Value creation by re-renovation – focus on the user perspective

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Focus on the user perspective

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Abstract – Historic multi-residential buildings that have been renovated at an earlier occasion are today facing new interventions. Re-renovation defines a concept for a second major renovation which opens up for the possibility of re-creating architectural and heritage values that has been lost in earlier renovations at the same time as demands for modernisation, energy efficiency, and economy are met. This paper focuses on what values heritage and historic buildings represent for residents, how they perceive the effects of energy renovation, what building elements they appreciate, and the implications for carrying out re-renovation. An empirical study of two cases with rental and owner-occupied housing has been applied combing a questionnaire survey (n= 83) and interviews (n=9). Findings indicate that historic buildings create values for their residents which should be considered by property owners when planning a renovation or re-renovation. Methodologically, asking residents about heritage values is challenging and the paper provides suggestions for further research in the field.

Keywords – multi-residential housing, renovation, energy-efficiency, user perspectives, cultural values

1. INTRODUCTION

Modernisation and energy efficiency is a challenge when renovating historic buildings. This paper presents on-going research focusing on modernisation and energy-efficiency of multi-residential buildings in Gothenburg, Sweden, constructed 1945 and before. Many of these buildings have already been modernised and renovated, notably with governmental support for energy saving in the 1970s and 80s. For part of the stock, the technical or economic service life has been reached for these measures, and new renovations are planned.

The research project investigates the concept of re-renovation, that is, a process that aims at restoring or improving the technical, environmental and economic performance of a building through a second major renovation while respecting the cultural and historical value. In addition, re-renovation provides an opportunity to restore or recreate architectural and historical values that have been lost in earlier interventions or renovations. In the case of multi-residential buildings, the value creation for the property owner but also for the users is of high importance. In this paper, the values that re-renovation creates for residents in historic buildings are in focus.

Earlier studies have pointed to the value of heritage for people, for example to perceive fellowship with other people and support an understanding of themselves and modern society [1]. In relation to urban renewal, studies from the 1960s and the 70s have shown that residents value their historic living environment, compared to planners and developers, that found the housing not liveable due to low standards [2]. A recent study supports an "irrational" behaviour with respect to heritage when home owners of historic buildings in Cambridge, UK, were found to value aesthetic as much as economy when deciding on energy improvements [3]. Finally, a study carried out in the county Halland, Sweden, shows that heritage values are connected to higher property values and that 63 percent of a population of 3259 owners or companies were willing to pay more to own or rent a building with heritage values [4].

1.1 AIM AND RESEARCH QUESTIONS

Based on two cases, that have been or are about to undergo re-renovation to improve the performance of the thermal envelope and recreate architectural expressions lost in earlier renovations, we investigate what these changes represent for the residents. The studied cases of re-renovation include the recreation of wooden façades that were replaced or covered with metal sheets and board in the 1970s. Explored questions relate to both the subject and method – logical challenges when approaching residents with the inquiry about cultural historical values:

- Do the residents express an interest in the cultural historical aspects of their home environment? What kind of building related qualities do they value or appreciate?
- How are these values balanced to other values created by the re-renovation such as better indoor climate or higher energy efficiency, and are they willing to pay for these?
- What methodological challenges are met when inquiring residents about cultural historical values in their home environment?

1.2 THE CASE AREAS

Two areas in Gothenburg, called Case A and B, have been studied (Table 1). Case A consist of three housing blocks A1-A3 with in total 156 rental apartments. Case area B consists of one block with 22 apartments, of which 20 are owner-occupied apartments and two are rental.

Table 1. Information about the two case areas

Case area	A1	A2	A3	B
Number of apartments	36	108	12	22
Year of construction	1937	1938	1937	1889
Renovations	1970s	1970s	1970s	1915, 1970s, 2005
Recent renovation	2016	Planned 2019	2013	2010

1.2.1 Building type and protection

Area A and B are *Landshövdingehus*, a local type of working class multi-residential buildings commonly built between ~1860s and 1930s, with the ground level in stone or brick and two levels in wooden construction and wooden façade. In the 1970s and 80s, many Landshövdingehus were exteriorly insulated through national energy saving programmes and new façades, often in corrugated metal or composite board materials, were added.

