

# Human Factors for Designers

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## Universal Design Principles

The following Principles of Universal Design were developed by the Center for Universal Design at NCSU to bring awareness to the characteristics of design that impact ALL users regardless of age, size, or abilities.

These principles will have different implications in different projects and in each design discipline. In product design "Simple, Intuitive Use" may mean designing controls that follow cultural standards, like green for go and red for stop. In architecture, it may mean floor plans that a visitor can grasp without getting lost.

Universal Design, meets all needs equally and is an ambitious goal worth striving for. It may often be impossible to fully achieve.

The following list has been reordered to create an acronym (Elfspit) to make it easier to remember these principles. Sorry for the slightly grotesque image it conjurs. But you may find it memorable which is the important part. (if anyone can find a better acronym let me know...) See if you can memorize these as there might be a quiz!

- **Equitable Use**  
The design does not disadvantage or stigmatize any group of users.
- **Low Physical Effort**  
The design can be used efficiently and comfortably and with a minimum of fatigue.
- **Flexibility in Use**  
The design accommodates a wide range of individual preferences and abilities.
- **Size and Space for Approach and Use**  
Appropriate size and space is provided for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility.
- **Perceptible Information**  
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
- **Intuitive and Simple Use**  
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
- **Tolerance for Error**  
The design minimizes hazards and the adverse consequences of accidental or unintended fatigue.

