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Municipalities as First Movers for Promoting Low Energy Buildings

Local Planning Experiences from the CLASS1 EU Concerto Project

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Municipalities as first movers for promoting low energy buildings – local planning experiences from the CLASS1 EU Concerto project

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Summary

Improvement of the energy performance of buildings represents an important focus area in Europe, since there is a need to reduce the heat loss from building envelopes and implementing a greater share of renewable energy. One of the major policy responses from the European Commission has been to set up the Energy Performance of Building Directive in European legislation. Although this type of regulation provides an important push towards improved building standards in Europe, it has certain limitations in terms of preparing the ground for a more fundamental break with the inertia that still exists in the building sector with regards to improvement in the energy performance of buildings.

Traditional energy policy responses to lack of diffusion of technologies often rely on a too simplistic view of technology transfer, where emphasis is put on removing single 'barriers' to technology take-up (Shove 1998). It is therefore argued that policy makers often fail to recognise that technical transfer represents a contextual, localised and temporally specific process, which is often governed by non-linear processes, rather than rational and goal-oriented processes (Geels 2005). This points towards a need to reframe policy initiatives in order to take the complexity of dissemination of energy efficient technologies in practice into account; acknowledging that singular instruments are seldom sufficient to boost a wider transition in building practices, since no simple cause or driver for change exists (Elle et al. 2002; Geels 2005).

The aim of this paper is to explore the conditions that urban governments have for proactively promoting low energy buildings at the local scale. These conditions are explored by looking into the use of municipal planning systems to enforce higher energy efficiency standards as a potential form of experimentation in transition processes. In doing that urban governments are pointed out as proactive agents of change at the local level; demonstrating potential transformative power with regards to climate change processes. Through a review of five case studies of municipal initiatives to promote more energy efficient buildings from different countries in Europe, the paper provides insight into how proactive urban governments engage with and navigate within different prevailing planning and regulation frameworks to promote low energy buildings.

The study in this paper is based on the work carried out in the EU Concerto Class 1 project, where one aim has been to look into how energy efficient buildings have been deliberately promoted

among the five participating municipalities in the project (in Denmark, Italy, Estonia, Romania and France). The study is based on a case-oriented review on proactive municipal attempts to promote energy efficient buildings through their planning practices. The case-oriented approach does not aim at providing a state-of-the-art analysis of the planning and regulation systems in Europe, but at providing a more contextual understanding of the preconditions that municipalities experience, when trying to promote energy efficient settlements. The cases were strategically selected so that these represent flagships for the involved municipalities in terms of promoting energy efficient buildings.

The study shows that although important instruments exist in the planning and regulation frameworks in Europe these are not always applicable for proactive municipalities that wish to more radically promote energy efficiency in local building projects. In most of the studied cases, the building regulation represents an important instrument with a high degree of legislative power. However, in several of the case studies, the building regulation is defined at the national level, which leaves the municipalities without local influence. Another important instrument is the detailed plan, which provide a great degree of freedom for the municipalities in most of the case studies. However, in several of the cases, the detailed plan does not have any legal impact, which play down its transformative powers. In most of the cases, the municipalities applied instruments that were not directly intended for planning purposes. For example, the planners in the Danish case had to apply easements as a way for the municipality to define their own energy efficiency requirements with a legal impact. In both Estonia and Italy, municipalities already have this ability, because they have the authority to define building regulation in local building projects.

The conclusion is that the reviewed case studies demonstrate that municipalities have a strong position to operationalise strategies of energy efficient buildings, and a willing to do so. However, the municipalities lack support from prevailing planning and regulation frameworks due to lack of authority and legislative impact of the available instruments. In spite of this lack of support from the planning and regulation framework, municipalities show that they are capable of implementing energy efficient technologies in local building projects through alternative means. This illustrates that the current planning and regulation framework fails to encompass the variety of strategies for promoting energy efficiency that municipalities have at their disposal. Municipalities fill out a number of different roles, where they are able to promote energy efficient technologies in different ways, e.g. being planning authority, property owner, developer or approving authority. Each of these local processes provides different conditions – and possibilities – to promote energy efficiency in the built environment, and in each case different instruments may be combined in order to fulfil the targets.

