

Character defining elements

Relations between heritage regulations, user perspectives and energy saving objectives

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Abstract – The challenge to convert the Swedish building stock to the energy targets as it is set out in national building regulations applies to all buildings. Likewise planning and building legislation states that all buildings should be treated with caution regarding actions that could cause losses of technical, historical, environmental and cultural values. By using the world heritage city of Visby as a case study this paper aims to deepen the understanding of how these values are embedded in the physical expressions through identifying the character defining elements, of buildings. This is performed by examining what is stated by experts in official documents and by non-experts through questionnaires and workshops with house owners and inhabitants. By a transparent designation of character defining elements the advantages of energy improvements can be more clearly balanced with possible losses of value. The outcome of this study will contribute to a method where the better understanding of how heritage values are defined by characteristic elements, from both a top down and a bottom up perspective can help to improve policies and guidelines for adopting energy improvements in existing buildings.

Keywords – historic buildings, cultural significance, heritage values, character defining elements

1. INTRODUCTION

1.1 BACKGROUND

The challenge to improve energy performance in existing buildings in tune with the objectives set out in the national Swedish building regulations is an urgent topic for the conservation sector as well as the renovation and building management sectors and is actualised by the national renovation strategy. [1] When renovating a building the national energy requirements set out in the Building Regulations must be achieved. At the same time the Planning and Building Act requires that all buildings should be treated with caution when implementing measures that could cause losses of technical, historical, environmental and cultural values. To achieve a sustainable balance between these demands, a method for LCC (Life Cycle Cost)-optimisation has been developed in a previous project [2]. A critical part of this method is to define what elements in the existing buildings represent technical, historical, environmental and cultural values. In current practice the designation of heritage values in buildings is carried out by experts leaving most stakeholders out of the process.

This paper examines how experts and non-experts define and interpret heritage values by asking them to identify which character defining elements in selected buildings should be protected when considering measures to improve energy performance.

1.2 AIM

The aim of his paper is twofold. Firstly to illustrate a method used to visualise the top down – bottom up relationship in identifying character defining elements of importance for heritage values in existing buildings. Secondly to examine how heritage values can be transformed into physical building elements that express the character of the buildings and how this relates to changes made to improve the energy efficiency of the buildings. More specifically this includes the following questions:

How are heritage values described and identified in official documents such as local and national building regulations compared to those values which are appreciated by people owning or living in houses identified as built heritage?

Is there compatibility on what should be protected between the expert statements in official documents and the views of house owners and inhabitants?

1.3 METHOD

The material used for the analysis consisted of local official regulations, along with the outcome of a questionnaire and a workshop as a basis for discussing the relationship between designated character defining elements and house owner/inhabitant opinions on what is worth caring for.

With the official local regulations, a summary of the elements identified in the document was used to illustrate what is considered important for the different building periods of the city of Visby.

A questionnaire to house owners and inhabitants was sent out during the autumn of 2016 (the web based questionnaire was open July – December 2016). 359 people living in Visby were asked by mail to participate in the survey. The questionnaire was divided into three main themes: the heritage value of the building, the technical state of the building including earlier renovation works, and a set of questions related to energy use in the building. The questionnaire also included questions about historic technical and aesthetical improvements of the building envelope and the satisfaction of the technical state of the building and if there were any planned actions to improve the building envelope. Demographic questions were also included. The questionnaire could be answered by mail using the web-based questionnaire. A reminder was sent twice and the information regarding the research was also disseminated through the association *Visby innerstadsförening*, an association founded to work with issues concerning the development of Visby historic centre. The return rate was lower than expected, only 14 % or 51 answers were collected.

A workshop was held in August 2016 to deepen understanding of how house owners and inhabitants in Visby understand and interpret heritage values and

character defining elements in the built environment. 23 house owners and inhabitants participated in this workshop. The workshop was designed in two parts with an introduction about the concept of heritage values and energy efficiency. In the first part of the workshop the participants were asked to mark on photographs of buildings from different time periods, representing the building history of Visby, what they considered as the character defining elements of the building and why they did so. Since value is a complicated concept, there was also an opportunity to identify other aspects of the building that could contribute to the overall value.

The participants had four minutes per photograph and they were not allowed any discussion with other participants of the workshop. In the second part of the workshop, the participants were asked to mark on photographs (using the same images as before), what changes they would accept in order to reach higher energy efficiency with regards to the values that they had considered in the first part of the workshop. The workshop was documented by collecting all the answers and processing them through a combination of quantitative and qualitative analysis.

