

# Industrial design

Mini toilet / shower unit

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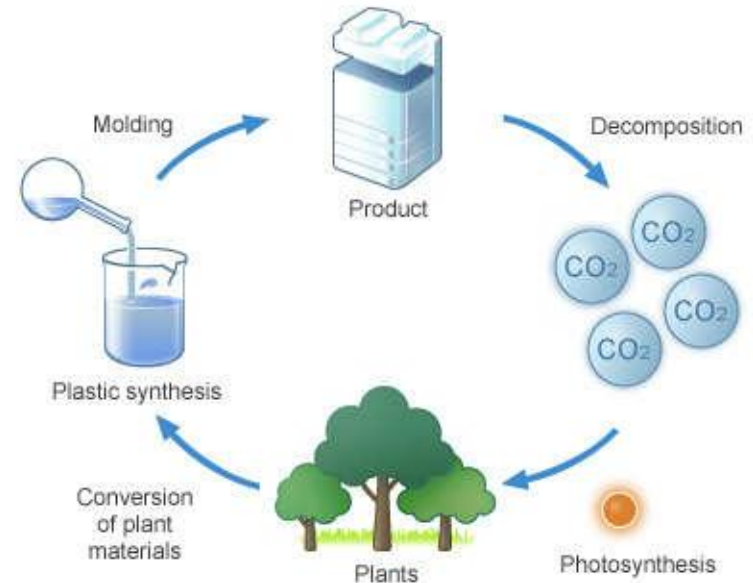
- Concept & visualisation
- Modules
- Measurements & Ergonomics
- Detailing
- Installations
- Costs

# Concept

- Plug and play bathroom-unit
- Compact design with good accessibility
- Minimum amount of parts, and all should fit through a normal door
- Stand alone unit with integrated water and air treatment
- Minimal use of material, and used material should be bio degradable.



Source: [www.onderwijsvanovermorgen.web](http://www.onderwijsvanovermorgen.web)



Source: [www.instructables.com](http://www.instructables.com)

The umbrella, simple and effective



Functional in  
user phase

Compact in  
transport phase

Pocketknife, multiple functions in one case, more complex than the umbrella



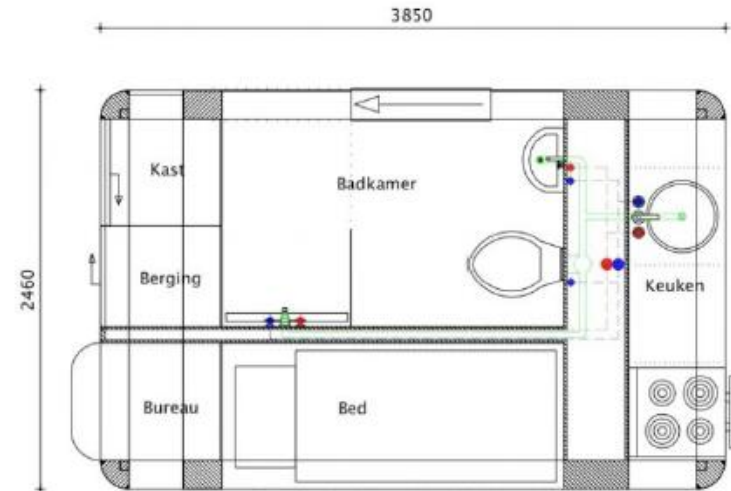
Combine simplicity of the umbrella with the multi-functionality of the pocketknife

## Existing bathroom solutions



*Residential Cubi topsleeper*

- Cabins in recreation vehicles and small yachts
- Integration of functions
- Cubi multifunctional living-unit
- All in one unit for residential use build up in 40 parts



*Residential Cubi plattegrond*



- Example of plug and play bathroom

Bathrooms are compact in size, but still not according to our concept

## Innovations



- Integration of multiple functions in one volume
- Increase of use of space
- Decrease of

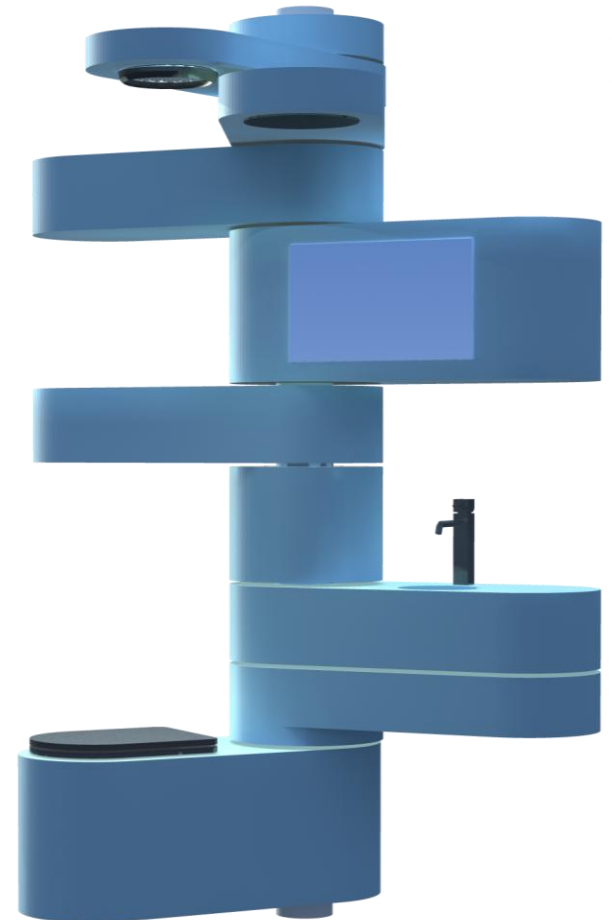
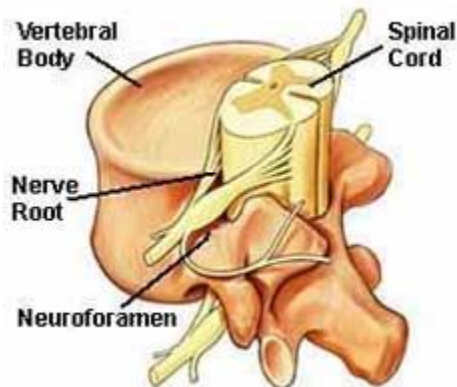