Keywords: Local planning, building regulation, energy efficiency, experiment, innovation

Municipalities as first movers for sustainable local planning – experiences from the EU-Concertor project Class1

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Summary

Improvement of the energy performance of buildings represents an important focus area in Europe and although policy makers push towards improved building standards in Europe, it has certain limitations in terms of preparing the ground for a more fundamental break with the inertia that still exists in the building sector with regards to improvement in the energy performance of buildings. Policy makers often fail to recognise that technical transfer represents a contextual, localised and temporally specific process, which is often governed by non-linear processes, rather than rational and goal-oriented processes. The aim of this paper is to explore the conditions that urban governments have for proactively promoting low energy buildings at the local scale. These conditions are explored by looking into the use of municipal planning systems to enforce higher energy efficiency standards as a potential form of experimentation in transition processes. Through a review of five case studies of municipal initiatives to promote more energy efficient buildings from different countries in Europe, the paper provides insight into how proactive urban governments engage with and navigate within different prevailing planning and regulation frameworks to promote low energy buildings. The study shows that although important instruments exist in the planning and regulation frameworks in Europe these are not always applicable for proactive municipalities that wish to more radically promote energy efficiency in local building projects. Examples of this are the building regulation and the detailed plans. The conclusion is that the reviewed case studies demonstrate that municipalities have a strong position to operationalise strategies of energy efficient buildings, and a willing to do so. However, the municipalities lack support from prevailing planning and regulation frameworks due to lack of authority and legislative impact of the available instruments.

Keywords: Local planning, building regulation, energy efficiency, experiment, innovation

1. Introduction

Improvement of the energy efficiency of buildings represents a key target area in European countries, since 40% of the total energy consumption in the EU is related to the building sector [1]. This implies, among other things, raising the energy standards of mainstream buildings in order to reduce heat loss from building envelopes and implementing a greater share of renewable energy

in buildings. In order to reduce the energy inefficiency it is necessary to use all available policy instruments at all different levels of government and society [2].

At international and national levels, initiatives have been taken to reduce energy inefficiency. For example, the European Union has set up the Energy Performance of Building Directive (EPBD) in European legislation. Such regulation initiatives provide an important push towards improved building standards in Europe. However, these initiatives alone do not seem to enable a more fundamental transition towards low energy buildings, since an inertia still exist in the building sector with regards to improvement in the energy performance of buildings [3]. In a recent report on how to promote climate friendly buildings in Denmark, one argument relates the need to make municipalities into front runners and ensure that these have the necessary instruments to implement implementation sustainable objectives through the planning system [4].

Traditional energy policy responses to lack of diffusion of technologies often rely on a too simplistic view of technology transfer, where emphasis is put on removing single 'barriers' to technology take-up [5]. It is therefore argued that policy makers often fail to recognise that technical transfer represents a contextual, localised and temporally specific process, which is often governed by non-linear processes rather than rational and goal-oriented processes [6]. This points towards a need to reframe policy initiatives in order to take the complexity of dissemination of energy efficient technologies in practice into account; acknowledging that singular instruments are seldom sufficient to boost a wider transition in building practices, since no simple cause or driver for change exists [6],[7].

The aim of this paper is to explore the conditions that urban governments have for proactively promoting low energy buildings at the local scale, since the prevailing planning and regulation framework is often based on a centralised regulation scheme in European Member States. Through a case study of the initiative of a Danish municipality, the paper provides insight into how an proactive urban government engages with and navigates within the prevailing planning and regulation framework to promote low energy buildings. The experiences and lessons from this process are outlined and discussed in relation to different forms proactive projects and regulation frameworks in European Member States. The chosen casestudy is part of the European Concerto project called 'Cost-effective Low-energy Advanced Sustainable Solutions' (Class1).

