



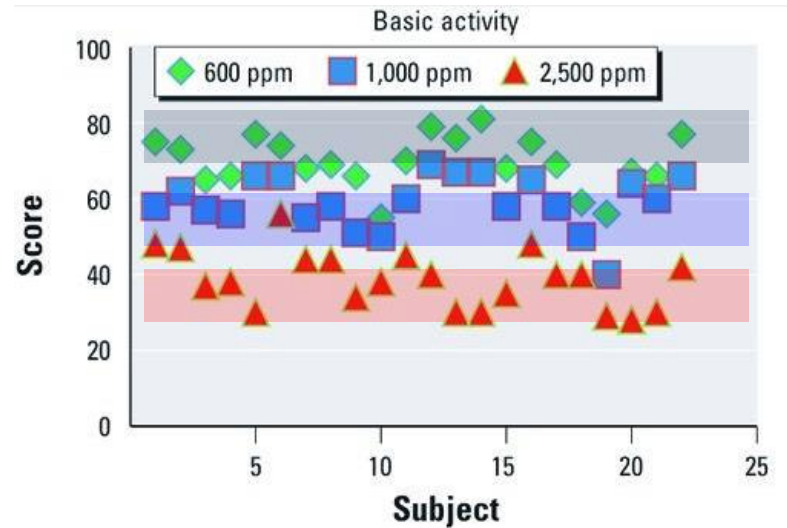
ARCHITECTURE STUDENT CONTEST

— Warsaw 2022 —

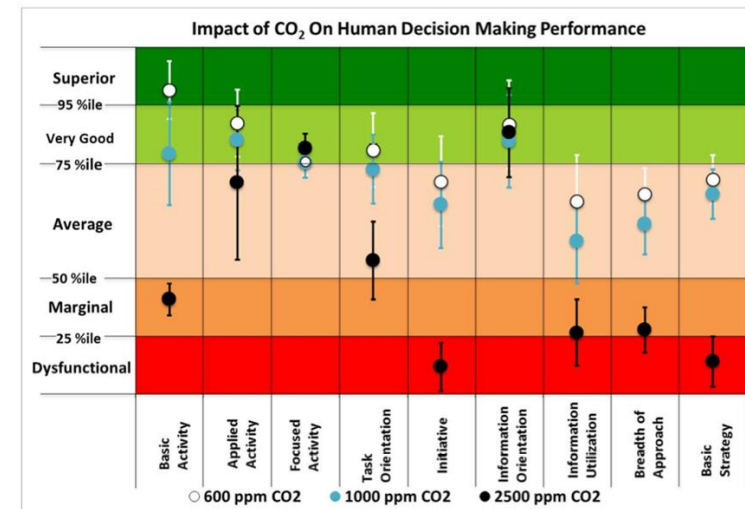
IAQ Comfort

Designing for IAQ

High level of indoor CO₂ have negative effect
significantly impair people's decision-making performance