Global Bathroom concept:

- No bathroom but hygiene-machine as a piece of furniture
- Complete scale of functions for washing people and clothes

# Innovations

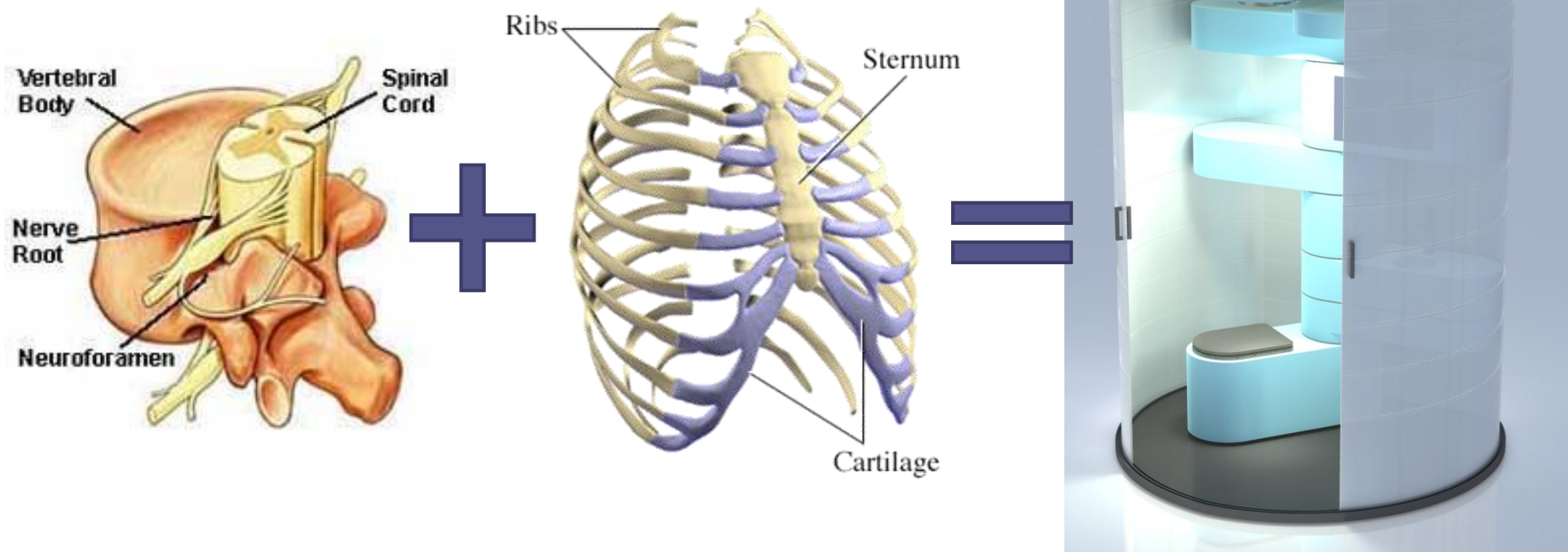
- Search for products in line with our concept brought us by The Vertebrae vertical bathroom
- Concept uses nature as inspiration
- (Human) vertebrae is flexible constructive element which houses nerves and veins (piping)
- Vertical bathroom uses a central spine with movable components
- But this is no bathroom, just the infill





## Our idea

- Use the vertebrae concept and make it more cost-efficient in high quality plastic
- To make a proper bathroom add a rib cage to the vertebrae
- Rib cage protects the vital parts ( people who use the bathroom)











