COMMUNAL HOUSING PREFERENCES
A STATED CHOICE EXPERIMENT TO INVESTIGATE IF VACANT BUILDINGS ARE SUITABLE FOR REALLOCATION

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Communal housing preferences:
a stated choice experiment to investigate if vacant buildings are suitable for reallocation

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Preface

This report presents my master thesis for the completion of my study Construction Management and engineering (CME) at Eindhoven University of Technology (TU/e). The graduation project was conducted as an internship at the municipality of Nijmegen.

The subject communal housing is deliberately chosen, because I see the added value of this form of housing. There are several examples of successful projects where the inhabitants and visitors enjoy the living environment, atmosphere and the relation of the audience. The focus on communal housing preferences is chosen to give an idea about the feasibility of transforming the vacant buildings into communal housing areas.

The fulfillment of my research would not have been possible without the advice, support, and cooperation of others. Therefore, I am grateful and wish to thank everyone who offered help. Especially, the following persons I like to thank.

For their guidance and support I like to thank my supervisors from the TU/e: Aloys Borgers, Brano Glumac and Wim Schaefer. Another person from TU/e that I would like to thank is Peter van de Waerden. They were always willing to share their knowledge and give feedback when needed. Furthermore, I am happy to thank the municipality of Nijmegen for their warm welcome and pleasant working environment. I enjoyed my time working there. In specific I would like to thank Wim Niessen and Bram Verhoef for their support, cooperation, input and fielding the experiment.

I found my research subject very interesting, I hope you will find it interesting too and enjoy reading it. A broader overview of the literature review regarding the topic of my graduation project can be found in a separate document ‘Literature study’ written at the start of my graduation project.

Bouke Janssen Steenberg, Nijmegen, September 2014
Summary

Objectives and methodology
The Dutch property market is making changes in the last years, and the result is that the Netherlands has a surplus of empty buildings. Due to changes in the society and governmental policies is there an expectation that the amount of vacant property owned by the government will grow on a large scale the next few years. To reduce the current vacancy, and to anticipate on the future expectations the government has to investigate the possibilities.

Communal living is a form of housing that possibly could be allocated to vacant buildings. Communal housing is interesting because of the high level of involvement of the residents. There are several projects where the residents of the community take care of the design, the building phase and the maintenance. Because this high-level of participation this form of housing could reduce costs of the renovation of the building. In order to meet the requirements for this focus group the preferences need to be investigated. In this way, the market knows which variables have a high importance for the future users. In this way buildings could be transformed according to the preference, what could result in the reduction of residential stress and improving housing satisfaction. The current research was conducted to get more insights in communal housing preferences.

Within a web-based questionnaire, a conjoint choice experiment elicited which housing and neighborhood characteristics of communal housing are most important in communal housing choice decisions. Eight characteristics were included: price, size, finishing level residential unit, personal contribution maintenance, outdoor space, bathroom, kitchen and location.

By using data collected from 94 respondents according to the communal housing focus group, the multinomial logit (MNL) was estimated to assess the effects of the variables in the Stated Choice Experiment (SCE), on housing preferences. In addition, the effects of socio-demographics on communal housing preferences can be assessed as well using the MNL model.

The preferences of the respondents, interested in living in communal housing can be used to determine if a building is suitable for transformation into communal housing. In addition, the findings may be used to define target groups matching specific vacant buildings.

Results and conclusions
According to the MNL model, respondents prefer outdoor space as most, followed by respectively prize, size, finishing level of the unit, private kitchen, private bathroom, location and contribution to the maintenance. The result of this research is unusual when compared with other studies on housing preferences. Recently research about (student) housing preferences show that prize has the highest preference importance and size is the second. Another striking result is that the finishing level of the building has a higher importance than the shared facilities of
kitchen and bathroom. Studies on other focus groups show that private bathroom and private kitchen usually have a high priority for the respondents.

If the socio demographics are combined with the SCE, it is striking that the target group ‘Living with more adolescents’ is the one that gives the highest importance to the housing costs. The combination of the socio demographics and the outdoor space shows that the group of 50 years and older gives outdoor space the highest priority. The group of respondents that prefer to rent a house gives outdoor space a higher priority than the group that prefers to buy a house.

When combining the results of the size of the residential house and the communal housing preferences, we can observe interesting results concerning the group not interested in communal activities: this group has the largest interest in extra square meters (more than the given surface). The respondents prefer to have a private sanitary, and the group of buyers gives this the highest priority. The priority for a private kitchen has more importance for the respondents than the preferences for private sanitary.

Concerning the relation between the communal housing preferences and the shared facilities it is remarkable that the residents who prefer many visitors prefer to have their own sanitary and kitchen. They like to have an active living environment, but they prefer to have their own unit with facilities. The respondents that have less interest in recreational contact with social activities have fewer problems with sharing sanitary compared with the respondents that prefer many activities.

An example of a target group sharing the same preferences is a group preferring to live out of the city center, with shared facilities as kitchen and bathroom, which would like many visitors in the communal housing area and prices not exceeding the budget.

