it adjustable (e.g. dimming, amplifying, multiple light points, timers or accent lighting).
- **Sun protection** | Place sun protections screens / blinds where necessary to avoid glare and to guarantee visibility and comfort.
- **Cold and warm light** | Cold light increases the concentration, warm light promotes the feeling of peace.
- **Artificial light** | When placing artificial light, pay careful attention to the risk of reflection and glare and ensure that the light faithfully reproduces the colors of images and drawings.

## Ergonomics

- **Flexible furniture** | Choose a variety of furniture, taking into account the differences in ergonomics and needs of students and teachers, e.g. flexible chairs and desks (height adjustable, movable), chairs with footrest, tables that can be moved, sufficient depth, working width for learning aids, cabinet heights, etc.
- **Space for movement** | Ensure that sufficient space is available for actions and movements between furniture and walkways. If possible, take into account sufficient room for maneuver between furniture and walking lines when setting up the classroom.
- **Workplace selection** | Allow students to work on a variety of furniture if present, in line with their personal needs.

## Atmosphere

- ❑ **Plants** | Plants and greenery create a pleasant atmosphere in a room and promote concentration.
- ❑ **Colour** | Colour on the wall can contribute to the atmosphere but avoid too bright colours to prevent over-stimulation.

## Know more?

- ❑ View the [publication of the Department of Education and Training regarding rational use of energy and lighting in schools](#) (Dutch).
- ❑ Consult here the [website of the Agency for Infrastructure in Education \(AGION\) and their publication on daylight and lighting](#) (Dutch).
- ❑ Read here the [publication 'licht in scholen: from starter to expert'](#) (Dutch).
- ❑ View the [KB of workplaces here](#), stating which requirements must be met regarding lighting, temperature, humidity, etc. in Flanders (Dutch).

## In practice

“ Our exams take place in the gym. There is a lot of noise from the extraction system, so students with concentration problems may take the exam in a separate room.”

“ We provide low-stimulative, small spaces to study better. Such low-noise boxes. ”

“ Many students come to the library. We then provide water and fruit as healthy snacks. There is also a summer coach, where they can go with questions about studying.”

## References

- <sup>1</sup> Herman, L., Berbel, M., & Touceda, M. (2018). *+School: Haal meer uit je school. 21<sup>ste</sup> century skills: nieuwe competenties, nieuwe fysieke leeromgevingen? Inspiratiegids*. Brussel: Vlaams Ministerie van Onderwijs & Vorming, Vrije Universiteit Brussel en +ReseARCH Architecten.
- <sup>2</sup> Pols, G. (09/02/2007 – 20/04/2007). Fysieke leer- en werkomgeving. Geraadpleegd op 07/06/2018 via [https:// learningcentre weblog.tudelft.nl/category/c26216/c26223/](https://learningcentre weblog.tudelft.nl/category/c26216/c26223/)
- <sup>3</sup> Welzijn op school. (z.d.). *Verlichting*. Geraadpleegd op 04-10-2018 via <https://www.welzijn-op-school.be/Welzijnsvelden/Verfraai%C3%AFng/Verlichting.aspx>
- <sup>4</sup> AGION (z.d.). *Ontwerpinfo: daglicht en verlichting?* [Website]. Geraadpleegd op 04-10-2018 via <https://www.agion.be/daglicht-en-verlichting>
- <sup>5</sup> Open Universiteit Hasselt (z.d.). *Concentratietips*. Geraadpleegd op 04-10-2018 via <https://www.openuniversiteit Hasselt.be/media/get/original/235.pdf>
- <sup>6</sup> Steunpunt Inclusief Hoger Onderwijs (2017). Universeel ontwerp [onuitgegeven intern document]. Gent: Steunpunt Inclusief Hoger Onderwijs