2. Approach

2.1 Urban low carbon transitions

Dissemination of energy efficient technologies in practice requires a transition in existing systems and ways of doing in the building sector. Energy efficient technologies are currently not being disseminated in the building sector due to a deadlock in supply and demand. This deadlock implies that construction companies do not offer developers to build energy efficient buildings as they cannot identify sufficient demand and developers complain about the reluctance of construction companies to come up with viable solutions [8]. This illustrates that energy efficient buildings have not gained acceptance on the mainstream market. The current inertia is caused by a number of different factors that withhold existing building practices. These factors are only to a small extent technical, since mature energy efficient technologies have been developed. However, a number of social factors exist that impede the dissemination of such technologies. For example, energy efficient buildings require development of new construction types and products, and hence, new skills in the building sector [9]. This implies a broader transition perspective on technology dissemination, which acknowledges that addressing climate change will require fundamental transformations in the urban infrastructure networks that sustain daily life [10].

An increasing literature in transition studies raises the issue of considering cities as critical arenas for adressing low carbon transitions [10]. These studies show that urban governments increasingly make conscious and planned efforts to change existing systems and practices through their daily

planning routines (see e.g.[11], [12]). This indicate how the role of urban governments, like municipalities, is growing stronger with regards to low carbon transitions. The potentiality of urban governments to promote low carbon transitions is especially strong in relation to promoting energy efficient buildings, since these urban governments typically have a powerful local planning role in terms of developing local urban areas and authorising local building projects [13]. This kind of local embedding of national initiatives have been strongly recognized in relation to Local Agenda 21 strategies, where urban governments act as local agents of change [14].

Proactive urban governments are engaged in strategic processes purposively aimed at transforming the city in a certian direction and through these processes transitions in urban systems are likely to emerge [10]. This demonstrates the potential transformative power of urban planning processes [13], when urban governments engage in climate governance experimentation. One specific form of this kind of experimentation is the use of the municipal planning system to enforce higher energy efficiency standards [10]. This implies that the urban government strategically make use of their role in the planning system to put pressure on e.g. the building sector to implement more energy efficient buildings.

2.2 Case study of the CLASS1 project

The study in this paper is based on the work carried out in the EU Concerto Class 1 project, where one aim has been to look into how energy efficient buildings have been deliberately promoted among the five participating municipalities in the project (Denmark, Italy, Estonia, Romania and France). A review of one specific casestudy was chosen for each municipality in order to discuss factors that either promote or inhibit the ability of municipalities to promote energy efficient buildings through their planning practices.

A case-oriented approach was chosen in the study in order to catch a more contextual understanding of how municipalities work on promoting energy efficient buildings through their planning practices. The idea is consequently not to provide a state-of-the-art analysis of the planning and regulation systems in Europe, but rather to provide a more contextual understanding of the preconditions that municipalities experience, when trying to promote energy efficient settlements, pointing towards some of the central challenges and possibilities. The intention is therefore to bring forward some of the differences in the planning and regulation prerequisites among the involved municipalities.

The cases were strategically selected on the basis of specific examples of promotion of energy efficiency in local building projects from each of the municipalities involved in the project. The cases typically represent flagships for the involved municipalities in terms of promoting energy efficient buildings, and represent a variety of different types of building projects, which reflect different planning and regulation conditions, depending on types of building, ownership and energy efficiency focus. An overview of the chosen cases is given in figure 1.1.

