

Elke Miedema PhD - Leader of TF on Health Promoting Built Environment (since 2022) with support from: Mike Appel, Peyton Fort, Maja Kevdzija and Laura Cambra Rubino and the members.

Date: February 17 from 9:30-11am CET



## Research & Inspiration

- **Design of healthcare buildings & health-related outcomes**
- Designing **Health-Promoting Healthcare Buildings (HPBE)**
- **Pediatric Healthcare & Child-friendly Design**

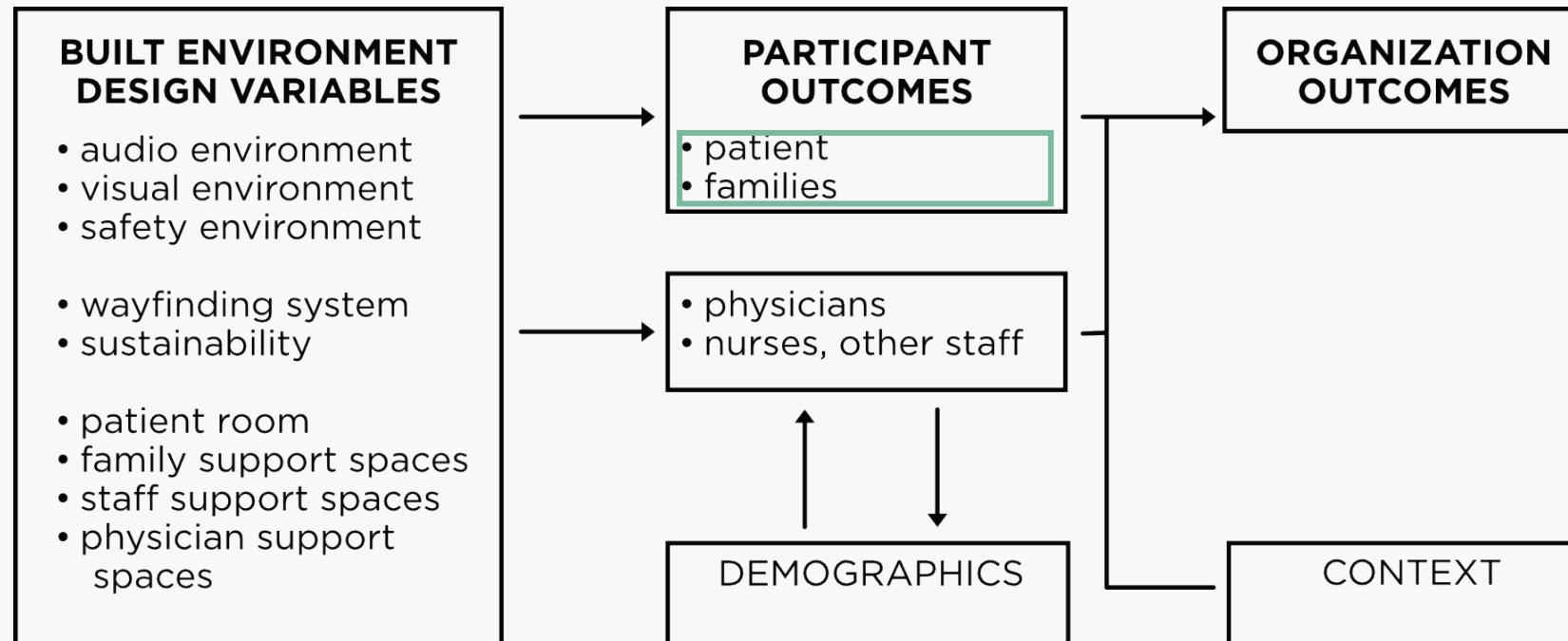




# Design of Healthcare Buildings & Health-related outcomes

We know that ...

... **that the design of healthcare buildings can influence health of building users** (e.g. patient, staff, relatives), **the local community** and **the planet**.



