



Accessibility and Universal Design in the built environment

Severine Kas
Kenniss over Zien – Eikholt
27-08-2025

Have you heard of Universal Design?

What do you think of when you think of accessibility?



“We have a guidebook in Accessibility”

S. Kas Architect - 2011



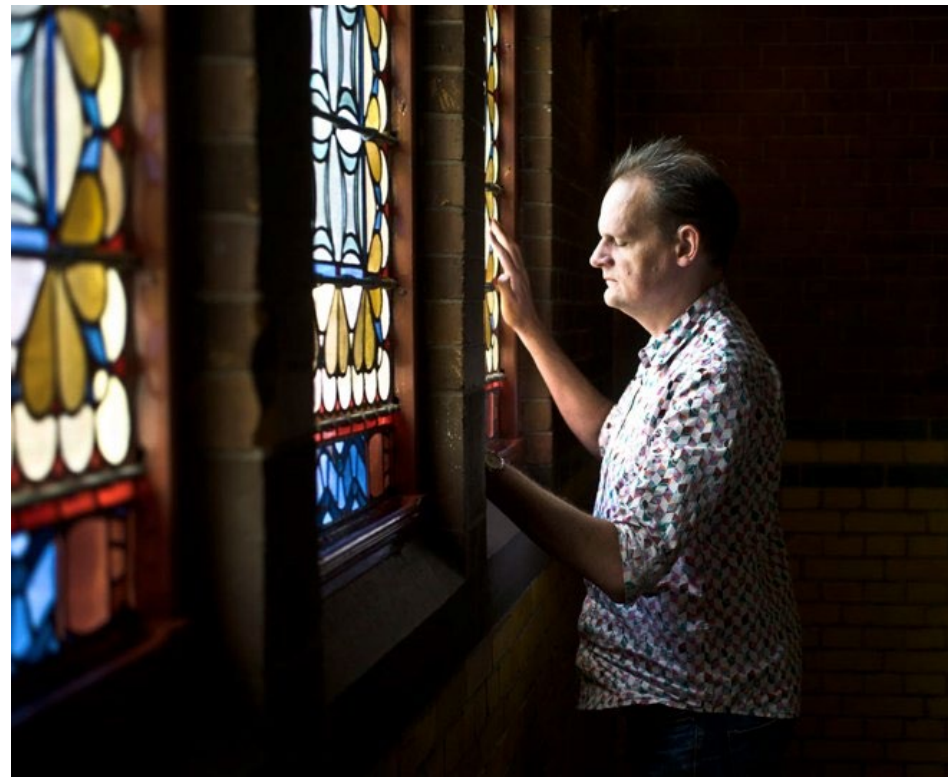


Severine Kas

- Architect
- Pioneer and consultant at Accessibility Foundation
- Impairment in hearing and vision (Usher syndrome)

Meegewerkt aan deze uitgave van Silver en Bartimeus

Architecture for all Senses.



Functionality versus experience

Viewing: daylight, artificial light, contrast,
contours movement, color, details, shape

Hearing: acoustics, material, echo,
absorb, atmosphere

Feel: Material, with the feet, hands,
hard soft, rhythm, texture, atmosphere

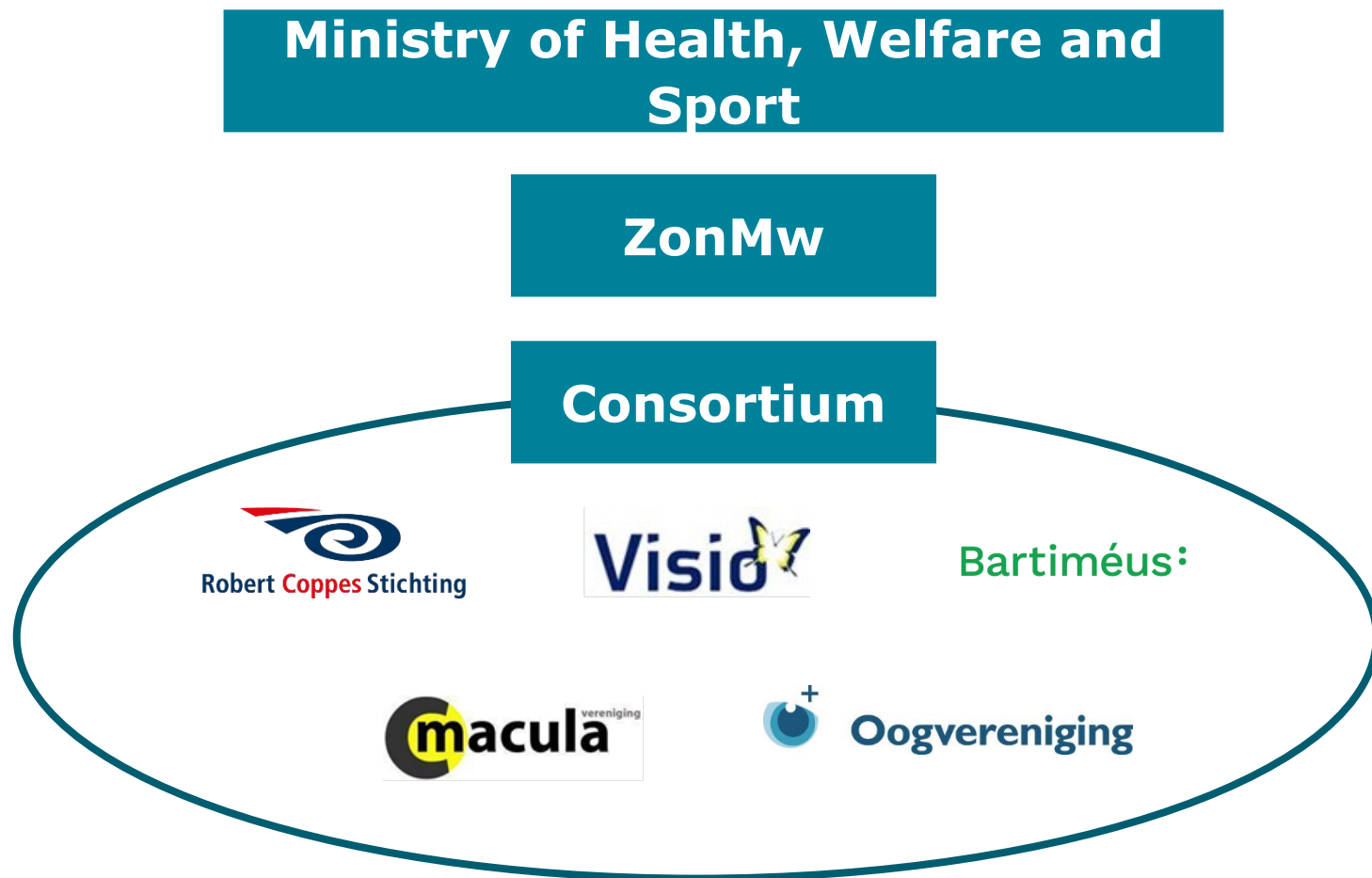
Meaning of space through all your senses





kennis
over
zien

What is 'Kennis Over Zien'?



Consortium: A clear vision



**Provide support and
perspective**



Robert **Coppes** Stichting

Live your own life



**Make participation
possible**



Bartiméus:

Living 100%



Oogvereniging

Accesibility

**Knowledge about seeing makes life 'easier' for persons
with visual impairment**

... and a firm mission

Together with practice, develop 'knowledge about seeing';

substantiate it, make it accessible and readily available at the right time for persons with visual impairment and their environment

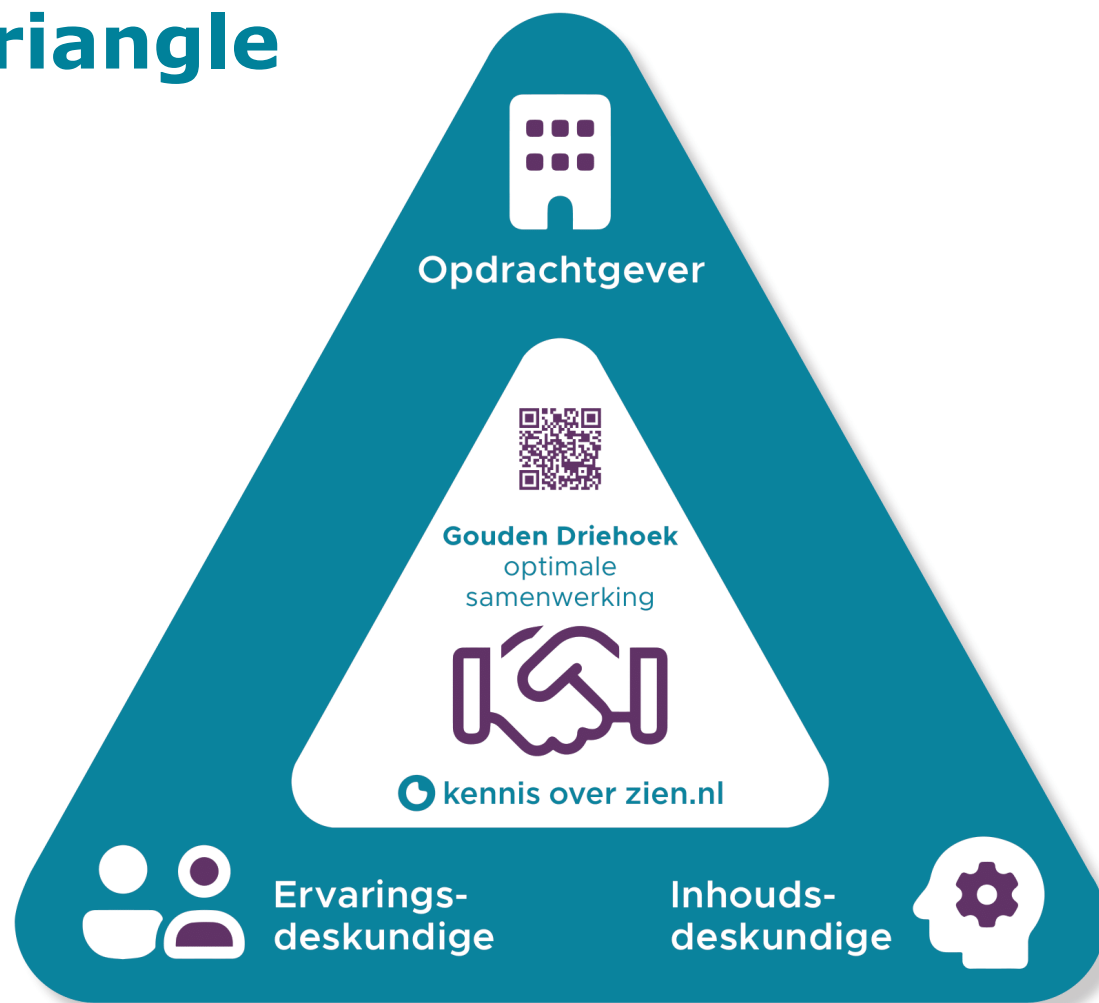


Circle of knowledge



The golden triangle

kennis 
over zien



Developing knowledge

kennis 
over zien



Inclusive society



Employment



Growing up with a visual impairment



CVI & visual problems due to acquired brain injury



Vitality & mental resilience



Becoming an elder person



Impairment in hearing and seeing

**Knowl
egde
agenda**

Cherish knowledge – Groups of expertise

Target group

- Blind children
- Partially sighted children
- Persons with a visual and intellectual disability
- Non-native speakers
- Elderly

