

PASSIVEHouse Retrofit: The Freedom to be independent

# Eco-Kindergarden



## raum für architektur

located in: Wachtberg/Bonn and Cologne

employees: 12

specialized in passivhouses

ecologic, holistic and economic building

scope of work:

- architecture and urban planning in construction method „Passive House“
- building physics (passivhouse planning, heat-bridge calculation, energy calculation according EnEV, DIN18599 - German standards)
- domestic engineering: passivhouse technique, ventilation, building automatization for comfort- and efficiency enhancement
- project controlling
- consulting, training, lecture, teaching

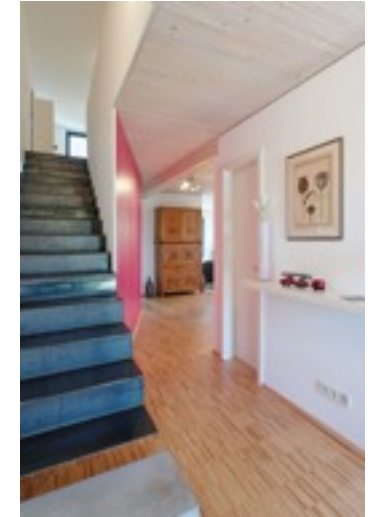


# First development of „Passive Houses“ in Mid-Germany



St. Gereons – Hof \_ Wachtberg

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ten years after: a great place to live....



