Meeting Dutch FM researchers/students

13.20-13.30: **Mark Mobach, Ph.D.,** Hanze UAS, The Hague UAS, Wageningen UR, moderator intro


Break

15.00-15.25: **Joop van Duren, Ph.D.,** Zuyd UAS, “Facility Management; Focusing on Facility Control”

Building management for a good indoor climate and low energy use

Frans Joosstens & Laure Itard
Lectorate Energy & the Built Environment
The Hague/ Delft  The Netherlands
Introduction

- Problem analyses and research questions
- Factors for satisfaction or complains with the indoor climate
- Focus on experience and expectations
- Solutions
- Conclusions
Background

- 70% of the building users are dissatisfied with the indoor climate
- This low satisfaction and a poor quality of the indoor decreases the productivity of building users up to 15%
- By a moderate to poor indoor air quality absenteeism increases up to 5%
- After commissioning the HVAC systems use up to 30% too much energy as expected

This applies to both existing buildings and for new buildings. This has been going on for years and years and there is little improvement.
The research question is therefore:

*How much coordination is needed between facility manager and technical manager for a good indoor climate and low energy use?*

The research, done by some hundred students of The Hague University of Applied Science, has shown that:

- Facility Managers have delegate too much of their own responsibility in relation to the functional operation of HVAC systems to the Technical Manager.
- This is due to their lack of knowledge and little affinity with technical systems.
- Technical Managers do not communicate with building users.
Complaints indoor climate

- Headache, "heavy head"
- Unusual fatigue
- Irritated or burning eyes
- Throat irritation or dry throat
- Runny or stuffy nose
- Dry or irritated skin
- Too hot (summer)
- Too cold (in winter)
- Air draft
- Dry or dusty air
- Stuffy, stale, moldy or smelliness air
Perception factors indoor (offices, etc.)

(Atze Boerstra, Peter Coffeng, Steve van der Minne en Peter Scheers, 2008)

- General and local thermal comfort, (chill, feel comfortable)
- Air quality
- Possibilities to influence the indoor climate
- Acceptance opportunities, expectations
"Killer variables" for productivity in buildings
(Leaman & Bordass, 2000)

Factors that determine whether a particular indoor experiences is “well and pleasant” or “bad and unpleasant”:

1. Personal checks:
   - operable windows,
   - temperature influence
2. Responsiveness
3. Building depth
4. Workplace / group size

<table>
<thead>
<tr>
<th>Klasse</th>
<th>PPD</th>
<th>PMV</th>
<th>Operatieve temperatuur</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Zomer (koelseizoen)</td>
</tr>
<tr>
<td>A+</td>
<td>± 0 %</td>
<td>PMV = ± 0</td>
<td>Handmatig instelbaar tussen ca. 19 en 27 °C</td>
</tr>
<tr>
<td>A</td>
<td>&lt; 6 %</td>
<td>- 0,2 &lt; PMV &lt; + 0,2</td>
<td>23,5 - 25,5 °C</td>
</tr>
<tr>
<td>B</td>
<td>&lt; 10 %</td>
<td>- 0,5 &lt; PMV &lt; + 0,5</td>
<td>23,0 - 26,0 °C</td>
</tr>
<tr>
<td>C</td>
<td>&lt; 15 %</td>
<td>- 0,7 &lt; PMV &lt; + 0,7</td>
<td>22,0 - 27,0 °C</td>
</tr>
</tbody>
</table>

(PPD = Predicted Percentage of Dissatisfied, PMV = Predicted Mean Vote)
Productivity

Factors affecting job performance in the office

- personality
- professionalism
- personal situation
- ....

Personal Factors

Social Factors

- level of prosperity
- national 'working ethics'
- Local professionalism'
- ....

Organisational Factors

- Organizational structure
- Corporate culture
- Leadership style
- Relationship with colleagues
- Rewarding (structure)
- ....

PRODUCTIVITY

working means, working surroundings

Quality production resources (eg. PC)
- Ergonomics furniture
- Space usage
- Thermal indoor
- Air Quality
- noise / acoustics
- Artificial lighting / daylight
- ....

Source: ir. A.C. Boerstra, BBA Binnenmilieu
Performance & temperature
Performance & individual control

- Old building: 0.96
- New building: 1.04 (4.3% increase)
- New building + individual control: 1.11 (7.1% increase)
Learning performance & air quality

Results TNO:
Effect is strongest for arithmetic/maths
With demand controlled ventilation 6% fewer errors for language test and 23% fewer errors for the mathematics tests
Solutions

Coordination on the **users experience** of the indoor by:

- **Client Management** (requirements, wishes, expectations, complaints, information)
- **Product Management** (supplier, technical management, installations)
- Use of **Performance contracts** using KPI’s
- Performance Level Agreements between FM and clients
- **Monitoring** technical & functional operation and users experience (BMS and monitoring dashboard)
Answer to the research question