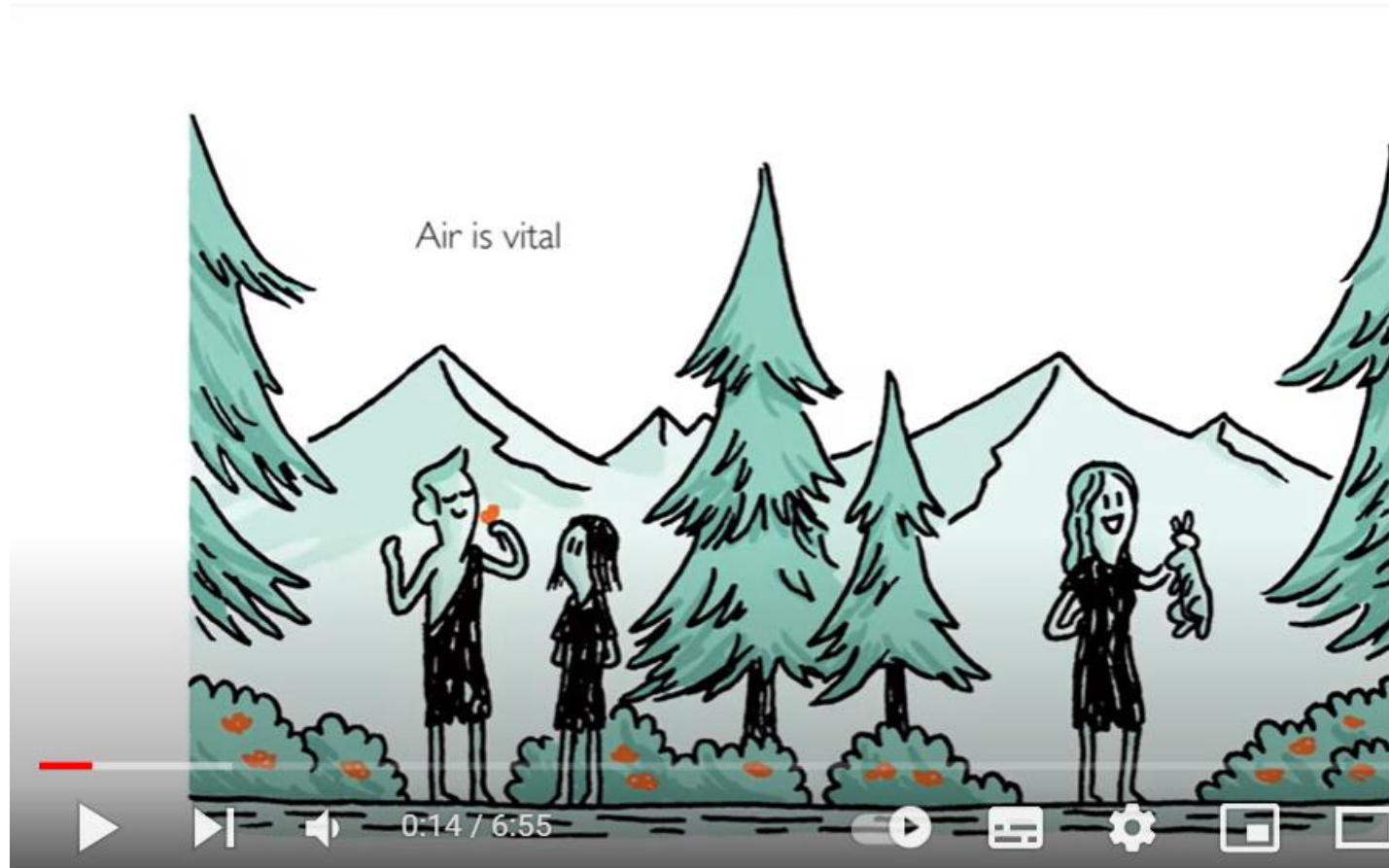
Source: Elevated Indoor Carbon Dioxide Impairs Decision-Making Performance, Berkeley Lab



Berkeley Lab researchers found that even moderately elevated levels of indoor carbon dioxide resulted in lower scores on six of nine scales of human decision-making performance.