# sustainable buildings in all categories



# KlimaKita: refurbishment ecological kindergarden



# ecologic building materials

wood, cellulose, wooden products

no VOC

# Ventilation System with heat recovery >85%

# detailed and fine planning

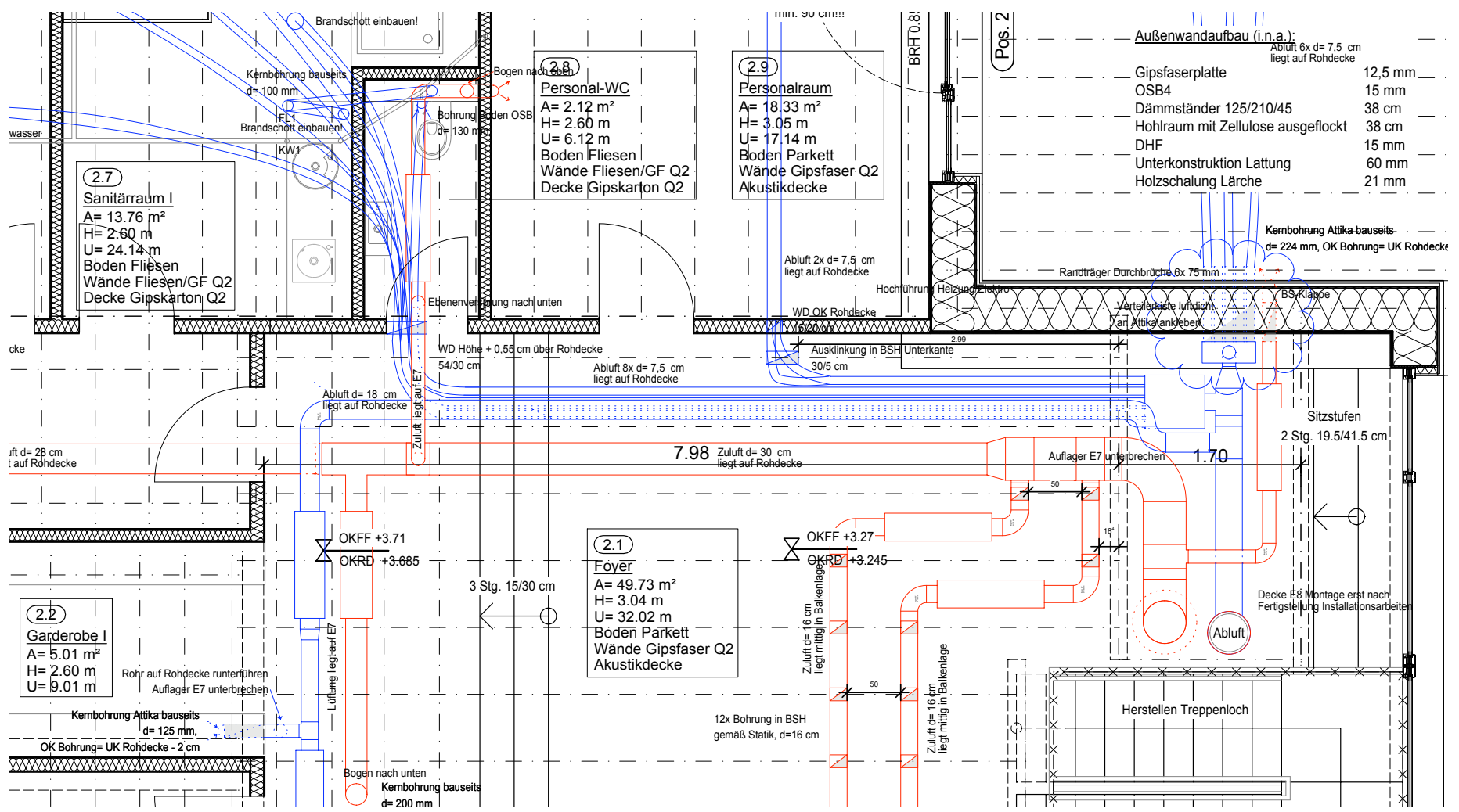
highest pre-fabrication

more efficient than „passive“



time :

30. July Start  
20. August reopening  
three weeks !!!



planning

- › demolition
- › wooden construction
- › windows
- › roofer
- › concrete cutting
- › heating system / ventilation system
- › electrician
- › concrete staircase
- › steel construction
- › staging
- › floor tiler
- › painter
- › stucco worker
- › dry construction
- › carpenter
- › facade
- › carcass
- › core drilling
- › earthworks
