

Swiss-US Energy Innovation Days 2017

einfach gut
bauen.
„simply build better.“

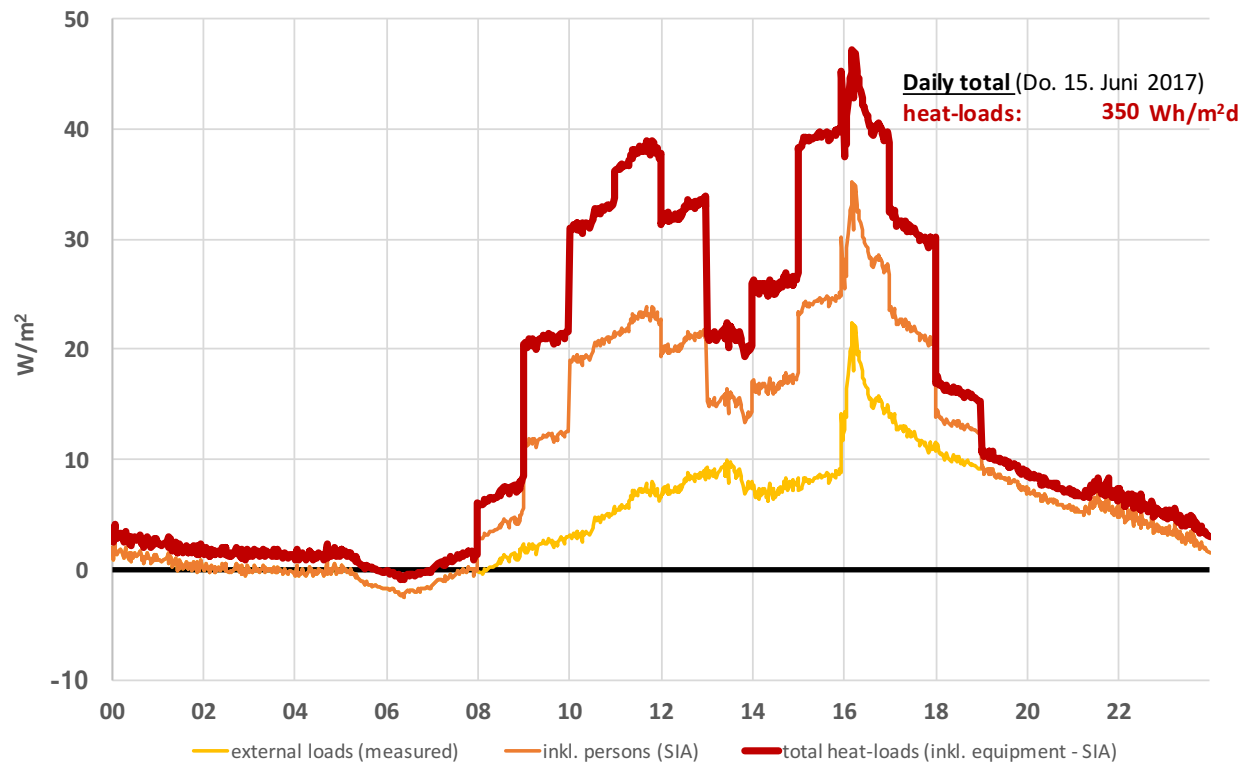
Martin Meier, August 22nd, 2017 / Whole Foods Brooklyn, Brooklyn NY