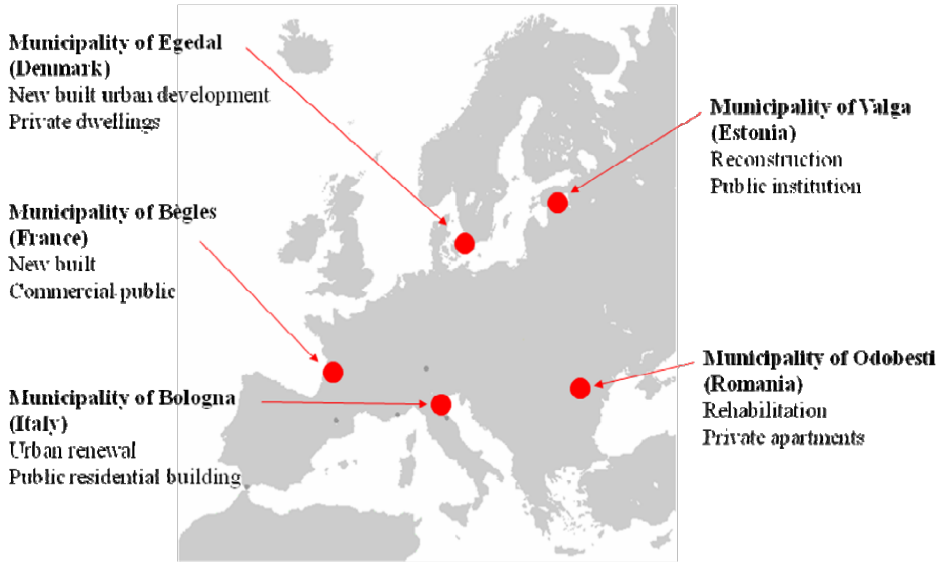

Figure 1.1: Overview of cases from the five participating municipalities.

The review of these cases has consisted of working out a description of the planning practices performed in the specific project. This description has been worked out by the respective partners from the five countries. The aim of these case descriptions is to illustrate the means through which the municipalities have been able to promote energy efficiency in buildings. Emphasis is especially put on the challenges that the municipalities have met during the process of implementing energy efficiency objectives in practice. The Danish case is distinctive in comparison to the other cases, since the data collection have been more thorough and included qualitative interviews with municipal planners, building companies and users. In the following, main emphasis is put on expanding the Danish case study and then broadening the discussion out by drawing on the case studies from the other countries.

3. Proactive planning of low energy buildings

The review of the chosen case studies show that both regulation and detailed planning in relation to energy performance requirements have some limitations to promote low energy buildings at the municipal level. In many of the cases, the municipal planner deploy alternative planning instruments in order to obtain the necessary results in practice.

3.1 Regulation of energy performance requirements

Building regulation typically represents a strong instrument to impose certain requirements to building stakeholders. More recently, minimum energy performance requirements of buildings has been raised as an important requirement for the construction and configuration of buildings, on similar footing as security, fire, and sanitation, among others through amendment of the EPBD. The strong emphasis on formulating and implementing energy performance requirements in European building regulation has strengthened the applicability of building regulation as a means to promote energy efficient buildings. Energy performance requirements formulated in the building regulation have an impact on local building projects, since municipalities are typically assigned the responsibility and authority to ensure that local building projects comply with international and national legislation.

The review of planning practices shows that municipalities in different Member States have different conditions for integrating energy performance requirements in municipal planning processes. Local building regulation represents an important planning instrument to regulate the energy performance of local building projects, especially when the municipality is able to act

proactively without having to await initiatives at the national level. However, in most of the cases in the review, the municipalities were dependent upon the energy requirements formulations in the national building regulation. This was also the case in the Municipality of Egedal, where the planners could not set up local energy requirements, but could merely incorporate the national requirements.

The case of the municipality of Bologna shows how local authorities may also have high self-autonomy in terms of actually formulating local building regulation requirements. In this case, the municipality was able to integrate energy performance requirements directly into a local building regulation. The application of this instrument is limited to the way the Italian spatial planning system is structured, and hence, not applicable in the other cases. However, a similar possibility to establish local building regulations exists in the Estonian spatial planning system, where a delegation norm is granted that allows municipalities to establish local building regulations within the city or rural municipality. This local building regulation is established in order to provide the gen- eral principles and rules for planning and building in the rural municipality or city or parts thereof and to determine the division of the internal functions of the local government in administration in the field of planning and building. This provides a great deal of higher self-autonomy in Italy and Estonia, compared to e.g. Denmark.

This illustrates that municipal authorities may play a more influential role in some spatial planning systems compared to others. In some cases, national authority will have extensive control with regulation of the built environment in terms of energy efficiency, whereas the municipalities will mostly act as henchmen, having the responsibility to implement the national standards in local building projects. Such a division may be fruitful, if the national authority is proactive, but it may also impede the more proactive municipal initiatives.

