

## Summary of the Passivhus Norden Conference 2010

The conference Passivhus Norden was held in Aalborg October 7 and 8 2010. 370 participants from Denmark, Norway, Sweden and Finland met and had the choice between 70 presentations about extraordinarily energy efficient building; about the implementation of targets into practice; about the experiences made; about the relevant principles; and about on-going research within the field.

Three of the main conclusions were:

- Extreme heat savings and district heating are not in opposition. Both are mandatory for Denmark and like systems to become free of fossil fuels by 2050
- Annual energy/emission balance on single building level is not important
- There is a need of economical incentives to sufficiently ambitious energy renovations

In the text below these main conclusions are detailed and some more headlines added.

### 1. Heat demand must be minimised and the building must be seen as a part of the overall energy system

Prof. Henrik Lund, Aalborg University, noted in his speech on 7 October that it is not important to aim for "zero energy" or "plus energy" buildings on the single plot. However, to become independent on fossil fuels by 2050 it is crucial for Denmark that all energy consumption and specifically that the heat demand in the overall building mass is halved. This means that new buildings must have extremely low heat demand, as passive houses.

Danish Building Regulations have moved from focusing on heat demand to focus on gross energy needs. Gross energy requirement is important, but Henrik Lund's lecture put - maybe a little unexpected - a renewed focus on the peaks and thus specifically the space heat demand. Wolfgang Feist, the founder of Passivhaus Institut Darmstadt, showed under the title "Passive Houses - 2020 now!" how this low heat consumption and overall energy consumption has been measured in passive houses for nearly 20 years,.

### 2. Enhanced focus on the user

Wolfgang Feist also highlighted the account for the user: They are all different, and the habits and behaviour is difficult to change. Therefore, it requires buildings that meet different users' requirements. Experience of the project "Komforthusene", which Aalborg University presented at the conference and from a number of other projects also highlight the need for a good transition from the design and construction for phase.

### 3. Need of better incentives for ambitious energy renovations

It is equally that energy consumption in existing building stock is reduced significantly. Experiences from Germany, where passive houses have a longer tradition than in Denmark, is that energy demand even in existing buildings can be reduced to near passive house level.

The Conference organized a workshop for the non-profit housing, which have repeatedly proved to be pioneers in sustainable construction. Housing associations, which together manage 500,000 public housing dwellings, talked about how they are often forced to make only the most necessary when they are renovating housing stock. They do not have the funds needed to invest in additional measures to provide further reduction of energy consumption, but can merely pick the low hanging fruit. As a consequence a substantial portion of the housing stock that contributes to the total CO<sub>2</sub> emissions will not meet the target of a 50% reduction in consumption.

Several housing associations showed examples of energy renovations where they have been able to renovate to low energy building class 1 (Danish, ambitious low energy building criterion) or even further. But in the housing departments, which face also major social problems and carry a heavy integration task, there are not the same opportunities. Housing associations want enhanced financing for renovations from the accumulated funds for maintenance (in DK accumulated in "Landsbyggefonden"). Today, there are 8 billion DKK worth of renovations in the queue at the "Landsbyggefonden". Every third crown spent on refurbishment is spent on energy renovation.

50% of Danish housing stock is single family houses. The field trip to Hjørring, 9 Oct. visited three renovated houses, where a private developer through the renovation has brought down heat demand to 7% of consumption before renovation. The solutions exist, but there is a need for incentives that would make the citizen choose energy renovations instead of the next holiday in Thailand. Although there are good profitability, for example, using the most energy efficient but more expensive windows - they are often neglected when the economy is determined.

### 4. District heating price structure should reward lower heat consumption

According to Professor Henrik Lund, Aalborg University, the fossil-free supply and energy distribution in 2050 will rely on wind, district heating and individual heat pumps, and a small share of biomass.

He also made it clear that Denmark has to both minimize the heat demand and to maintain and improve a efficient district heating system in order to utilize heat from waste incineration, industrial processes and biomass combined heat and power generation. There is not a contradiction between these goals, on the contrary are both essential.

It is imperative to ensure that the district heating does not, by maintaining an unfortunate price structure, exclude itself from use in the building being constructed until 2050, whether this is caused by tradition or rules. Both housing companies and building designers pointed to, what was also propagated by the Danish Construction Association in September, that the access charges and the fixed annual taxes should be lower, thereby resulting in a more consumption-dependant costs for district heat supply.

## 5. International competition provides better Danish services and products

Several housing associations have implemented passive houses and low buildings with foreign contractors and foreign energy optimized products - which were necessary to meet their energy targets. Housing associations expressed that foreign firms should have better access to the Danish market. There is a need for better communication of the Danish procurement rules and harmonization between EU countries.

In the EU-funded project Northpass, it has been shown that building codes and energy saving criteria in eight northern European countries are so different that it resembles a technical barrier to trade. There is also at this point need for harmonization.

Enhanced competition also encourages Danish manufacturers develop cheaper and more energy efficient products and services. At the conference exhibition three Danish window manufacturers presented recently developed façade windows, which are among the world's most energy efficient. A lecture highlighted how simple this can be assessed and building regulations should be improved at this point.

## 6. Good indoor climate and low energy consumption are not contradictions

In several passive houses high summer temperatures have been measured, almost as high as in ordinary buildings. Aalborg University presented the results at the conference workshop on the project "Komforthusene". The warm summer climate does not correspond to stakeholders' ambitions, but it is on the other hand not any worse than usual.

To ensure good comfort buildings must be designed properly and users made aware of how their building works. The session on windows and the workshop on "Komforthusene" stressed that adjustable solar shading is important. In most buildings adjustable sun protection needed.

## 7. Moisture in buildings

The session on moisture in buildings was one of the most popular, being attended by half of the conference participants. There is some uncertainty about potential moisture problems, and this uncertainty is in the Scandinavian countries partly a brake on the diffusion of passive houses. But good methods and tools to evaluate moisture properties of buildings and building components exist, and several of the foremost experts in the field attended the conference.

Increasingly better insulation generally has limited influence on the moisture characteristics of e.g. outer walls. Other potential problems, such as moisture built in during construction, are more significant.



## 8. Education

The workshop on education featured a series of short presentations on education and training in different ways in Norway, Sweden and Denmark. There was most focus on training for designers and especially for architects.

A number of speakers, designers as well as contractors, pointed to the need for training in the field of low-energy and sustainable construction.

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Læs mere om konferencen på: [www.passivhusnorden.org](http://www.passivhusnorden.org)



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