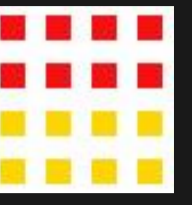


APPLIED DEVELOPMENT

HOW INTERDISCIPLINARY COLLABORATION CAN SUPPORT HOLISTIC AND SUSTAINABLE ENERGY RENOVATION OF SOCIAL HOUSING IN DENMARK

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BACKGROUND

The European Commission have set up goals towards 2020 to reduce our CO₂ emissions by 20%, increase the energy efficiency by 20% and have 20% of our energy consumption covered by renewable energy. Of our total energy consumption the building sector is responsible for approximately 40%.

To accomplish the future objectives regarding energy savings the building sector is a natural target. Predicted energy savings are not sufficiently reached in renovation projects. The reason for this can be many, but it is trusted that holistic and sustainable renovation, long-term solutions can help reduce this imbalance and enlarge savings.

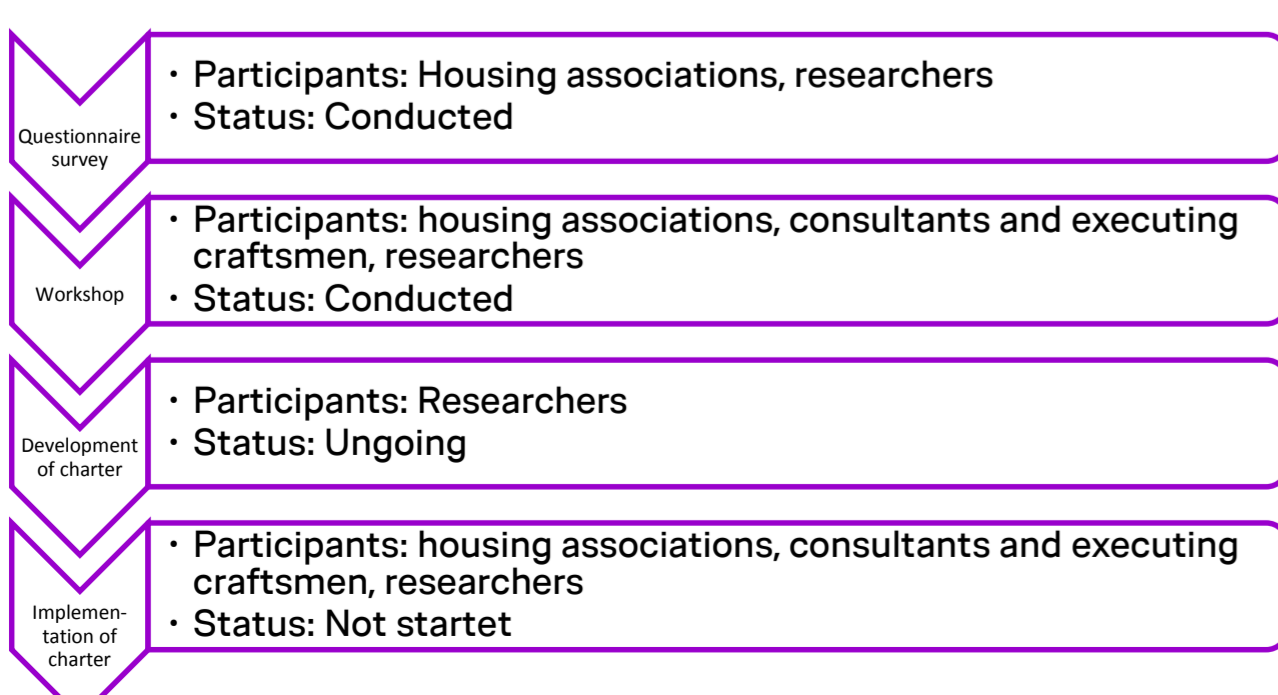
OBJECTIVES

The objective is to develop an interdisciplinary charter for the relevant professional actors in social housing renovation projects. This charter is a guideline on how to change the mindset of the participants in the different project processes and by that change generate more holistic and sustainable renovation designs, plans and executions. Furthermore is the charter a study on how interdisciplinary collaboration among professionals can generate progress and boost the level of energy renovations.

METHODS

The project consists of four phases / methods:

- 1** A questionnaire survey conducted with the housing associations to define:
 - To which extent the housing blocks are ready for renovation.
 - To which extent holistic renovations are considered.
 - How the housing associations are working with sustainable building renovations.
- 2** A workshop with actors from the building industry, professional adviser to the building owner and the housing associations. Barriers for sustainable and holistic renovations of social housing are defined. Clear objectives on how to break down the barriers are generated with starting point in the present needs identified in the questionnaire survey.
- 3** The results from the workshop is used as a basis for the development of an interdisciplinary charter. The charter is a collection of practice related guidelines for beneficial working process and a collective understanding of holistic and sustainable social housing renovations.
- 4** The fourth phase is dedicated to the implementation of the charter and the enclosed user manual.