Condition

- Rare ophthalmic conditions
- Neuronal ceroid lipofuscinosis
- Cerebral visual impairment
- Acquired brain injury
- Limitations in hearing and seeing
- Psychiatry
- Functional visual problems

Theme

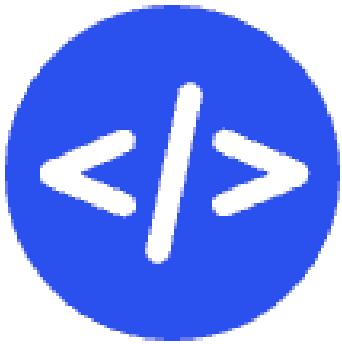
- Light, illumination and decoration
- Relations, intimacy, sexuality
- Employment
- Psychosocial
- Social relations & attachment
- ICT/technology/innovation
- Oriëntation & Mobility
- Automobility
- Braille
- Presence approach

Multi-annual plan

Accessibility foudation



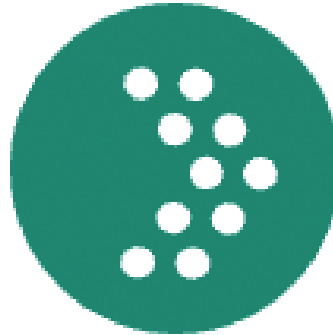
Digitaal



Consultancy



Fysiek



Trainingen



Sociaal



Onderzoek



A (built)
environment
for everyone?



eye

Gebouwen met een beperking

Mensen met een beperking komen er vaak bekaaid vanaf bij openbare gebouwen. Ervaringsdeskundigen en architecten Séverine Kas en Ed Bijman ijveren voor 'inclusiviteit voor de diversiteit van lichamen'.

Parool 21-04-2023

ARCHITECTURE FOR EVERYONE! We already do that, don't we?



No!

The built environment excludes people.

- Building for diversity of bodies, is building for everyone.
- Accessibility as a design task!
- Universal design: Accessible, usable and understandable for everyone

Who do we design for?

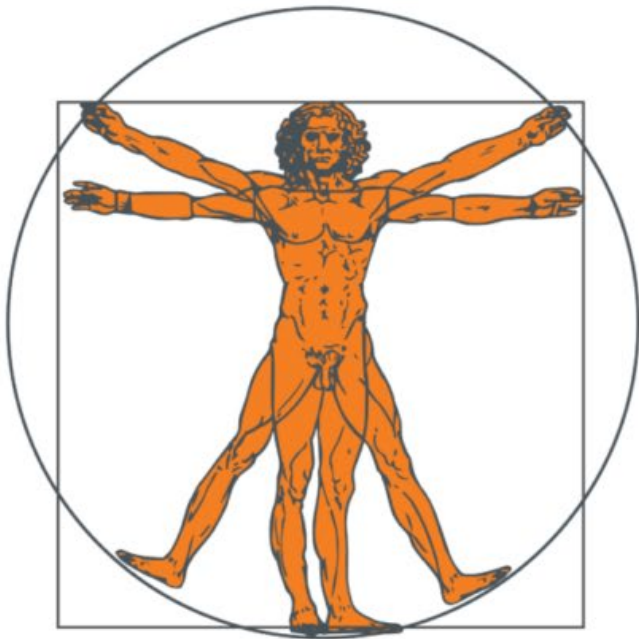


FIG. 1

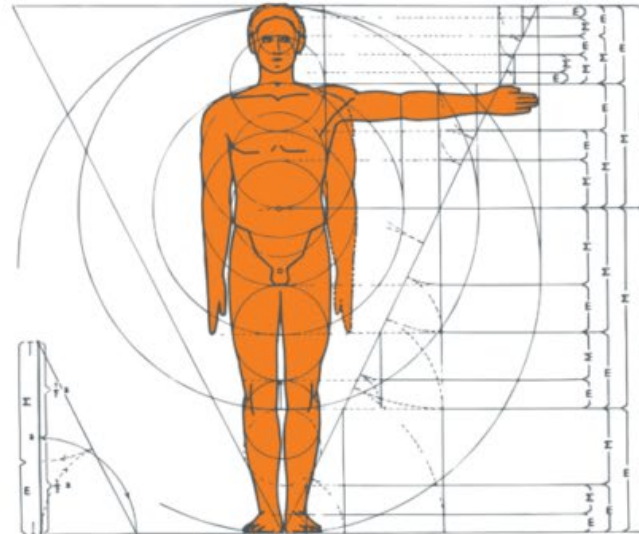


FIG. 2

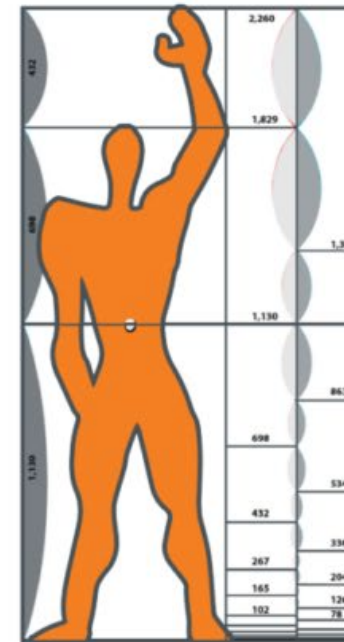


FIG. 3

Who do we design for?

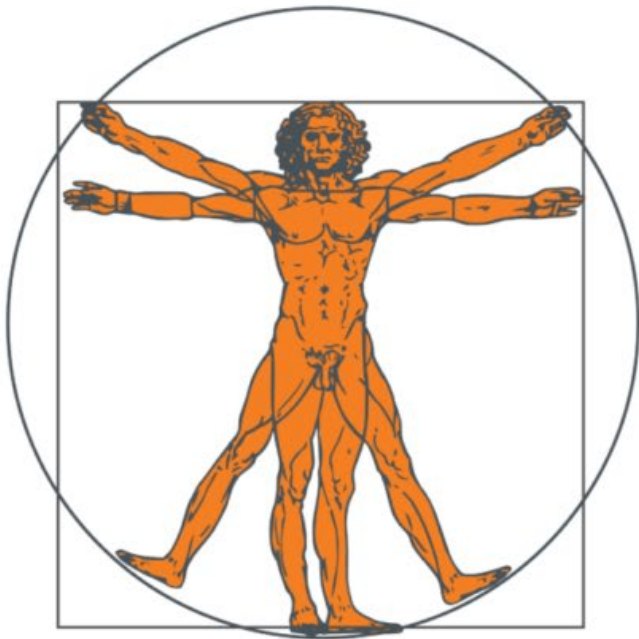


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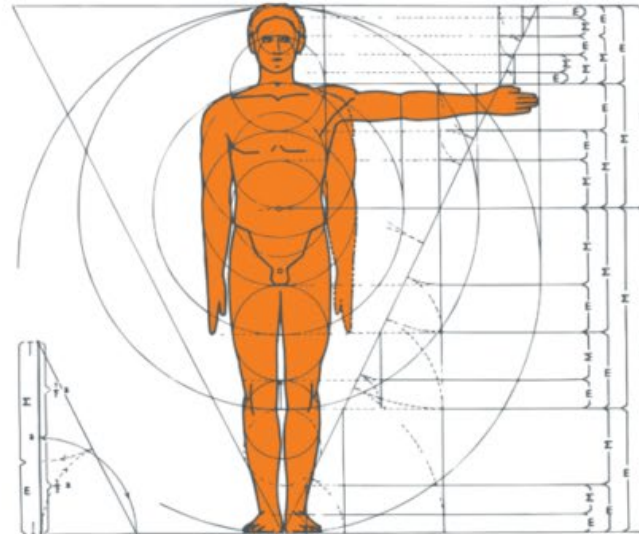


FIG. 2

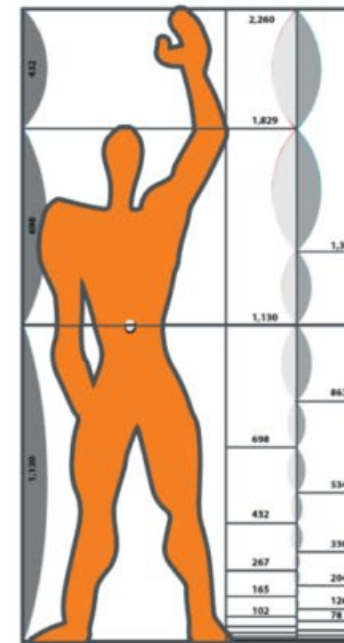
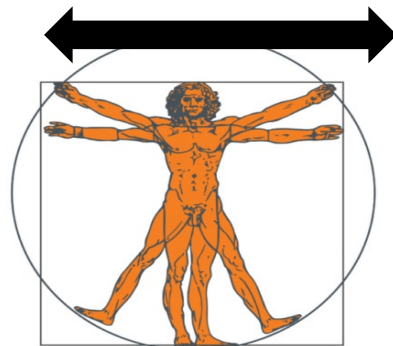
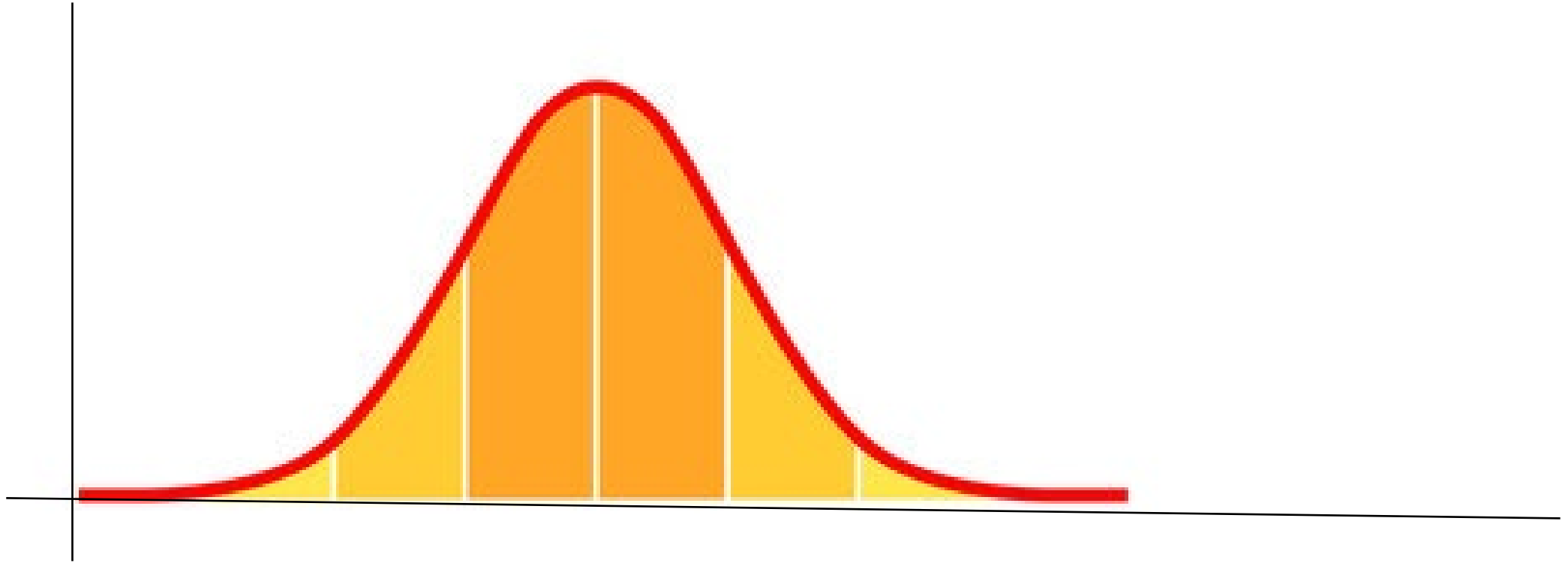


