



DEGREE PROJECT IN CIVIL ENGINEERING AND URBAN MANAGEMENT,
REAL ESTATE AND CONSTRUCTION MANAGEMENT
MASTER OF SCIENCE IN ENGINEERING, SECOND LEVEL, 30 CREDITS
STOCKHOLM, SWEDEN 2017

From Boring Boxes to Beautiful Cost-Effective Houses

A study about housing development and exterior architectural preferences

Rebecca Granström and Sofia Wahlström

MASTER OF SCIENCE THESIS

Title	From Boring Boxes to Beautiful Cost-Effective Houses - <i>A study about exterior architectural preferences and housing development</i>
Authors	Rebecca Granström and Sofia Wahlström
Department	Real Estate and Construction Management
Master Thesis Number	TRITA-FOB-ByF-MASTER-2017:35
Archive Number	493
Supervisor	Tina Karrbom Gustavsson
Keywords	exterior architecture, housing development, multifamily houses, aesthetics, environmental psychology, residential area

ABSTRACT

The last time Sweden did face a major housing shortage was during the 1960's. As a solution to the housing shortage, The Million Homes Programme was initiated. The programme did manage to get rid of the housing shortage, but has received a lot of criticism concerning its architecture and environment since its completion. At the time for this study, Sweden is experiencing yet another housing crisis. In order to manage the housing shortage in a more successful way this time, it is important to not down-prioritise the exterior architecture. The exterior architecture plays an important role in creating both an aesthetical appealing and a social sustainable built environment. But the scarcity of housing makes it easy to sell the produced apartments, especially in the larger cities, which reduces the incentives for the developers to prioritise the aesthetics. There is an ongoing debate in Sweden concerning a dissatisfaction with the exterior architecture and there is an absence of research regarding the end-users preferences.

The identified problem that is addressed in this thesis concerns the down-prioritised aesthetics of the exterior architecture in multi-family residential areas in Sweden. The purpose with the study is to identify how housing developers can accomplish an exterior architectural design that is considered aesthetical attractive by its end-users. The study investigates preferences concerning exterior architecture, perceptions of the existing housing supply in Stockholm and how the housing developers can meet the identified preferences. A questionnaire was used as a method to identify peoples' preferences and perceptions of four multifamily residential housing areas in Stockholm. Interviews were conducted with a housing developer to identify how housing developers can cost-effectively meet the preferences.

The majority of the housing supply, built in what is generally considered to represent a contemporary style, did not satisfy the identified preferences concerning exterior architecture. As the title of this report indicate, the questionnaire respondents considered contemporary areas in general to look more or less like identical boring boxes. It was only the supply built in traditional style that satisfied the identified preferences. That is, the studied housing supply does not meet the end-users demand fully satisfactory. However, the interviews revealed that housing developers can satisfy the identified preferences cost-effectively by accompanying some suggestions of improvements.

EXAMENSARBETE

Titel	Från tråkiga lådor till vackra kostnadseffektiva hus – <i>En studie om bostadsutveckling och exteriöra arkitektoniska preferenser</i>
Författare	Rebecca Granström och Sofia Wahlström
Institution	Institutionen för Fastigheter och Byggnad
Examensarbete Nummer	TRITA-FOB-ByF-MASTER-2017:35
Arkivnummer	493
Handledare	Tina Karrbom Gustavsson
Nyckelord	exteriör arkitektur, bostadsutveckling, flerfamiljshus, estetik, miljöpsykologi, bostadsområde

SAMMANFATTNING

Senast Sverige upplevde en bostadskris var under 1960-talet och som en lösning initierades Miljonprogrammet. Miljonprogrammet reducerade bostadsbristen men har sedan det färdigställdes fått motta mycket kritik för sin exteriöra arkitektur och sin byggda miljö. Vid tiden för genomförandet av den här studien, genomgår Sverige ännu en bostadskris. För att hantera bostadsbristen på ett mer framgångsrikt sätt den här gången är det viktigt att den exteriöra arkitekturen inte nedprioriteras. Den exteriöra arkitekturen spelar en viktig roll i skapandet av en byggd miljö som är estetiskt tilltalande och socialt hållbar. Men den stora efterfrågan på bostäder gör det relativt enkelt att sälja de nyproducerade lägenheterna, särskilt i landets större städer, vilket reducerar initiativen för bostadsutvecklare att prioritera det estetiska. En pågående mediedebatt i Sverige vittnar om att det finns ett missnöje rörande dagens exteriöra arkitektur. Dessutom saknas det forskning om hur slutanvändarna faktiskt vill bo.

Problemet som behandlas i den här rapporten rör den nedprioriterade exteriöra arkitekturen i bostadsområden med flerfamiljshus i Sverige. Syftet med studien är att identifiera hur bostadsutvecklare kan uppnå en exteriör arkitektonisk design som anses vara estetiskt attraktiv av sina slutanvändare. Studien undersöker preferenser rörande exteriör arkitektur, hur det befintliga utbudet av bostadshus i Stockholm uppfattas och hur bostadsutvecklare kan möta de identifierade preferenserna. En enkätundersökning användes som metod för att identifiera människors preferenser och uppfattning gällande fyra olika bostadsområden i Stockholm. Intervjuer genomfördes med en bostadsutvecklare för att identifiera hur de kunde möta de identifierade preferenserna kostnadseffektivt.

Majoriteten av de undersökta bostadsutbudet, som är byggt i vad som generellt anses vara nutida stil, tillfredsställde inte de identifierade preferenserna rörande exteriör arkitektur. Precis som rapportens titel indikerar, ansåg enkätundersökningens respondenter att bebyggelsen i våra nutida bostadsområden generellt ser mer eller mindre ut som identiska tråkiga lådor. Det var endast bostadsutbudet byggt i en traditionell stil som tillfredsställde de identifierade preferenserna. Det betyder att den studerade bostadstillgången inte möter slutanvändarnas efterfrågan till fullo. Likväl, intervjuerna visade på att bostadsutvecklarna kan tillfredsställa de identifierade preferenserna kostnadseffektivt genom att följa ett antal förbättringsförslag.

ACKNOWLEDGEMENT

This study was conducted by Rebecca Granström and Sofia Wahlström and constitutes our master degree project that encompasses 30 credits. It was the final project that we had to complete in order to obtain a degree from the master's programme in *Real Estate and Construction Management* at *KTH Royal Institute of Technology* in Stockholm, Sweden. The thesis was written during the spring of 2017 and the study was conducted at the private housing developer Skanska Sweden AB.

Our academic years at KTH have been characterized by the, of that time, housing shortage in Stockholm. The housing shortage had not been as big since the 1960's and the million homes program. At the same time, there was a construction boom in Sweden and never before had we seen so many construction cranes across Stockholm. Despite that, neither one of us could be sure to afford a home in Stockholm after our graduation. But that was not our only concern, we thought that the majority of the residential houses that were built during this time looked like boring boxes and did not satisfy our preferences. The emerging built environments did not feel neither welcoming nor homely. In order to not repeat the same mistakes regarding the exterior architecture as were made during the million homes program we decided to investigate housing development and peoples' architectural preferences. We believed it was important to cost-effectively implement the preferences into housing development in order to obtain sustainable urban environments in the future.

We would like to thank Skanska Sweden AB for the help and resources that they provided during the work with this project. We would also like to thank MarketDirection for their support with the questionnaire.

At last, we would like to thank all of those who contributed with their help, feedback and knowledge to this project, especially the interviewees, our supervisors at Skanska and our supervisor at the Department of Real Estate and Construction management, Tina Karrbom Gustavsson.

Stockholm, June 2017

Rebecca Granström and Sofia Wahlström

DEFINITIONS & TRANSLATIONS

Definitions

Cost-effectiveness

There exists various definitions of cost-effectiveness but in this study, cost-effectiveness refers to being economical in terms of producing good value in relation to the amount of money being paid.

End-user

The “end-user” or simply “user”, is a term used by planners and architects and will throughout the thesis be referred to as the person that uses a built environment (Sternudd, 2007, p. 21). The thesis is limited and will only touch upon exterior architecture, therefore the end-users can be defined as all of those who observe the exterior architecture. This would for instance include both the residents in an area and the people that are passing through the area.

Translations

Table 1: Translations

English	Swedish
Detailed Development Plan	Detaljplan
Skanska’s Housing Panel	Skanskas Bopanel
The Stockholm Royal Seaport	Norra Djurgårdsstaden
The National Board for Housing, Building and Planning	Boverket
The County Administrative Board	Länsstyrelsen
The Planning and Building Act	Plan- och Bygglagen
The Million Homes Program	Miljonprogrammet

TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.1. Background and Research Problem	1
1.2. Purpose.....	2
1.3. Research Question.....	2
1.4. Goal	2
1.5. Methodology	3
1.6. Delimitations	4
1.7. Disposition	4
2. METHODOLOGY	6
2.1. Research Approach	6
2.2. Method	6
2.2.1. The Studied Developer.....	7
2.2.2. Literature Review	10
2.2.3. Questionnaire	11
2.2.4. Interviews	20
2.3. Quality of Research.....	24
3. LITERATURE REVIEW	25
3.1. The Swedish Building History	25
3.2. Urban land development in Sweden	28
3.3. The Ongoing Housing Crisis.....	33
3.4. The Importance of Exterior Architecture	36
3.5. Price Effects of Architecture.....	37
3.6. Niching in Residential Development	39
3.7. Managing Construction Projects	40
4. THEORETICAL FRAMEWORK	44
4.1. Environmental Psychology	44
4.2. Design Principles and Definitions.....	49
5. EMPIRICAL FINDINGS.....	51
5.1. Questionnaire	51
5.1.1. Sankt Erik.....	52
5.1.2. Stockholm Royal Seaport.....	56
5.1.3. Hammarby Sjöstad	60
5.1.4. Ursvik.....	64
5.1.5. Robustness of Questionnaire Result.....	69
5.2. Interviews.....	71
5.2.1. Result from the Main Interviews.....	71
5.2.2. Result from the Concluding Interview	83
6. ANALYSIS	86
6.1. Perceptions and Preferences of the Built Environment.....	86
6.2. Taking the Preferences into Account	94
7. CONCLUSION	100
7.1. Suggestions for Future Research.....	102

8. REFERENCES	103
8.1. List of Figures	107
8.2. List of Tables	108
9. APPENDIXES	109
Appendix A: Questionnaire Layout	109
Appendix B: Interview Guides.....	112

1. INTRODUCTION

This chapter will give a brief introduction to the background and the problem that is addressed in this thesis, which then is clarified by a purpose and three research questions. Lastly, the methodology will be presented shortly, followed by the disposition.

1.1. Background and Research Problem

Presently, 240 out of 290 of the municipalities in Sweden are experiencing a housing shortage (Hyresgästföreningen, 2016). The last time Sweden did face a major housing shortage was during the Million Homes Programme (SABO, 2016). The Million Homes Programme has since it was completed received a lot of critique, mainly concerning its architecture and environment. During the years 1961-1975, around 50 percent of the multi-family housing units was constructed in neighbourhoods together with 10 or more buildings of the same sort (Vidén & Hall, 2005). The focus was aimed at constructing many homes, resulting in industrialised construction and rationalisation being prioritized over the quality of the built environment. The conclusion that can be drawn about the Million Homes Programme is that it did manage to get rid of the housing shortage, which was its main purpose. However, the general view concerning the architecture is that it is large-scale and has a sterile environment (SABO, 2016). In contradiction to the general populations' opinion about the Million Homes Programme, Vidén & Hall (2005) state in their thesis that this image is not entirely justified. The buildings that were constructed had great variation in size, scale, planning pattern and architectural design.

As this thesis is written, Sweden is experiencing yet another housing crises. The prognosis is that Sweden is in need of 710 000 new homes seen over a ten year period, almost a new Million Homes Programme (Boverket, 2016b). It might not be enough to densify the existing built environment; entirely new urban areas may have to be developed in order to solve the housing shortage. To manage the housing shortage in a more successful way this time, it is crucial to not down prioritize the exterior architecture. The exterior architecture plays an important role in creating both an aesthetical appealing, and a social sustainable, built environment (Forsman & Jonsson, 2016). However, creating an aesthetically attractive built environment is easier said than done. The exterior architecture in is frequently debated in both newspapers (Svensson (DN), 2017) and in different social media groups (for example "Arkitekturupproret") and a dissatisfaction can be anaesthetised.

The housing shortage that is experienced by especially Stockholm, Gothenburg and Malmö, makes it relatively easy to sell the apartments that are being produced. This reduce the incentives for the industry to challenge itself. The decision concerning the built environments exterior design lies in the hands of the municipality, the developers and the architects. The end-users of the built environment are seldom consulted about their preferences regarding the exterior architecture. When it comes to cars, clothes or practically any other good, the companies are actively trying to please the end-customer (Grossman, 2016). Erik Stenberg, architect and researcher, also point out the lack of research concerning the end-users preferences (Stenberg, 2017). To cite Stenberg (2017): *"When I visit the architects that are supposed to design the 700 000 homes, they "scream" after research. They know that they are doing something wrong, but they do not know what they are doing wrong."* Previous researchers have been able to prove that there exist a difference between what architects and laymen find aesthetically appealing in the built environment. This difference constitute the foundation of the problem that will be investigated in this thesis. The identified problem that is addressed in this thesis concerns the down prioritised aesthetics of the exterior architecture in multi-family residential areas in Sweden.

1.2. Purpose

This study's starting point was the hypothesis that large and entirely new housing areas will be built in the future as a solution to the housing shortage. It is important to implement sustainability and the needs and preferences of the end-users into these areas. The thesis is written from a housing developer's perspective, which means that consideration must be showed to the current housing market situation, the prevailing housing shortage, the planning legislation and the developer's business. The conclusions provided from this study is intended to improve the developer's business and help them satisfy their customer's preferences.

The purpose is to identify how housing developers can accomplish an exterior architectural design that is considered aesthetical attractive by its end-users.

1.3. Research Question

Main question

How well does the housing supply meet the demand concerning exterior architecture and how can housing developers satisfy that demand cost-effectively?

Sub-questions

1. Which preferences exists regarding exterior architecture among end-users of the built environment?
2. How well does the housing supply in Stockholm match the identified preferences?
3. How can the identified preferences be met by housing developers without increasing the production costs?

1.4. Goal

The overall goal with the thesis is to investigate how well the housing supply meet the demand concerning exterior architecture and also to examine how housing developers can adapt their supply so that it meets the demand more successfully.

1. Identify the end-users preferences concerning exterior architecture.
2. Identify the end-users perception of the existing housing supply in Stockholm.
3. Communicate the end-users preferences and perception of the built environment to the housing developers and identify how they can improve to meet the preferences.

Benefits

The result of the thesis is intended to contribute to the developers' business in a positive way, allowing them to better adapt their product to their end-customers and end-users. This in turn will result in a built environment that is more aesthetical appealing in terms of its exterior architecture. The study also contribute with knowledge about how the exterior architecture in the four studied areas are experienced by the questionnaire respondents, as well as the respondents' general preferences concerning exterior architecture.

Sustainability

The answer that is provided to the research question will take both social, economic and environmental sustainability into consideration. The main focus when it comes to sustainability lies on social sustainability since the exterior architecture has a significant impact on a residential areas social sustainability. Economic sustainability will be achieved by maintaining a focus on the developer's production cost throughout the study. Environmental sustainability is also achieved through the conducted research since a more attractive built environment is more likely to have a longer lifetime, thereby leading to higher resource efficiency. Attractiveness often goes hand in hand with quality when the building is becoming of age, materials of higher quality will age more gracefully and last longer, thereby leading to better resource efficiency. Environmental sustainability has also been considered in the daily work with this project. For example, all trips have been made with public transportation or by foot, no unnecessary documents have been printed out, instead iPad's, projectors and laptops have been used during interviews and meetings. One of the empirical methods that has been used in this study is a questionnaire, which was sent out through e-mails to the respondents instead of via regular mail. By not using regular mail, both the use of paper and transportation could be avoided.

Ethics

Ethics have been taken into consideration by carefully referring to other researchers reports that are included in our study. The integrity of both the questionnaire respondents and the interviewees have been highly prioritized. As an example, the file containing the questionnaire result did not contain information such as name or address to any of the respondents. The respondent's integrity was also cared for by preventing unauthorised from accessing the document with a password. All the interviewees have been consulted about the use of their name in the report and all of them have been asked to approve what is written in the report before it was published.

Diversity and equality have also been in focus throughout the study. The background of the questionnaire respondents has been studied carefully in terms of diversity and equality under the Method section. By interviewing several different disciplines involved in a development project a better perception of the situation will be achieved. When selecting the interviewees, extra attention was paid on getting both men and women to participate in our study. Gender equality has also been important when conducting the literature review.

1.5. Methodology

The research approach for this study combines both inductive and deductive reasoning (Saunders, Lewis, & Thornhill, 2009). This means that literature first has been used to identify theories and that data later has been used to develop theories, which in turn can be related to literature.

The methods that have been used in order to achieve the goals of this study are a literature review and two empirical methods: questionnaire and interviews. The methods resulted in both quantitative and qualitative data which have been analysed both quantitatively and qualitatively.

The research has been conducted at a private housing developer whose business has been studied and used as a support for the methods. The developer's potential customers and employees have participated in the questionnaire respectively the interviews. Given this, the developer and its potential customers can be said to represent the housing developers respectively the end-users in general for this study.

The methodology is further described in chapter 2.

1.6. Delimitations

The study has been performed within a framework of limitations. Initial delimitations were made in the beginning of the study and some delimitations were added during the process due to new knowledge acquired from the literature review and the empirical study. The study holds the following limitations:

- ♣ The study focuses on exterior architecture of multi-family houses in large residential areas and the end-users preferences of these areas. No interior architecture, apartment layouts or related aspects are included in the study.
- ♣ The study focuses on the development phase, mainly in-between the pre-study and the execution, of residential projects seen from a housing developer's perspective.
- ♣ The housing supply that is studied in the report refers to the year 2017 and is limited to four specific residential areas in Stockholm County. All of the areas have either been completed the last two decades or are still under development. The development of future extensive residential projects in Stockholm County have also been discussed and analysed in more general terms.
- ♣ The study is limited to solely one housing developer and that developer's potential customers. The study of the end-users demand concerning exterior architecture is therefore limited to the preferences of the specific developer's potential customers in the year 2017. The study of how developers can meet the identified preferences is also limited to the specific developer and its business in Stockholm County.
- ♣ When investigating how the developer can meet the identified preferences, the main focus was on how this could be achieved without increasing the production costs. No other of the developer's costs that can be related to a development project, such as costs for land purchase, contribution to infrastructure, administration, finance or sales, were included in the study.

1.7. Disposition

Methodology

The overall research approach will be described in the beginning of the chapter, followed by an introduction of the developer whose business this study is based on. The methods that have been used in the study is a literature review and two empirical methods; questionnaire and interviews. The methods are also described in the chapter, which is ended by a section where the research quality of this study is discussed.

Literature review

The background to the problem that our degree project addresses will be described in this chapter. The Swedish building history will introduce the chapter, followed by the urban land development procedure in Sweden. After that, the current real estate market situation will be described together with relevant research within the area. Lastly, literature of how to manage construction projects is presented.

Theoretical framework

The theoretical framework that was used in the analysis of the questionnaire and interview result is described in this chapter. The theoretical framework was used in order to understand and explain the

questionnaire and interview result. The main focus of this study is the end-users preferences and perceptions of the exterior architecture in multi-family residential areas. Therefore environmental psychology and some additional definitions constitute the theoretical framework.

Empirical findings

The empirical findings, or result, from the questionnaire and interviews will be presented in this chapter. Section 5.1 contains the questionnaire result. Section 5.2 constitute the interview result. An extensive amount of empirical material has been collected through the 872 questionnaire responses and 8 conducted interviews. The empirical findings chapter is therefore quite long. The result is to some extent summarized in the analysis as well, but in a shorter version.

Analysis

In this chapter theory within the field of environmental psychology will be used to analyse the questionnaire and interview result. In Section 6.1 the questionnaire result is analysed, the section ends with a short summary of the questionnaire respondents' preferences regarding exterior architecture in multifamily residential areas in Stockholm. Section 6.2 analyse *if* and *how* the identified preferences can be met by the housing developers.

Conclusion

The conclusion will first provide a short answer to each of the three sub-questions, followed by an answer to the main question.

2. METHODOLOGY

The overall research approach will be described in the beginning of the chapter, followed by an introduction of the developer Skanska Sweden AB, whose resources have been used during the study. The methods that have been used in the study is a literature review and two empirical methods; questionnaire and interviews. The methods are also described in the chapter, which is ended by a section where the research quality of this study is discussed.

2.1. Research Approach

The purpose with the study was to identify how housing developers can accomplish an exterior architectural design that is considered aesthetically attractive by its end-users. The methods that were applied in order to reach a conclusion was a literature study and two empirical methods; questionnaire and interviews. Based on the method choice, a practical research approach was better suited than a theoretical approach.

When conducting research you can apply either a deductive or an inductive approach (Saunders, Lewis, & Thornhill, 2009). In the deductive approach the goal is to test theory, which is done by establishing a theoretical framework and then use data to confirm or reject the theory. In an inductive approach you do not start by defining a theoretical framework, instead you start to collect data, with the aim to build theory from the collected data. It is often advantageous to combine a deductive and an inductive research approach which is exactly what has been done in this study. A literature review was conducted in order to establish a theoretical framework. The theoretical framework was then used when constructing and analysing the questionnaire and the interviews. However, the result from the questionnaire and the interviews did contribute with some new insights, making part of our research inductive.

The empirics that were collected through the questionnaire constituted of both quantitative and qualitative data. The quantitative data is presented by using charts, diagrams and average scores. By displaying how many times a specific word occurred, some quantitative data could be retrieved from the questionnaire's open questions as well. Otherwise the open questions in the questionnaire were considered as qualitative data. Some of the open answers are presented as citations while other answers that were repeated frequently by several of the respondents are summarized. The analysis of the questionnaire was thereby based on both qualitative and quantitative data.

The empirics collected through the interviews were mainly qualitative since most of the questions were of open character. The qualitative data are presented either as citations or by summaries. A few of the questions in the interviews constituted of both quantitative and qualitative answers. The quantitative answers on these questions are displayed in tables. The interview analysis was, just like the questionnaire analysis, based on both qualitative and the quantitative data.

2.2. Method

A multiple-method research design was required in order to answer the research question. The methods that were used in addition to the literature review, was a questionnaire and interviews. The questionnaire was conducted in order to identify the end-users preferences concerning exterior architecture. The interviews were conducted in order to investigate if and how the end-users preferences can be utilized cost-effectively in the development and construction of multifamily houses. The interviews was held with different disciplines that commonly are involved in the project development process. In order to

obtain a valid and reliable result it was important to interview different actors and disciplines active in the development process.

The study was conducted at the private developer Skanska Sweden AB, from now on referred to as Skanska, and the research has been applied and limited to Skanska's business. Skanska and its customers therefore represents the developers respectively the end-users for this study. The questionnaire has been conducted with Skanska's housing panel, described later in this chapter, and the interviews have been performed with both various employees at Skanska and with external architects working on behalf of Skanska.

2.2.1. The Studied Developer

Skanska is one of the world's leading project development and construction groups, concentrated on markets in the Nordic countries, Europe and North America. Skanska is one of the largest construction companies in Sweden with over 10 000 employees and thousands of projects every year (Skanska Sweden AB, 2017a). Skanska's operation is divided into four business units: Construction, Residential Development, Commercial Development and Infrastructure Development.

Skanska operates its own residential development projects but also develop and construct houses on behalf of external customers. Skanska's own residential developments are mainly located in, or in proximity to, Sweden's three largest cities: Stockholm, Gothenburg and Malmö, but also in an additional number of selected areas. Skanska's residential development consists of three departments:

- ♣ *Skanska Nya Hem* who develops condominium apartments in large city regions,
- ♣ *Skanska Hyresbostäder* who develops rental apartments and
- ♣ *BoKlok* who develops cost-efficient homes in cooperation with IKEA.

Skanska also has a few joint venture residential projects, which means that the ownership for these projects are shared between Skanska and an external part, which together have created a business entity.

Skanska has many different strategies that helps them steer their business and their residential development, four of these are more relevant to this study and are therefore presented in the following sections.

Skanska's business plan

Skanska express that they build for a better society and aim to be a leader in sustainable solutions, quality, safety and ethics (Skanska Sweden AB, 2017a). Skanska's business plan for 2016-2020 is called "Profit with Purpose" and the aim with the plan is to create value for their shareholders while building a better society (Skanska Sweden AB, 2017b). See Figure 1 below for an illustration of the basic idea of their business plan.

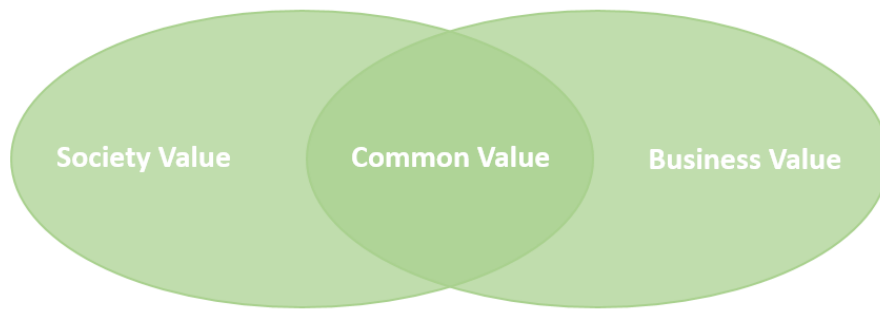


Figure 1: Figure based on the idea of Skanska's business plan "Profit with Purpose" for the years 2016-2020 (Skanska Sweden AB, 2016).

Skanska describe their reasoning regarding the business plan as follows:

"To truly be a leader, we must create shareholder value in a responsible way and contribute to society at large. At Skanska, we share strong values and a determination to build for a better society. Given the business we are in and the size of our operations, we can have a considerably and positive impact on society as part of a profitable business. It is not about doing one or the other; it is about doing both at the same time. Profit is needed to deliver our Purpose; and a strong Purpose will contribute to our Profit. Our Purpose is to build for a better society. Working with customers and communities, and driven by our values, we have a responsibility and opportunity to influence our customers and together contribute to society in a positive way, as well as contributing to the development of our people."

This study was also about finding a balance between business value and society value. It is important that the houses that are being built today are sustainable, which includes satisfaction of aesthetical preferences. It is equally important that people can afford to live in the houses, which requires that the houses are cost-effective as well as profitable to build for the housing developers. This reasoning constitute the foundation for the entire study.

Skanska's housing panel

Skanska has many different strategies and tools which are intended to help them achieve the goals in their business plan (Skanska Sweden AB, 2017c). One of the tools that are used in residential development is Skanska's Housing Panel. Skanska's Housing Panel has existed since 2009 and the members are mainly recruited from Skanska Nya Hem's interests register in Sweden's largest cities. Of course, anyone who wishes is welcome to sign up to be a member of the housing panel on Skanska's website. The panel consists of approximately 3500 people in total and they regularly participate in questionnaires concerning home and residential; such as kitchens, apartment layouts, and neighbourhoods. Four questionnaires per year are in average performed with the housing panel. The respondents do not receive any compensation for their involvement in the panel but they get to take part of selected results from the questionnaire. The questionnaires are conducted in cooperation with the firm MarketDirection. Skanska makes use of the results from the questionnaires in their residential development and marketing. The questionnaire in this study was distributed to Skanska's housing panel and will be described later in the report.

Skanska Sweden's Housing Platform

Skanska has a standardized platform called Skanska Sweden's Housing Platform which is a framework of how to build cost effective multi-family houses with high quality (Skanska Sweden AB, 2017d). The platform is developed out of collective experience, i.e. "best practice", from Skanska Sweden's housing

production. The platform does not contain any excessively innovative technology, it is rather a collection of proven, simple and ensured technical solutions. The platform is supposed to be used in Skanska's internal housing development projects that consist of at least three floors, however it is both allowed and recommended to be used with external customers as well. Even though the intention is to use the platform for all of Skanska's own housing projects they sometimes end up beyond the framework because of requirements from authorities or others.

Skanska Sweden's Housing Platform comprises documents with guidelines that shall be applied from the starting point of the project and compose the foundation for the designing process. The platform do contain both strategic guidelines and guidelines regarding the design. The platform handles, just to a mention a few, the buildings geometry, framework, exterior walls, roof and installations. This means that the platform is not a concept or a finished product but a framework that provides support for a faster and more ensured designing process.

Skanska's goal with the platform is to increase the profitability and decrease the production costs by continuously improving and developing their long term competitive technical housing solutions with focus on cost, revenue and quality.

The platform do not contain any guidelines regarding aesthetical qualities. It is the program for the project that shall be crucial for the architectural design of the building or the area. Although, the design shall still be within the framework of the platform.

Since the platform is the main tool for Skanska when it comes to decreasing the production costs in their housing projects, there has been a lot of focus on the platform in the interviews that were conducted in this study.

The Activity Based City

The Activity Based City is a concept that is under development as this study takes place. The concept is developed on an initiative taken by the four companies Skanska, WSP, Scania and MTR (The Activity Based City, 2017). The four companies have long experience, both locally and internationally, from working with sustainable and innovative urban land development. They also collaborate with different organizations and involve the public, the academy and business world. The background for The Activity Based City is, just like for this study, the present housing shortage and the need for sustainable cities. The background for The Activity Based City is, just like for this study, the present housing shortage but also the need for sustainable cities and fossil free transports. More specifically, the goal is to establish a concept model of a possible solution to the housing shortage and sustainable transports. The plan was to deliver a complete concept of The Activity Based City in the middle of 2017.

The idea with the concept is that it can be used at any place where there is a demand, no matter if that place is the Stockholm area, other parts of Sweden or even international cities. The basic stand point is that there will not be enough to densify the existing city centres and that new smaller cities along existing infrastructure are therefore necessary (Öjemark, 2016). The cornerstones of The Activity Based City are the following:

- ♣ Mini-cities with approximately 9 000-10 000 residential homes.
- ♣ Built with the public transport as hub, around commuter train stations or bus stations, depending on the location and available infrastructure
- ♣ A block-based city which is more dense than the earlier built suburbs but more sparsely than the inner-city

- ♣ A mix of rental apartments, condominiums apartments, single family houses and workplaces
- ♣ Walking distance to pre-schools, schools, services and sport stadiums

There are two architectural firms working on behalf for The Activity Based City, Wingårdhs and Sandellsandberg. One architect from each firm has been interviewed for this study and the interviews can be read about further down in the report. The two architects' mission for The Activity Based City was to deliver two separate suggestions, one for each firm, on how to form these cities and each firm had different approaches to this. Kayrokh Moattar who worked for Sandellsandberg described their ideas about The Activity Based City like the following (Moattar, 2017):

“In our proposal we have a quite rigid primary network, but we also introduce an organic secondary network as another layer which cuts through the other more predictable one. We can achieve a lot of variation in the urban fabric by carefully shaping the volumes. For example, what is interesting with the old city of Stockholm is that you get to experience a lot of different spaces in between the buildings. We see these qualities as positive and something that we can learn from a traditional city. Today, things are being steered in a quite predictable way and then the variation is added by doing small deviant gestures in facades and heights. It may contribute a bit to achieve some variety, but it is more of an add-on rather than an inherent feature; while it is the organic structure and the integrated spontaneity and unpredictability together with the order in a traditional city which creates the diversity and the right feeling. Our strategy is to introduce these aspects into The Activity Based City but we also know that we have another kind of traffic today which requires more orderliness than what was needed in the old city.”

Wingårdhs had the same basic ideas as Sandellsandberg but with some differences. Lars Kockum who worked for Wingårdhs described their ideas for The Activity Based City like this (Kockum, 2017):

“We have the same basic ideas as Sandellsandberg but we have a more rigid quarter structure. To create diversity in a new city with qualities for the humans I believe you have to work a lot with attributes positioned in the human scale and in the street scape such as the materials and the details. We have to put more care and quality into this and I believe we should work more with natural materials like stone, wood and bricks. It might have to cost a bit more than what is common for the buildings that are being built today and the industry might in turn have to find other ways to circumvent the calculations.”

This study's starting point was the hypothesis that large new housing areas, such as The Activity Based City, will be built in the future. The importance of implementing sustainability and the needs and preferences of the end-users into these cities is the foundation of the purpose of this study.

2.2.2. Literature Review

The literature review is intended to give the reader the most relevant background information about the housing market, the construction industry and the planning legislation, as well as presenting previous research within the field of exterior architecture. The literature review was also used as method when establishing the theoretical framework. The literature review is conducted with a deductive approach (Saunders, Lewis, & Thornhill, 2009). The literature search was carried out using Google, Google Scholar, and primarily KTH Primo. KTH Primo and Google Scholar are both search engines that are designed especially for academic sources, such as articles published in scientific journals, doctoral theses, printed books etc.

2.2.3. Questionnaire

The focus area of the study was the aesthetical appeal of exterior architecture in large construction projects that comprises multifamily housing. “Large” construction projects refer to projects that are large in terms of the exploited area, i.e. the focus is on development projects where entirely new areas are established, not on complementary settlements. The term architecture encompasses many other aspects than the aesthetical, for example: acoustics, surface structure, smell and temperature, qualities that are not visibly observable but still very important for a buildings functionality (Sternudd, 2007). Architects therefore prefer to talk about architectural quality rather than what is beautiful or what is ugly. But it is the aesthetical preferences that, in previous research, have been found to separate the laymen and the architects. It is also the aesthetics that affect all the users of the exterior architecture, not only those who live in the buildings. The term architecture have been excluded in the questionnaire, mainly because there are so many aspects of the architecture that are not considered in this study. No attempts to comment on what is perceived as good versus bad architecture have been made. The study investigates what the users of the built environment find aesthetically appealing.

The experienced architecture, what is aesthetically appealing and what is obnoxious, varies between individuals. It has also been proved that architectural preferences varies between laymen and trained architects (Sternudd, 2007). Something that is *aesthetically appealing* is considered to be beautiful in the eyes of the observer. In the questionnaire, which will be explained below, the respondents were asked to grade the aesthetics of the built environment. In that case, the respondents were asked for their *aesthetical preference*. The *aesthetical preference* will not provide any information about the beauty of a building, the only conclusions that could be draw from the grading was that the respondents prefer one area in front of the other areas that were included in the study.

The questionnaire did investigate what the respondents thought of, and how they perceived, the built environment in four multifamily residential areas in Stockholm County. The research approach used in the questionnaire is thereby of descriptive character. The questionnaire is grounded on the gap that appears to exist in the aesthetical preferences between laymen, i.e. people without architectural education, and architects (Sternudd, 2007, p. 137). Sternudd presents a generalised list over the differences that research point out exists between laymen and architects. The differences constitute different attributes that the built environment can possess. The questionnaire did investigate:

1. How the respondents experience the built environment in the four residential areas included in the questionnaire.
2. What the respondents think of the four residential areas exterior architecture.

The result from the questionnaire provided an explanation to how the respondents experienced the built environment in the four residential areas. The result also made it possible to analyse what the respondents thought of the multi-family houses that were shown to them. The result from the study is intended to improve the built environment in future construction projects and will be used to develop Skanska’s business. The study resulted in a number of suggestions on how Skanska better can consider the preferences of the end-users in their business.

The attributes that were used in the questionnaire are listed in Table 2. The attributes that most architects tend to prefer are listed in the left column and the attributes that most laymen tend to prefer are listed in the right column (Sternudd, 2007). To clarify, the intention with the questionnaire was to find out how the respondents *perceive* the built environment, not to establish that there exists a difference between laymen and architects, this difference has already been identified in previous research. The respondents were asked to grade the four areas on a scale between 0-10. The attributes, combined with the grading,

made it possible to identify if any of the attributes were liked or disliked by a majority of the respondents. In addition to the attributes and grading, each of the four areas also had an open question. In the open question the respondents were asked to specify what they thought characterises the area.

Table 2: Attributes in the questionnaire (Sternudd, 2007)

Architects prefer	Laymen prefer
Large-scale buildings	Small-scale buildings
Uniformed	Diversified
Few details	Many details
Cold colours	Warm colours
Contemporary style	Historical style
Original	Conventional

The four areas that were included in the questionnaire have all been constructed after the year 1990, and some areas are still under construction as this thesis is written, something that was avoided on the pictures to as large extent as possible. The four areas that were included in the questionnaire are presented below:

1. Sankt Erik
2. Stockholm Royal Seaport (Norra Djurgårdsstaden)
3. Hammarby Sjöstad
4. Ursvik

The areas 1-3 are located in Stockholm Municipality and are considered to be high-profile areas in terms of their architecture, which means that the buildings that are constructed are expected to have extra lavished architecture. The fourth area, Ursvik, is located in Sundbyberg's Municipality. Ursvik consist of mainly standardized housing, but the planners still have managed to include a lot of variation in terms of different colours and textures on the buildings.

