


The background features several decorative elements: a solid line with a jagged, sawtooth pattern in the upper left; a dashed line curving from the bottom left towards the right; and another jagged line in the lower left. The main title is centered in a large, bold, black font.


Sensors in a House

Taavi Jakobson
Kodasema OÜ




Smart Home

KODA by Kodasema




www.kodasema.com



Smart Home

„A home equipped with lighting, heating, and electronic devices that can be *controlled* remotely by smartphone or computer.“


- Oxford Dictionary / google



Smart Home

„A Smart Home is one that provides its home owners comfort, security, energy efficiency (low operating costs) and convenience at all times, regardless of whether anyone is home.“

- Smart Home USA



Smart Home

„A home equipped with lighting, heating, and electronic devices that can be *controlled* remotely by smartphone or computer.“

- Oxford Dictionary / google

„A Smart Home is one that provides its home owners comfort, security, energy efficiency (low operating costs) and convenience at all times, regardless of whether anyone is home.“

- Smart Home USA

www.kodasema.com















Smart Home

„A Smart Home is one that provides its home owners comfort, security, energy efficiency (low operating costs) and convenience at all times, regardless of whether anyone is home.“


- Smart Home USA



Smart Home


„A Smart Home is one that provides its home owners **comfort, security, energy efficiency** (low operating costs) and convenience at all times, regardless of whether anyone is home.“

- Smart Home USA



Smart Home

comfort, security, energy efficiency



Smart Home

comfort, security, energy efficiency

PASSIVE:


- **architecture**
- **interior design**
- **engineering (insulation, ...)**

Smart Home

comfort, security, energy efficiency

PASSIVE:





Smart Home

comfort, security, energy efficiency

ACTIVE:

- **input**
- **rule / function**
- **output**




Smart Home

comfort, security, energy efficiency

ACTIVE:

- **SENSORS**, User Interface, External Data
- rule / function
- output



Smart Home

comfort, security, energy efficiency

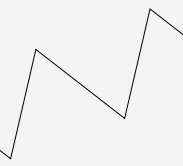
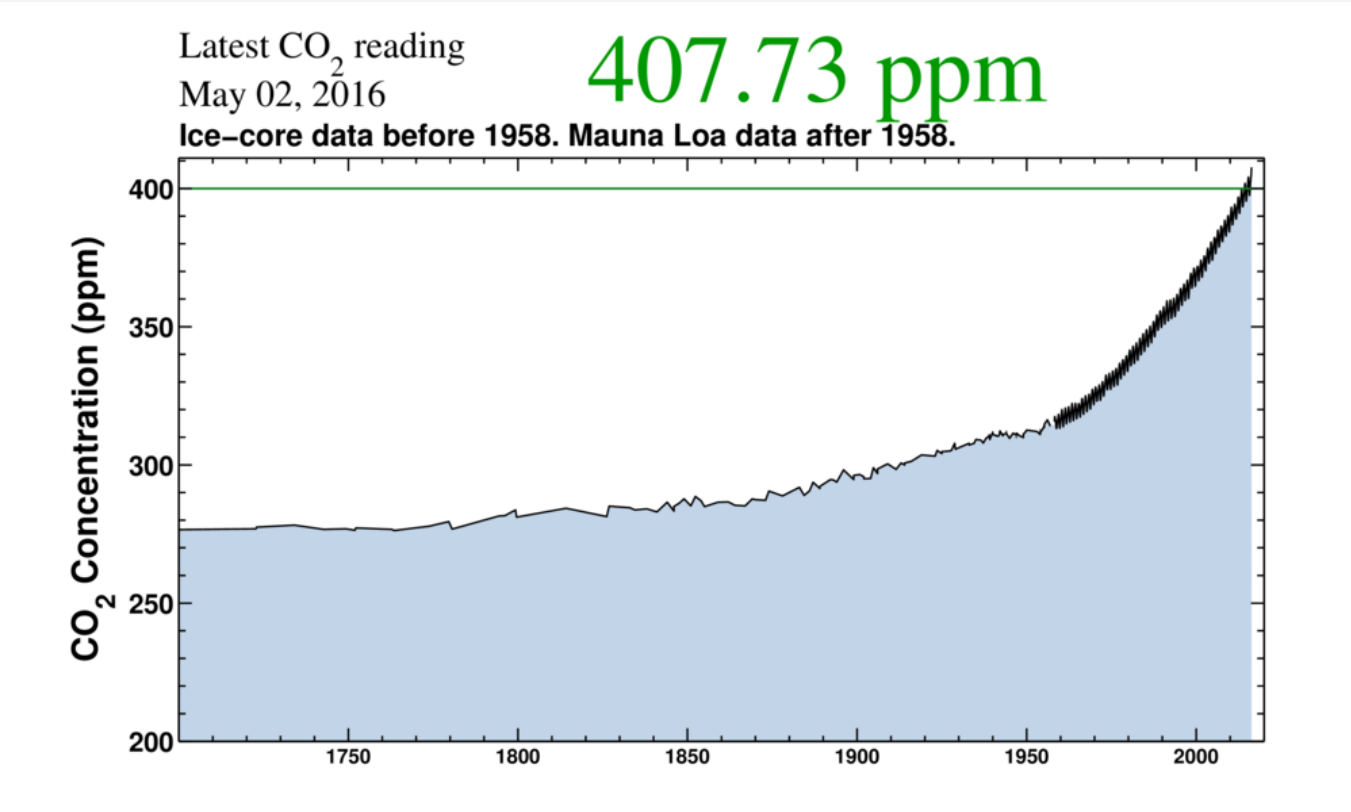
ACTIVE:

- **SENSORS**, User Interface, External Data
- rule / function
- output

What makes sense to sense?



CO₂



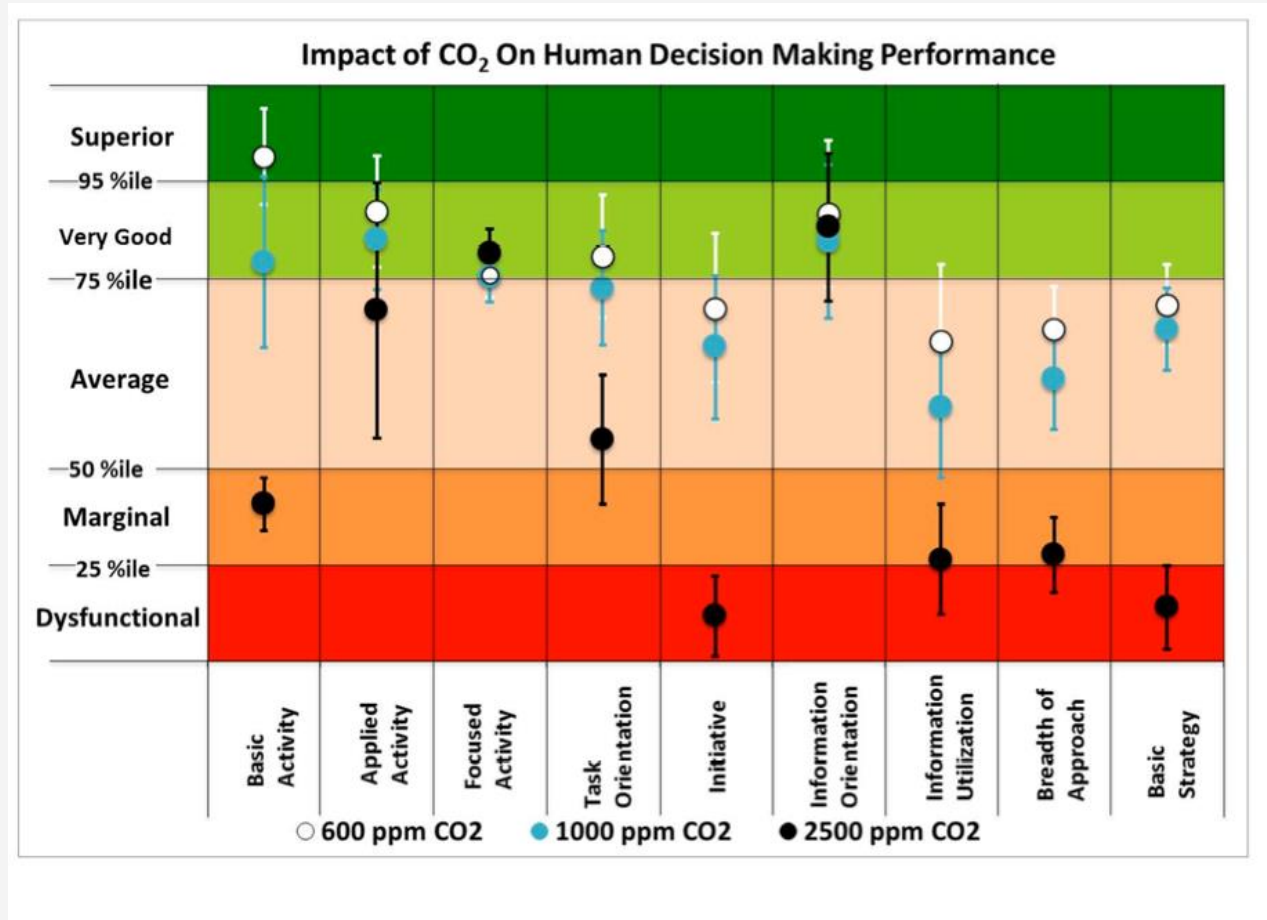


50%



80%

CO₂



Is CO₂ an Indoor Pollutant? Direct Effects of Low-to-Moderate CO₂ Concentrations on Human Decision-Making Performance
Satish, Mendell, Fisk et al 2012 (Berkeley Lab)

