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Energy Efficiency and Socio-Cultural Values in Public Policy in the City of Stockholm

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ABSTRACT

Cities face increasing challenges in reducing their impact on climate change while also preserving their cultural heritage, both older and more modern. This paper investigates the articulations of energy efficiency and cultural values in local public policies of the City of Stockholm. The municipality is particularly interesting in its self-imposed role as being world-leading in the climate transition. However, we argue that the city fails in undertaking a holistic approach to sustainability by not providing sufficient guidance on how energy efficiency and cultural values can be reconciled. Cross-sectorial and sectorial policy documents as well as the implementation of local directives and objectives in a large municipally owned housing company are studied. Two cases of renovation serve to demonstrate how policy is turned into practice and how energy efficiency aims and cultural values are assessed. One significant finding is the clear asymmetry between the steering ability of policy relative to energy efficiency and cultural values respectively. A major drawback is the lack of directives and guidelines concerning the built heritage, particularly at a building level, supporting decision-making when implementing necessary energy efficiency measures in buildings with cultural values. A recommendation made is to introduce cross-sectorial guidance in implementing energy efficiency measures in buildings with cultural values.

KEYWORDS

Energy efficiency; cultural values; built heritage; conservation; public policy instruments; public housing; renovation; legislation; climate; sustainability

Introduction

Today cities face increasing challenges with reducing their impact on climate change while also safeguarding socio-cultural values of the built environment. In order to reach sustainable development, it is necessary to both improve the energy efficiency of buildings and preserve their architectural qualities and cultural identity. Lessening the climate impact, reducing CO₂ emissions and at the same time protecting the historic environment are significant contemporary policy objectives on both the international and the national level. In Sweden, several national strategies and policies have been adopted for reaching the Paris Agreement and Agenda 2030. The Swedish Environmental Objectives include

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goals concerning climate, environment, and heritage issues.¹ Trade-offs are inevitable when implementing the necessary energy efficiency measures in existing buildings and, at the same time, safeguarding their socio-cultural values. Reconciling interests is thus essential for converting policy into practice as well as adopting a holistic perspective on sustainability.² The Swedish Energy Agency and the National Board of Planning, Building and Housing acknowledge that reducing energy consumption in historic buildings is possible and that building characteristics need to be respected, but also that trade-offs are needed.³ Socio-cultural values are hence not necessarily regarded as an obstacle to development. The supposition implies that the translation of policy into practice is pervaded by compromises.

This article investigates the balancing of the conflicting targets of energy efficiency and climate on the one hand, and the protection of the historic environment and well-designed living environments on the other. This balancing act is carried out with the help of a diverse set of public policy instruments supporting decision-making taken by municipal agencies responsible for housing, planning and building, and conservation. The article constitutes a case study on how international agreements and directives are interpreted and implemented on a national and local level. In Sweden, municipalities have a key role in the transition to a sustainable society and a unique position in converting Agenda 2030 and national climate and energy politics into practice using legislation, local policies, and plans. A study of the City of Stockholm, then, does not just serve as a local case but has relevance for an international audience of researchers and policymakers. Municipalities are not just authorities but are also actors in urban planning and building by acting as property owners, by interpreting the law and by enjoying discretion in the decision-making concerning planning and building as well as conservation issues.⁴ The City of Stockholm is particularly interesting in its self-imposed role of being a world leader in a global effort to realise the Paris Agreement and in its capacity of being one of Sweden's top 20 largest property owners.⁵ The three municipally owned housing companies in Stockholm have a total building stock of roughly 75 000 apartments (1 500 properties) located in all geographical districts of Stockholm City.⁶ As all municipally owned housing companies in Sweden are regulated by the Public Municipal Housing Act (2010:879) and to be run according to commercial principles, there are similarities between them. The dilemma of balancing energy efficiency and conservation is shared by other municipal property companies as well as state real estate companies in Sweden that are to be guided by financial principles, facing the same national climate and energy directives and often managing real estate with significant socio-cultural values.

Despite national programmes on energy efficiency carried out in 1974–1984 and 1984–1993, the existing building stock is generally pointed out as having a large energy-saving potential, and energy efficiency measures are not only recommended but also ordained by legislation and policy.⁷ Particularly, post-war multi-residential housing from 1950 to 1980 constitutes a considerable proportion of the Stockholm municipally owned housing stock.⁸ In Sweden, post-war multi-residential housing (built between 1950 and 1979) makes up 34 per cent of the total multi-residential housing stock in Sweden but represents 50 per cent of the multi-residential housing stock's energy use.⁹ Post-war housing is particularly targeted by energy efficiency campaigns considering their high energy use and lack of maintenance in the past. This part of the stock, however, also holds considerable socio-cultural values without

being formally protected. Within the Swedish legal context, socio-cultural value is a concept that sums up several values identified and derived from an object's tangible and intangible characteristics, including cultural-historical values. The post-war housing stock constitutes a clearly readable annual ring of the suburbs of Stockholm and is the living environment of a substantial part of the city's inhabitants. Its socio-cultural values are also sometimes debated, complicating the preservation of the modern built heritage.

Aims

This paper is part of a research project studying the implementation of policies for energy efficiency and conservation on a local level in Sweden. Even if one city is in focus here, we also demonstrate how international policies such as Agenda 2030, the Paris Agreement and the EU Directives 2002/91/EU and 2010/31/EU (EPBD) are translated to the local level. Having understood that the conflict between energy efficiency and heritage conservation today is a global concern, this study analyses the use of a diverse set of public policy instruments designed to support the decision-making of municipal agencies involved in housing, planning and building as well as conservation issues. The overarching goal of these policies are to reconcile differing interests when implementing energy efficiency measures in buildings with socio-cultural values. Much of the local work concerning climate transition and reduction of CO₂ emissions on the one hand and conservation on the other relates to the renovation and the maintenance of existing buildings, and this is why the Swedish Building Code, the Planning and Building Act (PBL 2010:900) and its specification, the Building Regulations (BBR), issued by the National Board of Housing, Planning and Building, are of great importance to this study.