When the areas were selected the main focus was to represent "our time's" construction industry. The areas Stockholm Royal Seaport and Hammarby Sjöstad were selected because they constituted two of the largest ongoing development projects in Stockholm at the time this thesis was written. The Sankt Erik area was included since the area contains all the attributes that laymen generally prefer in the built environment and the area is per definition a pastiche. Ursvik was selected to represent a suburban area. It was a rather easy choice to include area 1-3 since all of the areas have had an impact on the image of Stockholm and they have been frequently debated in the media. However, choosing a suburban area was harder, since there are so many construction projects taking place in the suburbs of Stockholm at the moment. Other areas that were considered was Barkabystaden and Järvastaden to only mention a few. Ursvik was chosen because the planners have a clear ambition about the area and it is possible to see that the planners and builders have tried to create a diversified built environment, even though the area is situated in the suburb.

The location of the four areas are marked on the map in Figure 2, and a short description of the four areas follows below.

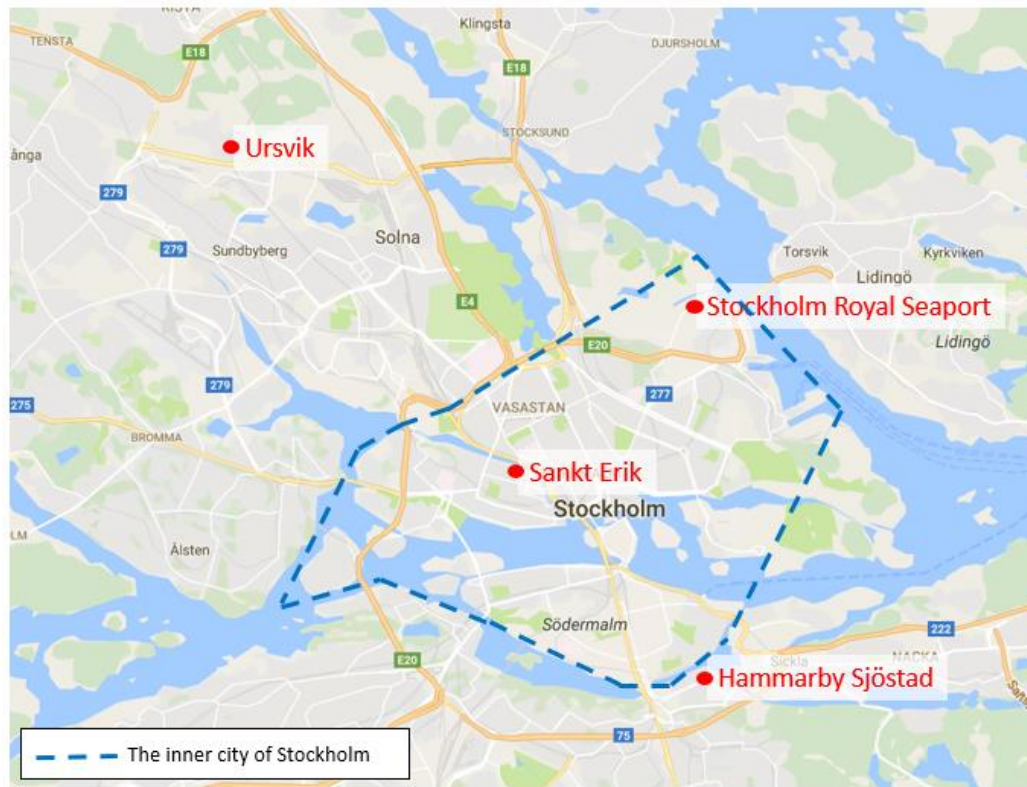


Figure 2: Location of the four areas that are included in the questionnaire (map from Google Maps, edited by the authors)

The respondents were not informed about the areas' name, location, nor the buildings construction year and were not given any other information about the areas. This was done primarily so that the respondents could form their own opinions about each area. In other words, if the respondents did not recognise any of the areas based on the images they were shown, they could not obtain any information about the areas on their own. Three of the areas have a very contemporary design, and it is relatively easy to assume that they have been constructed recently. However, the Sankt Erik area could be mistaken for being older than what it really is.

Area 1: Sankt Erik

The area is located in the district Kungsholmen in the inner city of Stockholm. The images that were used to illustrate the area in the questionnaire are displayed in Figure 14 in Chapter 5. The city plan was drawn by the planning architect Alexander Wolodarski (Bedoire, 2015). The city plan takes inspiration from an older architectural style and the houses that were built during the 1990s look very alike the older buildings from the 1920s that are situated in proximity to the area. There were several architects involved in Sankt Erik, but all buildings had to have a classicist design. The particular architectural style in Sankt Erik is called postmodern classicism (neo-traditionalism is a synonym), and constitute a branch within the postmodern architectural style. Postmodern classicism arose from a general desire for a more traditional style. Alexander Wolodarski won a prestigious price, handed out by the Congress for New Urbanism in the United States, for his design of Sankt Erik (Sörensen, 2010). Sankt Erik is loved by the general public but highly criticised among architects. Architects consider the area to be a pastiche since it strives to look alike the houses that were built during the 1920s.

Area 2: Stockholm Royal Seaport

Stockholm Royal Seaport is located in the outskirts of Stockholm's inner city, in the area called Hjorthagen. The images that were used to illustrate the area in the questionnaire are displayed in Figure 21 under the questionnaire result. The area is still under construction and constitute one of the largest city development projects in Europe (Stockholms stad, 2017). The development take place in an old industrial area and it has high environmental ambitions that all developers have to follow. The area is also characterized by having many different developers and architects in order to create a diversified built environment. Diversification and the scale of the buildings, which should correspond to the scale in the inner city of Stockholm, are pointed out as important guidelines to the architects, but besides from that the architects are relatively free to create their own design (Bedoire, 2015). The requirements on the architecture are high in the area.

Area 3: Hammarby Sjöstad

Hammarby Sjöstad is located south of Stockholm inner city and also constitute an old industrial area. The images that were used to illustrate the area in the questionnaire are displayed in Figure 28 under the questionnaire result. Hammarby Sjöstad is large, therefore the zone around Hammarby Allé and Hammarbyterassen were selected for the questionnaire. The environmental goals were high in Hammarby Sjöstad and the planners strived to create an urban feel in the area by establishing room for restaurants, service and retail at the ground level of many buildings (Stockholms Stad, 2011). In order to achieve diversification in the area, several architects and developers were involved in the development, which has been going on for almost 20 years. The architecture is modernistic and the area is characterized by large balconies, large windows and light-coloured facades on the buildings that are located in proximity to the water.

Area 4: Ursvik

Ursvik is located in the municipality Sundbyberg, situated North West of Stockholm city (Sundbybergs Stad, 2017). The images that were used to illustrate the area in the questionnaire are displayed in Figure 35 under the questionnaire result. The construction works started in 2005 and is expected to continue until 2026. The development area can be divided into two parts, where one part will constitute of detached and semi-detached houses, and one part which will have multi-family houses and a more city-like feel. The planners strive to create a small-town environment, with diversified architecture, a lot of green areas and beautiful surroundings, combined with service and cultural activities. The area is situated further away from the inner city of Stockholm compared to the other areas that were included in the questionnaire. Something that results in lower land values, lower square meter prices on the housing that is being built and a lower budget for the developers. In other words, the developers have to build a cheaper building in order to make a profit, which means that they have to reduce the construction costs somehow.

Selection of images

It was hard to visualise an entire area with only four images. Still, that compromise was necessary in order to accomplish a questionnaire that was not too time consuming for the respondents to complete. The images were selected so that the buildings that were most common-looking for each area were represented on the photographs. Something that resulted in exclusion of the more extreme architectural expressions that can be found in, for example, Stockholm Royal Seaport. At the same time the intention was to characterise the diversification of the built environment in each area. Landmarks that could make it easier for the respondents to recognize in which area the photos were taken were also excluded from the pictures on purpose. As much vegetation as possible was also avoided on the images since the main focus was the exterior architecture. However, one mistake was made in the Sankt Erik area where an image with a full grown tree and some green grass was included in the questionnaire. This could potentially have given the Sankt Erik area a small advantage compared to the other areas. It was also more prominent that Stockholm Royal Seaport and Ursvik still were under construction, which also can have a slight impact on the result. As mentioned previously, efforts were made to exclude the fact that some areas still were under construction. However, it was possible to distinguish that the trees had have time to grow for a few more years in Sankt Erik and Hammarby Sjöstad, compared to Stockholm Royal Seaport and Ursvik, on the images. All the buildings included on the images have been constructed between the years 1990-2016.

Sampling

Even though the “general publics” opinion was desired most of all, it was not possible to acquire within the time frame our budget constraint of this study. Sampling saves time and make the data collection more convenient (Saunders, Lewis, & Thornhill, 2009). Probability sampling was used and the first step in the sampling procedure was to select a sampling frame. The sample frame constituted the entire population in Skanska’s housing panel, described earlier in the report. Skanska’s housing panel constitute a diversified mix of people in all ages with different life situations (Skanska Sweden AB, 2017c).

The members of the housing panel are spread across Sweden. However, as the distribution of respondents per county shows (Figure 3), there seems to be a concentration of members in the bigger cities; Stockholm, Gothenburg, Malmö and Uppsala.

DISTRIBUTION SWEDISH COUNTIES

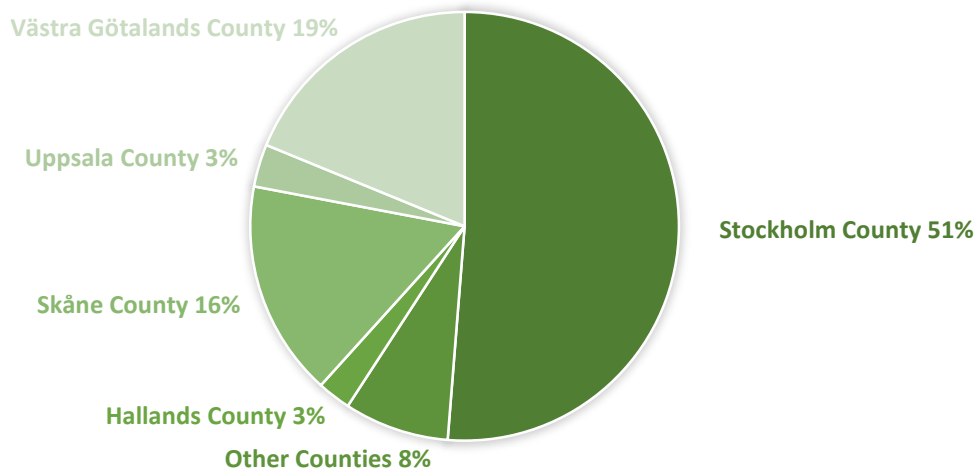


Figure 3: Distribution of questionnaire respondents across the Swedish Counties

It is voluntary to become a member in the housing panel. Those who are members can be assumed to have an interest in the built environment and the homes that Skanska produce. Since the construction activity is higher in the larger cities, it is also natural that Skanska are more active and have a larger customer base in these regions. The purpose of the housing panel is to investigate the members' opinions about different aspects related to the houses and the environment that we live in. It was very convenient to use the housing panel for the questionnaire, both when it comes to the administration of the questionnaire and when it comes to having a representative sample for the study.

The age and gender distribution among the questionnaire respondents are shown in Figure 4. The gender distribution was relatively even between men and women, 10 percent more women than men did respond to the questionnaire. The middle age among the respondents was 55.8 years and as can be seen in Figure 4, respondents under the age of 30 were underrepresented. In Chapter 5, the consequences that might follow due to the underrepresentation of people between the ages 18-30 are discussed and a robustness check is conducted.

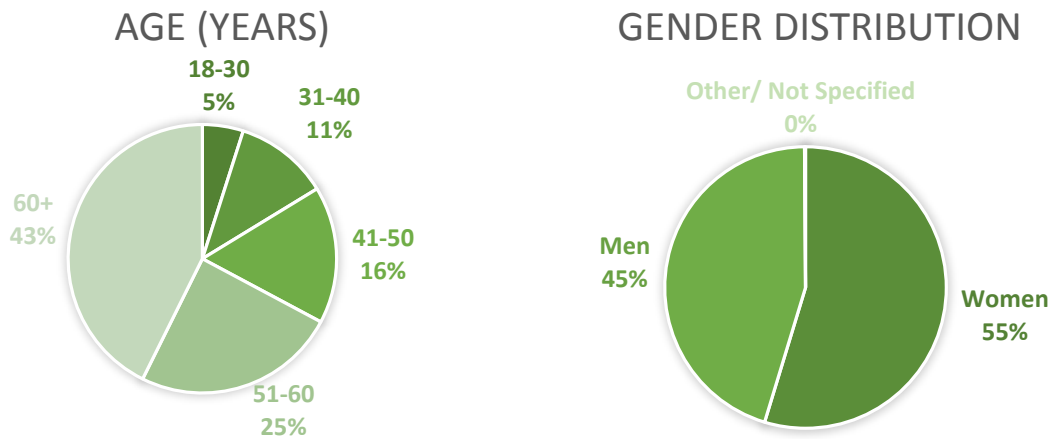


Figure 4: Age and gender distribution among questionnaire respondents.

The respondents were also asked about their current housing situation and occupation. A large share, 61 percent, of the respondents lived in a multi-family residential apartment and 38 percent lived in a villa, townhouse or similar (see Figure 5). The respondents were not asked whether their apartment was a rental apartment or a condominium. Primarily because it was the type of living environment, multi-family residential area or a detached area, which the respondents lived in that was interesting in this study. It is generally considered to be more attractive to live in multi-family residential buildings in larger cities, compared to smaller cities, where multifamily housing often is considered as a less attractive accommodation mean. Since the majority of the respondents did live in a County that inhabit one of the four largest cities in Sweden, the respondents can be assumed to have an image of the attractiveness that an apartment can constitute. As mentioned above, the members in the housing panel most likely are interested in buying an apartment from Skanska, and should therefore consider an apartment as an attractive living alternative.

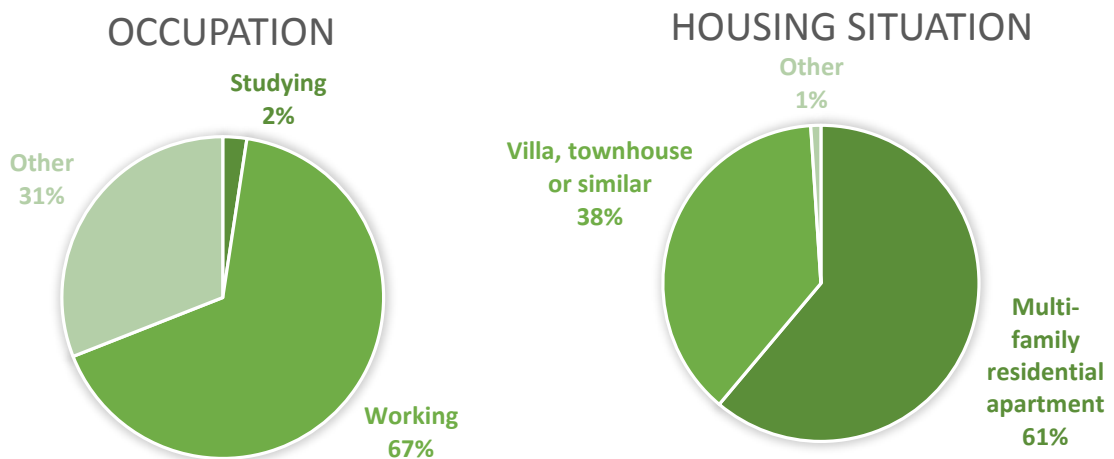


Figure 5: Occupation and housing situation among the questionnaire respondents.

Moreover, the respondents were asked about their current occupation (see Figure 5). But they were not asked for any details about their educational level or any similar questions that could give a hint of their economic situation, for several reasons. First, the exterior architecture is something that affects everybody that visit an area, therefore it is not a prerequisite that the respondent in question actually

have the financial resources to buy an apartment. Secondly, it is becoming more and more common that parents help their children to buy their first apartment, so it is possible for students or young adults to buy an apartment even if they lack economic resources of their own. Third, the members of the housing panel are assumed to be interested in an apartment from Skanska, therefore they can also be assumed to have the financial possibilities to buy an apartment.

The questionnaire provided material to discuss around, but the data that was collected cannot be used to draw statistically significant conclusions. The background questions about the respondents provided information about how well diversified the questionnaire sample was. The questionnaire was sent to the entire population in the sample since the more responses that were retrieved, the more likely it was that the result would be representative for the sample, which was highest priority in the study. The active response rate, i.e. the total number of responses divided by total number of persons in the sample that received the questionnaire is calculated below,

$$\text{Active response rate} = \frac{\text{total number of responses}}{\text{total number in sample} - \text{unreachable}} = \frac{872}{4470 - 776} = \frac{872}{3694} = 24\%$$

The respondents that were unreachable had an incomplete e-mail address or had unregistered themselves. The total number of respondents that received the questionnaire was 3 694. The likely response rate for internet mediated questionnaires is 11 percent or lower (Saunders, Lewis, & Thornhill, 2009). A response rate of 24 percent is therefore acceptable.

Terminology

The respondents cannot be expected to have any special knowledge within the research area. Therefore it was very important to use a terminology that was easily understood by everybody. Words that are common in the everyday language, as well as words that are as neutral as possible, were strived for when designing the questions. Using words that have a negative or positive tone might bias the result by making the respondents choose what they think is the “best” answer. However, one small exception was made here, in the attribute-question the respondents were asked about the colours of the buildings, if the colours were cold or warm. “Cold colours” can have a slightly negative tone in some contexts. The alternative was to use “colours more towards blue” instead of “cold colours” and “colours more against red” instead of “warm colours”, but using red and blue instead of warm and cold might confuse the respondents. In other words, clarity was chosen in front of neutrality and that choice should not affect the end result.

The terminology that was used in the questionnaire deliberately avoided the term architecture, instead the respondents were asked questions about the built environment. The term aesthetical was also avoided in the questionnaire since the word can have different meaning to different people and a language that could be easily understood by everybody was desired. Instead of aesthetical, the words “beautiful” and “ugly” were used in the questionnaire. Those words are easily understood by everybody, and can be assumed to have the same meaning to most people. The word “historical” was also used instead of “traditional” when referring to an older architectural style. The word traditional did not have a clear definition and most likely have different meaning to different persons. The same goes for the word “modern” which was avoided for the same reasons. The word “conventional” was used instead of the word “modern” when referring to the opposite of “historical”. Since the questionnaire was distributed in Sweden, the language in the questionnaire was Swedish. Swedish was chosen in order to reduce the risk of having misunderstandings or misinterpretations caused by the language.

The questionnaire layout

It was important to think through the questionnaire layout carefully since only one chance to collect the data was provided (Saunders, Lewis, & Thornhill, 2009). Once the questionnaire had been sent out to the sample group it was too late to make any changes. It was also important to have in mind how the results were to be analysed in order to ensure that the questions that were asked would provide the information that was needed. The design of the questionnaire was affected by amongst other things; the characteristics of the respondents, potential biases in the answers, sample size, response rate, the number of questions and the layout of the questions. The layout of the questionnaire is described in below paragraph, the complete questionnaire can be found in *Appendix A*. The estimated time required to complete the questionnaire was five minutes.

The first part of the questionnaire asked the respondent for some background information. The background questions constitute attribute variables and did help to identify the respondent's characteristics, for example gender, age, level of education and postal code (Saunders, Lewis, & Thornhill, 2009). The majority of the background questions were closed questions. In the two questions that were open, the respondents were asked about their year of birth and their postal code. All background questions required an answer before the respondents could continue to the next question. Closed questions are easier and faster to analyse, while open questions provide more indebt information from the respondents but are harder and more time consuming to analyse. A combination of both open and closed questions were chosen for the questionnaire. The open questions did provide more detailed information about the respondents' opinions and was therefore considered to be worth the extra time it took to analyse them. However, an answer to the research question could still be maintained even if only the closed questions were analysed. All closed questions required an answer while the open questions, except for those that collect background information, were voluntary to answer.

The second part of the questionnaire consisted of the questions about the residential areas. The data that was collected in this part, as well as the last part, of the questionnaire constituted opinion variables (Saunders, Lewis, & Thornhill, 2009). Opinion variables collect data about the respondent's feelings or opinions. The respondents were asked to answer three identical questions about each area. In the first question the respondents were supposed to classify the area, based on the attributes mentioned in Table 2, by using a scale that goes between 3-1, 0, 1-3 (see Figure 6).

	3	2	1	0	1	2	3	
Large-scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Small-scale
Uniform	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Diversified
Few details	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Many details
Cold colours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Warm colours
Contemporary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Historical
Original	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Conventional

Figure 6: The attribute question in the questionnaire

The second question was open and the respondents were asked; “*What do you think characterizes the built environment on the images for area X?*”, the respondents were also given a few example of what they could answer; *the colours, the details, the diversification, the materials, the shapes, the scale, the style, the windows, the entrances, the balconies, the roofs*. In the third and final question concerning the residential area, the respondents were asked to give a point between 0-10 to the built environment in the

area. Where 0 was equal to “the buildings in the pictures are very ugly”, and 10 was equal to “the buildings in the pictures are very beautiful”.

The third part of the questionnaire consisted of only one open question that was voluntary to answer; “*What do you think is important to have in mind when it comes to the built environment in newly developed areas constituting multi-family dwellings?*”, also here were the respondents given a few examples of possible answers; *attractive, beautiful, safe, likable*. This final question was a more general question concerning newly developed residential areas.

Reliability and validity

Internal validity is related to how well the questionnaire manages to collect the data that is required in order to answer the research question (Saunders, Lewis, & Thornhill, 2009). Internal validity is easier to achieve than external validity, which is the extent to which the results can be generalized to the entire population. Internal validity was ensured by carefully designed questions, which have been pilot tested by MarketDirection Sweden AB, the company that Skanska has hired to manage and distribute the questionnaires that are sent out to the housing panel, as well as by friends and family. The questionnaire has also been approved by a market analyst and a marketing director at Skanska. While working with the questionnaire design, meetings were held with our supervisors at both Skanska and KTH and with an architect at KTH, which provided valuable feedback on the layout. External validity was harder to achieve in the questionnaire, since it was not possible to generalize beyond the sample population. In order to achieve external validity the results would have to be statistically significant, something that was not achievable within the context or time frame of this study. However, by linking the findings to previous research some external validity could be achieved.

A reliable questionnaire is a questionnaire that would produce the same result if the questionnaire would be conducted again, at a different time and with a different sample. One way to test for reliability is to compare and link the result to previous findings within the research area. This has been done in the Analysis chapter of this study. As discussed above, the selection of images could affect the reliability of the result slightly. The order that the areas appear in the questionnaire was also something that could have a minor effect on the result. The areas were placed in the order that they were anticipated to be rated by the respondents. When the respondents were shown the first area, they did not have anything to compare that area with. When the respondents were shown the second area, they could only compare the second area with the first area. This could have a small impact on the result, if the respondents would have seen all four areas before they rated the areas, it is possible that they would have distributed the points differently.

2.2.4. Interviews

The end-users preferences are only of interest if they can be utilized without significantly increasing the production costs considering that the thesis is written from a developer’s perspective and takes the prevailing housing shortage into consideration. The main purpose with the interviews was therefore to investigate *if* and *how* the end-users preferences can be applied into development and construction of multifamily houses without increasing the production costs. More specifically, the goal with the interviews was to

1. Reach out to the interviewees with the questionnaire result and encourage them to start reflect over the main problem that is addressed in this study.
2. Investigate how the result from the questionnaire can be applied to Skanska’s business without increasing the production costs.

The interviews can be categorised into both *descriptive research* and *exploratory research* since the answers from the interviews both described different phenomena necessary to understand the problem that is addressed in this study and gave new insights on the thesis' research question.

The interview approaches that have been used are *structured* and *semi-structured*. Most of the interviews, referred to as “the main in interviews” in this report, were structured. Which means that these interviews were performed with a predetermined and identical set of questions. The method for the main interviews can also be called *quantitative research interviews* since these interviews were used to collect, not only qualitative data, but also quantifiable data. The last interview, referred to as “the concluding interview” in this report, was semi-structured. Which means that this interview had a few questions that were identical to those in the earlier interviews while some of the questions were added later on since they were based on the result from the earlier interviews. Although, the questions in the concluding interview were also predetermined before the interview started.

The interviews were conducted face to face in Swedish but have been translated into English in Chapter 5, the empirical findings. The questions were read out loud to the interviewees and all the answers have been recorded. The first set of interviews (referred to as the main interviews) did last from 1 to 1.5 hours each, and the last concluding interview lasted for 2 hours.

Sampling

A non-probability and self-selecting technique has been used when selecting the sample for the interviews. A non-probability sample is not randomly selected but rather based on your subjective judgement. This technique was chosen because of limited amount of time and because an in-depth study needed to be undertaken to answer the research question. The number of interviewees, the sample size, consisted of eight people. Two of the interviewees were interviewed at the same time which sums up to a total of seven interview occasions. In order to achieve a good end result in a construction project it is important that all disciplines involved collaborate and understand each other. It was equally important for this thesis to interview different actors and disciplines in order to obtain a valid and reliable result. The interviews was therefore held with different disciplines involved in the project development or construction process. Five of the interviews were conducted with employees with various disciplines at Skanska. One of the interviews were conducted with two external architects from two different architectural firms, Wingårdhs and Sandellsandberg. Table 3 below concludes information about the interviewees and the date for when each interview were conducted.

Table 3: Information about the interviewees and the dates for each interview.

Name	Initials	Role	Employer	Date
1. Sissel Widehag	S.W.	Design Manager	Skanska	2017-04-04
2. Tomas Klaesson	T.K.	Estimator Manager	Skanska	2017-04-04
3. Lars Kockum	L.K.	Architect	Wingårdhs	2017-04-05
4. Kayrokh Moattar	K.M.	Architect and Urbanist	Sandellsandberg	2017-04-05
5. Annika Stridh	A.S.	Market Area Manager	Skanska	2017-04-06
6. Stefan Krumlinde	S.K.	Production Manager	Skanska	2017-04-06
7. Per Ivarsson	P.I.	Project Manager	Skanska	2017-04-07
8. Tomas Moström	T.M.	Head of Skanska Sweden's Housing Platform	Skanska	2017-04-27

The interviewees will from now on be referred to as their respectively initials stated in Table 3 above. Interviewees 1-7 in the above list participated in those interviews that are referred to as the “the main interviews” in this report and all of them were asked the same set of questions. Interviewee 8 in the above list participated in the interview that is referred to as “the concluding interview” in this report. Also, note that L.K. and K.M. were interviewed at the same occasion.

L.K. and K.M. were selected to the sample since they both worked with the Activity Based City which have been described earlier in the thesis. The other interviewees were selected from Skanska since it is the case-company for this study which have been described earlier in the thesis. All of the interviewees and their background are further described in the result.

The layout of the interviews

The layout for the interviews will now be presented. The layout for the main interviews is presented first and secondly, the layout for the concluding interview is presented.

The main interviews

The main interviews took part with the first seven interviewees described in Table 3 above. The purpose of the main interviews was to make the interviewees start reflecting on the main problem that is addressed in this study, to analyse the questionnaire and to investigate how the result from the questionnaire can be applied to Skanska’s business without increasing the production costs.

The main interviews did all consist of the same 11 questions which are presented in Appendix B. 9 of the 11 questions were open questions and 2 of the 11 questions required both ranking and open answers. All of the main interviews started with some open background questions about the interviewees’ education, previous work, current work, their relationship to design and project development and their knowledge about Skanska Sweden’s Housing Platform.

After the background questions, the interviewees were shown the same images of the four areas as the respondents of the questionnaire. Then the interviewees were asked to rank the four areas according to their own personal preferences and to explain their reasoning. This question generated both a ranking answer and an open answer.

When the interviewees had ranked the questionnaire’s four areas according to their own personal preferences they were asked to rank the same areas again but according to another parameter. This time the interviewees were asked to rank the four areas after their estimation of the areas’ production costs, based on what they believed that they and their project team could accomplish if they built the area today. Just like the question above, this question also resulted in both a ranking answer and an open answer.

When the interviewees had ranked the questionnaire’s four areas according to both their personal preferences and the areas’ production costs, they were informed about four areas location and the result from the questionnaire. The interviewees were then asked, in an open question, if they got surprised about the questionnaire’s result and what they believed were the reasons for the result.

After the analysis of the questionnaire’s result the interviewees were asked to focus a bit more on the area that got the highest score from the housing panel. The interviewees were asked, in an open question, if they can see any obstacles or opportunities in building similar to this area with standardized methods (such as Skanska’s Housing Platform) and if they can see any specific obstacles or opportunities for this in their role.

In the last question the interviewees were asked a more general and concluding question. The interviewees were asked, in an open question, how they thought that Skanska's business (e.g. its housing platform, working methods or process) could be developed so that it takes greater consideration to the housing panel's preferences and what they, the interviewees, can do in their role to pursue that development.

The concluding interview

After the main interviews, one last and concluding interview were performed with T.M., Head of Skanska Sweden's Housing Platform. This interview included some other and more concluding questions than the first ones. The purpose of this interview was to gather more knowledge about the standardized platform and to discuss how Skanska can make use of the results from the both the questionnaire and the earlier interviews. The concluding interview consisted of 13 open questions which are presented in Appendix B.

The interview with T.M. started with the same background questions as all of the other interviews. After the background questions the interview with T.M. went into detailed questions about Skanska Sweden's Housing Platform such as: when the platform is used and when it is not used, which parts in the platform that are perceived as most valuable, who uses the platform and who does not want to use the platform, who are part in the reference group for the platform and what constitute the most common criticism and suggestions of improvements that the platform receives. After the questions about the platform T.M. was given information about the results from the questionnaire. He was then asked the same question as the first seven main interviewees were asked in the end of their interviews, that is: how he thought Skanska's business could develop to take greater account to the housing panel's references. At last, T.M. received information about the result from the earlier interviews and he was given a follow-up questions on the most important conclusions from the earlier interviews.

Reliability and validity

The validity of the interviews is concerned with whether the findings from the interviews are really about what they appear to be about. Internal validity, described in earlier section, have been ensured by selecting interviewees according to their discipline, role in their organization and area of expertise. The interviews were made face to face and it could therefore be ensured that the interviewees were whom they were supposed to be. The interviews were all performed according to predetermined questions which ensured that no leading questions were made which in turn ensured that the interviewees had the opportunity to answer the questions freely. The predetermined questions have been carefully designed and followed-up to ensure that the questions are relevant in order to obtain relevant answers to the research. External validity, also described earlier, have been increased by selecting interviewees with different disciplines and from different organizations, as this generates more generalizable data. Although, the interviews may still be considered to represent a small sample which have not been selected randomly but strategically which indicate a low external validity.

The reliability of the interviews refers to the extent to which the procedure for the interviews will yield in consistent findings. Threats to the reliability of the interviews can be errors or bias from either the interviewee or the interviewer. An interview guide was developed to ensure that the interview was performed objectively and not from the interviewer's perspective. The same questions were asked to all of the interviewees (except the last interview) and all the interviews were carried out in the same way. The interviewees answers have been recorded which helped avoiding incorrect interpretations when transcribing and compiling the answers. The interviewees have also been able to approve and give

feedback on the material that was included in the report from their respective interviews. At last, the choice to acknowledge the interviewees full name was made, which have been approved by all of the interviewees before the interviews started. This choice was made since it increases the verification of the result but also since any anonymization of the interviewees would have limited publication of some specific answers. Although, one disadvantage with acknowledging the interviewees is that the interviewees may have answered as they thought their employers wanted them to answer.

2.3. Quality of Research

It is impossible to achieve research that is completely objective (Hansson, 2007). The knowledge will, to some extent, be affected by the values of the author or researcher. Intersubjectivity on the other hand should always be maintained. Intersubjective knowledge is knowledge that is common to all of us. Intersubjectivity is maintained by only making assumptions that can be empirically justified. The assumptions should be easy to follow and validate. Intersubjectivity is reached in this study by carefully documenting all data and assumptions, so that the result can be verified. The result from both the interviews and the questionnaire was presented by using a lot of citations from the interviewees respective the questionnaire respondents. By using citations instead of summarizing the empirics, a higher level of intersubjectivity could be maintained when presenting the result.

Critical Review of Sources

The critical reviewing of previous research and literature can be divided into four aspects (Saunders, Lewis, & Thornhill, 2009). The sources used should be reviewed critically in terms of the rhetoric, tradition, authority and objectivity. The rhetoric critique is aimed at the language that is employed. The critique towards tradition and authority can be related to the justification of the knowledge. Finally, all sources should be reviewed critical in terms of objectivity. The literature sources that was used in this study was carefully reviewed in terms of objectivity, validity, reliability and its rhetoric's. To as large extent as was possible, articles from scientific journals or doctoral theses was used when presenting previous research within the area. Educational books or compendiums recommended or written by teachers and professors at KTH Royal Institute of Technology was used as foundation when fundamental theories and background information relevant for the study was declared for.

Ethics

By carefully reading all of the material that is referred to in this study we, the authors, have done our best to interpret, conclude and present the findings of other researchers in a correct manner. References have been made to all researchers and authors whose publications have been included in the study.

The questionnaire respondents were guaranteed full anonymity. None of the respondents' names, e-mails nor addresses were stored by us (the authors) and it is not possible to connect the members of the housing panel to their questionnaire responses. The empirics collected through the questionnaire were stored in an Excel-file protected by a password, preventing unauthorized to access the information.

The interviewees were asked for permission, before the interviews started, when it came to the use of their name and title, and whether the interview could be recorded. Since all the interviewees agreed to be recorded, the risk for miss-interpretations of interview answers is decreased and the research ethics is reinforced since the recordings can be used as proof of what actually was said during the interviews.

3. LITERATURE REVIEW

The background to the problem that our degree project addresses will be described in this chapter. The Swedish building history will introduce the chapter, followed by the urban land development procedure in Sweden. After that, the current real estate market situation will be described together with relevant research within the area. Lastly, literature of how to manage construction projects is presented.

3.1. The Swedish Building History

This section describe how the Swedish cities have expanded, from the beginning of 1850 until today.

1850-1900: The industrial revolution

Approximately 10 percent of the Swedish population lived in cities around 1850, but soon thereafter the industrial revolution would take place in Sweden and the cities would start expanding (Björk, Nordling, & Reppen, 2008). The building pattern that was applied was the traditional “urban grid”. The cities were dense and the buildings could be maximum five stories high. The industrial revolution accepted architectural expressions from all periods in time: Romanticism, Neo-Gothic and Neo-Renaissance, and the style was adapted to the buildings, or the rooms, function. During the 1880s, Neo-classicism was the most common architectural style when it comes to the buildings’ facades. The facades facing the streets were drawn by architects, while the inner courtyards were conducted in a very simplistic style without any decorations. The industrial pre-fabrication of certain parts of the building began during the 1880s. A lot of construction took place during the 1880s, however, the construction phase slowed down during the 1890s. As a reaction to the symmetric style and stone imitations of the 1880s, the 1890s was characterized by genuine materials such as brick or natural stone and the facades were asymmetrical. Many of the apartments that were constructed during the 1890s were luxurious.

1900-1950: The city suburbs

Around the year 1900 Sweden constituted one of the poorest countries in Europe (Björk, Nordling, & Reppen, 2008). Approximately one fourth of the five million inhabitants lived in cities, which were dirty, dark and overcrowded. Around 90 percent of the apartments in the cities only had one bedroom and a kitchen. The housing crisis was one of this times large societal issues and as a result, organisations such as HSB, a cooperative organisation founded in 1923 who build and manages residential properties (HSB, 2017), began to build homes for their members as a solution to the housing shortage. Many municipalities also started their own public housing corporations after the Second World War. In the beginning of this period, the small houses suburbs grew around the cities, a prerequisite for this was the expansion of the tramways and railways. In Stockholm, those who desired to build their own home in the suburb were supported by the municipality with land, building material and instructions. Prefabricated element was common. The apartments that were built around the 1920s had large green courtyards, as a reaction to the dark and narrow courtyards of the old town. However, the apartments built in the 1920s were deep and it was common with windows facing only one direction. As a result to this, the functionalism made an entrance during the 1930s. The new functionalistic apartments were constructed between the small houses suburbs and the old town, they were placed so that as much natural light as possible was let into the apartments. The buildings were still handcrafted and adapted to the locations natural conditions. The vegetation was left relatively untouched. In the 1940s, the architectural style was adopted to economical and functionalistic demands and tower blocks became very common.