**Entrepreneur**
The response from the respondents about starting a business is striking, because more than 70 percent indicated that they would like to start an activity in the community. The questionnaire considered three entrepreneurial options. Atelier, working place or office was the most popular option. The option starting a pub, restaurant or shop is also popular with a percentage of 18 percent, and the third option starting a company or pedicure received a percentage of 15 percent. If we correlate the entrepreneurship results with the age of the residents, than the group that would like to start a pub, restaurant or shop is interesting. In fact the group of people under 35 is the group most interested in initiating such activities.

**Building and location**
There are many buildings that could be transformed into communal housing areas, and it is interesting to know which type of building is the favorite for the respondents. The respondents have indicated that schools, residential and monumental buildings are the buildings they would prefer the most. Office buildings, and high-rise office building in particular are not popular buildings, as well as retail buildings.
The most popular location of the communal housing area is the border of the city center (90%). The city center is also a popular location (60%). The most popular location for the entrepreneurs is outside the center. The most popular enterprises for this group are ateliers and workspaces. However, in the case entrepreneurs prefer to start a business in the city center, the preferences for enterprises go to pubs, restaurants or shops.

The research results were collected, and two case studies have been checked on their feasibility. One of the cases is a monumental building, which has earlier acted as a school building. The other building is a former practical school building, which was used for practical learning processes for the secondary school. Examples of offered programs are carpenter, metalworker or hairdresser. The buildings were checked on their feasibility, and the most important measures were related to the research outcomes. The result shows that both buildings are financial and practical suitable for transforming, but both buildings need a different focus group. The most important aspects for this decision is based on the location, condition of the building, entrepreneurial possibilities and communal areas.

If the building owner would like to reallocate a building into communal housing, it would be recommended to investigate the characteristics of the vacant building. The characteristics of the building need to be analyzed, and must be compared with the socio demographics and preferences of the communal housing interests. The building owner needs to find the most appropriate group of users for this building, and the outcomes of this research could give an impression about the most suitable group of future users. To reach this desired group there must be a mediator who is specialized in communal housing. Although most of the respondents do not appreciate a mediator, a mediator is a proper point of contact for the municipality as well as for the future residents.
1. Introduction

1.1 Motivation
As a consequence of the changes in the Dutch property market in the last years, the Netherlands has a surplus of empty buildings. The financial crisis has significantly contributed to the increase of this phenomenon. The awareness factor for this issue is growing, and building owners realize that they have to anticipate on these changes to limit the number of vacant buildings. At the moment the largest problem is the vacancy stock in the office sector. Recent research shows that we can realistically expect that the vacancy stock in this property sector could be three times higher in 2030 than the current vacancy stock in the office market (Bouwstenen voor sociaal 2013). The market has to anticipate this scenario and find solutions to prevent the vacancy stock market from exploding.

Besides the vacancy problems, other changes are taking place in the dwelling market. These transformations occur because of the changing composition of the population and the modifications in needs, which produces imbalances in the demand. To reduce these imbalances, the providers of the dwelling market should take in serious consideration the demands of the market. The housing consumer is becoming more empowered and critical, and places higher expectations on his dwelling and the residential environment. Consumers want more influence on the features of their dwelling, and in the programming and designing of their living environment (outdoor space, employment, facilities). Government, corporations, developers, advisors and residential groups are increasingly working together in projects, giving the resident a larger amount of freedom of choice and authority. This amount of freedom reaches its peak when the resident is able to develop his own dwelling and its environment (Vrijburcht 2010).

There are several researches confirming that the Dutch population wants changes in the dwelling market. The Dutch VROM-raad did research about the needs, and concluded that living with likeminded people could improve the atmosphere and the attractiveness of an area, and improve the satisfaction factor of the population. Scholars (Skemp et al. 2010; White and Stirling 2013; Sanguinetti 2014; Williams 2008) argue that there is a recent and generally growing interest of (urban) citizens for more sociable and sustainable housing solutions. Connectedness with one another, sociability and ‘reciprocity work’ (Galmarini & Andreoni 2013) are values and practical activities that inhabitants are looking for in alternative forms of housing. These changes in housing requirements are giving opportunities for an attractive development and transformation of existing urban areas. There is a demand for more attention for the quality of living in the Netherlands (WoON 2009).

Communal housing is a form of living that fits within these changes in the market. Urban citizens in the 21st century are protagonists of a growing phenomenon of cohousing and communal living (Skemp et al. 2010). These housing solutions follow the Scandinavian tradition of cohousing but go beyond it. At the same time, the
communal living housing follows the model of communes of the ‘70s, but transformed the concept model and adapted it to the needs of nowadays societies. Promoting social relationships and mutual sustain, these housing solutions increase the social capital of the community (Galmarini & Andreoni 2013). Social capital is an important sociological concept that refers to the individual access to resources by using their connections, and can be measured with an index (Beuningen & Schmeets 2012).

The communal living housing solutions are in this sense particularly important for the ongoing changes in the society: decrease in solidarity, individualism and social isolation. At the same time, communal living and cohousing are sustainable housing models for the environment (Sanguinetti 2014). During the realization and the establishment of the building or during renovation of the building, the (future) residents are often actively involved and initiating. The involvement of the residents ensures that they can discuss their needs and wishes and optimize their future living area.