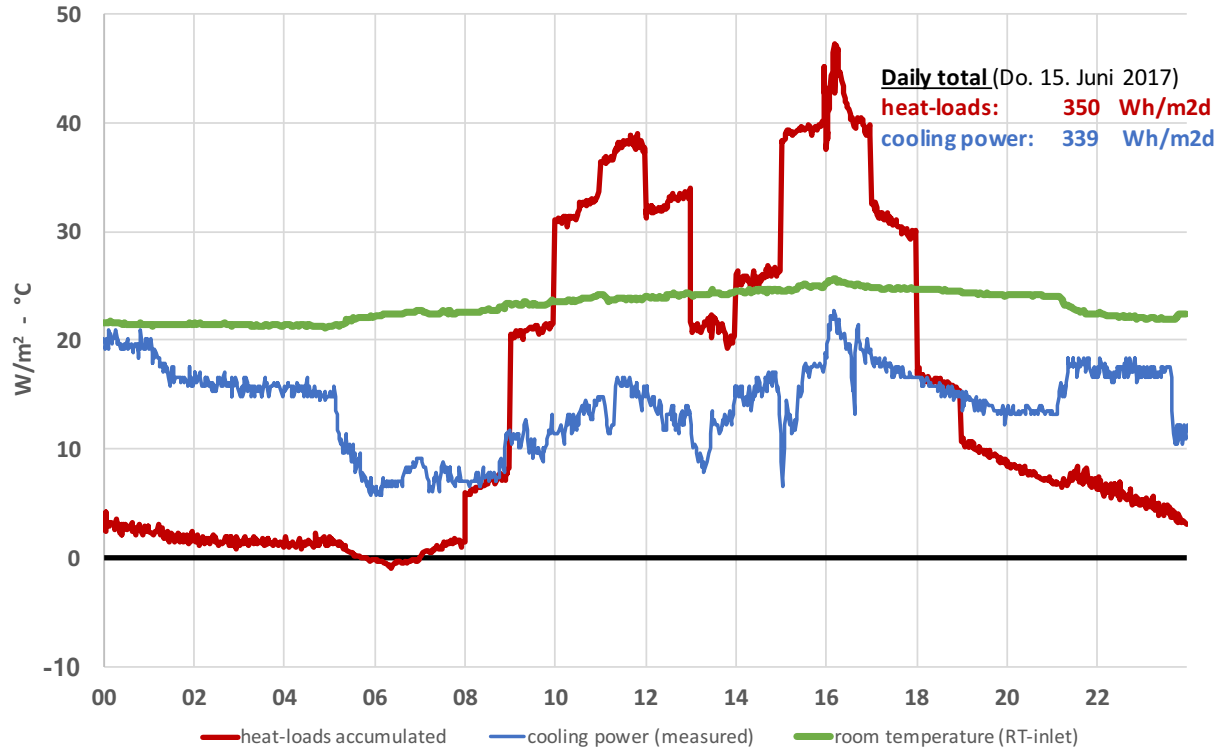
Step by step towards higher efficiency
... and more simplicity