Flat roofs became more common since the previous, low-pitched roofs turned out to have moisture problems.

1950-1975: Transformation of the cities, ABC-cities and The Million Homes Programme

The central parts of the cities were transformed during this time period and many older buildings from the year around 1800 was torn down and replaced, often with modern offices or warehouses (Björk, Nordling, & Reppen, 2008). The demolitions were followed by visions of an optimistic future. The use of cars increased heavily during this time, which led to a large expansion of the road network and the construction of motorways. The cities were planned after the cars, and new suburban areas, large enough to have their own centre with service, shops and schools were constructed. These suburban areas constitute the original “ABC” cities. A stands for “arbete”, *translated to work in English*, B stands for “bostad”, *housing in English*, and the C stands for “centrum”, *centre in English* (Vällingby City, 2017). Sven Markelius was the planning architect that initiated the ABC towns. Vällingby, located west of Stockholm inner city, is considered to be the most “pure” ABC-city. Farsta, located south of Stockholm, is another example of that times ABC-city.

It was also during this period, between the years 1965-1974, that the Million Homes Programme took place on an initiative from the Swedish Parliament as a solution to the constant housing shortage (Vidén & Hall, 2005). The housing queues were long during this time period as well, young couples and families could face 10 years of queuing before they could get an apartment. The housing standards in Sweden were rather poor and the apartments were small before the initiation of the million homes programme. The ambition with the programme was therefore to create a welfare state by building apartments with high interior standards. The apartments that were constructed during the record years increased the apartment sizes, which increased from 1-2 rooms and a kitchen to 3-4 rooms and a kitchen for an average family.

The million homes programme turned Sweden into a country with a housing surplus instead of a housing shortage (Vidén & Hall, 2005). Beneficial state loans and standardised, large-scale construction projects characterises the million homes programme. Rationalization was promoted and necessary in order to make the homes affordable and of high standard. In other words, economies of scale was a necessary prerequisite in order to decrease the production cost sufficiently for the newly constructed apartments. There was no point of building one million new homes if no one could afford to live in them. Projects consisting of a minimum of 1 000 similar apartments were given extra funding benefits. As a result to this, approximately 50 percentage of the multi-family houses that were constructed during the years 1961-1975 were built in areas together with ten or more, almost identical buildings. Around 25 percentage of the multi-family residential houses were built in blocks constituting of 4-9 buildings of the same sort. The remaining 25 percentage of the multifamily houses constituted smaller projects.

Tower-blocks were the most common building in the larger cities and have come to represent the million homes programme ever since they were completed (see Figure 7).



Figure 7: Tower blocks from the million homes programme (Haasmark, 2015).

Already in the end of the 1960s the million homes programme started to receive critique concerning the exterior architecture (Vidén & Hall, 2005). Several reports were published and the subject was frequently debated in different Medias. However, all the critique was not entirely justified. The million homes programme has come to symbolise uniform, large-scale residential areas for a majority of the Swedish population. In reality, the programme was a lot more diversified and it did not only consist of the isolated, large-scale residential areas which it has become so synonymous with, a large share (34 percent) of the million homes constituted single family houses as well. The million homes were built across the country, however with a concentration to the larger cities and smaller industrial towns.

The architectural style during the Million Homes Programme is characterised by rationalised building methods (Björk, Nordling, & Reppen, 2008). The traditional craftsmanship methods were replaced with industrialized construction methods. Steel and concrete were the dominating materials and the productivity on the building sites almost tripled due to the industrialized construction methods. A variety of concrete element systems were developed, which required a lot of investments in factories that could produce the pre-fabricated building components. In order to bear the initial investment, the production series had to be large in their quantities. The construction method meant that existing vegetation and the natural topography was removed respectively levelled off with the ground. Grass or shrubbery was planted after the buildings had been completed on a thin layer of soil. Concrete was considered a beautiful material at the time and many facades were given grey or white colours.

1975-2005: The city is densified

The housing production stagnated after the million homes programme (Björk, Nordling, & Reppen, 2008). Almost all construction during the 1980s constituted offices. From the 1980s and onwards the planning ideal was that the newly developed areas should constitute a mix of residential, offices and service. The architecture was “lively” with a diversification in both house type and tenure. A financial- and real estate crisis hit Sweden in the beginning of the 1990s and a wave of privatization followed. A housing shortage was again starting to become a fact in the larger cities and university towns. Due to the privatization, a majority of the apartments that were constructed during the 1990s and onward were condominiums. External office areas and large supermarkets were developed alongside the motor ways.

The car was still in centre, but was starting to receive critique. The housing construction took place in old industrial harbours or by densification on unexploited land with a good location.

3.2. Urban land development in Sweden

The procedure for urban land development in Sweden has a large impact on both the housing market and its efficiency, as well as on a development project's process and design. The Swedish detailed development process is known to be very time consuming and a development project must go through this process before it can be initiated. Background knowledge about the Swedish urban land development process is required in order to understand the empirics, the research problem and the analysis of this study.

In contrast to many other countries, where land-use planning commonly is situated at state level, it is the municipalities in Sweden that are responsible for the land-use planning (Hedström & Lundström, 2014). The municipalities possess the exclusive right to determine where to build, what to build and when to build, also referred to as the planning monopoly. The Swedish planning legislation, The Planning and Building Act, is the municipality's main tool. The Planning and Building Act specifies how the planning process should be executed and what should be included in a comprehensive plan respectively a detailed development plan. However, there are several additional legislations, for example The Environmental Code and The Real Property Formation Act, which affect the built environment and thereby have to be taken into consideration as well. The planning hierarchy in Sweden is displayed in Figure 8.

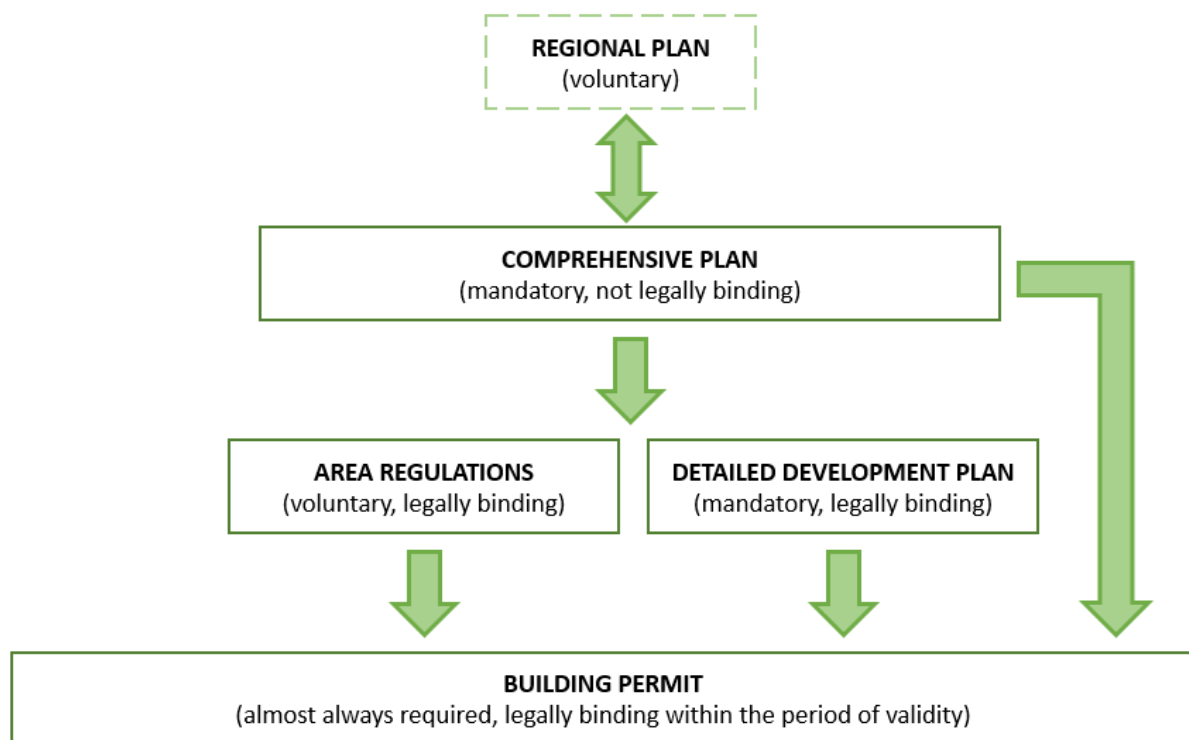


Figure 8: Planning Hierarchy in Sweden (Hedström & Lundström, 2014).

It is voluntary to have a *regional plan* and it is only Stockholm County that has a plan that is conducted in accordance with The Planning and Building Act (Hedström & Lundström, 2014). It is mandatory for all municipalities to have a *comprehensive plan*. The comprehensive plan should present the long-term development for the physical environment in the municipality and work as a guidance when decisions regarding water and land use are tested. The comprehensive plan is not legally binding. The *detailed*

development plan is legally binding and generally required in urban areas or in areas where future development of a certain magnitude will take place. *Area regulations* are also legally binding and can be used when the municipality wishes to secure certain interest in an area where no detailed development plan is needed. A building permit is required when a new building is to be constructed, when an existing building is to undergo changes or when an extension is planned. In order for a building permit to be approved, it has to conform to the detailed development plan. If nothing else is stated in 9§ or 33§, Chapter 9, The Planning and Building Act, a building permit will expire if the construction has not started within 2 years' time nor been completed within 5 years' time (*Chapter 9, 43§, The Planning and Building Act*).

Detailed development plans

The detailed development plan regulates how land and water can be exploited in urban areas or in areas that are about to undergo development (Hedström & Lundström, 2014). The plan can also be used in protective purposes, for example, if certain historical characteristics or natural environments in a built environment are desirable to protect. The plan should not be more detailed than necessary. The municipalities have the possibility to regulate amongst other things: the maximum building height, architectural features, colours, number of floors and zoning. It can be tempting to make a rather detailed plan, but, since the plan is legally binding it will be troublesome for all involved parties if the plan is made too detailed. Only minor sidesteps are allowed, any larger changes that are essential requires that the plan is approved again.

The detailed development plan process is regulated in The Planning and Building Act and is known to be rather extensive and time consuming. It is not uncommon that it takes 7-8 years to prepare and get a detailed development plan approved (Andersson O. , 2014). The different steps in the detailed development process are shortly described below. The planning process is designed so that all parties that are affected by the plan: state and local authorities, property owners, residents, the general public, etc. have the possibility to comment the plan proposal (Hedström & Lundström, 2014).

The detailed development plan process (Figure 9)

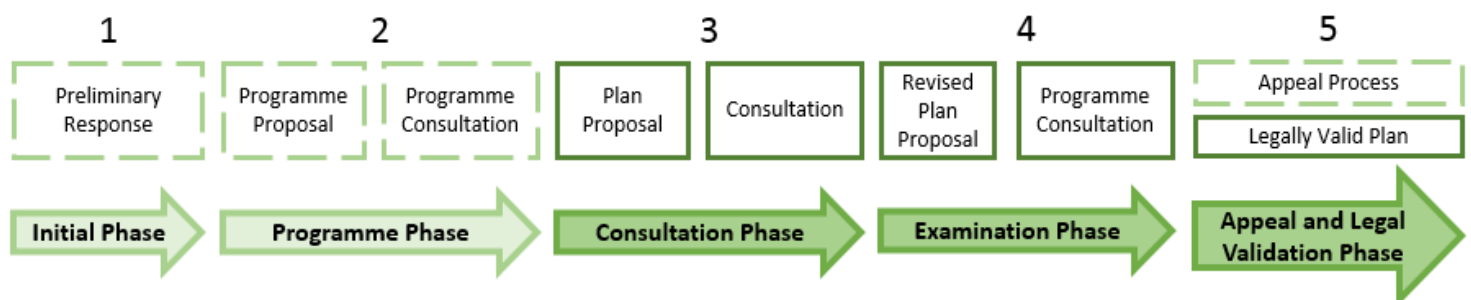


Figure 9: The Detailed Development Plan Process (Hedström & Lundström, 2014).

1. Initial phase: preliminary response (optional)

A developer that is interested in developing an area can request a preliminary response from the municipality (Hedström & Lundström, 2014). The municipality have to announce its answer within four months. If the response is positive, it means that the municipality consider the suggestion provided by the developer to be feasible. However, the plan still has to go through the entire detailed development process before it can become legally binding.

2. Programme phase (optional)

The municipality has the possibility to decide rather a planning program (*planprogram*) is required or not (Hedström & Lundström, 2014). The planning program is only required when the detailed development plan contradicts the comprehensive plan, or when there is a larger area that are about to undergo development and several new detailed development plans are required. However, it is rarely used in reality.

3. Consultation phase (mandatory)

In the consultation phase, the first draft of the detailed development plan is presented to the affected parties (Hedström & Lundström, 2014). Before the draft can be presented, the environmental impact of the development must be investigated by experts. If the plan is expected to have a significant environmental impact, a separate environmental assessment impact document (*miljökonsekvensbeskrivning*) must be produced in accordance with the Environmental Code. During the consultation those who are affected by the plan and The County Administrative Board (*Länsstyrelsen*) have the opportunity to influence the outcome and express their opinions about the plan. All the feedback received during the consultation should be presented in a document when the consultation period is over.

4. Examination phase (mandatory)

The next step in the process is to present the revised plan proposal (Hedström & Lundström, 2014). The municipality must notify the stakeholders and The County Administrative Board in writing, as well as publish information in the local newspaper and on the municipal billboard, about when and where the revised proposal will be presented. Information on how to comment the proposal must also be expressed. The plan proposal must be exhibited for at least 3 weeks. Those who does not present their opinions about the plan in writing during this time period will lose their right to appeal the plan.

5. Approval and legal validation phase (mandatory)

It is the municipal Planning and Building Committee that approves the detailed development plan (Hedström & Lundström, 2014). The approval must be announced on the municipal billboard and normally on the municipal website as well. The plan becomes legally binding if no appeals are presented within three weeks of time after the approval. The same applies for building permits and area regulations. Appeals are unfortunately pretty common, especially in larger cities where there often is a greater number of people that are affected by the plan.

6. The simplified procedure

If the detailed development plan correspond to the comprehensive plan, does not have any major environmental impact, nor affect any stakeholders, it is possible to use a simplified planning procedure (Hedström & Lundström, 2014). In the simplified procedure, the examination phase is replaced with notifications to only the stakeholders and the County Administrative Board, and thereby shortening the time for the planning process.

Implementation of new development projects

Implementing a development project is a complex process and there are many issues that has to be solved in order for a project to be executed. For example, the land for the development must be acquired, the necessary infrastructure must be taken care of and the developer and the municipality have to agree on all respective responsibilities (Kalbro, 2014).

The two factors that have the largest impact on how the development project is implemented are:

1. Who owns the land
2. Who is responsible for the detailed development plan

The two main actors involved in the implementation of development projects are the municipality and the developer (Kalbro, 2014). The municipality is responsible for many different aspects when it comes to the land use planning: housing, infrastructure, schools, childcare, social welfare, hospitals, retirement homes, energy supply and the environment, to only mention a few. The developer participates as a land owner, which main interest is to change the land use so that it becomes more effective and profitable.

If the developer owns the land initially, it is common that the developer and the municipality collaborate in the work with the detailed development (Kalbro, 2014). The collaboration between the developer and the municipality has many advantages, especially in larger development projects where their combined competences are likely to create the best end result. Before the detailed development plan process is initiated it is common for the developer and the municipality to sign a prior agreement that regulates the costs for the planning process. When the plan is implemented the prior agreement is replaced with a development agreement, where they regulate the involved parties' respective responsibilities in terms of paying for the required infrastructure and other financial issues. The development agreements are not regulated in any specific legislations, however the municipality should not demand to large financial aids from the developer.

When the municipality is the initial land owner, it varies at what stage of the planning process that the developer is invited to participate (Kalbro, 2014). If the municipality initiate the planning process on their own, a prerequisite is that there are developers that are interested in building in the area. The developers are either invited to the final stages of the detailed development plan process or offered to buy a piece of land when the plan is approved. A development agreement is used to transfer the land and regulate the involved parties' responsibilities against each other.

The municipality can also include a developer early in the planning process by using a land allocation agreement, which is replaced with a development agreement when the detailed development plan is completed (Kalbro, 2014). The land allocation agreement, is usually two years long and gives a developer the exclusive right to negotiate with the municipality regarding land acquisition and implementation of the development. In other words, the land allocation agreement can be seen as an option for a developer to buy a piece of land for a certain price if the detailed development plan is accepted. When a municipality act as a land owner they are not restricted by any legislation when they negotiate with the developer, they have the same rights as any other private company. However, the municipal land must be sold at market price, which either can be established through a competitive bidding procedure or by an independent valuation conducted by experts. The sale process can thereby be designed in several different ways, the municipality can for example sell the land allocation to the highest bidder, or set a fixed price on the land and sell it to the developer with the highest environmental ambitions or best design. The land can also be sold without any competition if a developer hand in a development proposal to the municipality.

The land allocation process is often criticised for not being transparent enough. The municipality has, as mentioned previously, a planning monopoly. Which makes it very important for both developers and architects to maintain a good relationship with the municipality. The land allocation agreement and following plan preparations are costly for both the developer and the municipality (Caesar, 2014). Some municipalities have started to require a land allocation fee, which is intended to cover the interest payments for the land during the time it is reserved for the developer. The fee is deducted from the

purchase price if the developer choose to buy the land, otherwise the municipality gets to keep the fee. If the developer choose to not use their land option, there is a possibility that their relationship to the municipality will be affected in a negative way. Leading to reduced chances to procure future land allocations from the municipality. Which, given the Swedish land ownership structure where the municipality is a large land holder, potentially could be very bad for the developers business.

As mentioned above, the municipal land must be sold at market price, something that can be done through bidding on an open market or by hiring professional appraisers. The municipalities often have formal criteria that the developers have to fulfil in order to obtain a land allocation (Caesar, 2014). These formal criteria, or guidelines, are mandatory according to the Act on Guidelines for Municipal Land Allocations. These criteria could for example be:

- ♣ The developer must have enough resources to carry out the planning and the construction required for the land allocation.
- ♣ The developer have to be able to satisfy specified environmental and quality standards.
- ♣ If the developers intend to build rental housing, the municipality requires proof on long-term commitment in terms of the following management of the apartments.
- ♣ Good behaviour in previous land allocations can also constitute a criterion.
- ♣ The municipalities also communicate that they prioritise competition among the developers and thereby will not give the same developer too many allocations in the same area or within a shorter time period.

The developers often make references to previous projects when proving to the municipality that they can fulfil the formal requirements. However, besides the formal criteria which are published in a public document, many municipalities have informal criteria as well (Caesar, 2014). These informal criteria are more or less familiar to the developers. A few examples of what these unofficial criteria can constitute are:

- ♣ The developers are required to accept land allocations in areas that are considered less attractive in order to receive the land allocations on more attractive land.
- ♣ The developers have larger chances to obtain a land allocation if they also build rental apartments.
- ♣ The developers are expected to take on development projects even when there is a recession.

Despite the Act on Guidelines for Municipal Land Allocations, which came into force January 1, 2015 and consist of only two paragraphs, the municipalities does not have many regulations to follow. However, most municipalities have certain procedures that they follow when they distribute land allocations (Caesar, 2014). The first procedure that can be identified is referred to as “Tender Allocation”, where the developers are invited to present their tenders for a piece of the municipal land. This procedure requires at least two interested developers. The second procedure is referred to as “Direct Allocation” and does not include any apparent comparison between different developers. The direct allocation can be an initiative from either a developer or a municipality. The developer can contact the municipality with a suggestion on a development project, located on municipal land. The municipality can also suggest potential land for development and let the developers report their interest.

3.3. The Ongoing Housing Crisis

The right to a home for each Swedish citizen is secured in the Swedish constitution, which states that the public authorities should ensure that the citizens of Sweden have the right to work, to study, to receive healthcare and to have a home (Andersson O. , 2014). However, the right to a home is today, the year 2017, far from obvious for the majority of the Swedish citizens. As was mentioned in the introduction, 240 out of 290 of the Swedish municipalities state that they have a housing shortage (Hyresgästföreningen, 2016). It is only those who have the possibility to buy their own home that can be sure to have somewhere to live, especially in the bigger cities (Andersson O. , 2014). The following section will shortly describe the situation on the Swedish housing market as this thesis is written, during the spring of 2017. The housing shortage in Sweden's larger cities puts the residential developers in a very advantageous situation, given that there is a large demand and a shortage of supply. This is relevant to the research questions since the housing shortage makes the apartment buyers less picky. The construction companies on the other hand, can sell their apartments relatively easy without investing extra time or effort on for example the exterior architectural design.

How large is the housing shortage?

According to Boverket, the National Board of Housing, Building and Planning, Sweden is in need of, in total, 710 000 new homes seen over a ten year period (Boverket, 2016b). This is a result from several years of insignificant housing production in combination with a population increase due to immigration and high birth rates. However, there is an ongoing debate about how large the need of housing actually is. Population forecasts are not very reliable according to Maria Pleiborn, demographer at the consultancy company WSP (Pleiborn, 2017). Svante Mandell, docent in real estate economics, is also unsure about the size of the housing shortage (Campi KTH, 2016). Mandell makes reference to the existing housing stock which could be used more efficiently if a number of regulative obstacles, that prevent people from moving today, were removed. This insecurity can also be seen if you visit Boverket's website, they have revised their housing needs forecast, valid until 2025, four times between the years 2012-2016. Immigration constitutes a large share of the population increase and it is to a large extent depending on political decisions and the situation in the rest of the world. An increased urbanisation and large groups of young adults entering the residential market are other contributors to the housing shortage. Common for many of those in need of a home is that they have limited economical resources. Therefore low-cost homes constitute the most severe shortage at the moment (Hyresgästföreningen, 2016). Despite that, the majority of the newly produced apartments are too expensive for those with low or even normal incomes. The real estate industry and the policymakers are hoping that the newly produced apartments will increase the mobility on the housing market and eventually lead to moving-chains which in turn will result in more cheap apartments on the market.

The housing supply

The number of new multifamily houses that are under production are currently on the highest levels since the million homes programme (Boverket, 2016a). The construction is expected to remain high or even increase during 2017 as well. But the capacity within the building sector is starting to reach its limits, making it hard to increase the construction even more. Depending on the real estate market, there is also a possibility that the construction rate will slow down within a few years (Lind & Broström, 2016).

The real estate market is characterized by fluctuations in both construction activity and real estate prices (Lind, 2015). The construction of new buildings take time and the construction industry is considered to have a "time-lag", which means that it takes some time for the market to adjust to new information.

For example, if the demand for housing rapidly increases, it takes some time for the market to start producing new housing, often several years. In the same way, it will take some time for the market to adjust when the demand is reduced. Even though the demand is lowered, the buildings that are under construction will have to be completed, meaning that there will be more supply added to the existing building stock even though the market is saturated. This explains why it is common to have periods with a lot of construction activity followed by periods with insignificant construction activity, see Figure 10.

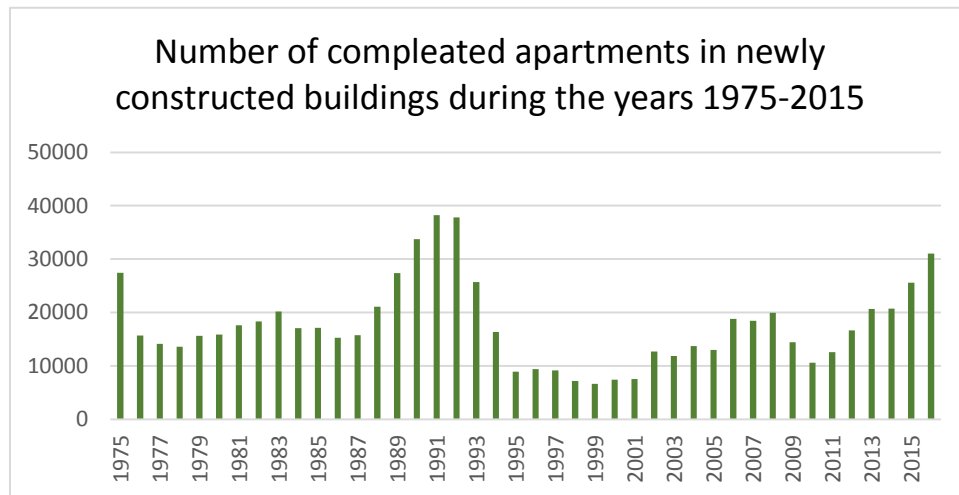


Figure 10: Fluctuations in construction activity on the Swedish housing market (SCB - Statistiska Centralbyrån, 2017)

It is not very likely that the demand for housing will decrease within the nearest future. However, it is possible that sufficiently enough apartments are produced in order to reduce the demand from the high income households, making it hard for the construction companies to sell their apartments to the desired prices. Exactly what happens in such a scenario is hard to predict. A market that is exposed to a decrease in demand can react in two ways, either by reducing the produced quantity or by reducing the prices (Lind, 2017). Real estate and cars are examples of goods that are rarely bought. Both markets are also characterized by a large existing stock. This means that those who are planning on buying a new car or a new real estate usually do not have any trouble waiting a year or two if they expect that the prices might go down. Another important aspect is that there are many companies on these markets that are long-term actors with the desire to keep selling their good's year after year. Therefore it is important for the companies to be careful with what signals they are sending out. If the companies are rational actors, the signal they should send out to the market is that they do not reduce the prices, no matter what happens on the market. This behaviour could be observed in the car industry during the latest financial crisis. If the companies start to reduce the prices on unsold apartments, or cars, the consumers will not be prepared to pay a higher price when new products are introduced to the market because they expect the prices to be reduced if they wait.

The Situation in Stockholm County

Even if it is uncertain how large the housing need will be in the future, the housing shortage we are experiencing today is for real. People have to live somewhere, and are therefore willing to pay as much as they can afford in order to do so (Andersson O. , 2014). The interest rates have been low for several years and it has been relatively easy to get a mortgage. This has resulted in historically high real estate prices in Sweden, and especially in Stockholm. The low interest rate has made it possible for the households to take larger mortgages and it has also reduced their incitements to amortizes. In 2010 the

banks did introduce a mortgage cap on 85 percent of the value of the apartment or house. In 2016 the banks also introduced an amortization requirement, hoping that the households aggregated indebtedness would stabilize. However, none of the requirements seem to have had any larger effect on the real estate prices, which continue to rise (Svensk Mäklarstatistik, 2017).

The willingness to build is large in Stockholm County, this can be seen on the demand for land allocations, but the supply of land allocations is low and limited to a smaller group of construction companies (Andersson O. , 2014). The construction industry in Stockholm and Sweden are dominated by a few large construction giants. The main reason behind this is that there exists a number of obstacles preventing many smaller actors from participating in the housing production (obstacles which have been declared for previously in the literature study as well). One obstacle is related to the development of new detailed development plans. It is not uncommon that it takes 7-8 years of work in order to get a detailed development plan approved, smaller construction companies, private housing associations and other private stakeholders simply do not have the resources or the competence to go through such an extensive process.

In Stockholm County, only 15 percent of the land is built upon, and within the borders of Stockholm Municipality, one third of the land is occupied by existing buildings (Stockholms Stad, 2013). A majority of the ground that is not built upon in Stockholm County is owned by the municipalities, a result from the last century's expansive land policy (Andersson O. , 2014). Despite the planning monopoly and the fact that the municipalities are large land owners, the lack of available land to build upon constitute a hold-up when it comes to producing new housing. The lack of available land has several causes:

- ♣ the municipalities do not want to release too much land for sale at the same time since that might reduce the land value (given the increase in supply),
- ♣ the land must have existing infrastructure (water, transportation, etc.) or good conditions for new infrastructure and
- ♣ the land cannot constitute a national interest or be of any greater importance for the people living in the area, to only mention a few causes (Andersson O. , 2014).

The chance of finding a piece of land to build upon is larger if the land is located further away from the central parts of Stockholm since the number of interested parties are reduced as you move away from the city centre. A lot of new construction therefore takes place in the suburbs of Stockholm. The land and housing prices are reduced with an increasing centre distance, meaning reduced revenues for the construction companies but also greater freedom. The requirements that the municipalities have on the built environment is generally lower when the land is located further away from the centre. The demand for land is lower in the suburbs and this weakens the municipality's bargaining position.

The circumstances just mentioned in the above paragraph, constitute the starting point to the Activity Based City 2.0 concept, which is declared for in the beginning of Chapter 2, the Methodology. The actors involved in the project believes it is necessary to take advantage of the land resources that can be found further away from the inner city of Stockholm, where transportation infrastructure already exists, in order to reduce the housing shortage. However, the ideas and recommendations of how to solve the housing crisis this time are many. The KTH researcher Erik Stenberg believes that it is important to get the moving chains going (Campi KTH, 2016) and Maria Pleiborn (2017) agrees. Stenberg also state that a mixture of different kinds of homes have to be built in order to break the segregation. Stenberg believes in a more long-term solution on the housing shortage and he sees potential in standardized housing units. However, mass production like in the record years 1960-1970 is not something he recommend. Mass

production risk reducing both the quality and the standard of the housing that is produced. Maria Pleiborn (2017) agree with Stenberg and also recommend a more careful approach to the housing shortage, referring to the Million Homes Programme. The learning outcome that should be drawn from the Million Homes Programme is that it is not sustainable to choose quantity instead of quality. Moreover she also suggests that we should use the existing housing stock more efficiently by simulating the mobility.

3.4. The Importance of Exterior Architecture

The prevailing housing shortage makes it easy to sell practically everything that is being built in Sweden's largest cities. The exterior architecture does not affect only those who live in the buildings, it affects everybody that pass by the buildings on the street, and it will continue to do so for several decades ahead. It is therefore important that the residential areas that are built today are sustainable. Sustainable development is defined in this paragraph and some attributes that are important for an areas social sustainability are described.

Sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Forsman & Jonsson, 2016). The concept of sustainability is considered to have three components: social, environmental and economic, where the latter two historically have been given the most attention in the construction industry. Construction projects often face a lot of negative attitudes, which can be related to the negative impact some construction projects have had on the environment in the past (e.g. the million homes programme). In order to contribute to a better built environment for the future inhabitants of a new development project, the developer should focus on social sustainability early in the project, before the detailed development plan is approved and the borders for the project are defined. Social sustainability is related to how a residential area make the visitors and residents feel. Factors that, according to research, affect a residential areas social sustainability are:

- ♣ **Integration and diversity** (the area should have meeting places that encourage social interaction, a mix of tenant owned and rental apartments, facilities in the building bottom floors).
- ♣ **Accessibility** (the area should be accessible for everybody and have sufficient pedestrian- and bicycle paths)
- ♣ **Influence and child perspective** (the area should constitute a safe environment for children, there should be plenty of leisure activities and the citizens should have influence over the area).
- ♣ **Sustainable living** (information to the residents about how to live more sustainable, carpools, innovative technical solutions)
- ♣ **Attractiveness** (create conditions for a rich cultural life, provide access to water, green areas and parks, keep and enforce the identity of the area and an architectural design with focus on identity)
- ♣ **Well-being** (access to service and recreational activities)
- ♣ **Sense of security** (there should be a mix of activities that keeps the area alive during the whole day, the area should be well lit up, hidden areas should be avoided)

Above list was established in order to help developers and municipalities to focus on social sustainability. “Architectural design with focus on identity” is brought up as one point that affects an areas *attractiveness*. The fact that the architectural design is important for an areas attractiveness is probably not a surprise to anybody. The built environments architecture brings out feelings within the

person who experience it, something that became very clear when studying the questionnaire result, and which can be read more about under the theory section.

3.5. Price Effects of Architecture

The questionnaire result showed that many of the respondents clearly preferred one of the four areas that were included in the questionnaire in front of the other three areas. The authors of below article have studied the price effects of architecture. They found that a shortage of a certain architectural style could in fact lead to a price premium for architecture. This is of interest to our research since, the questionnaire result indicated that a large share of the residential areas that are constructed today, do not have the architectural style that the majority of the questionnaire respondents appreciated the most.

In a recent published scientific paper, two researchers studies the price effect from architecture by using a hedonic price model (Buitelaar & Schilder, 2017). “Vintage effects” are often included as an explaining factor in hedonic pries models that studies factors that affect housing prices. However, no one has previously been able to prove if people are willing to pay a price premium for a specific architectural design. The price premium could likewise depend on other factors that correlate with the construction period, for example the location within the city or amenities in the area. According to conventional economic theories, for example Rosen (1974) there are two explanations to why a price premium for architectural style can exist:

1. Shortage of supply
2. Shortage of cost, i.e. differences in quality

Shortage of supply arises when there is a limited supply of a good, in our case a limited number of homes with a set of certain architectural features (Buitelaar & Schilder, 2017). The price of a good represent the marginal buyer’s willingness to pay. If the supply is elastic, the price premium on the market will disappear relatively fast when the supply is increased. However, no developer can replicate authentic historical buildings, nor their settings. But on a competitive market where the developers are informed about their customers’ preferences, have no supply constraints nor any differences in construction costs, rational developers should produce houses with different styles in the quantity which correspond to the consumer demand. On a competitive market, price differences related to style should be a result of differences in quality or construction costs.

A third possible explanation to a price premium is the consumers’ income (Waldfogel, 2009). Consumer demand fluctuate between different subgroups of consumers. It is a possibility that subgroups, defined by their income for instance, demand different architectural styles. If a certain style tend to be preferred by high income consumers, a price premium for that style can arise because that income group has the ability to bid high on housing with certain desirable features. This is referred to as *sorting* in literature.

However, the housing market is characterized by an inelastic supply. The market is also regulated by extensive planning legislation, which implies that the construction industry is not capable to adapt to new demand for a specific style (Buitelaar & Schilder, 2017). Therefore it is very likely that a price premium can arise on certain styles due to a shortage of supply. Literature about the connection between price and architectural style is rare. However, there are some studies made on the area which are concluded by Buitelaar & Schilder. In their study, which was conducted in the Neatherlands, they could not identify any differences in construction costs between different building styles. A building style is easy to reproduce and a price premium for style should therefore not exist in an efficient market. Then again, the housing market is not efficient. Buitelaar & Schilder studied price premiums on neo-traditional houses that all had been produced between the years 1990-2015 in a nationwide large-scale construction programme called “Vintex”. The way the Vintex programme was organised allowed the

authors to study the effect of style, without having to consider age effects nor location effects. All houses in their study constituted newly developed houses in newly developed areas. In their study they distinguish between three types of houses:

1. *Pure neo-traditional houses*, despite being recently constructed, these houses had been made as identical as possible to their original. They had the same building shape (proportions, roofs, etc.), the same facade composition (distribution of windows, doors) and the same details (roof edges and gutters, bay windows, dormers, etc.) as an original building.
2. *Referring to traditional*, had the same three attributes (shape, facade composition, and details) as the pure neo-traditional houses, but the three attributes had been combined in new ways.
3. *Non-traditional*, the buildings did not have any elements that imitates a traditional house.

The study identified a price premium for style. According to the result, the *pure neo-traditional style* brought in a price premium of 15 percent compared to *non-traditional houses* (Buitelaar & Schilder, 2017). The houses that *refer to traditional houses* brought in a price premium of 5 percent compared to *non-traditional houses*. The authors were surprised to see that clusters of neo-traditional houses resulted in slightly lower prices (on average 2 percent) compared to neo-traditional houses that were isolated in an area together with other architectural styles. One explanation to this could be that clusters of neo-traditional houses means a larger supply of that style on a particular location, something that could result in a location-specific discount. The fact that many house buyers look for uniqueness, would on the other hand give the isolated neo-traditional house an advantage. Still, the neo-traditional houses has a significant price premium.

There exists a number of popular studies that confirms a price-premium for neo-traditional houses and there are a number of reasons behind why they exist (Buitelaar & Schilder, 2017). The authors did a robust check for *sorting* as a possible explanation for the price premium. The impact of sorting is expected to be the smallest in lower price segments, this is also where the authors found that sorting would have the least impact on the price premium. This strengthens the idea that sorting is not a satisfactory explanation for the price premium, something that has been discussed in previous studies as well. The authors also investigated if differences in interior quality or construction costs could explain the price premium and found that the price premium exist even in more homogenous samples. Lastly, the authors did check if a shortage of supply could explain the price premium and discovers that this is the case. When a larger share of neo-traditional houses are for sale, the price premium decreases. This result implies that the price premium for neo-traditional houses is possible to eliminate, at least in theory. To eliminate the shortage in practise might be more difficult since the planning authorities regulate both the supplied quantities, as well as design and materials. Even though the price premium is a result of a supply shortage, this does not imply that the neo-traditional style becomes less attractive if the supply shortage would be eliminated. Economic house price literature often refer to a “vintage effect”, which implies that preferences for certain characteristics potentially can have a price premium.

