



Quality management for building performance

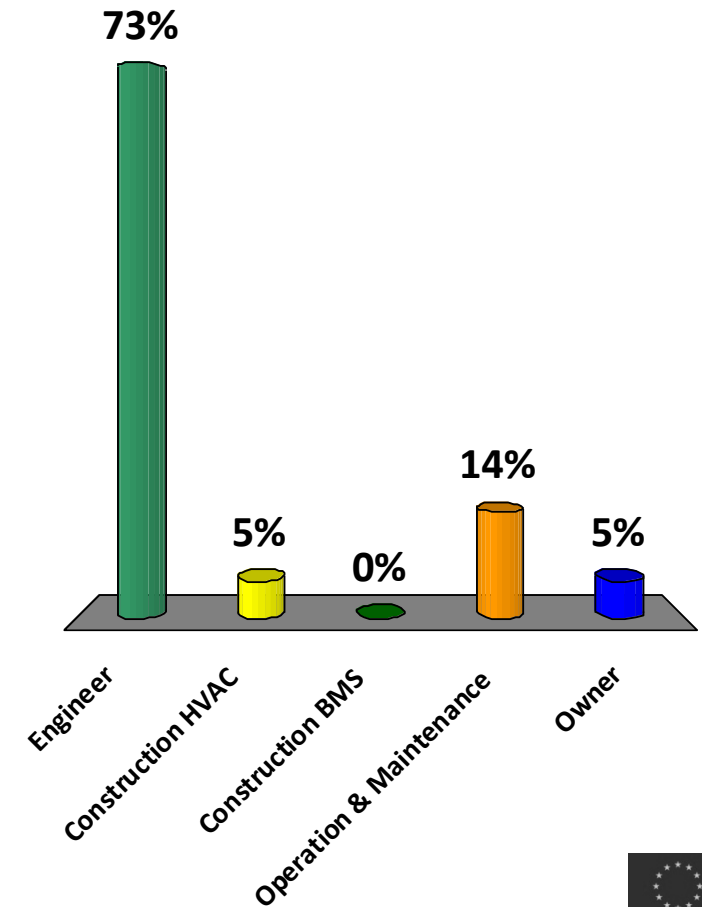
# Quality management for building performance: Closing the gap between design and operation

Questions pool and panel discussion



# What is typically your role in building projects (what comes closest)?

- A. Engineer
- B. Construction HVAC
- C. Construction BMS
- D. Operation & Maintenance
- E. Owner





Quality management for building performance

# From Design to Performance: Why quality must be the next step towards better building performance

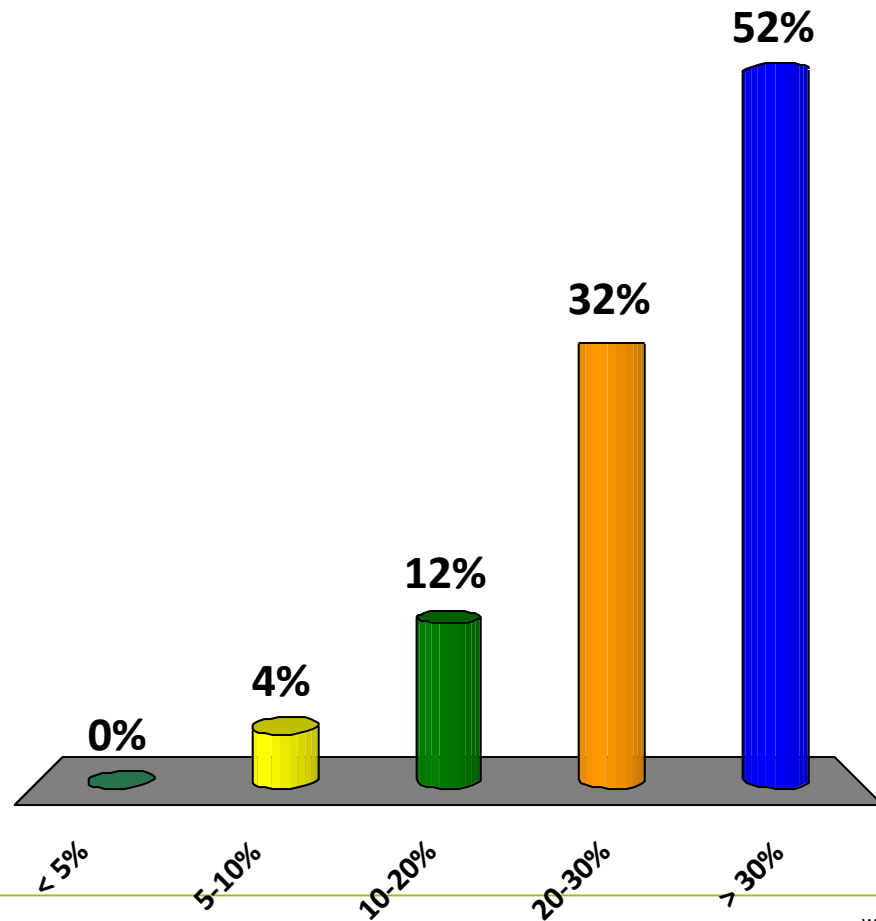
Stefan Plessner, IGS, TU Braunschweig

Questions pool and panel discussion



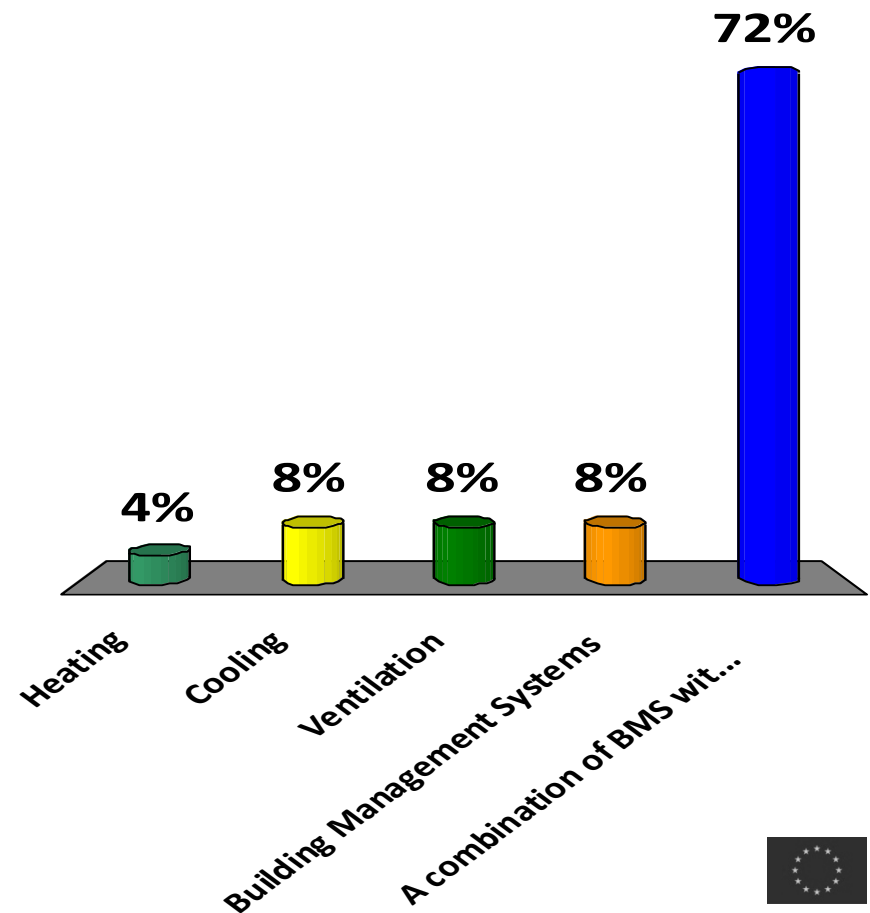
# How much energy is wasted in buildings due to bad quality?