We examine how the set of public policy instruments within the fields of energy efficiency, housing and conservation is constituted and how energy efficiency and conservation of the built environment are articulated relative to each other in local policies, programmes and plans. Part of the study is an analysis of how energy efficiency and conservation were balanced in the renovation of two multi-residential areas and how the municipal agencies dealt with energy efficiency measures and the designated cultural values of the buildings. Similar studies are scarce. A study by Friedman and Cook¹⁰ noticed a lack of consistency in the application of planning policy for energy efficiency in historic buildings across Boroughs in London. There is in Sweden also an ongoing research project within Environmental Law on the implementation of PBL, energy efficiency and the preservation of the built environment in Sweden indicating that this field of research is growing.¹¹

The paper focuses on policies and practices relative to alteration, as PBL defines modifications made to a building's 'design, function, use, appearance or culture-historical value.'¹² Cultural-historical value is here understood as an aspect of socio-cultural value. The aim is to increase knowledge of how national policies and legislation are interpreted on a local level to understand the practice of trade-offs and resolution of conflicting interests. This is done by studying 1) the local policies on climate and environment, urban planning and building, the protection of the historic environment and the directives given to committees and municipally owned housing companies by the City Council, 2), the maintenance strategy of the building stock of

Stockholmshem, and 3) the building permit process for the renovation of two housing areas with designated cultural values owned by Stockholmshem. Stockholmshem is one of three municipally owned housing companies in Stockholm and owns circa 28 000 apartments in Stockholm.¹³

Method and Materials

The study is constituted by policy analysis, semi-structured interviews and an analysis of public records related to two of the selected cases of the building permit application. The paper uses qualitative investigation of local policy and is an in-depth reading of different local public policy documents within the fields of environment, housing, planning and building, and conservation. It investigates how energy efficiency and cultural values relate to each other in policy and how these interests are balanced in practice by two relevant agencies in the municipal organisation: the housing company Stockholmshem and the Planning and Building Administration.

Policy Analysis

Local public policy instruments are analysed after an initial account of the PBL. The latter both regulates the standards being applied in renovation and directs the decisions within urban planning and building made on a local level. Organising the building permit process, PBL consists of a set of provisions primarily interpreted and implemented by local public officials at the Planning and Building Administration acting on behalf of Planning and Building Committee.

The municipal public policy instruments analysed here have different status giving more or less binding directives to committees and companies. They are mainly of two types. First, there are the overall governing policy instruments as the municipal budget and the cross-sectorial long-term and strategic comprehensive plan regulating the urban development of the municipality. Second, there are the sector-specific policies and plans concerning on the one hand the environment, the reduction of CO₂ emissions and energy efficiency, and on the other hand planning and building. Policies include recommendations, guidelines and routines playing diverse roles in the implementation of objectives. Some of the policies are politically adopted, others are not. Some are legally binding, but more or less coercive and open to interpretation. Some of them need to be followed up and thus have a more imperative function. There are documents that serve as a source of knowledge and are of great informal importance but lack in legal validity, and there are also guidelines, checklists and routines. The difference in legal status of these instruments is highly relevant to our analysis.

Semi-Structured Interviews

In order to investigate the implementation of policy and the balancing of energy efficiency and socio-cultural values in practice two group interviews have been conducted: one with municipal officials representing the Planning and Building Administration and the Stockholm City Museum, and one with representatives of Stockholmshem. The interviews were semi-structured and discussed organisational issues, quality assurance, knowledge building, routines and prioritisations to

understand the implementation of policy and how legislative provisions and directives are understood in practice.

Public Record Analysis

Regarding the implementation of energy efficiency measures in buildings with designated cultural values, two kinds of documents were investigated. First, documents related to the building permit applications for the renovation of two multi-residential areas in the southern suburbs of Stockholm, Solberga and Valla Gärde. The building permit applications comprise application forms, drawings, photos, reports on socio-cultural values and energy measures, decisions made by authorities, and correspondence between case-officers and applicants. The sources are retrieved from the database of building permit applications kept by the City of Stockholm.

Second, public documents relating to the maintenance and renovation of their building stock were derived from the housing company. These consist of protocols, decisions and reports made by administrators within the housing company. They were accessed through the digital database Insyn that contain public records from a number of municipalities and municipal housing companies in Sweden.

The Legislative Framework of Energy Efficiency and Conservation in Renovation

The purpose of the Planning and Building Act, PBL, is to safeguard a sustainable development including both the facilitation of the climate transition and the protection of cultural values in the built environment. It is within this legal framework that energy efficiency renovations are managed in relation to national environmental targets as well as local climate and energy policies.

The EU-directive on energy performance and its amendments (2002/91/EU, 2010/31/EU – EPBD and EU/2024/1275) emphasise that the energy performance of the existing building stock needs to be improved and argues that deep renovations are needed.¹⁴ However, renovation is not a concept defined in Swedish legislation. In PBL, the energy efficiency measures exemplified by the EU directive in 2002, such as changes to the building envelope and/or energy installations for heating, hot water supply, air-conditioning and ventilation may be defined as building alterations. Depending on the extent of the measure, the alterations may require a building permit.