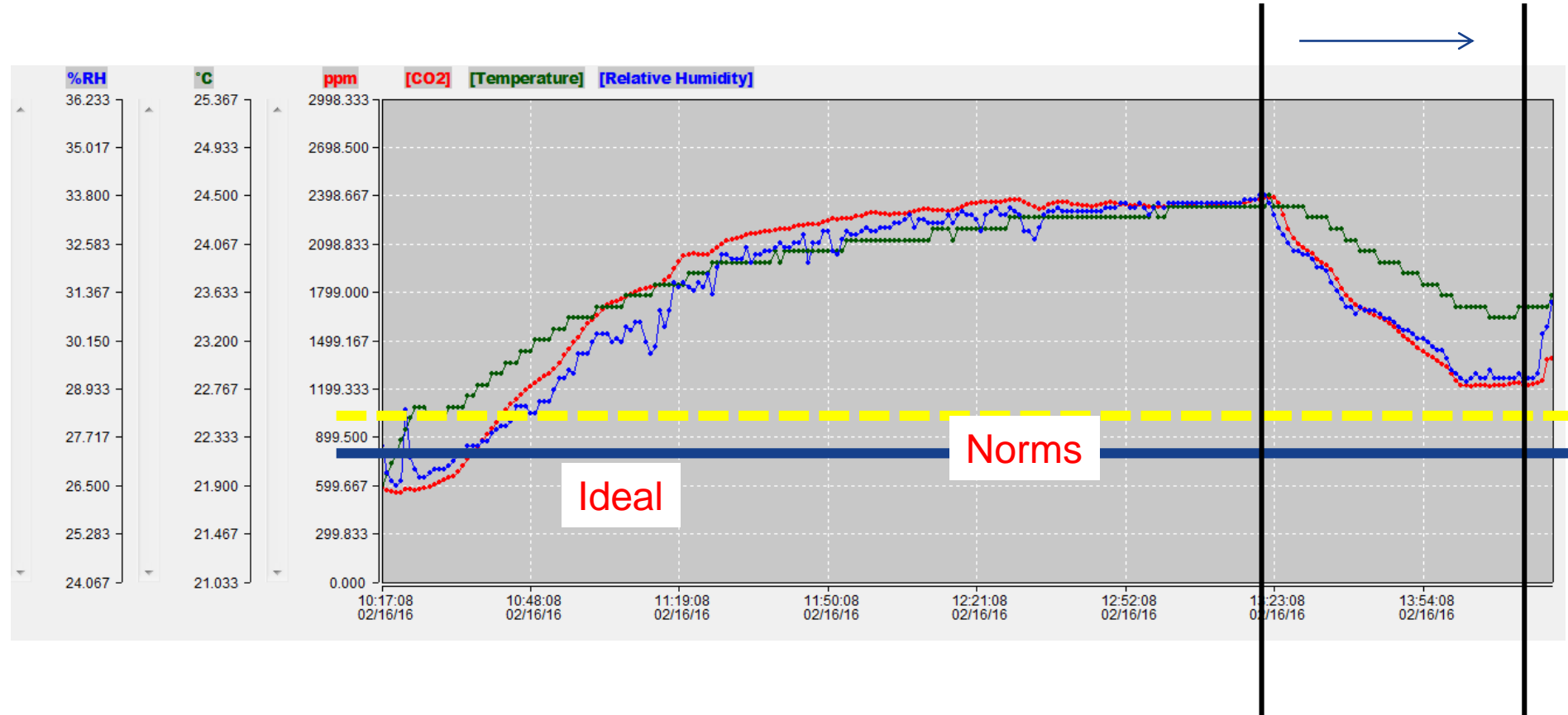
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Designing for IAQ