The Facility Manager must be completely “in charge” of the indoor, what means that:

- He is analyzing regularly the complaints registration
- He hold annually customer satisfaction surveys, and act on the outcomes
- He gives feedback to building users, technical management and suppliers
- The Facility Management is a pivot for improvements
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The Quality and Experience of the Indoor Climate within Professional Office Buildings

Comfort Index Professional Office Buildings

F. Joosstens MSc, The Haque UAS
H.W. Brink MSc, M.P. Mobach Ph.D, M. Slijkhuis Ph.D, Hanze UAS
• Senior teacher/researcher Research Group Facility Management
• School of Facility Management /over 1000 students
• Research Group Facility Management Facility Management is part of The Centre of Applied Research and Innovation for NoorderRuimte Area Development
For some time research has been carried out by Hanze UAS and The Hague UAS.

Measuring instrument is under development (final phase).

Create an index that quantifies the differences and similarities between real and perceived comfort levels in offices.

Involvement of students.
• This year more than 500 students are involved
• First results will be published late 2015
Experiences

- A lot of information is collected
- Students do (often) first "real" research
- Focus on reliability and validity of the collected data
- Organization of research takes time
- Participating organizations will get free valuable information
- Participation in the research program is not optional
Future

• Who wants to join us?
• Information available EN/NL
• Total costs instruments € 260
• Online tool available

EuroFM/FM-ReNN, Februari 12, 2015
Hanze University of Applied Sciences
Professorship Facility Management
H.W. Brink MSc
00-31-657326712
Sustainable business models: Research agenda

@ EuroFM/FMReNN meeting

Frans Melissen
3 topics

1. Who is Frans Melissen?

2. What is NHTV doing and aiming for?

3. Sustainable business models: focus
Frans

• 43, Dutch, girlfriend, golfer, zoo enthusiast
• MSc (Dutch: Ir.)
  – Industrial Engineering and Management Science
  – Specialization: Organizational Psychology (!?)
  – @ Eindhoven University of Technology
• Student counsellor
• PhD
  – Collection system for consumer electronics
  – Focus point: Behavior influencing measures
  – @ Eindhoven University of Technology
Frans

• Career in academia:
  – Eindhoven University of Technology (10 years)
    • Lecturer, researcher, students counselor
  – University of Groningen (3 years)
    • Assistant professor
  – NHTV Breda University of Technology
    • Senior Lecturer/Researcher (5 years)
    • Research Manager/Management Team (3 years)
    • Professor of Sustainable Business Models (~2 months)
Frans

• Active (applied) researcher and a bit of an activist
NHTV

• Five academies, 7000 students, 700 staff
• Academy for Hotel and Facility Management:
  – 1100 students (a bit more HM than FM)
  – 80 staff member
  – 10-15 active researchers (publications and $)
  – 3 Professors (of Applied Sciences)
    • Roy Wood (HM)
    • Bernard Drion (FM)
    • Frans Melissen (Sustainable Business Models HM + FM)
NHTV - HFM

• Track record:
  – Our number of publications has grown tremendously over the last years
  – We generate more money than anticipated, based on market-funded applied research
  – Not (very) successful (yet) in subsidies, such as EU
  – Diversity of topics and types of publications
NHTV – HFM: more focus

• Three main research lines for coming years:
  1. Sustainable business models
  2. Hospitality experiences and consumer behavior
     • Experience benchmarking
     • Guest journey design (current funded project in FM!)
     • Perceptions of hospital food
  3. Educational scholarship; HM and FM
     • Text books
     • Revenue Management – executive courses
     • Guest loyalty – executive courses
     • PhD’s
HFM - Sustainable business models

- Frans, Ko, Jörn, Maartje, Lieke and ...
- Link with other professorships at NHTV
  - Tourism/transport
  - Logistics, urban development
  - Ethics/CSR
- Link with CELTH – taskforce sustainability
- Hotel/Hospitality and Facility Management
- Academic and applied research
Business models based on the realization that breaking the social dilemma requires business models that move beyond accounting for the Triple Bottom Line (PPP) and Corporate Social Responsibility. Sustainable business models involve concepts like:

- Sharing Economy
- Sustainable Cities
- Social Innovation
- Ethics

**1st wave:**
'license to operate' now

**2nd wave:**
'second wave' sustainable business models

creating a *long-term* ‘license to operate’

Additional concepts include:

- Honor?
- Morality?
- Trust?
- Virtues?

- connection
- communication
- consciousness

Business models need to focus on virtues such as:

- Honor?
- Morality?
- Trust?
- Virtues?