- › building yard

**crafts that had to be coordinated within the 3 weeks**

**between start of construction and reopening**



**construction physics of the former roof-sealing**



demolition work - roof



rain period



**demolition work**





demolition work



**cable running**



**cable running according to detailed planning**



**cable running**



air piping



**breakthroughs for staircase**



**breakthroughs fit exactly with factory-made frame of joists**



frame of joists





**pre-fabricated - accurately fitting**



**coordination of crafts**



**joint connection: ventilation on top of the entrance**



tubes for outgoing air



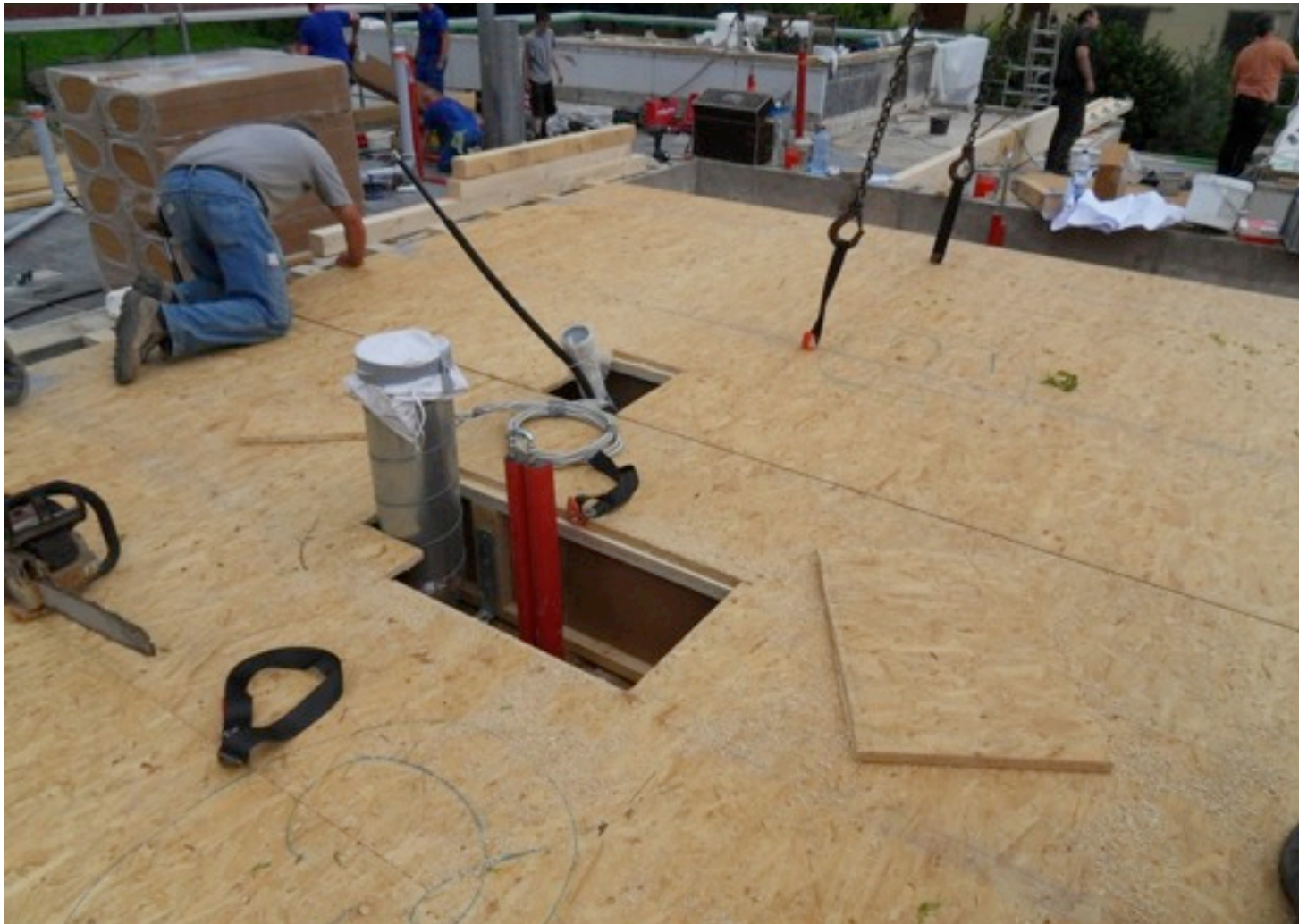
break-throughs ??? Betonattika Verteilerkasten mit Einzelrohren Abluft