Despite PBL being based on new construction as a standard for all planning and building, it is a central piece of legislation when it comes to safeguarding the historic environment. From a legislative perspective, an alteration differs from new construction. Alterations must in order to be granted a building permit, ‘demonstrate a good effect of design, colour, and material’ and be carried out with care, ‘so that the building’s characteristics are taken into consideration and its technical, historical, cultural-historical, environmental and artistic values protected’.¹⁵ PBL refers to both buildings and environments with socio-cultural values and buildings that are particularly valuable from a historic, cultural-historical, environmental and artistic perspective.¹⁶ The concept of socio-cultural value is entangled with and sometimes used synonymously with the concept of cultural-historical value and there are many related concepts in Swedish

legislation. Generally, socio-cultural values include cultural-historical ones. BBR provides a description of different characteristics that a particularly valuable building may have. The values may include the characteristics of earlier social conditions, societal development, knowledge of historical building materials and techniques, particular aesthetic characteristics, and lastly the building's importance for local history.¹⁷

Of relevance in this context and for the processing of the building permit are three provisions: the provision of caution,¹⁸ the provision of prohibition against distortion,¹⁹ and the provision of adaptation making possible deviations from standard requirements with regard to the extent of the alteration and the condition of the building.²⁰ The three provisions are interconnected and put the condition and the characteristics of the building in the focus for the building permit application. In accordance with the provision of caution, *all* [our italics] buildings, regardless of age, character or location are to be treated with care: '[...] so that the building's characteristics are taken into consideration and its technical, historical, culture-historical, environmental and artistic values protected'.²¹ The provision acknowledges that all buildings have these kinds of socio-cultural values that are to be considered in planning and building matters, and giving in combination with the provision of adaptation and deviation, some precedence to cultural values compared to the technical characteristics such as the requirement of heat retention. The provision on distortion only applies to buildings that are 'particularly valuable from a historical, culture-historical, environmental or artistic point of view'. The prohibition against distortion does not hinder alterations but measures may not disfigure the building.²²

The municipality supervises the compliance of PBL relative to the design of buildings and their technical characteristics, caution and distortion, by issuing or denying building permits for new constructions and for alterations. PBL does not only make demands on the alteration but also regulates what a building permit application and a permit decision must contain, and the requirements and conditions for permits.²³

Energy Efficiency and Caution in Alterations

In Sweden the EU directive on energy performance 2002 was met by a revision of BBR, as the existing legislation was deemed to be compliant with the intentions of the directive.²⁴ For the first time requirements were set on bought energy and the energy use was to be verified.²⁵ The BBR contains mandatory minimum requirements and general recommendations specifying mainly the technical characteristics required by PBL. The regulations are formulated in functional terms to avoid the recommendation of specific technical solutions.

Considering energy performance requirements, the BBR in accordance with PBL enables considerable respect for the characteristics of and the cultural value of older buildings. While new construction must reach specified energy levels, the condition of an existing building determines energy conservation measures and their implementation. The BBR states the requirements in terms of 'shall': '[t]he requirements for energy conservation shall be applied to ensure that [...] the building's cultural values are not impaired, and that the architectural and aesthetic values can be safeguarded'.²⁶

In the building permit process, socio-cultural values are thus to be taken into consideration regarding both the provision of caution and the prohibition against distortion. In an alteration, then, socio-cultural values in theory thus hold a relatively strong legal

position in relation to the technical characteristics. In practice, the situation is complex, and the more extensive a measure, the stricter the technical requirements, meaning that in major renovations, the standard for new construction is to be applied. Preliminary investigations may be conducted to identify cultural values and ensure caution. This investigation should be 'tailored to the scale of the measure and the nature of the object'.²⁷

Historic environments are furthermore, despite the definition provided by the National Heritage Board as including *all* [our italics] environments affected by man, generally restricted to selected buildings and major or minor geographical areas with identified socio-cultural values. The prospects of being protected increase if the building is defined as particularly valuable from a historical, cultural-historical heritage, environmental or artistic point of view in a comprehensive plan, a detailed development plan, a historic environment programme or inventory. If the municipality also has access to professional heritage competence, the historic environment stands an even better chance of becoming safe-guarded.²⁸ A series of investigations carried out by the National Heritage Board indicate however, that socio-cultural values are lost to a great extent in the planning- and building process throughout the country.²⁹

Energy Efficiency and the Built Heritage in Local Policy

Stockholm's environmental and conservation politics are of approximately the same age, both originating in the 1970s. Since 1976, Stockholm has had a continuous set of politically adopted environmental policies and action plans for decreasing greenhouse gas emissions and making a climate transition. Energy targets were introduced in the 1990s and energy efficiency has been on the agenda the last decades. The political direction is most clearly articulated in the municipal annual budget, which is the superior governing instrument including non-negotiable targets and activities. It also suggests indicators directing municipal committees as well as the public housing companies, making follow-up possible. The budget instructs the public housing companies to work with energy efficiency measures and to integrate the energy targets of the *Environment Programme* in their business and management plans. The historic environment is mentioned only on very rare occasions in the budget, indicating a low priority and when mentioned, not associated with any specific activities or indicators, making governing weak.³⁰

In 2015, Stockholm City Council decided that the city was to be a fossil fuel free city by 2040 – an overarching objective that is still valid.³¹ In 2019 the housing companies were instructed to intensify their work with energy efficiency, mirroring the city's climate ambitions.³² The housing companies are left to decide what measures to implement, but the suggested indicators mainly monitor bought energy. Between 2012 and 2015 the proportion of m² subjected to energy efficiency measures in major renovations was added as an indicator and in 2020, relative energy efficiency.³³

The Comprehensive Stockholm City Plan

Every municipality has by provision of PBL a comprehensive plan and its content is statutory. The comprehensive plan must be politically adopted by the City Council but

has no legal validity as a planning instrument in contrast to the detailed development plan. The *Stockholm City Plan* of 2018 serves to support sustainable development and provide guidance for how land and water areas and built environments are to be used, developed and preserved.³⁴ The plan also considers public interests in accordance with the Swedish Environmental Code.³⁵