- A. < 5%
- B. 5-10%
- C. 10-20%
- D. 20-30%
- E. > 30%



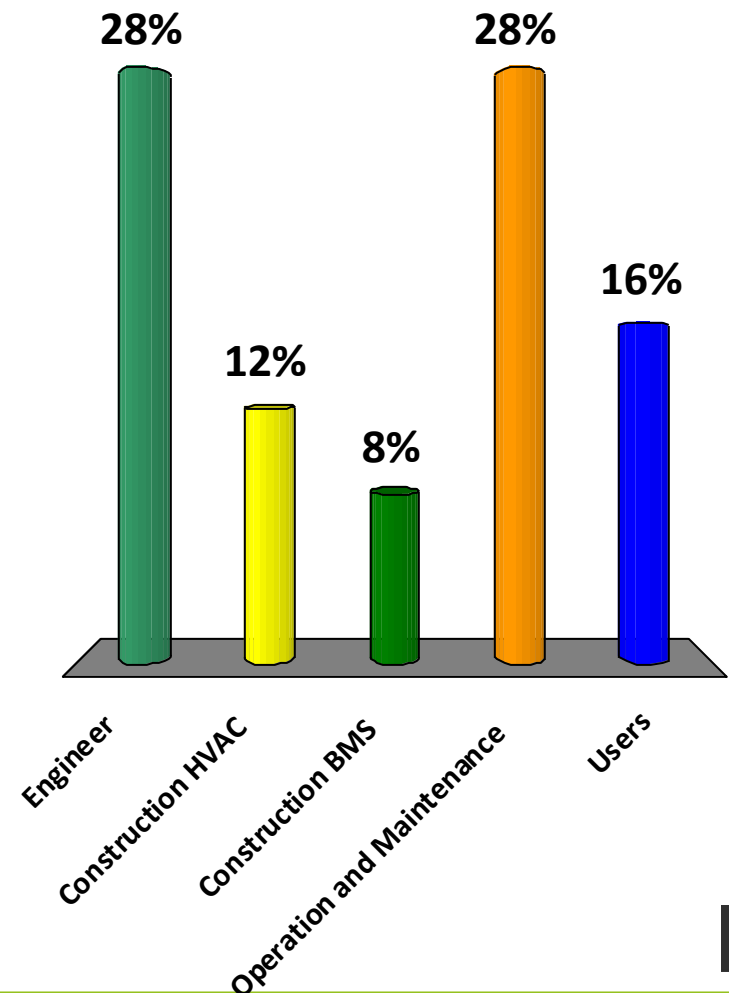
# Which system causes the biggest quality gap with respect to energy efficiency?

- A. Heating
- B. Cooling
- C. Ventilation
- D. Building Management Systems
- E. A combination of BMS with HVAC systems



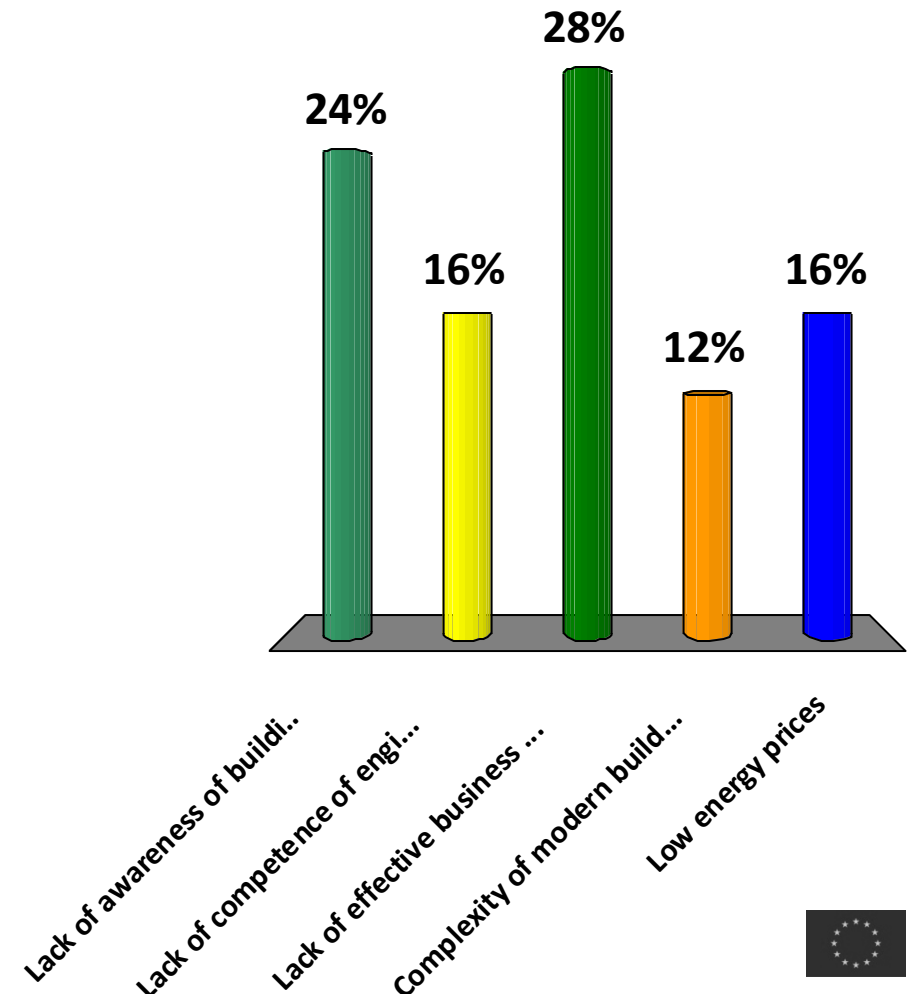
# Who is mostly responsible for quality gaps?

- A. Engineer
- B. Construction HVAC
- C. Construction BMS
- D. Operation and Maintenance
- E. Users



# What is the biggest barrier for effective quality management?

- A. Lack of awareness of building owners for quality
- B. Lack of competence of engineers and construction companies
- C. Lack of effective business models
- D. Complexity of modern building services
- E. Low energy prices