1.4 THE CASE STUDY

The historic city of Visby was used as the case study in this paper. Visby was declared a Unesco world heritage city in 1995. It has a high number of listed and protected buildings (314 out of approximately 1200) that are covered by the national heritage legislation. The municipality of Gotland has developed a zonal plan regulating the building activities in the historic city centre of Visby. The zonal plan has been complemented with a local building regulation that describes the character of the built heritage. The buildings of Visby cover a time span starting from the medieval ages up to modern buildings of today. The most common type of building are wooden structures built in the middle to late 19th century. This study considers the general regulation which applies to all buildings.

1.5 CONCEPTUAL FRAMEWORK

The relation between the concepts of cultural significance, heritage values and material and immaterial characteristics of heritage assets need to be briefly described. In the report *Values and heritage conservation* by the Getty Conservation Institute, this relationship is expressed as follows: "*Values give some things significance over others and thereby transform some objects and places into heritage.*" [3] Heritage values have been structured in different typologies depending on time and context. Values can be directly tied to the fabric of heritage assets, or to more subtle aspects connected to identity and feeling of belonging. Values are assessed consciously or unconsciously by different stakeholders, from heritage experts to property owners and people simply experiencing a place as visitors. In the field of energy efficiency in historic buildings, the focus has mainly been on how to solve technical issues with respect to heritage values, how these values has been selected is often not clarified [4]. There is also a lack of tools and methods in the heritage sector to manage these issues. In recent years, the confusion on how to use the concepts

of cultural significance, heritage values and character defining building elements has led to attempts to clarify the relationship between them, as well as their meaning. In a Swedish context, the National Heritage Board has developed a new way of approaching the designation and evaluation of heritage which focuses on the processes where values are involved rather than the result. [5] The National Board of Housing, Building and Planning has provided guidance to the national planning and building act on how to understand the concept of heritage values as well as exemplifying a checklist on character defining elements. [6] The National Board of Housing, Building and Planning provides further guidance on how to assess and interpret concepts related to values in built heritage, but there is no common approach provided on how to apply this in reality. The relativity surrounding the concept of heritage significance is affecting how policies are formulated, heritage management is planned and conservation actions are taken. Clarification of processes where heritage significance is an important aspect has become one way of dealing with this dilemma and to contribute to a higher degree of transparency. [7]

In the field of energy efficiency and historic buildings, two standards have been developed and launched almost simultaneously. The European standard “Conservation of cultural heritage – Guidelines for improving the energy performance of historic buildings” and the American ASHRAE standard “Energy guideline for historic buildings” [8] [9]. The two standards give guidance on how to integrate energy efficiency measures in historic buildings in two different ways. The European standard suggests a procedural approach that could be applied to all buildings regardless of age, value, etc., while the American standard is a technical guideline that deals primarily with listed historic buildings. Both standards define terms and concepts connected to the specified fields. The two standards represent a movement towards a more uniform understanding of how aspects of heritage values can be integrated in an energy renovation process.

2. BUILDING REGULATIONS ON NATIONAL AND LOCAL LEVEL

The national law on housing, building and planning encompasses all buildings no matter whether they are listed or not. All changes to buildings are supposed to take into account the character of the building and the values connected to history, building technique, aesthetics and cultural history [10]. Further, the legislation has in later additions clarified how this could be interpreted. The clarification states that all changes should be made with respect to the character of the building when it comes to proportion, form, volume, material, colouring, construction work and the detailing of the building. [11] The compliance with this national law should be monitored by the local authorities/municipalities when deciding on building permits. Other stakeholders involved in decisions that could change the character of a building are required to comply to the legislation. Local building regulations and zoning planning should be used as decision support at this level.