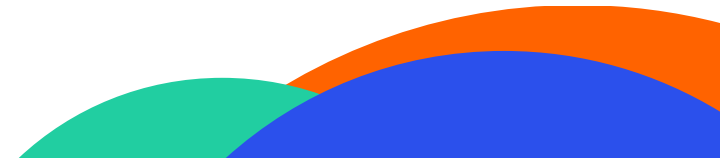
FIG. 3



Standard human or diversity of bodies?



Standaard



How do we design in the Netherlands?



How do we design in the Netherlands?



Everyone equal



Customizable building



Universal Design



Medical Model vs Social Model

Her **impairment**
is the problem!
They should
cure her or give
her prosthetics.

The *medical model*
of disability



Image by UAA: <http://www.uaa.alaska.edu/accessibility/topic/architecture.cfm>

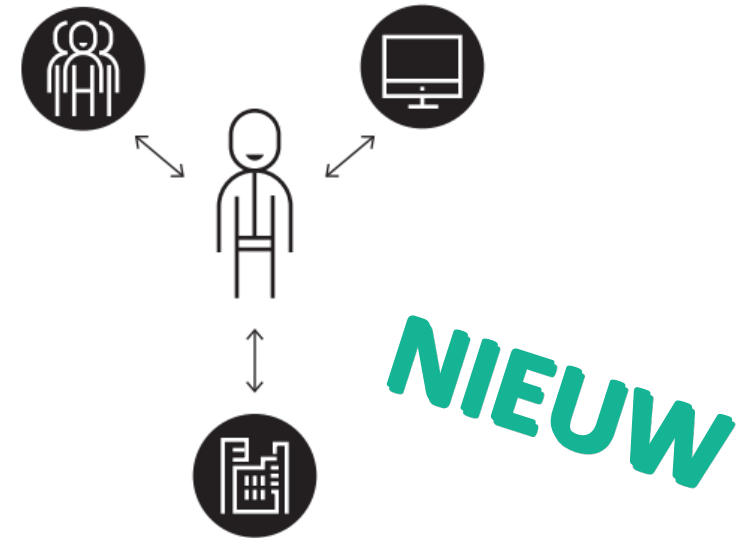
The **stairs** are
the problem!
They should
build a ramp.

The *social model*
of disability

Medical Model vs Social Model

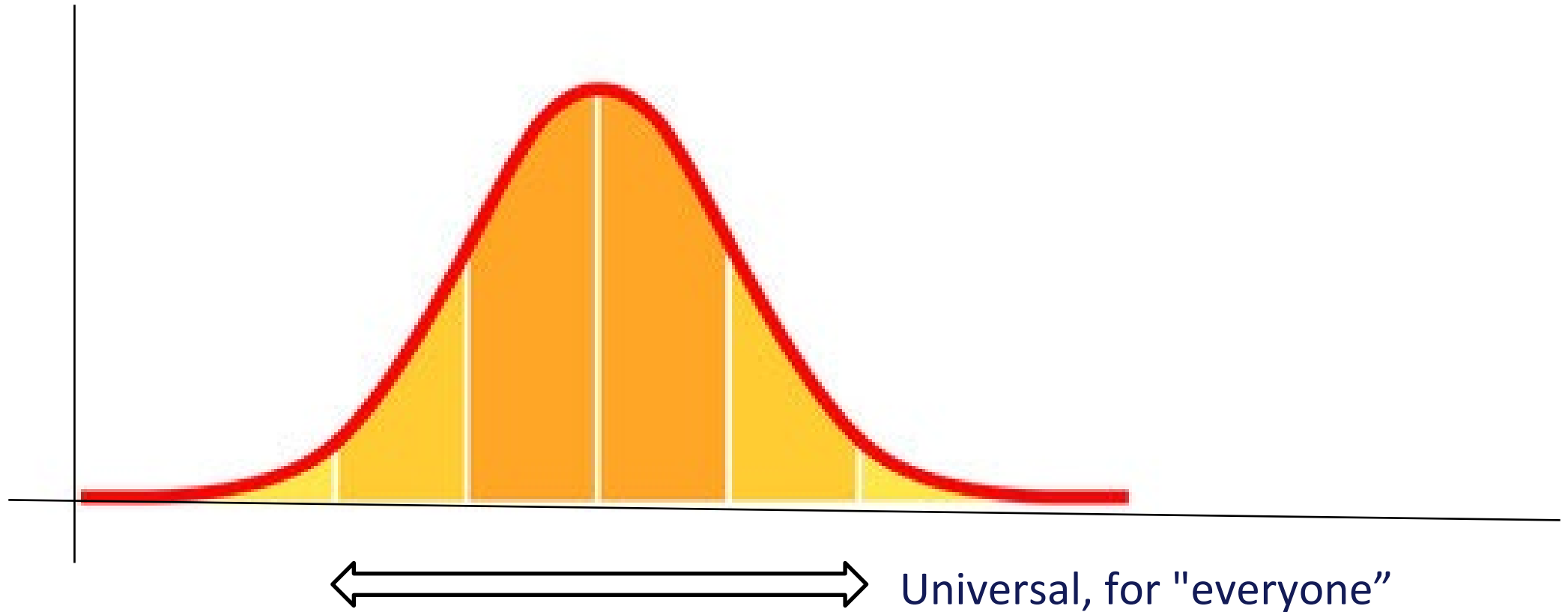


- Person with a disability deviates from the norm of how most people are.
- Restrictions must be minimized by doctors, care providers and other experts.



- Person with a disability is, like everyone else, a variant of the human being.
- Develop behavior and environment so that as many people as possible can participate.

Standard human or diversity of bodies?



What benefits “them”?



Deaf and people with hearing impairments

Visibility, wide paths, good lighting without light pollution, clear accessibility, light alarm system, etc

People with motor disabilities

Barrier-free, easily accessible carpeting, sufficiently wide passages, wheelchair-accessible tables/countertops, accessible buttons, etc

Neurodivergent people

Logical layout, clarity, clear navigation, rest room, quiet light

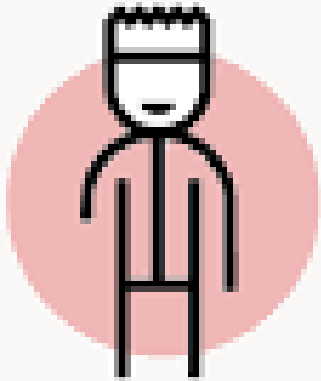
People with Visual Impairment

Uniform lighting, clear contrasts, use of touch, quiet acoustics, marking on glass and stairs, etc



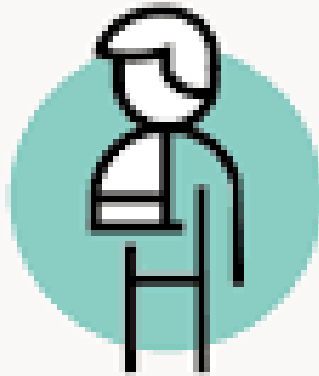
But: accessibility and usability is important for everyone!

Permanent



One arm

Temporary



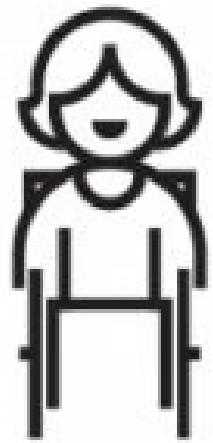
Arm injury

Situational



New parent

En: “Curb-cut effect”