# Thank You



The results will be shown during the panel discussion







Quality management for building performance

# Energy Monitoring of Buildings: using energy data to obtain measurable energy efficiency

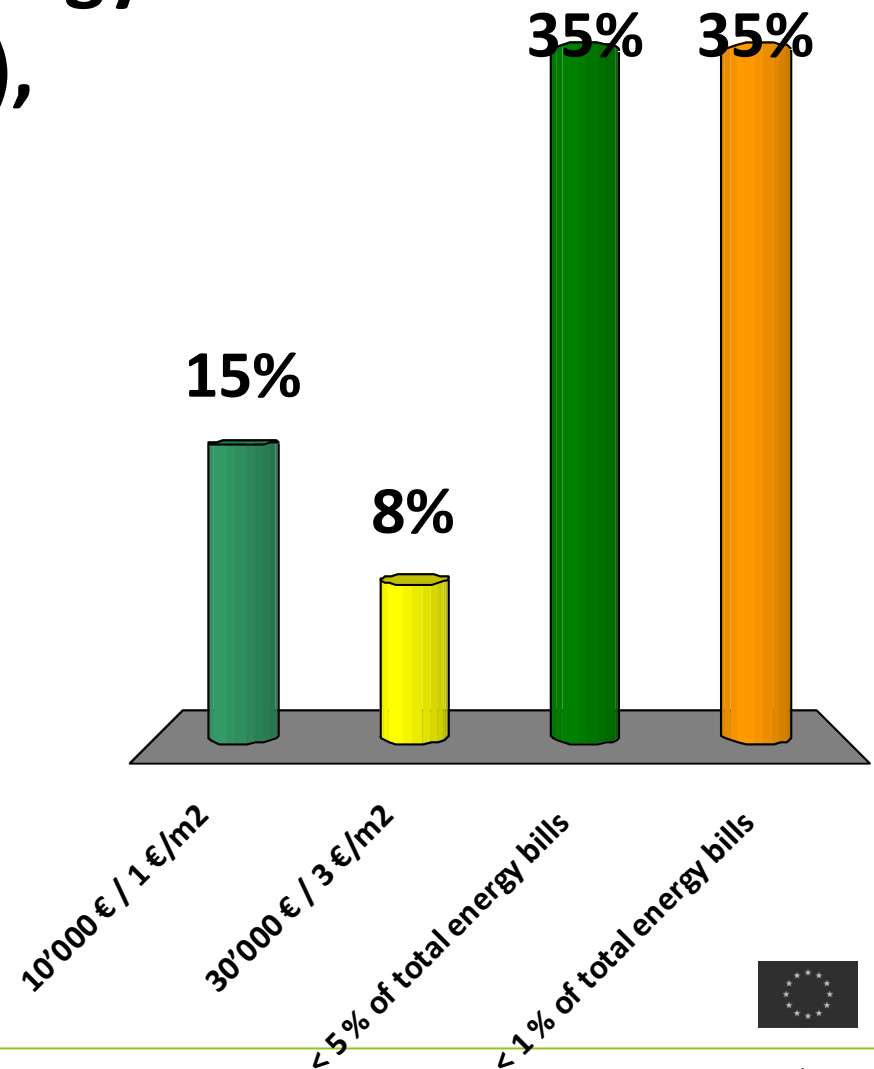
Michele Liziero - EnergyTeam SPA

Questions pool and panel discussion



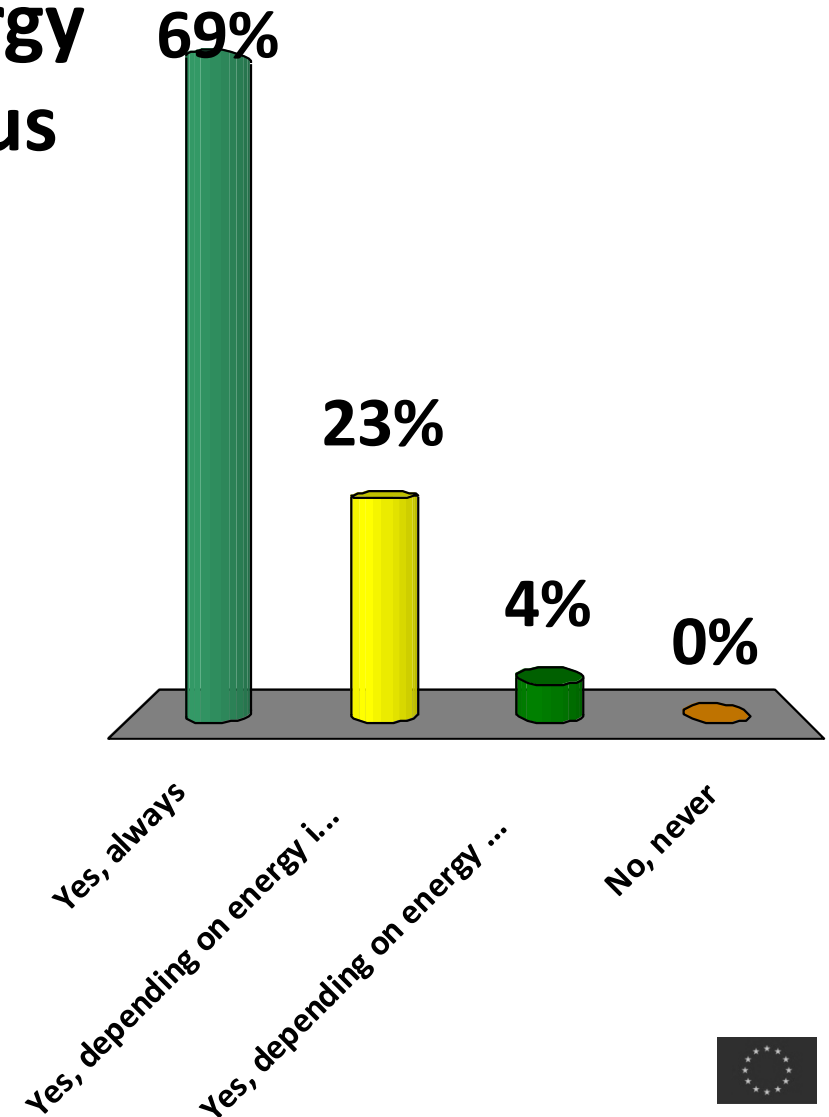
# What's a reasonable cost of energy monitoring system (10'000 m<sup>2</sup>), considering the benefits?

- A. 10'000 € / 1 €/m<sup>2</sup>
- B. 30'000 € / 3 €/m<sup>2</sup>
- C. < 5 % of total energy bills
- D. < 1 % of total energy bills



# Energy Gap solution NEEDS Energy monitoring system for continuous evaluation?

- A. Yes, always
- B. Yes, depending on energy intensity
- C. Yes, depending on energy media
- D. No, never