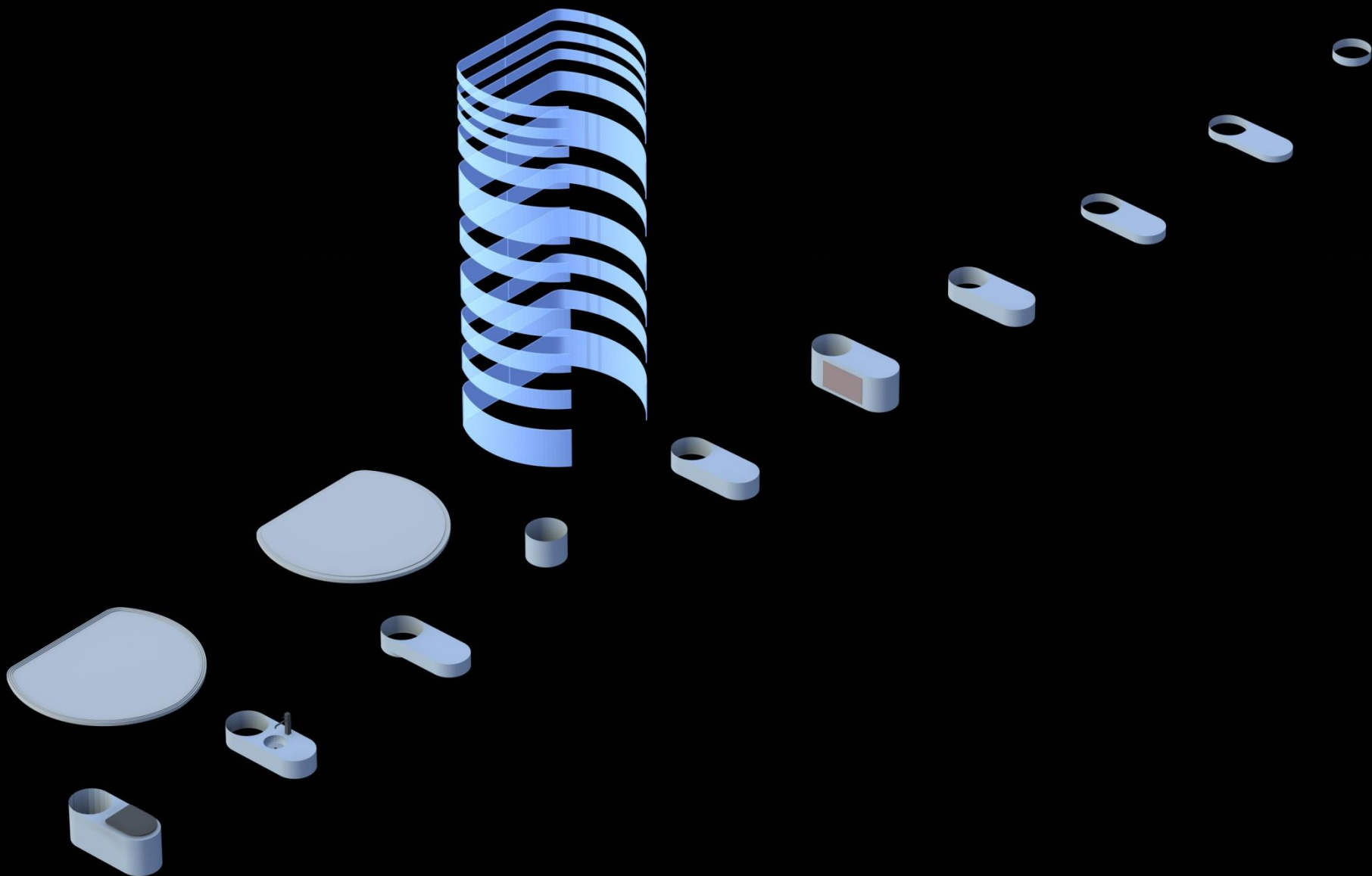
# Modules

- Toilet / seat
- Sink
- Storage
- Cistern
- Douche
- Hair dryer









# Measurement & Ergonomics

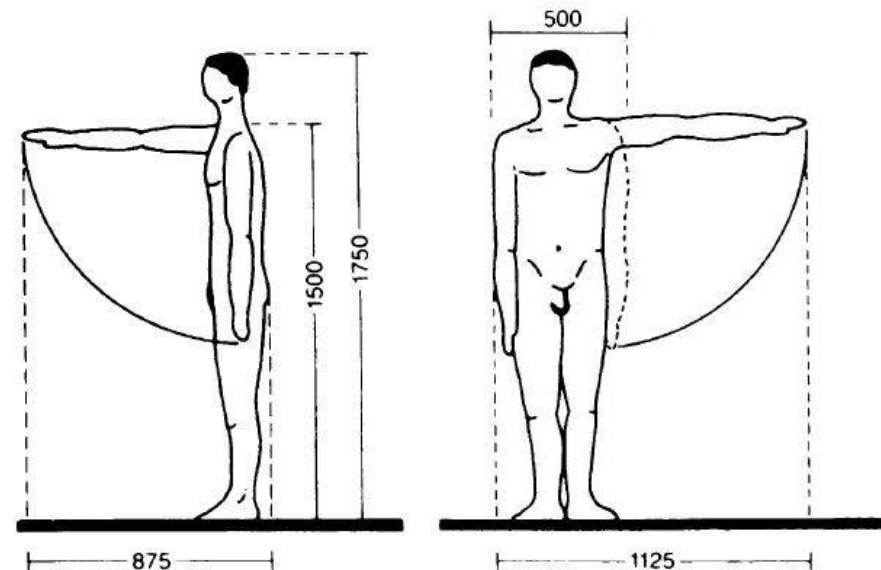
- Building regulations (Bouwbesluit)
  - Surface: 1m<sup>2</sup>
  - Width: 0,6m

