

Austrian initiatives and study "BTTAB" on TAB energy storage

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Client and project team



Direct order by the ministry

 Bundesministerium
Innovation, Mobilität
und Infrastruktur

funding program



Project team:



Project

coordination

demonstrator acquisition

Data analysis

System optimization

Social science support

surveys

Interviews

Pionieer

expertise

demonstrators

Acc. Research climate fund

Industry knowledge



Source: 2019 ZOOMVP, SÜBA



Source: RES Renewable Energy Systems GmbH



Source: e7



Source: NHT/Oss/



Source: <https://mustersanierung.at/>



Source: Fröschl AG & Co KG



Source: WBV-GPA



Source: EIV



Source: Thoma Holz GmbH



Source: <https://gc-gruppe.at>



Source: Paul Ott



Source: LITE GmbH



Source: Gugler Holding GmbH



Source: google Streetview

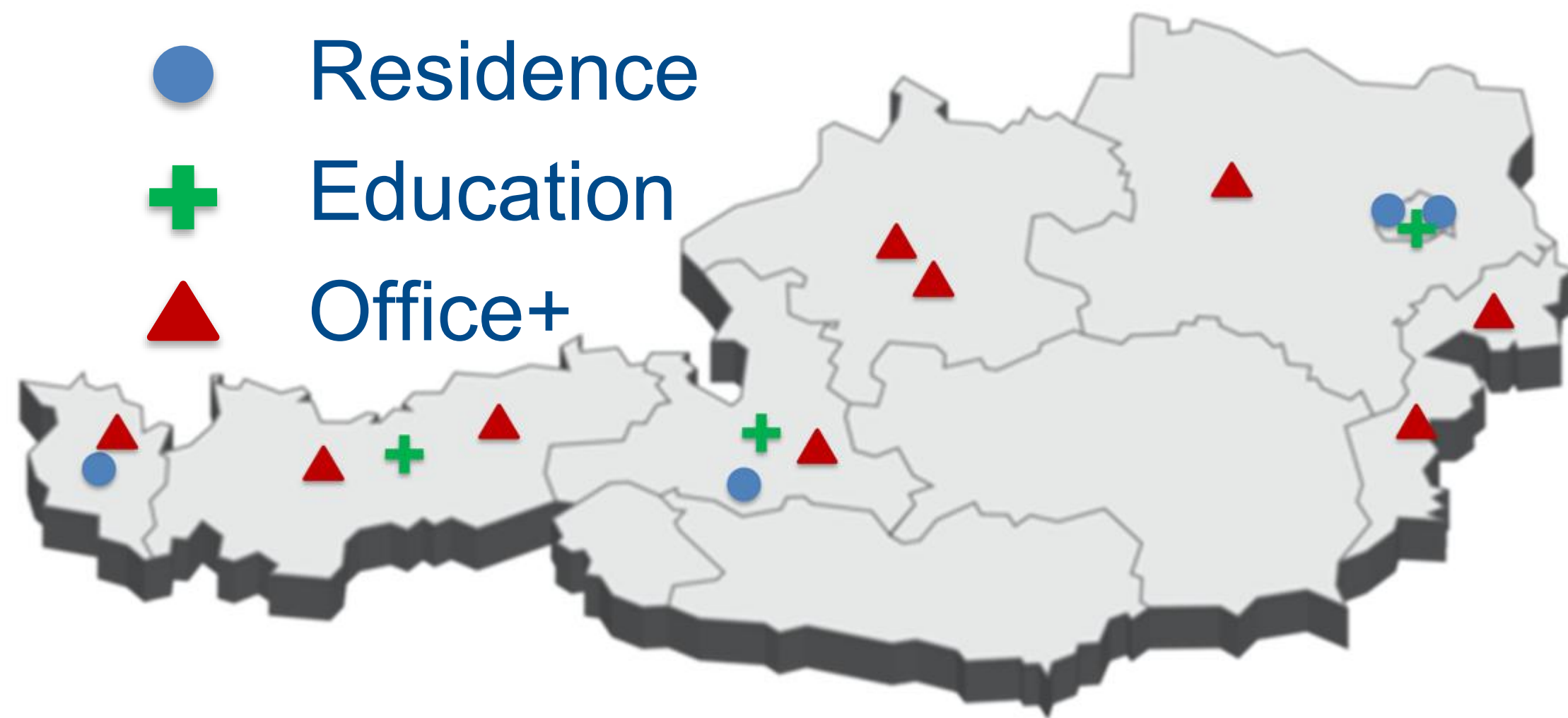
- Recording and evaluation of the various applications of component activation
- Comparison based on measurement data, surveys, and interviews
- Documentation for decision-makers regarding the technological possibilities and economic aspects of component activation