# Thank You



The results will be shown during the panel discussion



Quality management for building performance

# Energy is not enough: Evaluating indoor environmental qualities with the Comfortmeter

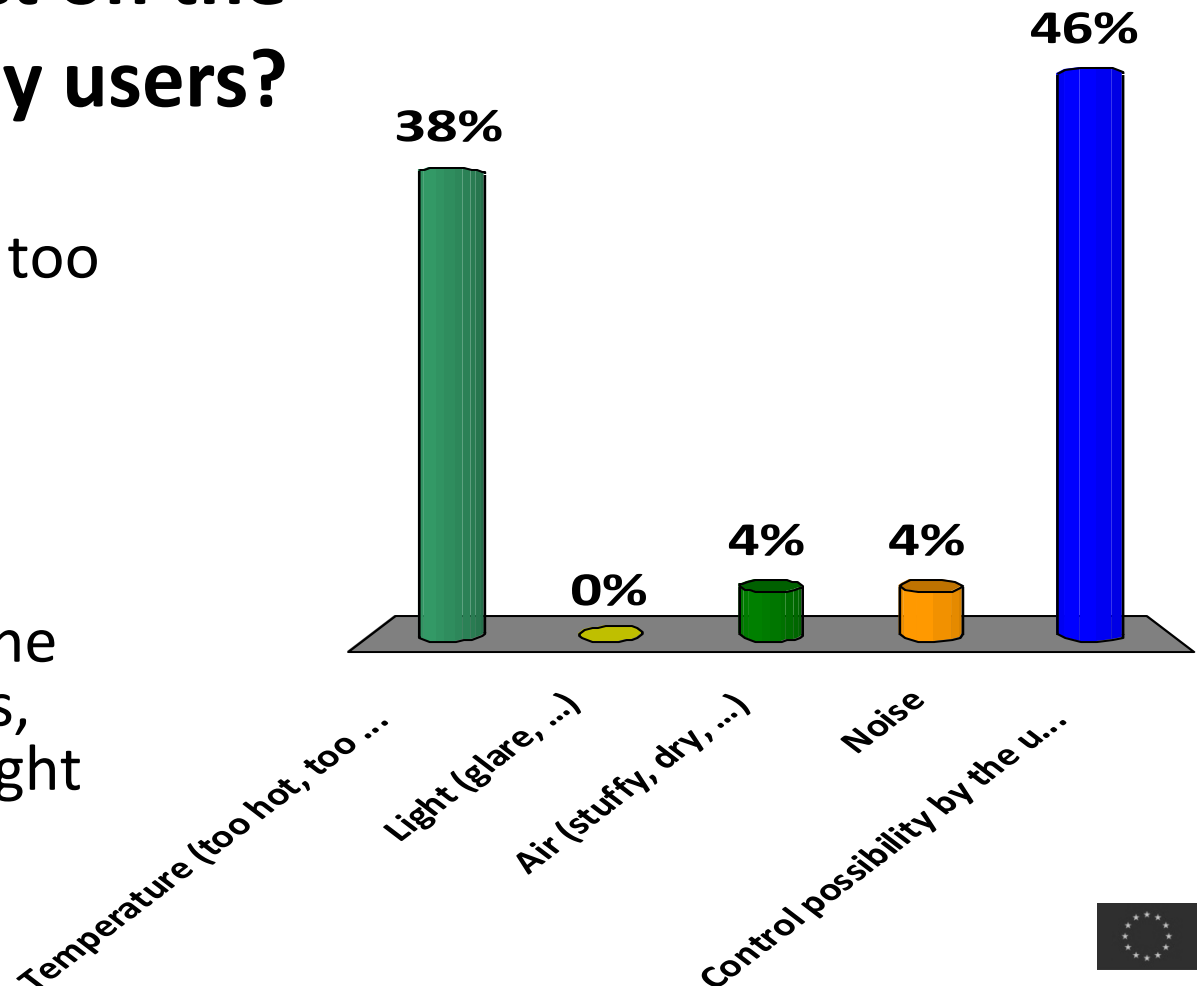
Niels Delaere, Factor4

Questions pool and panel discussion



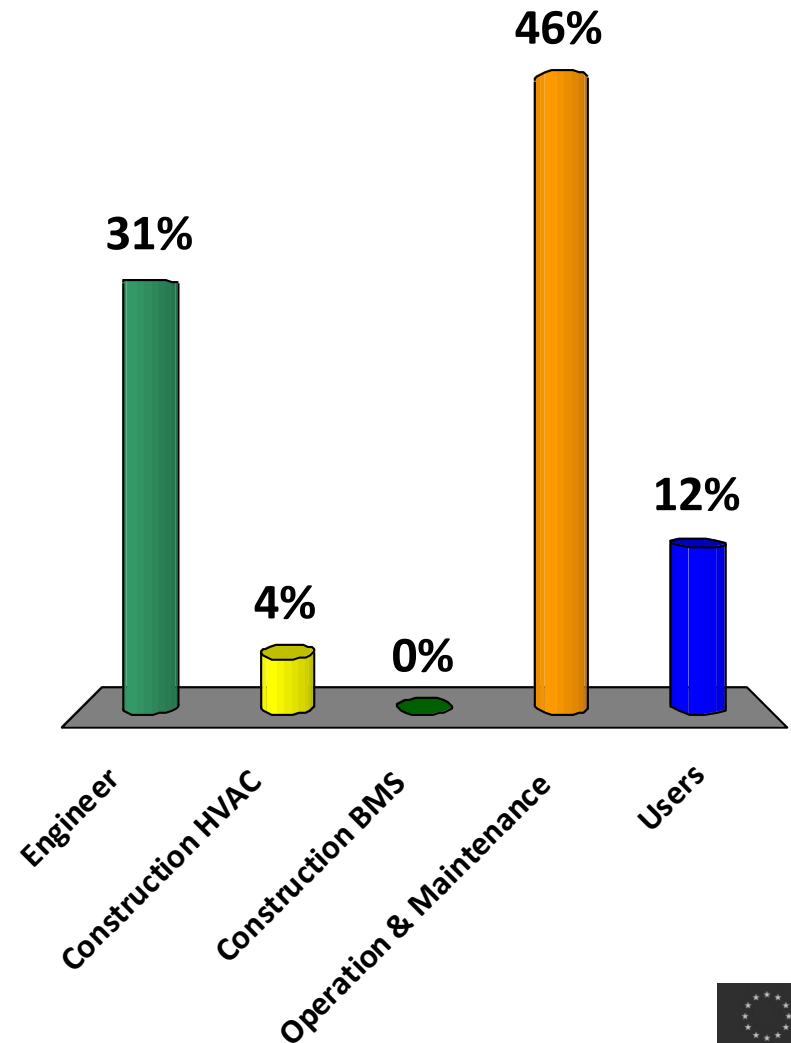
# What bad scoring comfort aspect has the highest impact on the energy gap creation by users?

- A. Temperature (too hot, too cold, draught)
- B. Light (glare, ...)
- C. Air (stuffy, dry, ...)
- D. Noise
- E. Control possibility by the user (opening windows, temperature setting, light switches, ...)



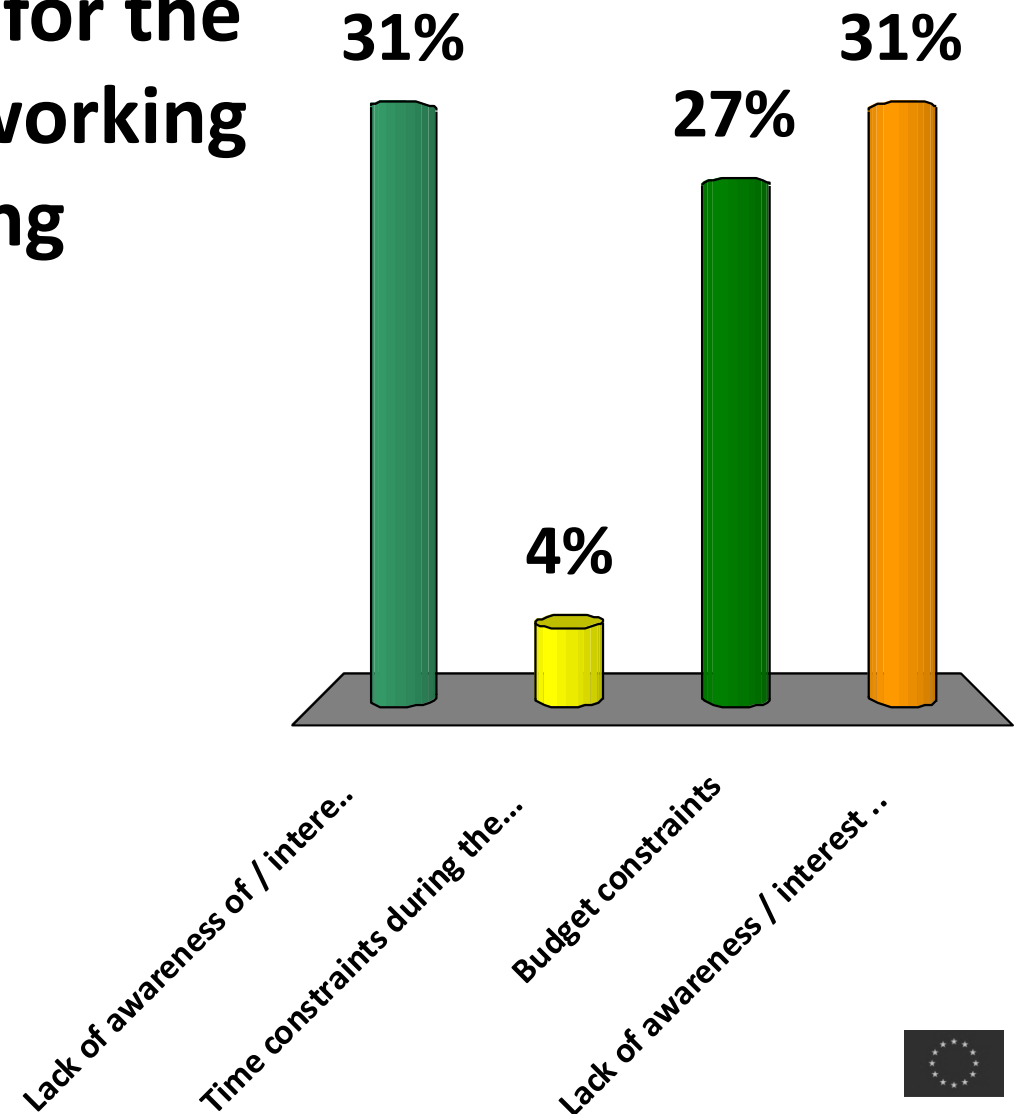
# Who is mostly responsible for quality gap with respect to the comfort of the users?

- A. Engineer
- B. Construction HVAC
- C. Construction BMS
- D. Operation & Maintenance
- E. Users



# What is the biggest barrier for the creation of a comfortable working environment for the building users?

- A. Lack of awareness of / interest in the real users needs during design
- B. Time constraints during the building process
- C. Budget constraints
- D. Lack of awareness / interest by the facility management team





# Thank You



The results will be shown during the panel discussion



Quality management for building performance

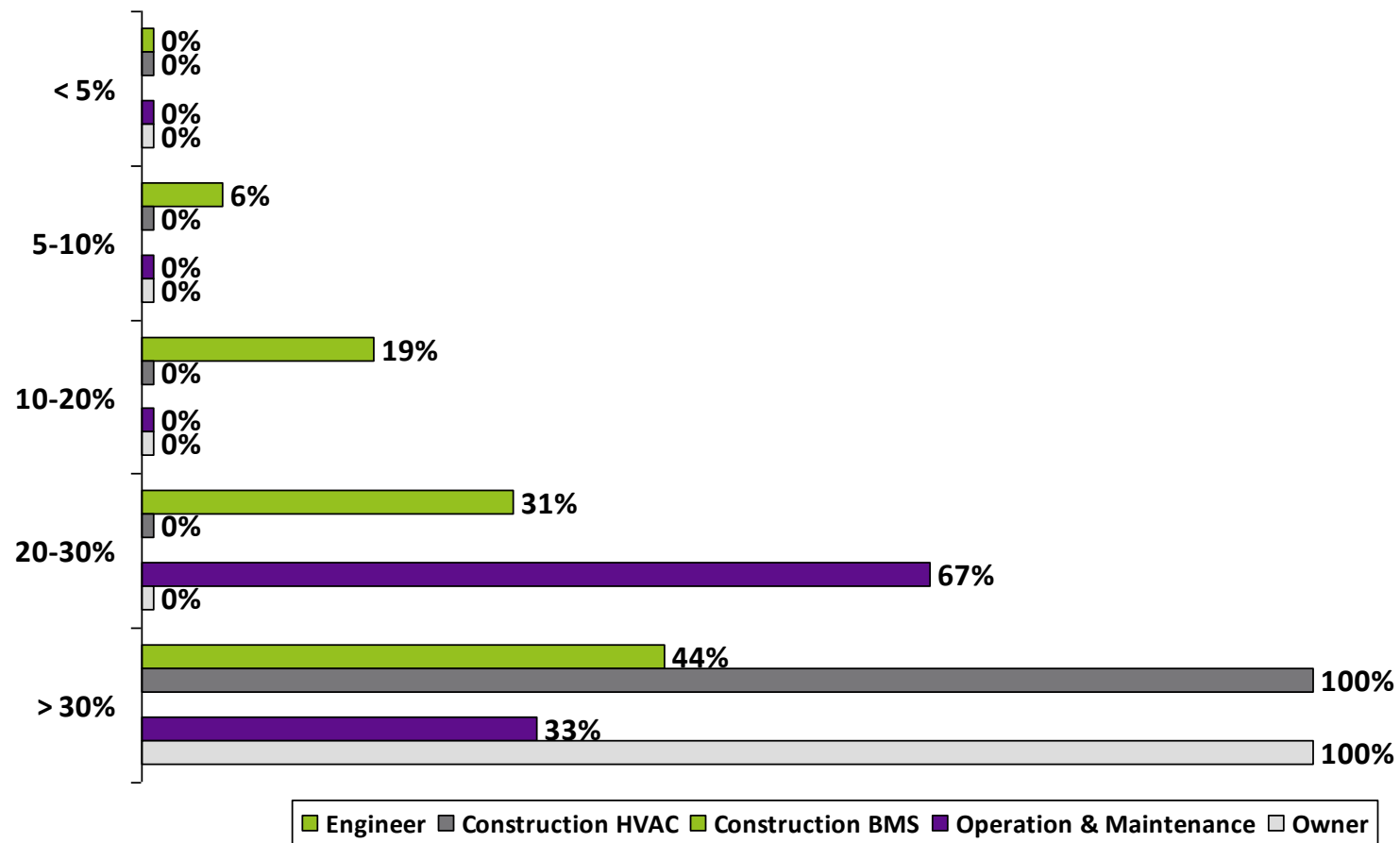
# From Design to Performance: Why quality must be the next step towards better building performance