People interested in communal housing could be an attractive group for the reallocation of the vacant building stock, and this form of living responds to the needs of the Dutch society. To get an overview of the buildings that fulfill the necessities for communal housing, it is necessary to investigate these preferences and requirements. Only once the preferences and requirements of the focus group have been identified, it is possible to make an evaluation of the building and determine whether it fulfills such requirements. This report will focus on individuals interested in communal housing, and their preferences concerning a communal housing environment. The criteria of the vacant buildings would need to respect in order to be considered adapt for transformation. This report will develop a survey, which will investigate the preferences of potential inhabitants of the communal living for their living conditions, location and levels of interaction with the community.

A popular method to investigate consumer choices and preferences is conjoint analysis. Conjoint analysis elicits which characteristics of the product are most important in the decision making process (Louviere, Hensher & Swait 2000). It assumes that people consider and evaluate multiple housing characteristics in order to make a choice about their housing. Conjoint analysis takes into account the trade-offs between housing characteristics that households have to make in housing decisions. The relative importance of each housing characteristic and its influence on the housing choice can be estimated. Therefore, the conjoint analysis method is considered better in estimating housing preferences than straightforward questioning used in many commercial studies (Molin et al. 2011).
1.2 Objectives, research questions

1.2.1 Goal
The Dutch property market has vacant buildings and this has negative financial and social consequences. The market is searching for initiatives for the rehabilitation of those buildings and their reintegration into society.

The goal of this report is to investigate how and whether vacant property owned by the government can be turned into communal housing, to give communes a chance to create their own attractive living environment in the vacant building stock.

1.2.2 Problem
What are the housing requirements of communal housing residents, and which characteristics determine if a vacant building is potentially suitable for reallocating into the communal housing function?

1.2.3 Research questions
- Which housing characteristics are important in communal housing choice behavior and to what degree?
- Which demographic characteristics are important in communal housing choice behavior and to what extent?
- What type of communal activities, spaces, and areas does the focus group prefer, and which building do they prefer or not prefer?
- What advice can be given to property owners about the transformation of buildings into communal housing, based on communal residential preference?

1.3 Reading guide


2. Research framework

To reduce the vacancy stock it is important to find new implementations for the vacant buildings. Redevelopment into residential buildings may be an option. To investigate the most desirable living situation for a particular target group, the housing preferences need to be investigated. The main subject of the research is housing choice behavior. This subject has been studied extensively in the past. Many researchers have focused on variables that could influence housing choice behavior, such as housing characteristics and demographics. The following section will present an overview of some findings of this kind of research. Furthermore communal housing will be explained and the model specification will be determined. The current research will investigate the preferences of people interested in communal housing projects.

2.1 Housing and behavior
The Dutch real estate market is facing a turning point; as a result to this, the Netherlands is at the moment replete with empty buildings. In the 2012 office stock was a 16 percent rate of empty or for sale estates (NVM business 2013). Next to the office market are also reversals in the housing market. Due to changes in human behavior and new legislation it seems that a large number of the social housing market is becoming unnecessary.

Recent research about vacancy stock of government property shows that a nationwide decline of 25 percent within 20 years is quite plausible. At the local level a decline of 50 percent is a plausible scenario. This could involve an availability of 20 million square feet, within the next 10 to 20 years and these estates will not fulfill any economic purpose. If this estimation becomes reality this will result in a vacancy of social housing that is almost 3 times as high as the office vacancy.

This increasing vacancy has several negative consequences. The quality of the surroundings nearby these buildings will deteriorate. This has a negative influence on the general attraction of the neighborhood and could eventually cause social insecurity. The condition of the building itself could run down to a lack of maintenance and one should be aware of neglect. Another side issue is the financial burden for the landlord.

Rezoning
For a part of the empty buildings, reallocation could be a solution. There are several alternative destinations thinkable for an estate in its current function. The new function of the building could be made publicly accessible by giving it a catering purpose such as a hotel, restaurant or club. It could also be rezoned into a sport facility, public-health zone or be given a retail-function.

The transformation into a residential function is a possible option, what could fulfill the needs of the housing market. Housing is a primal necessity of live but the housing market is a complex world with many imperfections (WoON 2012). As a result of the continues changing on the market, due to the fluctuating needs and
compositions of the population, the market is always seeking for specific types of houses.

### 2.1.2 Dwelling market

Dutch people enjoy their residence and surrounding, which are internationally recognized as good circumstances for living. Nevertheless there has arisen a large discrepancy between supply and demand. Caused by the unbalanced supply, buyers and tenants have difficulty in finding suitable rental or sale houses. Consumers are dealing with outstanding debts and lose their courage to invest. Living with like-minded people is a wish, which deserves extra attention, is the outcome of research done among the Dutch population (WoON 2009).

To anticipate this market change, the Dutch government has designed a policy. There is a need for a market in which existing and new supply responds to the demand (Rijksoverheid 2008). Communal housing seems a solution for both market and government.