Relative Humidity

821

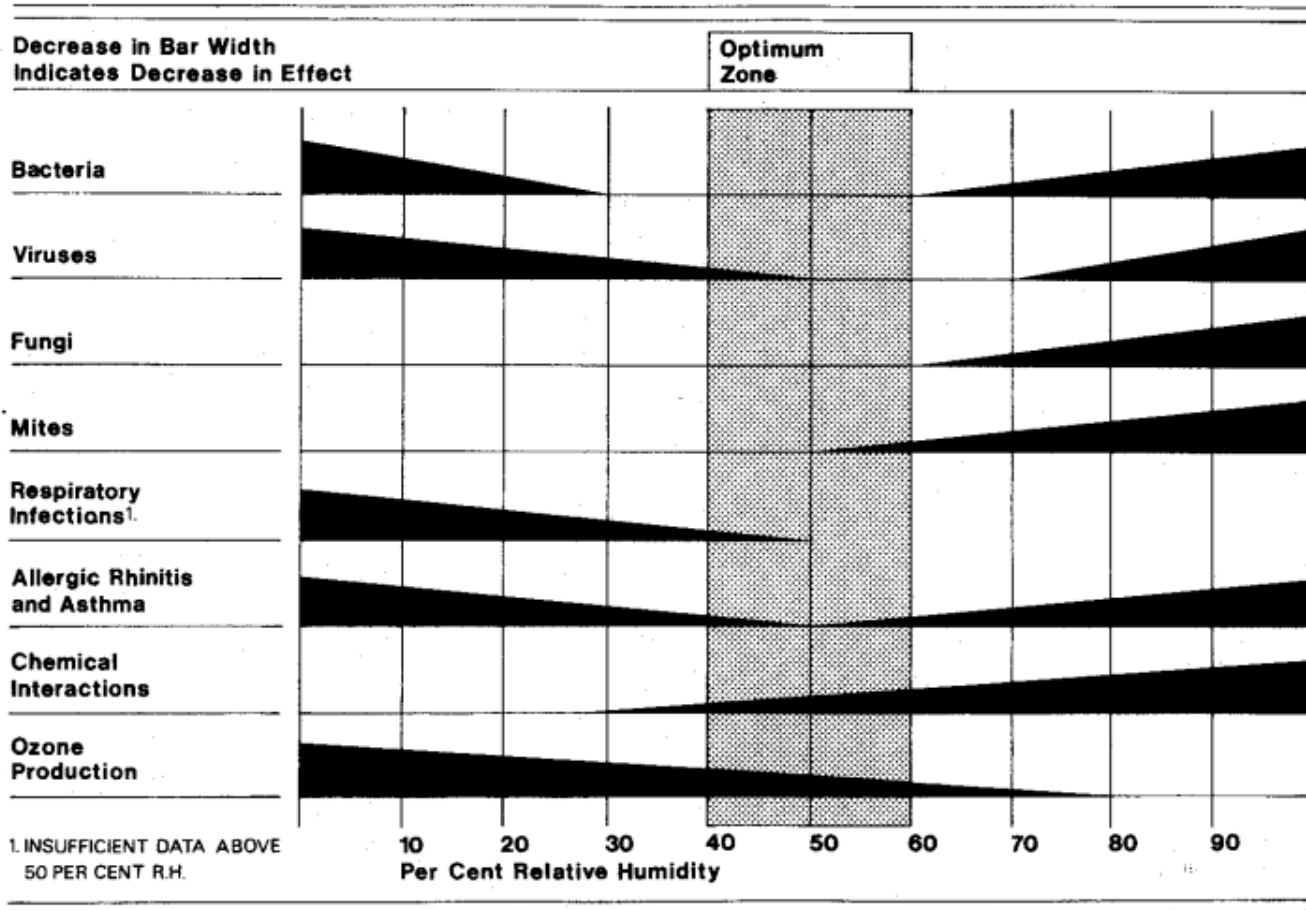


Figure 1. Optimum relative humidity ranges for health

Criteria or human exposure to humidity in occupied buildings
Sterling et al, ASHRAE Transactions 91(Pt 1):611-622 1985

Tuul võib põhjustada ka ventilatsioonikorstnatest sissepuhumist, mistõttu on korstnaid katusel ja