Above study was conducted in the Netherlands and the explanation behind the price premium was a supply shortage on neo-traditional houses. The supply on the Swedish housing market is also restricted in many ways. It is therefore likely that the same price premium that was identified in the Netherlands could exist in Sweden. Given the price difference that has been identified between 1920s and 1970s houses, it seems as if there is a price premium also in Sweden (Andersson & Granudd, 2016). One likely explanation to that price premium could be a supply shortage of a particular architectural style. However, the authors in the Swedish report does not investigate potential causes to the price difference.

3.6. Niching in Residential Development

Niching is a way of maximizing utility, both for the end user and the developer. With the right set of attributes, a certain group of consumers are willing to pay more for a niched development compared to a mainstream development. The conclusion that can be drawn from the below paragraph is that the Swedish developers could improve when it comes to niching their developments.

Niching in residential development is uncommon on the Swedish residential market (Psilander, 2004). There are some actors specializing on for example senior housing, but when it comes to the larger construction companies that dominate on the Swedish housing market, niching is rare. The Americans are a lot better at taking advantage of the opportunities provided by niching. Niching aims at providing a set of amenities and attributes in a residential area, which create a larger value to a certain target group of customers. If the niching is successful, the target group will be willing to pay more for the apartments or houses in the niched area compared to a regular area, without the construction costs actually being any higher for the developer. Niching will potentially mean higher revenues for the developer at the same time as the end-users value their home higher, i.e. niching maximizes utility for both the developer and the end-user. The problem with niching is that it is hard to identify what the end-users, or customers, actually desires. By targeting a larger customer group, the Swedish residential developers face a lower risk for losing customers that does not like, or are willing to pay for, certain amenities or attributes of a niched area. The conclusion that can be drawn from the article is that residential developers in Sweden have the possibility to improve when it comes to niching their housing production. As it is today, renovated century-old apartments often are considered as more attractive than newly constructed apartments. They have the same standards as newly produced apartments, however they also possess details that are highly appreciated by the consumers.

3.7. Managing Construction Projects

Literature within construction project management have been studied to get an understanding of housing development and its possibilities to create an aesthetically appealing design. Following sections presents some selected concepts and models from the study within this area.

Project stages

All projects are different and should therefore also be implemented differently (Hallin & Karrbom Gustavsson, 2012). Projects with a clear and predetermined mission are suitable to be carried out according to a stage-gate model. In stage-gate models the overall targets are being decomposed into sub-targets and planning are being made of activities that must be performed so that the sub targets, and later on, the overall target can be achieved. The principle of a stage-gate model is that detailed planning, organization, steering, evaluation and documentation creates prerequisites for an effective project implementation. A stage-gate model can briefly be divided into four phases: pre-study, planning, execution and closure. Figure 11 below shows an example of a stage-gate model, based on Skanska's model for their housing projects.

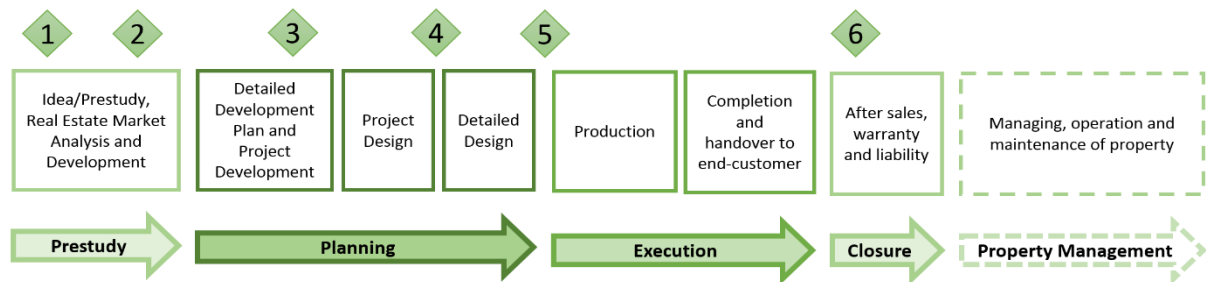


Figure 11: A stage-gate model for residential development projects based on Skanska's model (Skanska Sweden AB, 2017e).

Skanska implements all of their own housing development projects according to the above model except the last stage, property management, which is not included in Skanska's model since this stage is handed over to the end-customer but it has been included in the figure just to illustrate the stage that comes after the closure of a housing project.

A stage-gate model also includes tollgates which represents time for decision and constitute tools for the steering group to control the project (Hallin & Karrbom Gustavsson, 2012). The numbers in Figure 11 above represents Skanska's tollgates which are the following:

1. Project Mission
2. Land Investment
3. Concept Approval
4. Commercial Launch
5. Production Start
6. Project Evaluation

Each tollgate is used to decide if the project shall continue, discontinue or be adjusted before the project continue.

Creation of value

The first step in the management of any construction project is to define the project mission which can be rather difficult (Winch, 2010). One way to define the mission is to see the development of a new property as the creation of new value. A tool based in values created by the property, called a balanced scorecard, can then be used when defining the mission, see Figure 12 below.

Financial Value Net Present Value (NPV) Capital Expenses (CAPEX) Operating Expenses (OPEX)	Indoor Environmental Quality Ventilation Daylighting Acoustics Controllability
Spatial Quality Interaction Isolation Integration Security	Symbolic Quality Image Branding Public Interest Power

Figure 12: Value-added investments according to the concept of a balanced scorecard (Winch, 2010).

The idea of the balanced scorecard concept is that financial criteria should not be the only measure of a company's performance and that long-term value creation should be prioritized over short-term financial results. Value in both senses of the word can be created through attention to customer needs, improvements of business processes and innovations. The argument is that symbolic quality, spatial quality and indoor environmental quality (IEQ) all are potential areas for value-added investment – that is, investment in the building which is above the minimum functional and regulatory requirements.

While there is much research on spatial quality and IEQ, the value of symbolic quality is only debated within the architectural profession. The problem with the debate on architectural quality is that it is mainly about buildings as artefacts rather than assets, and therefore adds little to our understanding of how buildings add value for developers. The contribution of symbolic quality to asset value can be identified to four categories:

- ♣ *Branding* which is a central element in marketing. Developers can construct buildings that expresses a dimension of their market position.
- ♣ *Image* can also be of central concern to developers. Building height or architecturally innovative public facilities is some of the classic statements of image. Other developers consider the image of the buildings they develop for their attractiveness to potential employees.
- ♣ *Public benefit*. One of the most important externalities for buildings is the contribution to the surrounding area. Attractively and interestingly designed buildings enhance surrounding areas while dull and ugly one detract from it.
- ♣ *Power*. The symbolic use of buildings to express power has a long tradition. Religious and political leader have expressed their power by constructing glorified buildings.

It is also important to take the context and the impact of the project into account when defining the project mission, such as environmental impact, urban and rural context, safety and amenity of users, sustainability and ethics.

Stakeholders

The project mission is not only up to one decision-maker since a project has several interested stakeholders (Winch, 2010). The project stakeholders are those actors which will incur – or perceive they will incur – a direct benefit or loss as a result of the project. Stakeholders can be categorized into internal and external stakeholders. Internal stakeholders are in legal contract with the developer and external stakeholders are those who have a direct interest in the project. Internal stakeholders can be broken down to the demand and the supply side of the developer. External stakeholders can be divided into private and public stakeholders. This categorization, with some examples, is shown in Table 4 below.

Table 4: Example of some project stakeholders (Winch, 2010).

Internal Stakeholders		External Stakeholders	
<i>Demand side</i>	<i>Supply side</i>	<i>Private</i>	<i>Public</i>
The developer	Architects	Local residents	Regulatory agencies
Financiers	Engineers	Local landowners	Local Government
Employees	Principal contractors	Environmentalists	National Government
Customers	Trade contractors	Conservationists	
Tenants	Materials suppliers	Archaeologists	
Suppliers		Non-governmental organisation	

When the stakeholders have been identified a power/interest matrix can be used to develop a strategy towards managing the different stakeholders. It consist of two dimensions – the power of the stakeholder to influence the definition of the project, and the level of interest that the stakeholder has in that definition. Those that might be opposed to the project should stay in the low-interest category, while those who are likely supporters should be moved to the high-interest category. The matrix categorizes the stakeholders into one of four types:

- ♣ The first group which need *minimal effort*, such as the developer's customers and government.
- ♣ The second group is those who needs to be *kept informed*. Groups which may be opposed to the project, such as local residents or environmentalists need to be carefully managed.
- ♣ Those who need to be *kept satisfied* which usually are regulatory bodies and the supply side stakeholders. Regulatory bodies are, in essence, the institutionalized interest of the low power stakeholders.
- ♣ The final category is the *key player*. Financiers, the developer and the developer's customers take place in this category.

The role of the project management team is to define a project mission that balances the interests of all stakeholders.

Budgeting

Three different and commonly used approaches to managing the budget are target costing, value engineering and constructability (Winch, 2010).

Target costing is a technique which has derived from the car industry and drives the design process by the estimation of costs. The target costing process is based in what the market will bear, that is - a price is being set from the beginning and is then on no account being exceeded. Target costing also uses learning curve principles to reduce cost over time. The challenges in target costing is to provide the maximum value for the customer at the given price.

Value engineering (VE) are, in opposite to target costing, the main technique to provide the maximum value for the customer at a given price. The aim with VE is to identify unnecessary costs and thereby bring the product back on estimated budget which ensures the feasibility of the project.

Constructability is the process of designing to enable the most efficient allocation of resources with the aim of, among others, improving quality and increasing productivity. One aspect of constructability is the development of process capability where higher process capability requires investment. There comes a point when the return on this investment starts to decrease, either from higher incomes from asset exploitation or from savings in whole-life costs.

Standardization and prefabrication

One way of improving process capability, but also budget and quality, is to use standardization, prefabrication or a combination of the two (Winch, 2010):

- ♣ Standardization is the use of standard components, modules, forms or layouts of a building. Standardization enable the costs to be shared within a number of construction projects and can thereby benefit from the learning curve in repeated tasks.
- ♣ Prefabrication is the pre-assembly of components, either off-site in a factory or on-site in a dedicated facility, prior to final installation in place. The aim here is to provide a more controlled working environment to improve process capability.
- ♣ Mass customization is the combination of the two where standardized modules are configured to meet particular project needs and are prefabricated for installation on site.

The aim with standardization is to increase the volumes of identical elements so that economy of scale can be achieved. Standardization may be seen as a limitation in projects which require the elements to be crafted to particular needs.

The aim with prefabrication is to achieve economy by working in a more controllable environment than the actual point of installation. The major limits to prefabrication is usually the ability to transport the elements from the factory and to install it on site.

Standardization and pre-fabrication have both advantages and disadvantages. There is much that can be done to increase levels of standardization and prefabrication in the construction industry but it requires, among other things, a willingness to invest in developing process capability and that the market do not require completely customized projects.

4. THEORETICAL FRAMEWORK

The theoretical framework that was used in the analysis of the questionnaire and interview result is described in this chapter. The theoretical framework was used in order to understand and explain the questionnaire and interview result. The main focus of this study is the end-users preferences and perceptions of the exterior architecture in multi-family residential areas. Therefore environmental psychology and some additional definitions constitute the theoretical framework.

4.1. Environmental Psychology

Environmental psychology studies the relationship between the human and the environment and is used as a theoretical framework in order to understand and explain the questionnaire result. Research within the field of environmental psychology is mainly of descriptive character. The theoretical framework used in our study is composed of the work by several different researchers. The environmental psychology theories used in the chapter have been summarized by Catharina Sternudd (2007) in her doctoral thesis and since the authors had trouble accessing all the original sources some of the theories presented in below section are not collected from its original source. However, this should not have any impact on our study.

Research indicate that the environment's aesthetical qualities are of great importance for how humans perceive their surroundings. The always ongoing debate about the built environment in our cities and the many appeals of detailed development plans, also indicate that the general public consider the appearance of our surroundings to be important. An aesthetically attractive environment will make the visitor feel comfortable and relaxed, while an aesthetically obnoxious environment could make the visitor feel afraid and unsafe (Skantze, 1996). Research indicate that the aesthetical aspects of the environment affects humans unconsciously. The field of research that investigates the relationship between the human and the environment is referred to as Environmental psychology. The research is mainly of descriptive character and formulating theories is not the main purpose. There are two main research tracks within the field of environmental psychology, one biological and one cultural. In the biological track, researchers have found that the human mind form aesthetical valuations about its surroundings very fast and without reflection, even unconsciously (Zajonc, 1980). One developed theory suggests that the nature of aesthetical experience can be derived from a part of the human brain, the limbic system, which handles our emotions (Smith, 1976). The limbic system react positively on strong colours, rhythm, magnificence, and repeated patterns. While, according to theory, more sophisticated aesthetical valuations take place in the conscious and thoughtful part of the brain. This theory is an interesting explanation to why the working environment has been found to have such a large impact on humans and it can also explain why attractive environments are valued so high.

According to the cultural track, preferences for a certain type of environment aesthetics are determined by the society and the individuals. Aesthetical preferences are a product of the individual's valuations and attitudes, which in turn are culturally formed and can vary over time. It is common that the persons taking part in studies about the aesthetics of the built environment have similar preferences. Environmental physiological research shows that this is a result that can be expected if the study is conducted in a group with similar cultural background, educational level and socioeconomic factors. However, the architect and researcher Stamps (1999), have studied aesthetical valuation of the built environment between different population groups and found that people, despite different origins, have similar preferences about the built environment. In other words, the preferences of "the general public" is very similar. These studies can however only be related to Western countries, since they have been conducted in North America and Europe.

Aesthetical preferences for landscape and natural environments

There are several studies about why we have certain preferences regarding our physical surrounding. It is not entirely clear how the human aesthetic experience and emotional response is connected. However, there is no doubt about the fact that there exists a strong connection, humans tend to like the same things that they find aesthetical appealing.

Preferences in the natural environment are often explained by relating to the history of human evolution, which seem to have given us some basic preferences when it comes to the natural environment (Sternudd, 2007). For thousands of years we have been depending on our ability to react fast to new situations, seek protection and find food in the nature in order to survive. These abilities have formed some general preferences. Open landscapes, tree groves, rolling grasslands and water elements are considered as attractive attributes by a majority. Kaplan (1987), researcher in environmental psychology, explains these general preferences by referring to the natural selection of the strongest individuals. In other words, those who had preferences that helped them survive in the nature have formed the general preferences we have for natural environments today since those individuals were most likely to survive in the wilderness.

Aesthetical preferences in the built environment

Aesthetical preferences in the built environment have been studied with the same approach as in natural environments. Researchers have found that certain environments are preferred before other environments and tried to identify which objects, shapes and other characteristics that affect what people find appealing. An American scientist active in the area is Nasar (1994), his main focus is to identify characteristics that are preferred by a majority of the population and then use these characteristics when developing new projects. By using certain attributes, Nasar means that there is a greater probability that the general public approves a new project. With reference to his own research and to other researchers, Nasar states that there are small differences in what the general public find attractive when it comes to certain properties of the built environment. The five properties that have been identified as important in order for an environment to be considered attractive is; *openness*, *naturalness*, *historical meaning*, *preservation/propriety* and *order*. A Swedish researcher, Küller (1991), describes eight characteristics that he found were useful when describing how humans perceive their environment. These characters are; *pleasantness*, *complexity*, *consistency*, *spatiality*, *powerfulness*, *social status*, *affection* and *originality*. Some of the characters that a built environment can have will be explained more carefully below:

Consistency and complexity

Consistency refers to the ability of different components in an environment to form a uniform and functional entity. Complexity can be described as intensity, contrast and lavishness. Research has shown that an environment, in order to appeal attractive, require a balance between consistency and complexity. If an environment is too consistent it will be experienced as boring and if it is too complex it will be experienced as chaotic. A good balance between consistency and complexity can be hard to achieve. There are for instance situations where a trained eye of an architect can see and appreciate variation while an untrained eye cannot.

Recognition and readability

Over the years, humans have had time to develop an idea of how certain objects and environments should look like, and tend to prefer built environments that have familiar shapes in front of environments

that contain something new and unknown. Environments that are readable and understandable makes humans feel safe and environments beyond eyesight should preferably be easy to form an image of. R. B. Zajonc, professor in psychology, has in several studies shown that the preference we feel for an object increases the more times we are exposed to that object (Zajonc, 1980). The same thing happens even when we are unaware of the exposure.

Maintenance and order

Maintenance and order refers to how well the environment is taken care of. Lack of maintenance, garbage, sabotage and graffiti make many humans feel uncomfortable and unsafe. A well-kept environment make people feel safe, it also send associations to higher social status and wealth. The latter cannot be directly connected to the environments aesthetics but definitely has an impact on preference. Cultural aspects have a strong impact on some of the elements that can be related to aesthetical preference.

Nature and greenery

Green areas, parks, and water tend to be very important and also strongly contribute to a locations identity. A built environment with trees and other greenery is generally more preferred than an environment with mostly hard surfaces. In the same way does the preferences for a natural environment decrease as the presence of buildings, telephone masts and roads increase.

Historical association

Historical significance is preferred by many, the rich variation, attention to details and craftsmanship are explaining factors to why it is widely preferred. In historical buildings with a story attached to it, authenticity is important as well. Old buildings that are built according to an older style normally does not constitute a problem for the general public, it is the historical appeal that brings out positive response. In previous studies about historical environments the aesthetics, or beauty, of the buildings is mentioned more often than for example the age, origin or history. Beauty was referred to as beautiful colours, materials and proportions. Materials as timber and brick are mostly appreciated, mainly because they are experienced as warm, attractive and living materials. Modern materials as concrete, steel and glass are seen as cold, sterile, repelling, and dead. Historical environments are also valued higher if they do not contain elements of modern buildings.

In a study conducted by Coeterier (2002), a group of people were asked to grade a historical built environment. After the grading, they received some information about the environments history, both general information about the buildings of that period and specific information about the buildings they were observing. The group were then asked to value the historical environment again and the result showed that the information increased the appreciation that the group felt for the environment. The general information had most effect on the group, however, the information will only have an effect the first time it is told. The value of the aesthetical experience will arise every time the historical environment is visited. When experts on historical environments value buildings, they primarily focus on the information the buildings can provide about the past and the buildings authenticity, where important criteria's are uniqueness and completeness. Laymen primarily value the shape of the buildings, the information they can tell us come in second hand. Age is thereby not valued very high among laymen, neither is rareness since it requires special knowledge in order to determine if something is rare. In other words, laymen do not require that historical buildings are refined and coincide with their origin in order to value them positively.

Life and death

Skantze (1996) paid attention to the words that were used to describe different kinds of architecture in a study conducted in Skarpnäck, a suburb to Stockholm. Skarpnäck was built in the beginning of the 1980's and the goal was to create "urbanity". Skantze found that it is very common to relate to life and death when describing the physical shape of a building. Life is used to describe natural materials, irregularities, large variation between the buildings facades, small spaces between the buildings, rich greenery and a feeling of being surprised. Dead is used to describe a built environment that is non-living, violent, monotone, straight, repeating, uniform, controlling and lacking of soul, motion and colour. Buildings shaped like squares, with flat roofs, monotony, colourlessness, and uniformity is even denoted to feelings of oppression. Industrial mass-production is seen as something very negative. The planners strived to create an urban feel in Skarpnäck but many of the respondents in the study expressed disappointment over the fact that Skarpnäck looked like a city but did not offer all the facilities of a city.

Laymen's Architectural Preferences

Both Sternudd (2007) and Håkansson (1996) came to the same conclusion about what the general public prefer in their research. It seems that people in general appreciate a built environment of moderate scale, in traditional shapes, visible roofs, detailed and diversified facades, and the houses should have an individual design between themselves. These are qualities that we can find in older built environments.

The million homes programme is discussed a lot in Sweden, Molina (1997) has studied one of the areas that were developed during the million homes programme. Many of these areas are segregated and has bad reputation among the Swedish citizens. Vandalism and littering is also common. There is nothing that says that the people that are living in these areas, consisting of a large share of immigrants, should like them more than the ordinary Swedish citizen. Molina did not focus on the aesthetics but some of the inhabitants still expressed that the buildings were too high and boring. Proximity to nature was most frequently mentioned as the best thing about the area in Molina's study.

Architects aesthetical preferences

Even though the consistency is large when it comes to aesthetical preferences in the built environment, there is one group that distinguishes itself from the rest, namely architects (Sternudd, 2007). It is important to point out that all the results in this kind of studies are generalisations, there will always be individuals that do not agree with the majority. Every individual will always have their own unique set of preferences. Several studies point out that there exist differences between laymen and those who have studied architecture, design or city planning. The differences are the clearest when it comes to certain types of buildings and environments.

The general public appreciate both historical and modern architecture Sternudd (2007). In a study where laymen and architects were asked to grade a historical building, both groups liked the building. But when they were told that the building was constructed recently, the architects changed their opinions, while the laymen did not. Architects do like historical buildings and many architects live in historical buildings themselves, but it seems that architects value authenticity very high. They do not approve pastiche buildings that are trying to look like they were constructed during a different time period.

In a different study, professionals within design and architecture, and laymen were asked to rate high-style architecture versus popular architecture. High-style architecture is referred to as buildings consisting of few materials, a lot of concrete and white, simple shapes and decentralized entrances. Popular architecture is characterized by many different materials, horizontal orientation, inclined roof,

framed windows, centralized entrance and warm colours. Architects valued high-style architecture higher than popular architecture and laymen did value popular architecture higher than high-style architecture. The architects and design professionals seem to form these divergent preferences during their education. Studies have been made on design students and those who had studied the design programme for a longer period of time had adopted the same opinions as the professionals. Herschberger (1969) conducted a study about how architecture is perceived by architects, architectural students and laymen and found that laymen consequently gave low points to the architecture that architectural students found exciting, interesting and unique. Laymen instead found those buildings to be bad, annoying, ugly, boring, calm and plain.

When architectural students were asked to describe their dream home, their preferences were similar to the aesthetical preferences of the general public (Hentilä, 1993). Many students mention that they would like to live in a loft apartment in the Old Town of Stockholm and the qualities that are desired are natural materials, hardwood floors, attention to details, light, natural surroundings, city life, high ceilings, colour, openness, fireplaces, large kitchens, stucco and graceful windows. When the students are asked to describe bad living environments, many refer to the million homes programme.

Differences between architects and laymen

Several studies have found a difference between professionals with a degree in design or architecture and laymen when it comes to preferences in the built environment. Architects generally prefer a more minimalistic design, for example: moderate colouring, materials such as concrete, steel and glass, a uniform and symmetric pattern, and a modern and prospective style. Architects also disapprove of newer buildings that are built in accordance with a historical style. It is important to remember that the identified differences between laymen and architects are based on generalisations. There are individuals in both groups that do not agree with these generalisations, but in order to be able to distinguish the difference that exist between laymen and architects generalisations are necessary. The differences that have been found are summarized in Table 5 below.

Table 5: Preferences of architects and laymen (Sternudd, 2007)

Architects prefer	Laymen prefer
Large-scale buildings	Small-scale buildings
Uniformed	Diversified
Few details	Many details
Cold colours	Warm colours
Contemporary style	Historical style
Original	Conventional

4.2. Design Principles and Definitions

The following text will give an introduction to some of the designing principles that are present in a buildings architectural design. All the attributes that have been used in the questionnaire will be defined and explained.

The built environments attributes

Form

The word *form* has several meanings and attributes, but most commonly it is considered to be a volume element of some sort, a 3D-object (Ching, 2007). *Shape*, sometimes confused with form, is on the other hand a more precise expression for the form of a particular surface. That surface can have the *shape* of a circle, a rectangle, or a triangle. The volume, or the *size*, of a form is generated by the form's length, depth and width. *Colour* and *texture* have a large impact on how the form is perceived. For example, a darker colour will make the form appear heavier and different textures reflect light differently. A form also have attributes such as *position* and *orientation*. The *space* is determined by the buildings, or forms, around it.

Scale

Scale is defined as the size of an object, compared to either a reference measurement or the size of another object (Ching, 2007). *Proportion* on the other hand, refers to a relationship between different objects or between parts of the same object. The relationship can have several different units, for example magnitude, quantity and degree. Some proportions are completely controllable when designing a building while for example dimensions of beams and pillars are predefined due to loads and other production and construction constraints. The proportion of a building component can also be predefined due to manufacturing processes.

The perceived scale and proportion does not have to conform to the true physical dimensions (Ching, 2007). The perceived scale and proportions are affected by amongst other things the perspective of which an object is observed from, the distance to the object and by cultural biases. In other words, the perceived scale and proportions can be difficult to control. Small differences can be hard to distinguish, for example it can be hard to tell if an object is completely square, or if the square actually is a rectangle. The rectangle can also be perceived as short or long. An objects visual quality is essentially a result of how the objects proportions and scale are perceived by its observers. Consequently, all observers do not have the same opinions about an objects visual qualities.

There are several theories about proportions (e.g. golden section, classical orders, renaissance theories, etc.) and they are all intended to help generate a feeling of order and harmony in the built environment (Ching, 2007). The theories are applicable both when it comes to the proportion of a single building and its different elements, and when it comes to a system of proportions constituting of several buildings and their elements. When it comes to the perceived scale, the main interest lies in how an object is perceived in relation to its "standard" size or to other objects in its surroundings. The perceived scale of a building is affected by all the different components of that building, for example; the windows, the colours, the textures, the doors and the buildings dimensions. Larger windows can for example change the perceived scale of an entire façade. As well as different colours and textures of a facade can make the facade appear heavier or lighter than what it really is. The surrounding buildings and other elements present in the landscape, also affect the buildings perceived scale. Often when it comes to different elements in the built environment, it is common to have a predefined idea of what size these elements

should have. These preconceived opinions are often grounded on tradition. When an object is considered to be smaller than what is normal for that kind of object, the word “small-scale” is used to describe it. Similarly, a “large-scale” object is generally larger than what is considered to be normal for that kind of object.

Warm colours and cold colours

Warm colours have a shade that goes towards red instead of blue and cold colours have a shade that goes more towards blue than red (see Figure 13). Colours such as white, grey and black are cold and are popular among architects (Sternudd, 2007). Laymen generally prefer warm colours, the colours may preferably also be light.

Original and conventional

Something that is original is new, or innovative. Something that is conventional is commonplace, or ordinary. The words original and conventional can also be related to the buildings authenticity, where an authentic building is an original (Sternudd, 2007). A conventional building would on the other hand be a pastiche, a copy. Most architects despise pastiches while laymen generally does not seem to put much weight in the importance of a buildings authenticity.

Traditional and contemporary

Traditional can have many implications in the built environment (Sternudd, 2007). It can indicate that a building is constructed in a way that is common for similar buildings. It can imply that the building, when discussing new architecture, is neither built in accordance to the present building style nor trying to be innovative. An even wider definition is that a building is traditional as long as it is non-modern. A building is modern when the architecture reflect the present time’s building tradition, when the architecture is *contemporary*. This would imply that the word *traditional* generally refers to an architectural style that is not modern, and that the buildings age lack significance.

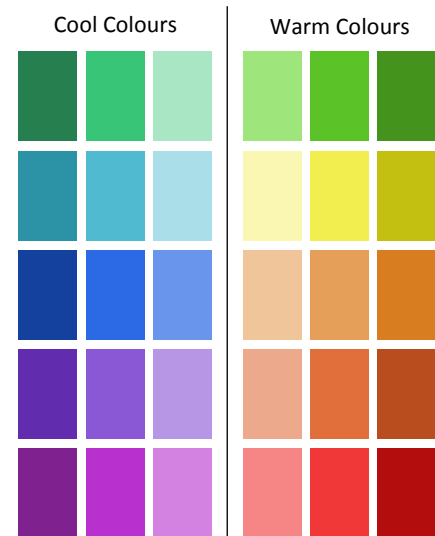


Figure 13: Warm and cold colours (The Spruce, 2017).

5. EMPIRICAL FINDINGS

The empirical findings, or result, from the questionnaire and interviews will be presented in this chapter. Section 5.1 contains the questionnaire result and section 5.2 contains the interview result. An extensive amount of empirical material has been collected through the 872 questionnaire responses and 8 conducted interviews. The empirical findings chapter is therefore quite long. The result is to some extent summarized in Chapter 6, the analysis, but in a shorter version.

5.1. Questionnaire

The questionnaire result will be presented, area by area, in below sections. The result contains both quantitative and qualitative empirics. The empirics will be presented statistically by using charts, diagrams and tables, as well as in the form of citations of the answers obtained in the open questions.

As mentioned in the methodology chapter, the questionnaire consist of background questions, area specific questions and a final, more general question. The result of the background questions are presented and discussed in the methodology chapter. The result of the area questions and the final question will be presented in this section. The area questions constituted of three identical questions that were asked to each of the four areas:

1. *Which of the following parameters would you say describe the built environment on the images of area X?*
2. *What do you think characterizes the built environment on the images for area X?*
(e.g. the colours, the details, the diversification, the materials, the shapes, the scale, the style, the windows, the entrances, the balconies, the roofs)
3. *What do you think of the built environment in area X, according to your own preferences?*

There are four areas included in the questionnaire and the above questions were asked to each of these areas. The second area-question is open, which mean that the empirics collected in this question is qualitative. The empirics collected in area-question 1 and 3 are quantitative. The final question was also an open question:

What do you think is important to have in mind when it comes to the built environment in newly developed areas constituting multi-family dwellings? (e.g. the attractiveness, the aesthetics, the safety, the likability)

Some of the responses on the open question were very detailed and rather long, while other responses were shorter and not as descriptive. The type of response also varied, some of the responses were neutral and not very subjective, while others were clearly negative or positive. Many answers were also related to the environmental aesthetics or the feelings that the area did bring up for the respondent.

5.1.1. Sankt Erik



Figure 14: Area 1, Sankt Erik (the images are photographed by the authors)

Scale

Figure 15 displays how the respondents described the scale in Sankt Erik. As the diagram shows, the area was described as rather large-scale by the respondents. The average score for the scale in the area was **2.94**. The scale in Sankt Erik also received many comments in the open question. The respondents used expressions like *moderate scale*, 'a *uniform scale*, *small-scale* and a *human scale* when they described the area.

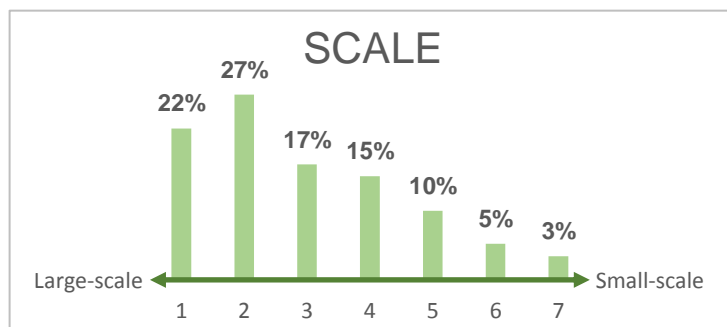


Figure 15: Scale, Sankt Erik

One respondent wrote that the built environment is characterized by: *“What has been modern for several years now, to separate larger housing units with different colours, so that you perceive the area as more small-scale. It is very likable, we do live in a similar property.”*

Another respondent commented that: *“There is a combination of variation and uniformity. It is modern with hints of a traditional style. A dense area that does not become a brutal concrete, large-scale area.”*

Diversification

Figure 16 shows how the respondents described the diversification. As can be seen in the diagram, the respondents consider the area to be both uniform and diversified. The average score for diversification was **3.86**. The word *diversification* was mentioned 79 times in the open question.

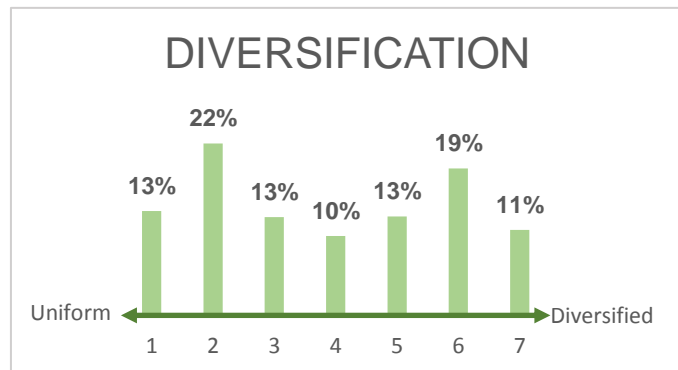


Figure 16: Diversification, Sankt Erik

One respondent wrote: *“I like the different pastel colours. As well as the diversification on the curved house bodies, where the colours also contribute to variation. I love all the details and the different expressions that have been created with the roofs, windows and entrances. Still there exist some kind of harmony in the built environment.”*

It was the *colours*, the *details* and the different *shapes* that most respondents indicated to contribute to the areas diversification. The word *uniformity* was mentioned 31 times.

One respondent wrote that: *“Uniform with a diversification in the same style, nice entrances, and low buildings mixed with higher buildings, calm and nice colours.”* The diversification was much appreciated among the respondents. Many of them did point out that they thought the area is uniform and diversified at the same time.

Level of detail

Figure 17 shows how the level of detail was described by the respondents. The average score for the level of detail was **4.46**. Which indicate that the respondents considered the built environment to have many details. Words such as *nice*, *simple*, *well made* and *diversified* were often used by the respondents when they described the level of detail.

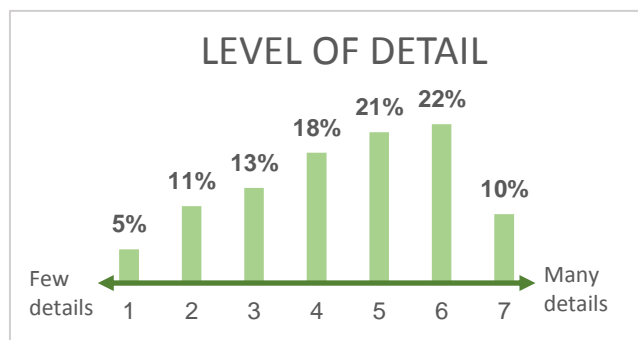


Figure 17: Level of detail, Sankt Erik

One of the respondents wrote: *“A nice built environment with good diversification and nice details when it comes to windows, entrances, and nice roofs with the dormer windows. BUT, where are the large balconies and roof terraces? There must be large balconies/terraces that make it possible to eat outside or to lay in a sunbed. Some shops or other facilities in the bottom floors would make the area nicer.”*

Many of the respondents mentioned the fact that they could not see any balconies on the images of the Sankt Erik area. A clear indication that having a balcony is something important.

Another comment about the details was: *“Small details, such as different windows and inward shifts in the facades on the top floor create a nice variation.”*

Colours

Figure 18 displays how the respondents described the colours in the Sankt Erik area. The colours received an average score of **5.33**, a clear indication that the respondents agreed about the colours being warm. One respondent commented the colours as follows: *“The colours are warm, nice and always works. The area is built in a nice older style with ‘grand entrances’ (or the facade makes it look like that, but I know that it is just an illusion). French balconies and the roofs also reflects the historical style. But, I miss balconies that you are able to sit on.”*

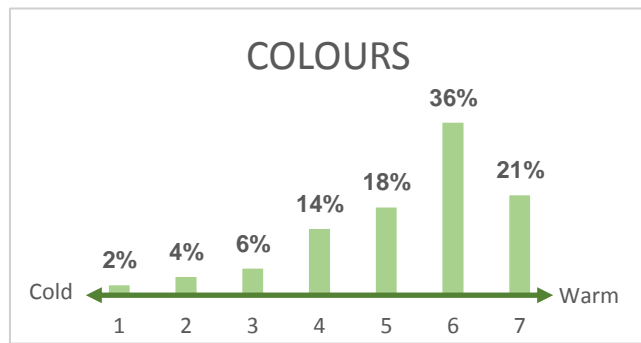


Figure 18: Colours, Sankt Erik

The colours was mentioned 298 times on the open question for the Sankt Erik area. The words *warm*, *comfortable*, *harmonic*, *calm*, *nice* and *lovely* were often used by the respondents when they described the colours of the area. The colours seem to be one of the most outstanding characteristics for the area, and according to below respondent, the area would be boring without them: *“If it would not have been for the variation in the colours this built environment would have been boring.”*

The colours in the area contribute to the diversification, at the same time as they match each other very well and create a harmonic atmosphere, according to the respondents. To cite a third respondent: *“A very nice built environment, harmonic but still diversified in an exciting way. Nice and well-worked details. Inviting entrances. Beautiful colours that goes well together, good diversification with different shapes. Moderate scale on the houses, which are nicely arranged in the area.”*

Style

The style in the Sankt Erik area received an average score of **4.38**. The area is thereby considered to be historical by the respondents. But, as can be seen in Figure 19, many respondents placed the area in the middle. Which could mean that some of the respondents had a hard time to decide if the area was modern or historical.