### 2.1.3 Communal housing

The Federation of Communal housing describes communal housing as following:

“In communal housing are several households using or managing one or more communal gathering- and/or working-rooms. Membership is voluntarily and the admission of new members is a group-process. Next to the communal use of facilities are frequently several ideologies behind the foundation of the communal-housing project (FGW 2013).”

A better social structure could be stimulated if the residents of the housing area have a proper relation with their environment. Communal housing could influence this process positively, because the households determine new residents and the codes of conduct for the environment. The communal areas are designed in consultation of the residents of the housing community, and the ideal living standards are realized. If facilities connect well with the personal preferences, one is probably more willing to invest (Bouwstenen voor sociaal 2013)

Communal living is at the same time a growing social phenomenon that responds to important changes in society and the environment (Beuningen & Schmeets 2012; Sanguinetti 2014). In fact, communal living inhabitants highly value connectedness, mutual sustain, sociability and environmental sustainability (Skemp et al. 2010). Their reciprocity work, housing behavior and sociability increase the social capital (Beuningen & Schmeets 2012). Communal living has growingly expanded all over Europe and is new increasing phenomenon also in the US (Williams 2008). It is a phenomenon that spreads over different social groups: youngsters as well as elderly (Skemp 2010). In particular, some authors (Baars & Thomasé 1994) noticed already in the early ‘90s how the phenomenon of communes of elderly people in the Netherlands was in rapid growth and even became a policy issue.
2.2 Measuring housing choice behavior

Housing choice decisions are made by considering and evaluating multiple characteristics of the house, neighborhood and location. The overall evaluation of an alternative is the weighted combination of its relevant characteristics, also called attributes. According to Jansen, consumers are assumed to make rational decisions, maximizing their utility (Jansen 2011). More important attributes are thought to have a greater influence on preferences and will therefore influence decisions more than less important attributes. The selected attributes will be explained in more detail in paragraph 3.2.1 of this report. Trade-offs between attribute levels will be made to come to a decision (Kemperman 2000). According to this theory, individuals will follow a rational logic and choose the alternative with the highest utility.

2.2.1 Research methods

To get insights in the apartment and services preferences of the respondents, this research is making use of SCE. Respondents have to choose multiple times which alternative in a choice set they prefer the most. By observing the respondent’s choices, the parameters could represent the weight of the attribute levels.

Data regarding housing choice behavior can be collected by means of a conjoint analysis experiment. Conjoint analysis is a decomposition stated preference method, which traces respondents’ preferences based on the relative importance of multiple characteristics quantitatively (Louviere, Hensher en & Swait 2000).

Stated Choice Experiments (SCE) place decision makers in controlled experiments with hypothetical choices. These experiments may use a wider range of attributes and attribute levels than those found in real markets, making it possible to investigate new or non-existing alternatives. SCE is a frequently used research method in the field of housing and mobility market, because this method gives proper insights in the expectations of the process of decision-making. The respondent has to choose between different attribute packages, and SCE makes it possible to estimate the importance of the attributes from the choices made by each individual. The researcher has control over the relationships between attributes and outcome data, because he can design the experiment. This leads to greater efficiency and elimination of collinearity (Louviere, Hensher & Swait 2000; Train 2009).

By collecting the data the respondents have to fill in an online survey. An in-house developed program called ‘Berg Enquete Systeem’ will be used to put the survey online. A conjoint choice experiment was combined in this questionnaire with additional questions about communal housing socio-demographics and value patterns.

Two other subjects that will be examined are the communal housing preferences and the building preferences. Both subjects will be researched with help of multiple and single choice questions, which will be part of the questionnaire. The method SCE is particularly suitable for the apartment and service preferences, but it has the limitation that it could only investigate limited attributes. Multiple and single choice questions need to supplement the untreated parts of the research.
The communal housing preferences are interesting to get insights in the preferred living environment of the focus group. Important subjects are the communal areas, the interrelationship with the inhabitants and the activities for visitors. The building preferences will be investigated to get an impression about which attributes are important and to what degree. The most important subjects will be the type of building, the location and the terrain.

2.2.2 Model specification
The stated preference data is used as input for choice models. These models estimate part-worth utilities for all attributes that best reproduce the observed choice.

For measuring the apartment and service preferences, Multinomial logit (MNL) is a common used modeling approach. (Louviere & Timmermans 1990; Molin et al 1996; Timmermans et al, 1992; Nijenstein et al. 2014). This model simply describes the preferences of all respondents by one set of utility weight parameters, not reflecting any individual differences (Louviere, Hensher & Swait 2000). However, differences in preferences between individuals were found in previous research (Molin et al 2001; Timmermans et al 1992) and individual differences can be accounted for (Nijenstein et al. 2014).

Researchers have considered many variables that could have an influence on housing preferences. Housing characteristics, such as price, size, neighborhood facilities, and relative location are often studied and found to affect housing preferences. This set of characteristics may not be adequate in the current research as communal housing is a special kind of housing. Most important characteristics of transforming property into communal housing projects seem to be prize, size, sharing facilities, outdoor space, the type of building and the location. These attributes are nominated because they were important aspects in previous housing researches. These attributes were also appointed in interviews with experts during the preparation phase of this report.