korterites suletud, vt. Joonis 13.2, Joonis 13.3. Esineb ka juhtumeid, kus korteri ventilatsiooniava on kapiga suletud või avad on nii tolmused, et õhk sealt läbi ei käi, vt. Joonis 13.3.

Suurpaneelramute ventilatsiooni renoveerimine on hädavajalik.



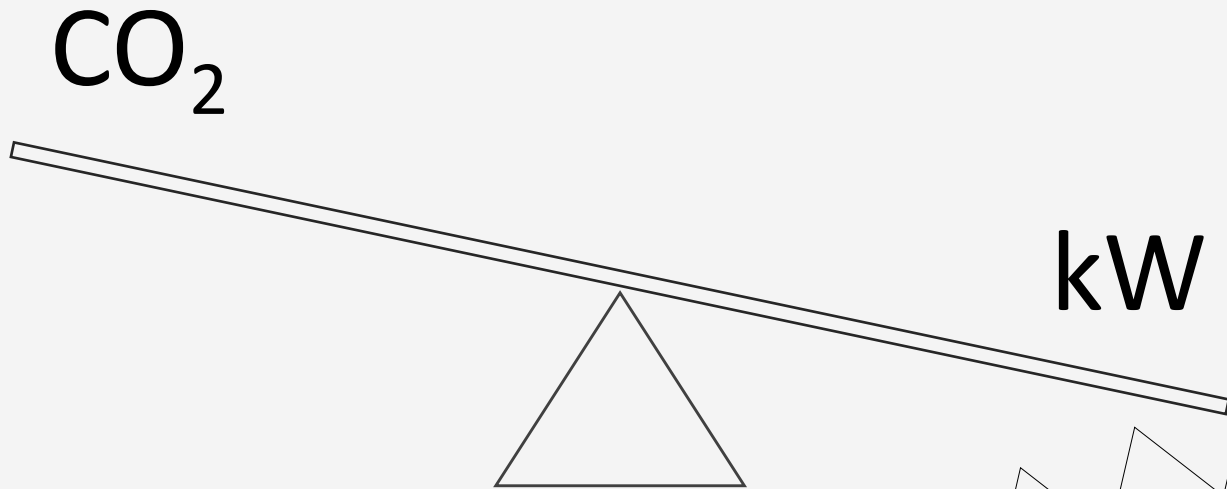
Joonis 13.2 Ventilatsioonilõõrid on katusel suletud.