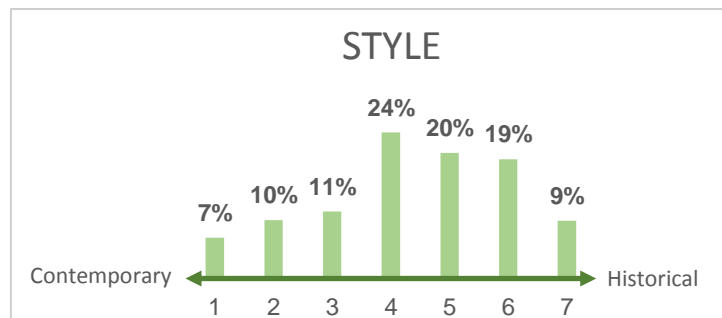


Figure 19: Style, Sankt Erik

On respondent wrote: *“The style is historical but the houses look like they were constructed recently. Very tasteful.”*

The area is considered to be a pastiche by many architects, something that most respondents did not seem to care about. But there were a few persons that did not like it: *“Trying to look like a historical built environment.”*

Another respondent wrote: *“It is hard to see, but I get a feeling of postmodernism (which is something bad in my book). Few balconies. An eclectic mix of different styles that is not very successful. But it is nice with the curved streets.”*

Words like *stylish, old-fashioned, traditional, coherent, monumental, classical, timeless, historical* and *modern* were used to describe the area. The word *historical* was only used by 6 respondents when they described the area in the open question. The word *modern* however, was used by 27 respondents. Many of the comments on the open question were very long and detailed: *“It is very beautiful and cosy since it is built in a traditional style, with visible roofs, pleasant and natural colours and panned windows. It is diversified with different colours and shapes but still look uniform and symmetrical, which gives the area a harmonic impression.”*

By reading the responses it becomes clear that some of the respondents were well aware of the fact that the area was constructed recently, while others did seem to believe that it was an old area that was built around 1920. This means that the architects and the planners that designed the area did a very good job with making it look genuine. Below is an example of a respondent that believes the area truly is historical: *“Older buildings with style. The houses are well maintained which indicate that the people and families that live there are financially strong. It looks diversified, well suited for typical “city people” that constantly are on the go, people who knows what they want and can pay for it. The white house’s look modern, but constructed in accordance with a historical style. The rest of the houses look like they were built in different decades during the 19th century.”*

Originality

Figure 20 shows that the respondents had a hard time to decide if Sankt Erik is original or conventional. The originality versus conventionality is connected to the buildings architectural style and, as mentioned above, the respondents were a little divided when it came to classifying the building as contemporary or historical. The area received an average score of **3.97** on originality, which implies that there were almost as many respondents that considered the area to be original as conventional. This can also be seen in Figure 20, if you look at the declining number of responses as we move away from the middle of the diagram.

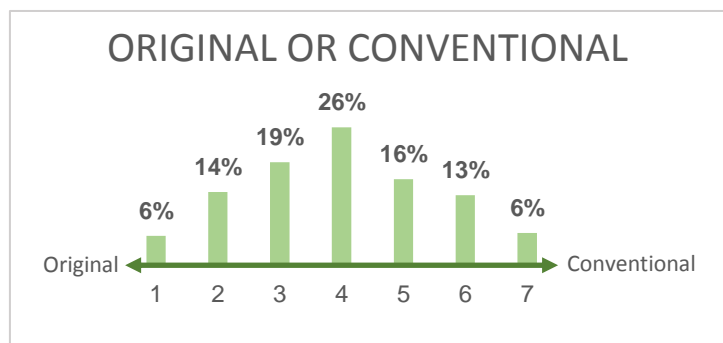


Figure 20: Originality, Sankt Erik

One respondent that commented on the originality wrote: *“A fairly uncluttered and modern built environment. Not very original.”* There were not any other responses on the open question that directly mentioned the areas originality or conventionality.

5.1.2. Stockholm Royal Seaport



Figure 21: Area 2, Stockholm Royal Seaport (the images are photographed by the authors)

Scale

As can be seen in Figure 22, the area was described as large-scale by the respondents. It received an average score of **2.19**. Words that the respondents frequently used to describe the scale in the area was: *large, high buildings, large-scale* and almost “million homes lookalike”.

One respondent wrote: “Even though the number of floors are about the same as in area 1 this area seems much more large-scale. The lack of details and colouring contribute to that impression. The lower left image shows an environment that seems more humane in terms of the scale and the details, that for example the lower right image.”

Another respondent wrote: “Long straight lines makes the area look more large-scale than it really is. In the places where attempts have been made to break the pattern it looks weird. Ugly, boxy balconies that does not look very inviting.”

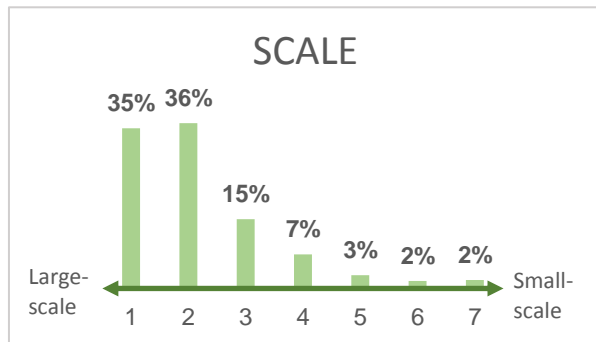


Figure 22: Scale, Stockholm Royal Seaport

Diversification

The distribution of responses in Figure 23 shows that the respondents had quite different opinions about the areas diversification. The diversification in the area received an average score of **3.62** which imply that the majority of the respondents consider the area to be more uniform than diversified. The words that the respondents used to describe the diversification also indicates that some respondents considered the area to be very diversified while others considered it to be uniform. Words such as *little*, *an attempt*, *good* and *large* were used to describe the diversification.

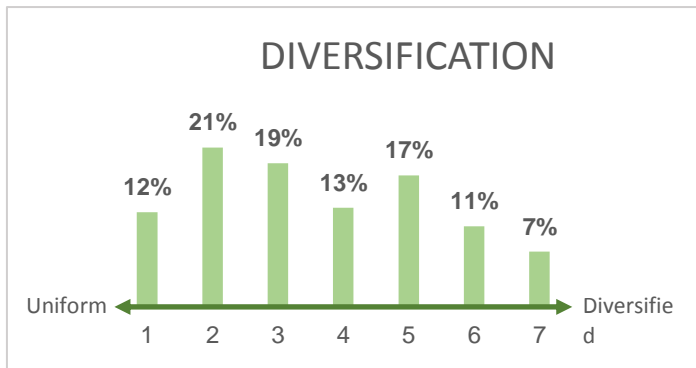


Figure 23: Diversification, Stockholm Royal Seaport

One respondent commented that: *“A diversified built environment. Newly constructed buildings that are placed closely together in order to maximize the living area. All houses strive for uniqueness in order to stand out.”*

Another respondent that also considered the area very diversified wrote: *“It looks surprisingly nice for a modern area since it is colourful and diversified. The colours on some of the buildings are a bit garish though and it almost looks too diversified. I miss visible roofs on the buildings and a more traditional idiom.”*

A respondent that consider the area to be uniform wrote: *“Good variation on the colours but the buildings are very basic and uniform. They do not form a harmonic unit, they appear more as solitaires with distinct (invisible) limits in between themselves. Hard and square.”* Another respondent wrote: *“An attempt to diversification. Unfortunately a rather cold and impersonal built environment. Lack of light, lots of concrete.”*

Level of detail

Stockholm Royal Seaport received an average score of **3.58** (see Figure 24) when it comes to the details. The respondents used word such as *lack of*, *inhumane* and *too many* when describing the details in the area. One respondent wrote: *“Some details, but not very attractive. The architect probably had a too restricted budget in order to make the building beautiful.”* Another respondent wrote: *“It is messy, pastel colours mixed with greyscale. Too many different details on the facades, restless.”* Yet another respondent wrote: *“Messy, unsafe, unnecessary details, no coordination.”* Many respondents seemed to think that the area is a bit messy. Some considered the area to have too many details, while others did not think the area had enough details in order to be original. One respondent wrote:

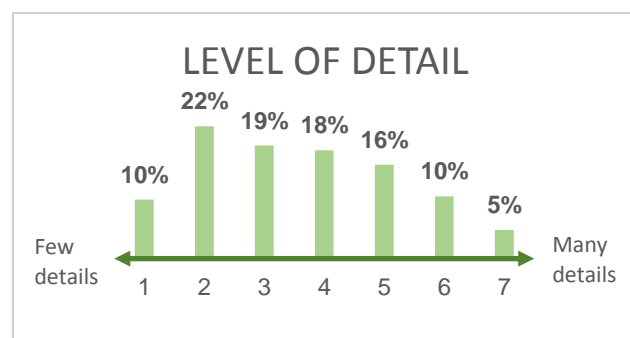


Figure 24: Level of detail, Stockholm Royal Seaport

“Despite many details, the area does not feel original. It probably depends on the fact that there are so many buildings that are constructed today with the same style and concept.”

The respondents probably had different views on what they considered to be “details” on a building. The comments gave a hint that some respondents seemed to consider details as something that should make the building stand out from the other buildings. While some respondents simply considered everything, from facade embellishments, to windows, balconies, etc. to be details. Many respondents had in common that they appreciated when it looks like the details are carried out with craftsmanship. One respondent wrote: *“Unpleasant colours, too many details, “messy appearance”, “fast built” style that is not appealing. It could have looked better if more effort would have been put into the design, the airway and the balconies look as if they were suspended afterwards.”*

Colours

The colours received an average score of **2.95** (see Figure 25). This indicate that the respondents considered the colours in the area to be cold. The respondents used a lot of different words to describe the colours in the area: *boring, cold, diversified, gloomy, ugly, dark, protruding, murky, unpleasant* and *nice*. The diversified colour scale was commented frequently.

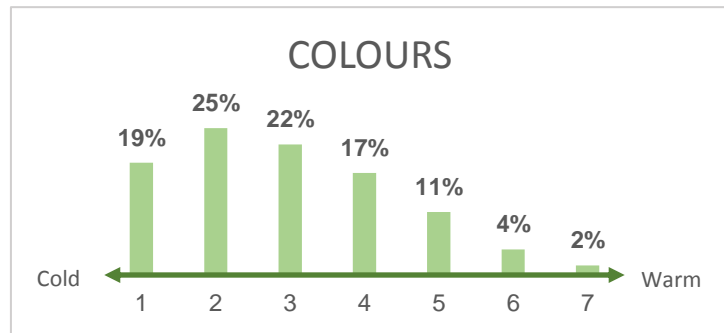


Figure 25: Colours, Stockholm Royal Seaport

One respondent wrote: *“Many different colours, clean lines that comes back in the neighbouring houses.”* Another respondent wrote: *“The pastel colours are nice, but the dark buildings are boring, uninviting and often too dominant compared to the environment they are placed in. Modern and uniform. Probably architect desktop product.”*

Style

Stockholm Royal Seaport received an average score of **2.10** (see Figure 26) on the style, which designate the area a contemporary style. Words used by the respondents to describe the area’s style are for example: *stylish, modern, diversified, contemporary, appealing, boring* and *cluttered*. One respondent commented: *“Pretty contemporary style. Gives a little cold impression but very nice style.”*

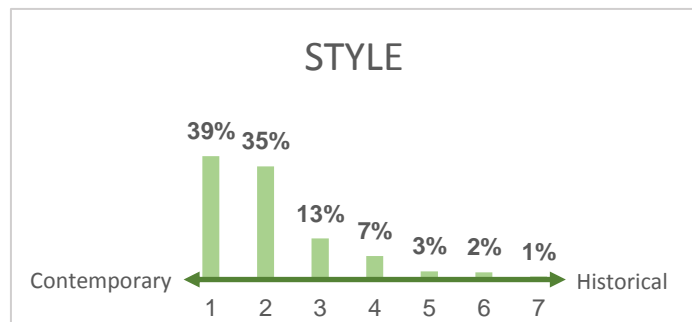


Figure 26: Style, Stockholm Royal Seaport

Another respondent that commented on the style wrote:

“I normally like contemporary style but this looks cold and mass-produced. As a modern million homes program, and that is not a good grade.” A third respondent that also consider the style to be very contemporary wrote: *“It is very easy to date this cluttered style in terms of colours, it is so “à la mode 2015”. Boring balconies with limited possibilities to privacy.”*

The respondents considered the style to be contemporary and diversified, however, something about the style also made many respondent to feel that the area is boring. One respondent, for example, wrote:

“Pretty boring contemporary style. This seems like houses where the “average” Swedish citizens would live, persons with a little more “normal” income compared to the houses in area 1. The buildings in this area does not appeal to me at all. I have never understood why you would build balconies that face a busy street and that overlooks a boring wall of the neighbouring house. It is not the ugliest buildings that I have seen, but this is boring.”

Originality

The area received an average score of **4.57** (see Figure 27) and is thereby considered to be more conventional than original. As emerged under the details section, one of the reasons to why the respondents did not consider Stockholm Royal Seaport to be original was due to the lack of details, which in turn made the area, or the buildings, to not stand out.

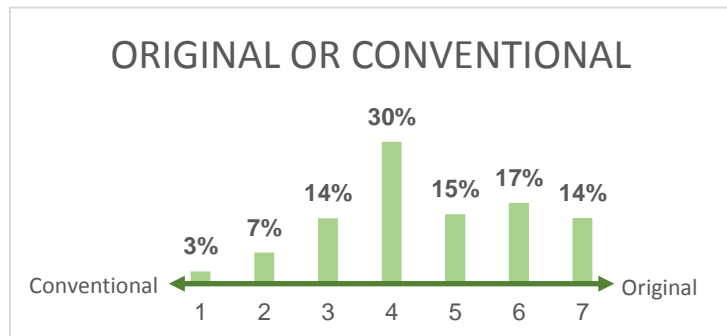


Figure 27: Originality, Stockholm Royal Seaport

One respondent wrote: *“Contemporary style, could be built 2016-2017, three of the houses have a monotone façade. The house at the top right corner has a more interesting façade with some more original features.”* Another respondent wrote: *“Modern and a little bit conventional; not exciting but nice.”*

It appears as if the respondents agreed about that the area was conventional because there are many other modern buildings and areas that look similar: *“Gloomy colours, conventional and large-scale built environment with many large windows. Flat roofs and way too big and heavy attached balconies. The style breathes mass-production with ambition to be diversified and appealing. This is however not successful. There are way too many buildings that are placed too densely together, which gives the area too little air and sunlight.”*

5.1.3. Hammarby Sjöstad



Figure 28: Area 3, Hammarby Sjöstad (the images are photographed by the authors)

Scale

By observing Figure 29, Hammarby Sjöstad is clearly considered to be large-scale. The area received an average score of **2.05**. Many respondents wrote in the open question that the area is large-scale: *“Large-scale, few details, neutral or cold colours.”*

Another respondent wrote; *“A lot of large glass sections. Not very colourful. Large-scale. Too much white, black, grey and square shapes.”*

A third respondent commented: *“Large buildings, a lot of glass and windows, shiny materials. Businesses in the bottom floors.”* The respondents were united in their perceived impression of the scale in the area, both if you look at the average score and the comments in the open question.

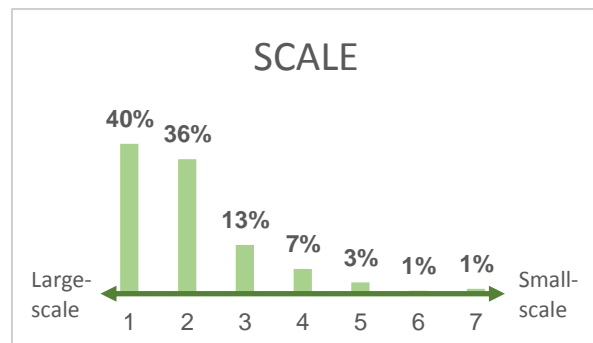


Figure 29: Scale, Hammarby Sjöstad

Diversification

Hammarby Sjöstad received an average score of **2.90** on diversification, see Figure 30. The area was thereby considered to be rather uniformed by the respondents.

One respondent wrote: *“Nice with businesses on the ground floors, they contribute with diversification and adds some life into the street scape. Good balconies on one of the buildings. It is important with some depth and width on balconies in order to make them usable for dining tables and relaxing opportunities. On*

the rest of the buildings the balconies are a bit too small and in some cases they are integrated into the facade, which does not contribute with as much diversification and airiness as an attached balcony does.”

Another respondent that seems to only considered the buildings appearance and not for example the businesses on the bottom floors wrote: *“Too straight and boring, without diversification. Too much glass. Not cosy.”*

A third respondent that considered Hammarby Sjöstad to be more diversified than Stockholm Royal Seaport wrote: *“A bit more diversified modern style but still cold.”*

A fourth respondent who liked the large balconies and windows wrote: *“There are more air around the houses in this area which gives it a nicer feel than area 2. Even though these houses are rather high as well. Large windows and balconies contribute a lot to the diversification in the area. The colours varies, the houses with colour are a lot nicer than the grey and white houses. If the entire area has similar houses this will become pretty boring, but it is hard to judge here. Based on what the images shows the overall impression is pretty good.”*

Many respondents liked the businesses on the ground floors. The respondents thought that it gives the area a livelier, city-like atmosphere and also contribute to the diversification. Besides from that, the respondents described the area as pretty neutral. They mentioned that the windows and balconies add diversification to the area, as well as the different façade materials, but the colours does not stand out.

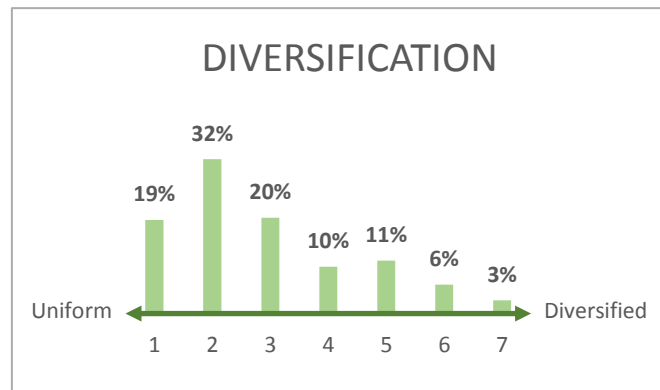


Figure 30: Diversification, Hammarby Sjöstad

Level of detail

Hammarby Sjöstad received an average score of **3.21** on the details (see Figure 31), indicating that the area is considered to have rather few details according to the respondents.

The open question resulted in comments such as: *“Very straight lines and uniform buildings without any diversified details or shapes. Cold colours. Anonymous.”* and *“Brighter colours, few details, the materials are OK, it could be more diversified in terms of varying building heights. The entrances are just plain and ordinary, the balconies are large.”*

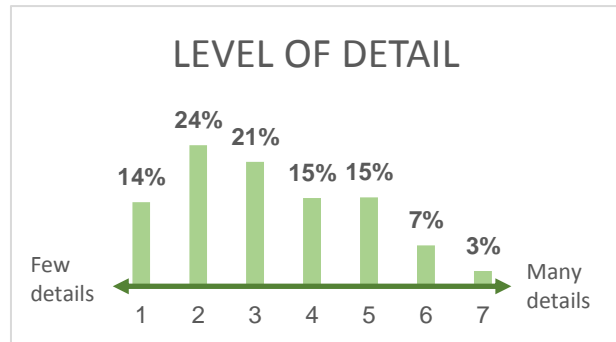


Figure 31: Details, Hammarby Sjöstad

A third respondent that mentioned the details wrote: *“The area has a marine style that looks very cold and boring due to the monotone appearance, there are no beautiful details and no colourful buildings. It looks as if some of these buildings will not age in a gracious way, the white plaster will become ugly within a few years.”*

Colours

The colours in Hammarby Sjöstad received an average score of **2.95** (see Figure 32). The area is thereby considered to have relatively cold colours. The colours in this area received more positive comments than the colours in Stockholm Royal Seaport, for example: *“More inviting than area 2. I like the colours in the area and the fact that the area looks inviting and warm. I like when the with/grey/black colour scale on the facades. It makes the area feel uniform despite different architectural expressions.”*

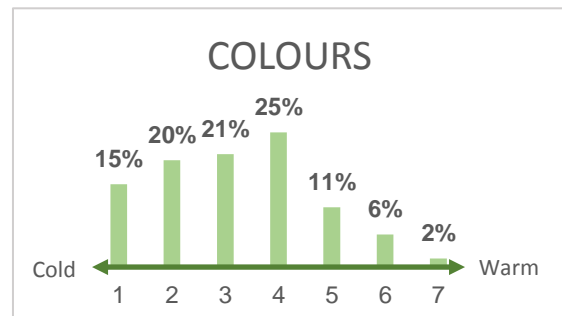


Figure 32: Colours, Hammarby Sjöstad

Another respondent wrote: *“Light colours and more airy than area 2. The houses are good looking in terms of their architecture but the area feels impersonal.”*

Many respondents mentioned the fact that the colours are neutral and light: *“A bit more neutral colours. Different sizes on the windows. Looks like spacious balconies. Large, bright glass sections.”*

However, there were some respondents that were not too positive to the colour scale: *“This area also have an appearance as ‘very designed’, but it is not very inviting in terms of a living environment. The facades are too smooth and gives a too hard impression, alternatively the area is too repellent in its colours.”*

Style

The style in Hammarby Sjöstad received an average score of **1.96**, indicating that the respondents considered the area to be very contemporary. The style in Hammarby Sjöstad is described as cold and stripped off by many respondents: *“Cold surfaces, unfriendly facades, build-in balconies with steel railing, stripped off style.”*

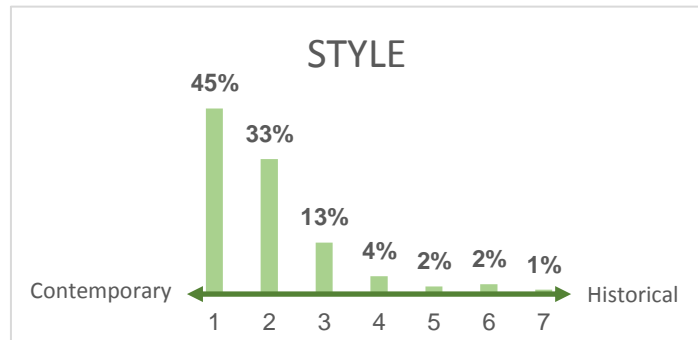


Figure 33: Style, Hammarby Sjöstad

As Figure 33 indicates, the respondents also considered the area to be very contemporary: *“Contemporary style and small-scale production with appealing shapes and colours. Nice and integrated balconies with large windows that let in a lot of light. Roof terraces with opportunities for public use which contribute to increased comfort. Shops in the ground floors contribute to a lively atmosphere.”*

Another respondent wrote: *“Good shapes, scale and proportions. Modern and attractive. Nice colours but there is nothing special that makes the built environment extra attractive.”*

The respondents mentioned several times that they prefer this area in front of area 2: *“Better than area 2... Modern and stripped of style. More stylish and therefore more attractive.”*

Another respondent wrote: *“More my kind of style. The colours are bright but a little boring. The house bodies are a bit too heavy. But pretty OK. I miss some fantasy in the architecture. The houses are very traditional, they look like everything else that is built today. Nothing new, it feels like mainstream.”*

Originality

When it comes to originality the area received an average score of **4.46** (see Figure 34), which means that the area was considered as more conventional than original. The originality did not receive many comments in Hammarby Sjöstad.

The respondents that did mention it wrote: *“These houses are a bit more original, with more things going on in the facades and large surfaces covered with glass.”*

Nice big windows and businesses on the ground floor” respectively *“Large-scale, contemporary due to the glass but also conventional in terms of the design that is very typical for our time.”*

Again, the comments about originality indicate that the respondents demand that the buildings have some details or features that make them stand out from all the other buildings in order to be considered original.

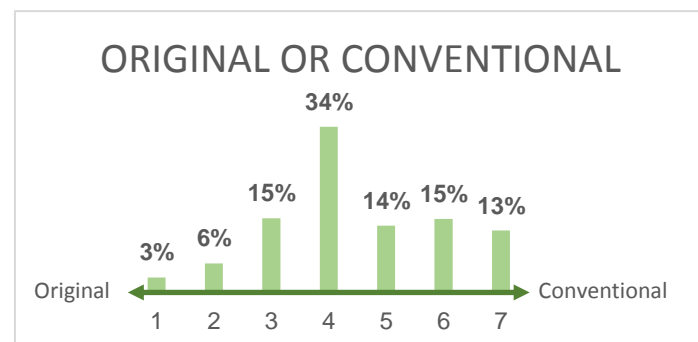


Figure 34: Originality, Hammarby Sjöstad

5.1.4. Ursvik



Figure 35: Area 4, Ursvik (the images are photographed by the authors)

Scale

Ursvik received an average score of **2.44** on the scale, see Figure 36. The area is thereby considered to be quite large-scale. Some respondents wrote that the area seems more large-scale than it really is: *“The area appears as more large-scale, even if the houses are nothing near skyscrapers. Do not really know what to compare with... Feels like new suburb – the same as area 2. None of the entrances are very inviting.”*

Another respondent wrote: *“Oops, anxiety. Difficult scale – neither city nor suburb. Meaningless houses where dots of colour on the balconies are supposed to make them a bit more exciting.”*

Another respondent simply wrote that the area was large-scale: *“Very modern buildings. Details that stand out. Large-scale and a balcony with a personal style.”*

There were 15 of the respondents that made references to the million homes programme in the open question for Ursvik: *“Large-scale, compact and boring built environment, feels like suburb, a modern million homes programme.”*

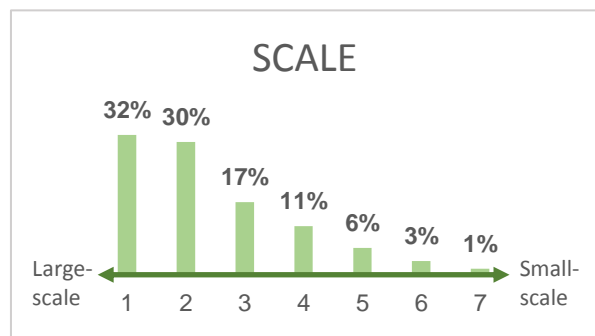


Figure 36: Scale, Ursvik

Diversification

Ursvik received an average score of **3.30** on diversification. As can be seen in Figure 37, there were slightly more respondents that did consider the area to be uniform. Many respondents took notice of the ambition to create a diversified built environment, although it seems like some of them did not consider it to be enough to achieve diversification. One respondent wrote: *“Good ambitions in trying to create a diversified built environment.”*

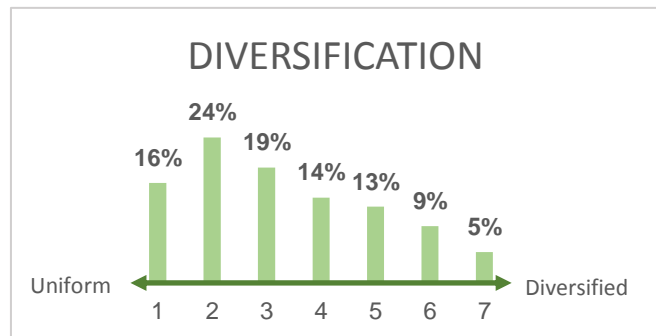


Figure 37: Diversification, Ursvik

Another respondent wrote: *“If this is one single area the four images does show a diversified built environment, which is positive.”*

A more critical respondent wrote: *“This looks like cheap, boring boxes of bad quality. The garish colours and the visible joints from the pre-fabricated concrete elements are very ugly. This is neither uniform nor diversified and it is not large-scale nor small-scale, it is a weird mix of everything which makes the area soulless, without any identity of its own.”*

Level of detail

In terms of details, Ursvik received an average score of **3.03** (see Figure 38). The area received the lowest average score out of the four areas and is thereby considered to have the fewest details. The details that can be found in the area, especially the balconies, have very garish colours.

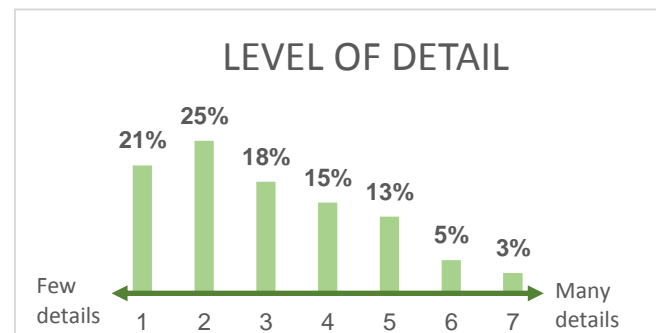


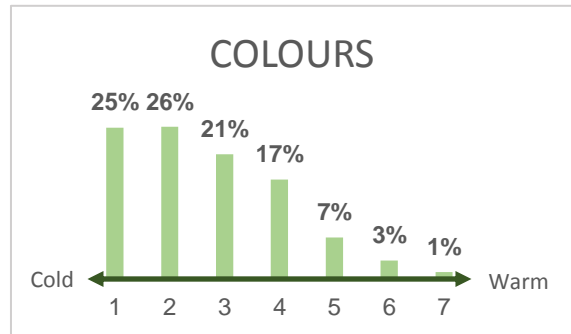
Figure 38: Details, Ursvik

This was something that many respondents did comment: *“The houses on the top left image are nice, the balconies’ create a pattern in the facades’. The black boxes are awful. Large lumps of colour, like the orange balconies, are also ugly. It is hard to match the furniture to the balconies when they have such garish accent colours.”*

The respondents also commented on the fact that the facades are relatively simple: *“Very rigid and cold. Boring details, it does not feel as if the architects were able to work enough with the facades, perhaps because they were controlled in the detailed development plan.”* The word boring is frequently mentioned in the open question for Ursvik: *“Contemporary suburb. Boring architecture with few details.”*

Colours

The colours were considered to be cold by the majority of the respondents. The average score that the area received was **2.68**, see Figure 39. As can be seen on the images, the area has some colourful details, which received a lot of comments by the respondents: *“Here the architects have tried to ease up the atmosphere with colourful balconies – perhaps it would have been a better idea to plant some trees.”*



Another respondent commented something similar: *“The attempt to create originality by using strong colours on the balconies does not appeal to me. There are too little greenery.”*

A third respondent that mentioned the colours wrote: *“The colours on the balconies was not very appealing. Quite common looking houses, nothing that stands out.”*

Finally, a fourth respondent wrote: *“The garish colours are something that you will get tired of rather quick! Too cold and too garish colours and too many square shapes. The built environment does not feel welcoming or inviting. It is clearly less lavished than the other areas.”*

The majority of the respondents simply does not like some of the strong colours in Ursvik. However, they did like different colours on facades and other details, but the design in Ursvik did clearly not please the respondents. Based on the comments, the garish colours on some of the balconies seems to be the main issue.

Style

The style in Ursvik received an average score of **2.12** (see Figure 40), which classifies the area as contemporary based on the questionnaire respondents' opinions. The respondents that mentioned the style in the open question also wrote that the area is *modern*, quite many respondents also mentioned words such as *suburb* and *million homes programme* when describing the style of the area. For example:

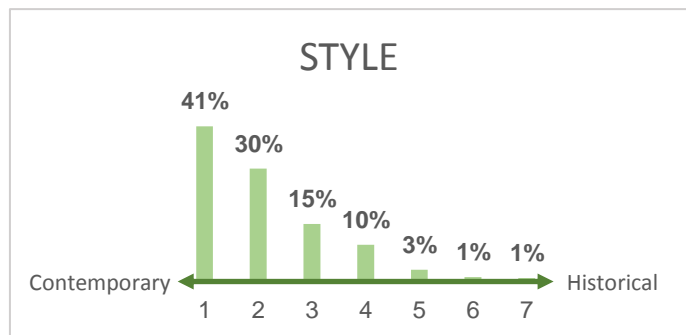


Figure 40: Style, Ursvik

“Spontaneously, the feeling is boring suburb, where attempts have been made to make the area more attractive with colourful balconies. This style will be associated with the 2010s when we look back. I would definitely not want to live here!” Another respondent that seemed to like the style a bit more wrote: *“Coherent contemporary style with nice colours. But, the flat facades gives a way too monotone impression, it seems cold. The entire façade of balconies gives a cluttered impression, the best is a combination of the two.”*

Originality

The originality received an average score of **4.46** in Ursvik, see Figure 41. Once again, the respondents made references to the colourful balconies: *“Nothing is characterizing about the area. You cannot make an area original just by adding some garish colours on the balconies.”*

References were also made to the million homes programme: *“This feels like an attempt to make a large construction project original. It brings the thoughts to large housing complexes that were construction during the 60s and 70s.”*

One respondent mentioned the word conventional, and nothing else. Otherwise it was the word *original* that was most frequently mentioned for Ursvik but in the sense of *not* being original.

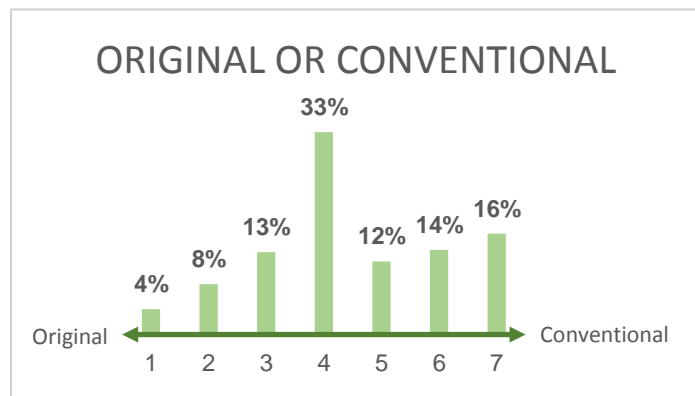


Figure 41: Originality, Ursvik

Important aspects in development of new areas with multifamily houses

In the questionnaire's final question the respondents were asked about what they, in general, consider is important to have in mind in the development of new multifamily residential areas. Green areas and vegetation was most frequently mentioned by the respondents in the open question. One respondent wrote: *"Humane environments with lots of vegetation. Shift the focus from the buildings and include the space around them as well. Create a diversified built environment, with safe traffic solutions and diversified architecture. Shops, service and other facilities in the bottom floors of the buildings. Actual streets with sidewalks and a mix of offices and residential properties."*

Light and safety was also mentioned by many respondents. The comments concerning light were related to the shade of the facades, the light in the apartments, and most frequently, the respondents stated that it was important that the outdoor environments around the buildings and the entrances were well lit. Well-lit outdoor spaces contribute to a safer outdoor environment. In terms of safety, the respondents also considered it important to not have areas that are "hidden". There should for example not be too heavy shrubbery and the layout of the buildings in the area should not create any remote spaces, as one respondent wrote: *"It is important with diversification, greenery and small parks – but the parks still have to be open and not form hidden and unsafe places. The lightening should be delightful and the design well thought through since we have such a long period of darkness... The quality should always be high, especially considering the prices on today's housing market."*

The respondents also mentioned that the built environments' aesthetics are important. The built environment should be nice to walk through, the walking paths through the area should be carried out with circular shapes, not straight and square: *"Uniformity should be avoided by creating diversification with the house bodies. Preferably winding streets and pathways in order to soften the environment. Parks and greenery should be integrated between the different house sections"*. The area between the buildings should invite to different kinds of activities, such as gardening, barbequing, socialising and entertainment opportunities for both children and adults. The natural variations in the landscape and grown up trees should be preserved if possible. The houses should be beautiful with light and warm colours that age gracefully and matches each other well. The built environment should be diversified in terms of details, ornamentations, building heights and different shapes. Many respondents specifically pointed out that they desire a mix of square and circular or softer shapes, not only square and boxy buildings: *"Soft lines. Round shapes. Warm colours. Lots of greenery. If you would imagine a garden with several rooms and different buildings that blend into the garden on its own unique way. Precisely like us humans. Who wants to be angular, stiff and boxy? Humans are formed after the environment in which they live in."*

The respondents particularly point out the importance of avoiding environments that feels "mass produced": *"It is important that the built environment does not become stereotype and look like it has been 'mass produced'. Diversification, light and balconies are important."* The feeling of "originality" is important, even if it is created with small means. They also express that the housing developers could become better at constructing homes that target the needs of certain groups: *"Who are supposed to live in the buildings? I value a large balcony higher than a large bedroom while others desire the opposite. In my opinion, newly constructed residential buildings target a very broad group, but why? Why not target more specific groups of buyers so that people's different needs better are fulfilled?"* Today, everybody are assumed to desire exactly the same product. An example that is mentioned several times is generational housing, where one large apartment would include one smaller and one bigger apartment, each with their own entrance. This would make it possible for grandparents to live in proximity to their

children and grandchildren, or make it possible for the young adults to get their “own” apartment without forcing the parents to buy one for them.