Source: Fa. Hörburger



Source: AEE INTEC

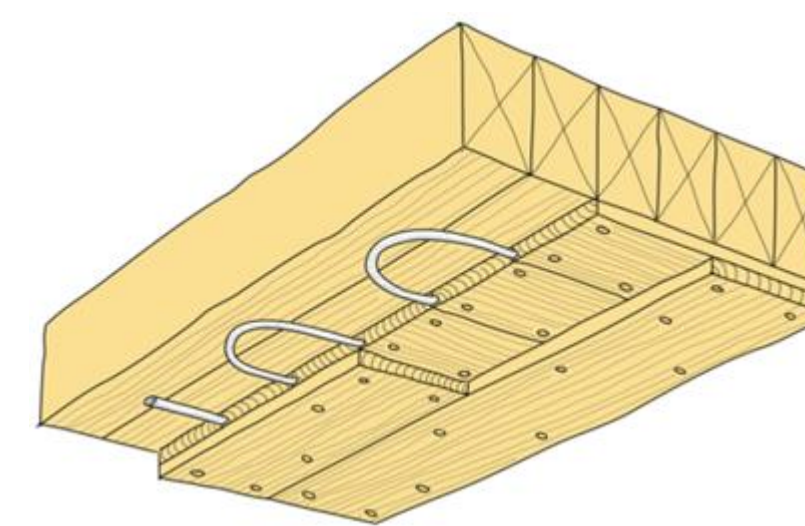


Concrete (18)



Source: betoninstandsetzer.de