3.2 Detailed plans

Another important instrument is that of detailed plans, because municipalities are often responsible of development of such plans as local authority of urban development. This responsibility is due to a zoning principle, which is applied in most spatial planning systems in European Member States, where municipalities are responsible for the territorial administration within their own area, whereas national authorities establish priority programmes, directives and sectorial policies to be executed by the municipalities. Through this role as local authority, the municipality has the authority to impose restrictions on building design that go beyond those stated in the national building regulation in the process of issuing building permits. Such restrictions are formulated in the detailed plan for an area and typically relate to certain construction features (e.g. maximum allowed percentage of occupancy, height restrictions and types of materials used) in specific local building projects, based on general building requirements. These detailed plans may vary in form and content across Member States, but basically, it represents an important local planning document that regulates local building projects.

The detailed plans holds the potential of being a strong instrument to promote energy efficient buildings, since requirements regarding the energy performance of buildings can potentially be implemented through this local document. However, as the case of the municipality of Egedal showed, there are limitations in the applicability of the detailed plan to regulate the energy performance of buildings, since this local planning document proves to be ineffective in certain conditions. The spatial planning instrument has traditionally been developed without any focus on the possibilities of regulating the energy efficiency of buildings.

A critical limitation of detailed plans concerns the lack of warrant of local energy performance requirements due to legal issues about how national building regulation and local detailed plans are coupled. To have legal warrant for local building requirements is deemed important, especially in a Danish context, where lack of legal warrant could lead to disputes between developers and municipalities [15]. The lack of warrant of the energy performance requirements in the planning

process of the municipality of Egedal is due to lack of reference to energy performance in the so-called 'local plan catalogue'. In Denmark, there are strict guidelines for what issues a detailed plan may regulate that are legally binding in practice, as these issues are determined in the local plan catalogue (according to §15 of the Danish Planning Act). Most issues to be regulated through the detailed plan relate to aesthetic aspects of the building or use of the area, and this did – until a recent reform – not include energy performance of buildings or sustainability more generally [16].

A recent reform in the Danish Planning Act and Building Regulation in Denmark has now made it possible to refer directly in the detailed plan to the minimum requirement classes of low-energy stated in the Danish building regulation. This reform has made other Danish municipalities set up local minimum requirements for energy performance of new build that are tighter than the prevalent minimum requirement in Denmark. Hence, the recent revision of the Danish Planning Act has made is possible for municipalities to use the local spatial planning instrument as a means for promoting energy efficient buildings, according to the Danish Planning law, but still only with regards to nationally specified low energy classes.

Another limitation is that the detailed plan often has to observe the more valid general plan. This interdependence of different planning documents is a result of the hierarchical structure, which is applied in many spatial planning systems. This hierarchical structure limits the room for manoeuvre for the municipality, when producing detailed plans, since permission may need to be granted from authorities at a higher level in the planning system. This is for example the case in the Danish planning system, where amendments to or revisions of the general plan needs to be carried out, if there is a conflict with a detailed plan. In comparison, the hierarchy in both the Italian and Estonian planning systems are interactive in the sense that if a more detailed plan requires modification of a more general plan the necessary changes come into effect with enforcement of the more detailed plan. The hierarchical structure within the planning systems may therefore in some Member States pose limitations to the authority of municipalities, as the local planning needs to comply with the framework set in general plans at national or regional levels. However, since promotion of energy efficient buildings is widely recognised as an objective, both internationally and nationally, general plans should provide a supportive space of action for local authorities.

More generally, detailed plans find restricted use in the promotion of energy efficient buildings, since these plans only efficiently regulate new building projects. The detailed plans are not effective in terms of regulating existing buildings. This limitation relates to a general reluctance to restrict freedom of action of stakeholders based on a tradition of social and cultural limitations to what can be imposed on local stakeholders. An example of this is that the minimum standard for energy performance is less strong with regard to existing buildings, since it is difficult and sensitive to legislate retrospectively. For this reason, the Energy Performance Directive of Buildings does not impose minimum standards for energy performance directly onto existing building, but only existing buildings to undergo major renovations. This represents a way of circumventing this shortcoming of legislation by juxtaposing major renovations with construction of a new building.