## New Building:

- Minimal surface: 2,6m<sup>2</sup>

## Concept

- Effective use of space
- Ergonomic measurements from human scale





# Measurement & Ergonomics

- Toilet

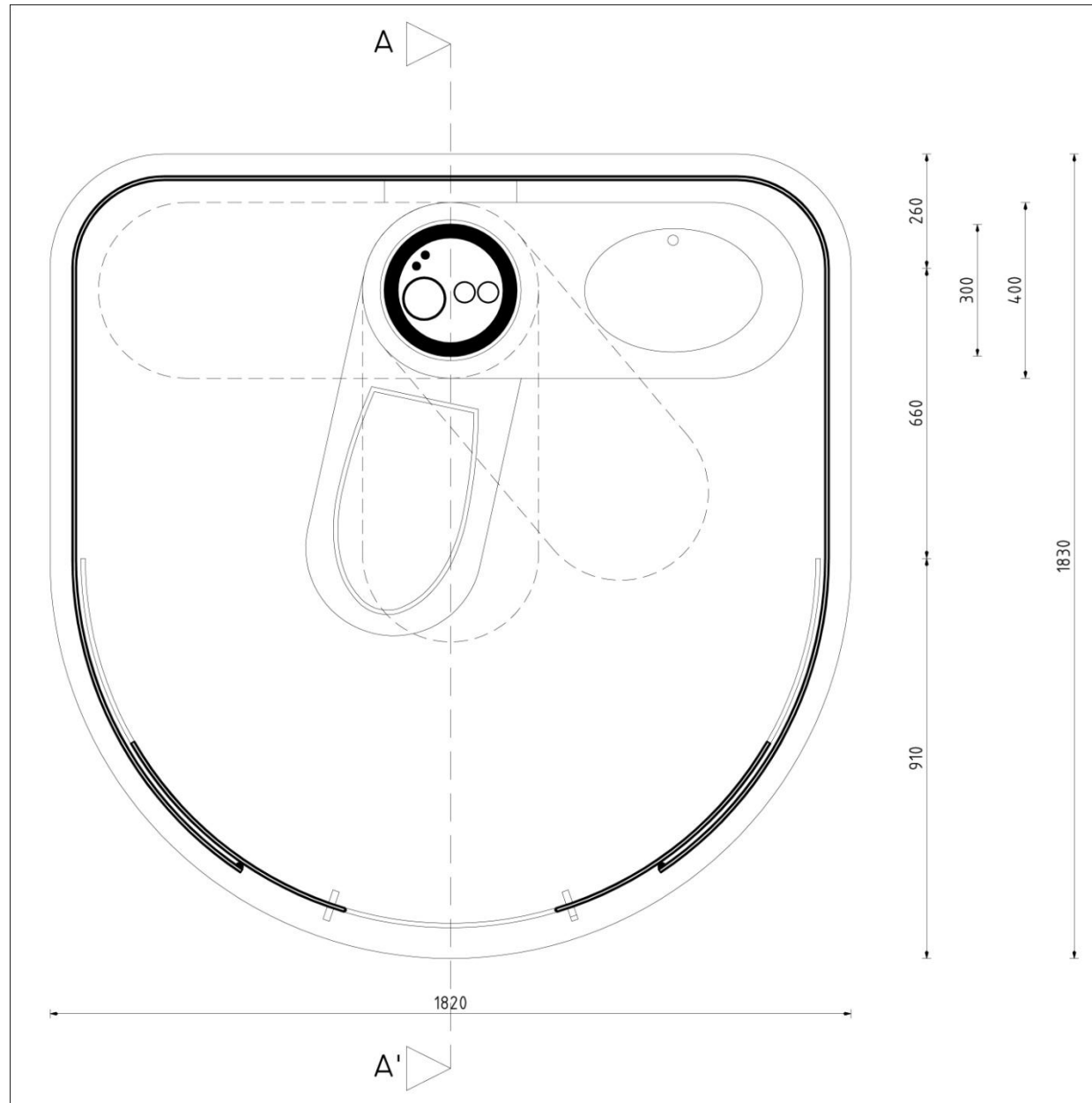
- Children 350 mm
- Adults 390 mm
- Elderly 450 mm

- Sink

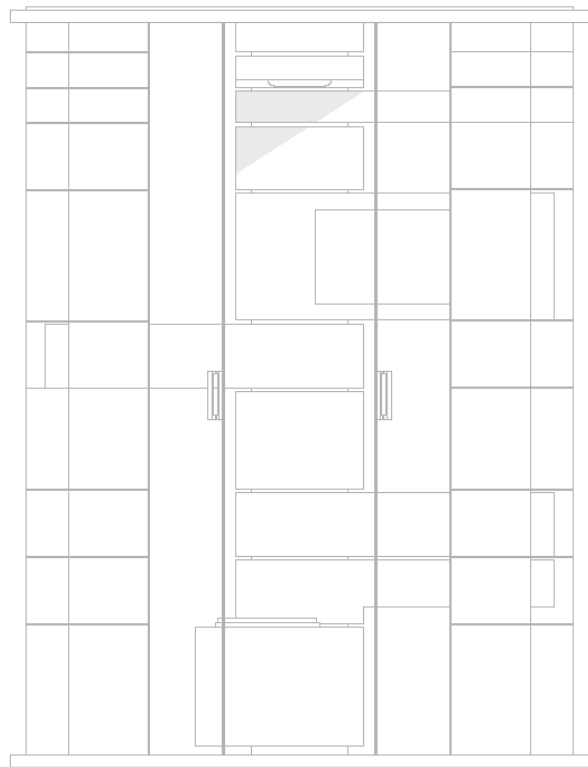
- Children 600 mm  
750 mm
- Adults 800 mm (wheelchair)  
850 mm  
900 mm