(BASED UPON ULRICH 2008 & 2010)



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## **BUILT ENVIRONMENT DESIGN VARIABLES**

- audio environment
  - visual environment
  - safety environment
  
  - wayfinding system
  - sustainability
  
  - patient room
  - family support spaces
  - staff support spaces
  - physician support spaces
- Sound, noise, music
  - Nature, art,
  - Falling, errors
  
  - Signage, maps
  - Planetary health
  
  - Comfort; temperature, (day)light,
  - Autonomy & control

# Pediatric healthcare & Child-friendly Design

We know that ...  
... that the design of healthcare buildings is different  
for **children and adolescents**

(ULLÁN AND BELVER, 2021; VERSCHOREN ET AL., 2015)



# Pediatric healthcare & Child-friendly Design

Literature 2010-2020

→ 73 about NICU/PICU and pediatric healthcare

- **ambient** features (light, air, temperature, sound, scent)
- **architectural** features (layout, openings, views)
- **interior** features (furniture, finishing, )
- **social** features (privacy, control)
- **nature** features (views and access)

(Elf et. al., 2023)





# Pediatric healthcare & Child-friendly Design

Literature 2010-2020

→ 73 about NICU/PICU and pediatric healthcare

- ambient features
- architectural features
- interior features
- social features
- nature features
- Activity and behavior
- Clinical outcomes
- Emotional wellbeing
- Patient centered care
- Safe care

(Elf et. al., 2023)



# Design of Healthcare Buildings & Health-related outcomes

We know (about healthcare architecture) that ...

- ... new healthcare approaches **change the demands for the healthcare building.**

(CARTHEY, CHOW, JUNG, & MILLS, 2011, MIEDEMA, 2020)

- ... many buildings are outdated and need **renovation or redesign**

(LÖVTRUP, 2011, CARTHEY, CHOW, JUNG, & MILLS, 2011)