RESULTS

From the first two phases of the project, different results are produced by the interaction of different participants. These results are the basis for the development of the charter in the next phase of the project.

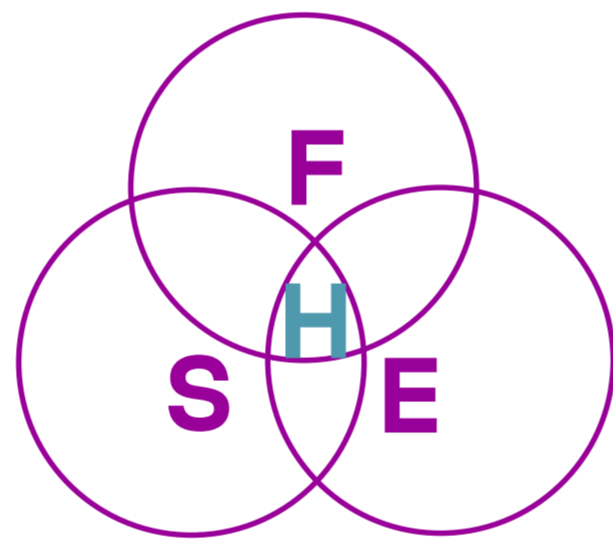
QUESTIONNAIRE SURVEY

The results from the questionnaire survey provided a status on sustainable and holistic renovation of social housing in Horsens municipality. The data indicates a number of aspects to consider and approach in the following workshop.

General results

The primary barrier for sustainable and holistic renovations are The Danish Social Housing Sector (Landsbyggefonden). They make the necessary economical contributions to the housing associations and have the overall say in which projects can be financed thus conducted. The current conditions do not provide the right opportunities for working with sustainability and holistic renovations.

There is a present need for renovation of the social housing in Horsens. Renovations can be more sustainable if more attention is put on the economy of the operation and maintenance phase.



Financial aspect of sustainability

Housing associations expect, to a large extent, that renovation generate an increase a demand for their apartments as well as savings from the tenants electricity, water and heating consumption.

Environmental aspect of sustainability

The housing associations state, that the environmental parameters (CO₂ emissions, life cycle analyses of materials, wastewater discharge, climate changes) only to a lesser extent are included in relation to renovation projects. None of the housing associations mention recycling building materials or integrating renewable energy as primary objectives for their renovations.

Social aspect of sustainability

There is no focus on tenant behaviour in relation to energy savings. It is not an objective to influence the tenants behaviour before, during or after a renovation, however it is in some cases expected that the renovation causes the tenants to change their behaviour by themselves.

Comprehensive approach in relation to the selected housing sections ready for renovation

The screenings of the buildings are not consistently holistic. Screening typically includes singled out building parts which the housing associations expect to need renovation instead of screening the building as a whole and visualizing the actual renovation potential. The screening do however indicate a need for renovations and reflect the building state in the sections.



The project is financed by Insero Horsens, Denmark

The Project is a pilot development project in a local context, specifically Horsens and surroundings, where the professional actors from a bounded area form the charter across professions.

WORKSHOP

The workshop, with participants from both the social housing associations, the consultant offices and the executing professionals, defined a number of solutions to overcome the barriers and problematics defined in the questionnaire survey.

- More holistic screenings and planning gives more sufficiently detailed and targeted renovations projects.
- Sustainability is not an area of priority in the social housing renovations. Sustainability is expensive and money is used where the outcome is thought to be best for the owner and the tenants at the present time.
- The executive participants points to construction management on site as of great importance, both for the daily operations, for the quality of the final result and for the economy of both the owner and craftsmen.
- More realistic time schedules to limit the delays caused by unforeseen problems in renovations projects.
- Actors belief that a more holistic approach to renovation projects from start to finish will provide both better housing for tenants and owners and an improved financial outcome for all involved.

CONCLUSION

A need for more holistic and sustainable renovations been demonstrated in the project. Both to reduce our energy consumption, but just as much to future-proof the existing buildings for both owner, tenant and earth by handling hazardous substances, recycling of building materials and the use of sustainable materials should be promoted for the future renovations to be sustainable. There is currently no focus on these aspects.

The participant call attention towards barriers for this approach, but note at the same time the possibility of a variation of advantages by more holistic projects. Everybody will benefit from holistic renovations from the municipality, over the owners to the performing actors and the tenants. There is a will to change among the professionals, but everybody have to agree on the new approach why a charter can be a beneficial tool to remind each other about the agreements. The participants at the workshop agreed on the points in the charter and will support each other in the later implementation of this method in the projects final phase: implementation.