This shortcoming of detailed plans with regards to existing buildings represent a major issue, since the need to impose improvements in the energy efficiency of existing buildings is of major importance in order to comply with political objectives regarding energy savings in the housing sector. In Europe, 50% of dwellings were constructed before 1970, in times when energy was cheap and abundant and climate change was not a concern [17]. For France alone, reducing the energy consumption of pre-1975 buildings to 50 kWh/m2 per year would imply retrofitting 450.000 buildings per year for 45 years (ibid). This illustrates that it can be difficult to implement legally binding measures, even for key focus areas with regards to promotion of energy efficient buildings. The review of planning practices illustrates this problem with regard to existing buildings very well, since this represents a key target area for several of the munici- palities, where it is difficult to promote energy efficiency through building regulations.

To sum up, none of the municipalities involved in this project have been able to use detailed spatial planning as a means for promoting energy efficient buildings (even though the municipality of Egedal tried). The traditional spatial planning systems do not include regulation of the energy efficiency of buildings in their scope. That does not mean that the detailed spatial planning does not hold the potential of being an important means of promoting energy efficient buildings. The recent revision of the Danish Planning Act has made it possible for municipalities to regulate the energy efficiency of new buildings in their detailed spatial planning. It is, however, important to be aware that the detailed spatial planning instrument is a means for promoting energy efficiency in new buildings only.

3.3 Alternative planning instruments

In several of the case studies there are examples of how the municipalities have adopted alternative instruments as a way to overcome the limitations of the building regulation and detailed plans. One example of this is the use of easements in the planning process of the municipality of Egedal. Such easements are used to provide the owner of land with some extensive property right. Easements are hence used by property owners in order to regulate specific elements of an area or a building, and this is based in general laws concerning rights of property. In the planning process of the municipality of Egedal, such easements were applied in order to make energy performance requirements legally binding for those buying and building on each lot.

This represents a strong regulation instrument, since the easements are recorded together with the deed. The use of easements is interesting, since there are no limitations to what issues may be regulated, but the challenge is to formulate requirements that are legally viable. This means that requirements need to be formulated as concrete as possible. The use of easements challenges the competences of the municipality, since it requires solid knowledge about property rights. However, a prerequisite for applying this instrument is that the municipality is owner of the property in question, since only the property owner has these rights over the property. The municipality of Egedal did not own the properties in question at the outset of the project, and for this reason, it has represented somewhat of a risk to invest in such a large area of property with the aim of reselling it again. It also represents a large investment for the municipality to make. These detours are now unnecessary as mentioned above, since a recent reform in the Building Regulation and Planning Act in Denmark make it possible to directly refer to the low-energy classifications stated in the Building Regulation in the local plan.

Finally, there is also the possibility to apply instruments that build more on voluntary agreements. This could be procurement or contract processes. The challenge of these is that the municipality has to be able to negotiate with the other stakeholders and find an agreement. Hence, contractual agreements are only possible when the other stakeholders accept to build energy efficient buildings. For example, municipalities may discover that nobody wishes to bid in a procurement process if the energy targets are deemed too ambitious. This was, for example, the case in the Italian planning process, where the procurement process had to be repeated in order to ensure that more stakeholders would bid on the project. Similarly, the municipality will also have a close dialogue with the contractor when producing a specific contract, and there will typically be some compromises to be made along the process. Hence, these are strong instruments, which invite for more voluntary energy requirements. In table 3.1 there is an overview of the regulation instruments.

Table 3.1: An overview of the regulation instruments

Regulation	Basics	Comments	Cases
Detailed spatial plans	Planning future use - often by zoning and imposing restrictions / energy performance and other environmental demands.	• Potentially strong • Regulates only new building projects • Traditionally spatial plans are developed without environmental focus. Revision must be done by national authorities. • Compliance with plan hierarchy • Demands authority of the building regulation	None of the cases have used detailed spatial planning as a means of promoting low energy building. The municipality of Egedal tried without success. However, since then a reform in Denmark makes it a usable.
Local building regulation	Integration of energy performance requirements	• An important instrument to act proactively • Setting high requirements in the local context may meet resistance among local stakeholders • Demands authority of the building regulation	In most of the cases the municipalities are dependent of national building regulation. In the case of Bologna, the local authority may integrate energy performance. A similar system can be identified in Estonia.
Easements	Property owners regulate specific future elements of the building or area	• A strong instrument • Based on general laws on rights of property	The municipality of Egedal used these legally binding easements. This required the municipality to buy the land before selling the lots to developers.
Other contractual agreements	1. Procurement (municipal property / building development) 2. Competitions for urban / building development 3. Contracts (agreements with contractors)	• Strong instrument, however, invite for some degree of voluntary acceptance by the stakeholders of energy requirements • An opportunity to set up energy performance requirements and hence commit the contractor to comply • The municipality has to have a specific role – e.g. as a developer • The municipality needs to have a close dialogue with the stakeholders	

