

**QUALITY MANAGEMENT  
BUILDING EVALUATION SYSTEMS  
POST OCCUPANCY EVALUATION**

BME/BUTE – Faculty of Architecture  
Department of construction technology and  
management

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CM 2  
Building Project Management

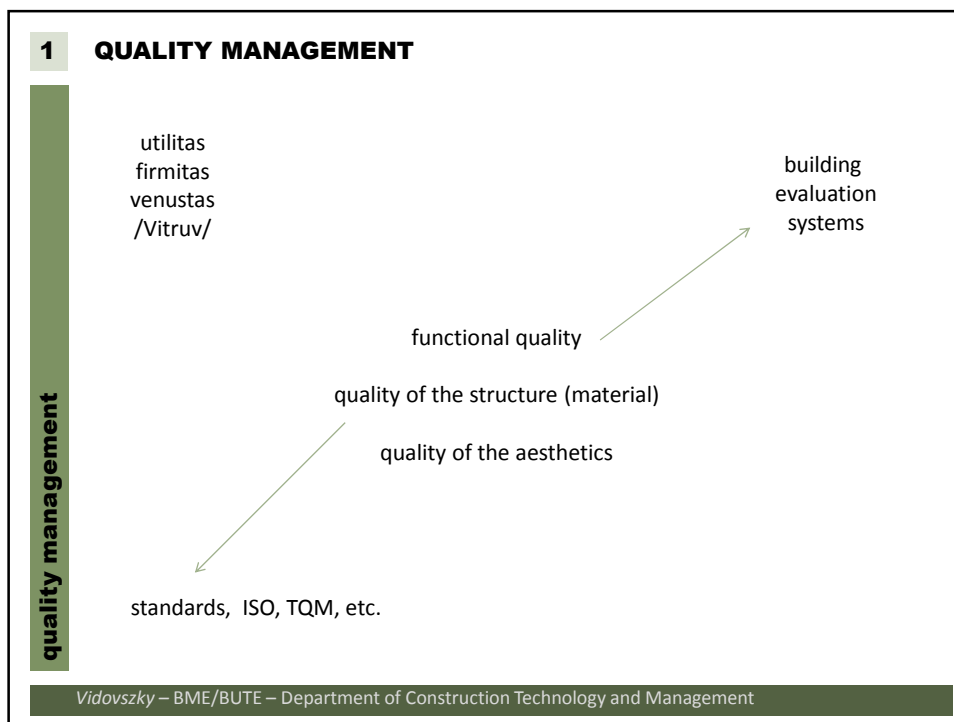
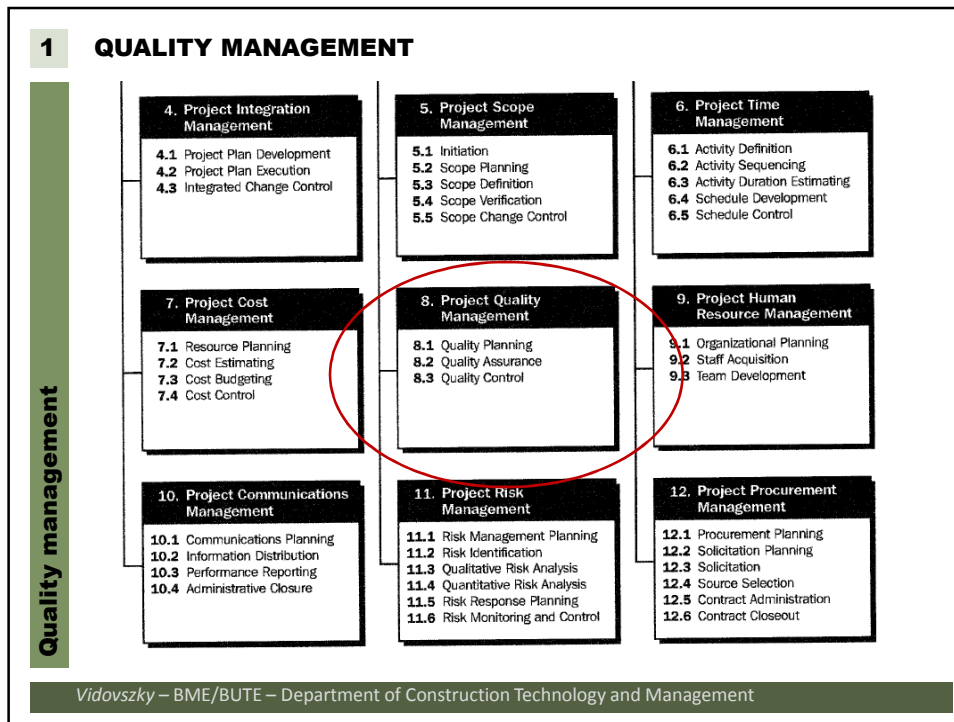
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## 2 BUILDING EVALUATION SYSTEMS