Solid wood (2)



Source: Thoma Holz GmbH

Existing wall (1)

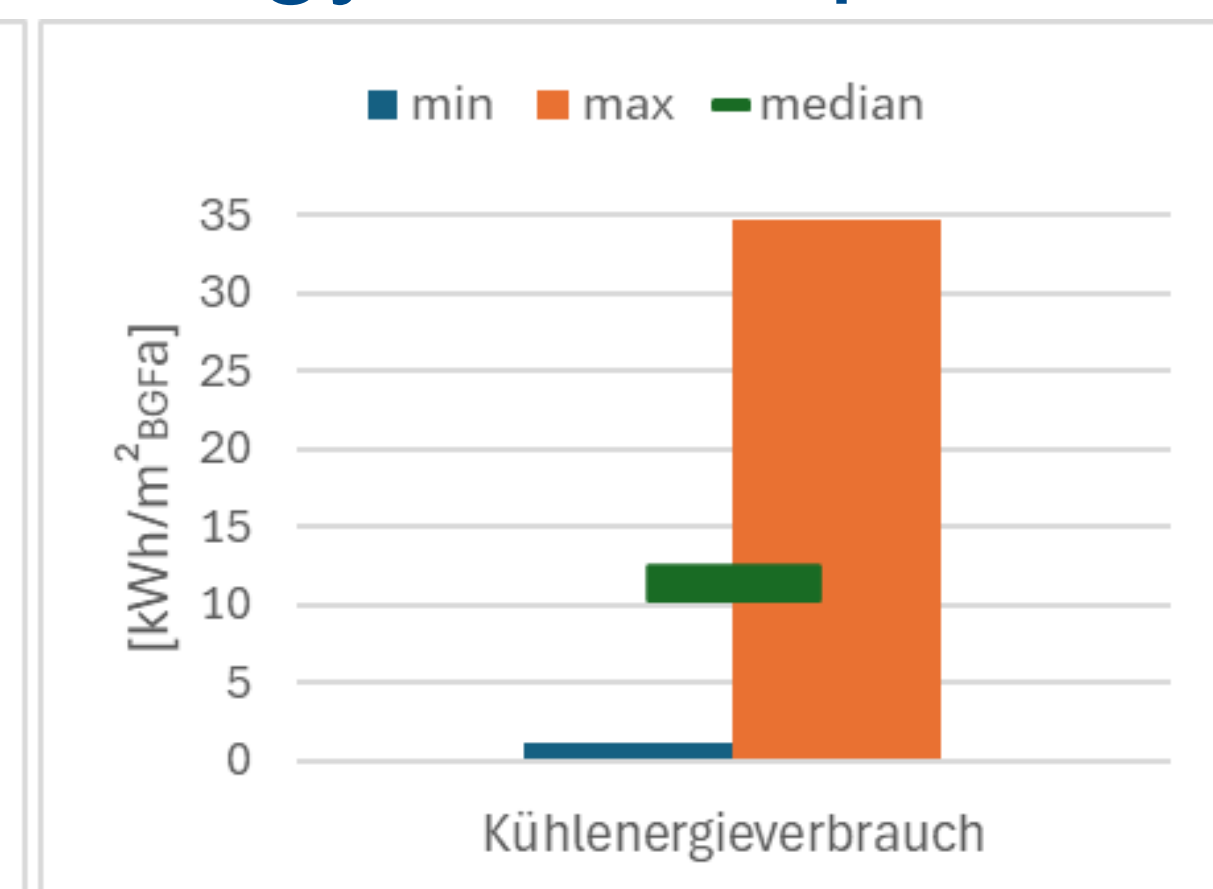
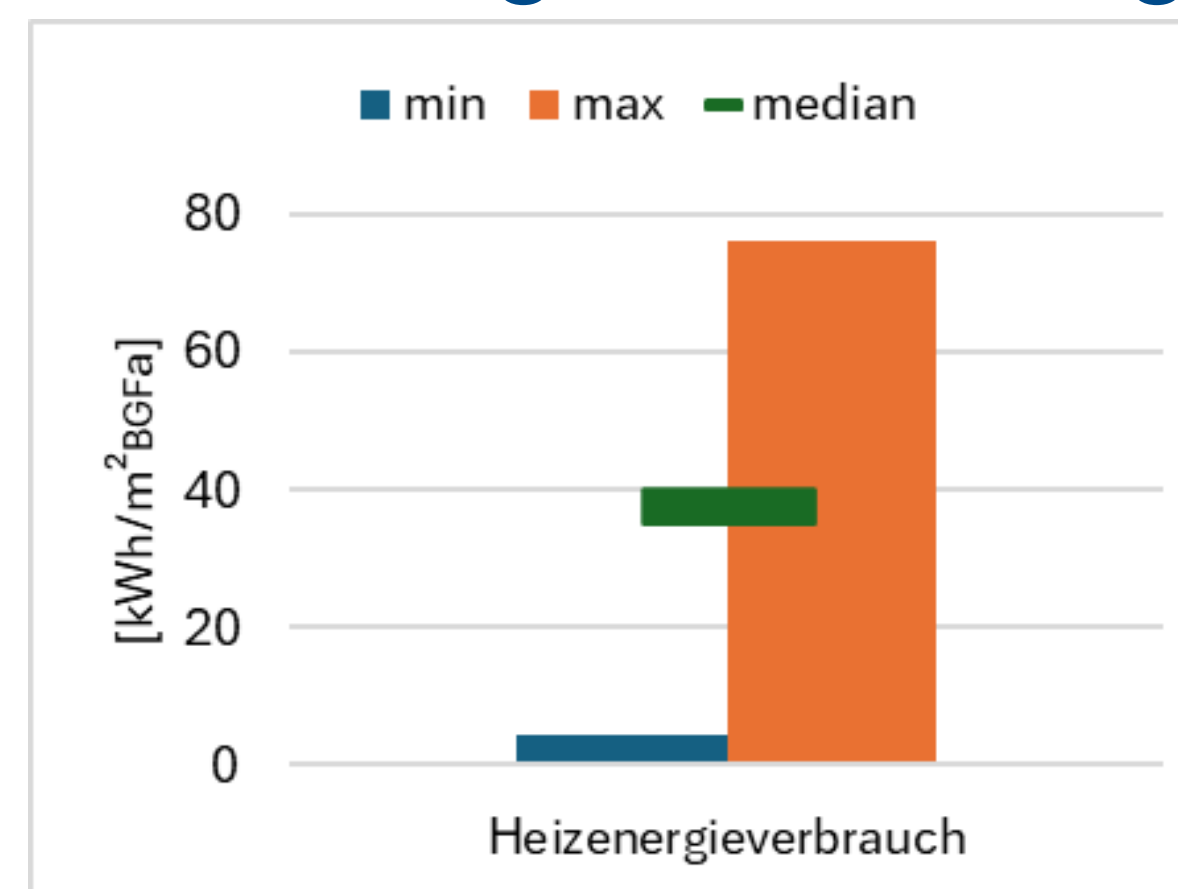