The comprehensive plan is clearly a strategic instrument for balancing and coordinating interests and making priorities. The City Audit of Stockholm ascribes the *Stockholm City Plan* a special position in urban planning.³⁶ The Swedish National Board of Housing, Building and Planning, describes the comprehensive plan as a document explaining strategies for a long-term sustainable development of municipal urban development, also describing the need for trade-offs between public interests.³⁷ The *Stockholm City Plan* itself recognises the necessity of trade-offs and describes the 'balancing' or the 'weighing up' between public interests as a 'major challenge' or even 'the biggest challenge' of city planning.³⁸ Despite the strategic function of the comprehensive plan and the weight given to the balancing of interests, there are no guidelines in the plan indicating how trade-offs are to be made. Each public interest such as climate, environment, utilities infrastructure, housing, heritage and architecture, is treated as sectorial issues and is provided with separate so-called planning directions to support decision making.³⁹

The section on heritage in the *Stockholm City Plan* is the closest to a conservation planning strategy to be found in Stockholm presenting an approach to conservation, planning and building. The plan describes Stockholm as being a historic mosaic and the planning directions suggest that additions to the city need to be preceded by analysis and emphasise the need for knowledge and analysis in planning: alterations and renovation of existing buildings '[...] are to be based on knowledge of the existing heritage environment. Changes must be made in a conscious manner that takes account of and embraces local characteristics'.⁴⁰

The planning directions are thus open-ended, leaving for third part to interpret them. The emphasis put on knowledge and analysis indirectly means that potential concessions are forwarded to other actors and that no priorities are made by the municipality at this stage. Stakeholders within urban development are pointed out and are given great responsibility for safeguarding and developing the city's 'attractiveness'.⁴¹

All public interests are given equal importance in the comprehensive plan and neither climate nor conservation is given priority regardless of today's climate crisis and that the *Stockholm City Plan* define climate change as 'one of the greatest challenges of our age'.⁴² Clear priorities are rare. This is foremost exposed by the low incidence of the modal auxiliary verbs 'should' or 'ought' to. Energy efficiency is barely mentioned, although noted in short as 'important' for reducing energy consumption. Despite that energy efficiency is a long-standing activity in the budget and that there is the *Environment Programme* as well as the *Climate Action Plan*, issues of energy efficiency are largely absent in the comprehensive plan. Buildings the *Stockholm City Plan* however informs, should make use of sustainable energy solutions and smart environmental technology. As a cross-sectorial strategic plan, the comprehensive plan is under-used.

Sectorial Programmes, Plans and Policies

While the comprehensive plan works on a strategic level for the future planning of both the whole city and its different districts, the sectorial programmes (the *Environment Programme* in particular) have a more direct bearing by the integration of their targets in the business plans and the management systems of the public companies. The *Building Ordinance* and the *Architectural Policy* are such instruments most explicitly dealing with the built heritage. While the *Building Ordinance* is described as a source of knowledge, the *Architectural Policy* presents design strategies for the city and a toolbox for formulating architectural concepts. Neither of them gives much guidance relative to alterations.

As sectorial policies and programmes, references to issues outside the scope of their respective theme, are sparse. Neither alternative interests nor conflicting priorities are particularly pronounced in the documents. However, both the *Environment Programme* and the *Building Ordinance* note that balancing interests and trade-offs is inevitable in an expanding city.⁴³ There is no mentioning of climate change or the need to adapt to or mitigate it. Housing provision needs are only mentioned briefly in the *Architectural Policy* while socio-cultural values are not mentioned at all. As a rare but notable exception socio-cultural values are noted in the former *Environment Programme 2016–2019*. Socio-cultural values need to be considered, this programme informs, but they are also described as an obstacle to energy efficiency in renovation projects.⁴⁴

The socio-cultural values of the built environment of both the inner city and the suburbs have been surveyed since the 1970s. The result of the inventories is visualised in the digital Heritage Classification Map, produced by the Stockholm City Museum and accessible online to anyone. The map is defined as a knowledge basis and the expert opinion of the museum. It is of critical importance for the safe-guarding of the built heritage but has no legal status. The classification offers



Figure 1. Detail of the heritage classification map showing the southern suburbs of Stockholm, including Valla Gärde and Solberga. Source: Stockholm City Museum.

a quick way of identifying socio-cultural values to be considered in building projects, but gives no guidance on how to handle the them.⁴⁵ Buildings are classified blue, green and yellow to signify diverse levels of socio-cultural value: blue being the highest value, followed by green and yellow in descending order (Figure 1). Despite its importance, the map is only referred to in the references of the current *Building Ordinance*. Clarifications of socio-cultural value and the historic environment are thus remarkably absent in the *Building Ordinance*. Guidelines are certainly strategic, but like the planning directions in the comprehensive plan, open-ended and general.

In 2012 the *Environment Programme 2012–2015* introduced the target of subjecting municipally owned buildings to energy efficiency measures in larger renovations. As a consequence of the EU directive of energy performance (2010/31/EU), the long-term objective was to cut the energy use in buildings by half by 2050.⁴⁶

The *Environment Programme* of 2016–2019 specified that 30 % of all bought energy in major projects should be saved, a target that still remains.⁴⁷ The *Climate Action Plan* specifies activities and processes necessary for reaching the over-arching climate objectives of a fossil-free and climate-positive city by 2040 and a fossil-free organisation by 2030.⁴⁸ Part of the action plan is dedicated to measures for energy use within the built environment, assigning every public property owner a CO₂ budget. The existing building stock, which inevitably include buildings with designated socio-cultural values, is said to have a large potential to reduce CO_{2e} emissions, but the pace for implementing energy conservation measures is too slow.⁴⁹