CO₂

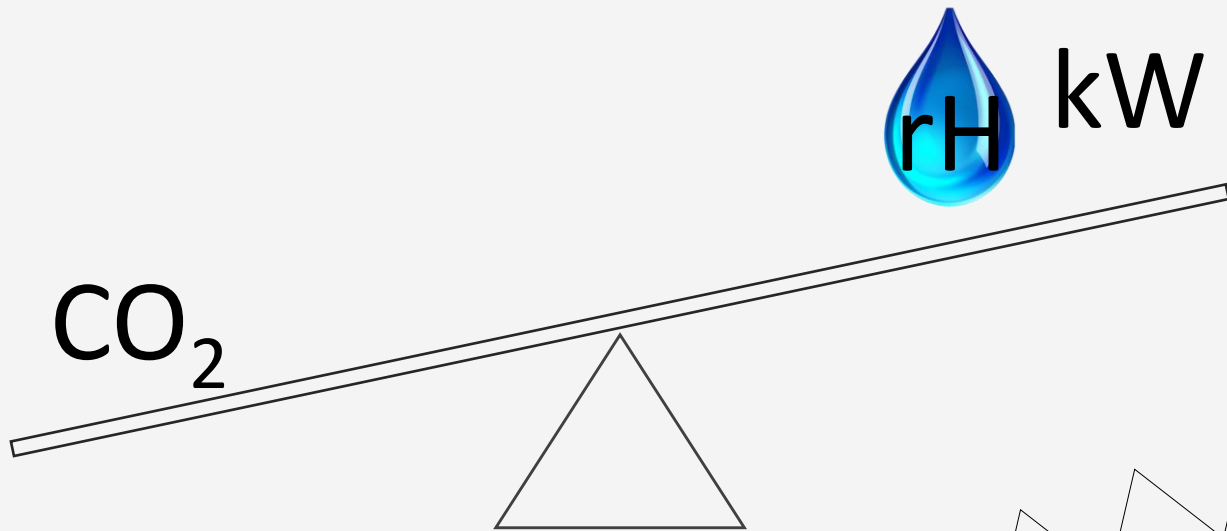
„Eesti eluasemefondi suurpaneel-korterelamute ehitustehniline seisukord ning planeeritav eluiga.“

TTÜ uuringu lõppraport (Targo Kalamees et al 2009)