- quality of healthcare buildings has been related to **healthcare quality**

(ANÅKER, HEYLIGHEN, ET AL., 2017),

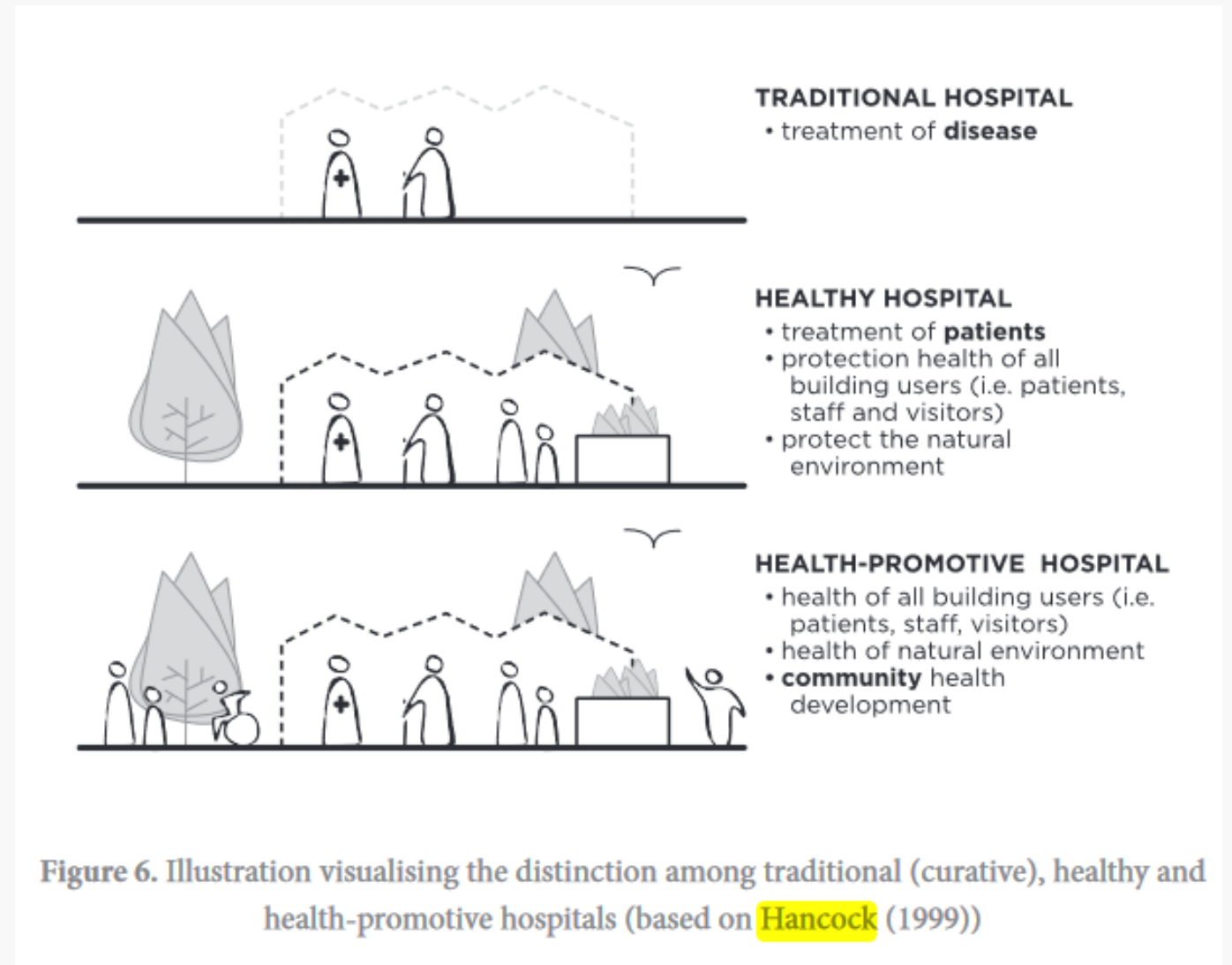


# Design of Healthcare Buildings & Health-related outcomes

We know (about healthcare) that ...

- ... we need to **re-orient towards health-promoting healthcare**

(GOEL & MCISAAC, 1999; JOHNSON, 1999; PELIKAN ET AL., 2001;  
WHITEHEAD, 2004A; WHO, 2004)





# Designing **Health-Promoting Healthcare Buildings (HPBE)**

## Design to

- **Facilitate** health-promoting **program**
- **Stimulate** health-promoting **processes**
- **Symbolize** health-promoting **visions**



# Designing **Health-Promoting Healthcare Buildings**

## Designing with attention for:

- **Healthy behaviors (Active design)**
  - Nutrition
  - Sleep
  - Physical activity
  - Social Interaction
- **Reducing inequities (Inclusive design)**
  - Different abilities, needs and behaviors
- **Attention to holistic health (Restorative design)**
  - Socio-cultural-mental-spiritual
- **Attention to quality of life (Salutogenic Design)**