building evaluation

evaluation of buildings

- building performance evaluation
- building in-use assessment
- post occupancy evaluations
- post construction evaluation
- environmental design evaluation
- environmental audit
- facility assessment

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## 2 WHAT IS POST OCCUPANCY EVALUATION (POE)

post occupancy evaluation

evaluation of buildings **in use** with the aspect of the **end-users**:

- **health** safety
- **ergonomics**
- functional **efficiency**
- **environmental** psychology
- **aesthetical** quality
- **satisfaction**

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**2 POST OCCUPANCY EVALUATION (POE)**

post occupancy evaluation

**no standard**ised method

all inspection that is performed  
after the completion of the building is POE

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**2 GENERAL QUESTIONS**

post occupancy evaluation

Does the building **work as** it has **been expected** ?

Are the **claims** of the users the same **as before**?

Are there any **problems** to be promptly solved?

Was the execution process **effective**?

What **experiences** can be noticed for future projects?

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## 2 BUILDING EVALUATION SYSTEMS

post occupancy evaluation

### + functional-technical aspects

thermal comfort

durability

of surfaces  
of equipments  
etc.

indoor air quality

energy consumption

humidity

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## 2 SHORT HISTORY OF POE

post occupancy evaluation

1960-70 evaluation of governmental procurements by researchers in the USA and in Canada, in the UK and in France

1985 Brill et al.: *Using Office Design to Increase Productivity*

after 1985 evaluations in the private sector  
– analyses of the work environment (work efficiency)

1988 POE – as an expression

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**2 AIMS OF THE POE**

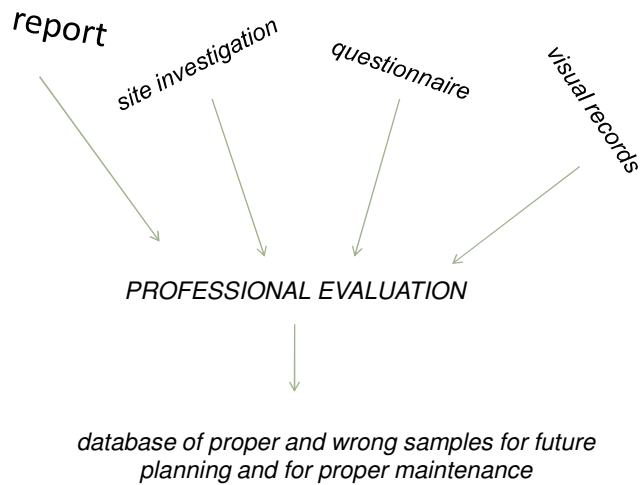
post occupancy evaluation

1. experience for well-functioning future projects
2. Support for effective planning
3. reduction of life-cycle costs of the building

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**2 METHODS AND TOOLS OF POE**

post occupancy evaluation



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## 2 TRADITIONAL METHODS

post occupancy evaluation

- questionnaires
- reports with end-users or other special groups
- workshops
- monitoring of use

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## 2 ADVANCED / MODERN METHODS

post occupancy evaluation

- web applications
- walkthroughs (with groups of users)
- evaluation systems for the analyses of the correspondence of the technical state and functional data

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## 2 METHODS

post occupancy evaluation



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## 2 ADVANTAGES

post occupancy evaluation

short term

- solving prompt problems
- to satisfy the claims of the users
- more efficient use of the facilities (FM)
- more co-operative attitude of the users (get involved)
- support for decision making