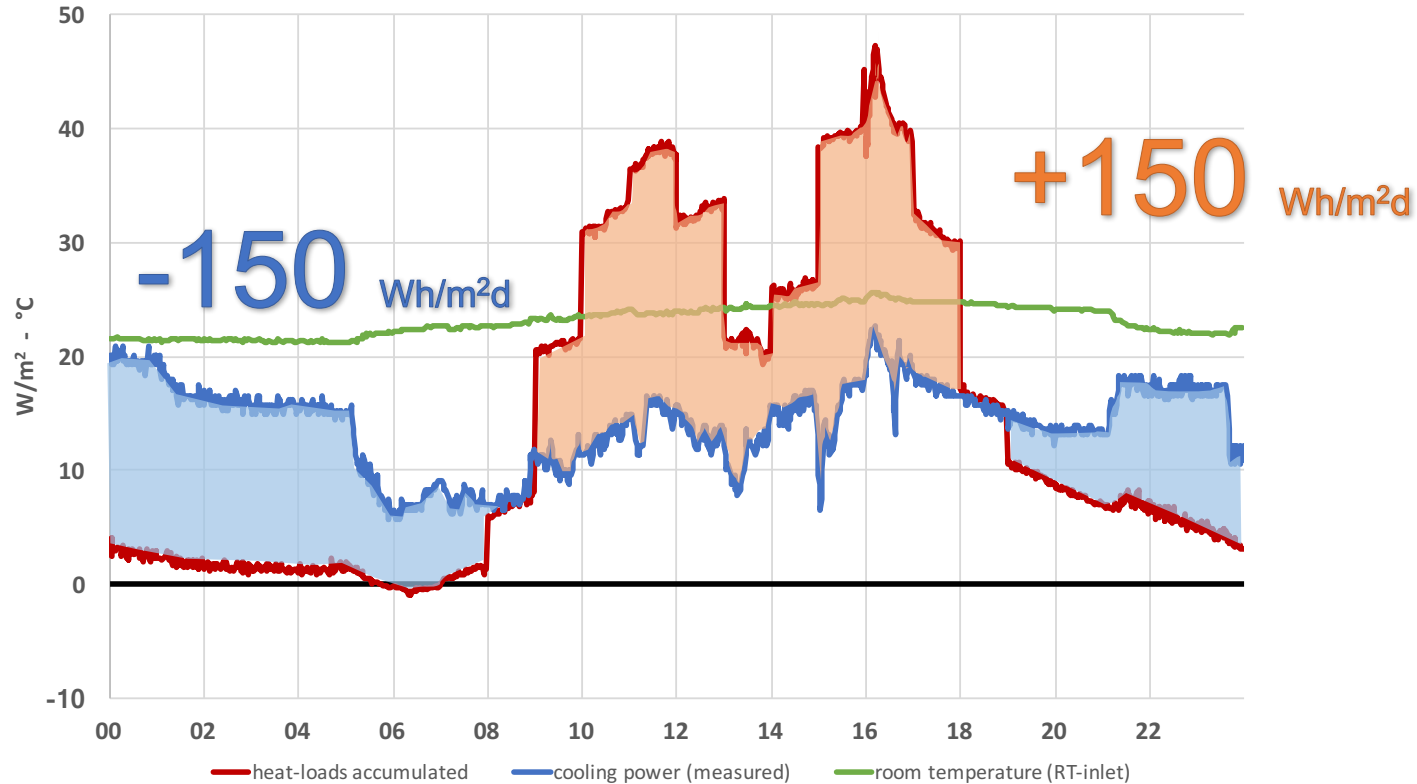
Accumulated Thermal Loads (NBI 2017)