While the climate and environmental goals for the public housing companies are quantified, there are no detailed targets either within planning and building or conservation. Climate and energy issues are not considered when commenting upon challenges or contemporary needs in the *Building Ordinance* or *Architectural Policy*. As in the *Stockholm City Plan*, the *Building Ordinance* does not express any details about the role of existing buildings or the historic environment, neither in general nor to sustainable development or the climate. The same was absent also in the last ordinance from 1999, which preceded the climate debate of today, but this, in contrast, contained references to programmes regarding conservation and the renewal of different building typologies as well as advice and instructions on energy saving, thermal insulation and façade renovations. The publication of these (1979–1983) coincides with Sweden's first programme on energy efficiency that followed the global energy crisis in 1973.⁵⁰

The *Architectural Policy*, in its turn, acknowledges the climate issue and points out that architecture is a powerful tool for sustainable development. This is in accordance with how architecture is treated in the comprehensive plan.⁵¹ Climate-friendly solutions are described as a basic prerequisite in new architecture; technical solutions and innovation are given a key role in securing ecological sustainability. As an example, the policy shows a full-scale sample of a façade element with solar panels mimicking the original façade element of Hötorgshusen, a curtain wall building from 1960–1962 in the city centre of Stockholm.⁵² The building is included in the Stockholm Heritage Classification Map and classified blue which equals a building which is particularly valuable from a historical, culture-historical, environmental or artistic point of view according to the PBL. Hötorgshusen thus forms part of the built heritage described in the *Building Ordinance* but is not acknowledged as heritage.

Implementing Energy Efficiency Measures

The public housing companies are given a great deal of responsibility for implementing local politics following the directives in the Stockholm budget, the *Environment Programme* and the *Climate Action Plan*.

The city's municipal housing companies all have structured working procedures and maintenance routines that contribute to compliance with legislation.⁵³ In 2021, Stockholmshem summarised its maintenance strategy.⁵⁴ A property portfolio plan guides the allocation of capital and prioritisation of projects. The plan is based on technical status, previous renovations, rental income, operating costs, geographical location, and the building's strategic function to the company. The purpose of all maintenance is to keep or improve the standards of housing and to modernise in order not to decrease property value.⁵⁵

The maintenance strategy informs on four different renovation models or categories: 1) planned maintenance, 2) renovation projects mainly of the post-war building stock, 3) profit motivated projects often involving business premises, and 4) projects motivated by sustainability targeting social issues, climate mitigation, and energy efficiency measures. In the strategy, reference is made to what is described as a 'careful' or 'a cautious renovation model' and 'caution' in maintenance measures applied involving ecological, social and economic aspects.⁵⁶ There is no clarification in the strategy whether the model and the intentions relate to the provision of caution as described in PBL, but in another document the careful renovation model, is described as involving the replacement of only out-dated parts.⁵⁷ The concept of careful renovation has been developed and adopted during the last decade within the housing sector in Sweden and while socio-cultural values sometimes are targeted, mainly social aspects and considerations to the tenants are in focus.⁵⁸

There is also an energy strategy and a system for energy monitoring, enabling follow-ups of the indicators adopted by the City Council. Energy efficiency measures are beginning to show results, the City Audit reports, but the investments necessary for future improvements may be discouraged by the requirements for profitability.⁵⁹

Balancing Energy Efficiency and Socio-Cultural Values

Stockholmshem works with a whole range of energy efficiency measures, from temperature sensors, attic insulation, insulating windowpanes, extra thermal insulation, ventilation measures and heat recovery. Historically the company has been restrictive with additional thermal insulation and replacement of windows. Despite having identical directives from the City Council, the three public housing companies in Stockholm have chosen different strategies for dealing with energy efficiency of the buildings' envelopes.⁶⁰ Stockholmshem's approach to measures on facades and windows seems to be the result of personal interests, professional relations as well as organisational traditions.

Generally, the age of the buildings and technical and performance deficiencies motivate renovation projects. High energy use, recurrent problems with mandatory ventilation

control and comfort issues are factors that may trigger renovation.⁶¹ Comfort issues are surveyed regularly through resident surveys, error reports and maintenance routines.⁶²

Cost is decisive when planning energy efficiency measures. Resource efficiency and conservation, the company says, do not go 'hand in hand'.⁶³ However, socio-cultural values are 'on the checklist' during project planning, and there are design instructions taking socio-cultural values into consideration. These include mostly interior details such as original fitting, surface material and colour schemes. They are specific for houses built in the 1930s or later.⁶⁴

As a routine, questions on the climate shell are raised while planning for ventilation measures or facades in need of maintenance: 'you might as well do something there whilst renovate' the housing companies representative says.⁶⁵ Measures on the building envelope are, however, unusual because of high costs and low return on investment.⁶⁶ According to Stockholmshem's representatives replacing windows is not cost-efficient compared to insulating the windowpanes, an issue they have had researched.⁶⁷ In some cases, external thermal insulation might be the only option. For example, the housing stock from the 1950s has the highest energy use compared to other age classes, all other energy efficiency measures have often already been applied, and thermal insulation is the last resort when energy objectives are to be met. In the end, 'not much remains to do than work with the building envelope', the company says.⁶⁸

External Thermal Insulation in Valla Gärde and Solberga

External thermal insulation was suggested for the buildings in both Valla Gärde and

Solberga with estimated targets of 65% respective 30% in energy savings in comparison to pre-renovation levels, corresponding to the targets set in the current *Environment Programme* (Figures 2 and 3). While the technical service components of the buildings in Valla Gärde from the early 1960s were considered to be at the end of their technical lifetime by 2015, high energy costs and complaints about draft and lack of indoor comfort from the residents made the property in Solberga a prioritised project.⁶⁹ The buildings in Solberga from the 1950s belong to the company's 'worst buildings' with an energy performance well below established standards, posing 'a challenge' for the company.⁷⁰ The buildings at Valla Gärde were included in Grow Smarter, a EU Horizon 2020 project in which Stockholm became a participating member in 2015. The site was chosen because the project coincided in time with the planned renovation. Stockholm was appointed a 'Lighthouse City' or a Low Energy District to develop, test and demonstrate replicable integrated solutions for reducing energy use and environmental impact.