**coordination of the crafts**



**custom-fit pre-fabrication**



**prpassgenau vorgefertigt**





**custom-fit pre-fabrication**



upper floor with view

# KlimaKita: refurbishment ecological kindergarden



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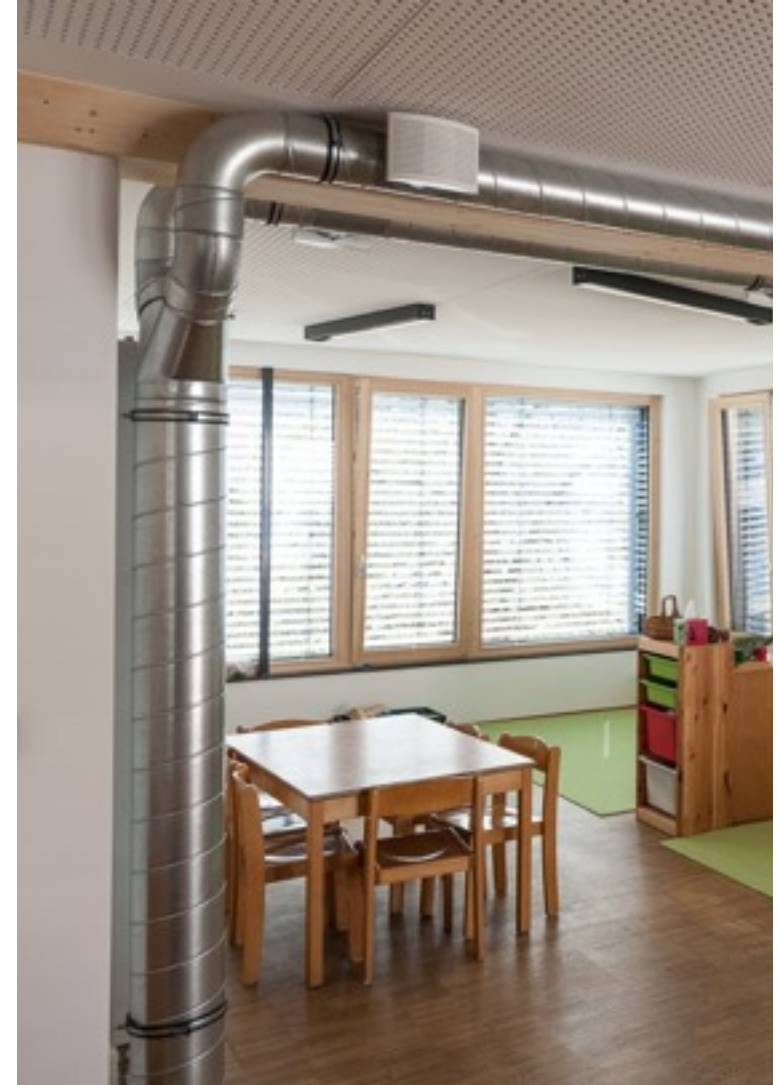
# KlimaKita: refurbishment ecological kindergarden