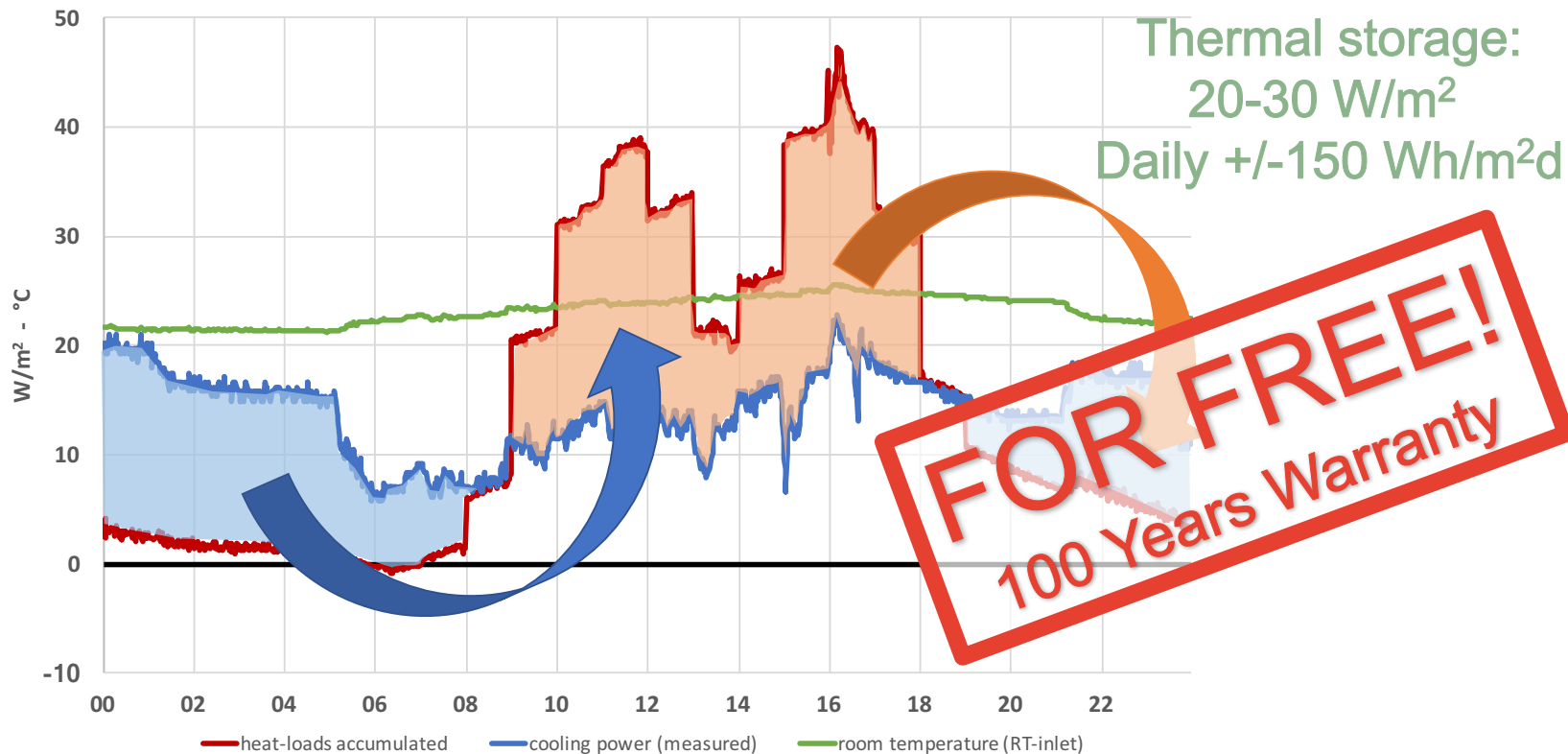
Thermal Loads vs. Cooling Power (NBI 2017)