<https://www.youtube.com/watch?v=yColtCgOk14>

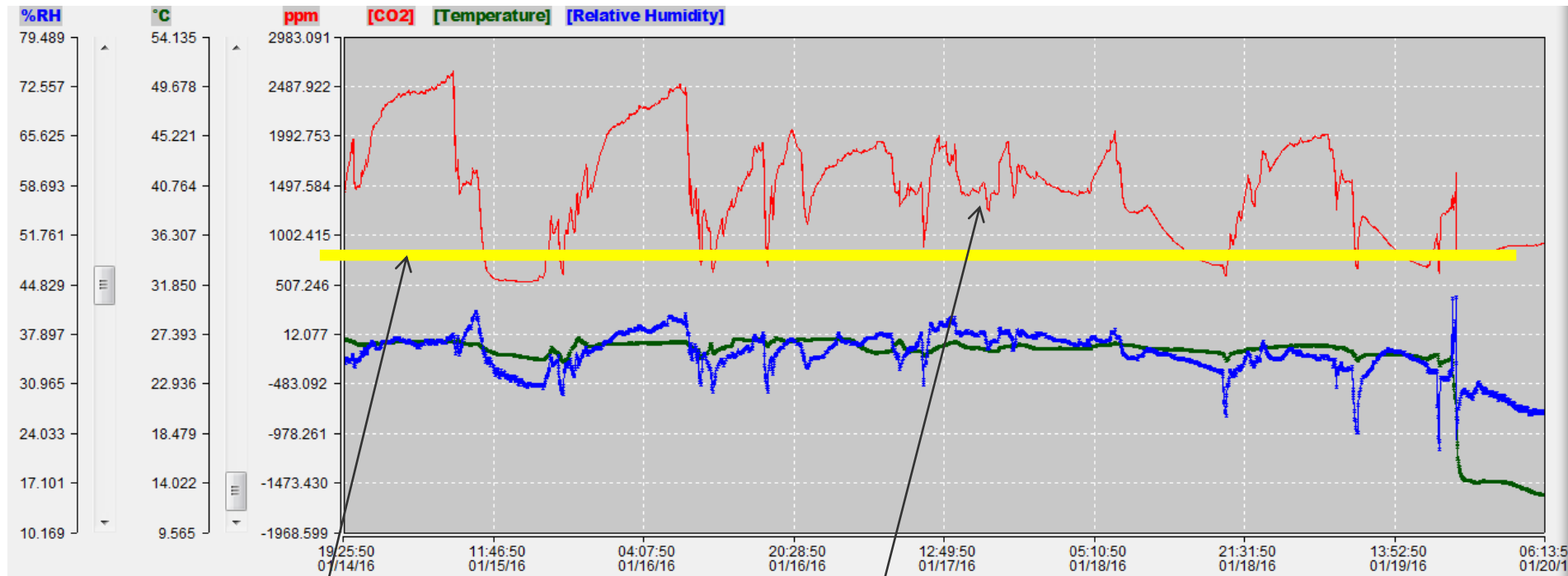
Designing for IAQ



Designing for IAQ

Apartment - Sleeping room

5 days measurements, room of the children + mom



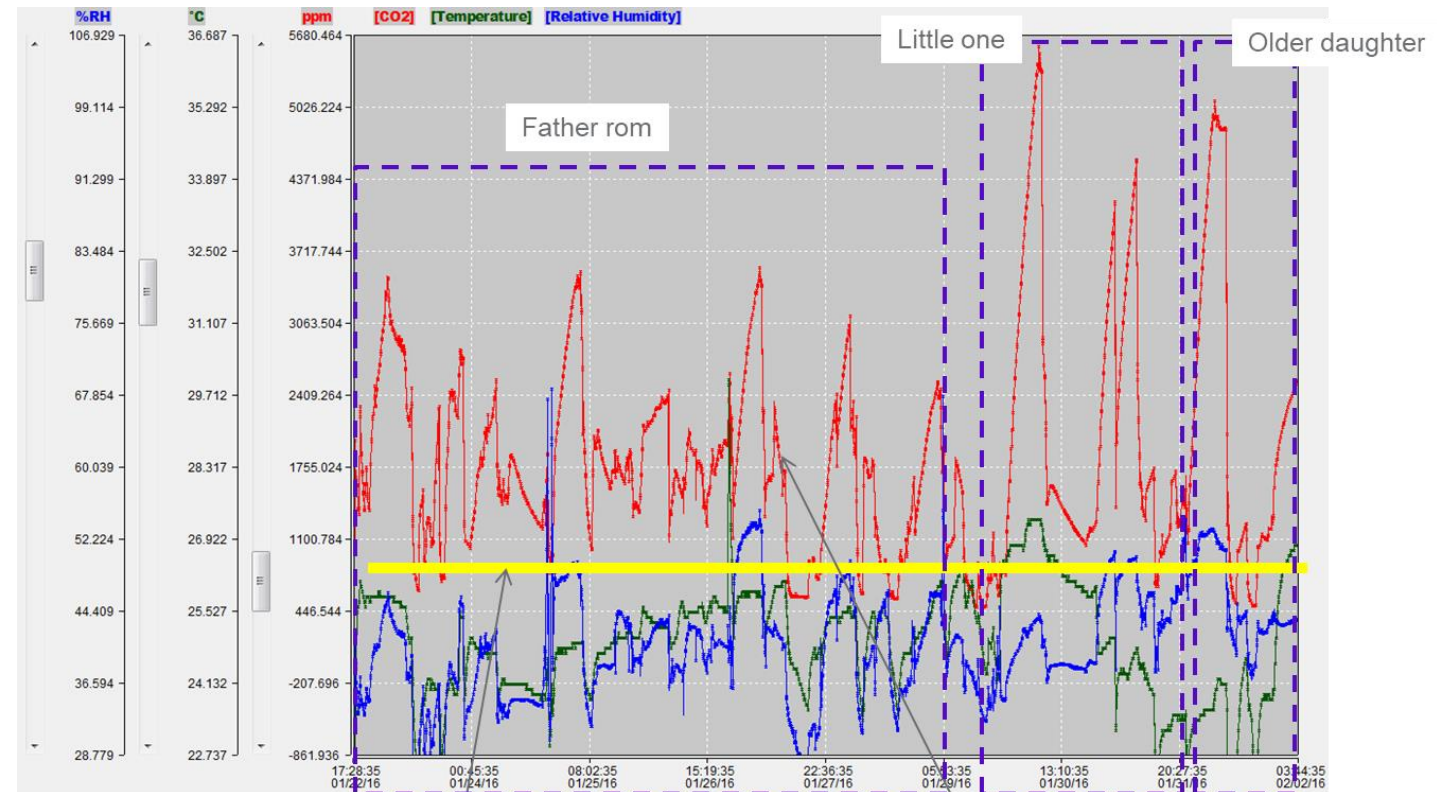
Optimum level 800ppm

CO2 level evolution

Designing for IAQ

Apartment - Sleeping room

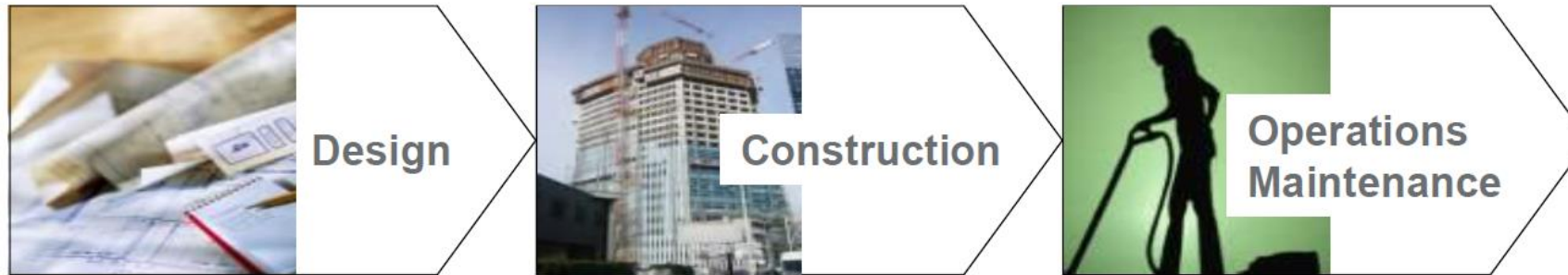
10 days- father, older daughter, little daughter + mother



Optimum level 800ppm

CO2 level evolution

Designing for IAQ



Moisture Management
Mold prevention
Ventilation: Intake placement, filtration, humidity controls