Compromise



Compromise



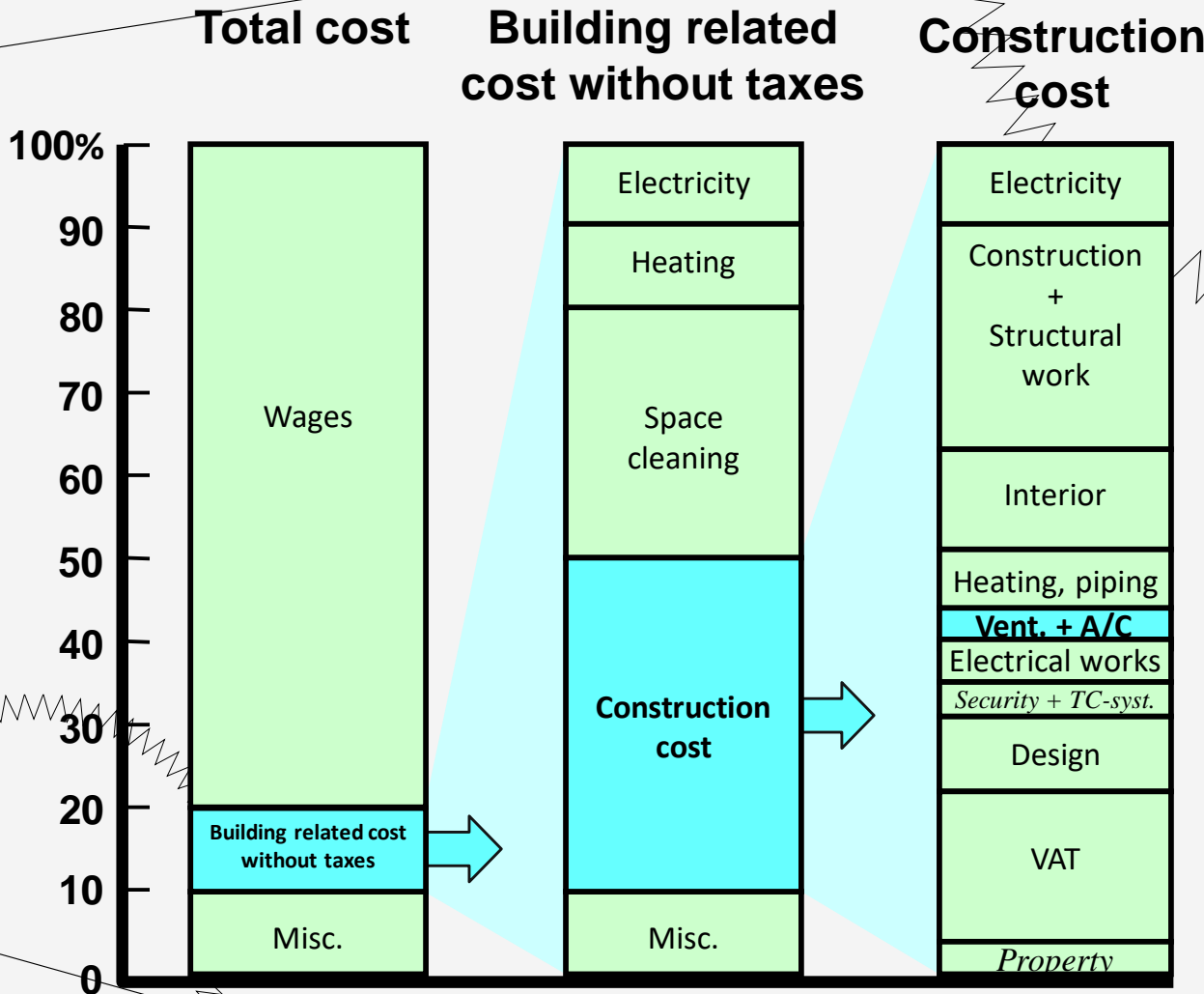
Smart Home

CO₂



rH kW

Adaptable ventilation




- Building costs:
- People 100
 - Maintenance 10
 - Financing 10
 - **Energy 1**

1% productivity loss = full energy budget

Smart building:
energy efficient high quality indoor environment – a combination of active and passive measures

REHVA Guidebook No 6 Indoor Climate and Productivity, 2006

„Sisekliima ja tööviljakus“ Jarek Kurnitski May 2016



Smart Home

comfort, security, energy efficiency

What makes sense to sense?