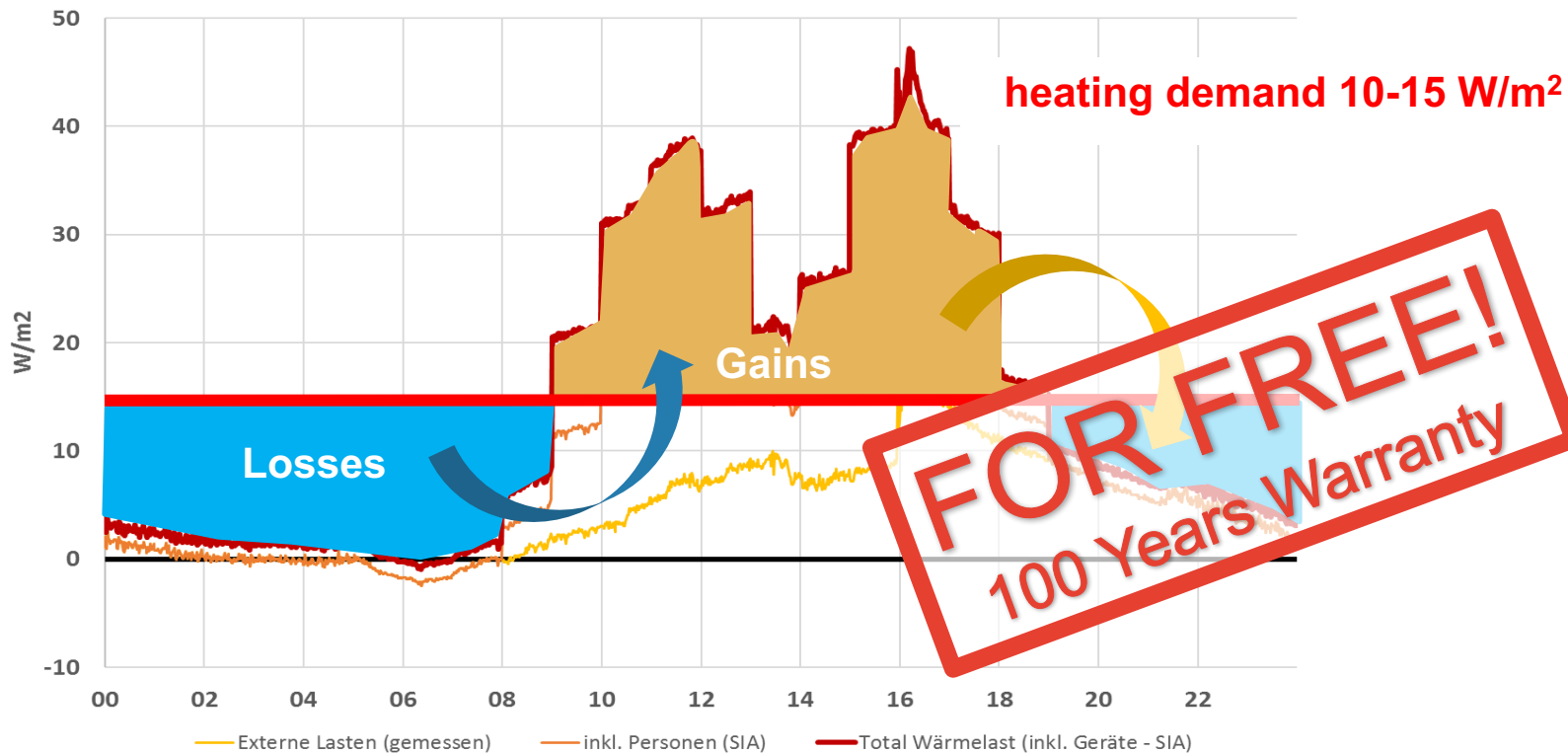
Thermal Loads vs. Cooling Power (NBI 2017)



1st Step – Understand Thermal Room Dynamics



Thermal Room Dynamics in Winter (measurements scheduled ...)

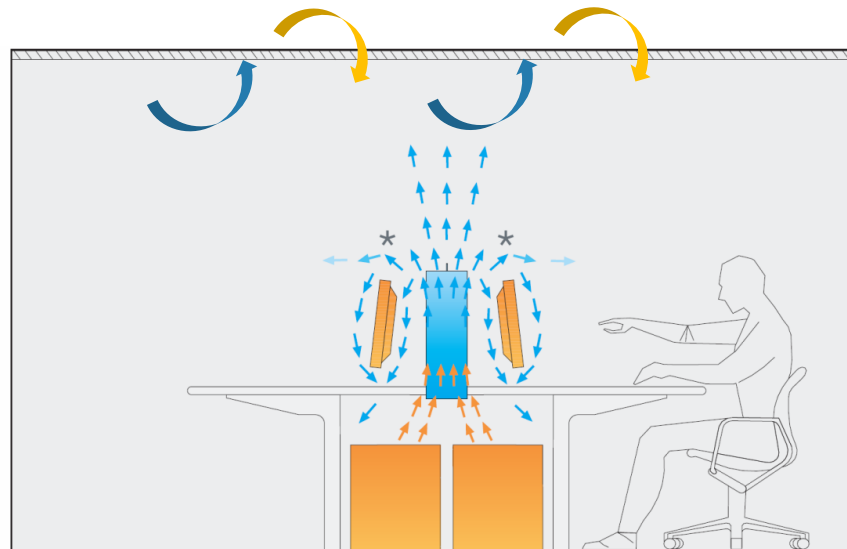


2nd Step – Integrated, simple technologies



Ceiling based cooling (Fan-Coils, Cooling-Ceilings, ...)