Furthermore, demographic variables, such as age, gender, income, education level, employment status and household type are often studied and found to be related to housing choice behavior. In the specific case of communal housing behavior the focus group may deviate from the usual groups. The interest in the communal aspects may be important for the members of the community. The preferences of the residents will be important for the activities and relation with the other residents in the living area. The interests of the residents will be different, but these differences could result in groups with similar expectations about living in communal housing.

2.3 Conclusions
The amount of vacant buildings is currently above the healthy vacancy percentage, and this amount is expected to increase in the next years. Especially the vacancy level of buildings owned by the municipalities is expected to increase. The municipality has to anticipate on this situation, and is looking for possible interpretations for these buildings. The function residential housing is an interesting market, and the function communal housing is the specific marked where this report focuses on. At the same time, the financial crisis has pushed inhabitants to look for cheaper and more sustainable housing solutions. In the last decades, there has been an increasing
demand for communal living and cohousing (Skemp et al. 2010; White and Stirling 2013; Skemp et al. 2013). Scholars (van Beuningen & Schmeets 2012; Skemp et al. 2010) have indeed interpreted this phenomenon as a response to the financial crisis and at the same time a positive factor increasing the social capital and environmental sustainability (Andreoni and Galmarini 2013; Schneider et al. 2010).

Communal housing can be therefore seen as a feasible solution both for the demand of the population looking for cheaper and more sociable housing solutions, and at the same time for the problem of the overloaded vacant buildings market.

Communal housing is a niche marked, but it is interesting because of the high level of involvement of the residents. There are several projects where the residents of the community take care of the design, the building phase and the maintenance. Because this high-level op participation this form of housing could reduce costs of the renovation of the building. Another reason what makes this form financial attractive is the fact that residents share facilities and spaces. This makes communal housing interesting, because property owners are careful with the investment of money in this period of crisis.

Communal housing is also interesting because there are several existing situations where the involvement of the environment has positive influence for the neighborhood. Especially when the function of housing will be combined with other functions, the livability of the communal housing project is big. To get an idea about the most preferred situation for communal housing projects, this report will give insights in the preferences of the focus group. This information will be collected with help of a survey.
3. Method

The previous chapter has elaborated the research that is already done in the field of communal housing and housing choice behavior. This chapter will focus on answering the research questions. In this chapter the approach of the empirical study is explained, with attention to the participants, the research method, the procedure of data collection, and the statistical analyses. As is shown in figure 1 are the research methods substantiated in three parts. These are the descriptive statistics, the stated choice experiment and the multiple and single choice part. Some of the out coming data from the descriptive statistics will be used in the second part of the research, the stated choice experiment. This is necessary because of the different background and needs of the different households under the respondents. More information about the individual research parts will be defined in the following paragraphs.

3.1 Descriptive statistics

The first collected data is about the descriptive statistics. The descriptive statistics give background information about the respondent, which will be used for the further elaboration of the research results. The descriptive statistics ensure that there are insights in the respondents, which can result in target groups and the distribution of the background of respondents.

3.1.1 Target group

The target groups could be subdivided into two different parts, the socio demographics and the boundary conditions. The boundary conditions have influence in the design of the second part of the questionnaire, and the socio demographics will result in different target groups. Other target groups will be formed according to preferences derived from the third part of the questionnaire, the building and communal preferences.
**Socio-demographics**

To formulate the context of respondent’s answers, several questions were included. Socio-demographics such as age, gender and household situation were asked. This information will be used to correlate the conjoint analysis part of the questionnaire with personal information about the focus group. By combining the socio-demographics with the answers on the choice tasks specific preferences of target group can be determined. An example could be that women would prefer to have a private bathroom, and that men have less priority for the private space. The different socio demographics of the respondents will compose specific target groups, which will be used for composing specific results in the apartment and services preferences, and the building and communal preferences.

**Boundary conditions**

The boundary conditions will give insights over the respondents, which will subsequently be used for the following part of the research. Because the background of the respondents interested in communal housing is very diverse, some basic info need to be collected to defining the preconditions of the research. For example, a single household will have other boundary conditions then a household of four people, and a household with a high income will have another budget then a household with a low income. For this reason does the respondents have to give insights in their desired amount of space, the price they approximately would like to pay and if they want to rent or buy their future house. In this part will the presented choice options be adjusted according to the entered data of the respondent.

Other questions about the boundary conditions need to give insights in the willingness of the focus group. During the data collection process it is important that the right respondents will be involved. The respondents need to live, or should be willing to live, in a housing community, or they need to be interested in communal housing. A mailing list with nominated respondents doesn’t exist, so it is necessary to find the respondents by personal contact. To reach this target group some communal housing collectives were contacted by telephone or email. The information of these collectives was gathered with help of Internet and recommendations from other collectives. Eight housing communities and four communal housing associations were invited and accepted the invitation to participate. The list of the involved institutions can be found in appendix II.