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## 2 ADVANTAGES

post occupancy evaluation

mid-term

- evaluation of the existing building stock  
–in case of development of the company
- consideration of the new claims of the possible new users
- defined responsibility of the designers

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## 2 ADVANTAGES

post occupancy evaluation

long-term

- increase the performance of the building in the long run
- evolution of the quality of designing buildings
- database for strategic decisions

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## 2 THE TYPES OF POE

post occupancy evaluation

- **Fast survey** – rapid, superficial, (e.g. some ad-hoc report + site investigation)
- **Detailed, revealing investigation** – more substantial, with more reliable results (e.g. questionnaire + report with target groups)
- **Diagnostic analyses** – substantial, based on both technical characteristics and the reactions of the users, involves building performance analyses as well

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## 2 THE TYPES OF POE

post occupancy evaluation

- **Procedure-based** – analyses of the construction procedure or the maintenance procedure
- **Technical performance based** – building installation systems, acoustics, illumination, environmental-impacts, CO2 emission, water consumption, energy consumption, maintenance requirements, etc.
- **Functional performance based** – strategic value, aesthetics, space, comfort, services, equipment, use, maintenance costs, life-cycle costs

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## 2 THE PARTICIPANTS OF POE

post occupancy evaluation

Involved participants

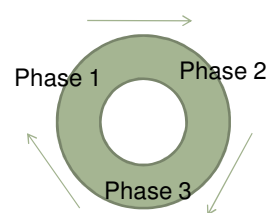
- The **staff** of the POE (asking):
  - maintainers – architects
  - psychologists – environmental psychology
  - sociologists – How to ask?
  - mathematicians– statistics
 How many and what kind of experts are required?
- The **users** of the building (answering ):
  - What groups have to be asked? (primary users, secondary users, guests, etc.)
  - How many people? Individuals or groups of people?
  - How and when the asked people to be found?

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## 2 THE PROCESS OF POE

post occupancy evaluation

- Phase 1: Planning – preparation phase  
(parameters, time, cost, requirement of professionals, methods for collecting data)
  - 1. investigation, feasibility
  - 2. planning of resources
  - 3. planning of research
- Phase 2: Execution – the study
  - 4. collecting data on site
  - 5. controlling the collecting activity
  - 6. analyses of data
- Phase 3: use of the results – problems and possible solutions  
(data for new evaluation)
  - 7. report on the results
  - 8. proposals
  - 9. summary of results



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**2 CONTENT OF A POE**

post occupancy evaluation

A: definition of the project

- A.1 – denomination – (location, type, etc.)
- A.2 – aims, priorities
- A.3 – scope (time, cost)
- A.4 – participants (investors, consultants, etc.)
- A.5 – other concerned groups (authorities, media, NGO-s, neighbors, etc.)
- A.6 – procedures – project schedule

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**2 CONTENT OF A POE**

post occupancy evaluation

B: Goals, means, resources, environment

- B.1 – Project management – participants, relations, quality control
- B.2 – Legal questions, standards – regulations concerning, the building, the use, the users,
- B.3 – Cost and time limits – finance, budget, schedule
- B.4 – Background and history – history of the project, previous or current analyses
- B.5 – Building, plot, environment – berth, infrastructure, buildings etc.
- B.6 – Future enterprise of the client– goals of the organization, strategies
- B.7 – Future use – organization, relations, users, activities, expectable changes
- B.8 – Aims of the project – expected effects, performance, use

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**2 CONTENT OF A POE**

post occupancy evaluation

**C: Requirements of the building – performance, use**

C.1 – Plot and environment – special connections, protection, connection to traffic safety infrastructure, urban zones, etc.

