Social sustainability in modern green building approaches – a comparison with the eco-village movement

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Themes

- Mainstraming sustainable buildings: Whats gained, whats lost?
- Can we acheive environemental sustainability without social sustainability?
- Comparing with eco-villages: Is it possible to bridge between mainstraming and eco-villages?

Transition Theory

Focus on transition of technologies, from niche products to integration in existing regimes.

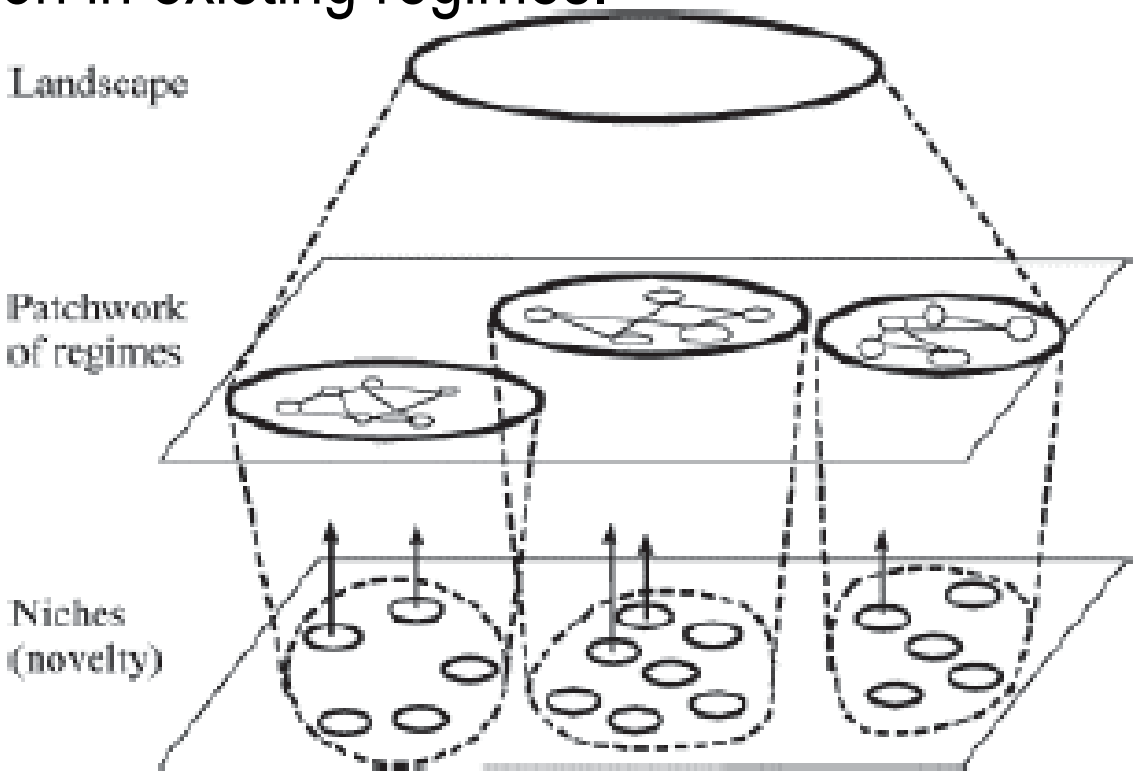


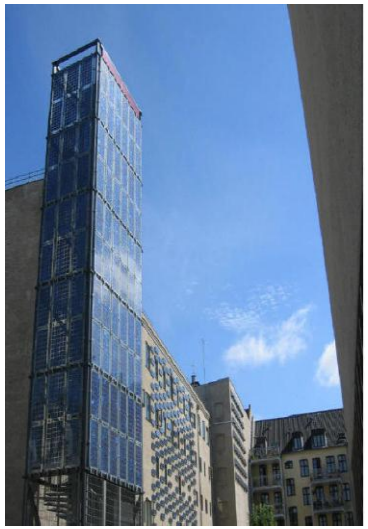
Figure 1: Multi-Level Perspective nested hierarchy. Source: F. W. Geels, 2002.