The building permit applications of Valla Gärde and Solberga include external thermal insulation and different measures to the windows. In Valla Gärde the additional insulation was 120 mm thick compared to the more common 30 mm, which was suggested for Solberga. In both cases 20 mm of new plaster was to be added to the new insulation. In Valla Gärde, the permit application also included alterations to the interior and solar panels.⁷¹

There are some noteworthy differences between the projects, not least the scale of them. Valla Gärde was defined as a major renovation project because of the number of apartments affected by the renovation, the number of measures applied and the



Figure 2. The buildings of Valla Gärde.

extensive budget, while Solberga was not, being restricted only to two buildings. Being a major renovation and being part of Grow Smarter meant additional requirements relative to heat retention and energy efficiency in Valla Gärde. Another significant difference was the heritage classification: green for Solberga and yellow for Valla Gärde, meaning that the buildings in Solberga are defined as particularly valuable whereas the buildings in Valla Gärde have some socio-cultural value.

In Valla Gärde, all windows were to be replaced to comply with the high energy-saving targets of the Grow Smarter project. The new windows were to be placed in alignment with the additional façade insulation to retain the original distance between window sills and the façade (Figure 4).⁷² In Solberga all original windows were refitted with an additional pane with low U-value. In this case, the windows were not aligned with the additional façade insulation because of risks associated with the window frames being embedded in the façade plaster (Figure 5). Other motives for not moving the windows were the extra cost, the character of the building, and the company's strategy of cautious renovation. Pros and cons of keeping the old windows in their old position as well as the consequences of moving them were discussed.⁷³

In both cases the permit applications are supported by preliminary investigations describing the socio-cultural values and building characteristics. In the case of



Figure 3. The buildings of Solberga.

Solberga the investigation was written by a consulting building conservator, and in Valla Gärde by an architect. There is no in-house heritage professional in the housing company, instead, heritage competence is procured if needed.⁷⁴ There are considerable differences between the investigations when it comes to content and quality. The differences are likely related to the requirements given to the procured consultants and indirectly to the classification of the buildings or the competence of the procured heritage competence.

The Solberga investigation includes an impact analysis of the suggested alterations. The permit application is further supported by an investigation on inventories of windows and colours. The impact analysis is comprehensive and includes detailed descriptions of the estate and the character of the buildings, assessment grounds for the heritage classification, a list of character traits motivating socio-cultural value, descriptions of planned alterations and suggested adaptations. The report informs that windows were to be replaced, but this was reconsidered due to the socio-cultural values. The building conservator concluded that the extra thermal insulation would not preserve the character traits and could thus not be implemented without impairing the socio-cultural values. The company decided to add insulation despite the measure not complying with caution provisions or the prohibition on distortion.

In comparison, the investigation of the socio-cultural values of the buildings in Valla Gärde lacks in detail and is, in part, inconsistent. The description of the buildings is sparse and shallow, excluding details on existing windows and balconies. The investigation is not supported by documentation comparable to that of Solberga. A colour inventory was handed in upon request by the Planning and Building Administration. There are furthermore some irregularities about how the façades are described, on the one hand with



Figure 4. Windows of Valla Gärde in alignment with the façade after renovation.

plaster containing mica, on the other as dark, and thirdly as grey.⁷⁵ Such details are of critical importance to the characteristics and socio-cultural values.

The diverse documentation does not allow any far-reaching conclusions but does show that it 1) is during project planning balancing takes place and that suggested energy efficiency measures are prioritised, 2) that socio-cultural values in these cases hold a vague or even weak position, and 3) that building classification potentially has far-reaching consequences for the review of socio-cultural values. It also raises the question of what requirements are placed on the procurement of heritage competence and the preliminary investigation of the socio-cultural values of a building.

Safeguarding Socio-Cultural Values

Issues of energy efficiency and socio-cultural values are finally processed by the Planning and Building Administration in Stockholm on behalf of the Planning and Building Committee. At the core of the administrative office is the exercise of authority and the implementation of PBL.

The proposed alterations on the estates in Valla Gärde and Solberga respectively are said to meet the requirements of ‘good design’ by the building permits. Motivations of



Figure 5. Window arrangement before external thermal insulation in Solberga.

the permits are standard ones and reuse wordings in PBL. In both cases the measures are said to respect socio-cultural values and being implemented with care. The review is based on the drawings submitted in the permit applications. In neither of the two cases did the Planning and Building Administration consult the Stockholm City Museum. According to representatives of the administration larger property owners are knowledgeable about the legal requirements and what documentation is needed, and applications do not need to be referred to the Stockholm City Museum.⁷⁶

There are dissimilarities between the reviews of the applications regarding socio-cultural values related to the classifications of buildings in the Heritage Classification Map. The classification has direct consequences on what provisions in PBL are applied in the review. Whereas the prohibition of distortion is applied in the case of Solberga, the provision on caution forms the basis for the review of the alterations at Valla Gärde. While both applications include reports regarding socio-cultural values, it is only in the case of Solberga that the consulted conservator's review is referred to in the issued building permit. In the case of Valla Gärde no reference is made to the report. Correspondence between the case manager of Valla Gärde and the managing architect does however show that socio-cultural values are considered and the issues at stake. Original fittings like balcony rails and fronts, details like the roof ridge, colouring, the size of windowpanes and the profiling of the frames are discussed. On the one hand, this reveals authenticity to be

an important review criterion, and on the other hand, it indicates deficiencies in the application documents.⁷⁷ In none of the permit applications was the use of thermal insulation questioned.