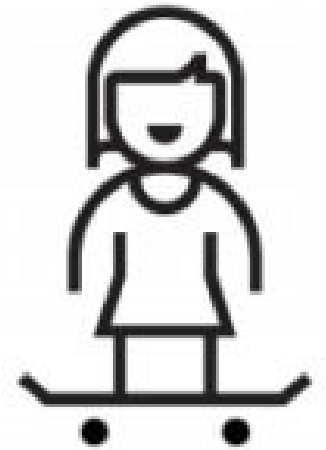
wheelchairs



strollers



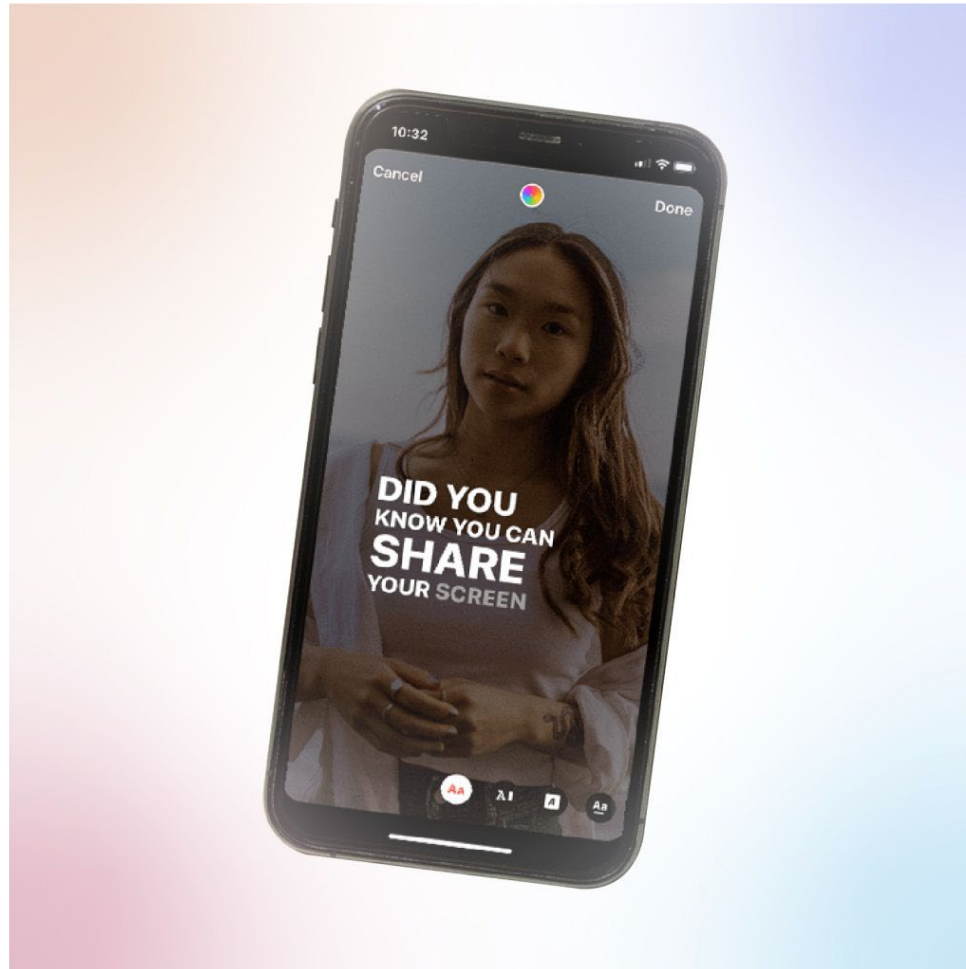
bicycles



skateboards



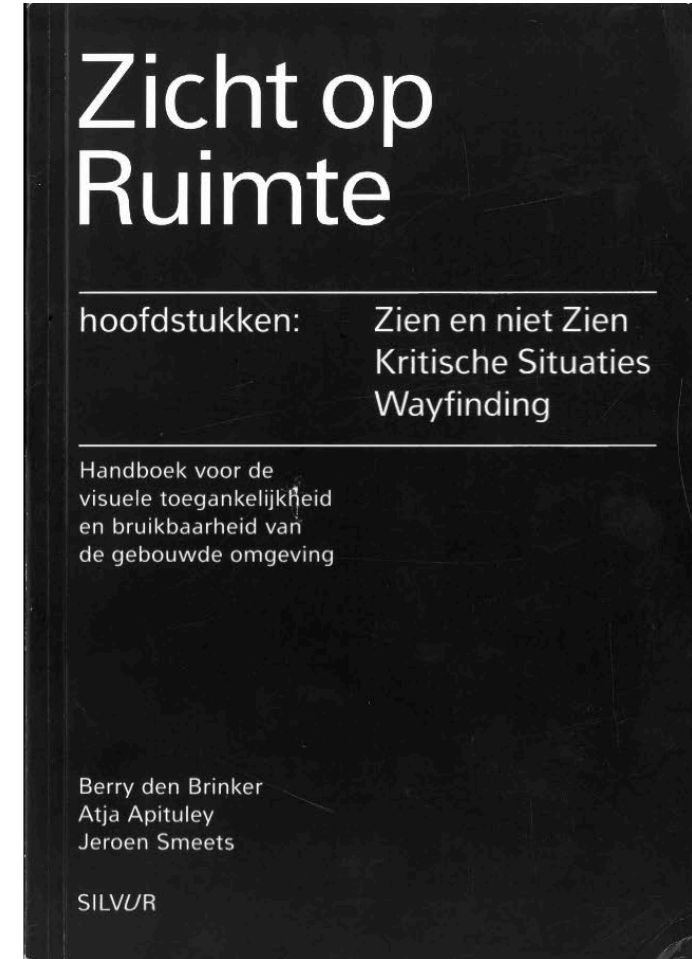
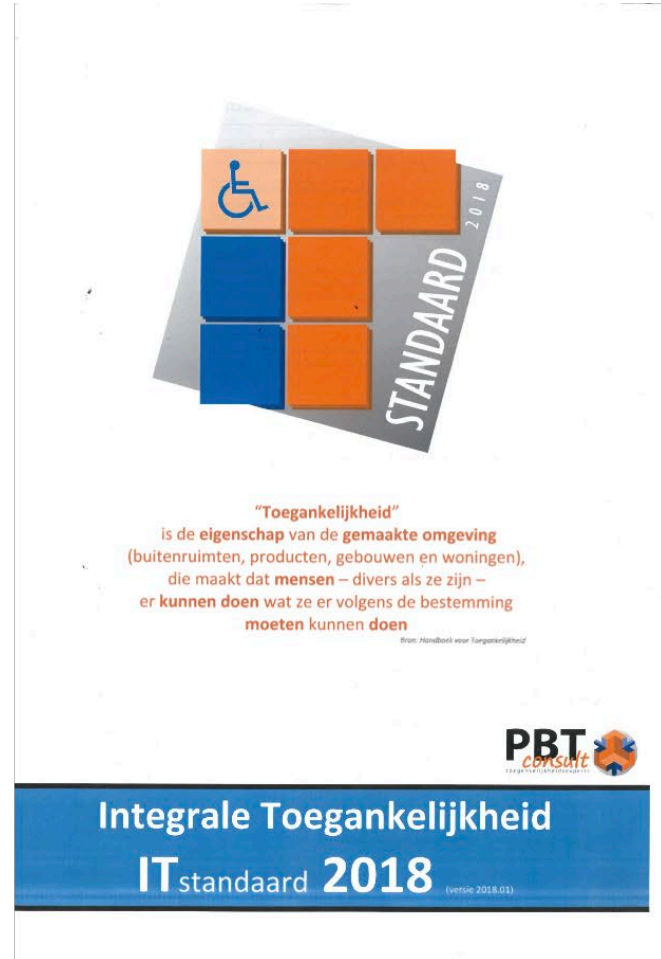
Other well-known "curb cut" effects?



Unintentionally exclusive/inclusive design?



Handbooks, guidelines, etc.



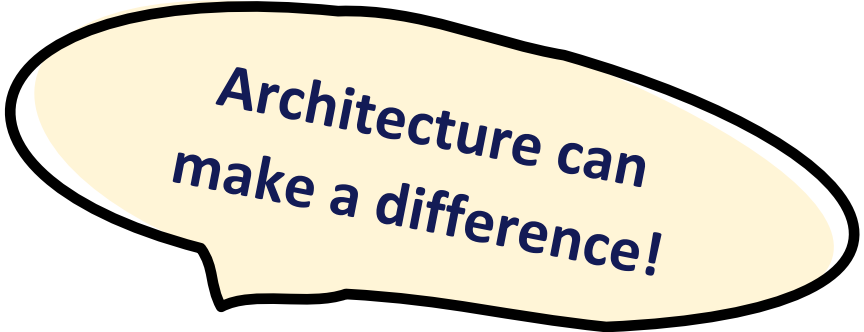
Accessibility laws and guidelines



- Living Environment Building Decree (BBL=law) is not sufficient for the great diversity of bodies
- NEN 9120 (guideline) is about more than accessibility: it is about universal design, including usability and accessibility.

UN Convention on Disability, SDG and ESG





**Architecture can
make a difference!**

But above all:

clarity, logic, obviousness,

or: 'Make a 'generous building'

(quote Jeroen van Schooten, architect-partner TEAM V)

You don't say no to universal design, do you?

Designing and building for the largest possible group of people without making adjustments (afterwards), where usability and accessibility for everyone are paramount.

- * Why does this still happen too little?
- * Why does this still happen too little?
- * What is your role as a designer?
- * Where to invest in the chain

"It can only succeed
if a level playing field is created"
(developer)

"Who is going to pay
for that?"
(developer)

your quote

"It's actually not that difficult if you take it
with you from the start!"
(housing corporation)

"The platinum accessibility requirement
first felt like a limitation and later like an
opportunity!"
(architect)

"It's just not pretty!"
(project leader)

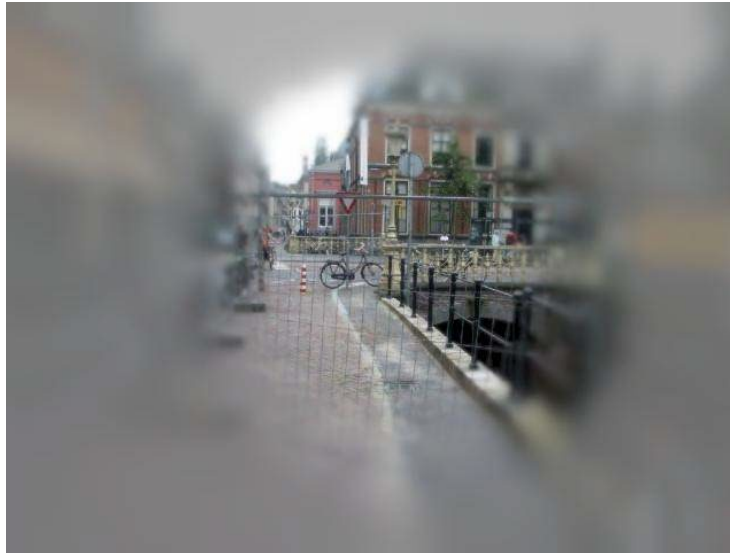
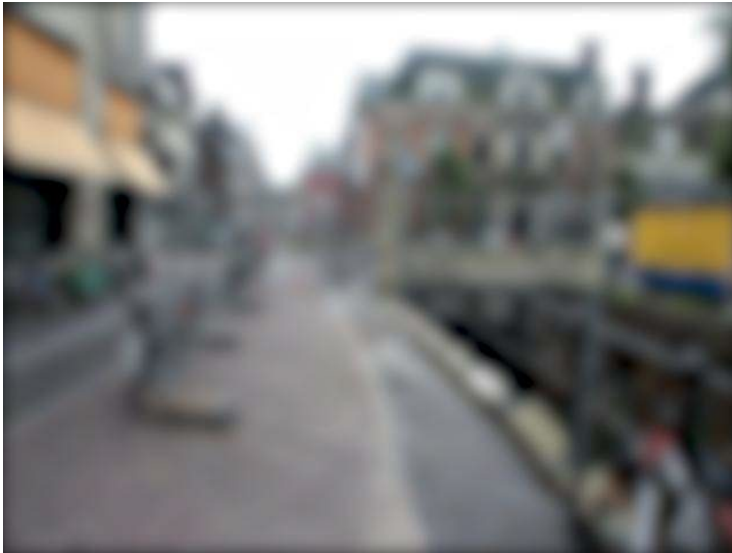
**«GOOD
DESIGN
ENABLES,
BAD
DESIGN
DISABLES»**

Paul Hogan, EIDD-DFA Europe president Emeritus



**Looking at
examples
together**

Warm-up: can you walk straight ahead here?