In the local building regulations covering the historic city of Visby there is a description of the character defining elements of the buildings. The character

Table 1. Character defining elements of the buildings in Visby

	Medieval city (1100–1500)	Wooden city (1720–1830)	Bourgeois city (1830–1920)	Modern city (1920–2010)
				
Character defining building elements	Walls, vaults, wooden trusses, closed façades and masonry details.	Marked stone foundations. Visible and nonvisible timber frame constructions. Original roof constructions. Older clay tiles, metal sheets and roof paper covering. Original rendering. Original material and design of doors and windows. Moulded façade elements and chimneys.	Marked stone foundations. Older clay tiles, metal sheets and roof paper covering on the roofs. Traditional rendering on the façades. Original material and design of doors and windows. Moulding in render and steel, stone details. Chimneys, hangers and downpipes, balcony racks and stairs.	Clay tiles, metal sheets and roof paper covering of the roofs. Traditional rendering and wooden panels on the façades. Hand crafted design on doors and windows. Lining and frames.

defining elements are connected to the building envelope because the regulations are used mainly as guidance for both house owners and decision makers at the municipality of Gotland. A summary of the character defining elements identified in the regulation are collected in Table 1. The regulation does not prioritise different elements as more or less important. Each group of elements are presented in detail followed by guidance on how to treat them in case of change. For example, it is prohibited to change the character and material of the windows. [12]

3. RESULT–HOUSE OWNERS AND INHABITANTS PERSPECTIVES

3.1 QUESTIONNAIRE

Of those who replied to the questionnaire, the majority (70 %) are over 60 years of age. The majority, (53 %), have lived in their buildings more than 15 years and over 90 % plan to stay at least 10 more years or longer. There is an equal division between people living in apartment houses and single unit houses and approximately 80 % own the building or apartment they live in. 66 % described themselves as having a good knowledge about how to deal with the building if they were going to renovate it.

The analysis of the questionnaire is concentrated on the questions connected to the values and significance of the buildings. Among the respondents a majority (78 %), attributes their building with high or very high heritage values. Figure 1 shows the distribution of responses to the question which asked respondents to describe what elements contribute to the value of the buildings. The environmental context of the building, how it is placed in relation to other buildings and

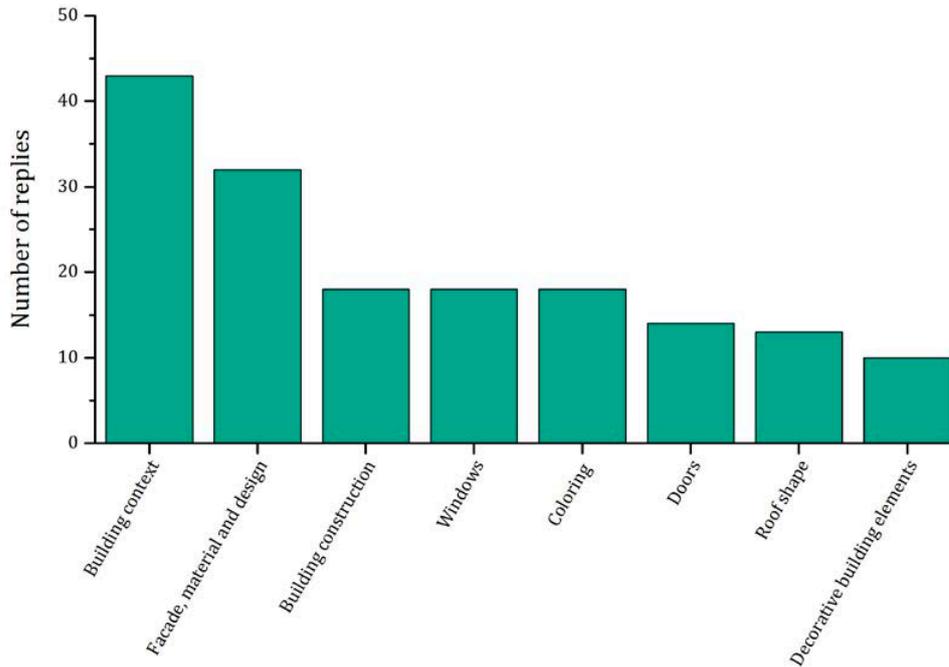


Figure 1. Distribution of answers from the questionnaire on what characters contributes to heritage value of the buildings.

urban structures, as well as the combination of material and design in the façade, are factors that are appreciated among a majority of the respondents. The construction, windows and doors and the roofscape produced fewer responses.

3.2 WORKSHOP

The outcome of the workshop is exemplified by one of the buildings in Table 1, the bourgeois building, which was used as a case study when designating values and discussing what changes can be made to improve the energy efficiency of a specific building. There were 22 elaborate individual responses from the workshop which could be interpreted as high involvement. Firstly, the participants were asked to describe the characteristics of the specific building, that contributed to its overall value. The responses included information about what was specifically regarded as beautiful and what was regarded as unsightly. Most of the responses indicated what was considered to be important for the character of the building. The expression and material of the façade and the roof shape and its material were ranked as being the most important elements followed by the windows. For this specific building, the steel works hangers and gutters were identified as being of importance.

