ExcEED is an EU-funded project, standing for "European Energy Efficient building district Database". The project aims at establishing a robust and durable return of knowledge mechanism collecting actual buildings' energy performance data and providing information to designers, energy managers and policy-makers. Data will be collected from building managers, public authorities and other European databases and projects. In support of the Database, several tools will be developed, including an Environmental quality tool using Post-Occupancy Evaluation surveys.

Why is Indoor Environmental Quality Critical for Building Occupants?

The indoor environment has a great impact on the health, wellbeing and productivity of occupants, who spend around 90% of their time indoor. According to the World Health Organization (WHO), globally, more than 4 million deaths were attributed to indoor air pollution in 2012, of which almost 100,000 in Europe.

A good Indoor Environmental Quality (IEQ) encompassing air quality, thermal comfort, lighting and acoustics, is a cornerstone to ensure health, comfort, wellbeing and productivity of the building occupants.

Building Occupants: A Valuable Source of Information

Building occupants can provide important feedback on how buildings perform. The way they perceive the indoor environmental conditions can affect their comfort, health, productivity.

Post Occupancy Evaluation (POE) surveys can provide a quick and cost-effective solution in identifying problems in buildings and consequently improve their operation. POE can further create an evidence-base for future building design assumptions by linking building/system design and occupants.

Exceed Contribution

The added value of the Exceed methodology is the combination of the POE survey results with data collected onsite from the Building Management System (BMS).

This will contribute to a deeper analysis of the results by taking into account users' perception of the indoor environmental conditions and the corresponding measured parameters.

Exceed contribution to healthier buildings

September 2018
A CLOSER LOOK AT THE SURVEY

The web-based survey consists of an Indoor Environmental Quality assessment, in which users are asked to evaluate:

- Perceived air quality
- Thermal comfort
- Visual comfort
- Acoustic quality

An additional section of the survey covers building-related health effects: the Sick Building Syndrome (SBS) symptoms such as headache, dry eyes, nose or throat irritation, fatigue, etc.

The ExcEED IEQ survey targets office buildings in the first phase, but it can easily be adapted to different building typologies.

With the aim to create a flexible and robust tool, the survey is based on standardized questionnaires and is built around a set of “core modules” and “optional modules”.

The “core modules” can be easily changed in the way they are expressed depending on the building typology, but at the same time they provide:

- General information, where respondents are asked about their gender, age, education level and employment status in an anonymised way, being compliant with data privacy regulations.

- Occupants’ activity and control over the indoor environment, related to the daily use of the building, the users’ activity and approximate location of the user workplace within the building, in addition to users’ degree of control over the indoor environment.

- Indoor Environmental Quality questions, that cover Indoor Air Quality, thermal, lighting and acoustics environments.

- Clothing information of the respondent.

The “optional modules” contain questions that are related to a specific building typology:

- Sick Building Syndrome (SBS), where respondents are asked to state the frequency of the most typical SBS symptoms experienced while being inside the building.

- Other useful information, investigating the respondents satisfaction with their job.

The tool added value lies in mixing research, onsite measurements and perceived IEQ. This information will benefit a range of stakeholders, while designing the buildings of the future or drafting upcoming policies, and can also help building managers improve the IEQ for the occupants by focusing on what was graded “badly”. As often mentioned, a bad IEQ also having an impact on productivity, companies will benefit from providing a better workplace to their employees.

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SNAPSHOTS FROM THE IEQ TOOL

Questions related to the assessment of the Indoor Air Quality

Questions related to the assessment of the thermal environment

Interaction scheme between the ExEED database, the BMS and the occupants

Structure of the questions related to the Sick Building Syndrome