The buildings are not listed but granted a general protection by the Swedish Planning and Building Act (PBL) [5]. PBL requires that all changes made to existing buildings, regardless their age, should be carried out with respect to their character defined by e.g. proportions, form, volumes, materials, detailing, and colours. Furthermore, the buildings are mentioned in the local Protection programme for historic buildings and should be protected as part of an urban environment, and area A as part of the social housing history [6].

1.2.2 Description of the buildings and their renovations

Area A, built in the late 1930s as homes for families with many children, is municipally owned rented apartments (Figure 1). In 1979, the wooden façades of blocks A1 and A2 were covered with boards without added insulation. Block A1 has recently been re-renovated and block A2 is to be renovated with a similar concept (Figure 1b-c). In the re-renovation the panel boards were removed, the wall was insulated on the outside, and a new wooden façade was recreated. The windows were changed and moved to be aligned with the new outer level of the façade, the attic was insulated on the outside and a new roof was created. The original façade was plain and chrome green, the new is yellow and with lock-lists. The original outgoing side hinged windows were replaced by pivot hinged with a false mullion (Figure 1b and d). The calculated energy use decreased from 154 to 93 kWh/m^2 and year after the renovation.

The façade on A3 differed originally from A1 and A2 (Figure 1d) and was never changed. In the latest renovation, the attic was insulated on the inside and all windows were replaced by the same as in block A1. The measured energy use decreased from 182 to 130 kWh/m^2/year.

Figure 1a-d. Case A, a) In 1940s, block A1 (right in picture), block A2 (left), and block A3 (further in the right back), (photo from the web); b) Block A1 in 2017 after the re-renovation, c) Block A2 in 2017 with the panel boards put up in 1979, d) Block A3 in 2017. Photos b, c and d by the authors.

Case B was originally built in the 1890s (Figure 2). In 1915, the block was extended with a few more apartments. In the 1970s, the upper floors were insulated and fitted with a new façade in orange corrugated metal. Around 2005, the block was bought by a developer that initiated a major renovation where the original apartments were altered and new apartments were created in the attic. The metal façade was removed, 50 mm of insulation was added and a new wooden façade was recreated. The outgoing side hinged windows were replaced by larger side hinged windows with a false mullion. The result was an energy use of 135 kWh/m^2 and year. No figures are available on the energy use prior the renovation. No changes were made to the courtyard façade which is still covered in metal sheets. The developer sold the block to the residents in 2011, who formed a housing association, but two of them wished to remain tenants.

Figure 2. Case B, a) in 1890s (Photo: Gothenburg City Museum), b) before the re-renovation (Photo: www.yimby.se), and c) in 2017 (Photo by the authors).

1.3 METHODS

A mixed method approach was applied, collecting data through a questionnaire survey directed to all residents in both Case areas and by qualitative interviews with nine residents who were identified through the questionnaire. Using two different data collection methods not only provided us with complementary information but also gave us a possibility to compare the methods in themselves and a way to study tenants' interpretation of heritage values.

The questionnaire was sent out in April – September 2017 (paper format) to all households with one reminder. The total response rate was 47 % (table 2). The questionnaire covered demographic data, general satisfaction with the home, experiences from the renovation (not asked for A2), satisfaction with the renovation results, residents' view on heritage, appreciation of building details with relevance for heritage, and perceived raised attractiveness of the home after the re-renovation. Semi-structured interviews, table 3, were carried out in February 2018 using an interview guide that covered the same areas as the questionnaire with a focus on individual interpretation of culture values and how this is expressed. In area A, four of the six interviewees live in block A2 that is still to be renovated. The interviews were recorded and transcribed.

Table 2. Respondents of questionnaire

CASE AREA	*NUMBER OF HOUSEHOLDS*	*NUMBER OF RESPONSES*	*RESPONSE RATE [%]*
A1	36	17	47
A2	108	51	47
A3	12	5	42
B	22	10	45
ALL	**178**	**83**	**47**

Table 3. Interview persons (IP) and household data

IP- CASE AREA	*PERSONS IN HOUSEHOLD [N]*	*AGE IP*	*MOVED TO THE AREA [YEAR]*
IP1-B	1	50-60	1980
IP2-B	2	30-40	2014
IP3-B	2	20-30	2014
IP4-A2	1	60-70	1971
IP5-A2	1	60-70	1992
IP6-A2	1	20-30	2012
IP7-A2	1	70-80	1998
IP8-A3	1	60-70	1988
IP9-A1	1	80-90	1937