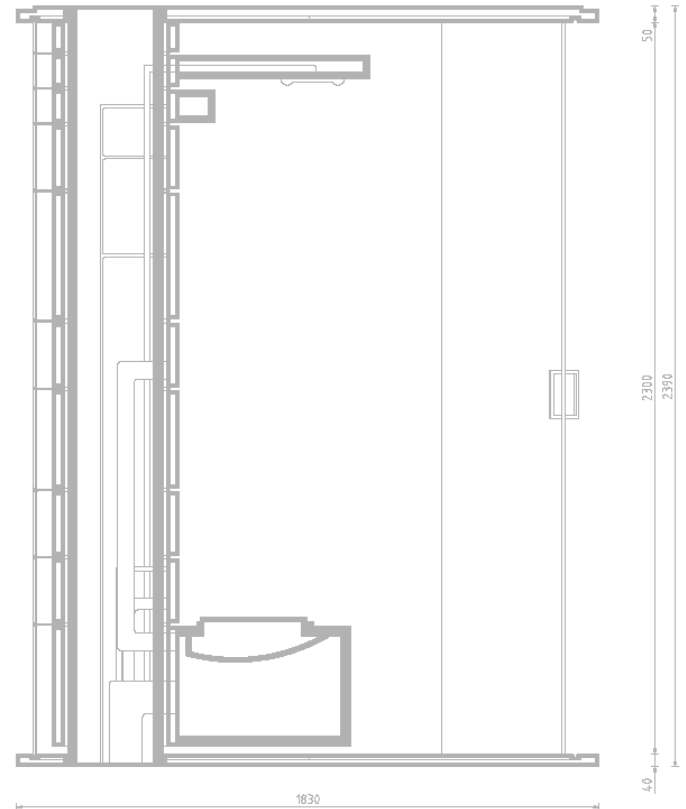
# Detailing



# Detailing



VOORAANZICHT

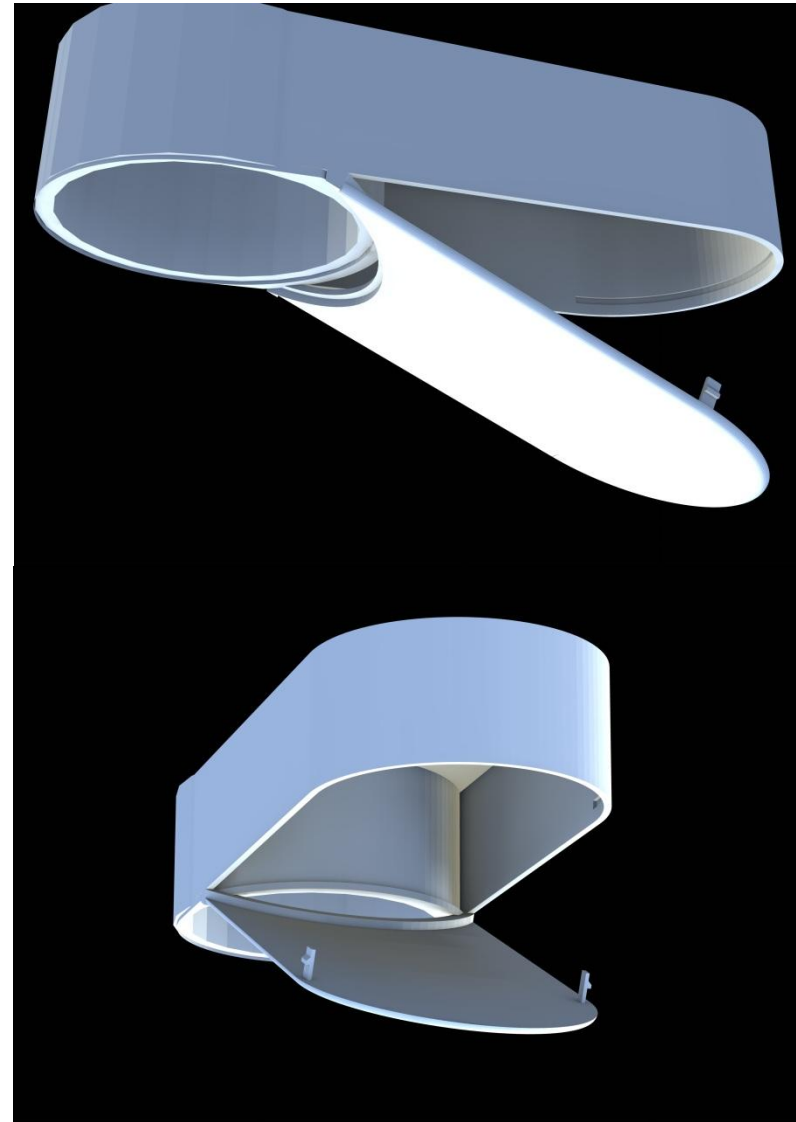


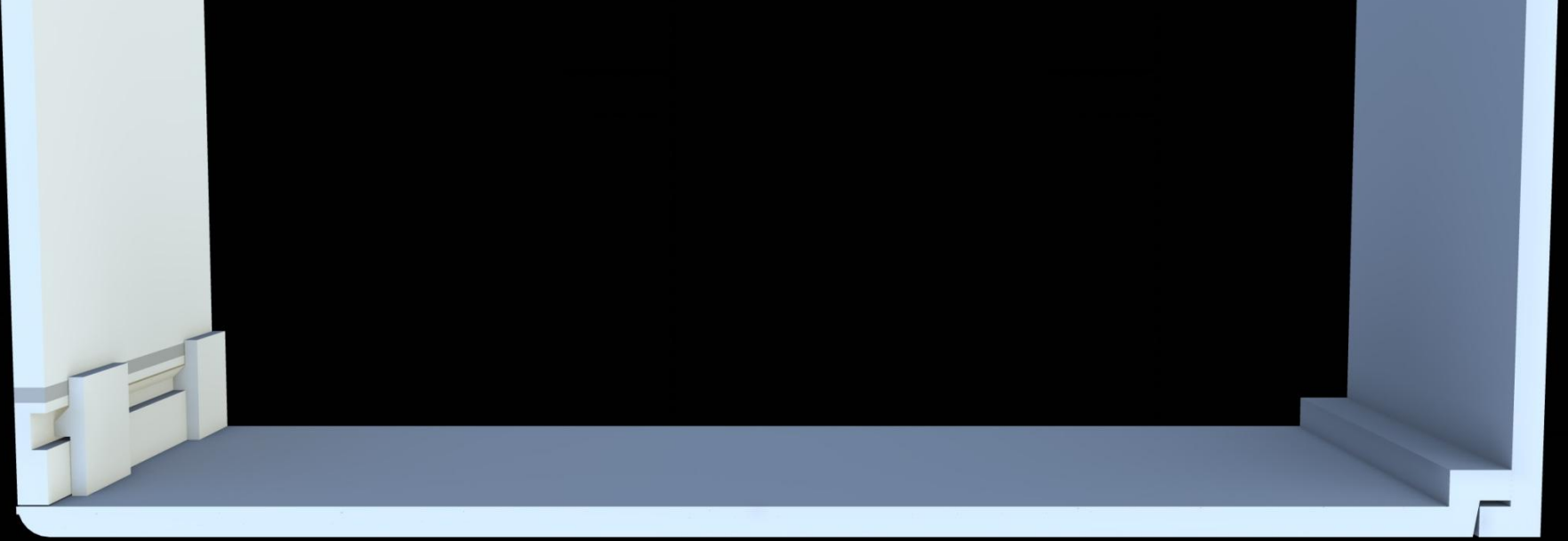
DOORSNEDE A-A'