Sustainable housing niches

Zero- and low-energy buildings (1970ies)

Eco-communities (1980ies)

Sustainable urban regeneration (1990ies)



Normalisation of sustainable buildings (2000nds)

Examples on Eco-communities in DK

Friland (Djursland)

Andelssamfundet (Hjortshøj)

Bofællesskabet Sol og vind (Beder)

Dyssekilde (Torup)

Munksøgård (Roskilde)

Normalisation of Sustainable Buildings

- Aim: Making sustainable buildings ‘normal’ and approachable for ’ordinary Danes’
- Target-group: Single-family housing owners
- Main focus on *buildings* – not on neighbourhoods
- Limited niche protection from market
- Municipalities become central actors, not only as regulators, but as initiators and facilitators
- Broad collaboration (municipalities, NGO’s, traditional building companies, EU) based on partnerships and integrated design
- Increasing use of norms and standards
- Architecture: From alternative to ‘normal’, ‘traditional’, ‘healthy’, ‘modern’, ‘luxurous’

Background

- Frustration on lack of national ambitions on sustainable buildings
- Sustainability should not just be related to eco-villages and alternative lifestyle
- Voluntary initiatives are not enough to make people buy sustainable houses
- Inspiration from Passive Housing from Germany, Switzerland and Austria

Examples on ‘normalisation’

Name and Location	Number and Type of Dwelling	Developer	Environmental Issues
“Fremtidens Parcelhuse,” Køge	86 detached houses	Municipality of Køge and local Agenda 21 group	Low-energy and sustainable materials as defined in the “Swan label.”
“Teglmosegrunden” Albertslund	91 dwellings	Municipality of Albertslund	Reduction of fossil fuels, promotion of local percolation of rainwater, limits on the use of groundwater, waste minimization.
“Stenløse Syd,” Stenløse	750 dwellings, mostly detached houses	Municipality of Stenløse	Maximum energy consumption defined (35 kilowatt-hours per square meter, kWh/m^2), recirculation of heating, solar collectors, no use of polyvinyl chloride (PVC) or pressure-treated wood, collection of rainwater.
“Lærkehaven,” in Lystrup, Århus	122 dwellings as social housing	Social housing association “Ringgården”	Combines sustainability with good architecture. Energy demand defined through passive house standard (15 kWh/m^2) and Energy Class 1 (30 kWh/m^2), good indoor climate, environmentally sound materials.
Rønnebækhave II, Næstved	23 dwellings as social housing	Social housing administrator “Domea”	Tests whether the passive house standard can be applied in a Danish context (as the first building in Denmark).
Komforthusene, Vejle	10 detached houses	Isover	Applies the passive house concept, making it a learning project for the building industry.

Normalisation ‘story lines’

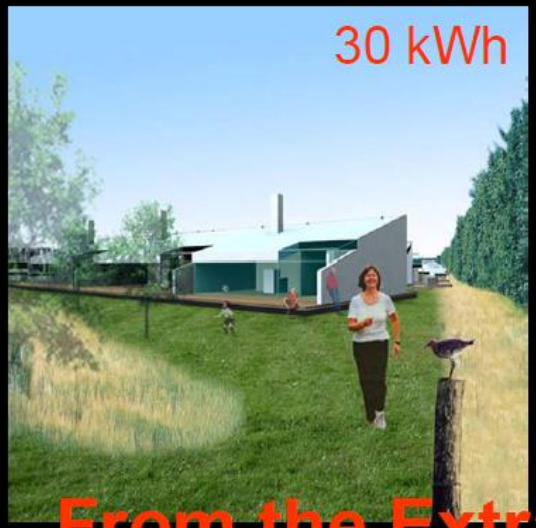
“From the extraor-dinary to the **ordinary**” (Lærkehaven)

“Building houses for **normal** people” (Fremtidens parcelhuse)

“Building **traditional** family houses as passive houses” (Comfort Houses).

