Home-owners decision-making process when building a new house

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Aim

To discuss home-owners possibilities to influence energy efficiency when building a new house:

- How do municipal policy making influence the choices made by the home-owners?
- How do the standards and information of the building constructor influence the home-owners?
- How do the home-owners perceive their opportunities to make energy efficient choices?
Swedish municipalities possibilities to influence energy use in buildings

- Muncipal planning monopoly – physical planning
- Decides how to use the land: exploitation rate (minimum and maximum rate of buildings), localisation, the purpose of a building, shares of block of flats and single family homes, vegetation, location of water pipes, electrical cables, energy plants…

- Issue building permits
- No direct power over a buildings energy standard
- The government decides on Swedish building norms
Swedish building norms

- **Climate zone I**: The Northern parts of Sweden, 150 kWh/m²
- **Climate zone II**: Central parts of Sweden, 130 kWh/m²
- **Climate zone III**: Southern parts of Sweden 110 kWh/m²

The municipalities can influence the energy standard indirectly and decide on maximum size of a building, density, location in relation to district heating
Climate zone 1: 150 kWh/m²

Climate zone 2: 130 kWh/m²

(http://www.sna.se/webb/atlas/lan/index.html, our adjustments)
Other ways for municipal to influence energy use

- Many municipalities own production and distribution of both electricity and district heating. Often organised in limited companies.
- Municipalities can not decide which heating system to use in an area
- But can plan and locate buildings and neighbourhoods to favour district heating, PVs and wind power plants etc.
- All 289 municipalities has an energy consultant employed to guide citizens in energy issues
- Use information and informal networks with building constructors
The construction companies

- Are regulated by the building norms and municipal physical planning
- Energy standard on turn-key houses
The home-owners

- Also need to follow regulations
- Can influence and change energy standard – if they pay
Results from the case studies
Two areas

Interviews with:
- 17 home-owners that have built a new house in the last three years
- The house constructor in two Swedish municipalities (Myresjöhus)
- Local politicians
Householders influence in the building process

- Hard for the building home-owners to influence the building process:
  - the time was limited (the constructor was late in building the first house)
  - the households had just a few weeks to decide on many issues, ranging from choice of wallpaper to heating system
  - many decisions to make and so much to arrange
Many choices, little time

- Anything that the householders wanted built differently from the standard specifications had to be decided on very quickly:

  It happened so fast, too. They rang in the morning and wanted a decision the same day. We had to choose tile, wallpaper and everything. There were very quick choices, so we could not look around and, for example, influence the choice of technology ... It was very frustrating. (HOBuild8)
Small possibilities to influence

- The building home-owners uniformly told us that they were essentially forced to choose the heating system that the vendor of the house offered by default.
- Most said they did not have the opportunity to choose different windows or install another wall thickness than that included as standard.
- It was also difficult to influence the choice of the appliances installed in their homes with respect to energy efficiency.
- The home-owners would in general have liked to have more information about many things:

  Everything, everything, everything! I would have liked to be more active in my choices, as I think these things are important. (HOBuild8)
Information asked for

- The householders stated that they lacked information about:
- the benefits of alternative environmentally friendly heating systems
- the investment cost for and cumulative savings from different systems
- descriptions on various heating systems available
- how heating systems could be combined with each other
- how much money that could be saved by reducing the heat by one degree
- how they could visualize their energy consumption

The householders: all this information would have been useful during the actual building of the house
Limited action space also a good thing

- Despite this, most building home-owners did not actively look for available alternatives to the standard equipment installed in their new houses.
- The limited choices were perceived as something positive:

  There were so incredibly many choices to make, so we thought it was easiest to go with district heating. There were so many other choices to make, that it felt almost too much to have to choose heating system as well. (HOBuild4)
Trust in houses meeting EE standards

- The households thought that the constructor or municipality are familiar with the topic and that they are doing what is expected from them.
- They trusted the constructor’s standard equipment and relied on the houses already meeting a certain standard in terms of:
  - window u-value
  - wall thickness
  - general energy efficiency
The home-owners: constructor has main responsibility

- Many households felt that the building constructor is, or should be, responsible for achieving energy use reduction goals:

  Yes, it feels like they really have more responsibility than I do, because I, as an individual, have so little knowledge of the available options, the possibilities. So the construction industry should have the greatest responsibility. (HOBUILD4)

  Because I cannot do that as a buyer: I buy a turn-key house and hope it is good. (HOBUILD2).

- This justified that the households could be passive in the decision making.
Municipalities influence in the building process

- The municipalities did not try to influence the constructor to make EE choices directly.
- But they did:
  - cooperate with the constructor and other actors in networks to enhance EE.
  - use their formal ability to plan and locate neighbourhoods to favour district heating.
  - automatically charge building home-owners a connection fee for district heating.
The constructors influence in the building process

- The constructor stated that they **did:**
  - inform building home-owners about alternative heating systems
  - not discourage householders who asked for other alternatives than those offered as standard

However, they strongly recommended their customers to go with the system offered by default
Conclusions
Households missed their opportunities

The building home-owners missed the opportunity to influence their energy consumption for years to come:

- Due to lack of time and having too many choices to make
- Energy issues had low priority or disappeared in the building process
- They lacked information on EE measures
- Perceived no possibilities to exert influence – instead put great responsibility on the construction company
Municipalities missed opportunities

- The municipalities influenced householders choice of heating system by charging a connection fee for district heating - regardless if the household chose district heating or not.
- This limited home-owners action space.
- Did not give building home-owners information about energy efficiency in connection with the building permit application or later on in the process.
- Did not interfere in the building process and for example discussed low-energy houses or orientation of the building and its main façade to maximize or minimize solar impact - did not seize this opportunity to influence.
The housing constructor perceived no opportunities

- Simply followed the building norms
- The constructor: energy efficiency a responsibility for policy makers i.e designing stricter building norms
- Consumers have a free choice
- Also, using building energy standards below the building norms has no competitive advantages
Conclusions

- All actors have high awareness and knowledge on EE technology and behaviour
- But opportunities to EE in the building process is not taken because of:
  - lack of time and priority
  - all parties: ‘someone else’s responsibility’
  - lack of information to the home-owners
  - lack of communication between all actors
Thank you!

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