The involved collectives and housing institutions received a request to send the link of the questionnaire to their mailing list. The mailing lists exist out of residents of housing communities, people who want to live in the housing communities and other interested people. To control if the respondents are truly interested, the respondents have to indicate their ambition to live in a communal housing area. This question will give insights in the reliability of the focus group. Another question is about the expectation when the respondents would like to move from their current house.
3.2 Stated choice experiment

SCE has the characteristic that it could determine the preference of the respondent for a future situation. This is a big advantage for this research, because the housing situations in this research are nonexistent. SCE makes it possible to collect hypothetical choices, and to simulate the effects of changes in several attributes on choice behavior. This makes it possible to receive more information about a wider range. The effects of the individual attributes can be estimated independently from each other.

Decompositional SCE better reflects housing choice processes with its systematic alternative-based approach than compositional methods. Compositional methods, which ask simple direct questions about attributes without taking into account other attributes, are thought to be too simplistic to measure housing preferences, because it would not represent housing choices sufficiently (Molin et al. 2011).

In a conjoint analysis experiment respondents have to evaluate alternatives, described by its attributes with varying values (attribute levels). For example, housing alternatives can be described by attributes such as price and shared bathroom. Corresponding attribute levels can be housing prices of 400, 600 and 800 Euros per month, and an individually used or a shared bathroom. The alternatives are constructed by the researcher, under controlled experimental conditions by systematically varying the predefined attributes and their levels in an experimental design. The experimental design makes it possible for the researcher to estimate the importance of all attributes and their levels separately (Train 2009). The design of the experiment will be explained further in this chapter, and the formulas are shown in appendix I.

3.2.1 Selection of attributes and attribute levels

The content of the most important attributes is based on previous studies about (communal) housing preferences (Nijenstein et al. 2014), and the input of interviews with experts. The list of experts is shown in appendix III. A selection of attributes expected to have the biggest influence on the living environment for communal houses was set up. There are eight attributes selected that are nominated as the most influential. Besides these eight attributes, some other influential attributes are part of another part of the questionnaire.

The eight nominated attributes have three different levels, called the attribute levels. There is a list that includes all the considered attributes, which can be found in appendix IV. The attributes and corresponding attribute levels that were included in the study are presented in Table 1.
resulted in 18 options, depending on the personal preferences of the respondent.

An extra component is the type of housing, buy or rent. This has resulted in 18 options, depending on the personal preferences of the respondent.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>€ 400,-</td>
<td>€ 600,-</td>
<td>€ 800,-</td>
</tr>
<tr>
<td>Size</td>
<td>45 m²</td>
<td>75 m²</td>
<td>105 m²</td>
</tr>
<tr>
<td>Finishing level living unit</td>
<td>Fixing house</td>
<td>Casco</td>
<td>Turnkey</td>
</tr>
<tr>
<td>Personal contribution maintenance</td>
<td>52 hours a year</td>
<td>104 hours a year</td>
<td>€ 75,- a month</td>
</tr>
<tr>
<td>Outdoor Space (OS)</td>
<td>No OS</td>
<td>Communal OS</td>
<td>Private OS</td>
</tr>
<tr>
<td>Bathroom</td>
<td>Sharing with 2</td>
<td>Sharing with 4</td>
<td>Private</td>
</tr>
<tr>
<td>Kitchen</td>
<td>Sharing with 2</td>
<td>Sharing with 4</td>
<td>Private</td>
</tr>
<tr>
<td>Location</td>
<td>1km from center</td>
<td>3km from center</td>
<td>5km from center</td>
</tr>
</tbody>
</table>

Table 1: Selected attributes and their levels

3.2.2 Experimental design
With the use of an experimental design alternatives were constructed by varying the attributes systematically and independently to be able to estimate the utility function. In an orthogonal design no correlations exist among attributes across all alternatives making it possible to obtain unbiased utility estimates. Orthogonal designs have the property of attribute level balance, ensuring that each attribute level occurs with the same frequency in the design.

Of the existing predefined orthogonal experimental designs the smallest fraction for 8 attributes at 3 levels was chosen. This design consists of 27 alternatives (Addelman 1961), which had to be evaluated by respondents. Because an orthogonal design varies systematically, it is possible that some alternatives are expected to be extremely more preferred than others (Louviere, Hensher en & Swait 2000). For example, when an alternative is defined by only lowest price, largest size, private bathroom, private kitchen en so on, this alternative will be dominant in all choice sets. Therefore, the assignment of attributes and the attribute levels to the design was manipulated to eliminate dominant alternatives in the choice sets. This was achieved by rotating the attribute levels of the original fraction producing several alternative fractions. Of these manipulated fractions the one with the minimum number of dominant alternatives was used in this research. In this way, respondents were bothered less with unrealistic choice sets and more information could be extracted from the choice sets. The experimental design can be found in Appendix V.

3.2.3 Questionnaire set-up
The 27 profiles of the fractional factorial design were placed randomly in choice sets per respondent to control for order effects. Each choice set contained three imaginary alternatives, and the respondent has to indicate his most attractive option, and his least attractive option. Besides the question about the preferences, there is a question if they would like to live in a house with the offered attributes. For this question they could decide Yes, No or I don’t know. An example of a choice set presented to respondents can be seen in Table 2.