Drafts / energy-turnover
Thermal mass disconnected
16°C/61°F water supply
noisy (fan-coils)



“Local climate” (Integrated-Fan-Coils)

Minimal air movement
Thermal mass very active
>20°C/68°F water supply, often even higher
<25 dB(A)
possibly mobile

2nd Step – Integrated, simple technologies



Swisscom NBI, Berne (D.Uldry)

e.g. control centers, IT-labs, trading floors, ...



Swisscom NBI, Berne (D.Uldry)

e.g. Open-Space, group and single offices, ...

2nd Step – Integrated, simple technologies



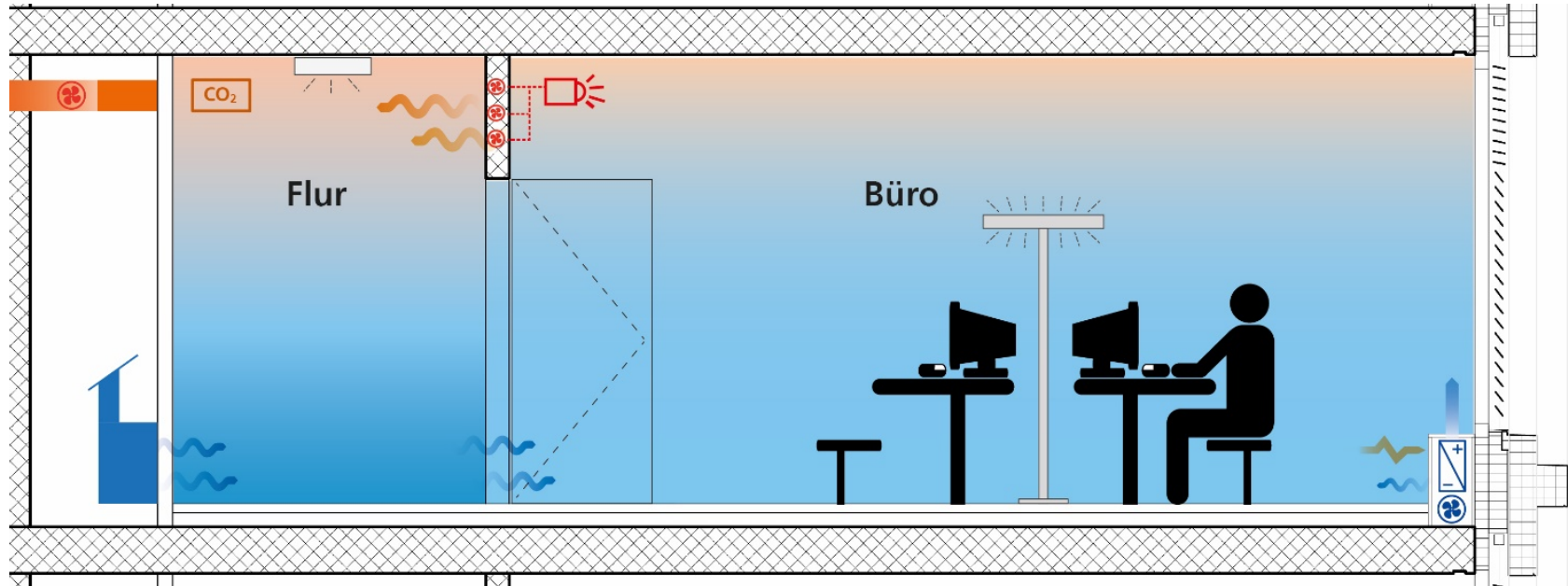
e.g. IT-labs, video-conference rooms, ...



e.g. meeting and show rooms, ...