Materials selection: Low emitting, durable, easy to clean

Proper sequencing of finish installations
Temporary ventilation during construction
Clearance Testing: pre-occupancy in Building
Commissioning

Effective Cleaning with low-emitting and non-toxic products
Prevention of water intrusion
Humidity & temperature control
Regular HVAC maintenance
Air quality testing

Designing for IAQ

Determined by:

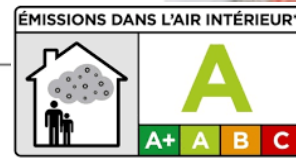
- Indoor air quality
- Fresh air supply
- Absence of internal pollutants
- Control of odors

Your Projects

- Keep outdoor pollution outside
- Have a constant supply of clean, fresh air
- Never feel stuffy nor damp
- Actively break-down impurities in indoor air

Saint-Gobain solutions:

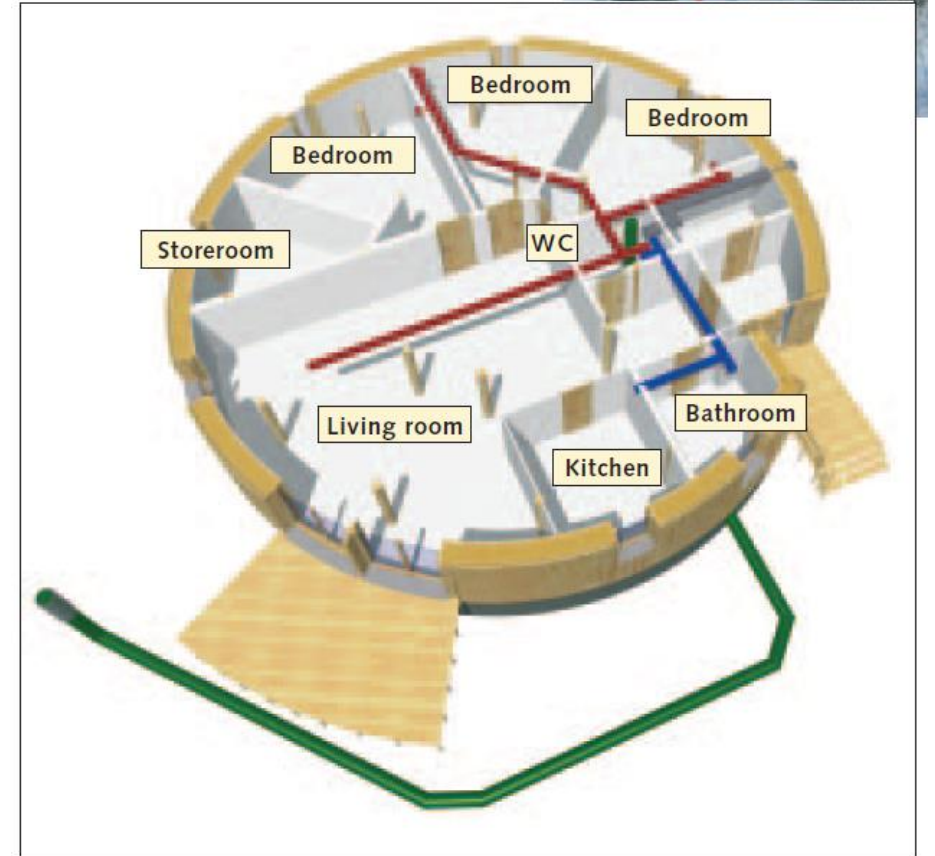
- Insulation, dryllining, membranes and high performance windows and doors providing superior airtightness
- Low emission solutions to Improve Indoor air quality
- Products to purify Indoor air by scavenging certain (VOCs) Volatile Organic Compounds such as formaldehyde
- Low-dust screeds and adhesives Improving user-comfort during Installation