# Pediatric healthcare & Child-friendly Design













- Universal design
- Inclusive design
- Child-friendly design



# (Healthcare) Design for Children & Adolescents

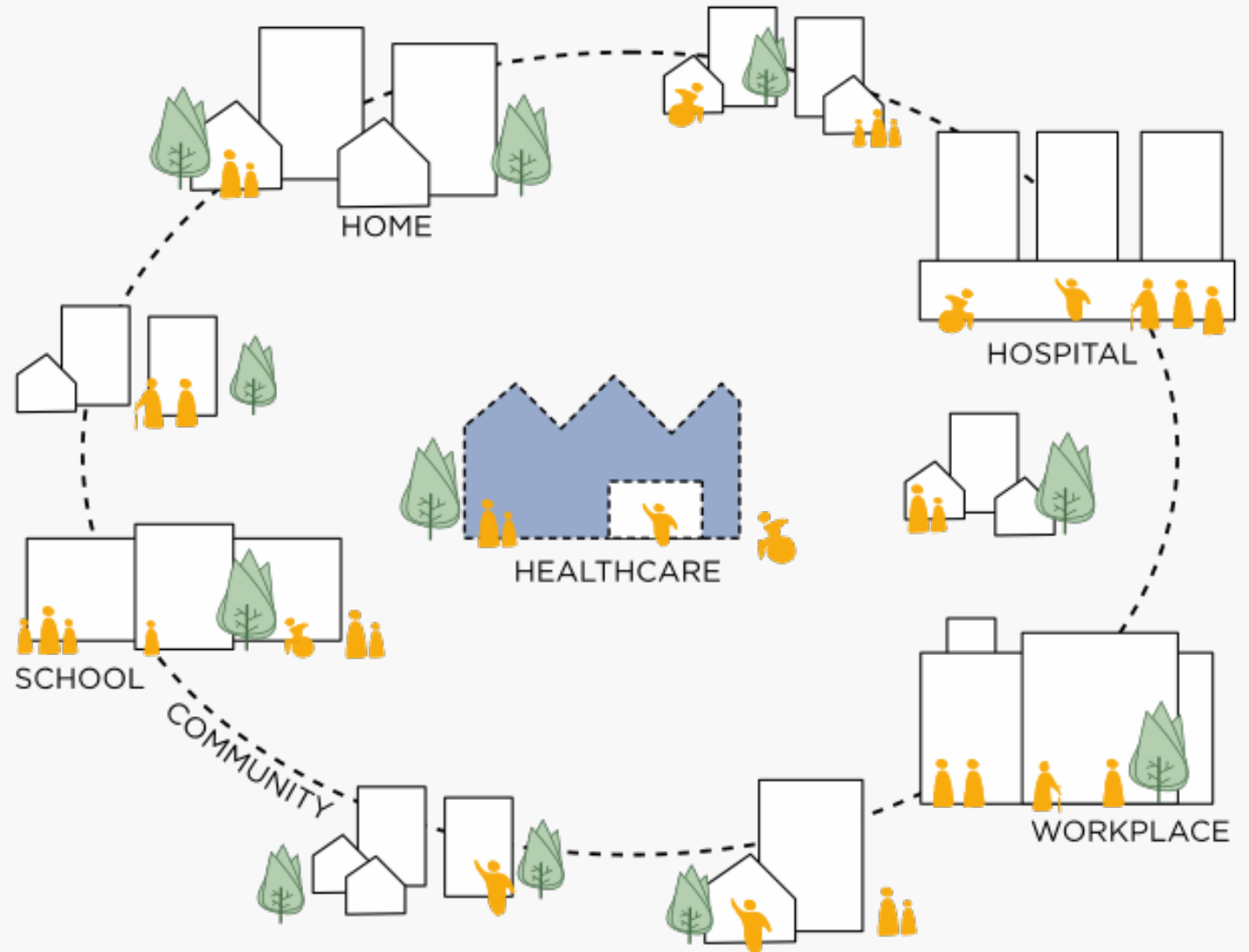
## Inclusive Design (general)

Design for a population with specific needs, wants and behaviours.

	Permanent	Temporary	Situational
Touch	 One arm	 Arm injury	 New parent
See	 Blind	 Cataract	 Distracted driver
Hear	 Deaf	 Ear infection	 Bartender
Speak	 Non-verbal	 Laryngitis	 Heavy accent

# (Healthcare) Design for Children & Adolescents

## Child-Friendly Design (general)





# Pediatric healthcare & Child-friendly Design

## When children need health/care

(VERSCHOREN ET AL., 2015, P. 6)

- Homelike
- Personalisation
- A view on life outside the hospital

They want an environment in which they can **continue daily life** in order to break the isolation of 'being ill', and that this continuation should be supported not socially but **also spatially**.



# Pediatric healthcare & Child-friendly Design

*"In our new isolation rooms we now also have a strip painted in magnetic paint, and there they can [hang up things] with magnets, that's fun".*

(VERSCHOREN ET AL., 2015, P. 6)