Swisscom NBI, Bern

Ventilation – newly thought (“ductless composite ventilation“)



EBP, Berlin

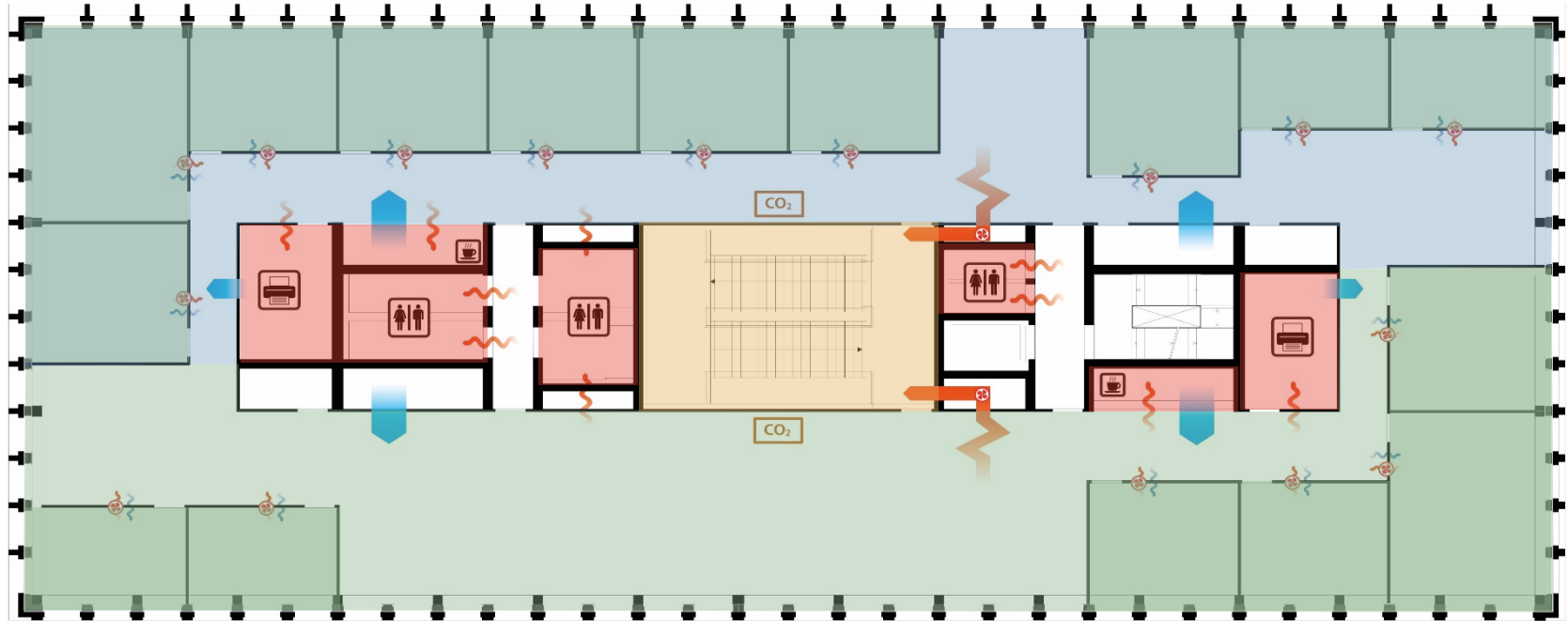
Ventilation – newly thought (“composite-fan“)



EBP, Berlin

Ventilation – newly thought

(“ductless composite ventilation“)



EBP, Berlin

Ventilation – newly thought (“ductless composite ventilation“)



Swisscom NBI, Berne (D.Uldry)

It's worth the efforts ...

191 COP hybrid cooling towers (measured average 2016)

10 W/m² max overall cooling demand (measured)

7 kWh/m²a heating demand (measured)

12 \$/m²a **total** power consumption
(measured at main connection with the grid, CHF 0.15/kWh)

0 \$ extra costs for energy efficiency



The Buildings of the Future contain „S“-tech

Smart

Simple

Stupid

...

Swiss

