



# Post Occupancy Evaluation: a way of improving your building and organizational performance

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Presenters:

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# Overview of presentation

- Introduction; Why don't we see more POE's?
- Reasons for a POE
- Experiences so far with POE's in the Netherlands
  
- Case of Erasmus University Medical Centre
  - Background Erasmus MC
  - Goals of Pre/Post Occupancy Evaluation
  - Planning & execution of POE
  - Interpreting expected results
  
- Interactive discussion



Photo: Archive Martini Ziekenhuis



## Introduction

Why don't we see more POE's (in The Netherlands)?

- Few healthcare organisations & architects are interested in their mistakes during the design phase!
- Don't know how to make use of POE for their own benefit
- Difficult to organize (pre-occupied with the realisation of the new building or patients/clients are found to be too "challenging")
- Key people leave after completion of new building
- No standardized questionnaire /methodology; design aspects change for each design
- Learning can occur; but can it be used again by the same client?
- Lessons learned are not easy to access...



## Reasons for a POE

Measuring the “performance” of buildings can be used for many and versatile reasons:

- It contributes to the optimisation of the building (after handover); Which alterations should be considered to improve building & organisational performance.
- It is a learning process; The client should learn from critical design decisions that have been taken, to improve (future) decision making.
- It is a way of publicly carrying responsibility by decision makers about investment decisions made (have they worked?).
- Improving acceptance for end users of design decisions by involving them in their old and new working environment; Not handing over the new building as a black box, but by allowing them to question design decisions and effects; a POE is used to get the users involved.
- To enable others to learn from experiences. (that's why we are here!)



## Typical POE's

### POE of Martini Hospital - Groningen (1/2)

Pre & post occupancy evaluation (held in 2007 & 2009)  
carried out by Fiona de Vos

Main conclusions (old versus new building, total no of surveys 1,067):

- The airy, colorful and bright building helped to reduce experienced stress in patients
- Staff not entirely satisfied with new hospital building, specifically facilities

Source: Summary Study Healing Environment Martini Ziekenhuis, F. de Vos PhD)



POE was funded  
through an additional  
budget  
& made possible by  
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## POE of nursing home Zonnehuis Zwolle (2/2)

- › Newly built nursing home for 160 elderly (somatic + geriatric)
- › Combination of detailed analysis of plans, with interviews of key stakeholders (5) and additional survey of staff, volunteers, patients & other stakeholders (totalling 420 persons or 68% response rate)



Key results: satisfied users  
but could be improved on



Strong points:

- Central area with facilities (grand café) appreciated best by patients
- Architecture appreciated by staff

Possibilities for Improvement:

- Homelikeliness of geriatric units
- Orientation & routing
- Outdoor spaces
- HVAC





## Key enablers

- › Innovative and open minded healthcare organisations (with critical researchers employed)
- › Not afraid of negative outcomes
- › Create trust and allow time to get stakeholders involved (including patients representation bodies)
- › Carry it out professionally (it is hard work, but can be worthwhile if done properly)
- › Share the outcomes and learn from the results





# Different Pre-occupancy evaluation: Preference of (future) Patients (N=229)

Attribute	Most preferred hospital environment	Least preferred hospital environment
Room Type	<b>Single Bedroom</b>	<b>Multibed room (4 or more people)</b>
Interior style	Homelike	Functional
View	Landscape	Open-urban
Sanitary facilities	Toilet separated from bathroom with room access	Toilet in bathroom with access on the hallway
Room placement	Not close, but not far from general room	Quiet place at a distance from general room
Observation by staff	Ability to close or open door and choose kind of observation: on distance or by entering the room	Door open: observation on distance
Choice for food	<b>Narrowed down choice for food at restricted times</b>	<b>24 hours a day free choice upon payment</b>
Climate control	Control over fresh air and temperature (-2 °C / +2 °C)	Control over fresh air
Access to nature	Access to courtyard and garden	Access to garden
Private discussion space	Private discussion room on ward and space in patient room	Private discussion only in room
Access to media	<b>Media access from bedside (TV, internet, radio)</b>	<b>Media access in dayroom (TV, internet, radio)</b>
Market share % Total group	<b>94.70</b>	<b>5.30</b>



# Pre and Post Occupancy Evaluation Erasmus MC

## Why

- Full attention for technical & functional design and healing environment
- In 2013 first phase completed and occupied (primarily staff)
- How is the first phase experienced; does it function as anticipated and what can we learn for phase 2?

## Goal

- Optimize Phase 1 and learn for Phase 2
- As project team; be responsible and tell your boss and organisations how well you did!
- Try to increase acceptance of Phase 1

## Key Questions

- How is it experienced
- Does the new building contribute to well-being comfort and safety ?
- Does the new building help to create a better 'learning environment'
- Is the new building more sustainable



## Introducing the project at Erasmus University Medical Center, Rotterdam

*Largest of 8 UMC's in the Netherlands, approx 13.000 employed*

- 1998 concept for a patient focused & sustainable hospital plan
- 2000 proposal to the government
- 2003 first approval by government
- 2005 technical program of requirements
- 2006 overall spatial program of requirements
- 2007 approval for the project (government & council)
- 2008 commissioning of the total project (shell and interior)
- 2009 contracting & starting work
- 2013 phase 1 ready and partially in use
- 2017 phase 1 & 2 finished and in use
- 2018 removal of old & empty buildings on the site



## Exceptional size

- › 185.000 sqm
- › 390 private patient rooms
- › 19 operating theaters
- › 12 vaults for radiotherapy
- › 7 MRI's, 8 CT's
- › 15.000 sqm in public spaces, connecting existing and new buildings on campus