Source: Energieinstitut Vorarlberg

Activated components



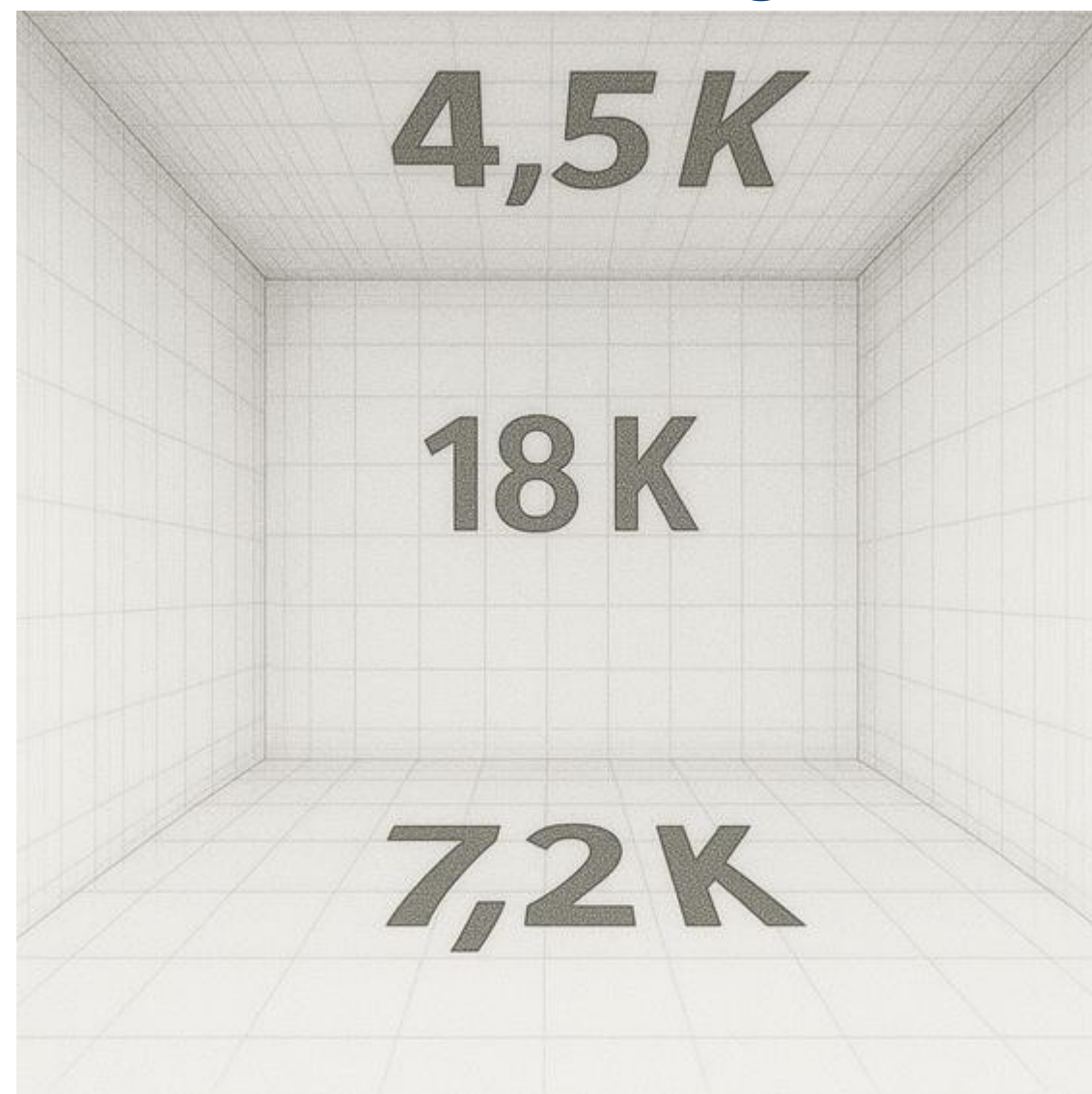
Heating and cooling