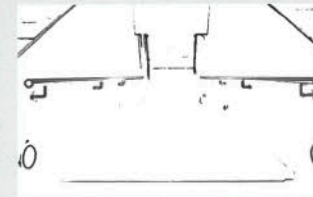
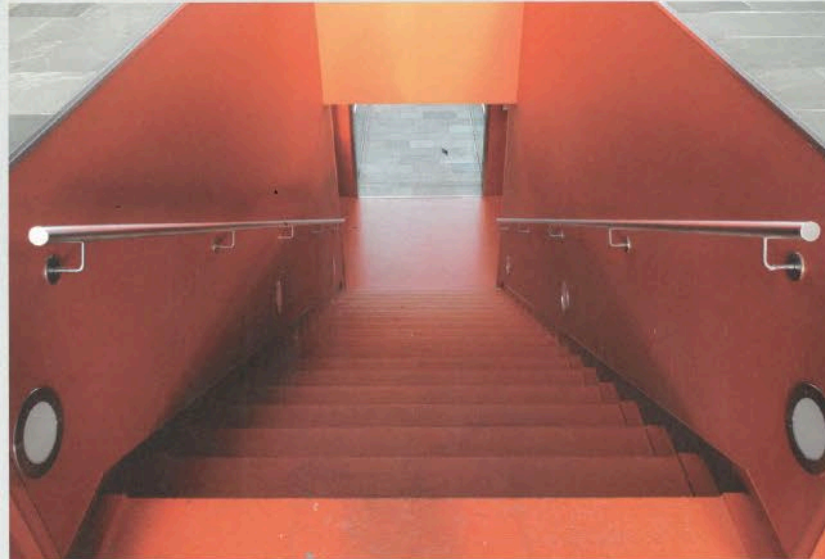
Daylight and artificial light?



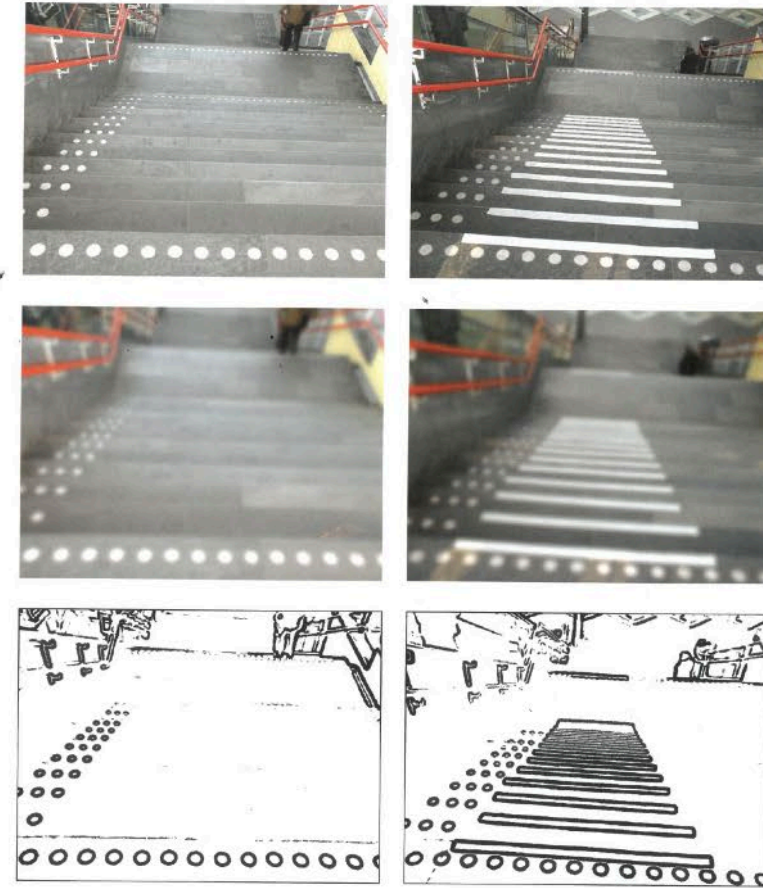
Utrecht City Office: where to? Visibility



Contrast and perception



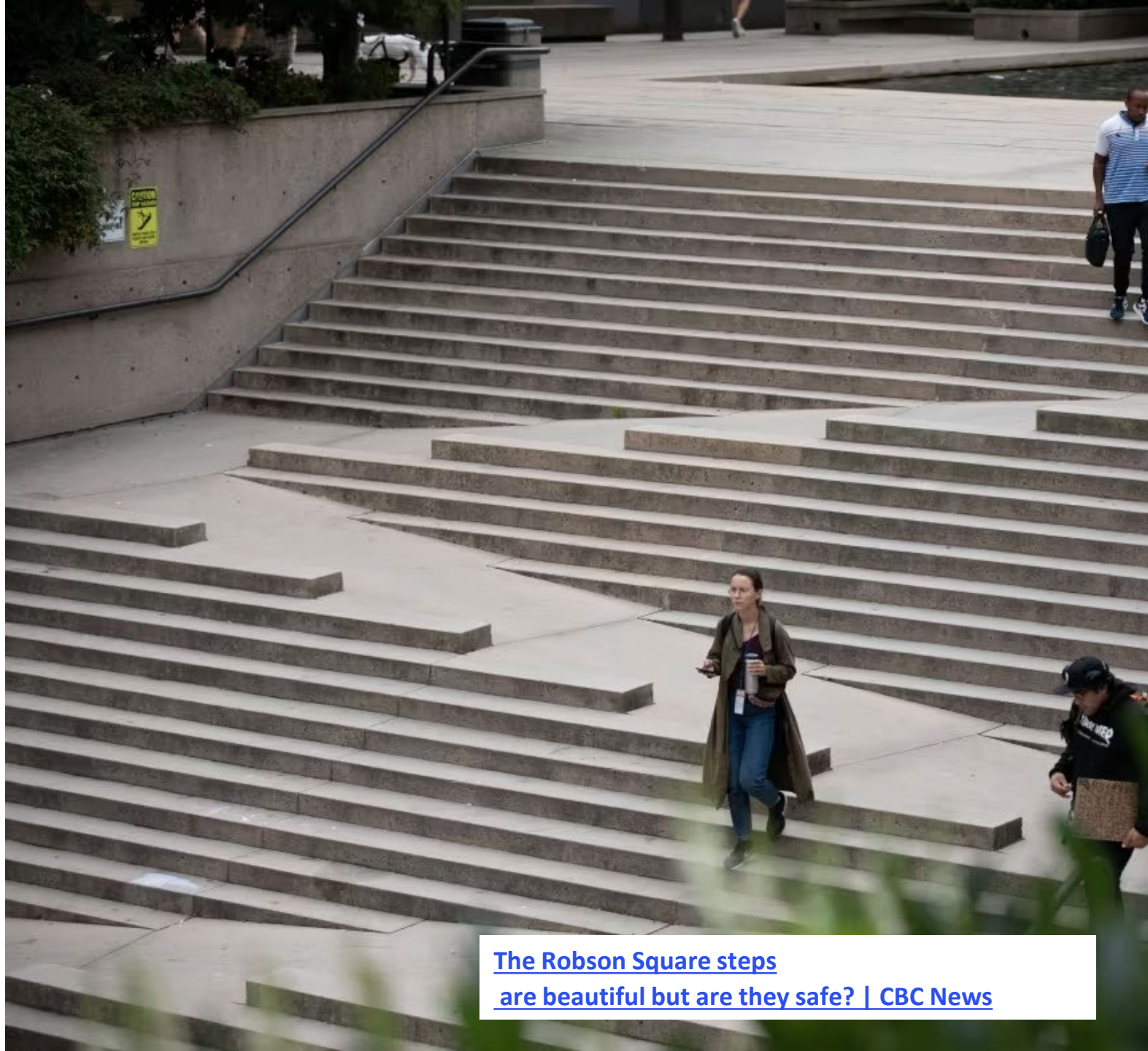
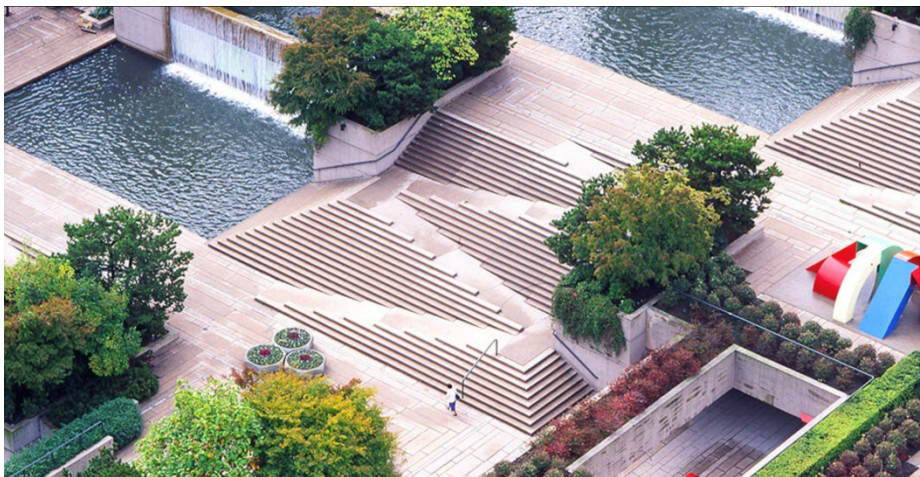
Figuur 10 — De leuningen, de enige goed zichtbare onderdelen van de trapinfrastructuur, mist een horizontale inleiding. De bezoeker blijft daardoor onzeker over het begin van de trap omdat er bij de bouw soms fouten gemaakt worden bij het plaatsen van leuningen, met IDED-analyse. Instituut voor Beeld en Geluid in Hilversum. (Ontwerp: Neutelings en Riedijk Architects)



Figuur 9 — IDED-analyse van trederandmarkering van stationstrappen.
Boven: originele foto's
Midden: vervaagde opnamen via Image Degrading (ID)
Onder: contrastlijnen via Edge Detection (ED)
De IDED-analyse toont dat de trederanden alleen goed zichtbaar zijn als ze belijnd zijn.