4. Concluding discussion

Even though the building regulation and detailed plans were more geared to promote energy efficient buildings, the municipal planners would still be faced with the challenge of balancing the freedom of action for the local stakeholders, similar to the case of other contractual agreements. In order for regulation to be efficient, these need to be widely accepted and adopted by practitioners. This represents somewhat of a challenge, even at the national level of implementing energy

efficiency requirements, since the implementation of this kind of regulation takes place in ongoing political and social negotiations, involving a wide number of stakeholders and different interests. In that sense, interests in the building industry have a strong impact on what levels of regulation that are implemented, since these interests are taken into account during processes of lobbying for new regulation. The current status of implementation of energy efficiency reflects that sustainable development is increasingly taken seriously, but that there are still limitations as to what can be imposed, especially in the liberal political tradition of Europe.

For implementation of particular energy requirements at the municipal level, the sensitiveness with regards to restrictions in freedom of action becomes particularly strong. As the reviews of case studies show, the municipalities are well aware that implementation of local energy requirements largely restricts the freedom of action of local building stakeholders, and that this might make these stakeholders reluctant to engage in building projects with too many restrictions. As a result of this reluctance, municipalities that impose restrictions on local stakeholders may be left with projects that are not attractive on the building market, and are hence faced with either compromising the political intentions or giving up the idea of promoting energy efficiency in the project.

In some cases, restrictions regarding energy efficiency may also be difficult to implement in practice due to lack of knowledge and competences among the local stakeholders. This is for example mentioned as a problem in the cases of Estonia and Romania, where there is no tradition for improving the energy performance of buildings. Setting high requirements in this local context would then only lead to frustrations among the local stakeholders. These practical conditions are important to recognise in order to understand the limitations of building regulation and detailed plans, especially at the municipal level, where political ambitions of energy efficient buildings may be difficult to impose on local stakeholders in practice.

Besides formal limitations in planning authority, certain limitations also exist in terms of the status of the planning system and the municipalities within Member State cultures. Some Member States, like Denmark, have a long tradition for strict regulation of the built environment, which has led to systematic procedures and an acknowledged position of different levels of governments. There exists, so to speak, a strong authoritative system, which is respected and followed by practitioners. In other Member States, like Romania and Estonia, different traditions have existed over time due to radical changes in government structures, hence leading to less mature systems of planning and regulation. This more unstable situation may be reflected in lack of compliance with authoritative procedures; making it more difficult for authorities to make practitioners respect and follow the approved guidelines.

The municipalities in the review demonstrate that they have a strong position to operationalise strategies of energy efficient buildings, although the prevailing planning frameworks lack to support municipal authorities to back up their planning strategies regarding sustainable development in practice due to lack of authority and tools, as mentioned earlier. In spite of this lack of support from the planning framework, municipalities show that they are capable of implementing energy efficient technologies in local building projects through alternative means. This illustrates that the current interpretation of spatial planning roles is too narrow to encompass the variety of arenas of change that municipalities actually have at their disposal in order to promote energy efficient buildings. Whereas the current instruments focus on spatial planning, municipalities actually fulfil a number of other roles in relation to planning and regulation of the built environment.

A broader interpretation of spatial planning reveals a large number of local processes that the municipalities actively form part of in regulation of the built environment. These local processes may vary with regards to how different building projects are organised. In some cases, like that of the Danish case, the municipality forms part of an extensive local development project that comprises of several different local processes, since the municipality is acting out a number of different roles, like planning authority, property owner, developer and approving authority. In other cases, the municipality may have one primary role, e.g. as developer, which then characterises the

local processes that the municipality form part of. For example, the municipality of Valgav acted out as property owner and developer in the development of the Kindergarten Kaseke. Each of these local processes provides different conditions – and possibilities – to promote energy efficiency in the built environment, and in each case different instruments may be combined in order to fulfil the targets.