The diagram illustrates the transition from one wave to the other, emphasizing the importance of connection, communication, and consciousness in creating sustainable business models.
Sustainable business model - FM

• Some first FM specific ideas:
  – Moving beyond labels, certification schemes!
  – Moving beyond recycling and saving energy:
    • Servitization
    • Sharing economy principles
  – Added value FM for sustainable development:
    • Building trust, commitment, social cohesion
    • Communication
    • Lessons for other sectors/industries

• Very interested in collaboration:
  melissen.f@nhtv.nl
Captured versus Capturing
The influence of Facility management on detainees

Rachel Kuijlenburg,
The Hague University of Applied Sciences,
Hanze University of Applied Sciences
School for Facility Management
Lectoraat for Facility Management
r.kuijlenburg@hhs.nl
Captivated!
Research shows that well-considered facility designs have a positive influence on behavior and wellbeing of detainees.

Dutch prison building design focuses mainly on safety for society expressed in confinement and the prevention of escape BUT there is more attention for the facility design at this moment.
Professorship Facility Management: from March 1th 2015

Facility Management

• contributes
• to the aims of stakeholders
• by creating, maintaining and operating
• ‘fit for use’
• environments and support services
• through the integration of
• people, space, processes and technology
Actually it’s about.....

• Facility
• Real
• Estate
• Management

FREM
Some first thoughts......

• About Facility Control

• About research topics

• About general approach
Facility Control

- Business
  - Mission, Vision Strategy
- Control
- Facility Operation

To aim

Arrange

Perform
Facility Control

- Business: Mission, vision, strategy
- Control: FREM Policy
- Facility Operation:

To aim

Arrange

Perform
Facility Control

To aim
- Mission, Vision, Strategy
- FREM Policy
- FREM Support

Arrange

Perform
Facility Control

To aim
- Mission, Vision, Strategy
- Frem Policy
- Frem Support

Arrange
- Business and Process design

Perform
Facility Control

**To aim**
- Mission, Vision, Strategy

**Arrange**
- Business and Process design

**Business**
- To aim:
  - Mission, Vision, Strategy

**Control**
- Arrange:
  - Business and Process design
  - Creating Control function

**Facility Operation**
- Perform:
  - FREM Policy
  - FREM Support
Facility Control

To aim
- Mission, vision, and strategy
- Frem Policy
- Frem Support

Arrange
- Business and process design
- Creating control function
- Creating support services

Perform
Facility Control

- Business
  - Mission, Vision Strategy
  - Business and Process design
  - Management of going business

- Control
  - FREM Policy
  - Creating Control function

- Facility Operation
  - FREM Support
  - Creating Support services
Facility Control

To aim
- Mission, Vision Strategy
- Business and Process design
- Management of going business

Arrange
- Business
- Control
- Facility Operation

Perform
- Controlling and matching demands and deliveries
- FREM Support
- Creating Support services
- Creating Control function
- FREM Policy
Facility Control

To aim
- Mission, Vision, Strategy

Arrange
- Business and Process design

Perform
- Management of going business

Business
- Controlling and matching demands and deliveries

Control
- Creating Control function

Facility Operation
- Creating Support services
- Operational management of support

Policy
- FREM Policy

Support
- FREM Support
Facility Control

Business
- Mission, Vision, Strategy
- Business and Process design
- Management of going business

Demand
- Control
- Creating Control function
- Controlling and matching demands and deliveries

Supply
- Facility Operation
- Frem Policy
- Creating Support services

Delivery
- Frem Support
- Operational management of support
Research Area’s.....

• Actual challenges for our region
• Matching with Zuyd’s strategic topics:
  – Sustainable built environment
  – Innovative Technology & Care
  – New materials/life science
• A lot of different stakeholders and interests
• A lack of control
Research Area 1

• **Vacancy in real estate**
  – Health care
  – Shops
  – Offices
  – Churches
  – Social Real Estate

• **Accent:** Shrinkage region Southern Limburg
Research Area 2

• Liveability in neighbourhoods
  – Decreasing levels of facilities
  – Aged people living at home
  – Care services at home
  – Neighbourhood portals
  – Domotica
  – Durable houses
  – Community initiatives
  – Improving cooperation
Way of working

• A broad research group
• Broad cooperation
  – Within Zuyd
  – With municipalities, care organisations, real estate owners, service organisation, volunteers, corporations for social housing, construction industry
  – With other professorships
Some more ingredients

• Value based procurement
• Relational contracting (in stead of classical contracts)
• Involvement of all stakeholders
• Developing new economical models
• Multi and interdisciplinary approach
Thanks.....

• For your attention
• For your feedback
• For your ideas

Contact: joop.vanduren@zuyd.nl
Experiencing hospitality

Preliminary results of a qualitative study on the experience of hospitality in service environments

FM–ReNN/EuroFM
12 februari 2015

Ruth Pijls
Saxion Research Centre Hospitality

saxion.edu
Central question

• What do people experience when they experience 'hospitality'?
  – Consumer perspective
  – Service context

• Hospitality, sensory perception & technology
Questions or suggestions?

Thank you!

Contact • Ruth Pijls • r.pijls@saxion.nl • 06 30408335 • PijlsR