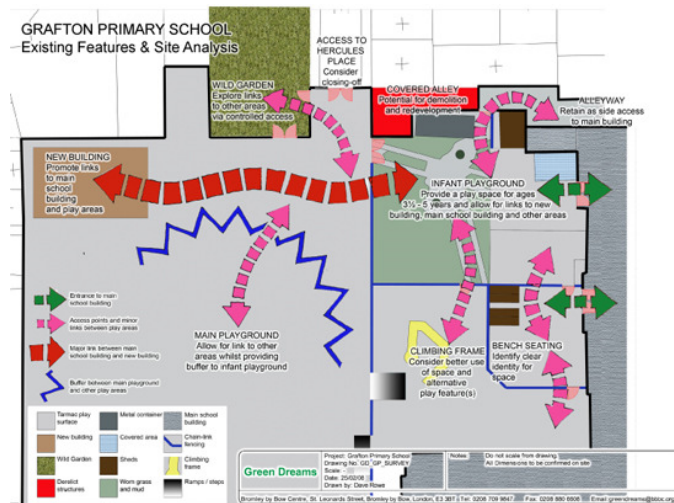
C.2 – Building – physical characteristics, traffic in the building, safety, environmental strategy, installation and comfort, communication, IT, appearance, pieces of art, maintenance

C.3 – Performance of the building structures – load bearing structures, partitions, inner architecture

**2 SAMPLES**

post occupancy evaluation

traffic analyses



**2 SAMPLES**

passageway matrix

**post occupancy evaluation**

Main Entertaining Area	Outdoor Kitchen	●
	Main Dining	
Casual Gathering Area	Fire Pit/Conversation	●●
	Casual/Game Table	
	Intimate Seating	
Pool Area	Pool	●●●●●●●●
	Spa	
	Pool Cabana	
	Pool Lounging/Sunning	
	Pool Bar/Kitchen	
	Pool Table Seating	
	Pool Equipment	

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**2 SAMPLES**

**post occupancy evaluation**

1. evaluation of quality – involving the users

↓ ↓ ↓

2. report/publication on experiences for investors

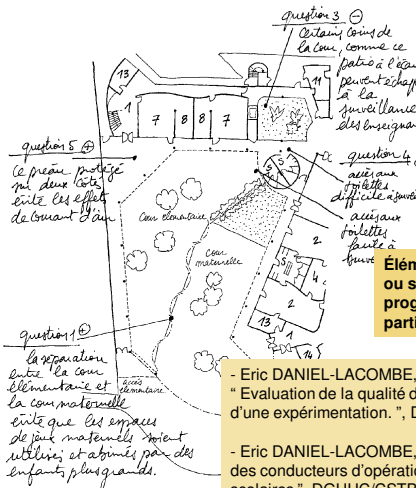
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**2 SAMPLES**

post occupancy evaluation

5. L'espace de jeux surveillés

Analyse critique



5. L'espace de jeux surveillés

Lecture critique d'un plan : liste des questions  
 (Cette liste n'est pas exhaustive et reste ouverte à toute suggestion)

1. Les espaces de jeux des classes maternelles risquent-ils d'être utilisés et abîmés par des enfants plus grands ?
2. Les cours de récréation élémentaire rendent-elles les jeux calmes difficiles ?
3. Certains coins des cours de récréation pourraient-ils échapper à toute surveillance ?
4. Les accès des toilettes sont-ils faciles à surveiller depuis la cour ?
5. Les préaux pourraient-ils être des abris à courant d'air protégeant mal de la pluie les jours de vent ?
6. Des activités pédagogiques dans les espaces extérieurs sont-elles une source de gêne pour les classes ?
7. Les enfants sont-ils poussés à se dépenser dans la cour sans arrêt après le repas ?

Éléments de méthode communs ou spécifiques aux démarches de programmation génératives et participatives

- Eric DANIEL-LACOMBE, en collaboration avec Michel CONAN, "Evaluation de la qualité d'usage des groupes scolaires. Morceaux choisis d'une expérimentation.", DGUHC, 1998.

- Eric DANIEL-LACOMBE, Jodelle ZETLAOUI, "Pratiques de programmation des conducteurs d'opération dans le cadre de la réalisation de groupes scolaires", DGUHC/CSTB, 1998.

Les numéros associés aux symboles (1) ou (2) figurant sur les plans de l'analyse critique renvoient aux questions ci-dessus.

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**2 SAMPLES**

post occupancy evaluation



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references