# Detailing

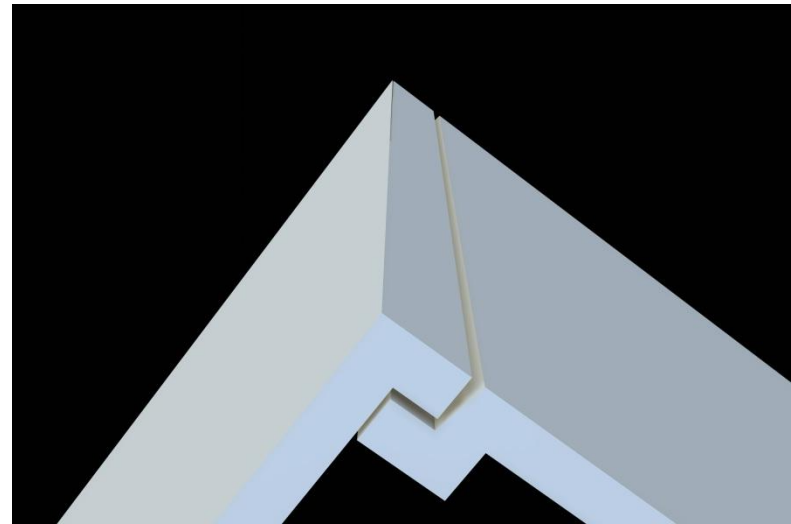
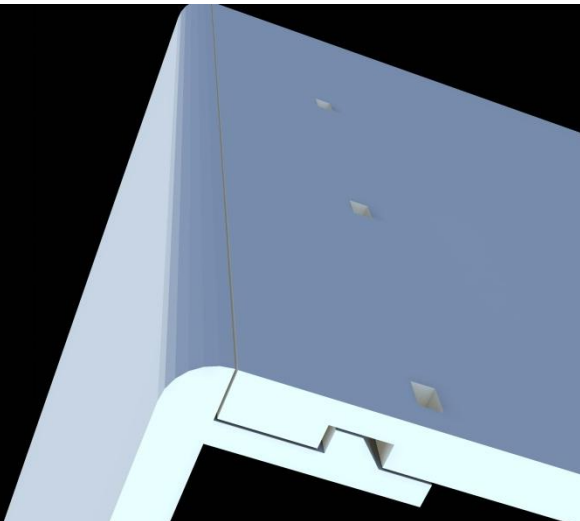
## Unit

- Separate and stackable
- Bottom panel can be removed
  - For installations and maintenance
  - Panel is attached by snap/fits