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# Kindergarten „gloworm“ finished



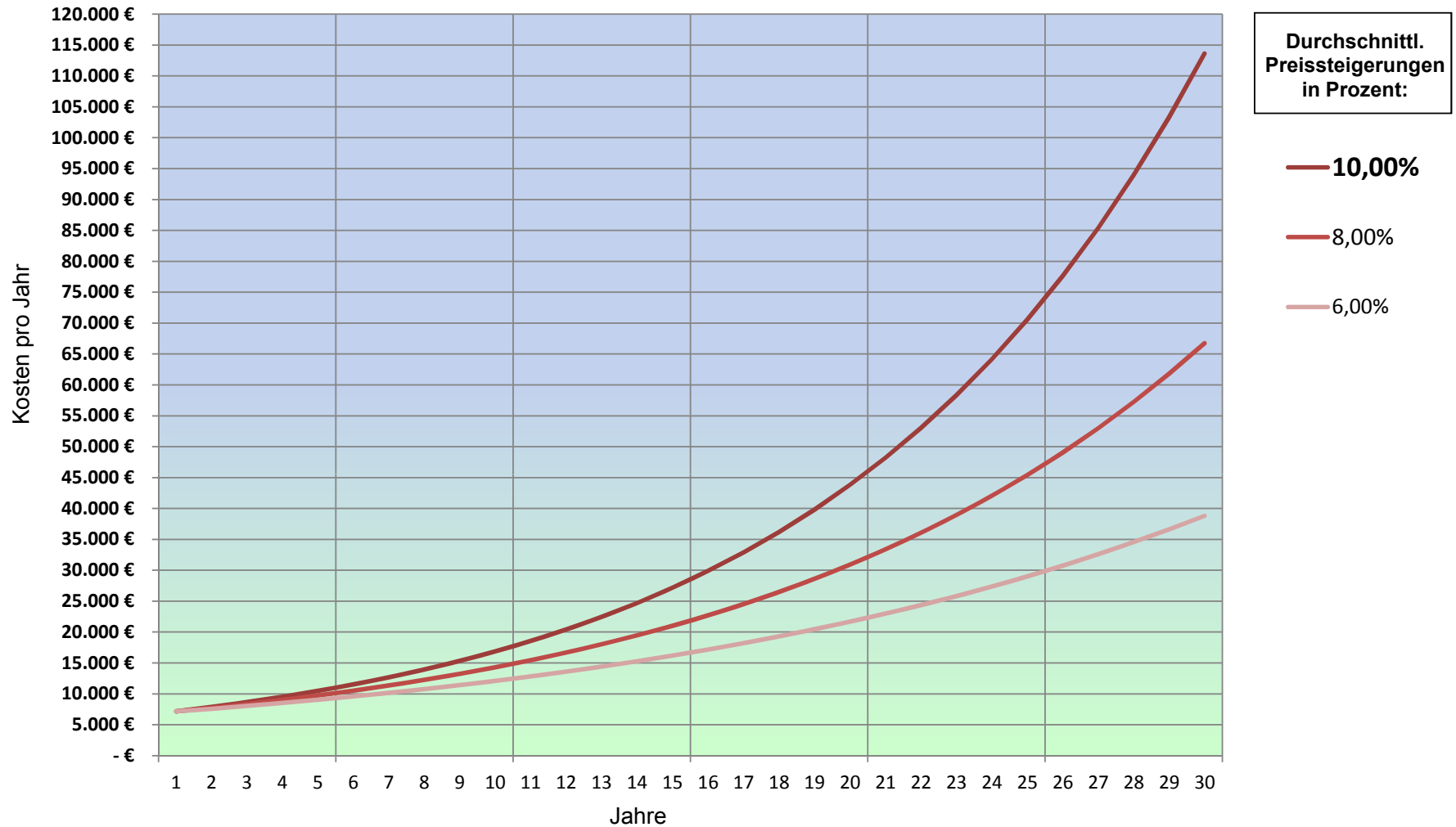
# Kindergarten „gloworm“ finished



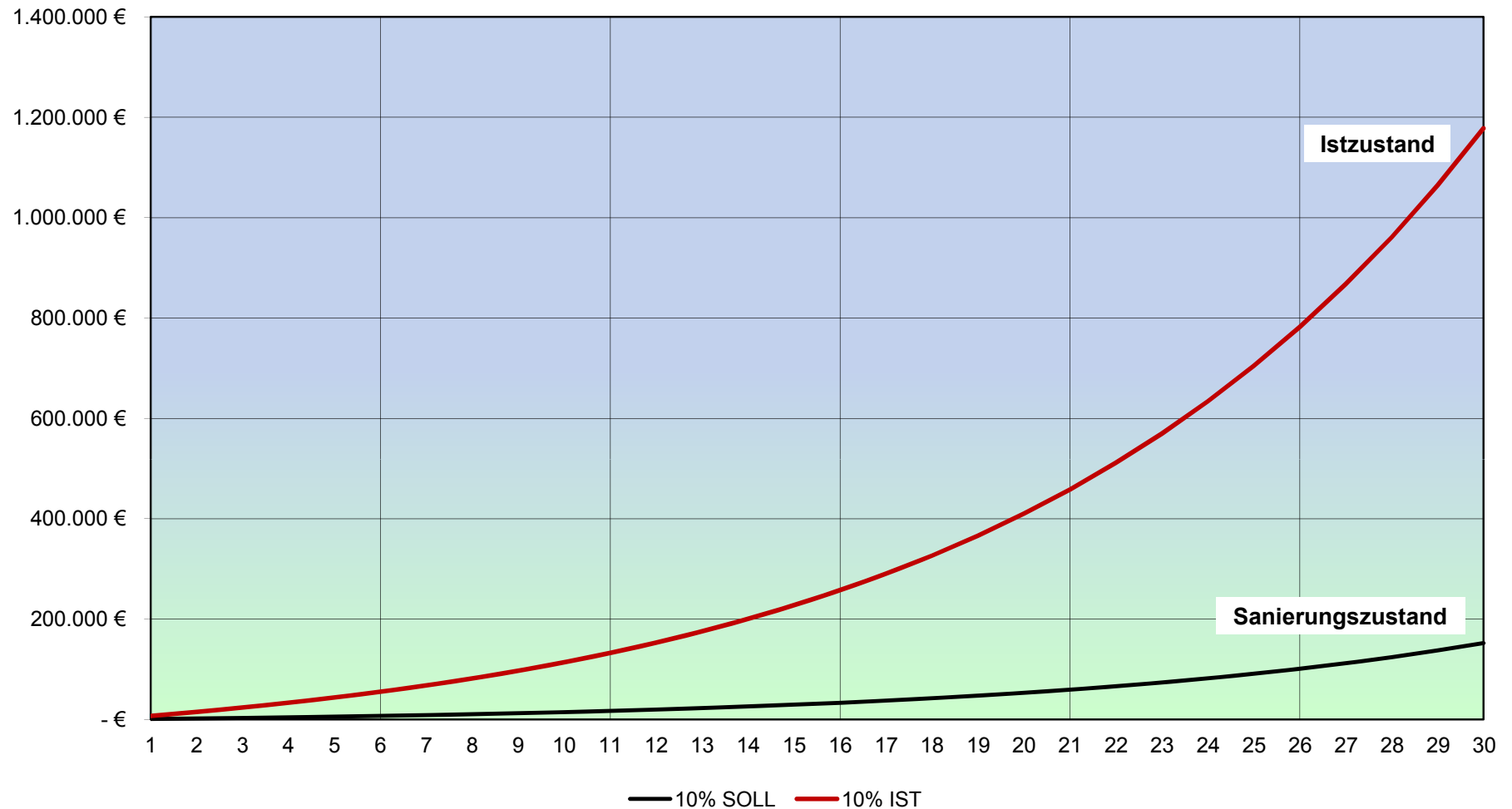




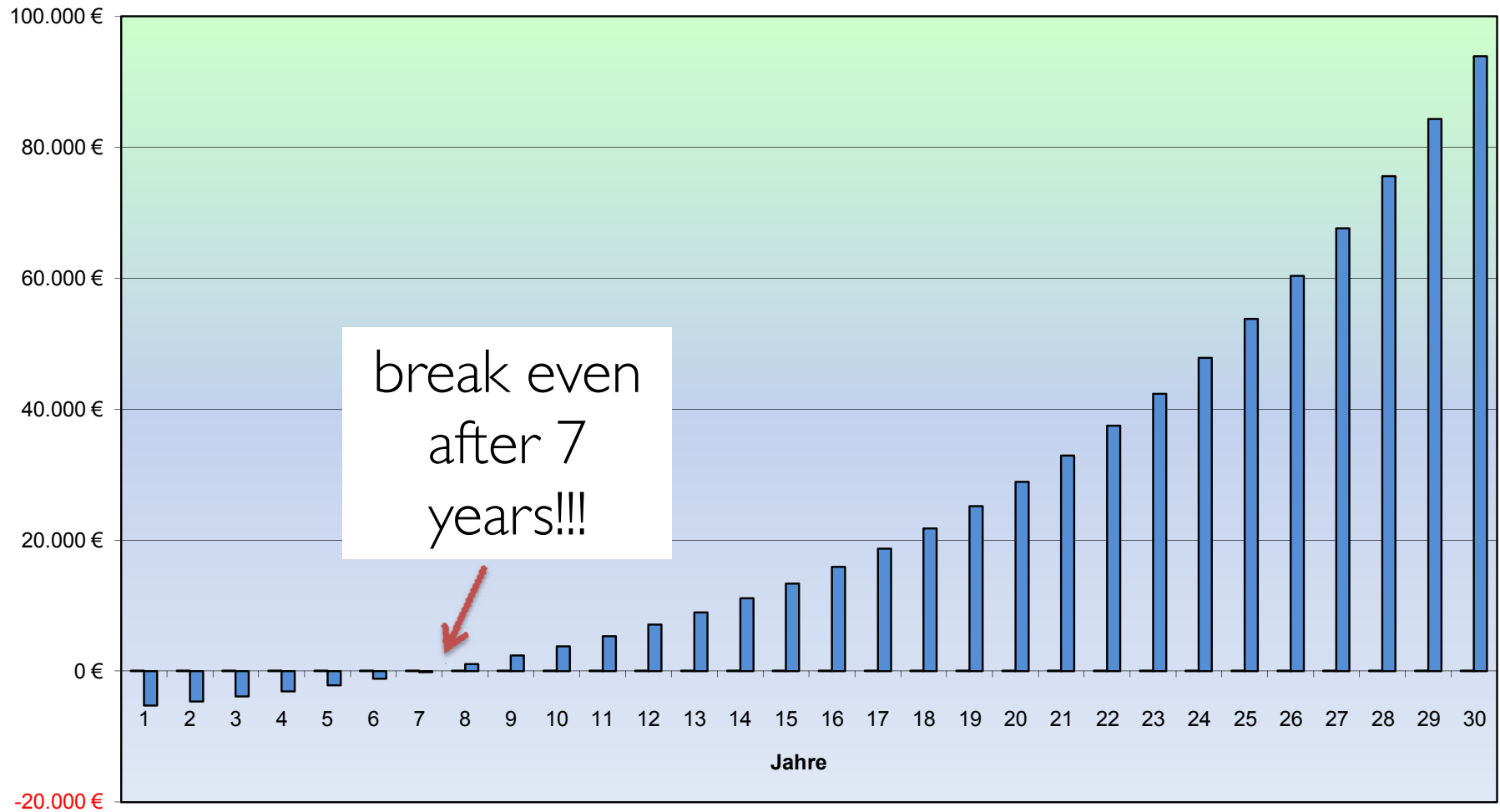
## in future: rising energy costs



## energy costs before and after renovation



# cost benefit analysis



MSc

# International Master's Program Sustainable Building Design Expert

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Richard Sickinger | richard.sickinger@donau-uni.ac.at | Tel. +43 (0)2732 893-2665

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**Certified Passive House Designer Certification**

# free to think passive