Stefan Plessner, IGS, TU Braunschweig

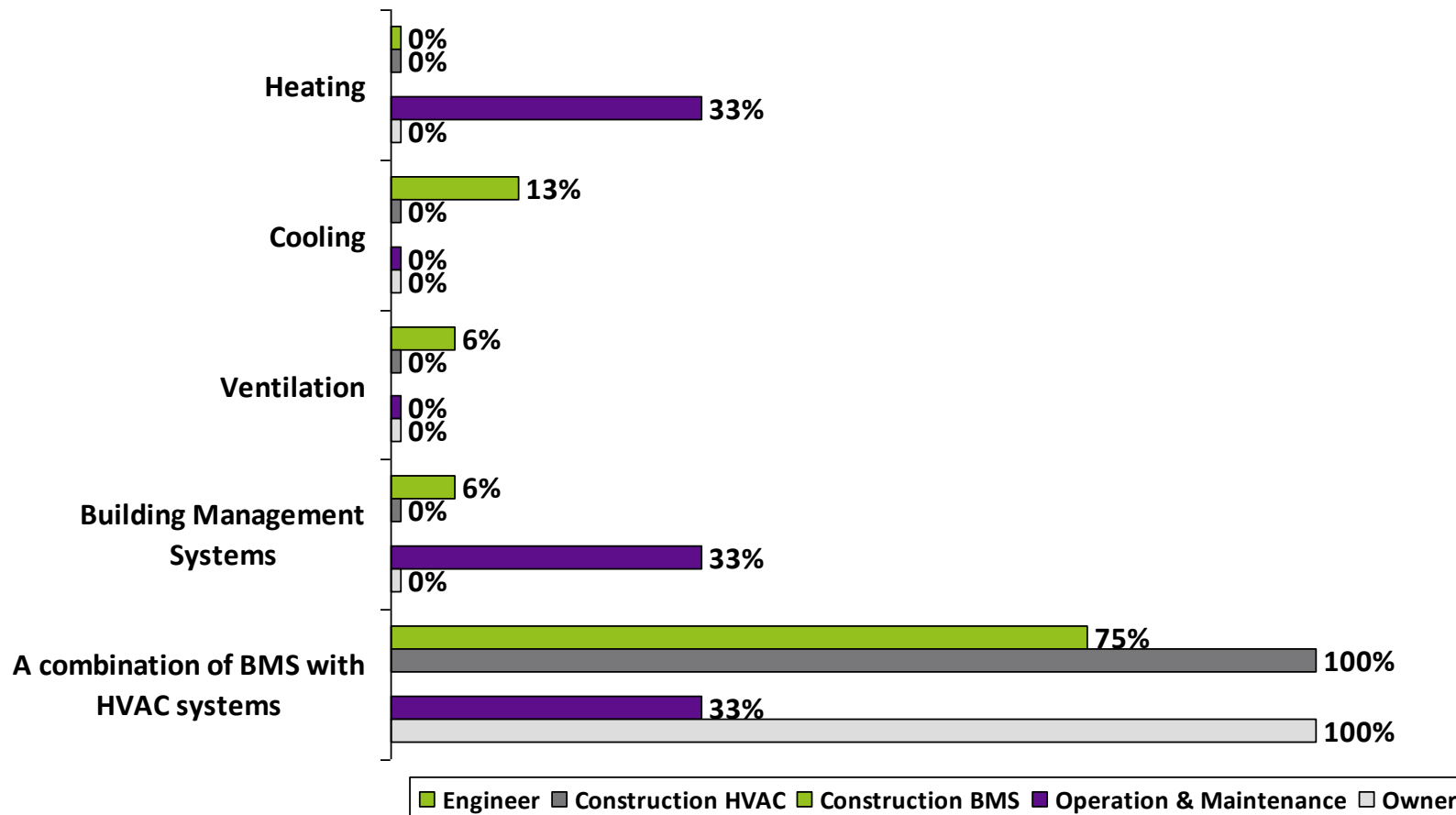
Questions pool and panel discussion: results



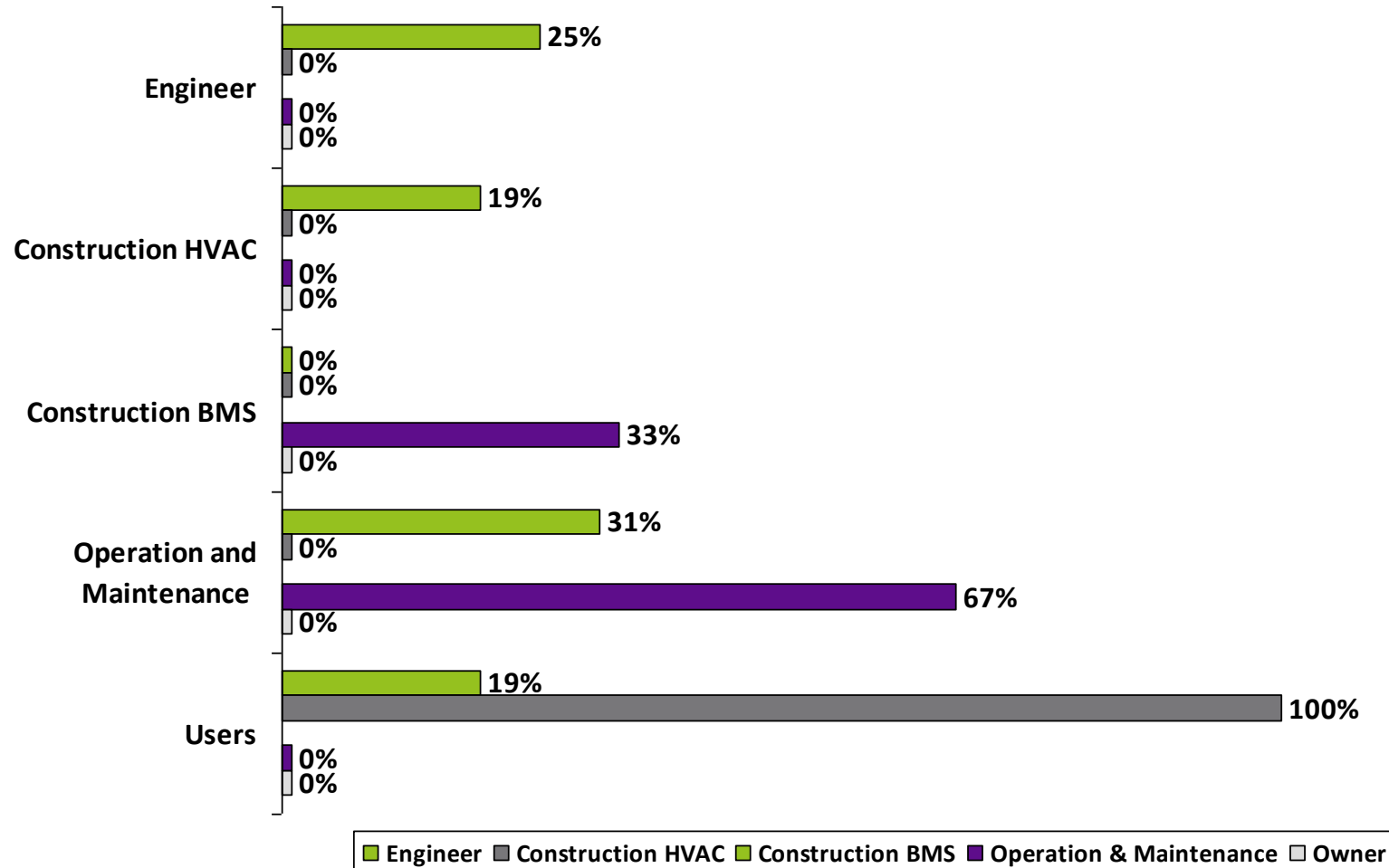
## How much energy is wasted in buildings due to bad quality?