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# Alder Hey Hospital by BDP





# Queen Silvia Children's Hospital by White Architects



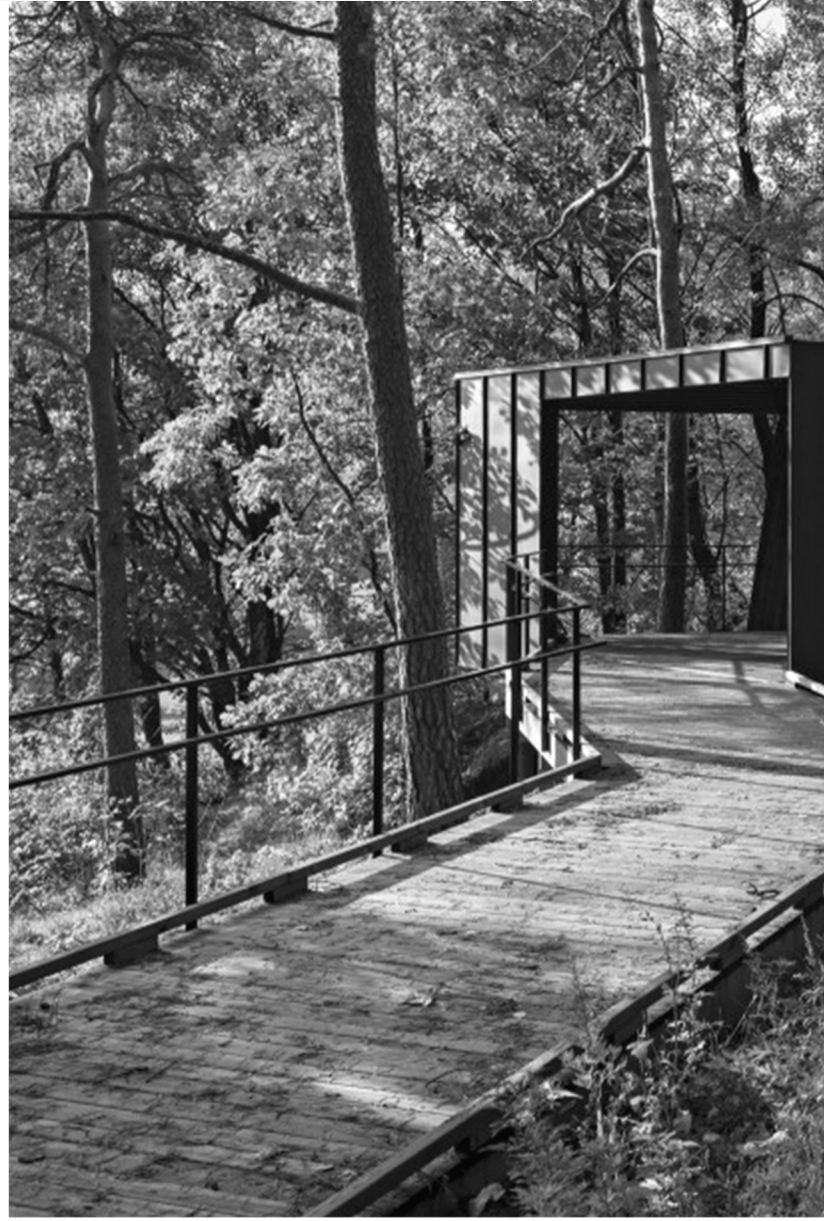


# BARCELONA PEDIATRIC CANCER CENTRE





# Friluftssykehuset – the Outdoor Care Retreat





Current research by:  
Dr.-Ing. Maja Kevdzija, EDAC  
Assistant Professor in Healthcare Design TU Wien



investigate the **role of the built environment** in the everyday life of children and families affected by this rare disease:

**informal** (i.e. home, neighbourhood, school)

**formal** (i.e. hospital, rehabilitation clinic, outpatient clinic) **care environments.**

## (Healthcare) Design for Children & Adolescents

When their  
parents need  
health/care?



## Design process as a moment for change

When planning / re-designing it creates a moment to critically reflect on the general organisational objectives and processes.

## What can you do? (healthcare organisations)

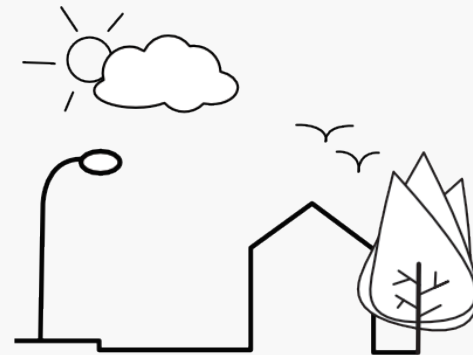
We know (about organisational strategies) that ...

- incorporation of design strategies in **the strategic documentation of a healthcare organisation** can result in improved quality of care

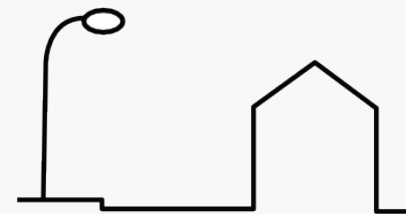
(ELF & MALMQVIST, 2009; ELF ET AL., 2012).