The sparse documentation indicates that design issues and socio-cultural values are entangled. The review is hardly made explicit in the permits, but it constitutes a decisive moment in the handling of the building permit as it comprises complex skills in reviewing architectural drawings, discriminating between existing and added properties, assessing the consequences of the alterations as well as practising legislation. There are no public guidelines on building level concerning alterations directed to property owners, neither are there any guidelines on thermal insulation or the replacement of windows. According to representatives of the Planning and Building Administration in Stockholm, there are however internal guidelines regarding windows being used by the case managers within the administration.⁷⁸ The review of the building application seems to be an activity carried out with limited formal guidance, without transparency or regular follow-ups in the integrated control and management system. This means that great responsibility is placed on the case manager. There are some routines for quality assurance in the Planning and Building Administration as weekly meetings for reconciliation and support, and consensus within the administration is important.⁷⁹ At hand is also the Stockholm City Museum if necessary.

The Displaced and Protracted Negotiation

Judging by the building permit and from close reading of PBL, design issues and socio-cultural values are not treated together with energy issues.⁸⁰ The permit process by provisions in PBL is a step-by-step process in which, to put it simply, 1) public interests are mainly dealt with during detailed planning when localisation and the overall design of an area, a building complex or building is regulated,⁸¹ 2) the suitability of the specific design is being assessed during the building permit process,⁸² 3) and the technical characteristics are checked during a technical consultation after the building permit is given but before the builder has been notified that work can begin, and finally during construction using the so-called inspection plan.⁸³ The latter process is controlled by a building inspector but conducted by a consultant on behalf of the developer who is responsible for the technical characteristics to comply with the minimum requirements in BBR.⁸⁴

Climate impact and energy management and heat retention as required technical characteristics in PBL are therefore handled before the building permit is given respectively after, while socio-cultural values are handled during the building permit process. Through the inspection plan, responsibilities are furthermore delegated to different certified experts checking that requirements are met during construction or alteration. Responsibility for design, socio-cultural values and technical characteristics is consequently dispersed among a number of actors. One could thus state that there is no balancing between energy efficiency and socio-cultural values at this stage and that negotiation is a displaced, protracted and dispersed. There is in short, no such thing as an overall assessment, except on an aggregated level.

Conclusions

This paper highlights how energy efficiency and socio-cultural values have been articulated separately and together in different public policy instruments produced and used by the City of Stockholm and how, when and where trade-offs are made. Three different sets have been investigated: 1) public policy documents relating to energy efficiency and the built heritage, 2) the implementation of policies by a local public housing company and the application of policies in two different energy efficiency projects, and 3) the safeguarding of socio-cultural values by the Planning and Building Administration.

Four significant findings are made concerning how energy efficiency and socio-cultural values are articulated in policy and how policies concerning energy efficiency and socio-cultural values are implemented:

- (1) Most important is the asymmetry between the steering ability of policies relative to energy efficiency and socio-cultural values. Both energy and heritage are two major national policy areas that are to be implemented on a local level by the municipalities. The policy areas coincide in renovations of buildings with designated socio-cultural values when these are subjected to energy efficiency measures and subjected to legal interpretations. Despite both being public interests and essential aspects of a sustainable society, energy efficiency is a politically prioritised target in contrast to the built heritage. While energy efficiency is a measurable objective in the policy documents, policies concerning planning and building function as guidelines and/or sources of knowledge, while socio-cultural values only are informed about on a very general level and rarely acknowledged. Socio-cultural values however hold a firm position in legislation, which gives built heritage some precedence by opening up for deviations from the required technical characteristics. In local policy however, built heritage is disregarded in the absence of clearly defined political directives and objectives, and may become subordinate to economic priorities and discouraged by requirements for profitability, similar to the necessary investments in energy efficiency measures. The lack of quantifiable indicators or a system for following up the treatment of socio-cultural values on an aggregate level may have long-term and cumulative effects on the built heritage and will affect the Swedish transition to a sustainable society.
- (2) A related finding is the absence of cross-sectorial guidelines and recommendations that support property owners in their decision-making. The public housing company and property owners in general are given great responsibility in implementing statutory and locally defined energy efficiency targets and to balance energy efficiency measures and designated socio-cultural values. They are however not given much support in the decision-making and great trust is put in their capacity of balancing interests. The one cross-sectorial plan relevant in this context is the comprehensive plan of Stockholm but the provided planning directions are open-ended and forward the right of interpretation to the property owner. One could state that the strategic function of the comprehensive plan is under-used. Further, few if no guidelines concerned with alterations on the building level are found in the sectorial programmes. There is thus room for local cross-sectorial guidance information and advice concerning how to implement energy efficiency measures

in a cautious manner, respecting socio-cultural values. A recommendation is to introduce guidelines in the implementation of energy efficiency measures in buildings with socio-cultural values, like the ones produced during the first programme on energy efficiency in the 1970s. There are ways to reconcile energy efficiency and the safe-guarding of socio-cultural values as the older guidelines show. In a longer perspective, the tendency towards careful renovations may not only care for the residents and have economic benefits, but also have positive side effects from a heritage perspective. The climate crisis is indisputably urgent; however, it is important that energy efficiency measures taken are the best solution in the long run and from a life-cycle perspective. The case of Stockholmshem upgrading windows instead of replacing them shows that energy efficiency can be reached while sustaining built heritage, and may work as an inspiration for property managers elsewhere in the world.

- (3) Another significant finding associated with the lack of guidance, is the issue of the procurement of consulting heritage professionals and what requirements are put on the preliminary investigation ordained by the BBR. According to BBR, the preliminary investigation is to be tailored to the scale of the measures and nature of the object. The study shows that this is not always the case and that there is a discrepancy between the size of the project of Valla Gärde and the quality of the documentation investigating the characteristics and the socio-cultural values of the buildings. This calls for specified standards for the preliminary investigation that are independent of the heritage classification of the building.
- (4) A final but no less important finding is the instrumental role of the Heritage Classification Map. It lacks in legal status and does not function as a guideline, but is still vital as an instrument within planning, building and conservation in Stockholm. It has direct effects on the review of the building permit and whether to apply the provisions of caution or the prohibition against distortion. The way the classification system works is debatable. In many cases, the grading was made decades ago and may be outdated while the grading not necessarily gives justice to neither legislation nor an up-dated definition of socio-cultural value, emphasising the readability of tangible and intangible characteristics. An alternative strategy may be to more clearly inform on different kinds of socio-cultural value and to complement existing sectorial programmes with a built heritage strategy as well as guidelines on energy efficiency renovations.