2. RESULTS

A majority of the respondents of the questionnaire are female with an average age of 48 years for case area A and 33 years for area B. This can reflect that many inhabitants in area A have lived there for a long time, but also that it in Sweden it is easier for younger households to buy an apartment (as in B) than to find a rental (as in A). Both cases have smaller apartments and most respondents are single person households. More than 50 % have a university level education, which is higher than the average of 31 % in Gothenburg [7]. Among the responding households there are only 20 children. In Case A, originally attributed to families with a minimum of three children, the small apartments (< 50 sqm) no longer seem functional for families. About 80 % of the respondents have Swedish as primary language.

The satisfaction with the living area, is reflected in both the questionnaire and the interviews. Area A is calm and close to services and nature. Area B is located close to services and public transport. The most satisfied residents are found in block A2 which is still to be renovated, but the correlation is still to be analysed. The living costs are reasonable in both areas and a primary cause for relocation in both areas would be to get a larger apartment. Complaints are made of draught, disturbing noise and lack of qualitative outdoor areas.

2.1 APPRECIATION OF HERITAGE VALUES

The respondents of the questionnaire were asked to value the heritage of their own building. In area A, most respondents ticked 3 or 4 on a 5-point Likert scale where 1 indicated very low and 5 indicated very high. In Case B, the respondents indicated a higher appreciation with an average of 4.5. Between 15 % (area A) and 20 % (area B) had no opinion. A follow-up question regarded to what degree they thought that alterations of the building should be made carefully to heritage values (Figure 3). This question also seems to indicate that residents in area B find respect to heritage values important.

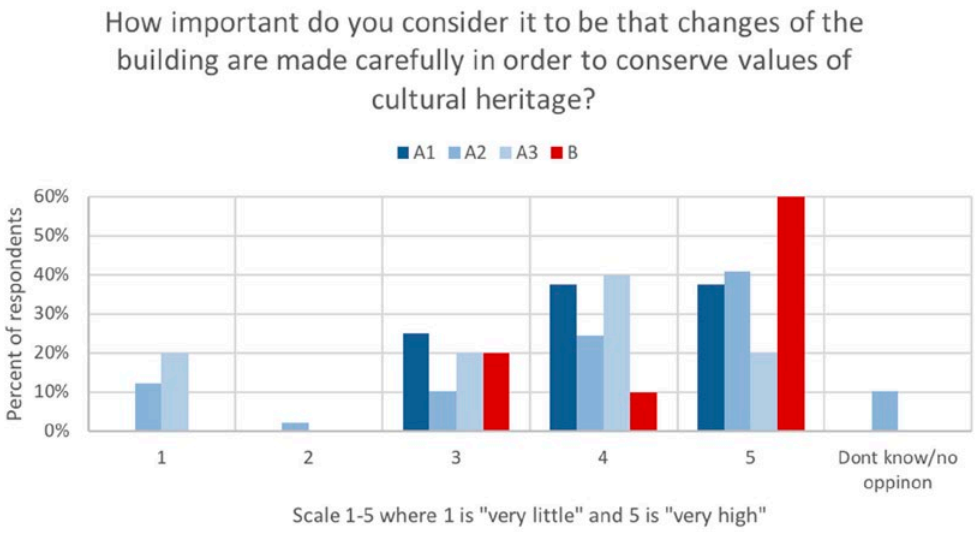

Figure 3. Result from questionnaire, to what degree heritage values should be respected in a renovation.

The interviews provided a complementary perspective. All interviewees in area A had made research about the area and took pride in the history even if most of them had not made an active choice to live in the area or the particular building. Most of interviewees in area A are more than 60 years of age and have lived there for a longer period. Interviewee IP4-A2 says (translated from Swedish):

> *It is the soul of the area. I am searching for the soul. The soul of the buildings, the soul in the history. //…// It is important to know about the context and you get affected by the history of your area. //…// Otherwise you're a stranger.*

Area B is populated by younger people, who moved there only 4–5 years ago. However, two of the young interviewees in area B showed a relation and appreciation to the history and the heritage the building represents, as expressed by IP2-B:

> *It is enjoyable and exiting to live somewhere that has a bit of a soul and where you can see the traces and feel that this has been something else.*

All interviewees say that they find it important that heritage values are considered when renovating. Interviewee IP2-B is a bit disappointed by how the developer has carried out the re-renovation. Now, when maintaining the building, they

perceive that the developer had focus on simple and cheap solutions, and for example the inner façade is still clad in metal.

