

Accessibility

Objects and environments should be designed to be usable, without modification, by as many people as possible.¹

The principle of accessibility asserts that designs should be usable by people of diverse abilities, without special adaptation or modification. Historically, accessibility in design focused on accommodating people with disabilities. As knowledge and experience of accessible design increased, it became increasingly clear that many required “accommodations” could be designed to benefit everyone. There are four characteristics of accessible designs: perceptibility, operability, simplicity, and forgiveness.²

Perceptibility is achieved when everyone can perceive the design, regardless of sensory abilities. Basic guidelines for improving perceptibility are: present information using redundant coding methods (e.g., textual, iconic, and tactile); provide compatibility with assistive sensory technologies (e.g., ALT tags for images on the Internet); and position controls and information so that seated and standing users can perceive them.

Operability is achieved when everyone can use the design, regardless of physical abilities. Basic guidelines for improving operability are: minimize repetitive actions and the need for sustained physical effort; facilitate use of controls through good affordances and constraints; provide compatibility with assistive physical technologies (e.g., wheelchair access); and position controls and information so that seated and standing users can access them.

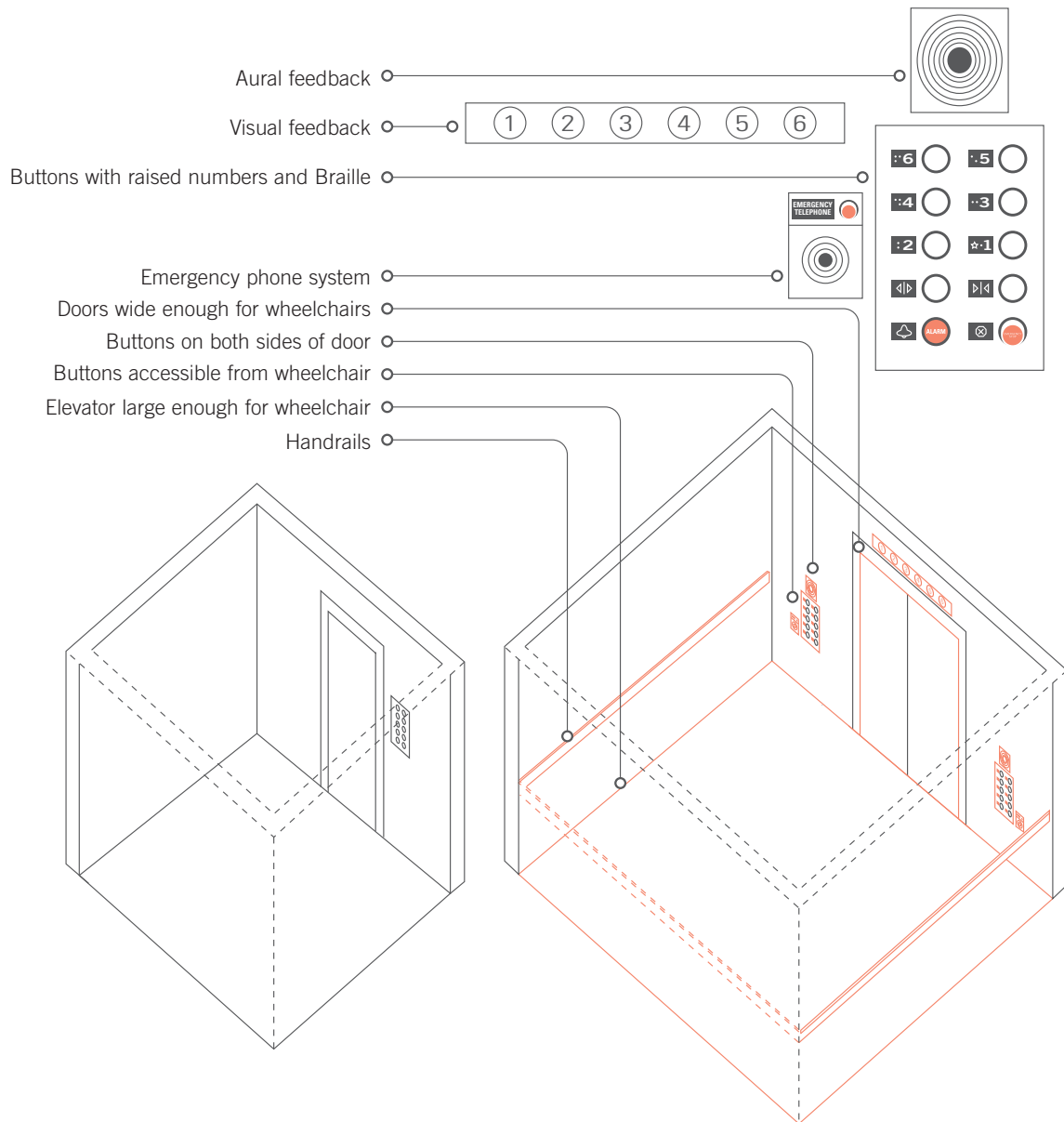
Simplicity is achieved when everyone can easily understand and use the design, regardless of experience, literacy, or concentration level. Basic guidelines for improving simplicity are: remove unnecessary complexity; clearly and consistently code and label controls and modes of operation; use progressive disclosure to present only relevant information and controls; provide clear prompting and feedback for all actions; and ensure that reading levels accommodate a wide range of literacy.

Forgiveness is achieved when designs minimize the occurrence and consequences of errors. Basic guidelines for improving forgiveness are: use good affordances and constraints (e.g., controls that can only be used the correct way) to prevent errors from occurring; use confirmations and warnings to reduce the occurrence of errors; and include reversible actions and safety nets to minimize the consequence of errors (e.g., the ability to undo an action).

See also Affordance, Forgiveness, Legibility, Normal Distribution, and Readability.

¹ Also known as *barrier-free design* and related to *universal design* and *inclusive design*.

² The four characteristics of accessible designs are derived from *W3C Web Content Accessibility Guidelines 1.0*, 1999; *ADA Accessibility Guidelines for Buildings and Facilities*, 1998; and *Accessible Environments: Toward Universal Design* by Ronald L. Mace, Graeme J. Hardie, and Jaine P. Place, The Center for Universal Design, North Carolina State University, 1996.



The large elevator has many features that make it more accessible than the small elevator: wide doors permit easy access; handrails help people maintain a standing position; two sets of controls are easily accessible from a seated position; controls are

redundantly coded with numbers, icons, and Braille; feedback is provided visually and aurally; and an emergency phone system offers access to special assistance.