## Research orientation throughout the project

- › 100 % private patient rooms:
  - As a concept on a pilot ward
  - Full scale model
  - Study of bathroom dimensions
  
- › OR configuration / instrument preparation room
  
  
- › ICU – equipment within the room lay-out
  
  
- › Patient experience & healing environment





## Emphasis in design on

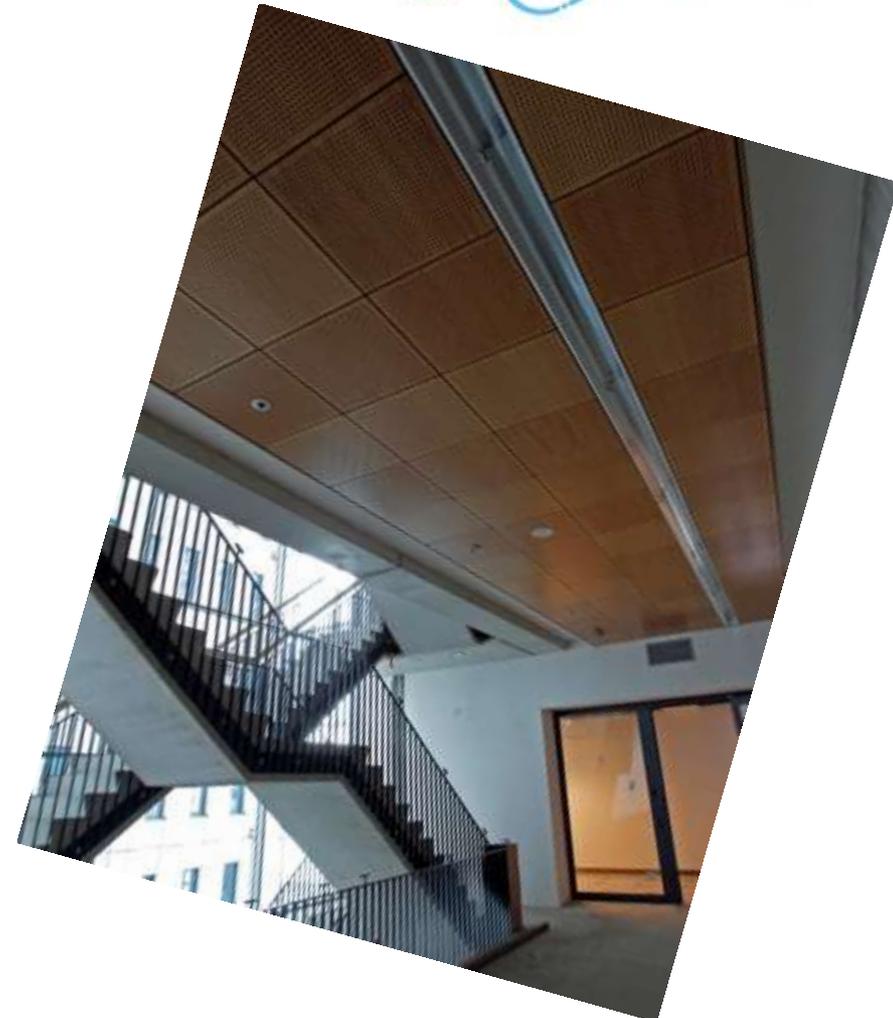
Wayfinding and orientation  
(reducing stress)

Access of daylight  
(inviting people to use stairs)

Safety in work conditions  
(HVAC and classification for  
laboratories)

Autonomy  
(private patient rooms, ability to  
open windows, adjust  
temperature)

Flexibility / adaptability for  
future use





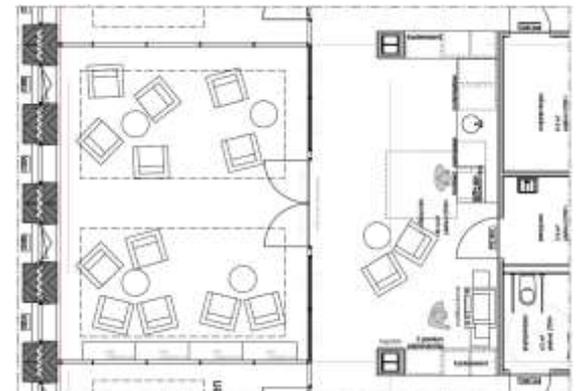
# Emphasis in design on

Keeping a human scale within  
the complex

Access to nature

Learning environment

Places to meet and interact





## Laboratories before and after





## Patient waiting area in Phase 1





## Does the new building improve: experienced safety, comfort and well-being or shared working?

Approach:

- › Two-yearly staff questionnaire is enlarged with a POE questionnaire
- › Focus is how users **experience** their working environment
- › Themes in questionnaire:
  - › Safety & Well-being
  - › Work Environment / Work Performance / Knowledge Sharing
  - › Commitment; proud to work for Erasmus MC
  - › Orientation /Routing; walking distances
  - › Facilities & Amenities
- › From different source additional data is used



# Combination of functional & organisational performance of Phase 1

Summary: Erasmus POE is used to:

- › Challenge key design decisions (have they worked)
- › Get insight in technical & operational performance of new building
- › Involve users of the building through the different design stages; this creates in turn higher acceptance of new working environment, more organisational commitment.



## Discussion

- › How to make the most of a POE in terms of learning
- › What value can be derived from such a multi-fractional change analysis
- › Who has a willingness to pay for the lessons learned from a POE, when building a new facility is often a once in a lifetime occurrence
- › Should we go for a standardized methodology or does it have to be tailored based on the early design decisions



**Thank You!**



More info: see [www.erasmusmc.nl/nieuwbouw](http://www.erasmusmc.nl/nieuwbouw)  
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