Although the interviewees reflect an interest in history and heritage, looking at the whole sample of tenants (i.e. 73 of the respondents), there is a higher willingness to pay for indoor climate and environmental profile than for heritage values (Figure 4). From the comments in the questionnaire it can be understood that the tenants in A2 for example think that re-creating the façade is not something the tenants should pay for, this should be part of the maintenance.

Figure 4. Willingness to pay for different qualities, question only answered by tenants in the questionnaire.

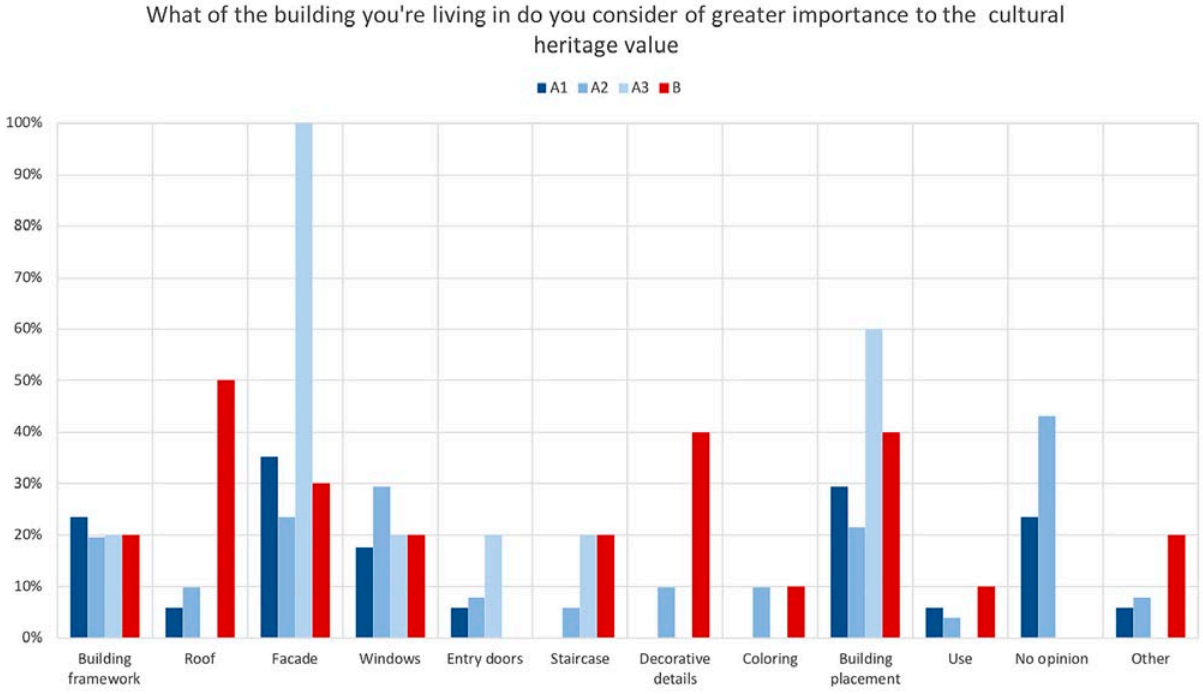

Figure 5. Appreciation of different external elements.

2.2 APPRECIATED ELEMENTS OF THE BUILDING

Asking for the most appreciated exterior elements of the building and the neighbourhood, the questionnaire showed a preference for the façade (area A) and the buildings placement in the urban landscape (area A and B) (Figure 5).

In area B, the slate roof and details are highly appreciated. There is a higher appreciation of the windows in A2, the only block with original windows. Tenants in A3 appreciate their façade, the only original façade in the study. Tenants in A1 appreciate their façade higher than tenants in A2 which still have the board panels.