"…..there is a great need to develop modern Danish single-family houses that are energy-efficient and environmentally friendly. Work to develop energy-efficient and envi-ronmentally friendly single-family housing has been carried out at the grassroots level for many years, while the more professional companies have focused on buildings on a larger scale. Interest in living in a healthy environment as well as living energy effi-ciently and environmentally soundly has meanwhile grown markedly in recent years, and for this reason there is an increasing need for an effort in relation to the ongoing professional development of industrialized building in the field of single-family hous-ing. The building must offer healthy, energy-efficient and environmentally friendly housing which is attractive to ordi-nary Danes architecturally as well as finan-cially"

Sustainable Housing in Europe (SHE)



From the Extraordinary to the Ordinary

ISOVER

Live comfortably –
Save natural resources.

The ISOVER Multi-Comfort House.

ISOVER
Multi-Comfort House

SAINT-GOBAIN
INSULATION

Stenløse Syd

Environmental declarations:

- Houses must as a minimum follow the Lowenergi class 1 in the Building Regulations
- Ventilation with heat recovery and a heat pump should be established
- As a minimum 3 sqm solar heating panel or PV's for each house
- A system for intelligent steering and monitoring of energy and water consumption must be established in each house
- All rainwater from roofs must be collected in an approved plant for toilet flushing and washing
- No PVC materials must be used
- No impregnated wood must be used

Fremtidens parcelhus, Køge

Normalisation in practice

”Many people think of alterenative lifestyles when they hear we are living in a Swan labeled house. And our friends are teasing us and ask when we are going to have a windmill in the garden. But because it’s ecological, it doesn’t have to be a straw bale house. Our house is a good example that you can get a totally ordinary house that is sustainable”.

”It’s not ecology and sustainability that has drawn us to Herfølge. What we wanted was a larger house”

Challenges for ‘normalisation’ approach

- ‘Transaction costs’ for initiator
- Operating on market conditions
- Transferring ‘ownership’ of sustainability agenda from initiator (e.g. municipality) to builders and owners
- Challenges in operation of buildings:
  - Users knowledge of energy system
  - Maintaining environmental goals

- Incorporating social sustainability measures?

Sustainable Building Organisation	Developer	Builder	Operator	User
Eco-villages	Residents	Residents	Residents	Residents
Social housing	Social housing companies	Social housing companies	Social housing companies	Tenants
Owner-occupied detached housing	Municipalities	Building companies	Owner	Owner

Social sustainability

(Carmona et al, 2010; Polese & Stren, 2000)

- Mix of functions
- Social mix
- Shared facilities
- Public spaces
- Meeting places
- Social capital
- Social independency
- Social stability
- Accessibility
- Tolerance
- Participation and ownership

Self-management saves money and increases social interaction

- group for waste collection and management
- group to take care of visitors
- café-group
- CO2-vision group
- group for social arrangements
- group for green accounts
- group for general information
- Group for IT
- Group for taking care of the shared pets
- the landscape group
- The playground group
- environmentally sound farming group
- group for managing gardens
- group for road maintenance and clearing
- waste-water group
- toilet group
- heating group

Management-groups in Munksøgaard

WIMBY (Hjortshøj)

Building dwelling for 16 mentally disabled residents (2013).

Aim: To integrate them in the daily life in the community, e.g. by engaging them in the local organic farming

Figure 2. Pictures from the near-by Hjortshøj eco-village (October 2010), with invidual houses (right and left), with a shared community house in the middle

Figure 1. Pictures from the new-built sustainable buildings Lærkehaven in Lystrup (October 2010): Light constructions of passive standard-houses (left) and heavy construction low-energy buildings (right)

Next steps?

- More ambitions sustainability goals
  - Wider environmental efforts (
  - More social sustainability (ownership to sust.agenda, shared facilities, social mix etc.)
- More focus on neighbourhood level
- Integrated design in the planning stage
- Better user involvement
- Challenge the ‘traditional’ detached house-neighbourhood