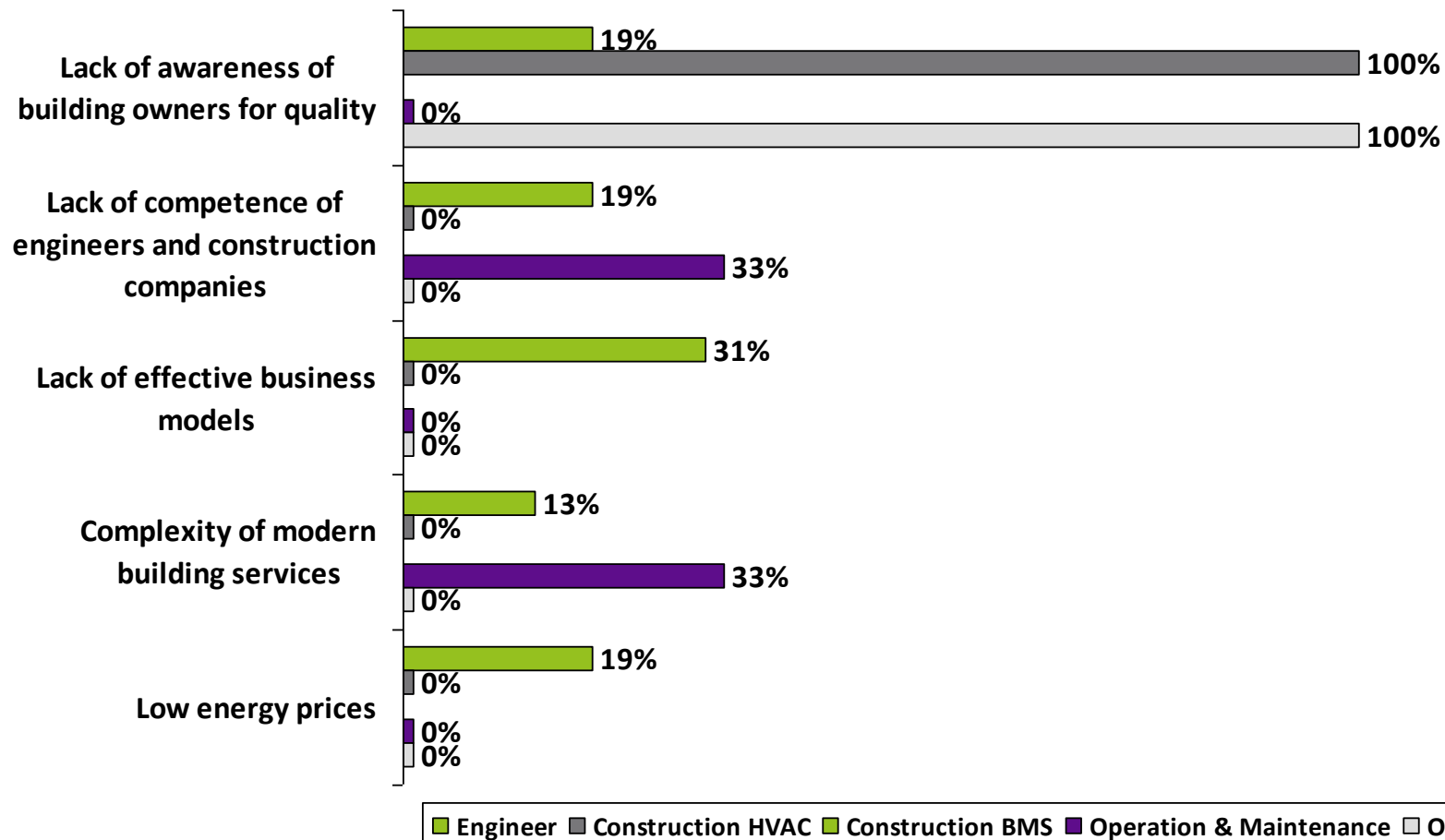
## Which system causes the biggest quality gap with respect to energy efficiency?



## Who is mostly responsible for quality gaps?



## What is the biggest barrier for effective quality management?





Quality management for building performance

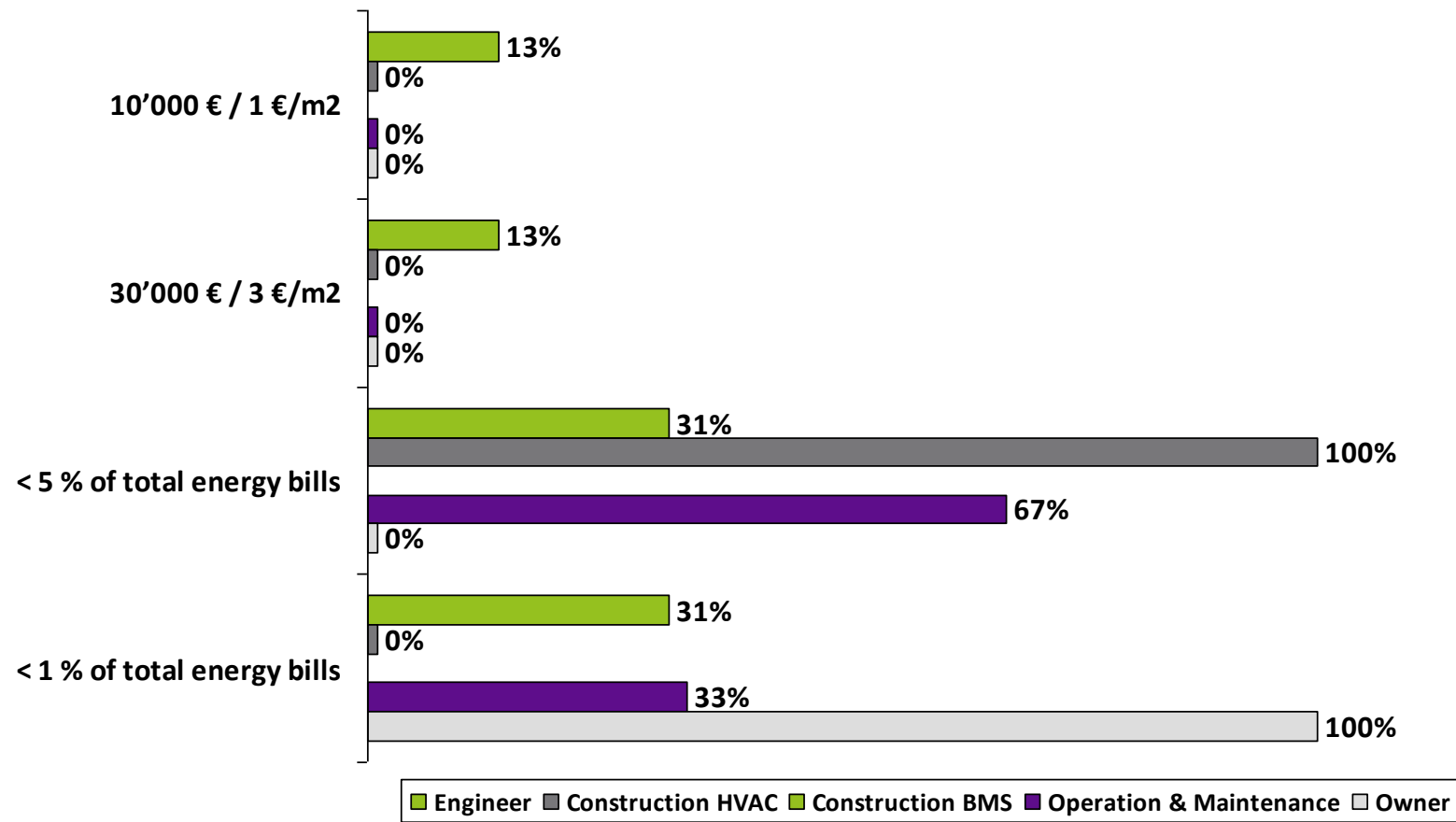
# Energy Monitoring of Buildings: using energy data to obtain measurable energy efficiency