PRIORITIES



KODA by Kodasema

We founded Kodasema to create houses that improve life quality of the present generations without sacrificing future life quality of their children

KODA by Kodasema

We founded Kodasema to create houses that improve life quality of the present generations without sacrificing future life quality of their children

KODA is:

- fast to build
- movable
- modular
- sustainable / energy efficient
- healthy
- ergonomic

KODA by Kodasema

We founded Kodasema to create houses that improve life quality of the present generations without sacrificing future life quality of their children

KODA is:

- fast to build
- movable
- modular
- sustainable / energy efficient
- healthy
- ergonomic

KODA by Kodasema

Healthy:

KODA by Kodasema

Healthy:

- temperature

KODA by Kodasema

Healthy:

- temperature
- CO₂

KODA by Kodasema


Healthy:

- temperature
- CO₂
- relative humidity

KODA by Kodasema

Healthy:

- temperature
- CO₂
- relative humidity




Smart Home

comfort, security, energy efficiency

What makes sense to sense?

PRIORITIES

USABILITY



Smart Home

comfort, security, energy efficiency

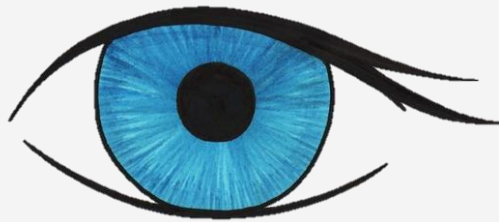
What makes sense to sense?

PRIORITIES

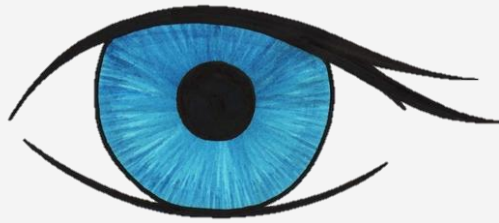
USABILITY

EXPANDABILITY

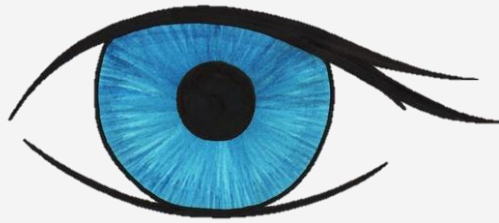
Expandability



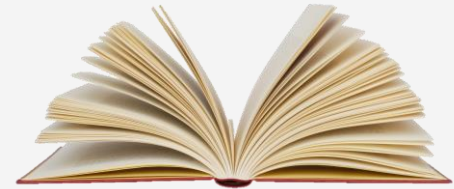
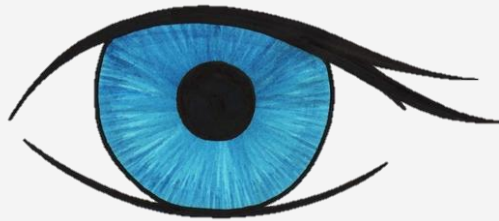
Expandability



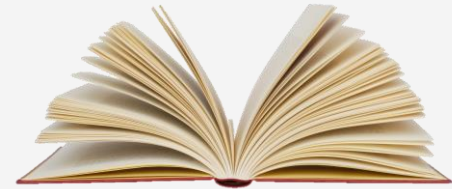
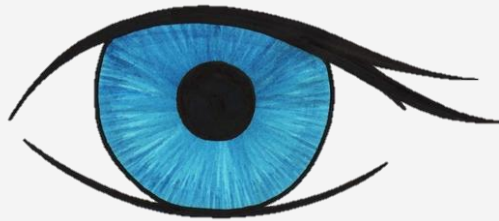
Expandability



Expandability



Expandability





Expandability

Security (burglar)

Comfort lights

Infrared sensor

Presence (climate)

Security (seniors)



www.kodasema.com
www.facebook.com/kodabykodasema
E-mail: KODA@kodasema.com