Also in the open question the respondents pointed out that garish colours are not desired. The colours and materials should be resistant, both in terms of how they age and how timeless they are: *“Beautiful and soft colours on the facades, no garish accent colours on for example the balconies or other parts of the buildings. Large inviting balconies.”* Large balconies seemed to be very important to many of the respondents. However, it was important that the balconies were fairly private. The same with the insight into the apartments, which should be limited. Several respondents referred to *“animals on the zoo”* or *“fishes in an aquarium”* when they described their feelings in the case of too little privacy and too much insight into the balcony and apartment.

The respondents also thought it was important that multifamily houses are mixed with other facilities such as businesses, restaurants, sport halls, childcare, retirement homes, and other service facilities. The respondents prefer to live in an area that are alive from early morning to late evening, something that also contribute to the safety of the area. A grocery store and public transportation was especially desired to have within 5 to 10 minutes from home. Good public transportations, safe cycle paths and storage opportunities was important, many respondents also pointed out that there must be enough parking spaces for vehicles. The parking spaces should preferably be located in the same building and an elevator should provide easy access from the apartment straight down to the garage. They also thought it was important with sufficiently enough guest parking places. A community room that can be rented was something that many respondents desired. Gym, swimming pool and overnight apartment was mentioned as desired amenities by some respondents. Lastly, there should be enough with garbage bins and recycling opportunities.

5.1.5. Robustness of Questionnaire Result

As mentioned in Chapter 2, a large share of the respondents, 51 percent, were situated in Stockholm County. Stockholm County covers a large geographical area and the images included in the questionnaire did not show much of the surrounding environment. The images only included the buildings, so it is not very likely that all the respondents situated in Stockholm County recognises any of the four areas. Not even all the interviewees, who are active in the construction industry and live in Stockholm County, did recognize all the areas (*which can be read more about in the second section of this chapter*). However, some respondents to the questionnaire were able to identify one or several of the included areas, and even though they were asked to ignore the areas location, these responses are most likely slightly biased. Some respondents even pointed out in the open question that they did recognise the areas. Since the questionnaire only focus on the exterior architecture, the overall questionnaire result should not be affected by the fact that some respondents recognised one or several areas. The open questions also provide more detailed answers on what the respondents like or dislike in each area, and these responses would probably not change significantly whether the respondents were aware or unaware about the areas location.

As mentioned previously in Chapter 2, the age group “18-30 years” were underrepresented among the questionnaire respondents. Since it is the younger respondents that are going to live in the houses and the society that is shaped today, their opinions are very important. It would be wrong to only consider the older generations’ opinions when shaping tomorrows built environment. To reassure that the opinions of the age group “18-30 years” follow the overall questionnaire result, a robustness check was conducted. By comparing the average score received by each of the four areas from all of the respondents, respectively respondents under 30, it was possible to see if the respondents under 30 agreed

with the overall questionnaire result. As Table 6 shows, the respondents under 30 gave all four areas higher average scores. The respondents under 30 also preferred Stockholm Royal Seaport before Hammarby Sjöstad. In fact, Stockholm Royal Seaport and Sankt Erik received the same average score. This result is quite different compared to the overall questionnaire result, where the average score placed Stockholm Royal Seaport on third place. However, the number of respondents in the age group “18-30” were too few in order to be able to draw any conclusions about the group’s preferences. But at least the “18-30” age group did rank Ursvik as number 4 and Sankt Erik as number 1, based on the average scores, which is in line with the overall questionnaire result.

Table 6: Average score, comparison age groups

	All respondents	Respondents under 30 years
Sankt Erik	7,0	7,6
Hammarby Sjöstad	5,0	6,1
Stockholm Royal Seaport	4,1	7,6
Ursvik	3,3	4,3

When studying the comments on the open questions from the respondents under 30 years old, most of the comments about the areas were neutral or positive. Sankt Erik was very appreciated by the respondents under 30 years as well. It was also clear that the respondents under 30 did not consider Ursvik to be an attractive area. When it comes to Hammarby Sjöstad and Stockholm Royal Seaport, the comments on the open question were neutral, and many respondents could see positive qualities in the two areas. However, many respondents in the younger age group commented that they desired more round shapes, more greenery, a more small-scale built environment and they pointed out that it is important that the apartments and balconies offer some privacy. In the respondents’ opinion, the houses are placed too densely together in many newly developed areas, resulting in very little privacy. Something that also should be considered when analysing the young age group’s responses, is that a large share of the younger generations have a very hard time maintaining their own apartment. The respondents did most likely relate to their own housing situation when they rated the four areas, and if you do not even own an apartment nor possess a rental contract, you are most likely more welcoming to all kinds of new housing. The younger generation has also grown up surrounded by our times contemporary architecture, and since they are more familiar with it, there is also a greater chance that they find it attractive. Remember from the theory section that humans tend to increase their liking for an object the more times we are exposed to that object.

5.2. Interviews

The result from the interviews are presented in two parts below. The first part presents a compiled result from the main interviews, consisting of a total of seven interviewees, which all were asked the same set of questions. The second part presents the result from the last and eighth interviewee, who was asked a different set of questions, of more concluding character, than the first seven interviewees.

5.2.1. Result from the Main Interviews

The result from the main interviews are presented below. The main interviews consisted of interviewees 1-7 presented in Table 3 in Chapter 2 and they are here referred to as their respectively initials. The main interviews did all include the same questions which can be found in Appendix B. The result from the main interviews have been compiled together and divided into the six following sections.

Background

All of the main interviews started with some background questions about the interviewees' education, previous work, current work, their relationship to design and project development and their knowledge about Skanska Sweden's Housing Platform.

Five of the seven main interviewees worked at Skanska in different roles in either the production or the development phase of multifamily houses. S.K. worked as a Production Manager with responsibilities for everything that concerns the production such as time planning, production costs, skilled workers and so on. Three of the interviewees, S.W., T.K. and P.I., were also employed at Skanska's contractor branch but they still mostly worked in the development phase before the start of the production. S.W. worked as a Design Manager and her main task was to lead the work with the design such as the conduction of both architectural and structural drawings for each project. T.K. worked as an Estimator Manager and his main task was to lead the calculation work for several projects and he also did some own calculations for some projects. P.I. worked as Project Manager in the early phases and his main task was to represent the developer. This meant that he coordinated everyone that works with the conduction of the detailed development plan for each project and he held the contact with the municipality. A.S. worked as a Market Area Manager at the department for Skanska's own developed residential houses. A.S.'s main task was to lead those who work as project developers and she worked in all phases from the conduction of the detailed development plan to after sales.

The five interviewees from Skanska either had an exam in building technology from a four year long secondary education or a university exam in engineering. They had all been working in the construction industry for many years in various organizations and/or in various roles.

The interviewees employed at Skanska did all know about Skanska's Housing Platform and most of them worked with the platform on a daily basis. S.K. were the only one from Skanska that did not really work with the platform since he worked with projects close to the inner city where the architectural requirements required them to go outside the framework of the platform.

Two of the seven main interviewees worked as architects at two different architectural firms. L.K. worked at Wingårdhs and K.M. worked at Sandellsandberg. L.K. and K.M. worked much with designing residential houses for various developers and at the time for the interviews, they worked with proposals for the Activity Based City which have been described earlier in the report in Chapter 2. Both L.K. and K.M. has a master degree in architecture and had been working as architects for 6 respectively 9 years. Neither of L.K. or K.M. had heard about Skanska's Housing Platform but they could imagine what the platform is about.

Ranking of the questionnaire's four areas according to preferences

After the background questions, the interviewees were shown the same images from the same areas that were included in the questionnaire. Then the interviewees were asked to rank the four areas according to their own personal preferences and to explain their reasoning. Just like the respondents to the questionnaire, the interviewees did not get any information about the areas at this stage of the interviews.

The interviewees ranking according to their preferences are shown in Table 7 below. As can be seen in the table, 100 % of the interviewees (7 out of 7) ranked Sankt Erik as their most preferred area and Ursvik as their least preferred area. 3 out of 7 interviewees ranked The Royal Seaport as their second most preferred area and 4 out of 7 interviewees ranked Hammarby Sjöstad as their second least preferred area. All of the respondents did recognize Sankt Erik and Hammarby Sjöstad by looking at the images. The Royal Seaport was recognized by S.W., L.K., K.M. and A.S. while Ursvik was only recognized by S.K.

Table 7: The interviewees' preference ranking of the four residential areas. Ranking 1 is the interviewees most preferred area and ranking 4 is their least preferred area.

The interviewee	The interviewee's ranking			
S.W.	1. Sankt Erik	2. The Royal Seaport	3. Hammarby Sjöstad	4. Ursvik
T.K.	1. Sankt Erik	2. The Royal Seaport	3. Hammarby Sjöstad	4. Ursvik
L.K.	1. Sankt Erik	2. The Royal Seaport	3. Hammarby Sjöstad	4. Ursvik
K.M.	1. Sankt Erik	2. Hammarby Sjöstad	3. The Royal Seaport	4. Ursvik
A.S.	1. Sankt Erik	2. Hammarby Sjöstad	3. The Royal Seaport	4. Ursvik
S.K.	1. Sankt Erik	2. Hammarby Sjöstad	3. The Royal Seaport	4. Ursvik
P.I.	1. Sankt Erik	2. Hammarby Sjöstad	3. The Royal Seaport	4. Ursvik

S.W. and A.S. ranked Sankt Erik highest because they liked its classical style with associations to the 1920's. A.S. especially liked the structure in the architecture such as the windows being symmetrical arranged. S.W. on the other hand, especially liked the houses warm colours in orange and yellow which P.I. also mentioned in his interview. S.W. got a feeling that the houses have been standing there for a long time, even though she knows the area is built in almost the same decade as the other areas, and this in turn gave her a feeling of a more functioning neighbourhood. Similar to S.W., S.K. mentioned that he liked the expression of the houses being old with their paned windows and dormer windows. Additionally, S.W. shared a feeling with T.K. and S.K. of Sankt Erik being homely and pleasant.

T.K. and P.I. liked the environment in between the buildings which they thought was nice and well thought through. The environment in between the buildings is also the one thing that K.M. liked the most about Sankt Erik. K.M. explained that he thinks it is important to work with the volumes of the buildings since these defines the public spaces. He thought this had been done more successful in Sankt Erik than in the other three areas. L.K. agreed to K.M. that it is not the style on the houses that he likes about the houses in Sankt Erik. L.K. reasoned like the following:

“Sankt Erik has many positive qualities since one has invested more money on forming the details in this area and there is a traditional willingness in the aesthetical design. Though, I think the architectural style in this area is historic and that they have tried to mimic the environment in Stockholm that was built hundred a years ago. We do not live in this kind of neighbourhoods today. The society develop and the architecture develop and the architectural design in Sankt Erik is to take a step back. I think that is something totally uninteresting and irrelevant in a modern urban development perspective. Though, there is a willingness of doing things with quality that may be missing in the other three areas. On many of the other areas' buildings I also think you can notice cheap materials and cheap facades. In these

areas they have also tried, but not succeeded, to achieve a human scale by, for example, using big and small windows that jumps back and forth. I do not think this is a good way to build a city either. I think the money should be used in the right place and that the environment that comes closer to the human, the streetscape, should be built with a higher cost. That is how it has been done traditionally when building a city. It may be more expensive materials at the bottom and cheaper materials upwards so that the environment that is experienced by the humans has the highest quality. This is why I rank Sankt Erik the highest, and it is not about the architecture, it is about the ambition.”

That is, L.K. did not like the architectural style in Sankt Erik because of its association to older architecture. Although, L.K. preferred the area among the four areas since he thought there is a good ambition in Sankt Erik with many positive qualities and that the resources have been prioritized to be used in the best possible way to give value for the humans. L.K. ranked The Royal Seaport secondly because he thought the area is *“much denser than Hammarby Sjöstad and more similar to the inner city with bigger variations among the buildings and quite much willingness in its aesthetical design.”*

Even though K.M. did not rank The Royal Seaport secondly as L.K. did, he still agreed to L.K. that The Royal Seaport holds a great advantage with its high density since he thought it *“leads to an active, sustainable, and livable city”*. However, K.M. ranked Hammarby Sjöstad before The Royal Seaport because he thought area is *“in practice a more vibrant neighborhood with more liveliness than it currently is in The Royal Seaport”*, thanks to all of the activities located in the ground floors in Hammarby Sjöstad. Even though L.K. did not rank Hammarby Sjöstad as high as K.M. he agreed with him that Hammarby Sjöstad has become an interesting city district with *“much care for residential qualities such as south facing balconies and closeness to water”*.

S.W. and T.K. did, just like L.K., rank The Royal Seaport on second place and Hammarby Sjöstad on third place. S.W. actually thought that all the areas, except Sankt Erik, were pretty similar to each other. Although, she thought The Royal Seaport felt a bit more interesting, lively and varied with its different height levels, colourfulness and balconies standing out. S.W. ranked Hammarby Sjöstad on third place since she thought the area had plain and boring facades in comparisons to The Royal Seaport. T.K. agreed to the others that The Royal Seaport is very varied. T.K. explained that he ranked The Royal Seaport on second place because he thought that they have *“succeeded to make area 2 [The Royal Seaport] look varied”* and because he felt that *“even though the building height is higher in area 2 it still feels more small scale in area 2 than in area 4 [Ursvik]”*. T.K. did not like Hammarby Sjöstad because he thought it had too much glazing and a feeling of office environment. But A.S., S.K. and P.I. who ranked Hammarby Sjöstad at second place, just like K.M., agreed to K.M. that Hammarby Sjöstad’s feeling of being a city with residential buildings, shops and offices is one of the greatest advantages of the area.

All of the interviewees ranked Ursvik on last place and even though most of them did not recognize the area (and did therefore not know about its location either), there were many of them who got a feeling of suburb from the area and guessed that the area is located far from the inner city. The interviewees had many other similar opinions about Ursvik, such as they thought it looks cheap, pre-fabricated and sterile. For example, L.K. described Ursvik like this:

“Area 4 [Ursvik] feels very cheap produced, one has varied colours on the render to create a variation in the street life and that does not feel very worthy to the humans.”

S.W. also underlined that the facades in Ursvik did not feel well-made and that she did not like the garish colour on the balconies. A.S. did not have that many comments about Ursvik, she just told the following:

“I did mainly stuck to that it look like boring boxes, nothing really happens here.”

Ranking of the questionnaire’s four areas according to costs

When the interviewees had ranked the questionnaire’s four areas according to their own personal preferences regarding the exterior architecture, they were asked to rank the same areas again but according to another parameter. This time the interviewees were asked to rank the four areas based on their estimation of the areas’ production costs and they were asked to base the ranking on what they believed that they and their project team could accomplish if they would build the area today.

The interviewees ranking after their estimation of the areas’ production costs are shown in Table 8 below. As can be seen in the table, the interviewees’ ranking after their estimation of the areas’ production costs varied more among the interviewees than it did for their ranking according to their personal preferences regarding the exterior architecture. The majority of the interviewees (4 out of 7) ranked Sankt Erik as having the highest production cost and almost all of the interviewees (6 out of 7) ranked Ursvik as having the lowest production cost. The middle positioned areas in the interviewees ranking was even more varied and two of the interviewees did find it difficult to choose which of their two middle positioned areas should be placed at their second place respectively at their third place. For these reasons, it is not possible to withdraw a separate quantitative result about the second respectively the third positioned areas. Although, the result at least shows that 5 out of 7 interviewees did place The Royal Seaport and Hammarby Sjöstad somewhere in the middle of the interviewees ranking (at the 2nd or the 3rd place).

Table 8: The interviewees cost ranking of the four residential areas. Ranking 1 is the area that the interviewees have estimated to have the highest production cost and ranking 4 is the area that they have estimated to have the lowest production cost.

The interviewee	The interviewee’s ranking			
S.W.	1. Sankt Erik	2/3. The Royal Seaport and Hammarby Sjöstad	4. Ursvik	
T.K.	1. Sankt Erik	2. Hammarby Sjöstad	3. Ursvik	4. The Royal Seaport
L.K.	1. Sankt Erik	2. The Royal Seaport	3. Hammarby Sjöstad	4. Ursvik
K.M.	1. The Royal Seaport	2. Sankt Erik	3. Hammarby Sjöstad	4. Ursvik
A.S.	1. Sankt Erik	2/3. The Royal Seaport and Hammarby Sjöstad	4. Ursvik	
S.K.	1. Hammarby Sjöstad	2. The Royal Seaport	3. Sankt Erik	4. Ursvik
P.I.	1. Hammarby Sjöstad	2. Sankt Erik	3. The Royal Seaport	4. Ursvik

As stated above, Sankt Erik was ranked as having the highest production cost by the majority of the interviewees. S.W. described her reasoning for placing Sankt Erik as having the highest production cost as follows:

“Spontaneously, one would say that Sankt Erik is the most expensive area because there are lots of dormer windows, shifts in the facade, sheet metal roofs, round shapes and so on. But if you look more closely, it is not that much variations, the architecture is pretty simple with its render. Although Sankt Erik still stands out from the other areas.”

Similar to S.W., T.K. described his reasoning for ranking Sankt Erik highest like this:

“What makes Sankt Erik more expensive is that there are lots of details that cost money such as nice entrances, high windows, nice paved facades, some round windows and different levels. But the nice and varied colour scales do not cost any money, it only looks good.”

L.K. and A.S. who also ranked Sankt Erik as having the highest production cost also mentioned many complicated details in this area like round shapes, bay windows and different angles. Even though the majority ranked Sankt Erik as having the highest production cost, many of interviewees did in the same time believe that it would be possible to build similar to Sankt Erik to a lower budget. For example, A.S. said the following:

“We could build similar to this, we can take ideas from the 1920’s and still achieve the same feeling without all the stucco.”

K.M. was the only one of the seven interviewees who ranked The Royal Seaport as having the highest production cost and he reasoned like this:

“There is quite much rendering in Sankt Erik which is a cheaper facade material, while there is much more variation in claddings in The Royal Seaport. I believe that more resources have been used to create volumetric effects in Sankt Erik rather than an expensive facade material.”

L.K. agreed to K.M. that there is a high ambition with facade materials in The Royal Seaport with lots of bricks and masonry work and that Hammarby Sjöstad has mainly rendered facades which he believed should not have such a high production cost. S.K. and P.I. did both, on the other hand, rank Hammarby Sjöstad as number one, unlike the majority who ranked Sankt Erik highest. S.K. described his reasoning like following:

“There is not that much that stands out in Sankt Erik, it is just some roofs, facades and roof terraces. In area 2 [Hammarby Sjöstad] on the other hand, there is much balconies, a lot of glazing and several differently facade materials. And in area 2 [Stockholm Royal Seaport], there is even more glazing and big terraces.”

P.I. agreed to S.K. about the glazing and the terraces in Hammarby Sjöstad. P.I. described it like this:

“If thinking about what one can do today, the houses in Sankt Erik should not be that complicated to build. There is also relatively high houses in Sankt Erik. Therefore, I believe that Hammarby Sjöstad’s sprawling architecture and huge amount of glazing makes it most expensive of the four areas.”

T.K. did also talk about the importance of taking the building height into account:

“Something that affects the production cost a lot is the enclosing area in relation to the gross area, that is: how square the houses are, how big they are, how many levels they have, how dense built the area is and so on. Such things affects the cost per living area with thousands while discussing different sizes on the windows and so on is about hundreds, although, many small sums can also turn into thousands.”

This is the main reason to why T.K ranked The Royal Seaport as having the lowest production cost instead of Ursvik, unlike all the other interviewees, since he thought it was too few floors in Ursvik. P.I. agreed to T.K. about the building height even though he ranked Ursvik last and The Royal Seaport second last. P.I. explained it like the following:

“Area 2 [The Royal Seaport] has a few more floor levels than area 4 [Ursvik] which should place this area last instead but on the other hand, it is much more that is happening in area 2 on the facades. So if we speak cost per living area it should not be such a big difference between area 2 and area 4.”

L.K. on the other hand, ranked Ursvik last of almost the opposite reason to T.K. and P.I. L.K reasoned like the following:

“Everything in area 4 [Ursvik] looks very cheap. The scale in area 4 is also much lower with its 4-5 floors which probably makes its faster to build, decreases the amount of scaffolding needed and so on.”

At last, S.W. and S.K. ranked Ursvik as having the lowest production cost because of its high degree of prefabrication.

Comments on the questionnaire's result

When the interviewees had ranked the questionnaire's four areas both according to their personal preferences and after their estimation of the areas' production costs they got acknowledged about the four areas and informed about the result from the questionnaire. The interviewees were then asked if they got surprised about the questionnaire's result and what they believed were the reasons for the result.

S.W. thought the result from the questionnaire was very interesting and that Skanska should make use of the result. S.W. believed that one of many reasons to why Sankt Erik got the highest average score from the housing panel could be that the colour scale in The Royal Seaport *“has been taken a step further than in Sankt Erik which people may think is too much”*. S.W. also told that another reason could be that Sankt Erik feels like *“the classical inner city from the beginning of the last century”* which people are used too and which in turn may have influenced them to think that a built environment should look like that *“only because they are used to it”*. S.W further explained that one reason to why Sankt Erik is perceived as more small scale than the other areas could be because of the windows sizes since they are narrower and higher, just like in older houses. S.W. meant that it gives a *“petite”* expression, in comparison to the buildings in the other areas which has wider windows and which she believed gives a more *“clumsy”* expression.

T.K. explained that one reason to why Sankt Erik stands out from the other areas could be that it is more of an urban densification unlike the other areas which are entirely new residential areas. T.K. reasoned like the following:

“Cities that get to grow naturally often become successful with time since trees grow up and people can put their own touch to it. The other three areas are more difficult since they require you to achieve a feeling in a totally new area. There is a big challenge to build a completely new city.”

The average scores from the housing panel corresponded to S.W.'s, T.K.'s and L.K.'s ranking except for The Royal Seaport and Hammarby Sjöstad. S.W., T.K. and L.K. ranked, according to their architectural preferences, The Royal Seaport on second place and Hammarby Sjöstad at third place but the housing panel's average scores resulted in the opposite. S.W. described that she thought one reason for this could be that Hammarby Sjöstad may be perceived *“as more open because it looks less narrow between the houses on the images in Hammarby Sjöstad than it does in The Royal Seaport”*. She also thought it could be about what colours you like. S.W. thought that the colours in Hammarby Sjöstad are *“too few and that there are too many shades of white”* and she prefer The Royal Seaport where it is more variation. T.K. thought one contributing factor to the differences in ranking could be that he has been in Hammarby Sjöstad, which the respondents to the questionnaire may not have been. T.K. thought that Hammarby Sjöstad has not given him *“such a nice feeling”* when he has visited the area. L.K. on other hand, thought that the reason for the differences could be that those who know about Hammarby Sjöstad *“have the big and cosy balconies in mind”*.

S.W. further explained that one of many reasons to why Ursvik got the lowest average score from the housing panel could be because of the colouring:

“In Ursvik it feels like they have focused on the colours of the balconies instead of on the houses. This has resulted in balconies with very intense and garish colours that you may get tired of after a few years. There was a time when every balcony railing was supposed to have a different colour, which is something that the architects did come up with, it is not something that we builders have requested.”

When S.W. got told about that the respondents appreciated the buildings with visible roofs in the questionnaire, she said:

“The flat roofs are not that fun and this is a thing that we and the architects have totally different opinions about. The architects thinks the roofs should not be visible at all, that they should not stand out and that no eaves should be visible. I believe that the general people thinks the roofs are welcome to be visible, that the roof is a part of the house and that they are more than welcome to protrude from the house. It almost feels like something is missing on the houses with flat roofs.”

The questionnaire's average scores resulted in the same ranking order as A.S.'s, K.M.'s, S.K.'s and P.I.'s ranking of the four areas according to their architectural preferences. None of them was therefore surprised about the questionnaire's result. P.I. was just a bit surprised that there was such a big gap between the average score for Sankt Erik who got the highest score and Hammarby Sjöstad who got the second highest score. He thought that it would not have been such a big gap between the respondent's scores for Sankt Erik and Hammarby Sjöstad if *“more of them had known about Hammarby Sjöstad since it has such a good entirety”*.

P.I. and T.K. was also both surprised that area 2 was The Royal Seaport. They told that they, most probably, would have ranked The Royal Seaport as having a higher production cost if they would have recognized the area, since they know that the area have a high production cost in the reality. T.K. expressed that he, if he had known that area 2 was The Royal Seaport, would have valued it higher since there is *“so much in that area that cost a lot of money but is not visible, like the biotope area factor, complicated ground works and so on”*. P.I. explained that he did not think the buildings on the images for The Royal Seaport looks *“particularly interesting”* and that there are *“a few bay windows that stands out but otherwise there is quite simple facades and balconies which are not that expensive”*.

Obstacles and opportunities in building similar to Sankt Erik

After the analysis of the questionnaire's result the interviewees were asked to focus a bit more on Sankt Erik since this area got the highest score from the housing panel. The interviewees were asked if they could see any obstacles or opportunities in building similar to Sankt Erik with standardized methods (such as Skanska's Housing Platform) and if they can see any specific obstacles or opportunities for this in their role.

All of the interviewees from Skanska thought it would be possible to build similar to Sankt Erik with standardized methods if simplifying the architecture a bit. Many of the interviewees from Skanska actually thought Sankt Erik had many standardized advantages such as being symmetrical and having lots of repetition with the exception of some complicated details. For example, S.W. told the following:

“I believe it is possible to build similar to this with standardized methods, maybe not all the way through, but it could be simplified a bit and it would still be possible to achieve the same feeling. The architecture is actually pretty simple and relatively symmetrical. I think that much have been done with small means.”

P.I. also thought that they could build similar to Sankt Erik without any “*extraordinary high*” costs even though he meant that there is “*a few details that have to be simplified*”. A.S. agreed to S.W. and P.I. and she said that she would not build “*this kind of houses in the suburb*” but that she “*could take inspiration from it and do it a bit more modern*”.

Some examples of the design features that exists in Sankt Erik and which the interviewees from Skanska recommended to avoid was: complicated roof construction with dormer windows, extraordinary high floor heights, round shapes, French balconies, windows positioned far out in the facade, furnished garrets, balcony doors with double inward going doors, roof terraces, big windows, randomized positioning of the windows, elevated entrances, bay windows, wooden windows, several different roofs, masonry work, too few floors, round windows and shifts in the facade. Although, many of the interviewees also reasoned that if some of these features are highly valued, they thought that the features should be considered anyway and that other less valuable things could be given less means. As an example, T.K. told that “*it can be valuable to do one round building if it gives character to the neighbourhood and if so, you can prioritize it by putting less money on other things*”. S.K. reasoned similar:

“If the exterior is crucial then you should give less means to the interior. For example, the stairwells does not have to be so luxurious, it is just a few people walking up and down to their apartments who sees the stairwell. If you decrease the costs for this, then you can put some more money on the outside. I also think the ground floor should differ from the other floors, it may cost a bit more but I still think it is important in order to not end up with a boring building.”

S.K. and T.K. also told that many of the design features in Sankt Erik actually are quite simple to accomplish, such as details in the facade, crafts in the plaster, ribbed concrete facades and frames around the windows. Many of the interviewees from Skanska also thought it would be possible to generate above mentioned design features with smart and less expensive methods. An example of this, that was mentioned by both S.K. and P.I., is that an illusion of a round form can be created by building several straight facades that shifts in angle after a few meters and by using facade material, such as plaster, you can hide the angles and create the round shape. Although, P.I. pointed out that nothing will be straight inside the building and that it does take longer time to build something like that compared to a building with just a straight facade.

S.W. and many of the other interviewees from Skanska also mentioned that you can do a lot with colours and that it is better to vary colours than materials. S.W. meant that the houses in Sankt Erik actually are very similar to each other. She thought that there is just “*a bit of variation in colours and some other details that should not be so expensive*” and that if you “*played more with colours instead of materials you could achieve something similar to this*”. S.K. agreed to this and explained the following:

“It is both very expensive and a higher risk to vary different materials since it requires several methods and since all the different materials have to meet somewhere. In Sankt Erik it is only one facade material, render, and instead they have varied the facade in different colours. I think it looks good!”

S.K. told about another advantage with the colours in Sankt Erik:

“In general, some colours do get mould growth since there is so much water and moisture. White is a horror for this while it is not equally visible at the colours used in Sankt Erik even if it is not less mould growth there.”

Since there is visible roofs in Sankt Erik, P.I. brought up one advantage with sloping roofs (even though they may not be used for this in Sankt Erik in the reality):

“Pitched roofs are normally easiest to construct. Flat roofs are also quite cost effective but then the question is where we should place the rooms for air handling installations. With a flat roof you either have to build an air-conditioning room on top of the roof which does not look so good or you have to place the installations in the ground floor which means you will lose space for installation shafts through all of the floors. The most rational is therefore to have a pitched roof with room for air handling installations under it, since this is best for both the costs and the aesthetics.”

Although, P.I. underlined that if the only existing height requirement in the detailed development plan is a maximum total height, the developer may prioritize to maximize the saleable space by putting apartments in the last floor and by having a flat roof. P.I. therefore told that he prefer to be part in the commencement of the detailed development plan so that the municipality and the developer can together discuss how the roof construction should be formed. Then the municipality may be willing to let the developer build another floor if they build a pitched roof. Otherwise he think that the municipalities should at least consider to give the detailed development plan both a total height and a building height if they want the neighbourhood to have sloping roofs. Just like S.W. did in earlier questions in the interview, P.I. did also talk about the differences in opinions between architects and the general people when it comes to roofs. He told that he do not think the that the general people thinks about the roofs to the same extend as architects do and that he always advocate to have only sloping roofs or only flat roofs.

S.W. expressed that she thinks it is important for the developer to have a clear vision about the desired design if you want the project to have the same attributes as in Sankt Erik since *“it goes away a bit from what the architects prefer to design”*. S.W. also thought that you have to lock the design in an early stage and to not deviate from it, not even on behalf of the production team. She further explained what will happens otherwise:

“The production team will try to change the design to save money and therefore it is important to both prevent the production team from doing this and to include the production team into the design process so that you can discuss what can be done with small means. If you get the whole organization with you I do not think there will be a problem.”

L.K. was thinking similar to S.W. L.K described that this happens quite often when they work with a developer in an early stage, they create a project with nice illustrations, present it to the city and continue into a detailed development process. After this, the design is being stripped down in several steps through the project process since everyone are trying to save money by, for example, changing the material. L.K. further express that:

“If you know from the beginning what the budget will land on, then it is possible to create an architecture with less means. But if you go to the city in the beginning with something that you know is impossible to do, it is almost a misconduct, from everyone’s side, even from the municipality’s side who believes the project will achieve that result in the end. A process like that could be steered much better and especially in such a big organization as Skanska.”

L.K. believed that one important reason to why we do not build similar to Sankt Erik anymore is because of today’s high labour costs and that this is turn is an important reason to why we try to simplify, prefabricate and standardize today. Although, he believed that it is possible to build pursuant to the attributes that the housing panel seemed to like about Sankt Erik, with modern technology. For example, he pointed out the advantages with prefabrication, such as the possibility to *“tailor the elements to a specific project which does not have to be more expensive”*. L.K further explained the following:

“As a counter pole to the million program’s prefabrication I believe a jump in technology is happening right now and that the construction industry will notice that there is possible to replace the old and cheap craftsmanship with a more varied prefabrication. This is definitely something I think the construction industry should look more into.”

L.K. further told that he thought there is many obvious guidelines in handbooks such as Skanska’s platform and that architects should already know those kind of things. L.K also prefer to be limited to a budget rather than to a platform with design limitations. He meant that if they get a budget they can *“tell directly that that they can concentrate the money on those parts that are important for the street scape and the residents’ environment”* and instead they can *“put less money on other parts that are less important”*. If he nevertheless have to work pursuant to a standardized platform he would at least appreciate to have explanations to the guidelines existences since he meant that it is *“easy to say that it will be more expensive to create variation”* but he wondered how much the cost really is *“in relation to land acquisition cost and other costs in the building”*.

K.M. agreed to L.K. and he did not believe it was possible to build identical as Sankt Erik if you have to strictly follow all the guidelines in Skanska’s standardized platform since he meant that if you have to originate from Skanska’s platform *“saying that a building should not have more than eight corners and that every corner must be either 90 or 45 degrees, there is definitely obstacles to build similar to Sankt Erik”*. Although, K.M. further explained that if you do not have to be limited by the platform he definitely thought it would be possible to build similar to the attributes that can be found in Sankt Erik area without attaining such a high costs. K.M. further explained the following:

“I believe a closer dialog in the early stages with the developer would do a better job than a handbook. We architects may not be as good at cost calculations as someone who works with that, but instead we can help the developer to put the money on the right place. I understand it is difficult to have an exact cost estimation for everything during the conceptual design phase but you can still use key figures to make it more case-specific rather than talking about general limitations.”

Suggestions on improvements to better meet the preferences

In the last question the interviewees were asked a more general and concluding question. The interviewees were asked how they thought that Skanska’s business (e.g. its housing platform, working methods or process) can develop so that it takes greater consideration to the housing panel’s preferences and what they, the interviewees, can do in their role to pursue that development.

L.K. thought that projects should not be steered too much and that it is better to show an ambition. L.K told that it is each architect’s *“responsibility to make sure that their house fits into its surrounding environment”* and that *“if you have too many manuals and quality programs to follow you do not have any space to work in, it can dampen the creative process”*. In opposite to L.K., S.W. believed that one of the advantages with Sankt Erik was that an overall approach had been taken in the area and that, thanks to this, the colours harmonize better with each other than she thought they did in The Royal Seaport. S.W. described The Royal Seaport as more individual where *“each house are supposed to end up in something fun, then these fun projects will stand next to each other”* and she thought that *“it may not look good together”*.

S.K. thought that the housing panels’ preferences definitely can be applied to Skanska’s business as long as it is done with a repetition effect. S.K meant that you have to create something that is repeatable if you want to achieve a good project economy and he explained that repeatability goes faster to build and that you have the possibility to improve it every time. P.I. also thought that repeatability is very

important but that the municipalities are *“very much afraid of repeatability effects and that the neighbourhoods will look like another million program area”*. He further explained the following:

“It is therefore very important to work with the right architects that both understand us builders and at the same time can gain trust from the municipality. Because the municipality do not have that much trust to developers and they do not really consider what we are trying to explain since they think we are only here to earn money.”

S.W. believed that one important attribute in Sankt Erik are the colours since it is *“obvious that people asks for more warm colors”* and that it should be investigated if they *“only build in white, black and grey”*. S.W. further told the following:

“You can see it yourself, a white house looks quite boring while some colors, like yellow, makes it look much nicer. We just have to get the architects too understand this too.”

S.W. thought another important attribute in Sankt Erik is that the variation is concentrated to the lower parts of the buildings and that *“the facades upwards looks very much the same”*. S.W. therefore thought it would be a good idea to invest some more at the ground floors since *“it may only be the facades the first two floors that you see as a human”*. K.M. believed that it was rather the different volumes in Sankt Erik that were of significance for the questionnaire’s result:

“In Sankt Erik you can see three different layers in the format of the facade which breaks down to a more human scale. Here they have worked with bay windows and roof terraces, it happens a lot horizontally and you can experience different levels and heights. It gives a big effect that there are small details which break down the scale. I think that working with the structure and the massing gives much more than colors. They have done a good job with the colors but I do not think we should reduce the architecture to the colors only, it is a lot that happens with the volumes too.”

K.M. also thought it was important to not rush the early phases when you decide on the volumes:

“I think that the process when you work with the volumes in the conduction of the detailed development plan should be given more care. It also feels like this process goes way too far in defining exact volumes of buildings. It is a problem that the design questions regarding the massing, heights, and orientation comes after this process. I think it is more important to discuss these considerations in the early stages when you decide on the property formations and height regulations. “

A.S. on the other hand thought that the houses should be very simple built from the beginning:

“We design houses in and out. The first thing we look at are layouts and the entirety such as how we can maximize the living space, how we can achieve effective apartments and if it can be repeated and standardized. I often also say that the houses should be designed very simple from the beginning and that the house can be decorated in the end. But often the architects do the opposite of this and it makes us having to remove all the details that are expensive. This is often the most difficult to make the architects understand since they wants to do so much. It is a problem that we have to come later on and clear things out since the project then ends up being mediocre. It would have been better if they did a simple and good looking house from the beginning.”