Notes

1. Sverige miljömål, "God bebyggd miljö."
2. Rodwell 2007, ch. 10.
3. Swedish Energy Agency and National Board of Planning, Building and Housing, *Underlag*, 36.
4. RUS, Vägledning; SKR, "Ställningstagande"; and Sveriges Miljömål, "God bebyggd miljö."
5. Through the municipally owned housing companies, the city manages a public housing stock of approximately 1.500 properties with about 75.000 apartments. The three municipal housing companies in Stockholm are included in the 2022 list of Sweden's largest property owners with regard to property value. Arvidsson 2022; Stockholm City. "Budget 2019."
6. Stockholm City. "Underhåll," 1.

7. Legnér and Leijonhufvud. "A legacy"; and Tunefalk and Legnér. "Decision-making."
8. SCB Statistiskdatabasen. "Stockholm".
9. Swedish Energy Agency and National Board of Planning, Building and Housing. *Underlag*, 26.
10. Friedman, K., & Cooke, A. 2012.
11. REKO. "Rätten, hållbar energianvändning och bevarandet av kulturvärden", financed by the Swedish Energy Agency and part of the research program Human, Energy Systems and Society (MESAM).
12. PBL 1 Ch 4 §.
13. Stockholmskem. "Års- och hållbarhetsredovisning."
14. Directive 2002/91/EU and Directive 2010/31/EU. Article 7.
15. PBL 8 Ch 1 § 2 and PBL 8 Ch 17 §.
16. PBL 2 Ch 6 § and PBL 8 Ch 13 §.
17. BFS 2020:44 – BBR 16. 1:2213.
18. PBL 8 Ch 17 §.
19. PBL 8 Ch 13 §.
20. PBL 8 Ch 7 §.
21. PBL 8 Ch 17 §.
22. PBL 8 Ch 13 §.
23. PBL 9 Ch § 1, 3–5.
24. Prop 2005/06:145, 57.
25. Elmroth. *Energihushållning*, 35.
26. BFS 2011:6 – BBR 9:91.
27. BFS 2011:6 – BBR 1:2232 and 2:311.
28. RAÄ 2017.
29. RAÄ 2017; RAÄ 2018.
30. Stockholm City. "Budget 2020", 312."Budget 2017"; "Budget 2018."
31. Stockholm City. "Budget 2015," 7, Stockholm City, "Strategi."
32. Stockholm City. "Budget 2019."
33. Stockholm City. "Budget 2012"; "Budget 2015," "Budget 2020."
34. PBL Ch 3 §5, 2.
35. MB 2000:61 Ch 3 & 4.
36. Stockholm City. "Översiktsplanens styrkraft," 3.
37. Boverket. PBL Kunskapsbanken, "Allmänna intressen."
38. *Stockholm City Plan*, 5, 7 and 43.
39. *Stockholm City Plan*, 14.
40. *Stockholm City Plan*, 65.
41. *Stockholm City Plan*, 66.
42. *Stockholm City Plan*, 11–12 and 97.
43. Stockholm City. "Environment Programme," 6; and "Building Ordinance," 12.
44. Stockholm City. "Miljöprogram 2016–2019," 15–16.
45. Stockholm City Museum. "Klassificering."
46. Stockholm City. Miljöprogram 2012–2015, 15–18.
47. Stockholm City. Miljöprogram 2016–2019, 13; "Environment Programme, 17; and "Climate Action Plan," 35.
48. Stockholm City. "Climate Action Plan," 33–39.
49. Stockholm City. "Climate Action Plan," 34.
50. Stockholm City. *Stockholms byggnadsordning*, 119–120.
51. Stockholm City. *Architectural Policy*, 7.
52. Stockholm City. *Architectural Policy*, 56–57.
53. Stockholm City. "Underhåll", 11.
54. Stockholmskem. "Bilaga 1. Styrning."
55. Stockholmskem. "Bilaga 1. Styrning."
56. Stockholmskem. "Bilaga 1. Styrning."
57. Stockholm City. "Utfallsrapport."

58. Mjörnell et al. "Renovation strategies."
59. Stockholm City. "Miljöprogrammet. Hållbar energianvändning."
60. Interview, A.
61. Mjörnell et al. "Renovation strategies"; and Femenias and Granath. "What are."
62. Interview A.
63. Interview, A.
64. Interview A and Stockholmshem. "Projekteringsanvisningar."
65. Interview A.
66. Thuvander et al. "Unveiling."
67. Interview, A.
68. Interview, A.
69. Ibid.
70. Stockholmshem. "Tjänsteutlåtande"; Dnr 2022-9840 and Dnr 2022-09,840.
71. Dnr 2015-2539; Dnr 2015-2015-20,545; Dnr 2016-13,343.
72. Dnr 2015-2539; 2015-2015-20,545; Dnr 2016-13,343.
73. Dnr 2022-09,840.
74. Interview, A.
75. Dnr 2015-2539; Dnr 2015-2015-20,545; Dnr 2016-13,343.
76. Interview, B.
77. Dnr 2015-20,545; Dnr 2015-20,539.
78. Interview, B.
79. Ibid.
80. Ibid.
81. PBL 2 Ch 2, 3, 6 §§.
82. PBL 8 Ch 1 §.
83. PBL 8 Ch 6, 7 §§.
84. PBL 10 Ch 7 §.

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