Michele Liziero - EnergyTeam SPA

Questions pool and panel discussion: results

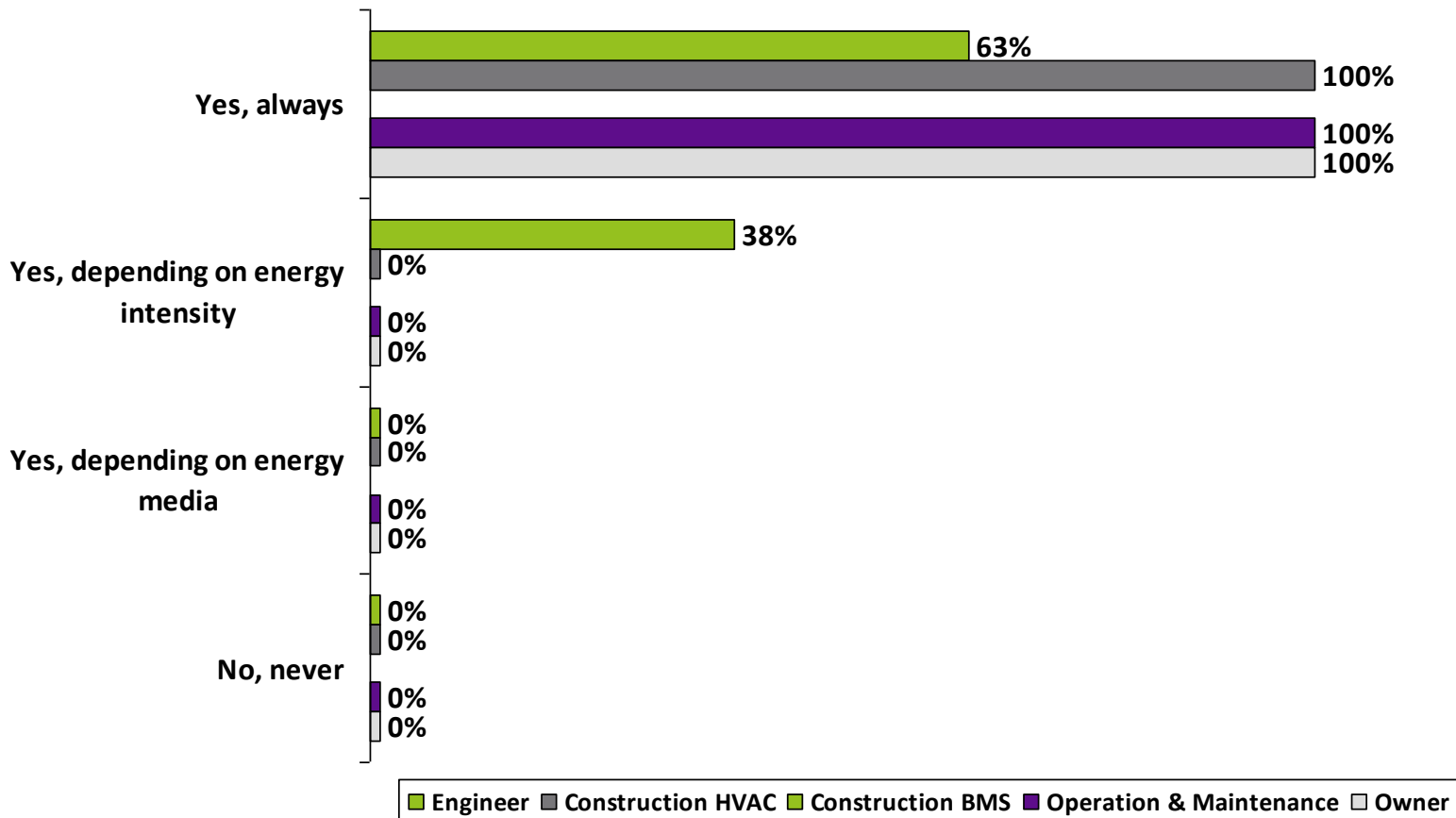


## What's a reasonable cost of energy monitoring system (10'000 m2), considering the benefits?





## Energy Gap solution NEEDS Energy monitoring system for continuous evaluation?





Quality management for building performance

# Energy is not enough: Evaluating indoor environmental qualities with the Comfortmeter

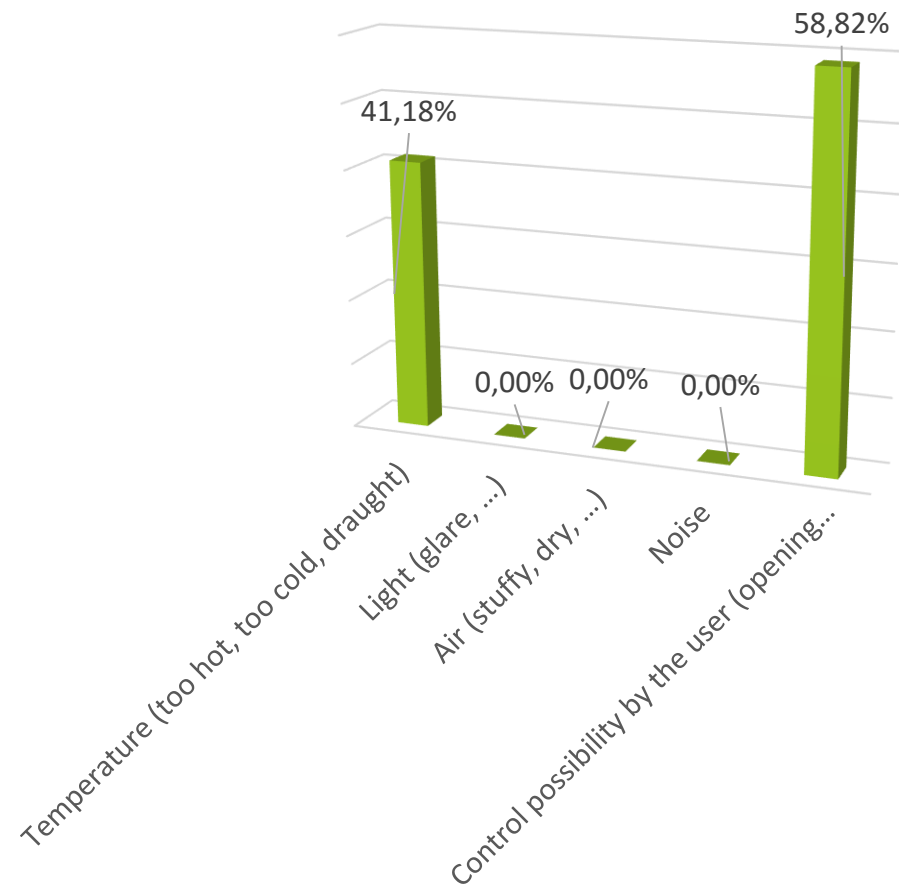
Niels Delaere, Factor4

Questions pool and panel discussion: results

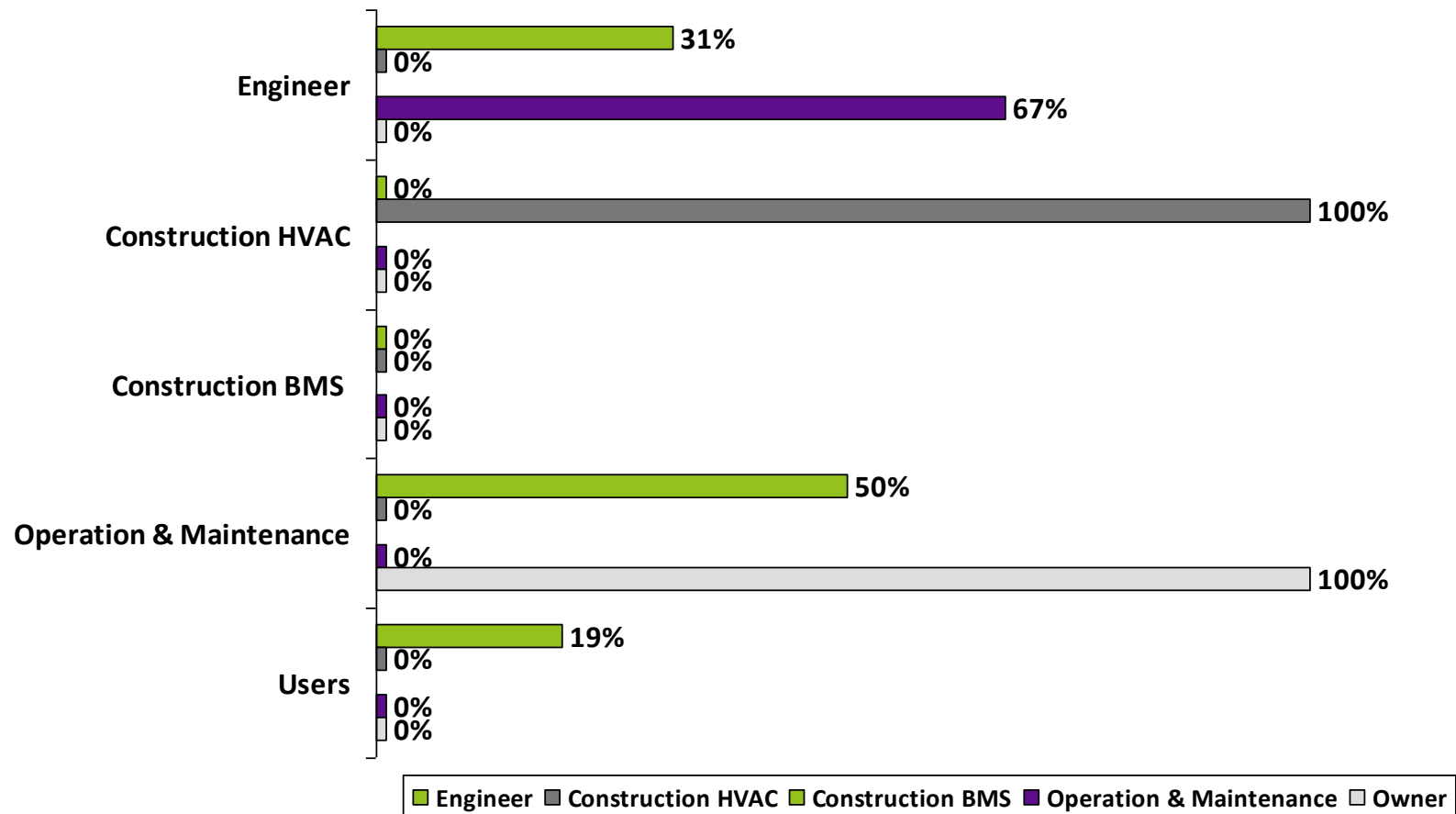