energy consumption



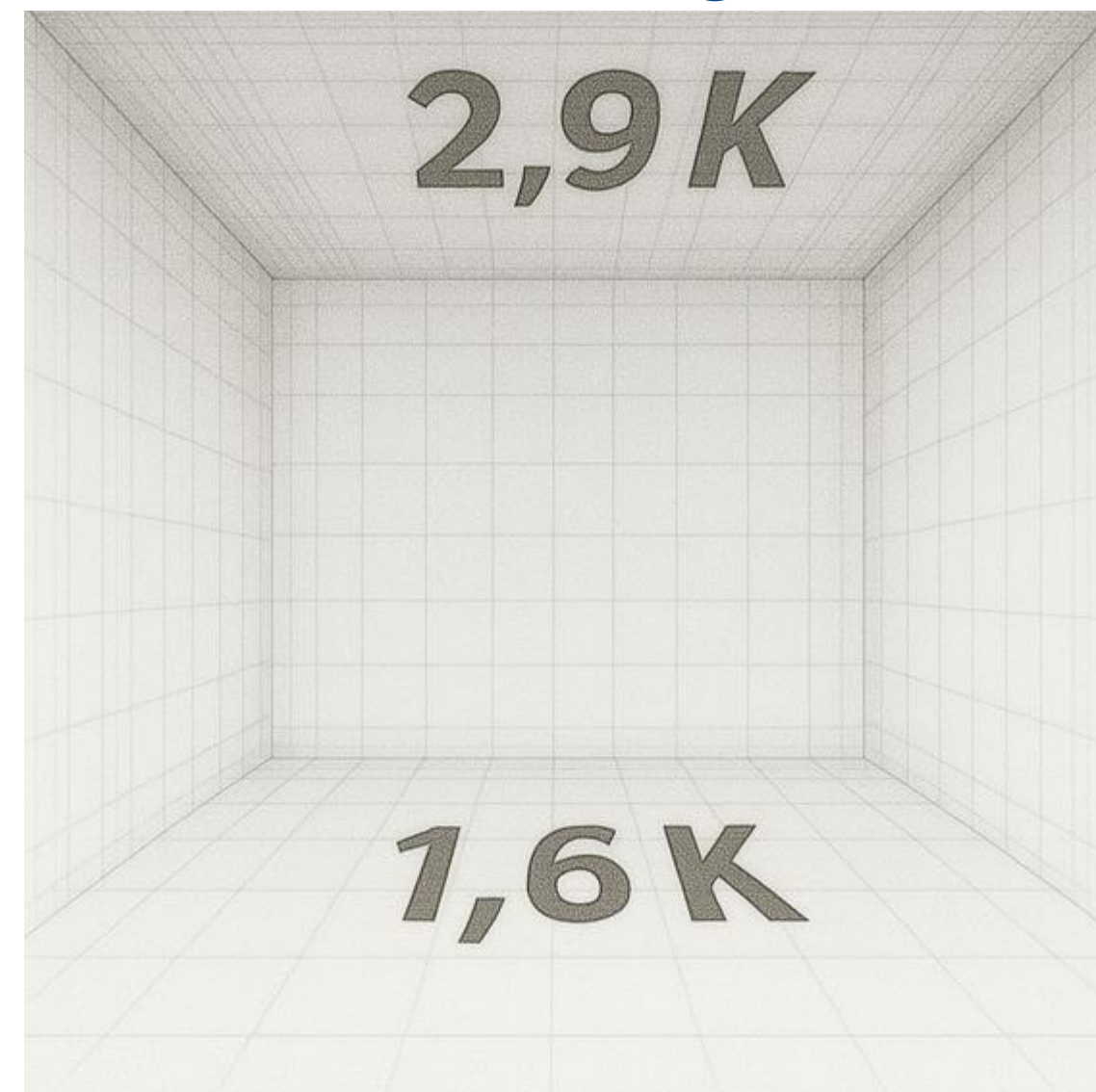
Measurement results - operating parameters at full load