Designing for IAQ

Human activity in buildings will lead to an increase of CO₂ and humidity in the indoor air while reducing the O₂ concentration

Recommendation: Fresh air supply of 30 m³ per person per hour.

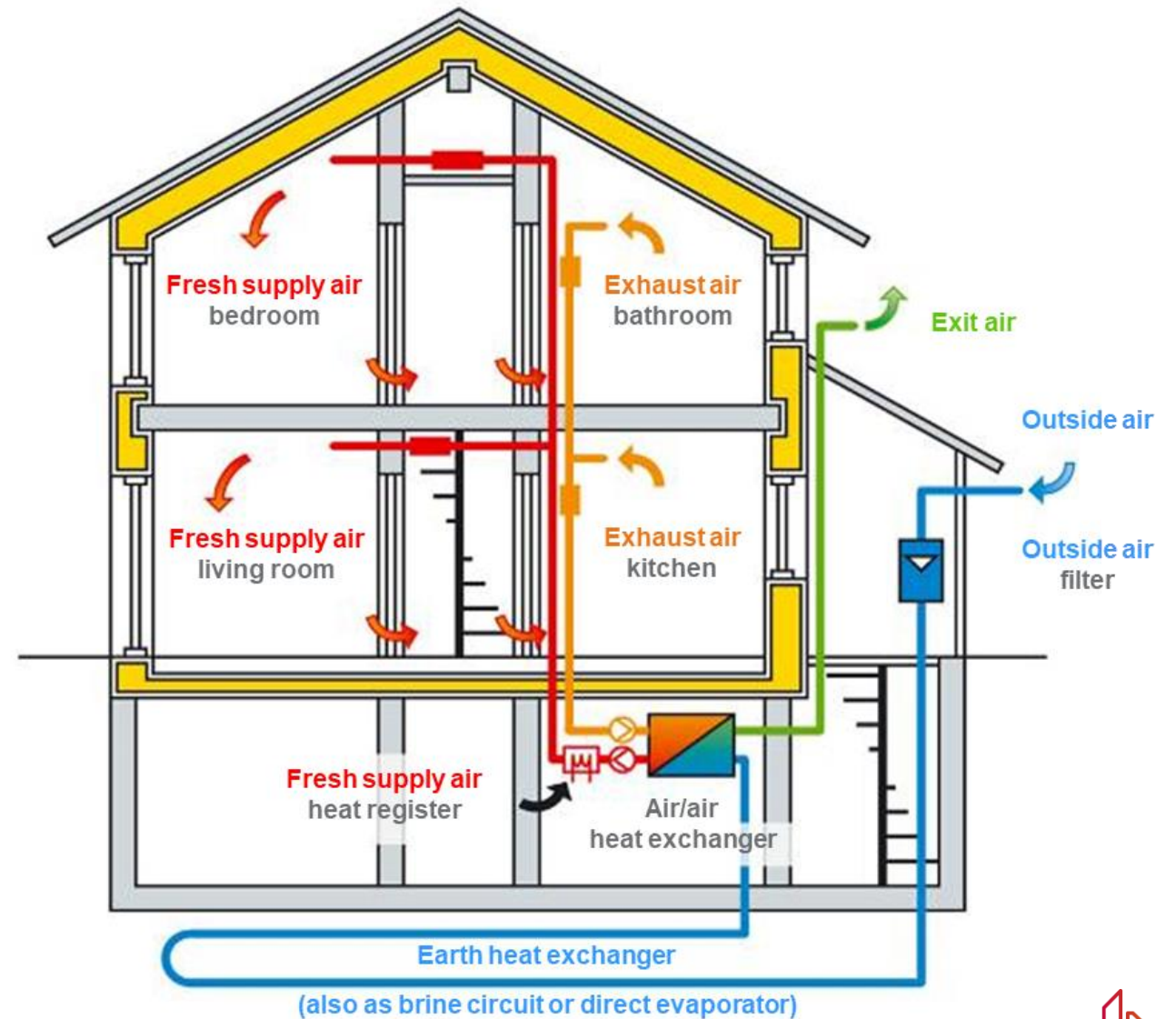


Lang Consulting

Designing for IAQ

Controlled ventilation of a building provides an adequate supply of O₂-rich fresh air – but the ventilation system can only work efficiently when ensuring a high level of building air tightness.

Filters of controlled ventilation system remove dust, pollen and other harmful substances, significantly improving the quality of life for inhabitants suffering from allergies



Designing for IAQ

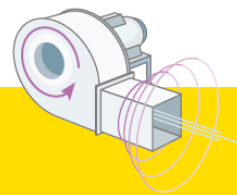
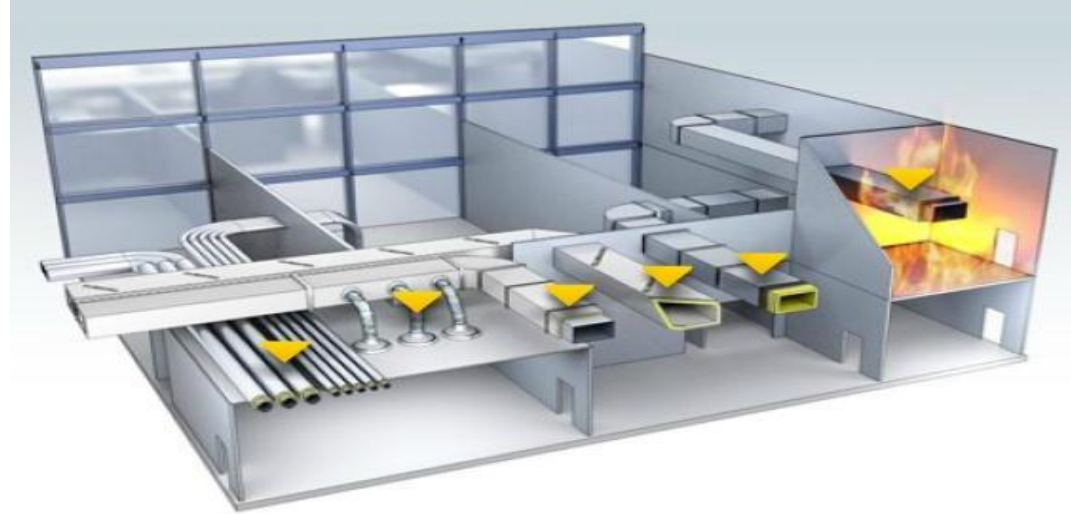
Compact ventilation systems with heat recuperation

- As it requires only little space, the ventilation unit can be accommodated in any storeroom or even in a cabinet.
- Acoustic insulation of the central unit and supply ducts by installing sound absorbers. A noise level of 20-25 dB(A) should not be exceeded for living space.
- Easy maintenance, e.g. when changing filters and cleaning the unit
- The system can be easily adapted to varying needs, e.g. switch off the incoming air fan when opening the windows, bypass for summer use.