The attribute levels price and size are set based on the descriptive statistics from paragraph 3.1, where respondents had to choose the desired amount. To create a reliable comparison for the respondents, three different levels for the price and the size were used. An extra component is the type of housing, buy or rent. This has resulted in 18 options, depending on the personal preferences of the respondent.
3.2.4 Multi Nominal Logit

As some of the attributes in the experimental design are non-quantitative, their contribution to the utility of an alternative has to be measured by means of coded attribute-variables. In this research, dummy coding will be used. The total amount of dummies depends on the number of levels of the attributes. There is always one level that needs to be the reference level; this level will be set to zero for each corresponding dummy.

To determine the contribution of the other attribute levels to the utility of an alternative, the parameters of the MNL model (see appendix I) are estimated in order to optimize the prediction of observed choices. The log-likelihood function (LL) is used as the optimization criterion. The LL function is the most basic goodness-of-fit measure for discrete choice models. LL will be used to determine McFadden’s Rho Square ($\rho^2$), analogous to $R^2$ in ordinary regression (Train 2009). $\rho^2$ gives values between 0 and 1, with 1 indicating that the model predicts the observed data perfectly and 0 indicating that the model with estimated parameters is no better than the model with zero parameters (Train 2009). Values of $\rho^2$ between 0.2 and 0.4 indicate extremely good model fits, being equivalent to explained variances in linear regression analysis ($R^2$) of 0.7 to 0.9 (Louviere, Hensher en & Swait 2000). The values of $\rho^2$ are lower than of $R^2$ because discriminatory sensitivity is lost due to the binary character of the logit models. Appendix VI gives insights in the formulas of the Log-likelihood function.

Every attribute in this research has 3 levels, what will result in two dummies per attribute. An example of the implementation of dummy coding for the attribute ‘size’ is shown in Table 3. In this table is Level 2 the reference level, what results in the value zero. For the levels 1 and 2, parameters representing the part worth utility of both levels are estimated by optimizing the LL functions given the choices from the choice sets in the questionnaire. The values will be determined with help of the program Nlogit 5.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>800 Euro</td>
<td>700 Euro</td>
<td>700 Euro</td>
</tr>
<tr>
<td>Size</td>
<td>90 m²</td>
<td>75 m²</td>
<td>75 m²</td>
</tr>
<tr>
<td>Finishing level living unit</td>
<td>Turnkey</td>
<td>Casco</td>
<td>Fixing house</td>
</tr>
<tr>
<td>Personal contribution maintenance</td>
<td>52 hours a year</td>
<td>104 hours a year</td>
<td>€ 75,- a month</td>
</tr>
<tr>
<td>Outdoor space (OS)</td>
<td>No OS</td>
<td>No OS</td>
<td>Communal OS</td>
</tr>
<tr>
<td>Bathroom</td>
<td>Sharing with 2</td>
<td>Sharing with 2</td>
<td>Sharing with 4</td>
</tr>
<tr>
<td>Kitchen</td>
<td>Sharing with 4</td>
<td>Sharing with 2</td>
<td>Private</td>
</tr>
<tr>
<td>Location</td>
<td>1km from center</td>
<td>3km from center</td>
<td>5km from center</td>
</tr>
<tr>
<td>Most attractive option</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Less attractive option</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Would you like to live in this package?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 2: Choice packages

<table>
<thead>
<tr>
<th>Level</th>
<th>dummy coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: Dummy coding
(Greene 2011).

Each respondent had to give his/her preference on the package that he/she prefers the most and the least. This experiment will repeat for 9 times in a row, and based on these results the MNL model will be estimated. The variables defining the packages will be converted into dummy coding, and based on the choices made by the respondents, Nlogit 5.0 will estimate the parameters of the MNL model.

3.2.5 Apartment and service preferences
The apartment and service preferences will be determined to get insights in the importance of the attributes and the attribute levels. The composition of the attributes is based on attributes expected to have the biggest influence on the living environment for communal houses. The apartment and service preferences determine the importance of substantial attributes for the housing environment, and need to give proper insights in the most preferred housing.

3.3 Multiple and single choice questionnaire
In addition to the SCE part includes the questionnaire includes additional questions. This part of the questionnaire is added to get insights in the communal housing preferences and the building preferences. The SCE can handle a limited amount of variables, while this research has more interesting variables and subjects to investigate. To determine these variables and subjects is chosen to add additional questions to the questionnaire.

3.3.1 Scoring
The outcome of the additional questions will result in mean scores, which can be used to determine the importance of a specific attribute. The amount of votes is determining the score for that individual attribute. By comparing the score with the other variable scores, the popularity of the attributes can be shown. An example of a question is showed in table 4.

<table>
<thead>
<tr>
<th>Which extent of the communal housing area would you prefer?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Maximum 10 households</td>
</tr>
<tr>
<td>☒ 11 until 30 households</td>
</tr>
<tr>
<td>☐ More then 30 households</td>
</tr>
</tbody>
</table>

Table 4: Example of a single choice question

3.3.2 Measuring building and communal preferences
The communal housing preferences will investigate the preferred relation with other respondents and the desired activities in the living environment. Some complexes consist of just one small building where 4 households live, but there are also communal villages with 1000 inhabitants. There are many differences in the activities and spaces that are communal. Questions regarding these activities and use of particular spaces will provide more detailed insight in preferences regarding communal housing.