Typ. spreads flow&return (median)

Heating

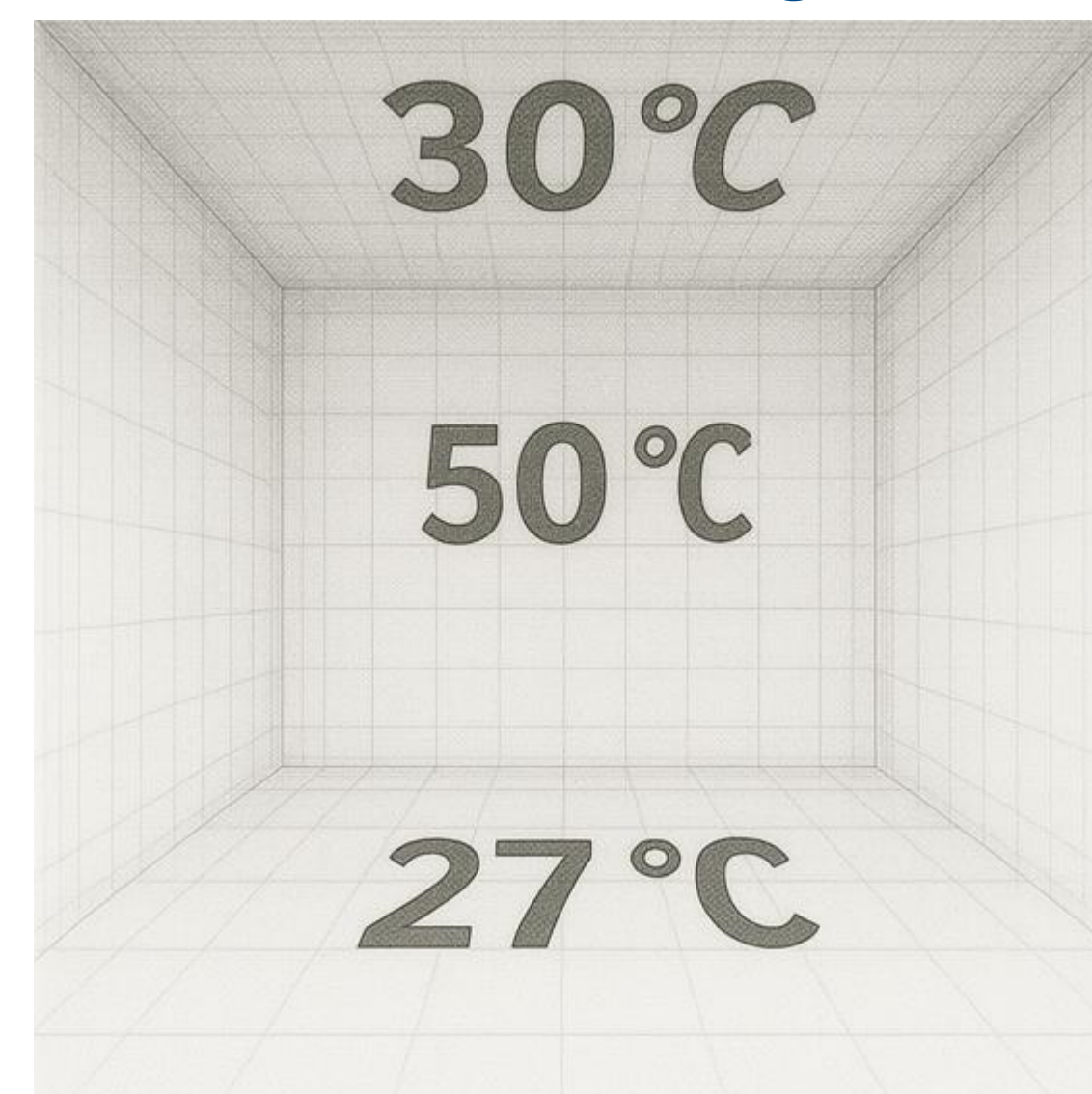


Cooling

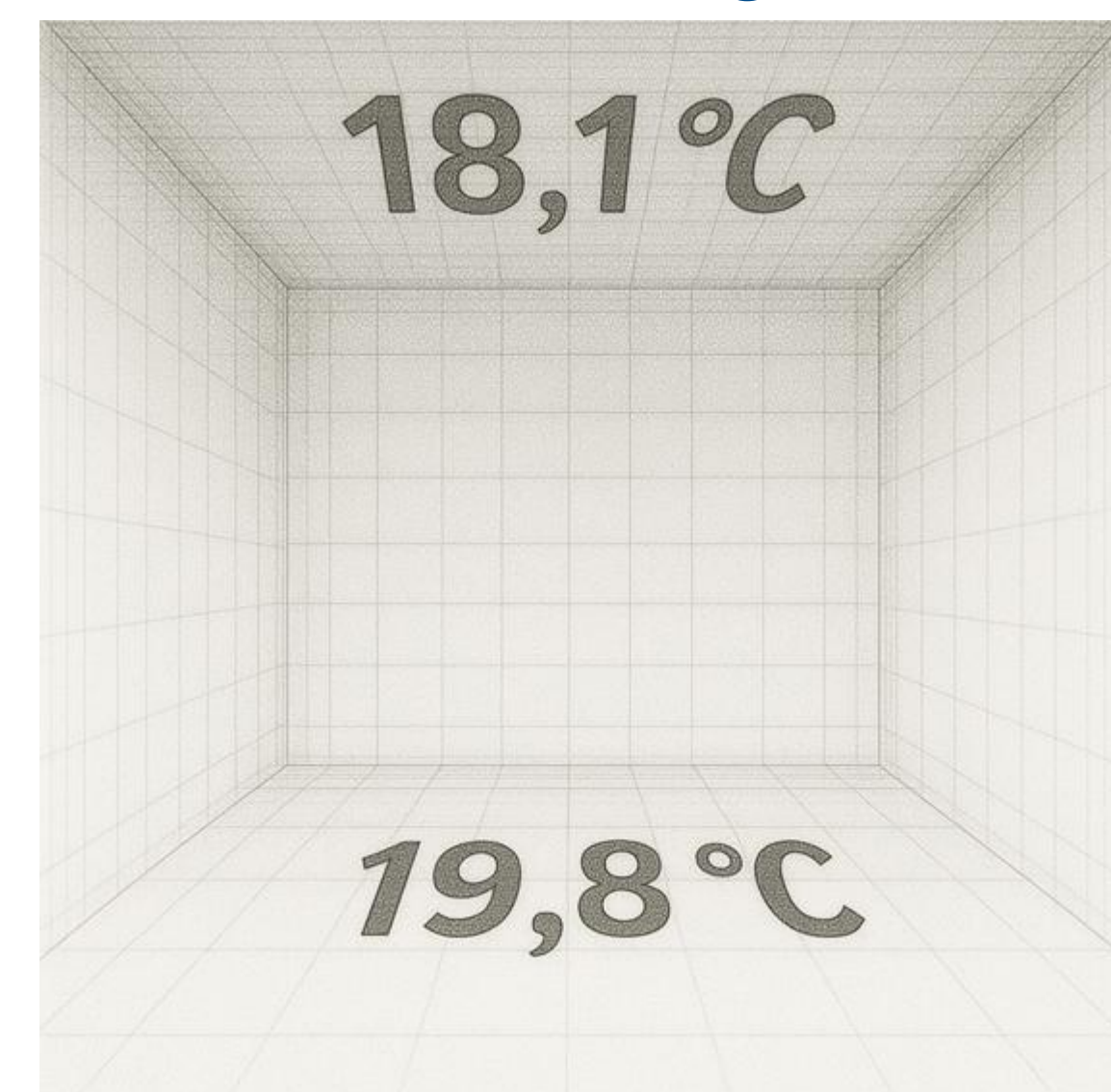


Typ. Flow temperatures (median)