Figuur 17 — In deze gang van het Instituut voor Beeld en Geluid in Hilversum lijken de geblindeerde vensters op deuren. De nooduitgang, de enige deur in de gang, blijkt voor wie dichtbij staat ook te leiden naar het Grand Café, met IDED-analyse. (Ontwerp: Neutelings en Riedijk Architects)

Stairs



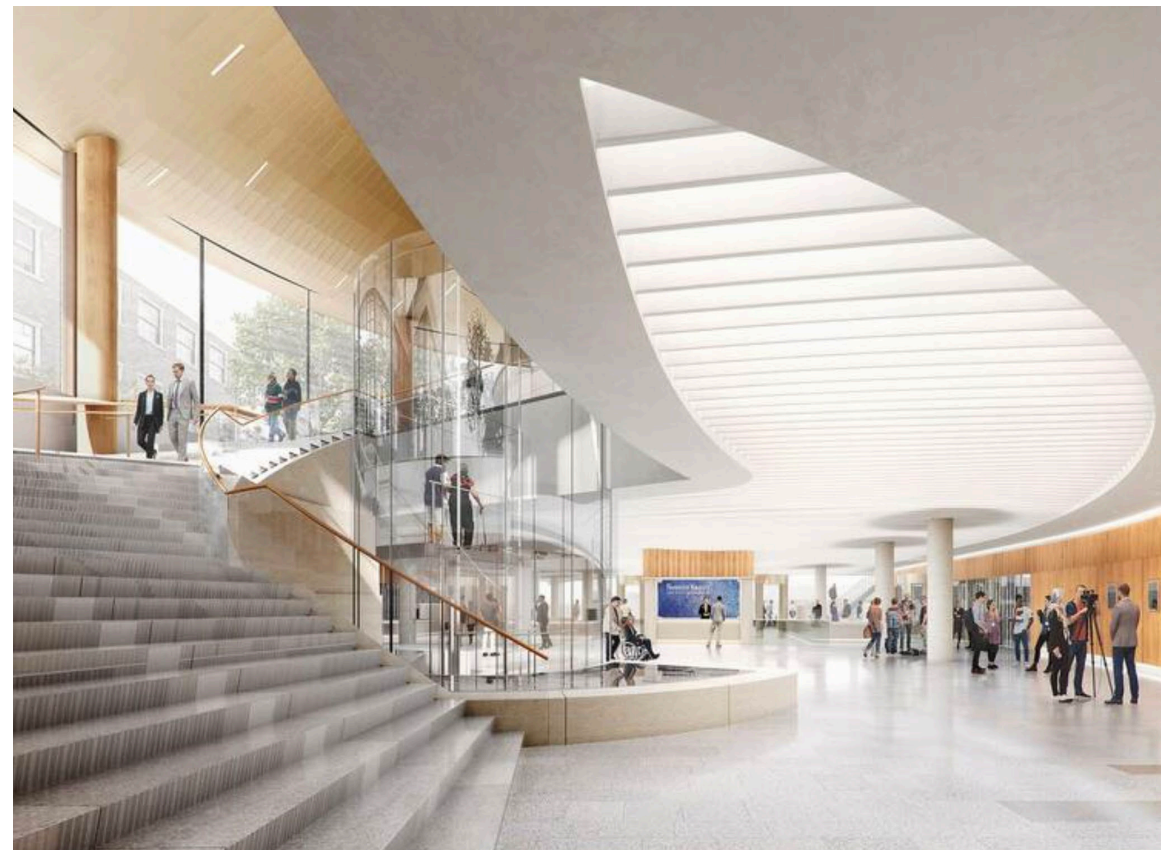
[The Robson Square steps are beautiful but are they safe? | CBC News](#)

Stairs



Nieuwe Cuyperstrap Amsterdam Centraal
verbindt stationshal met metro

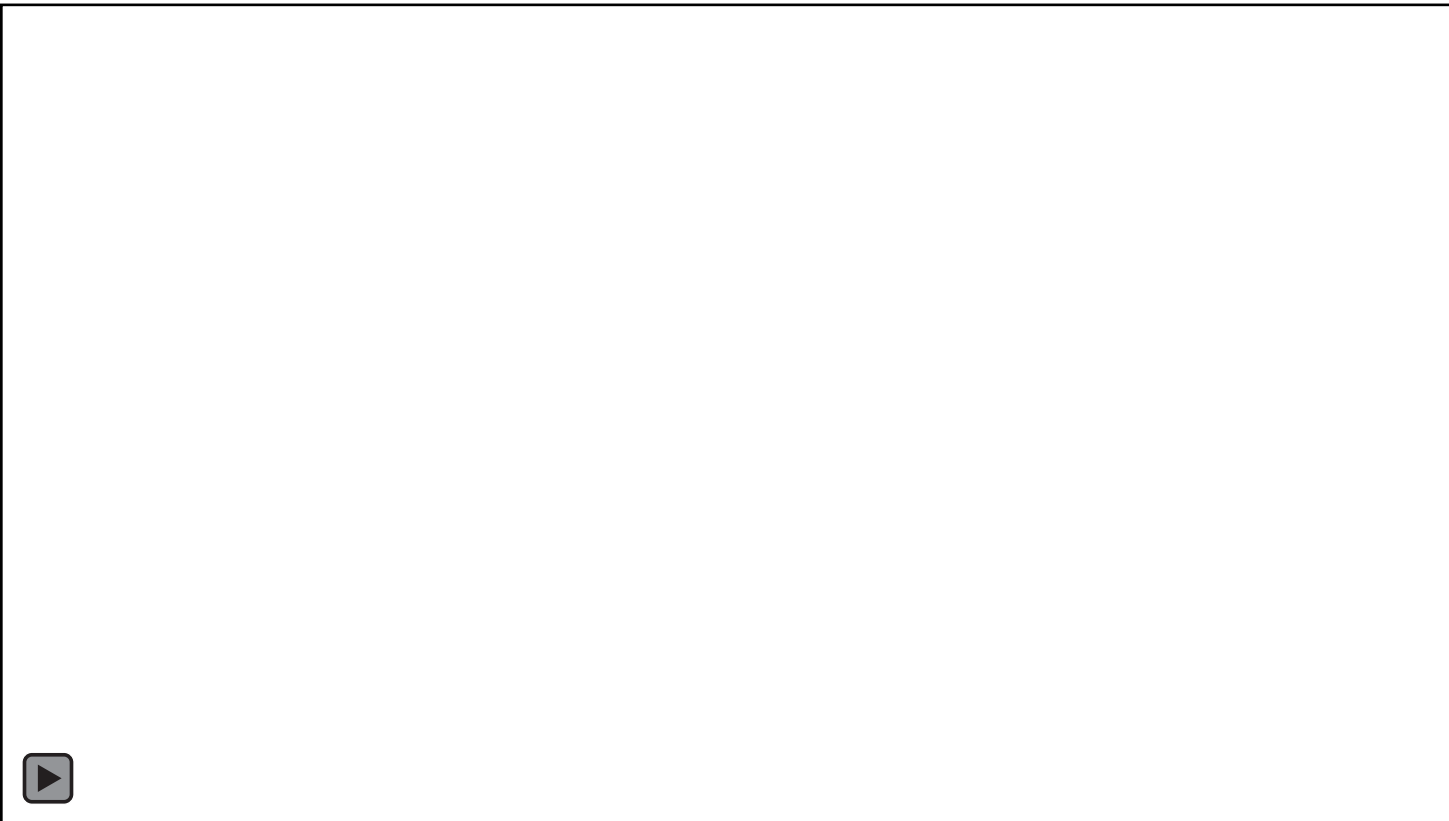
Stairs



Stairs, equality?



Stairs, equality?



Bustards, monument



Contrast and perception



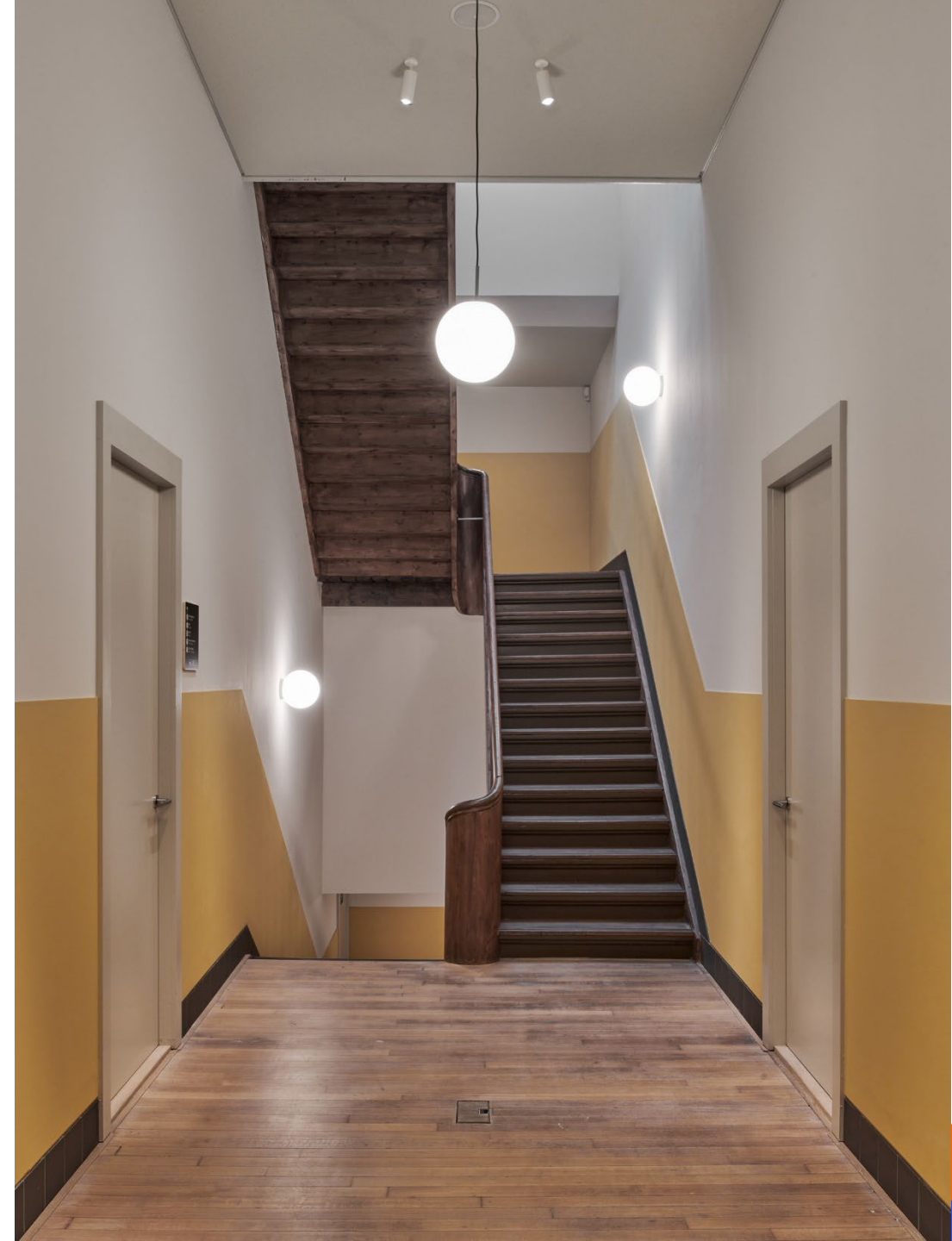
[Office Winhov - Station Nijmegen](#)



Contrast and material



[Office Winhov - Nationaal Holocaustmuseum](#)



