RE-CONCEPTUALIZE SHOPPING MALLS
from consumerism to energy conservation

EUROPEAN SHOPPING MALLS INEFFECTIVENESS
Defining shopping malls demands and retrofiting potential

WHAT IS A SHOPPING MALL?
An arrangement of one or more retail buildings comprising business units and "communal" areas which are planned and managed as a single entity related in its location, size and type of shops to the trade area that it serves.

WHY IDENTIFY SHOPPING MALL INEFFECTIVENESS?
Understand the needs & opinions of shopping mall stakeholders
Identify and analyse social & technical inefficiencies
Develop optimal solutions to achieve energy efficiency in shopping centres

SOCIAL INEFFECTIVENESS
Stakeholders with different roles & priorities
Influence on shopping malls’ energy efficiency

Most important aspects when upgrading a shopping mall

OWNER & MANAGERS
- Reduced energy demand
- Customer satisfaction
- Improved orientation
- Value of the building

TENANTS
- Customer satisfaction
- Employee satisfaction
- Indoor climate quality
- Cost efficiency

CUSTOMERS
- Location
- Product diversity
- Service quality
- Low prices
- Free car parking

TECHNICAL INEFFECTIVENESS

LIGHTING
- Competing lighting levels to attract customers
- No lighting design strategy for entrances, or atrium and adjacent shops
- Lack of / excessive entry of daylight
- Inefficient lamp technologies, luminaires and gear
- Lack of automatic control and sub-system layouts

HVAC
- Heating and cooling occurs at the same time
- Wrong choice of system, set point and thermostats
- No zone isolation, or restricted condenser heat
- No demand control ventilation
- Improper maintenance and error tracking
- Lack of bioclimatic solutions

BUILDING ENVELOPE
- Inefficient insulation for especially windows and roofs
- Leak building envelope and entrance designs
- Lack of thermal zoning and buffer zones
- Improper utilization of thermal mass
- Design of glass façades and solar shading

ARCHITECTURE & DESIGN
- Need for flexible building solutions which support the changing needs of the retail industry
- Integrated design solutions are more effective than individual actions in improving the quality of the built space, both energy and design wise.
- Universal design, associated with ergonomics and accessibility, has implications for the design of sustainable shopping environments

CONCLUSIONS

Owners and managers
- Interested in energy efficiency (main decision making group).
- Reluctant to spend large amounts on a renovation, but the value of the building is an important aspect and therefore energy investments may be expected.
- Common certifications for energy efficient buildings are not considered suitable for shopping centres, but a certification specifically for shopping centres could be a step towards encouraging interest about energy efficiency amongst owners.

Tenants
- Energy efficient shopping centres is not of primary importance.
- It is important to improve the flow of information about of energy efficient among employees in shopping centres.
- Energy performance certificates could be used to strengthen the awareness of how energy efficiency influences stores or retail units.

Customers
- Low awareness of energy efficiency in shopping centres.
- Shopping centres are not chosen because of their energy efficiency; although the appearance of an energy efficient shopping centre could encourage “green” thinking.
- Interested in lower prices and a wide range of products and this is not directly associated with an energy efficient renovation.

OBJECTIVE
Transform shopping malls into energy efficient buildings, through deep retrofitting and developing innovative technologies and solutions.

METHODOLOGY
The main concept is the shift from single-action refurbishment to a Systemic Retrofitting Approach (SRA).

PERFORMANCE TARGETS
- Up to 75% reduction of energy demand
- Power peak shaving
- 50% increased share of renewable energy source
- Improvement of comfort and health conditions
- Short pay-back times (below 7 years)

DURATION
October 2013 – September 2017 (46 months)

PARTNERS
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