Heating



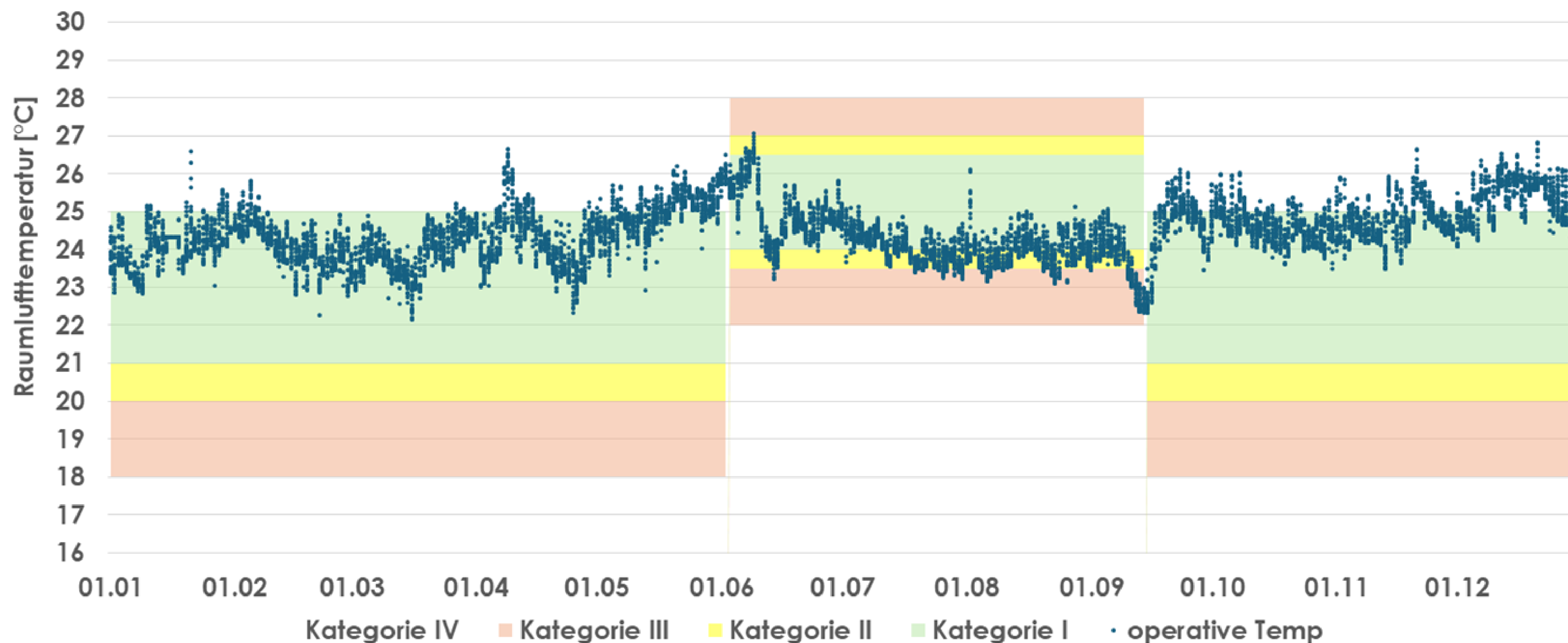
Cooling



Floor activation mostly in warehouses and production halls

Moderate temperatures allow efficient use of heat pumps and free cooling, for example