Both the respondents and the interviewees point out some problems connected to older buildings e.g. high thresholds, lack of a kitchen fan, small bathrooms and draught. At the same time, many of the interviewees pointed to skewed parts and other traces of history as being of particular value to them, giving the building its charm and characteristics.

The replacement of the older windows with new pivot hinged with a false mullion evoke strong feelings among residents in A2 but is not mentioned by any of the respondents in A1 or A3, where these new windows have been installed. Interviewee IP5-A2 even expressed an urge to move if the kind of windows used in the re-renovation of block A1 would be installed in A2 (translated from Swedish):

> *//…and at the time I thought, if they switch to those kind of windows, I will have to move, because I can't live with those kinds of windows.*

The older interviewees in area A value keeping the original windows higher than having an improved indoor climate and less draught from new windows. The younger interviewee IP6-A2 is the only one of the interviewees that think that a higher indoor temperature and a higher environmental profile of the building is a priority to keeping the original window.

3. DISCUSSION

Our interpretation from the results is that residents in historic multi-residential buildings do value the heritage and history of their living environment, and this is valid for both tenants and owner-occupiers. They appreciate that the buildings have a history. This gives a soul to their living environment and a sense of belonging. The results are in line with earlier studies that state that heritage provides people a means to orientate and relate to modern society [1].

The residents point to the façade, the roof and the building in the urban landscape as important external elements. On the inside, doors, details around doors and windows and if there is stucco is important. Flaws and irregularities are in themselves part of the charm and the value, working as physical traces of a past history.

With respect to tenants, of which 71 live in area A and 2 in area B, the interviews indicate a higher appreciation for heritage and history than the results from the questionnaire. This could indicate that it was difficult for the respondents to understand what was asked for in the questionnaire, while in a face-to-face

meeting it is easier to explain what we mean by heritage. However, this could also be a bias of those respondents that accepted to be interviewed where we have a predominance of older residents and maybe with a higher interest in the issue.

The question of willingness to pay for heritage values is delicate. For owner-occupiers, there is a driver as heritage can be linked to higher property values [4]. While earlier studies have claimed that at least companies are willing to pay higher rents for heritage buildings [4], the situation is likely to be different for tenants of housing. The respondents in the questionnaire indicate a lower interest to pay a higher rent for living in a heritage building. When asked about the issue, some of the interviewees in A2 stated that even though they value heritage they do not want a rent increase. Residents in block A1 have had a minor rent-increase (25 €/month) for the re-renovated façade but also for a better indoor climate provided by the new windows.

The study indicates that some interviewees but also respondents of the questionnaire value the old windows and an uninsulated façade much higher than having a better indoor climate. The beauty and history of the windows and the attachment to the older building is more important than comfort and energy saving. Similar judgements have been observed in other studies where the sense of belonging and attachment to older structures [2] or even economic benefits [3] were valued over comfort from renovation. Our study as well as a few earlier [2] indicate that older residents and those having lived longer in an area are more prone to have this attitude. The attitude of valuing existing structures or elements over a new, could also be more prominent among those who live in a building prior to a renovation, or at least be pronounced with a higher certitude before the renovation.

4. CONCLUSIONS

The value of heritage and historic buildings and structures expressed by the residents in our study show a way forward for implementation of the concept of re-renovation in both owner-occupied and rented multi-residential buildings. For the rented apartments, the connection to better comfort and environmental profile could be a way forward to get the acceptance from some of the tenants. The large value that historic building elements represent for parts of the tenants indicates the need to search for better replacement components, not least windows or even solutions where the older building parts are copied or improved for better function. In the continued research, further analysis of the empirical material will provide more insights of correlations between value of heritage and categories of residents.

From a methodological point of view, the study points to challenges when addressing residents with a question concerning heritage. Our study indicates how important it is with a definition of what cultural heritage values are or could be. It could be discussed whether providing examples, images or a glossary together with a questionnaire survey could be a way forward. Another observation is that the distinction between “beautiful” and “heritage” is not always easy for those not trained in the heritage field.

Regarding validity of the results, while the questionnaire had a high response rate we have no possibility to check the representativeness of the respondents to the whole sample. Among both the respondents and the interviewees have a high representation of older residents. The research is still on-going, more empirical material can be added and further analysis of the results are planned.

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