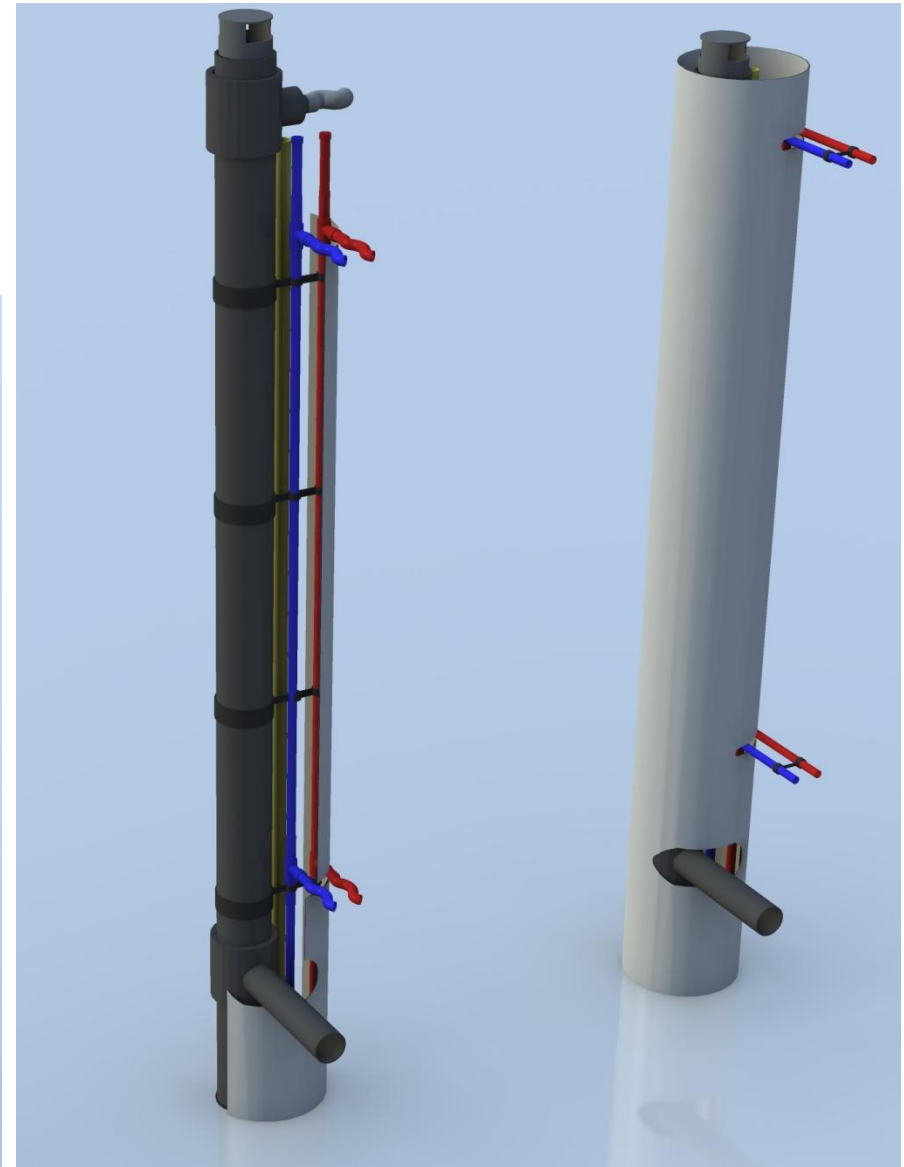
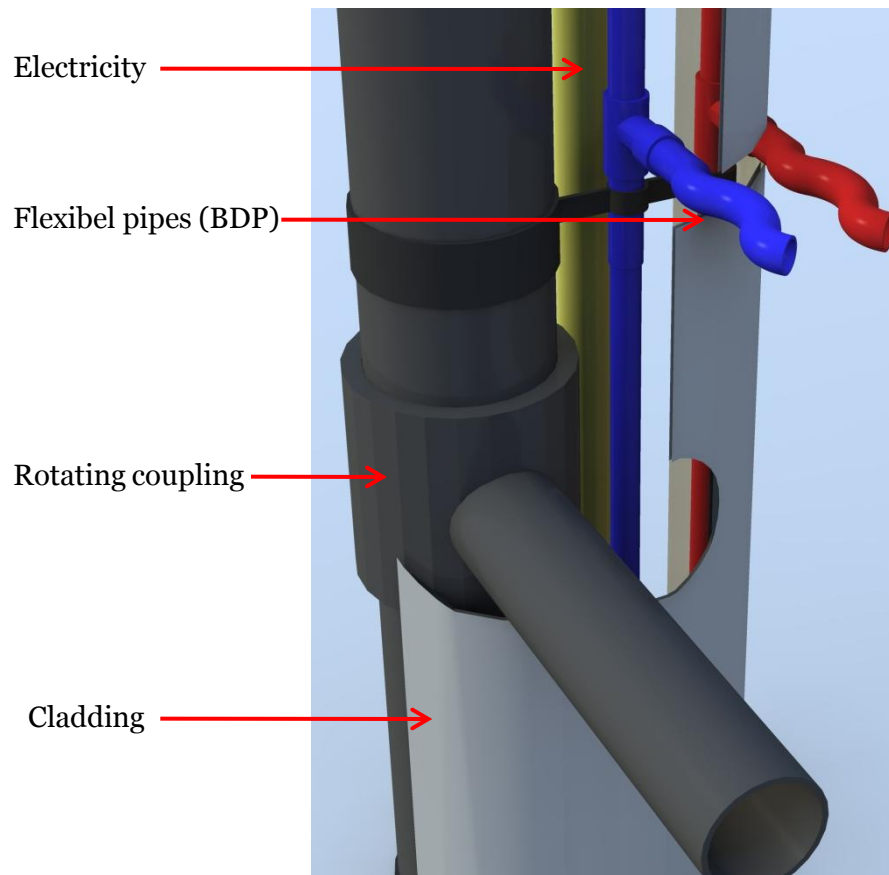