In the second part of the workshop the respondents were asked to describe what could be done to improve the energy performance of the building without interfering with the characteristics that were defined in the first part. Almost all respondents mentioned that improving the windows was important as well as insulating the roof, floor and attic. The windows were identified as an important characteristic that contributes to the value of the building, but they were also the

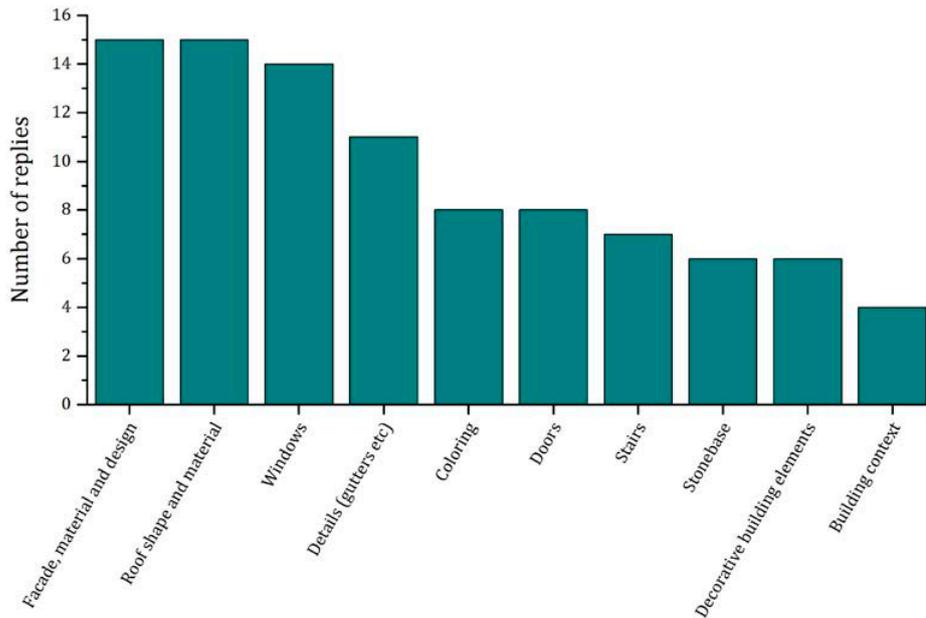


Figure 2. Distribution of answers from the workshop where the respondents were asked to express what characters defined the value of the bourgeois building shown in Table 1.

most frequently mentioned element when discussing possibilities for improving the building from an energy efficiency point of view. The responses were also clear about what measures are acceptable, such as adding secondary glazing to the existing window as long as it does not change the appearance of the window from the exterior.

The results show that the elements that were mentioned most often are those that are connected to the appearance in the façade and to the shape and material of the roofs followed by the windows. The overall appearance of the building envelope was prioritised by the participants of the workshop and the building in its context less so.

4. DISCUSSION AND CONCLUSIONS

It has often been assumed that there are discrepancies between what is expressed by experts and non-experts when it comes to what is important to preserve in built heritage. However in this case, there is conformity between the official guidelines on what designated characteristic elements defines the value and significance of the buildings in Visby and the opinion of the house owners and inhabitants. There is a difference though in how different character defining elements are prioritized by this group depending on how the questions are posed. In the questionnaire, the importance of the context of the buildings generated more attention than the workshop. The results from the workshop concentrated on the building envelope and especially on façades and roof elements. The façades, material and design, elements such as windows and doors are also identified in the local building regulation as important character defining elements. The study shows that there is a general acceptance of the local building regulations when it comes to identified character defining elements in the built heritage. This conformity is important

knowledge for the professionals and experts when developing strategies for a sustainable management of the built environment in Visby.

By using Visby as a case study area, a method of how to deal with issues of heritage values from a top-down and a bottom-up perspective for analysing two perspectives on the designation of character defining elements in the built environment, has been demonstrated. Although using Visby could be problematic, because of its specific context as a World Heritage city, and as the only representative of a Hanseatic medieval city in a national context, it can illustrate the relationship between different stakeholder opinions. This study gives an example of a methodological pathway where the official can interact with the public view on what kind of changes to the buildings due to efforts to improve energy performance are acceptable if account is taken of identified character defining elements.

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