SETTING



PHYSICAL ENVIRONMENT



BUILT ENVIRONMENT



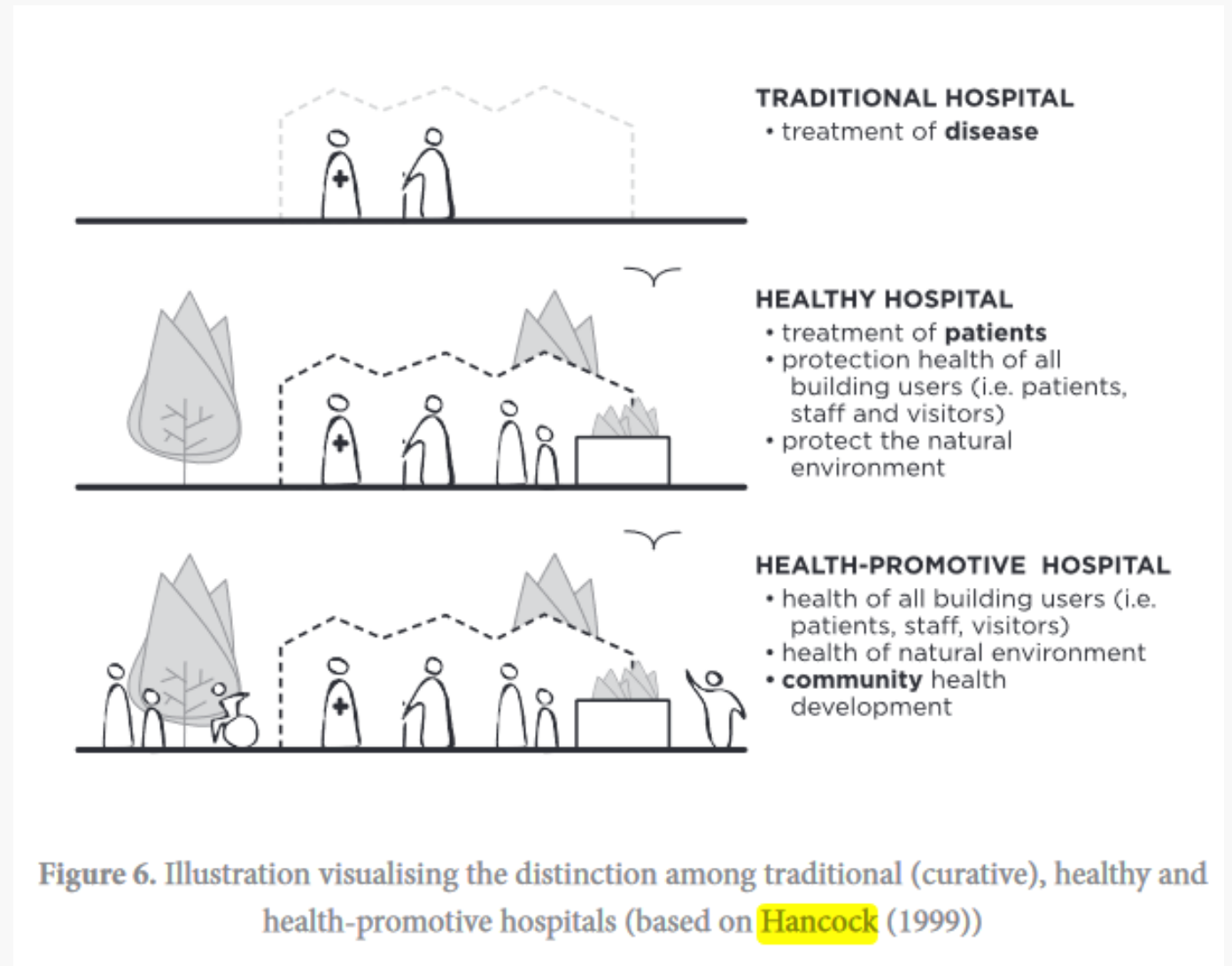
BUILDING DESIGN



## What can you do? (planners & architects)

We know (about healthcare architecture) that

- It can **hinder or stimulate** health promotion outcomes
- The **design process** can be a resources for health promotion



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International Network of  
Health Promoting Hospitals  
& Health Services

## Elke Miedema PhD

TF leader Health-Promoting Building Design (HPBD)

Proof of the sum – architectural researcher

TU Delft – Thesis supervisor Architecture for Health & Care