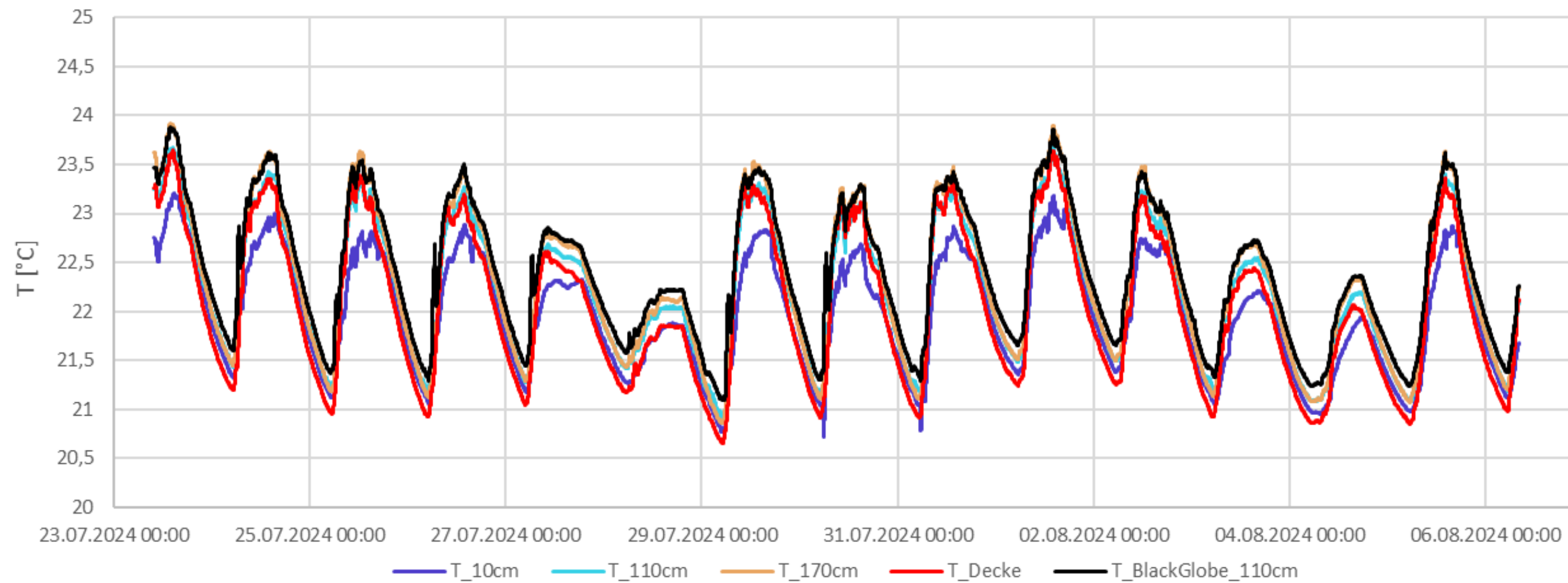
Room temperature residence building



Balanced room temperatures all year round

Detailed comfort measurements office building

Raumlufttemperaturen in unterschiedlichen Höhen, Blackglobe-Temperatur



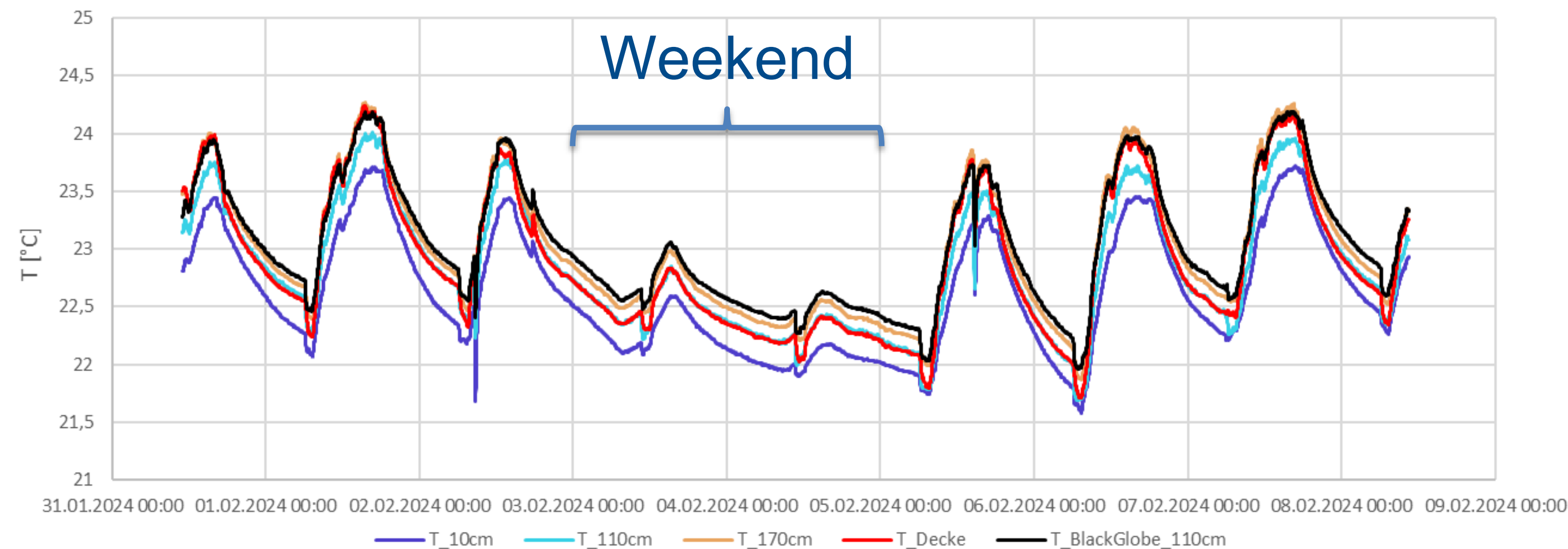
Summer



Quelle: AEE INTEC

Raumlufttemperaturen in unterschiedlichen Höhen, Blackglobe-Temperatur

Winter



Examples for different types of storage usage

Passive

Source: <https://gc-gruppe.at>



Heating load: 1 MW

Installed heat pump: 0,27 MW

=> TAB reduces building peak load

applied in 4 cases

Active

Source: RES Renewable Energy Systems GmbH



Self-sufficient building with local energy production (PV, solar thermal)

=> TAB actively used as storage

Applied in 1 case

Utilization of storage potential should be increased

Visualisation of TAB storage capacity



© ISOCHROM

Visualisation of TAB storage capacity

The disadvantages are obvious

- Space requirements
- Heat losses to the surrounding area
- Hydraulic connection to the building
- Additional distribution system
- Maintenance
- Costs



Source: Isochrom, bearbeitet mit ChatGPT

Basic findings from the study

- The storage capacity of building component activation has great potential but is still rarely actively utilized due to technical and regulatory hurdles.
- In addition to concrete, existing walls or solid wood can also be thermally activated.
- Building component activation can be used in buildings with a variety of uses.
- Building component activation enables high levels of room comfort.
- Moderate operating temperatures allow for the efficient use of renewable energy sources.
- Building component activation transforms structurally necessary components into heat/cooling dissipation surfaces.



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IDEA TO ACTION

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<https://nachhaltigwirtschaften.at/de/sdz/projekte/bttab.php>