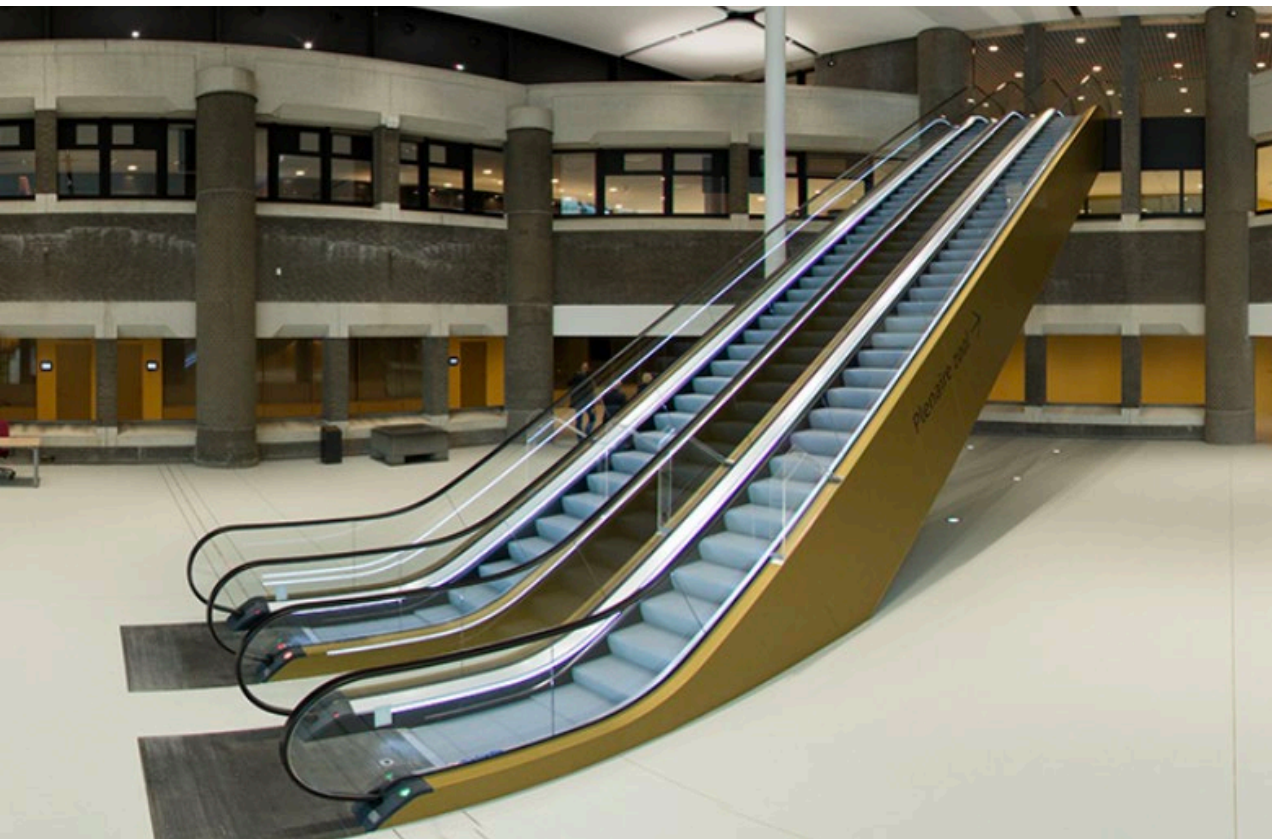
Trappen

Model C

Office building, Rue Saint Florentine, Paris



Stairs



Toegankelijkheid

*een oproep aan architecten
en opdrachtgevers*

On the roof, universal design?

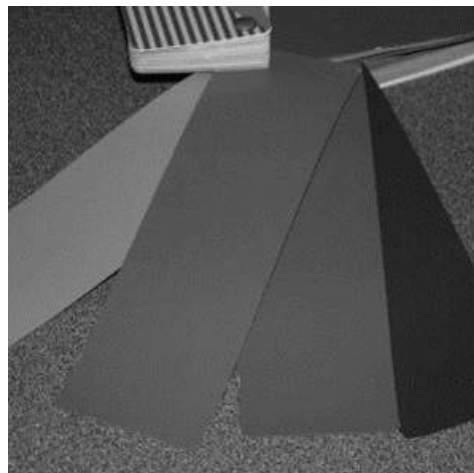
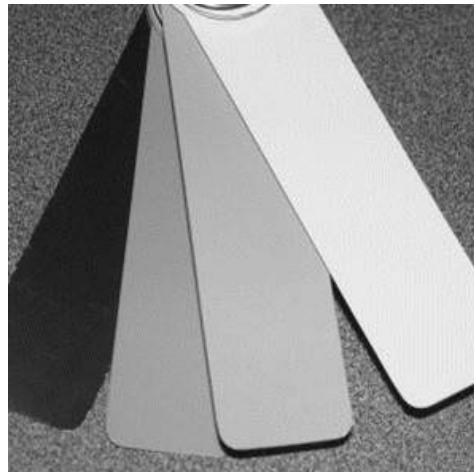


[Opera House Oslo by Snøhetta 2 | Dezeen](#)

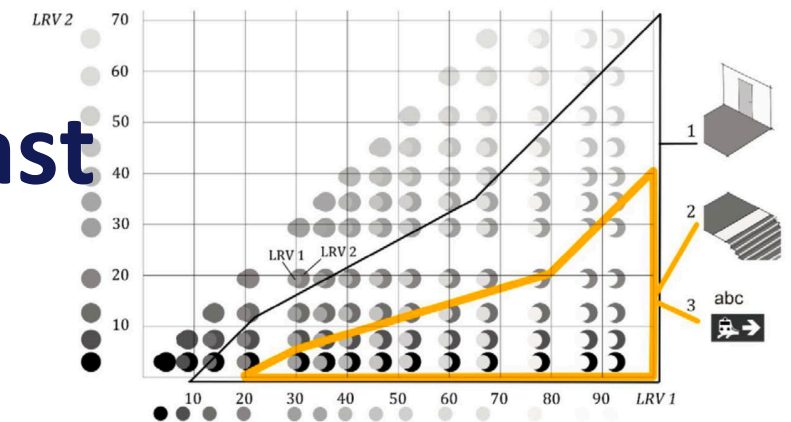


[Syn Architects surrounds arts centre in China with spiralling ramp](#)

Contrast: brightness vs color contrast



Figuur A.3 — Diagram met visueel contrast op basis van het verschil in LRV voor grote oppervlakken, gevaren en Informatieborden (ISO 21542:2011)



Legenda

- 1 aanvaarde combinaties voor grote oppervlakken
- 2 aanvaarde combinaties voor gevaren
- 3 aanvaarde combinaties voor informatieborden

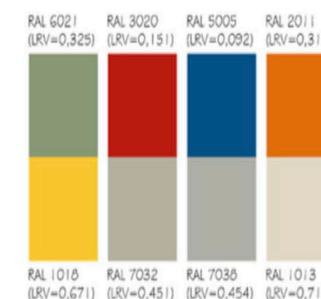
Contrastwaarde $\geq 0,3$

Grote vlakken (bijv. wanden, vloeren, deuren, plafonds), bedieningselementen (knoppen, schakelaars), leuning en glasmarkeringen.

Contrastwaarde $\geq 0,6$

Aanduidingen van gevaar (bijv. markeringen op traptreden), tekstuele informatie (zoals bewegwijzing)

Voorbeelden:



Voorbeelden:



Contrast: markings on glass (construction) parts



Process: Equivalence

Rolstoelgebruikers raken niet op dak MAS

17 mei 2011

17u42

© Nieuwsblad



© AP

Omdat bij de bouw van het pas geopende Antwerpse Museum aan de Stroom (MAS) niet was gepland dat het dak zou worden opengesteld voor het publiek, is er momenteel geen lift die helemaal tot bovenaan het gebouw gaat.

Proces: HQ Booking



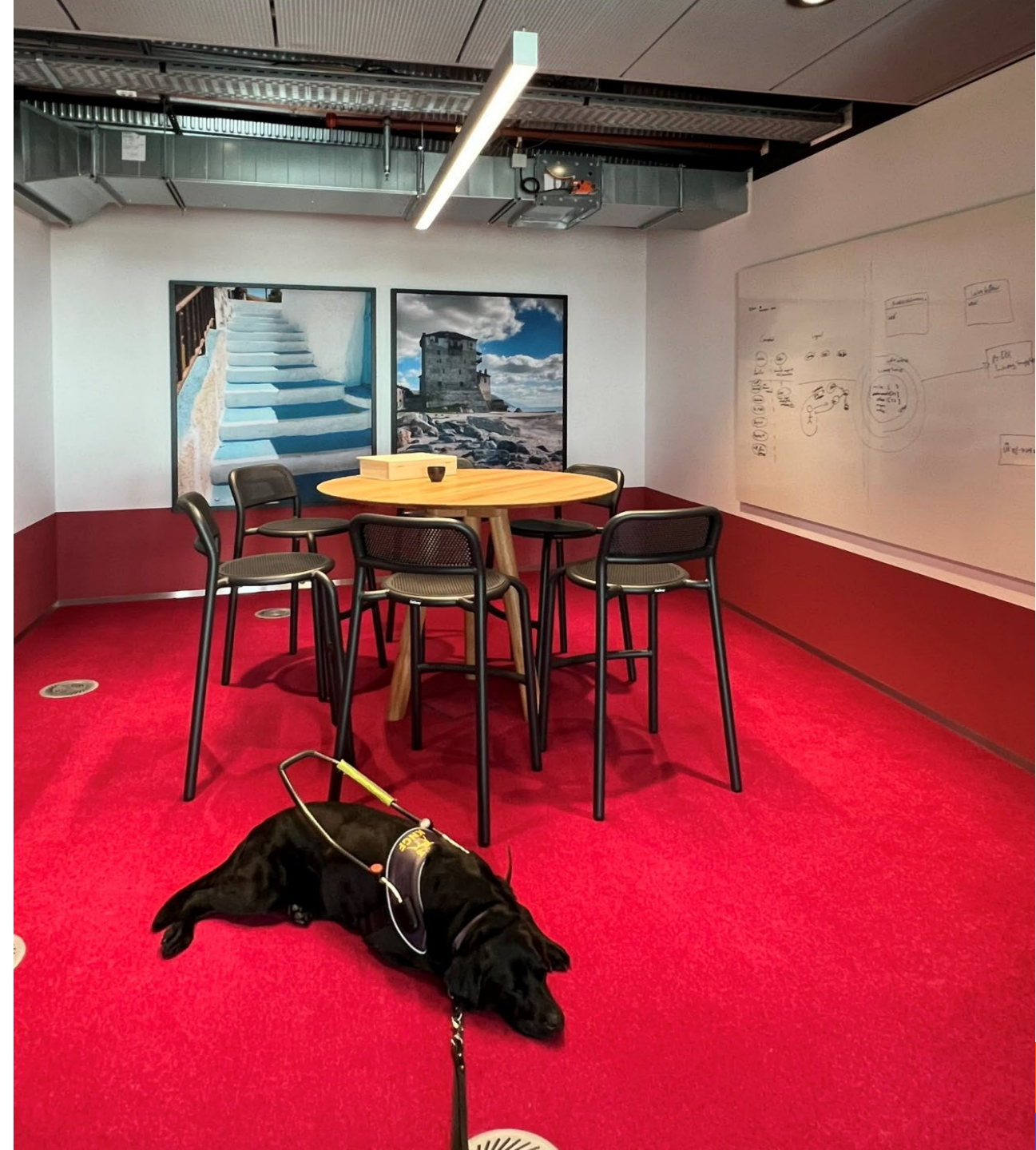
Een gebouw dat toegankelijk is voor iedereen,
ook voor mensen met een beperking, hoe doe je dat? | Trouw).