T.K. explained that Skanska has a few own architects but he do not think they are especially visible, he therefore suggested the following:

“What is pleasant, ugly and beautiful or what fits into the environment are questions that we leave to the architects since we believe in their competence. As an ordinary human you do not have the courage

to challenge the architects. To be able to meet and discuss these questions I think we need to recruit a chief architect who works with design questions so that we can challenge the architects.”

A.S. did not think that Skanska’s opportunities to adapt to the housing panels’ preferences has nothing to do with a platform:

“It is often up to the project developers and the architects to decide on how the houses will look like. Basically, it is only personal and subjective opinions. The project developers have to like the idea and he or she must find an architect who would like to keep working onto that idea. We are also much in the hand of the authorities but at the same time I think we steer quite much too since we comes with suggestions on how we wants to develop an area. I do not think our opportunities to make use of the housing panels’ preferences have nothing to do with a standardized platform. We can build all the houses in the questionnaire with standardized methods.”

P.I. agreed to A.S. that it is not about the platform. He thought that the platform admit to build according to the housing panels’ preferences but that the architects that they cooperate with *“must believe in it from day one”*. P.I. explained that there is a teamwork between the architect, the developer and the city planner to find out the future residents’ preferences but that the different parties sometimes *“speak different languages”* regarding this.

A.S. also explained that they, as developers, often never give the architects a number of a maximal budget. Instead they often give the architects examples on what they afford such as prefabricated elements but they never give them any details. She told that they could do better on this but that it is often difficult to put a money onto it when they have not done any detailed calculations in the early stages when the hire the architect. But at the same time, S.W meant that *“we know what brick versus concrete costs so we could put a price on this”*.

T.K. believed it would be a good idea to include some soft values into the architectural handbook that exists within Skanska’s Standardized Platform:

“There is no information in the architectural handbook about what our clients prefer. Everything in the handbook is more about practical things and I do not think there is something about soft values. It would be a great support for project developers, who thinks like the general people, to have a chapter with one or two pages handbook about what our clients prefer when meeting the architects. Because at the moment I think project developers do not dare to argument against the architects.”

S.W. agreed to T.K. in that the architects do need to hear what the clients and the general people actually like. She meant that the architects do not listen to them, the developers, as good as they do with the academy since the architects sees the developers as they come from the business industry and that they *“only want to earn money”*. S.W. therefore thought it is important that the architects get to hear the kind of research done in this thesis since it makes them to better understand the general preferences such as *“people actually thinks that roofs are missing”*. A.S. agreed to both S.W. and T.K. that it is a good idea to try to formulate what their clients *“want and what kind of attributes they like”*. Furthermore, P.I. underlined the importance of working with the right architects who understands their clients’ preferences:

“Skanska can be better at picking up what the big mass wants and to, based on that, create visions and cooperate with the right architects. If Skanska can prove what the majority of their client wants by for example showing results from research then the architects are not doing their job if they are not taking that into consideration. The architects also have to contribute to the society and not only do monuments over themselves. If the architects cannot take in what the general people like and translate it to their

language, then we should not work with them. It is very important that we cooperate with the right architects.”

T.K., on the other hand, believed that builders sometimes blame architects for no reason and that it other times can be justified:

“We builders blame the architects for lots of things but sometimes you actually realize that architects do a great job when some projects without any architects in the project team ends up looking not that good. But other times you wonder if the architects are building a monument for themselves or for those who will live there now and in 50 years. If you build one house it may not matter but if you build a whole city it plays a very big part.”

S.W. thought that both architects and builders have to take their responsibility to create value:

“Architects prefers to design things that other architects thinks looks good. The main goal for them seems to be to make themselves happy rather than those who will live in the area. But off course, we builders must also take our responsibility because we may gladly reduce the architecture and therefore we should analyse which details that are valuable and where we should put our focus.”

K.M. would also like to see a greater commitment from all disciplines to create better cities. He meant that architects stands on different positions since they *“do have a client to help, who wants to earn money”* but at the same time he meant that the architects are *“the publics’ advocate in a way”*. He described that he sometimes feels *“a bit lonely in that role”* and that it can be *“a bit sad that not everyone seems to have the same ambitions”*. K.M. believed that all disciplines have *“a common responsibility to build sustainable, lively, and nice cities”*.

L.K. reasoned like following on have to be able to build cities with qualities:

“Maybe the profit margins have to be decreased to be able to build a city with those qualities that most people would like to have in their home town which is something that could be created with municipal planning means and monitoring. Now you can earn quite much on housing development and if you study which ones that have built with the highest quality it is often the municipal housing companies since they have a long-term real estate management perspective. They know what is cost-effective in the long run and that good qualities pays back to you. Then, it might not be facades in various colour shades and funny balconies that is the right way to build for the future. But off course, there is also no point in building new cities if no one affords to develop them or to live there. I believe we have to start with social housing in Sweden.”

At last, T.K. told that he got an eye-opener after the interview and that he came to the following conclusion:

“What I can do on my own, to take higher consideration to the housing panels preferences, is to work for houses and neighbourhoods that I myself would like to live in since I agreed a lot to the housing panels preferences.”

5.2.2. Result from the Concluding Interview

After the main interviews, one last and concluding interview was performed with the eighth interviewee presented in Table 3 in Chapter 2. The last interviewee has a role as the Head of Skanska Sweden’s Housing Platform and he is here referred to as his initials T.M. The interview with T.M. included some other and more concluding questions than the first ones which all are presented in Appendix B. The result from the concluding interview are presented here in three sections.

Background

The interview with T.M. started with the same background questions as all of the other interviews.

T.M. had a 35-year long background in the production and he has an education within construction engineering and production. T.M. previously worked as a project manager at Skanska with both residential and commercial buildings. T.M. had, at the time for the interview, been the Head of Skanska Sweden's Housing Platform for 3.5 years, in his role he was responsible for anything that concerned the platform such as development of the platform and coordination of those who work with the platform. T.M. was also part of a peer-review team which had been appointed to support Skanska Sweden's housing projects in the early stages with the focus to decrease the costs and to increase the revenues.

Skanska Sweden's Housing Platform

After the background questions the interview with T.M. went into detailed questions about Skanska Sweden's Housing Platform such as: when the platform is used and when it is not used, which parts in the platform that are perceived as most valuable, who uses the platform and who does not want to use the platform, who are part in the reference group for the platform and what are the most common criticism and suggestions of improvements the platform receives.

T.M. described the platform as a framework that contains, among many others, the best technical solutions which are based on best practices. The platform shall be used for all of Skanska's self-developed projects and it should not be any deviations from the platform's framework. Though, sometimes deviations from the platform must be made, for example, in the inner cities where the municipalities have higher requirements. However, the deviations must be a well thought out decision.

T.M. believes that the most important document in the platform that is used most frequently is a handbook written mainly for architects, but many other disciplines uses the handbook too. This architectural handbook is in principle a brief and light summary of all of the platform's documents and guidelines and it is often this document that is being used first in the design process. The document do not contain any detailed technical guidelines but it refers to underlying documents which goes deeper into things such as buildings services systems and frameworks.

T.M. explained that he do experience that most disciplines are happy to use the platform except those who work with building service systems since they have their own standards. T.M. sometimes holds presentation with information about the platform to the architects who collaborates with Skanska. He mentioned that the architects thinks the platform constitute a good support and that the architects never really have expressed any concerns about the platform, at least not what he has heard about.

T.M. mentioned that there exists a reference group for the platform who meets regularly, four times a year, to decide about the development of the platform and to come up with new ideas for the platform. The group do currently consist of himself, project managers, market area managers, a client- and sales manager, an after sales manager, a quality manager and one who works with building services systems.

T.M. have not received any critics about the platform but he often, once a week in average, receives smaller suggestions on improvement. T.M. has to stubborn among the suggestions but he definitely looks deeper into those suggestions that he receives several times.

Suggestions on improvement to better meet the preferences

After the questions about the platform T.M. was given information about the results from the questionnaire. He was then asked to answer the same question as the first seven main interviewees answered in the end of their interviews, that is: how he thought Skanska's business could develop to take greater account to the housing panel's references. At last, T.M. received information about the result from the earlier interviews and he was given follow-up questions on the most important conclusions from the earlier interviews.

T.M. did not believe that the framework in the platform prevents from building according to the housing panels preferences. Just like the other interviewees, he also believed that even though you have limited resources there are many possibilities if you use clever solutions. T.M. described what he believed constitutes a good architect:

"The best architects are not the architects who comes up with luxurious and complicated designs, it is those who comes up with low-cost solutions that still looks good and does not require a lot of maintenance. It is easy to design with a high budget but with a lower budget you have to be more clever and creative to achieve a good architecture."

T.M. also thought that the platform, or Skanska overall, could be better on showing good examples on where they have succeeded with an aesthetical attractive architecture. T.M. thought it would be a good idea to compile one or more documents with images showing good examples on technical solutions that are aesthetically appealing. T.M. explained that they, at the moment, actually were working on developing a new guide showing examples on different clever and nice solutions for prefabricated concrete elements.

The architects that have been interviewed, L.K. and K.M., told that they would like explanations on why things are more or less cost-driven and how much more it actually will cost if you take a small step outside the platform. T.M. agreed with the architects, the platform could be improved by adding explanations to why each guideline exists. They had actually already started to add this kind of explanations into the platform. The architects also said in the interviews that standardized platforms usually disturbs their creativity. However, T.M. did not think the platform constitutes that many limitations, he rather thought the architects should see the platform more as a support than a limitation.

T.M. believed, just like many of the other interviewees, that Skanska could become better at prioritizing where they allocate their funds in each project, so that the money is used where it give most value for the humans, by listening to their customers and by, for example, do research or questionnaires such as the one in this report. He also believed that Skanska should become better at sharing knowledge with each other since each and every one possesses different knowledges about what their customer wants.

At last, T.M. believed that one reason to why Skanska often do not have much control over the aesthetical design in their projects could be that many of those who work as project developers are inexperienced when it comes to both production and architecture. T.M. therefore thought that the project developers should become better at taking help from those who are more experienced in these kind of questions and also try to gain more knowledge and experience on their own. T.M. thought that this is important for the project developers so that they can feel comfortable in discussions with architects and the municipality. But also so that the project developers, and not only the architects, can be able to come up with good ideas regarding the design and to argue for this.

6. ANALYSIS

*In this chapter, theory within the field of environmental psychology will be used to analyse the questionnaire and the interview result. In Section 6.1, the questionnaire result is analysed and the section ends with a short summary of the questionnaire respondents' preferences regarding exterior architecture in multifamily residential areas in Stockholm. Section 6.2 analyse **if** and **how** the identified preferences can be met by the housing developers.*

6.1. Perceptions and Preferences of the Built Environment

Section 6.1 gives a short summary of the questionnaire and the interview result, which later evolves to an introduction to the analysis. The analysis in this section uses environmental psychological theories in order to explain why the respondents and the interviewees rated, respective ranked, the studied areas in a certain order.

The first question in each of the residential areas in the questionnaire was based on the generalised difference that, according to research, exist between laymen and architects. The attributes in the built environment that generally are preferred by architects versus laymen are listed in Table 5 in Chapter 4. The respondents were asked to classify the four areas based on these attributes. Sankt Erik, or area 1, did score highest of the four areas when it comes to possessing the attributes that are generally preferred by laymen. In other words, Sankt Erik was considered to be the area that is most small-scale and diverse, has the warmest colours, the most details and a historical style. Surprisingly, Sankt Erik was also considered to be the most original area, even though it should constitute the most conventional area since it is built in accordance with an older architectural style, something that will be discussed further down in this chapter.

Sankt Erik was the area that received the highest grading from the questionnaire's respondents. It was ranked as sole number one by 529 persons, 61 percent of the respondents. The Sankt Erik area did receive an average score of 7,0 out of 10,0 from the respondents. The grading scale in the questionnaire went from 0 to 10. Where 0 points indicated that the built environment was "very ugly" and 10 points indicated that the built environment was "very beautiful". On second place came area 3, Hammarby Sjöstad, which received an average of 5,0 points by the respondents. On third place came area 2, Stockholm Royal Seaport and last came area 4, Ursvik. The average points received by each area is displayed in Table 9.

Table 9: Average score respectively average ranking of the four areas.

Area	Average score from the questionnaire	Average ranking from the interviews
Sankt Erik	7,0	1
Hammarby Sjöstad	5,0	2
Stockholm Royal Seaport	4,1	3
Ursvik	3,3	4

What also can be seen in Table 9 above is that the average ranking made by the interviewees was exactly in line with the average score from the questionnaire. All of the interviewees, 7 out of 7, ranked Sankt Erik as number 1 (their most preferred area) and Ursvik as number 4 (their least preferred area). The

majority of the interviewees, 4 out of 4, also ranked Hammarby Sjöstad at second place and The Royal Seaport on third place.

The majority of the comments that Sankt Erik received in the open question in the questionnaire were positive. Hammarby Sjöstad received mostly neutral comments. Stockholm Royal Seaport and Ursvik both received a mix of neutral and negative comments from the respondents. Sankt Erik was included in the questionnaire because it possess many of the attributes that laymen generally value high in the built environment. The result of the questionnaire confirmed that the respondents agreed with our assumptions about the area, which received highest scores on 5 out of 6 attributes that laymen generally prefer. The result also confirmed that laymen value these attributes high in the built environment, considering the high average score that was given to the Sankt Erik area. The result was thereby in line with previous research in the area.

As a complement to the questionnaire result, the result from the interviews showed that professionals with various disciplines in the project development- and construction industry also have the same preferences as the questionnaire respondents, and laymen in general. All of the interviewees ranked Sankt Erik highest. In the in-depth interviews it also became clear that the majority of the interviewees considered the Sankt Erik area to have many attributes that they liked, and most of these attributes were the same attributes as laymen generally prefer. The majority of the interviewees mentioned attributes that can be associated with warm colours, many details, diverse, small-scale and historical, as attributes that they liked about Sankt Erik. Some interviewees also described Sankt Erik as original in comparison to the other three areas, just like the questionnaire respondents, and agreed to the fact that three of the areas look rather similar. Two of the interviewees, the architects, expressed that they did not rank Sankt Erik highest because of its physical attributes, or at least not for the buildings architectural style. The architects appreciated Sank Erik because the planners had a great ambition with the area and also succeeded very well with the end product, especially with the spaces that were created between the buildings.

The interview result was a bit unexpected. Since several of the interviewees work with projects that are similar to the three areas Ursvik, Hammarby Sjöstad and Stockholm Royal Seaport, you could expect them to rank one of these areas the highest, but that was not the case. Not even the architects did so, even though they, according to theory, should appreciate these areas more than the Sankt Erik area. Theories within environmental psychology will be used in order to explain the questionnaire and interview result. Researchers have been able to identify some general attributes that the built environment should possess in order for humans to find an area attractive. If these attributes are present or not in the four studied areas will be analysed below. The analysis will follow the same structure as the questionnaire result.

Diversification

The overall impression of an area must be consistent and form a uniform and a functional identity (Kaplan, 1987). But in order for an area to appear attractive it must also have some complexity, some contrasts, otherwise it may appear boring. Too much complexity can on the other hand lead to a chaotic impression. The questionnaire's respondents described the Sankt Erik area as both uniform and diversified (see Figure 16), which imply that the area has some components of both complexity and consistency. The area was also appreciated by the respondents so there should be a good balance between complexity and consistency, something that can be hard to achieve. Stockholm Royal Seaport and Ursvik were considered to be boring by many of the respondents, but Hammarby Sjöstad was the area that the respondents described as most uniform (see Figure 42).

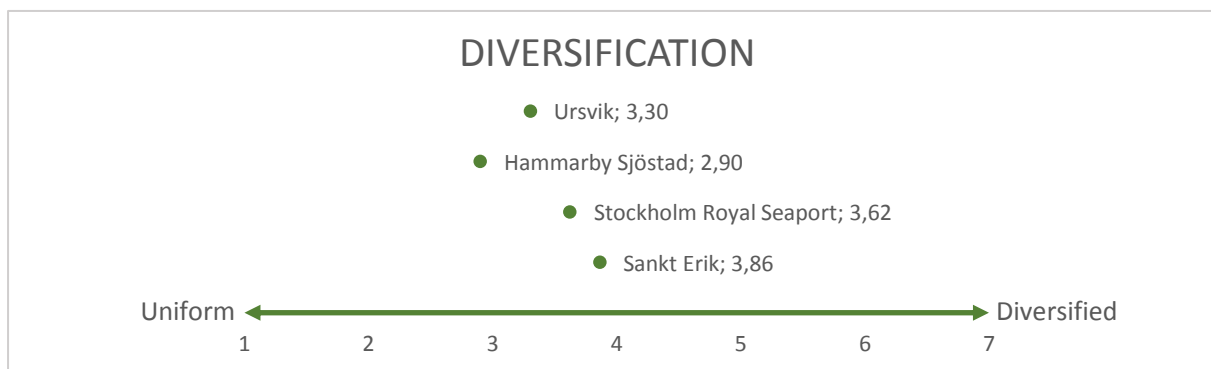


Figure 42: Average score, diversification

There is a possibility that Ursvik and Stockholm Royal Seaport are described as boring because they lack complexity. Even though Hammarby Sjöstad was described as most uniform, it has other attributes that adds an extra dimension to the built environment, for example shops in the bottom floors of many buildings. Something that the respondents also commented.

Style

Humans feel safe in environments that we can read and understand, this is probably one of the reasons to why historical or traditional buildings are preferred by so many (Sternudd, 2007). We have been exposed to these built environments in several decades, even centuries in some cases, and have learnt to like them. Humans tend to increase their liking for an object the more times we are exposed to that object. This could be a contributing factor to why the three areas with more contemporary architecture (see Figure 43) received less points from the respondents (see Table 9). This in particular was brought up by S.W. in her interview. She mentioned that the Sankt Erik area has a “*classical inner city appearance*”. The buildings in the area look like the buildings from the beginning of the last century,



Figure 43: Average score, style

i.e. they look like building are “supposed to” look like. Something that could explain why that area is appreciated by so many of the respondents in the questionnaire. The respondents in our questionnaire, and in other studies, might need a few decades in order to learn to appreciate today’s modern architecture. But, it is also important to remember that the million homes programme have not won the general public’s liking even though there has been about half a century since it was constructed.

Sankt Erik is constructed recently but is considered to have a historical style, this is by definition a traditional built environment. Traditional does not have to equal historical, a built environment can be traditional in terms of the materials, details or building technique. A contemporary, or modern built environment, can thereby also be traditional. The word *historical* was not at all mentioned as many times as the word *modern* when the respondents described the Sankt Erik area. This implies that the respondents prefer a traditional built environment, however traditional must not equal historical.

Originality

Historical buildings are also preferred by many, simply because they possess many of the attributes that laymen desire in the built environment. For example, the diversified and handcrafted details that are characteristic for historical buildings. Of course, the history or story attached to historical buildings is important. One of the reasons to why architects generally dislike new buildings that are built in accordance with an older architectural style is because they think these buildings lacks authenticity (Sternudd, 2007). Architects value the building history of each time period and they commonly believe that the architecture should reflect the time period in which the building is constructed. In the open question for Sank Erik, many respondents mentioned that they appreciated how well they have managed to construct a new building in a traditional style. Other respondents simply commented that it was a modern building with a historical style. One respondent wrote that the Sankt Erik area was a pastiche, and did not feel genuine. These comments on the open question indicate that at least some of the respondents were aware of the fact that the area is constructed recently, and not in the 1920’s as the architectural style indicate.

Theoretically, the Sankt Erik area is more conventional than the other three areas, since it takes inspiration in something that already exists (Sternudd, 2007). The other three areas are constructed in accordance with our time’s modern architecture, and should therefore be more original than the Sankt Erik area. However, if you look at the questionnaire result in Figure 44, this is not the case. The respondents considered the Sankt Erik area to be more original than the other three areas. One explanation to that result is that some of the respondents were not aware of when the area was built. Another explanation that became clear when studying the answers’ on the open questions, is that the respondents consider the majority of the buildings that are constructed today to look rather similar, with a modern and contemporary design. Respondents frequently mentioned that the contemporary areas lack

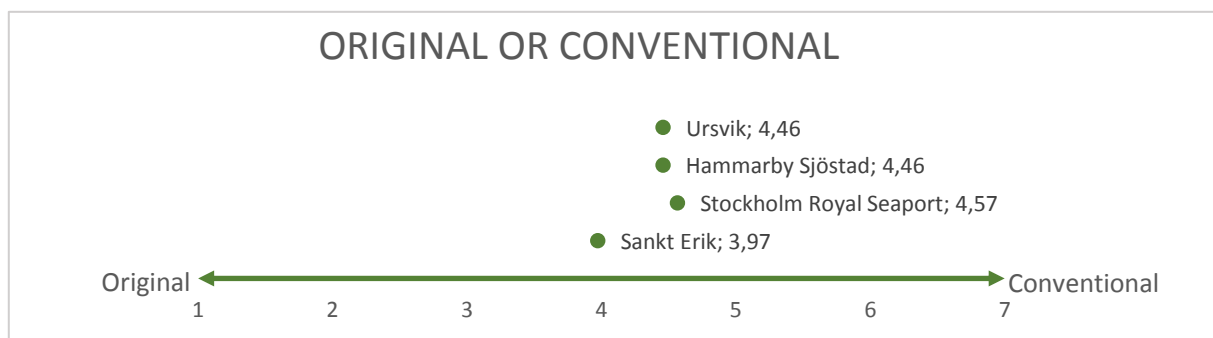


Figure 44: Average score, original or conventional

details that make them original. The Sankt Erik area on the other hand, stands out with its more traditional style and was therefore considered to be more original.

However, in previous studies conducted among laymen on historical buildings and environments, it is primarily the aesthetics, or the beauty, of the buildings that are mentioned not their age, “originality”, nor their history (Sternudd, 2007). Our questionnaire also confirms this fact since none of the respondents did mention anything about the buildings historical background in the Sankt Erik area.

Details

On the contrary, many respondent did mention the historical details, the attention that had been paid to the details and the rich variation among them. The respondents especially pointed out how well-made the details were and the fact that the details made each building original. Several of the interviewees also mentioned that Sankt Erik has many historical attributes, such as paned windows, dormer windows, details in the facade and grand entrances. As can be seen in Figure 45, Sankt Erik is the only area that had an average score above 4,0 which means that it is the only area that was considered to have many details by the respondents. The other three areas had average scores under 4,0 which indicate that the respondents considered them to have few details.



Figure 45: Average score, details

This also became clear in the open questions, where most respondents mentioned that Ursvik and Hammarby Sjöstad had few details and the facades were described as plain. The details that the respondents identified in Ursvik were the colourful balconies, but these were not appreciated. The balconies did not contribute to the buildings' uniqueness and the colours were too garish. Stockholm Royal Seaport was considered to have at least some details but the respondents experienced the details as unattractive and also too diversified, which made the area appear a bit messy.

The interviewees also considered Sankt Erik to have many details. They especially pointed out the well-made details in the facades, such as ribbed facades and frames around the windows. Some of the interviewees also noted that Stockholm Royal Seaport has details in form of bay windows, bricks and balconies and that Hammarby Sjöstad has some details in the facades. Something that was not highlighted in the same way by the questionnaire respondents. However, the interviewees agreed with the respondents about the details in Ursvik being few and unwell made.

Colours

The colours were also mentioned as something attractive in the Sankt Erik area. Again, Sankt Erik was the only area that received an average score that imply that the respondents consider the area to have warm colours. The other three areas were considered to have cold colours (see Figure 46). The colours in the Sankt Erik area were mentioned 298 times in the open question and many respondents expressed their liking towards them. Words such as warm, comfortable, harmonic, calm, nice and lovely were often used by the respondents when they described the colours of the area. In Stockholm Royal Seaport the respondents described the colours with words such as boring, cold, diversified, gloomy, ugly, dark, protruding, murky, unpleasant and nice. S.W. mentioned in her interview that the nuance difference between the colours' in Sankt Erik and The Royal Seaport were not huge, still the respondents did perceive them so different. Ursvik was also perceived as cold and S.W. though a contributing factor to this could be the intense and garish colours on the area's balconies. Hammarby Sjöstad was described as too white by S.W. and as having too much glazing by T.K., which could be explanations to why Hammarby Sjöstad was perceived as cold by the questionnaire respondents.



Figure 46: Average score, colours

Scale

When it comes to the scale, none of the areas were considered to be small-scale in terms of the average score. However, the Sankt Erik area was considered to be the least large-scale area out of the four, see Figure 47.

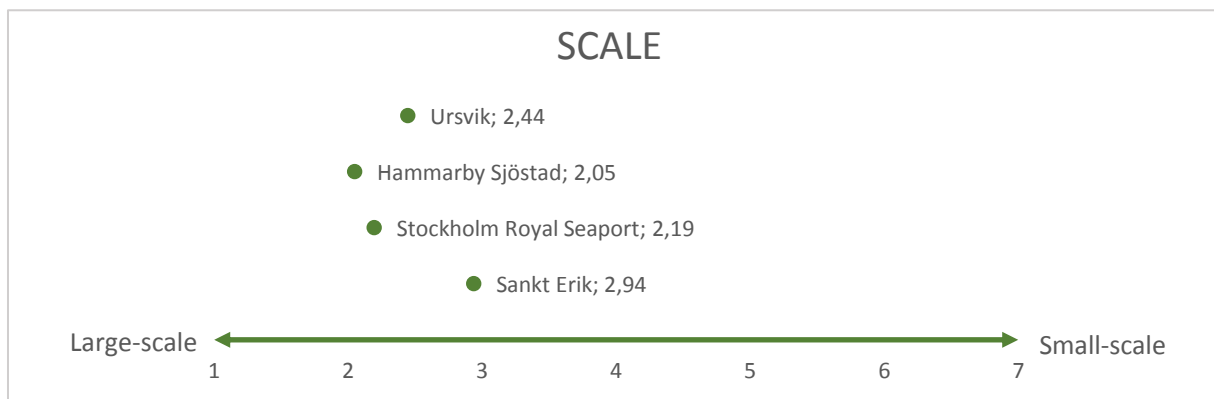


Figure 47: Average score, scale

This is interesting, because the Sankt Erik area actually contain the highest buildings of the four areas. Something that the respondents also took notice of, but they still experienced it as the most small-scale area. The perceived scale is affected by many different attributes in the built environment (Ching, 2007). Colours and textures of a facade can for example make the building appear larger or smaller than what it really is. Details such as windows and balconies also have an impact on the perceived scale. Something

that was mentioned by S.W. in her interview as one reason to why Sankt Erik might be perceived as more small-scale than the other areas. Sankt Erik has narrower and higher windows which gives it a more petite expression. K.M. on the other hand, thought that Sankt Erik is perceived as more small-scale since it has different layers and details in the facade which break down the scale and makes it more humane.

Maintenance and order

None of the environments on the questionnaire's images show any sign of lacking maintenance or orderliness, for example there is no graffiti or garbage visible in any of the images. The respondents did not comment on something like that either, except in the final question where some respondents mentioned garbage bins and recycle opportunities as important in order to avoid littering. The respondents also mentioned in the final open question, that it is important that an environment feels safe. However, the fact that no respondents mentioned that any of the areas felt unsafe indicate that all four areas are well planned in terms of safety and are well maintained.

Nature and greenery

Nature and greenery strongly contribute to a location's identity (Sternudd, 2007). However, a choice was made to deliberately exclude nature and greenery from the pictures in the questionnaire (with exception from one image of the Sankt Erik area). All four areas are located in proximity to green areas or water. Many respondents mentioned the lack of greenery and nature and the only image that contained a larger tree, the one in Sankt Erik, received positive comments from the respondents concerning the greenery. S.W. also mentioned in her interview that one of many reasons to Sankt Erik's high average score could be that the tree in one of the images has had time to grow up compared to the trees that actually are visible in some other areas if you look very carefully on the images. T.K. implicated that Sankt Erik is more of an urban densification compared to the other areas. He also mentioned that areas which get to grow together with the expansion of a city, often become successful because they are given time to grow. While entirely new areas often are developed very fast and it may take several years before these areas have developed their own identity. Landscaping, walking paths, green areas and greenery was frequently mentioned in the final question as something very important in a newly developed area. Probably to some extent due to the lack of greenery on the images that visualize the four areas.

Summary

The questionnaire result clearly shows that the respondents liked the Sankt Erik area best, so did the interviewees. The Sankt Erik area received the highest scores, compared to the other three areas, on the following attributes:

- ♣ **Diversified** with an overall identity and order
- ♣ **Historical style** is not an issue, traditional attributes are preferred
- ♣ **Original** as in unique
- ♣ **Many details**, well-made and genuine
- ♣ **Warm colours**, harmonic and definitely not garish
- ♣ A feeling of **small-scale**

If you combine the average result from the ranking and the classification of attributes, the above list constitute the attributes that the majority of the respondents prefer in the built environment. Sankt Erik is the only area that the respondents described as historical. The other three areas were classified as contemporary by the respondents. However, the historical style is not a prerequisite for fulfilling the housing panel's preferences. The comments on the open questions provided more detailed explanations

on why the respondents liked or disliked the areas. When it comes to the first attribute, diversification, the respondents expressed that an area must be both diversified and at the same time uniform in order to be attractive. An area should be uniform in terms of having an “overall” identity, it should be clear that the buildings in the area belong together somehow. It was also important that the buildings did harmonize with each other, for example when it comes to the colours. The area should, at the same time as being uniform, be diversified in order to be exciting and attractive. Diversification could be achieved in many ways; through details, colours, or by mixing housing with commercial facilities and offices.

Sankt Erik was described as both modern and historical, which both constitute correct descriptions, however a more suitable description of the area is traditional. The respondents prefer a traditional built environment, if it is historical or modern does not seem to be equally important. Sankt Erik was also described as the most original area, which was surprising since it should be considered as the most conventional area. In the open question it became clear that the majority of the respondents considered the Sankt Erik area to be the most original because those buildings did not look like “all other buildings that are constructed today”. The respondents frequently mentioned that all the contemporary buildings look rather similar and miss details that make them unique, i.e. original. In terms of the details, the details in the Sankt Erik area were appreciated because of their craftsmanship, diversity, uniqueness and humanity. Many respondents mentioned that, for example, the details in an area does not have to be expensive nor handcrafted, as long as they look as if they were exactly that. The respondents requested that the buildings in general, should appear as if they were built with care and effort, not as if they were manufactured in an industry. The respondents frequently referred to the Sankt Erik area as humane, harmonic and beautiful, while the other areas frequently were described as sterile, cold, depressing, and boring. Many respondents particularly state that they like the scale and the warm colours in the Sankt Erik area. Whilst many respondents mention that the other three areas are too large-scale and the colours are too cold.

The generalised conclusion that can be drawn from the result and analysis is that the attributes that are listed above are preferred by both the respondents in the questionnaire and laymen in general. The Sankt Erik area is the area that best match these preferences. The Sankt Erik area is clearly the most appreciated area among the respondents and the interviewees, even the two architects appreciated the Sankt Erik area the most, apart from for its historical style. The fact that the other three areas in the questionnaire have lower scores on the attributes that generally are preferred, shows that the construction industry does not manage to fulfil the preferences of the questionnaire respondents. As described in the literature review, Sweden is currently in the middle of a large housing shortage, which makes it very easy for the industry to sell their products. It is a luxury to actually be able to choose a home accordingly to your preferences on Sweden’s housing market today. In order to create a sustainable built environment the construction industry have to prioritize this problem.

6.2. Taking the Preferences into Account

The purpose of the interviews was to investigate if and how the end-users' preferences can be satisfied without increasing the production costs. The interviews showed that this should be possible, the question is only how?

The Sankt Erik area did satisfy the housing panel's preferences best out of the four areas. However, it should not be impossible to satisfy these preferences in contemporary design as well, which the interviewees also agreed with. None of the interviewees believed that the production costs necessarily would be higher for a housing project that was built according to the preferences of the housing panel. When it comes to fulfilling the housing panel's preferences, the interviewees believed that the real obstacles were located in processes or individuals, and they all saw opportunities for improvement.

The Sankt Erik area

The Sankt Erik area is built in a historical style and historical buildings do in general possess all the attributes that are preferred by laymen. The majority of the interviewees thought it would be fully possible to reproduce an area with similar character as Sankt Erik with standardized building methods. They also pointed out that Sankt Erik had a lot of production friendly attributes such as symmetry, orderliness, sloping roofs, repetition and warm colours. However, the interviewees point out that there are some details in the Sankt Erik area that are difficult to reproduce with standardized methods. For example, round shapes are not recommended by the platform, however illusions of round shapes can be created rather easy by rotating square building blocks a few degrees. The interviewees pointed out that the areas Hammarby Sjöstad and Stockholm Royal Seaport also had certain details that are not recommended by the platform. For example, many of the houses in Hammarby Sjöstad has large glass sections, complex facades and balconies that are recessed into the facade. Even though the majority of the interviewees ranked Sankt Erik highest in terms of production cost, many of them still thought it was possible to reproduce the Sankt Erik area by using clever and cost-effective technical solutions. Buitelaar & Schilder (2017) studied the production cost for different architectural styles on the Netherlands housing market and came to the same conclusion. It should not be more expensive to produce a neo-traditional building, which Sankt Erik should be classified as, compared to a contemporary building.

Skanska's standardized housing platform

The interviewees from Skanska did not think that Skanska's housing platform constitute an obstacle when it comes to building according to the housing panels' average preferences. They did not see any problems in including the attributes that the housing panel and laymen in average prefer into contemporary design. It should not constitute an obstacle to fulfil the identified preferences by following the guidelines in the platform or having limited financial resources, if using clever and cost-effective solutions. Some clever technical solutions that already are being used was brought up as examples during the interviews. For example, colours can be used to create an illusion of a material which is a solution that is both cheap and technically easy to conduct. Many of the interviewees agreed that Skanska could become better at using building methods that are both production friendly and aesthetically appealing at the same time. They believed that the number of deviations from the platform could be decreased if Skanska became better at presenting new ideas or gathering inspiration from already existing concepts and technical solutions. Some of the interviewees from Skanska also said that it sometimes can be justified to make a deviation from the platform in a project if the deviation is estimated to add a lot of value to the project. Such as giving the area more character or giving the future

customers additional amenities. A deviation can also bring in extra revenues, so a deviation does not have to be something negative.

The architects did not fully agree with the interviewees from Skanska. They saw a few obstacles to satisfy the identified preferences with a standardized platform, both physically and in their design work. First of all, one of them mentioned that he thought the restrictions in the platform regarding shapes, angles and corners are direct obstacles if you have to follow the platform strictly. Both architects considered that many restrictions disturbed their creativity and they preferred to have a closer relationship with the developer instead of being limited to a platform. The architects would rather be given a budget constraint than a platform, but they seldom received any information about the budget from the developer. Of course they understood that it could be difficult to give a detailed budget in such an early stage, but some kind of estimation must be possible for the developer to provide. A.S., who represented Skanska as developer, agreed with the architects that Skanska could improve on this area. It became clear that Skanska's main method to manage the budget were, at the moment for the interviews, *constructability*, however other methods such as *target costing* or *value engineering* seemed to be more appreciated as budget management methods (Winch, 2010).

The architect L.K. mentioned that he preferred prefabrication instead of standardization. L.K. meant that prefabrication is advantageous because it is possible to vary the design of the elements, while the goal with standardisation is rather to build in the same way as much as possible. L.K. recommended that the construction industry and Skanska should look more into this and other new technology. On the contrary, some of the interviewees from Skanska pointed out the importance of standardization and repetition. They meant that standardization is faster, cheaper and safer in terms of quality since it provide opportunities for improvement after each repetition. All of the just mentioned arguments about prefabrication and standardization falls under the same advantages and disadvantages which Winch (2010) describes about these two building methods.

The last comments from the architects concerning the platform was that, if they have to use it, they requested explanations to why the limitations in the platform exist. If they are better informed about what to avoid and why, the architects said that they would have better prerequisites to produce a successful design that works both in the production and in terms of the aesthetics. If they for example are better informed about what different options cost, they can better prioritize between them and allocate the funds where they will have the most effect. They would also like to have information about the costs' magnitude if sidesteps from the platform are made. T.M., Head of Skanska Sweden's Housing Platform, agreed with the architects' idea about adding more explanations into the platform. He also said that they are aware of this problem themselves, so the platform will be updated with more clarifications.

Fields of improvement

The suggestions of improvements that were revealed during the interviews are presented in the following sections.