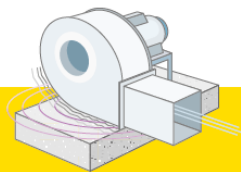


<https://build.saint-gobain.co.uk/blog/2020/01/why-do-you-need-mechanical-ventilation-heat-recovery-system-mvhr>

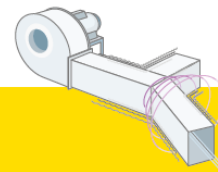
Designing for IAQ



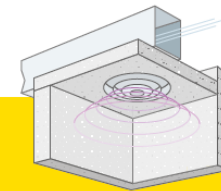
**Ventilation/
air-conditioning system**
Noise transmission due
to the ventilation and/or
air-conditioning
system itself.



Machinery vibrations
Noise transmission due
to the structure on
account of vibration.

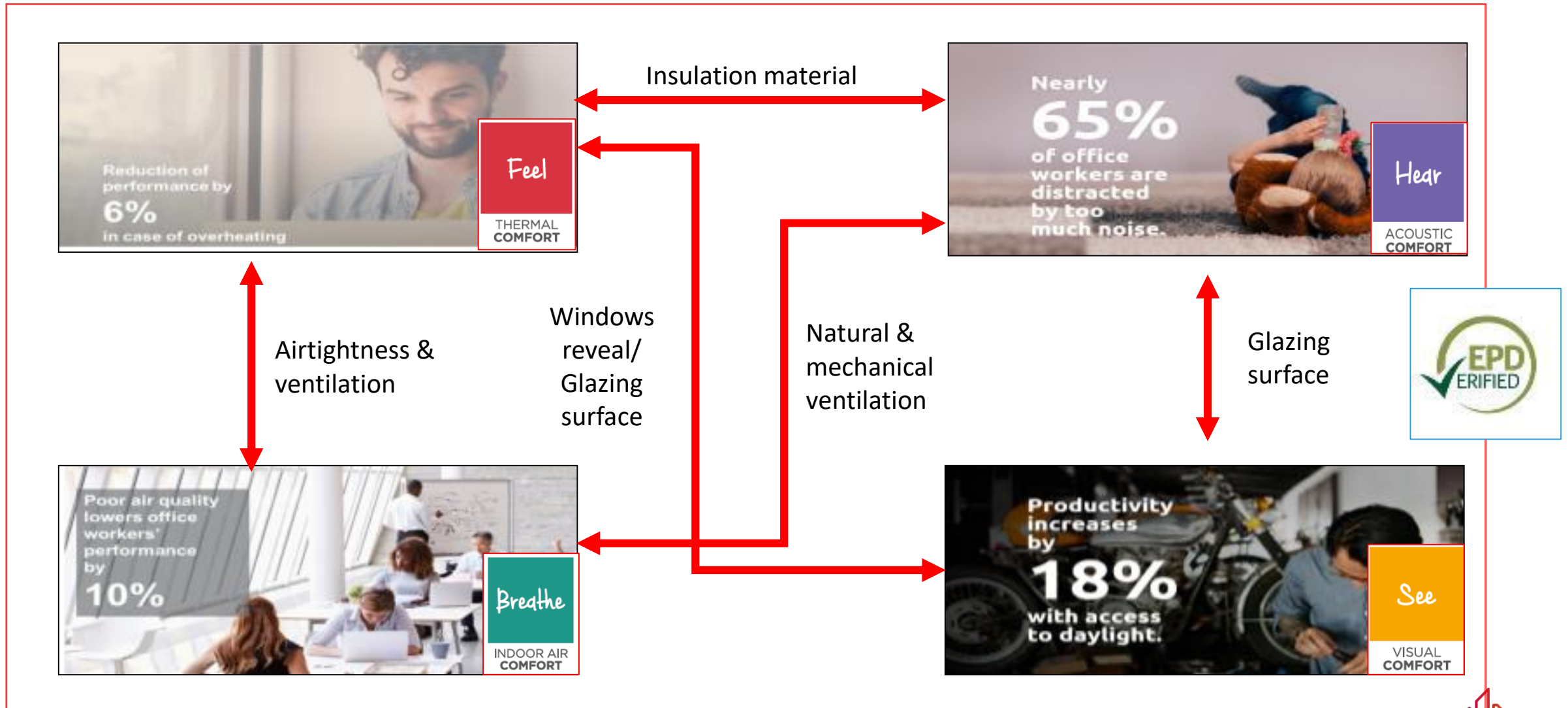


Air circulation
Generation of noise by
the air speed effect.



Grilles and diffusers
Noise transmission via
grilles and diffusers.

Comfort Interactions



THANK YOU