Sound

Tabel 29 — Voorbeelden van nagalmtijden

Toepassing	Nagalmtijd [sec]	Opmerking
ruimte in een crèche	0,4	vooral absorberende oppervlakken, vlakbij het geluid
klaslokalen	0,4-0,6	evenwichtige verdeling van absorberende en weerkaatsende oppervlakken
kantoren	0,4-0,7	absorberende oppervlakken op plafond en muren
conferentieruimte	0,6-1,0	afhankelijk van het volume van de ruimte
muziekgerichte ruimten	0,9-1,2	oppervlakken die geluid weerkaatsen en verstrooien, beperkt absorberend oppervlak
concertzaal	1,1-1,5	afhankelijk van het volume van de ruimte



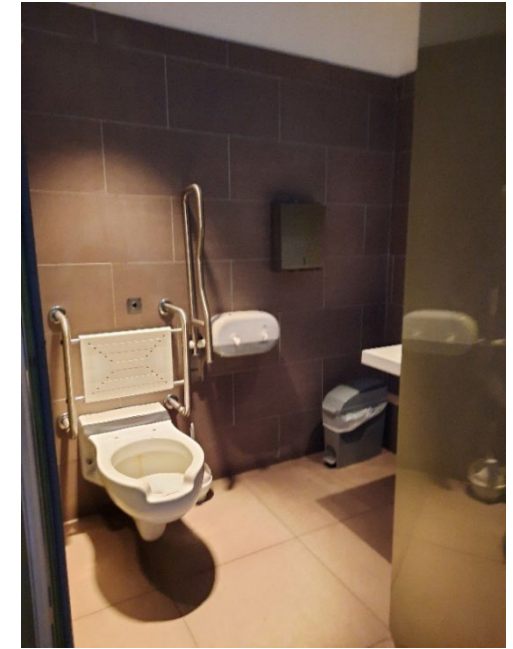
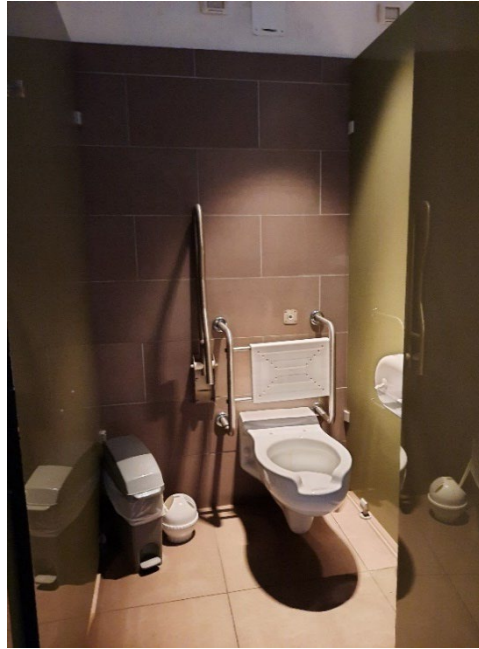
Sanitary areas and wayfinding:

- Herkenbaar: recognizable
- Eenduidig: unambiguous
- Voorspelbaar: predictable

Booking HQ – Mijksenaar



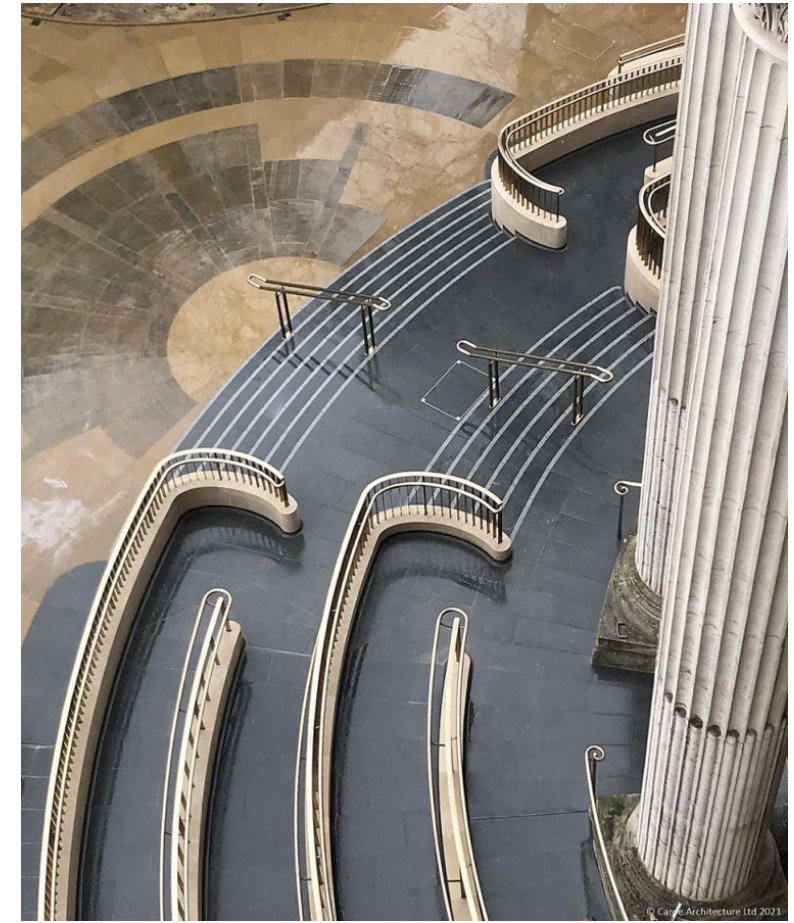
Sanitary areas for everyone?



Autogrill Villoresi -Design for All award

Een prijs voor de ruimtes maar de verlichting verdient wel extra aandacht

Just do it: St. Pauls Cathedral



[View entry in gallery | UIA Competitions & Prizes 2023-2026](#)

Guts: old and new?

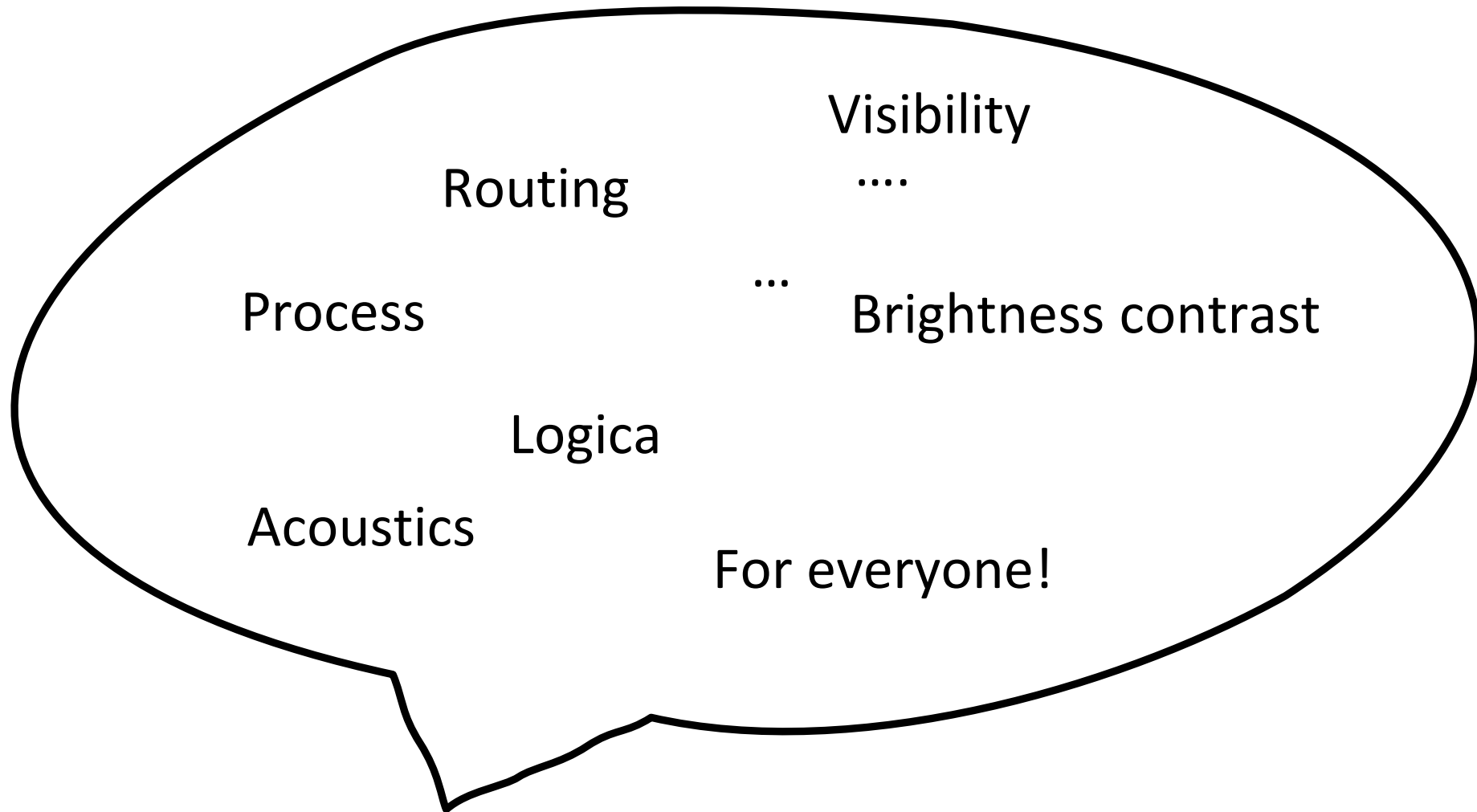


[Leira Castle - UIA Competitions & Prizes](#)
[2023-2026 \(awardsplatform.com\)](#)

Treetop Hamaren Nature Park in Fyresdal



What do you think of when you think of accessibility?



Universal design is for everyone.

- Not from standard and norm, but from diversity of bodies
- Accessibility, usability and logic is a design task
- And the entire chain in the construction process contributes



Questions?



Accessibility as a design task

- Spaces and width of doors and corridors: More than a wheelchair mat, also usability
 - Height differences: There are regulations on the dimensions of ramps, steps, handrails and railings to promote safety and practicality
 - Sanitation: The standard includes guidelines for accessible toilets, sinks, and showers, including adequate maneuvering space and proper heights.
 - Visual and tactile signage: There are requirements for clear signage, high-contrast markings and tactile indicators for recognisability and findability
- 