Snap fits



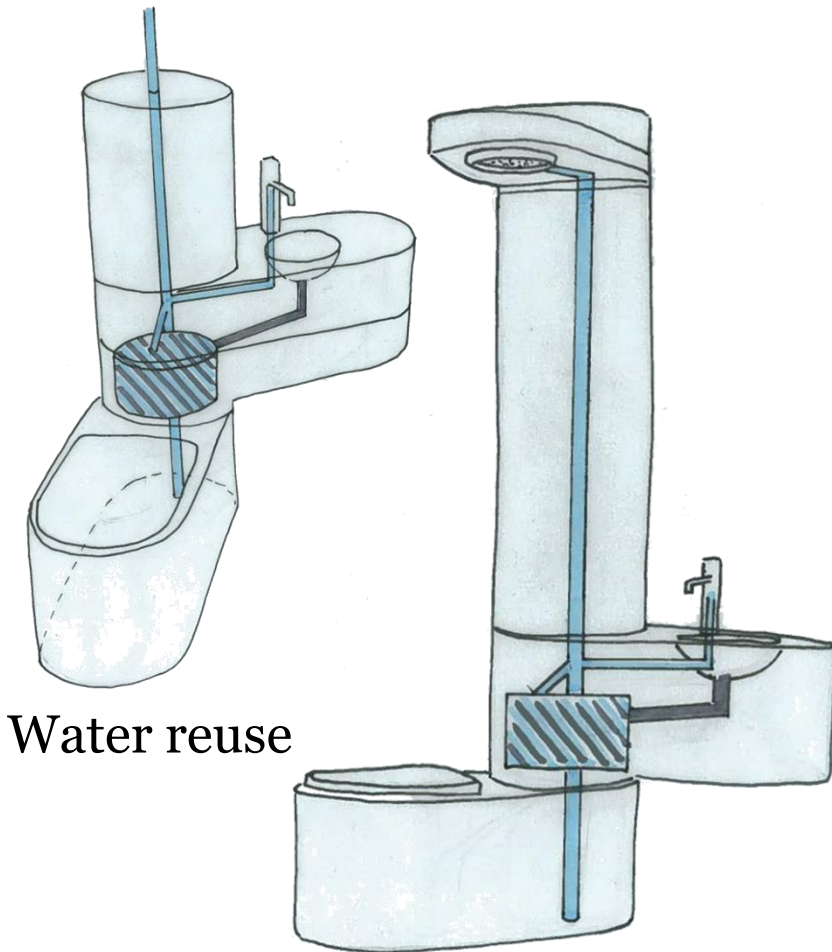
# Installations



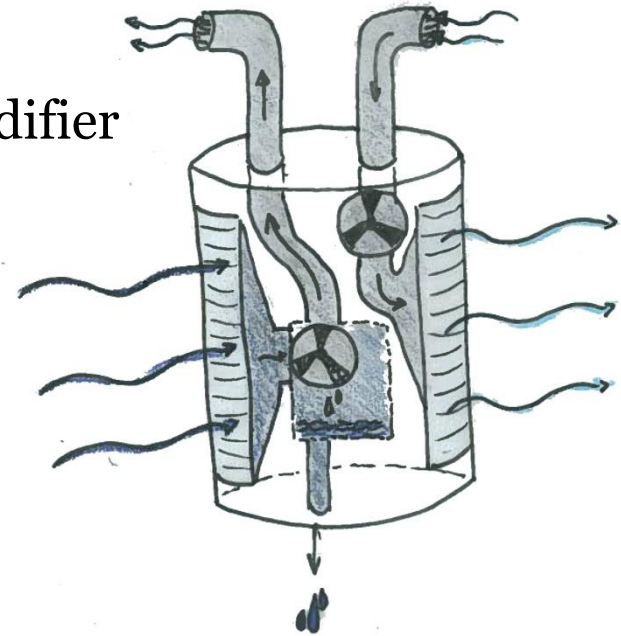
Elaborate model

Design model

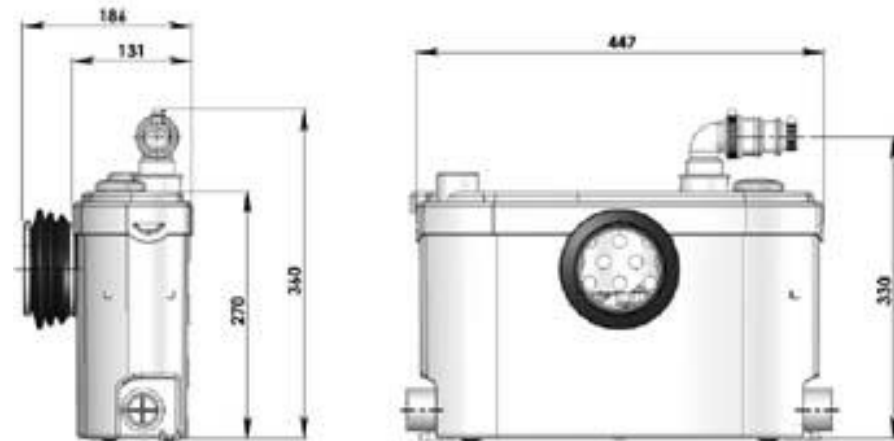
# Installations



Dehumidifier



Waste shredder





# Costs

## SMARTCUBE



- One layout
- €6750

## CUBI



- Simple and luxe layout
- €8000-€12000

## WOONMACHINE



- Kitchen included
- €12000

## PLACE2LIVE



- Complete unit, turn key
- €500 p/m