# What bad scoring comfort aspect has the highest impact on the energy gap creation by users?

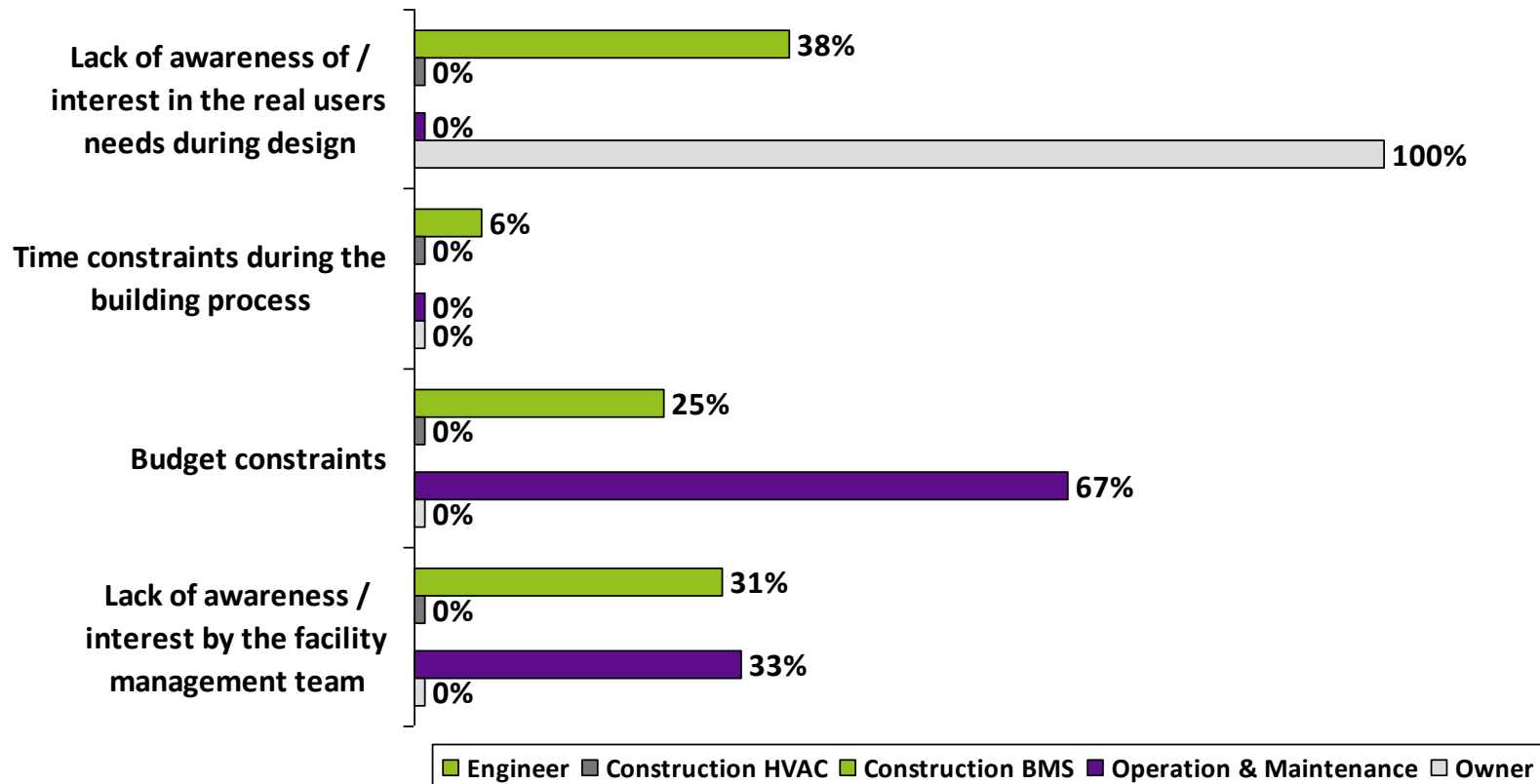
- A. Temperature (too hot, too cold, draught)
- B. Light (glare, ...)
- C. Air (stuffy, dry, ...)
- D. Noise
- E. Control possibility by the user (opening windows, temperature setting, light switches, ...)



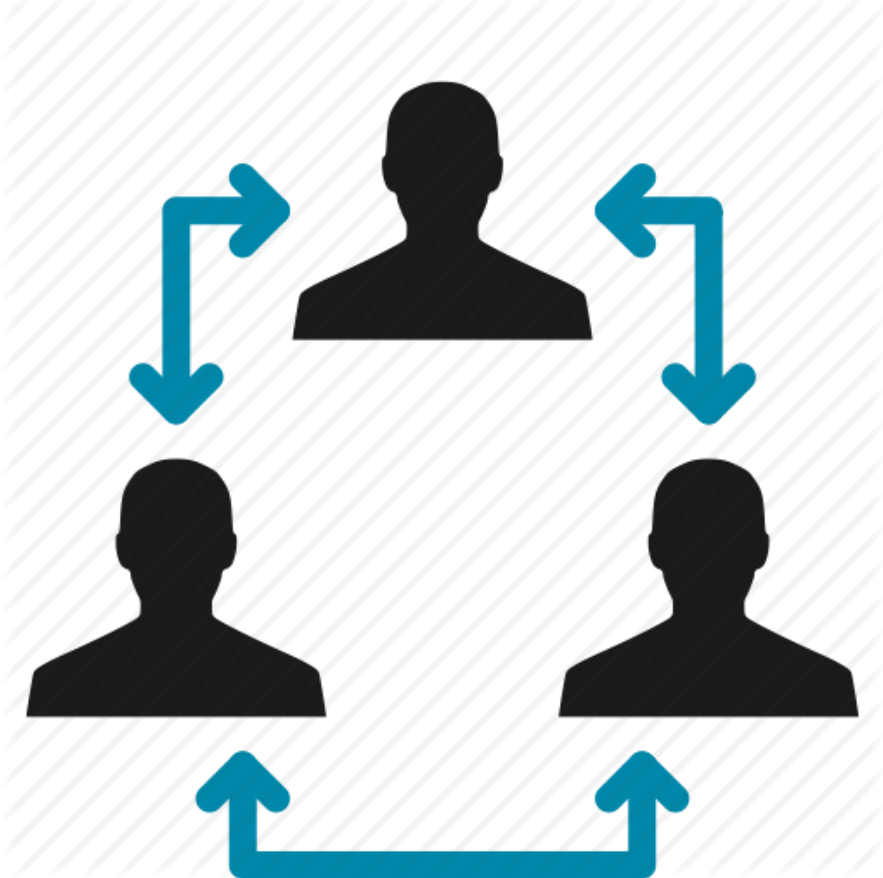
## Who is mostly responsible for quality gap with respect to the comfort of the users?



## What is the biggest barrier for the creation of a comfortable working environment for the building users?



# Start of the panel discussion



# Partners



Quality management for building performance