Knowledge sharing and inspiration

A prerequisite in order to satisfy the identified preferences is that these are communicated to the entire organisation. The interviewees from Skanska provided numerous suggestions on how this could be done. Several of the interviewees would appreciate some kind of document that is easy to access and regularly updated. The document would preferably be based on both Skanska's customers' preferences, but also on research. Research can help Skanska to identify what is required of a building in order for humans

to appreciate it. The document could for example be added to the existing housing platform. Another option would also be to create a new separate document. A summary of the questionnaire result was given to the interviewees and many of the employees at Skanska wished to use the insights in their work. Several of the interviewees could see the potential in knowing and identifying which attributes that provides the highest value for their customers.

Another suggestion of improvement, related to the use of smart technical solutions in order to satisfy the identified preferences, was to gather inspiration and good examples regularly and make these available to the project organisation somehow. The examples that are presented should be considered successful both in terms of the aesthetical appearance and production cost. Inspiration could also be given on how to achieve more specific attributes in a smart technical way. Exactly how the material should be presented must be examined. Suggestions that came up during the interviews were: seminars, presentations, handbook and workshop. Additionally, attributes with aesthetical appearance can be related to *symbolic quality* and to motivate the project organization to work for this they should be informed of the values that symbolic quality creates, such as branding, image, public benefit and power (Winch, 2010).

A problem that came up during the interview was related to unexperienced workers. T.M. mentioned that it is not a prerequisite that the project developers have much experience from working with production nor architecture. For example, some of the project developers might not have enough knowledge in order to take control over the design, and certainly not discuss this with the municipality and the architects. T.M. pointed out that knowledge sharing is very important, especially now when a generation shift is about to take place in the construction industry and many younger competences are hired. T.M. considered it crucial that the project developers feel comfortable and confident in their discussions with the municipality and the architects in order to steer the project in the direction set out by Skanska. Many interviewees from Skanska also mentioned that the project developers could use some sort of material that strengthens their arguments against the municipality and the architects. This material could be both preferences from the potential customers, but also inspiration on how good design can be accomplished without increasing the production costs. One interviewee at Skanska also mentioned that Skanska could recruit a “chief architect” who could act as support to the project developers and reassure that the design is successful both in terms of its aesthetics and in the production. The chief architect would have Skanska’s interest closest at heart and support the project developers in argumentations both against the municipality and external architects.

Allocation of funds

Many interviewees believed that Skanska could become better at allocating their funds to the parts where they give most value to the customers. For example, some of the interviewees mentioned that the street scape should be prioritized since that is what most people notice when they visit an area. Spending a little more on the bottom floor and less on details that are not as visible was one suggestion on how to make better use of the money that is spent on the exterior architecture.

In terms of satisfying the preferences of the housing panel, K.M. thought it is important to be able to work with the building volumes, something that they have succeeded with very well in the Sankt Erik area. He explained that volumes have an even larger effect than colours, while the employees at Skanska, on the contrary, spoke about how much potential colours have. K.M. also pointed out that it is important to not rush through the design process in the early stages, where the volumes are decided. Details can easily be added later on, but the volumes are harder to change. A.S. also agreed that decorations and details can be added later in the design process, but opposed to K.M. she believed in designing a simple

building from the beginning. If the building is too complicated from start there is a greater risk that the design has to be stripped of in later stages of the development process.

P.I. mentioned that profits sometimes are prioritised over aesthetical appearance. For example, when a detailed development plan only regulates the maximum total building height, the developer can choose to add an extra floor and a flat roof, instead of constructing a pitched roof. An extra level of apartments will increase the saleable space and the revenues while a pitched roof might be better for the design. P.I. preferred to collaborate with the municipality already in the early stages of the detailed development plan process. Early collaboration makes it possible for the municipality and the developer to discuss design decisions versus costs and revenues together. It is the procedure that usually produce the best end result for all involved parties (Caesar, 2014).

A.S. explained that Skanska always design their buildings from the inside and out. Skanska always have the end customer in focus, and believes that the apartment buyers in the end consider the inside of the apartment to be more important than the outside. However, the exterior architecture does not only affect Skanska's customer, everybody who visit an area with their apartments gets affected by the exterior architecture. The exterior architecture affects the social sustainability of an area and is important for the well-being of the people that live in and visit the area (Forsman & Jonsson, 2016). Skanska's customers are important internal stakeholders but to create society value Skanska also have to start prioritize their external private stakeholders, such as the local residents (Winch, 2010).

Introduce more objectivity into design decisions

Another problem that was brought up is that many design decisions lies in the hands of individuals and thereby are based on the individual's subjective opinions. For example, it is common for the project developers at Skanska to work alone with an entire development, it is therefore naturally that they take all the decisions regarding the design based on their best judgement. But, these decisions will be more or less subjective. Many of the interviewees believed that Skanska could become better at making more objective decisions. As an example, the decisions could be grounded on the preferences of the customers or in research. The preferences of Skanska's customers constitute a share of the demand that exist on the housing market. A market which is known as inefficient due to, amongst other things an extensive regulatory framework and a time lag. However, on an efficient market the apartments that were built would match the preferences of the demand, and the design would most likely be more diversified (Buitelaar & Schilder, 2017). The housing market will continue to be inefficient, but Skanska could become better at satisfying their customers' preferences when it comes to the exterior architecture and design decisions. Knowledge sharing and feedback from colleagues was also brought up as possible suggestions when it comes to reducing the subjectivity in design decisions.

A.S. mentioned that the same subjectivity problem can be identified among the architects too. Some of the interviewees from Skanska blamed the architects for sometimes designing monuments of themselves. The architects on the other hand thought it was sad that other disciplines do not have the same ambitions as they have. One of the architects mentioned that the developers might have to lower their profit margin in order to make it possible to build sustainable cities. The interviewees at Skanska and the architects both agreed on the fact that all parties involved in the development process must take responsibility in the creation of sustainable cities.

The planning process

The municipality has a strong position on the housing market as a result of their planning monopoly, both the architects and the developers have to please the municipality in order to reassure that they will be provided land allocations in the future (Caesar, 2014). The question is rather this affects the design in a positive or negative way.

A problem related to this, which was highlighted by both S.W. and L.K., is related to the planning process. It is common that the original design, which is presented to the municipality, is stripped off in the succeeding steps of the development process. The root of this problem may be a result from the developer wanting to either win a municipal land allocation or to get a detailed development plan approved for a land that they already owe. The problem is also a result from the municipality believing in an unrealistic design from the beginning. The willingness to save money in each stage of the development risk leaving the end-product with little traces of the original design, something that none of the involved parties' benefits from, not even the municipality, said L.K. All of the interviewees agreed that it is better to go for a realistic design from the beginning and they believed that Skanska could become better at following that through. Many considered it important that the project developers are clear about the goals with the design from the beginning and do not allow the production to make simplifications that will change the design too much. On the contrary, it is also important to involve the production and use their expertise and identify the smart solutions with large impact and low cost. The project developers must collaborate with the production and the way of thinking must change. Instead of focusing on making cost reductions, the focus should be aimed at identifying smart solutions.

Many of the interviewees considered it essential to work with the right architects, who understands both the developer and the municipality. The architects in fact have a quite exposed position. The developer constitute the architect's customer, however the architects still have to please the municipality in order to not jeopardize future assignments. Many of the interviewees explained that the municipality have a hard time trusting the developer in design issues, therefore it is crucial to have an architect who can argue with the municipality and make sure that Skanska's interests are satisfied. Given this, the interviewees also pointed out how important it is that the architect understand the developer and are able to create a design that is both attractive and production friendly. The architects agreed with the interviewees from Skanska, however they pointed out that they considered that a closer relationship with the project developer, rather than a handbook, in an early stage would lead to a better end result.

The architect L.K. also said that he dislike a too regulative detailed development plan as much as he dislike being limited by a platform. He considered the architects to be competent enough to design a house that will blend into the ambient built environment. On the contrary, many of the interviewees from Skanska explained that they can understand, and sometimes even appreciate, when an overall design approach is provided by the detailed development plan. A.S. even mentioned that she believed that Skanska have quite much control of the design by coming with suggestions to the municipality. The only problem that was pointed out from the interviewees regarding the municipalities' directorial was, once again, that it is troublesome that the municipality does not trust the developer fully.

Summary

The conclusion that can be drawn from the interviews is that the identified preferences can be satisfied without increasing the production costs. The result from the interviews showed that there is no significant operational barriers that prevent Skanska from fulfilling the identified preferences. The preferences can be satisfied with standardized methods. Other operational suggestions also came up on how to better fulfil the preferences such as focusing more on prefabrication, clever technical solutions and other new technology. Some procedural obstacles were revealed during the interviews but all interviewees saw this as opportunities for improvement. To be able to fully satisfy the preferences, all of the interviewees agreed that the collaboration between the involved parties have to be improved, as well as the trust and understanding for each other, already at an early stage in the design process. At last, the interviewees were optimistic towards the identified preferences and saw opportunities in taking greater account to the preferences. They all thought it was important to address the main problem of this study and that housing developers both can and should improve to better meet the demand concerning exterior architecture.

7. CONCLUSION

The conclusion will first provide an answer to each of the three sub-questions, followed by an answer to the main question.

Which preferences exists regarding exterior architecture among end-users of the built environment?

The preferences regarding exterior architecture that were identified through this study are listed below:

- ♣ **Diversified** with an overall identity and order
- ♣ **Historical style** is not an issue, traditional attributes are preferred
- ♣ **Original** as in unique
- ♣ **Many details**, well-made and genuine
- ♣ **Warm colours**, harmonic and definitely not garish
- ♣ A feeling of **small-scale**

How well does the housing supply in Stockholm match the identified preferences?

Three of the studied areas had a contemporary architectural style, i.e. they were built in accordance with a style that has been dominating the multi-family housing production more or less the last two decades. The fourth area included in the questionnaire was built in a traditional style. The conclusion that can be drawn is that the three contemporary areas did not satisfy the identified preferences as good as the area with a traditional style. As the title of this report, the questionnaire respondents considered contemporary areas in general to look more or less like the same boring boxes when it comes to their external architecture. All the studied areas are located in Stockholm and represent a significant share of the apartments that have been constructed in the city during the last two decades. If the results are generalized, this would imply that a large share of the apartments that are built today do not fully satisfy the end-users preferences in terms of their exterior architecture.

How can the identified preferences be met by housing developers without increasing the production costs?

The identified preferences can be satisfied without increasing the production cost. Standardization or prefabrication does not constitute an obstacle when it comes to satisfying the preferences. A number of fields that require improvement in order to satisfy the preferences were identified during the study and are presented below:

Knowledge sharing and inspiration

- ♣ The end-users preferences must be communicated to the entire organisation, otherwise they can never be met. This can be done in several ways, e.g. handbook, workshops or seminars.
- ♣ The use of innovative and smart technical solution have to increase in order to meet the end-users preferences. Many of the solutions that are required do already exist, however these have to be highlighted and shared, for example through inspirational seminars.
- ♣ Project developers who do not have sufficient experience from working with production nor architecture must be supported in their discussions with the municipalities and the architects. One suggestion that came up during the study was that the developer should employ a chief architect who has the developer's best interest at heart and can constitute a support to the project developers.

Allocation of funds

- ♣ The developer could become better at allocating their funds to the environment that is most visible to humans, for example the street scape, since that is where the capital is most likely to contribute to the highest utility.
- ♣ The developer should not rush the design process in the early stages, where for example the buildings volumes are decided. The buildings volumes should be carefully thought through since it has a large impact on how the environment is perceived.
- ♣ Better collaboration between municipalities and developers in the detailed development process could reduce the occasions where the developer prioritize profits over aesthetics.
- ♣ The developers should shift their stakeholder focus from the *end-customer* to the *end-user* and thereby contribute to a more socially sustainable built environment.

Introduce more objectivity into design decisions

- ♣ Many design decisions in new development projects are more or less subjective, i.e. they are based on the preferences of one or a few individuals. Both developers, municipalities and architects could become better at basing their design decisions on the end-users preferences and on research. This would increase the objectivity and better satisfy the end-users.

The planning process

- ♣ The original design is often changed or reduced during the development process due to several different reasons. By going for a realistic design from the beginning, and collaborate with the production and the municipality, the end result would improve. Instead of focusing on making cost reductions, the focus should be aimed at identifying smart solutions.
- ♣ Trust issues between the municipality and the developer prevents the projects from being as successful as they could be. Collaboration and trust between architects, developer and municipality in as early stages as possible leads to the best end result.

How well does the housing supply meet the demand concerning exterior architecture and how can housing developers satisfy the demand cost-effectively?

The majority of the housing supply, built in what is generally considered to represent a contemporary style, did not satisfy the identified preferences concerning exterior architecture. As the title of this report indicate, the questionnaire respondents considered contemporary areas in general to look more or less like identical boring boxes. It was only the supply built in traditional style that satisfied the identified preferences. That is, the studied housing supply does not meet the end-users demand fully satisfactory. However, the identified preferences can be fulfilled cost-effectively by housing developers. The housing developers can adapt their supply and contribute to a market that better satisfy the demand regarding exterior architecture by accompany the suggested improvements.

7.1. Suggestions for Future Research

This study examines what the respondents in the questionnaire “believe that they prefer and experience”. However, during the study an anthropologist, Katarina Graffman, was consulted regarding the questionnaire result and pointed out that “*Humans do not express what they think, do not know what they feel and do not act as they say they do*” (Graffman, 2017). Therefore, our suggestion to future research within the area is to investigate the end-users preferences from an anthropologist perspective. That is, investigate what humans actually *do* and not what they *say*.

The study was presented at both KTH Royal Institute of Technology and at Skanska, after both presentations, discussions arose concerning the relation between the “boxy” architecture in newly developed areas and environmental certifications (e.g. BREEAM, LEAD, Miljöbyggnad). Another suggestion to further research is therefore to investigate rather environmental certifications have a negative impact on the exterior architecture. Environmental certifications lead to higher costs for the developer, and these costs are most likely financed by reductions somewhere else. The question is if a less lavished exterior architecture is used in order to afford an environmental certification. Should the environmental certifications be expanded to also include some requirements on the exterior architecture? The exterior architecture does, after all, contribute to a social sustainable environment.

8. REFERENCES

- Andersson, H., & Granudd, L. (2016). *How much does architecture affect the willingness to pay? A comparison between 1970s and 1920s architecture and its impact on today's architecture*. Stockholm: Department of Real Estate and Construction Management, The royal Institute of Technology.
- Andersson, O. (2014). *Hitta hem - Stockholm och bostadsbristen*. Årsta: Dokument Press.
- Bedoire, F. (2015). *Den Svenska Arkitekturens Historia 1800-2000*. Stockholm: Fredric Bedoire and Norstedts.
- Björk, C., Nordling, L., & Reppen, L. (2008). *Så byggdes staden: stadsbyggnad, arkitektur, husbyggnad*. Stockholm: Svensk Byggtjänst.
- Boverket. (2016a, 11 13). *Rekordhög bostadsbyggande*. Retrieved from Boverket: <http://www.boverket.se/sv/om-boverket/publicerat-av-boverket/nyheter/rekordhogt-bostadsbyggande/>
- Boverket. (2016b). *Reviderad prognos över behovet av nya bostäder till 2025*. Karlskrona: The National Board of Housing, Building and Planning.
- Buitelaar, E., & Schilder, F. (2017). The Economics of Style: Measuring the Price Effect of Neo-Traditional Architecture in Housing. *Real Estate Economics*, 7-27.
- Caesar, C. (2014). Municipal Land Allcoations. In T. Kalbro, J. Paulsson, & C. Caesar, *Urban Land Development* (pp. 1-28). Stockholm: Institutionen för Fastigheter och Byggnad The Royal Institute of Technology.
- Campi KTH. (2016, 04 01). *Så vill KTH-forskare lösa bostadsbristen*. Retrieved from Campi, KTH: <https://campi.kth.se/nyheter/sa-vill-kth-forskare-losa-bostadsbristen-1.638603>
- Ching, F. D. (2007). *Architecture; form, space and order* (Vol. Third Edition). Hoboken, New Jersey: John Wiley & Sons, Inc.
- Coeterier, J. F. (2002). Lay people's evaluation of historic sites (Landscape and Urban Planning, 59: 111-123). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Forsman, L., & Jonsson, S. (2016). *Addressing social sustainability in residential development - An analysis of a residential developer and two municipalities in Sweden*. Stockholm: Department of Real Estate and Construction Economy - KTH.
- Graffman, K. (2017, 04 27). E-mail interview. (R. Granström, & S. Wahlström, Interviewers)
- Grossman, D. (2016, 10 14). *Bygger vi det folk vill ha?* Retrieved from Fastighetstidningen: <http://fastighetstidningen.se/bygger-vi-det-folk-vill-ha/>
- Haasmark, S. (2015, 10 14). *Dagens Samhälle*. Retrieved May 30, 2017, from Gör inte om misstagen i miljonprogrammet: <https://www.dagenssamhalle.se/debatt/goer-inte-om-misstagen-i-miljonprogrammet-19126>
- Hallin, A., & Karrbom Gustavsson, T. (2012). *Projektledning*. Malmö: Liber AB.

- Hansson, S. (2007). *The Art of Doing Science*. Department of Philosophy and the History of Technology. Stockholm: Department of Philosophy and the History of Technology. Retrieved from <https://bilda.kth.se/courseId/13767/node.do?id=25930532&ts=1477643363181&u=1379133857>
- Hedström, R. T., & Lundström, M. J. (2014). Swedish Land-use Planning Legislation. In T. Kalbro, J. Paulsson, & C. Caesar, *Urban Land Development* (pp. 69-82). Stockholm: Institutionen för Fastigheter och Byggnad, The Royal Institute of Technology.
- Hentilä, H.-L. (1993). Vid eget ritbord, arkitektelevers värderingar av arkitektur, arkitekturstudier och arkitektroll (Stockholm: Formlära, Arkitektur, KTH). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Herschberger, R. G. (1969). A study of meaning and architecture (Environmental Aesthetic, Theory, Research, and Applications, (red.: Jack L. Nasar) Cambridge University Press, 1988, s. 175–194). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- HSB. (2017, 05 14). *OM HSB*. Retrieved from www.hsb.se: <https://www.hsb.se/norrastorstockholm/om-hsb/>
- Hyresgästföreningen. (2016, 06 28). *Bostadsbristen*. Retrieved 11 13, 2016, from hurvibor.se: <http://hurvibor.se/bostader/bostadsbristen/>
- Håkansson, P. A. (1996). Människorna om staden: Intervjuer i Mjölby, Höganäs och Östersund (Den måttfulla staden, Boverket 1996, s. 181–197). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Ivarsson, P. (2017, April 7). Primary interview. (R. Granström, & S. Wahlström, Interviewers)
- Kalbro, T. (2014). The Implementation of Development Projects. In T. Kalbro, J. Paulsson, & C. Caesar, *Urban Land Development* (pp. 83-96). Stockholm: Institutionen för Fastigheter och Byggnad, The Royal Institute of Technology.
- Kaplan, S. (1987). Aesthetics, Affect and Cognition (Environment and Behavior, 19). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape* (p. 107). Lund: Lund University.
- Klaesson, T. (2017, April 4). Primary interview. (R. Granström, & S. Wahlström, Interviewers)
- Kockum, L. (2017, April 5). Primary interview. (R. Granström, & S. Wahlström, Interviewers)
- Krumlinde, S. (2017, April 5). Primary interview. (R. Granström, & S. Wahlström, Interviewers)
- Küller, R. (1991). Architecture and Emotions (Architecture for people, (red.: B. Mikellides) London: Studio Vista 1980. s. 87-100). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Lind, H. (2015, 01 01). *Property cycles - an introduction*. Retrieved from The Royal Institute of Technology: <https://bilda.kth.se/launchCourse.do?id=13770>
- Lind, H. (2017, 02 27). *Vad händer när bostadsefterfrågan faller - Pris- eller kvantitetsanpassningar?* Retrieved from Samhällsbyggarna: <http://www.mynewsdesk.com/se/samhaellsbyggarna/news/vad-haender-naer->

- bostadsefterfragan-faller-pris-eller-kvantitetsanpassningar-laes-hans-linds-senaste-inlaegg-paa-samhaellsbyggargbloggen-223386
- Lind, H., & Broström, P. (2016, 11 21). Bostadsbristen kan snart vara utraderad. (S. Wolters, Interviewer) Uppsala Nya Tidning. Retrieved from Uppsala Nya Tidning: <http://www.unt.se/uppland/uppsala/bostadsbristen-kan-snart-vara-utraderad-4442841.aspx>
- Moattar, K. (2017, April 5). Primary interview. (R. Granström, & S. Wahlström, Interviewers)
- Molina, I. (1997). Stadens rasifiering, etnisk boendesegregation i folkhemmet (Kulturgeografiska institutionen; Uppsala universitet). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Moström, T. (2017, April 27). Primary interview. (R. Granström, & S. Wahlström, Interviewers)
- Nasar, J. L. (1994). Urban Design Aesthetics: The Evaluative Qualities of Building Exteriors (Environment and Behavior, Vol 26, Nr 3, 1994. s. 377–401). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Nyström, L. (2006). *Arkitektur för livet. Om nutidens arkitektur mellan dåtid och framtid*. Karlskrona: Bildanden.
- Pleiborn, M. (2017, 02 16). *Behövs 710 000 bostäder? Knappast*. Retrieved from Samhällsbyggaren: <http://samhallsbyggaren.se/wp/featured/behovs-710-000-bostader-knappast/>
- Psilander, K. (2004). Niching in residential development. *Journal of Property Research*, June 2004, 21(2), 161–185.
- SABO. (2016, 11 13). *Miljonprogrammet*. Retrieved from [www.allmannyttan.se](http://www.allmannyttan.se/historia/tidslinje/miljonprogrammet/): <http://www.allmannyttan.se/historia/tidslinje/miljonprogrammet/>
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students* (Fifth Edition ed.). Harlow, Essex, England: Pearson Education Limited.
- SCB - Statistiska Centralbyrån. (2017, 05 14). *Statistics Sweden*. Retrieved from Färdigställda lägenheter och rumsenheter i nybyggda hus efter region och hustyp. År 1975 - 2016.: http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__BO__BO0101__BO0101A/LghReHustypAr/?rxid=397b5016-5911-4fc6-bec5-b367edcf75fd
- Skanska Sweden AB. (2016). Ledande samhällsutvecklare. *Internal document*.
- Skanska Sweden AB. (2017a). Our Offer. Retrieved from <http://www.skanska.se/skanska-in-sweden-in-brief/our-offer/>
- Skanska Sweden AB. (2017b). Skanska Businessplan Profit with Purpose 2020. *Internal document*.
- Skanska Sweden AB. (2017c). Skanska Housing Panel. *Internal document*.
- Skanska Sweden AB. (2017d). Skanska Sweden's Housing Platform. *Internal document*.
- Skanska Sweden AB. (2017e). Vårt sätt att arbeta - Nya Hem. *Internal document*.
- Skantze, A. (1996). Tillhörighet och främlingskap: En förorts arkitektur i de boendes meningssammanhang (Stockholms Universitet, Pedagogiska institutionen). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape* (p. 58). Lund: Lund University.

- Smith, P. F. (1976). A Psychological Model for Aesthetic Experience (Leonardo, Vol. 9, No. 1. Winter, 1976. s. 25-31). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Stamps, A. E. (1999). Demographic Effects in Environmental Aesthetics, A Meta-Analysis (Journal of Planning Literature, Vol. 14, No 2. Sage Publications). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Stenberg, E. (2017, 01 25). Miljonprogrammet – en gång till. (T. Heldmark, Interviewer) KTH Magazine. Retrieved from <https://www.kthmagazine.se/artiklar/miljonprogrammet-en-gang-till>
- Sternudd, C. (2007). *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Department of Architecture and Built Environment, Lund University. Lund: Lund University.
- Stockholms Stad. (2011). *About Hammarby Sjöstad*. Stockholm: Stockholms Stad. Retrieved from Stockholms Stad: <http://bygg.stockholm.se/Alla-projekt/hammarby-sjostad/?acceptcookies=true>
- Stockholms Stad. (2013, 01 01). *Stockholm sifferguide 2013*. Retrieved from Stockholms Stad: http://statistik.stockholm.se/attachments/article/43/sifferguide%202013_webb.pdf
- Stockholms stad. (2017, 03 08). *Norra Djurgårdsstaden*. Retrieved from Stockholms stad: <http://vaxer.stockholm.se/omraden/norra-djurgardsstaden/>
- Stridh, A. (2017, April 6). Primary interview. (R. Granström, & S. Wahlström, Interviewers)
- Sundbybergs Stad. (2017, 03 13). *Området*. Retrieved from Ursvik: <http://www.ursvik.se/om-ursvik/omradet/>
- Svensk Mäklarstatistik. (2017, 03 01). *Statistik Stor-Stockholm*. Retrieved from Mäklarstatistik: <http://www.maklarstatistik.se/maeklarstatistik/kommun.aspx?Main=Stor-Stockholm&LK=3001&Months=99&Extra1=3001&Extra2=3003&Typ=Boratter&Ant=8320>
- Svensson (DN), J. (2017, 03 22). Vinstmaximerat byggande triggat social katastrof. *Dagens Nyheter*, pp. -.
- Sörensen, P. (2010, 04 01). *Prisbelönade pastischer. Följ med på virtuell stadsvandring i S:t Eriksområdet i Stockholm*. Retrieved from Byggnadsvårdsnytt: <https://byggnadsvardsnytt.wordpress.com/2010/04/01/prisbelonade-pastischer-folj-med-pa-stadsvandring-i-st-eriksomradet-i-stockholm/>
- The Activity Based City. (2017). The Activity Based City. *Skanska, WSP, Scania and MTR*. Retrieved from <http://activitybasedcity.se/>
- The Spruce. (2017, 04 26). *Design Basics: Understanding Warm Colors and Cool Colors*. Retrieved from The Spruce: <https://www.thespruce.com/understanding-warm-and-cool-colors-1976480>
- Waldfoegel, J. (2009). The Tyranny of the Market: Why you Cannot Always Get What you Want. In E. Buitelaar, & F. Schilder (2017), *The Economics of Style: Measuring the Price Effect of Neo-Traditional Architecture in Housing* (pp. 7-27). -: American Real Estate and Urban Economics Association.
- Widehag, S. (2017, April 4). Primary interview. (R. Granström, & S. Wahlström, Interviewers)

- Vidén, S., & Hall, T. (2005). *The Million Homes Programme: a review of the great Swedish planning project*. Department of Art History, Stockholm University. London: Routledge.
- Winch, G. (2010). *Managing Construction Projects* (Vol. 2). Chichester, West Sussex: Wiley-Blackwell.
- Vällingby City. (2017, 05 15). *Historien om ABC staden*. Retrieved from Vällingby City: <http://vallingbycity.se/historia/>
- Zajonc, R. B. (1980). Feeling and Thinking: Preferences Need No Inferences (American Psychologist, 1980: 35, 151-175). In C. Sternudd (2007), *Images of the Small Town - on Aesthetic Evaluation of a Townscape*. Lund: Lund University.
- Öjemark, F. (2016, 11 30). "Fantastiska lägen" - Här vill Skanska bygga nya ministäder för att lösa bostadskrisen. *Dagen Industri*.

8.1. List of Figures

Figure 1: Figure based on the idea of Skanska's business plan "Profit with Purpose" for the years 2016-2020 (Skanska Sweden AB, 2016).....	8
Figure 2: Location of the four areas that are included in the questionnaire (map from Google Maps, edited by the authors)	13
Figure 3: Distribution of questionnaire respondents across the Swedish Counties	16
Figure 4: Age and gender distribution among questionnaire respondents.	17
Figure 5: Occupation and housing situation among the questionnaire respondents.....	17
Figure 6: The attribute question in the questionnaire	19
Figure 7: Tower blocks from the million homes programme (Haasmark , 2015).....	27
Figure 8: Planning Hierarchy in Sweden (Hedström & Lundström, 2014).....	28
Figure 9: The Detailed Development Plan Process (Hedström & Lundström, 2014).	29
Figure 10: Fluctuations in construction activity on the Swedish housing market (SCB - Statistiska Centralbyrån, 2017).....	34
Figure 11: A stage-gate model for residential development projects based on Skanska's model (Skanska Sweden AB, 2017e).....	40
Figure 12: Value-added investments according to the concept of a balanced scorecard (Winch, 2010).	41
Figure 13: Warm and cold colours (The Spruce, 2017).	50
Figure 14: Area 1, Sankt Erik (the images are photographed by the authors).....	52
Figure 15: Scale, Sankt Erik	52
Figure 16: Diversification, Sankt Erik.....	53
Figure 17: Level of detail, Sankt Erik	53
Figure 18: Colours, Sankt Erik.....	54
Figure 19: Style, Sankt Erik	54
Figure 20: Originality, Sankt Erik	55
Figure 21: Area 2, Stockholm Royal Seaport (the images are photographed by the authors).....	56
Figure 22: Scale, Stockholm Royal Seaport.....	56
Figure 23: Diversification, Stockholm Royal Seaport.....	57
Figure 24: Level of detail, Stockholm Royal Seaport	57
Figure 25: Colours, Stockholm Royal Seaport.....	58

Figure 26: Style, Stockholm Royal Seaport	58
Figure 27: Originality, Stockholm Royal Seaport	59
Figure 28: Area 3, Hammarby Sjöstad (the images are photographed by the authors).....	60
Figure 29: Scale, Hammarby Sjöstad	60
Figure 30: Diversification, Hammarby Sjöstad.....	61
Figure 31: Details, Hammarby Sjöstad	62
Figure 32: Colours, Hammarby Sjöstad	62
Figure 33: Style, Hammarby Sjöstad.....	63
Figure 34: Originality, Hammarby Sjöstad	63
Figure 35: Area 4, Ursvik (the images are photographed by the authors).....	64
Figure 36: Scale, Ursvik.....	64
Figure 37: Diversification, Ursvik.....	65
Figure 38: Details, Ursvik	65
Figure 39: Colours, Ursvik.....	66
Figure 40: Style, Ursvik	66
Figure 41: Originality, Ursvik	67
Figure 42: Average score, diversification	88
Figure 43: Average score, style	88
Figure 44: Average score, original or conventional	89
Figure 45: Average score, details	90
Figure 46: Average score, colours.....	91
Figure 47: Average score, scale	91

8.2. List of Tables

Table 1: Translations	IV
Table 2: Attributes in the questionnaire (Sternudd, 2007)	12
Table 3: Information about the interviewees and the dates for each interview.	21
Table 4: Example of some project stakeholders (Winch, 2010).....	42
Table 5: Preferences of architects and laymen (Sternudd, 2007)	48
Table 6: Average score, comparison age groups.....	70
Table 7: The interviewees' preference ranking of the four residential areas. Ranking 1 is the interviewees most preferred area and ranking 4 is their least preferred area.	72
Table 8: The interviewees cost ranking of the four residential areas. Ranking 1 is the area that the interviewees have estimated to have the highest production cost and ranking 4 is the area that they have estimated to have the lowest production cost.	74
Table 9: Average score respectively average ranking of the four areas.	86

9. APPENDIXES

Appendix A: Questionnaire Layout

This appendix presents the layout of the questionnaire that was sent out to the respondents in the housing panel.

Introduction to the questionnaire

Welcome,

In this questionnaire we want to identify your preferences and perceptions regarding the built environment in large multifamily residential areas. Your opinion is important so that we together can contribute to a living environment of higher quality. The questionnaire constitute a part of a master thesis which is written at KTH Royal Institute of Technology, in collaboration with Skanska.

The estimated time required to complete the questionnaire is five minutes.

We wish to thank you for answering the questionnaire!

The questionnaire is distributed by MarketDirection at the request of Skanska Nya Hem.

Background Questions

Are you male or female?

(Closed question, mandatory to answer)

- ☐ Male
- ☐ Female
- ☐ Other:

Which year are you born?

(Open question, mandatory to answer)

What is your main occupation?

(Closed question, mandatory to answer)

- ☐ Studying
- ☐ Working
- ☐ Other:

Where do you live? Please enter your postal code.

(Open question, mandatory to answer)

How do you live?

(Closed question, mandatory to answer)

- ☐ Apartment in multifamily residential building
- ☐ Villa, terraced house, semi-detached house, or similar
- ☐ Other:

Are there any children under 18 years living in your household?*(Closed question, mandatory to answer)*

- ☐ Yes
☐ No

Which means of transportation do you commonly use in your everyday life?*(Closed question, mandatory to answer, possible to choose several alternatives)*

- ☐ Car, motor cycle or similar
☐ Bus, tram
☐ Commuter train
☐ Other trains
☐ Subway
☐ Bicycle
☐ Nothing, I walk
☐ Other:

Introduction to area questions

In the following part of the questionnaire you will be shown images of four different multifamily residential areas. You will be asked to describe the images by using a set of parameters which are presented to you. You will also grade the built environment based on your opinion of the area. If you recognise any of the areas, please try to set aside the areas geographical location.

The same set of the following three area-questions were asked to each of the four areas in the questionnaire. The images of the area were displayed on the top of the page, followed by the three area-questions. The images that were used in the questionnaire are displayed under the Result section (See the following figures: Figure 14, Figure 21, Figure 28 and Figure 35. Each area required the respondent to load a new page in the questionnaire.

Which of the following parameters would you say describe the built environment on the images of area X?*(Closed question, mandatory to answer)*

	3	2	1	0	1	2	3	
Large-scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Small-scale
Uniform	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Diversified
Few details	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Many details
Cold colours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Warm colours
Contemporary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Historical
Original	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Conventional

What do you think characterizes the built environment on the images for area X? (E.g. the colours, the details, the diversification, the materials, the shapes, the scale, the style, the windows, the entrances, the balconies, the roofs)

(Open question, voluntary to answer)

What do you think of the built environment in area X, according to your own preferences?

(Closed question, mandatory to answer)

- ☐ 0 (Very ugly)
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 (Very beautiful)
- ☐ No opinion

Final question

What do you think is important to have in mind when it comes to the built environment in newly developed areas constituting multi-family dwellings? (E.g. the attractiveness, the aesthetics, the safety, the likability)

(Open question, voluntary to answer)

Concluding text

Thank you for participating in the questionnaire!

Appendix B: Interview Guides

This appendix presents the interview guides with predetermined questions that were used for the interviews.

Interview Guide: The Main Interviews

This section presents the interview guide for the first seven interviews, the main interviews. The following 12 questions were asked:

1. Do you approve that your interview is being recorded, that what you say in this interview will be used in the thesis and that your name are being acknowledged?
2. What is your name, where do you work and what is you role?
3. What is your education and what have you worked with before?
4. How long have you worked at your current employer and how long have you had your current role?
5. Please, briefly describe you current work.
6. Do you have a relationship to design and project development in your work and if so, in what way do you have that?
7. Do you know about Skanska Sweden's Housing Platform and if so, what kind of relationship do you have to it?
8. Please, rank the questionnaire's fours areas according to your own preferences and explain your reasoning.
9. Please, rank the questionnaire's four areas after your estimation of their production costs by expiring from what you believe that you and your project team could accomplish if building it today and explain your reasoning.
10. Are you surprised about the questionnaire's result and what do you believe are the reasons for the result?
11. Sankt Erik got the highest score from the housing panel, do you see any obstacles or opportunities in building similar to Sankt Erik with standardized methods (such as Skanska's Housing Platform)? Do you see any specific obstacles or opportunities for this in your role?
12. How can Skanska's business (e.g. its housing platform, working methods or processes) develop so that it takes greater consideration to the housing panel's preferences? What can you do in your role to pursue this development?

Interview Guide: The Concluding Interview

This sections presents the interview guide for the last and concluding interview. The following 14 questions were asked:

1. Do you approve that your interview is being recorded, that what you say in this interview will be used in the thesis and that your name are being acknowledged?
2. What is your name, where do you work and what is you role?
3. What is your education and what have you worked with before?
4. How long have you worked at your current employer and how long have you had your current role?
5. Please, briefly describe you current work.
6. Do you have a relationship to design and project development in your work and if so, in what way do you have that?

7. Do you know about Skanska Sweden's Housing Platform and if so, what kind of relationship do you have to it?
8. When and how is the platform supposed to be used and how is it used in the reality? When is the platform used and when is it not being used?
9. Which documents/chapters in the platform are being used the most? Is it any specific sections that is perceived as extra valuable?
10. Which uses the platform and which does not? Do you experience that there is any particular disciplines which does not want to use the platform and if so, what is the reason for that?
11. How does the reference group for the platform working and which ones are part of the group?
12. What are the most common critique that the platform receives and what suggestions on improvement have you received for the platform?
13. How can Skanska's business (e.g. its housing platform, working methods or processes) develop so that it takes greater consideration to the housing panel's preferences?
14. What do you think about the other interviewees' suggestions to the above question?