In cases where the municipality is the actual developer of a public building project, their possibilities to promote energy efficiency within the project are great, since they act out as customer to the building industry, and hence, have wide space of action for deciding the conditions within the project. Also in this case, the municipality might be restricted by economy or by requirements in procurement and outsourcing processes. For example, in a Danish context, municipalities are required to administrate the municipal means in an economically responsible manner, which might restrict some additional costs related to energy efficient solutions in the building design.

This shows that there exist several arenas through which strategies for promoting energy efficiency in the built environment can be operationalised. Such arenas of change represent processes, where municipalities strongly interact with stakeholders in relation to a local building project, providing an opportunity (and timing) to integrate the issue of energy efficiency into on-going processes, where initiatives have a direct impact. This represents a showdown with the idea that a narrow interpretation of the formal process of spatial planning represents the main road to implementation of energy efficiency in the built environment. In stead, the study shows that a number of local processes are relevant to consider as local arenas of change, in which municipalities and stakeholders in the building sector interact during development of local building projects. By succeeding in operationalising their strategies for energy efficient buildings, the municipalities minimise the risk of strategies to become empty declarations of intent, since they would actually be capable of implementing the strategies in building practices.

In order to develop and exploit such arenas of change to a higher degree, municipalities need to become more aware of the processes they are involved in, when planning and regulating the built environment, and develop strategies to exploit these in order to mobilise local stakeholders to change their practices. This implies a more self-reflective view of their planning roles. This self-reflection is especially important, since the contexts in which municipalities operate across Europe differ. In order for this proactive role to have a strong impact, the municipality needs to adjust its initiative to a relevant local context. Different local contexts may offer different possibilities to promote energy efficient buildings if the municipalities have the competences in terms of combining and implementing the right mixture of potential planning and regula- tion instruments, setting up requirements and facilitating the process. The cases show that the municipalities are very clever to find ways of making a bricolage of existing local tools and strategies in order to promote energy efficient building.

However, the study also shows that although an important objective of European spatial planning systems is to promote more sustainable spatial planning, the prevailing spatial planning system proves to provide little support for the promotion of energy efficient buildings at the municipal level. This is illustrated through the review of the case studies, where few of the municipalities actually relate to the spatial planning system. The intention to promote energy efficiency through spatial planning therefore often becomes empty declarations of intent, since the instruments provided by the systems are either not applicable or ineffectual in order to ensure actual implementation of energy efficient technologies at the local level. In order to support the efforts of municipalities to implement energy efficient buildings, there is an urgent need to modernise existing planning systems in order to rethink how these systems may cope with the complexity of implementing energy efficient buildings in practice and support the proactive initiatives of municipalities.

A number of cases have been explored where municipalities have initiated processes towards promoting energy efficient buildings. The municipalities have been catalysts of change, not as a

result of a supporting national framework, but in spite of the lack of this. The municipalities in the cases have changed their role from being mere guardians of the national legislation to active agents of change, supporting and facilitating the processes promoting energy efficient building. The cases show that such municipalities need to gain knowledge of the technical potentials, economy and market conditions. If more municipalities are to act as catalysts of change an international and national exchange of knowledge and experience between municipalities could be useful. The civil servants in the municipalities have to have new competences in order to be able to facilitate the processes.

The municipalities described in the cases have had little help from the national planning legislation, because it has been developed to solve other problems than the promotion of energy efficient building. The detailed local spatial planning does, however, hold the potential of being developed to a powerful tool. The recent changes in the Danish Planning Act might be a first step showing the way forward: the interaction between national (or even international (EU)) standards, and detailed local planning, reflecting the contextual conditions.

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6. References

References should be listed in the order in which they appear in the text and be provided with a reference number in square brackets [1] using an overhanging indentation of 10 mm. References should be made in the paper using the appropriate reference number in square brackets. In the list of references, the author's names are uppercase and are followed by the initials. The titles of books, journals and proceedings should be in italics. Titles should be in lower and upper case as shown below. The year of publication and the page number(s) should be given.

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