The building preferences are related to the type of building, the facilities and the location of the building. To create a complete overview of the preferences of the focus group, it is important to know what kind of building complex is preferred.
Building complex is the overarching name for the place, the building and the terrain. This research focuses on vacant buildings whether these buildings are suitable to be converted into communal housing complexes, so an important question is the type of building where the respondents would like to live, and which building they do not want to live.

3.4 Conclusion
The questionnaire is substantiated into three parts, which have to lead to the preferences of those interested in communal housing. The first parts consist out of the descriptive statistics, which have to lead to target groups of respondents. The second part of the questionnaire has to lead to the preferences concerning to the apartment and services. These preferences will be collected with help of the SCE, and the MNL model will be used to get insight in the results. The third subject that will be investigated is about the communal housing preferences and the building preferences. These variables will be researched with help of additional questions, and will be ranked according individual scores.
4. Results

In this section, the data collected from the survey will be analyzed. Information will be presented about the target groups, which are determined with the described statistics. The second paragraph will present the preferences of the apartment and services, coming from the SCE with help of the MNL model. The results of the building and communal housing preferences will be determined, which are collected with the multiple and single choice questions of the survey. Besides the individual results, will the apartment and service preferences, the communal housing preferences and building preferences be correlated with the target groups.

4.1 Target groups

The basic features of the study will be submitted in the statistic descriptive. The first part will introduce the respondents that have participated. Then there will be information about the socio demographics and the boundary conditions of the respondent, which will result in the various target groups.

The total amount of respondents that received the request to fill in the questionnaire is around 2500 persons. These invitations resulted in 226 respondents that started the questionnaire. The total amount of respondents that finished the questionnaire is 99. The reason that so many respondents stopped the questionnaire before finishing is because of the second part: the SCE. Many respondents stopped at this point, so this was probably too complicated for a considerable part of the respondents.

Of the total sample of 99 respondents, 5 respondents had to be removed from the dataset for several reasons. The data of two persons was removed because they filled in that they are not interested in communal housing. That answer means they are not part of the target group. Three of the respondents where removed because they did not differentiate between the most attractive package, and least attractive package for several times. Because of the doubts of the reliability of these answers, it was decided to remove these 5 respondents from the dataset, implying that there are 94 completely filled in questionnaires. The dataset cleaned from the described cases was used for further analyses.

The 94 respondents had to fill in personal information to get a view of the participating respondents. An overview of the socio demographics age, gender and household situation is shown in table 5. The deviation of the age of the respondents was designed in five groups, but this is reduced into three age categories. The distribution of the age of the respondents was design in five groups, but this is reduced into three age groups. This is done because of the small number of respondents. The distribution of the age of the respondents shows that the largest part of the respondents is 35 year old or younger. The distribution of gender is almost equally divided. The classification of the household situation is reduced as well, because of the low amount of respondents. The group of living with more adolescents is the smallest group in this part.
Boundary conditions

The second part of the boundary conditions of the respondents is shown in table 6. This table shows the size and costs preferences of the respondents, which are implemented in the second part of the questionnaire, the SCE. The biggest part of the respondents prefers to rent a house.

The respondents that prefer buying a house are distributed evenly over the costs categories, while the group that would like to rent a house prefers low renting costs. The results of the desired surface of the respondents are contradictory with the result of the costs. The respondents do not choose for the largest amount of square meters. The values are chosen, based on market values in the Netherlands. An overview of the preferences is shown below.

<table>
<thead>
<tr>
<th>Type of housing</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent</td>
<td>67</td>
<td>71,3%</td>
</tr>
<tr>
<td>Buy</td>
<td>27</td>
<td>28,7%</td>
</tr>
<tr>
<td>Housing costs (rent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circa € 400,-</td>
<td>46</td>
<td>68,7%</td>
</tr>
<tr>
<td>Circa € 600,-</td>
<td>20</td>
<td>29,9%</td>
</tr>
<tr>
<td>Circa € 800,-</td>
<td>1</td>
<td>1,5%</td>
</tr>
<tr>
<td>Housing costs (buy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circa € 120.000,-</td>
<td>9</td>
<td>33,3%</td>
</tr>
<tr>
<td>Citca € 170.000,-</td>
<td>9</td>
<td>33,3%</td>
</tr>
<tr>
<td>Circa € 220.000,-</td>
<td>9</td>
<td>33,3%</td>
</tr>
<tr>
<td>Desired surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circa 45 m2</td>
<td>38</td>
<td>40,4%</td>
</tr>
<tr>
<td>Circa 75 m2</td>
<td>37</td>
<td>39,4%</td>
</tr>
<tr>
<td>Circa 105 m2</td>
<td>19</td>
<td>20,2%</td>
</tr>
</tbody>
</table>

Table 6: Housing type, housing costs and desired surface

Table 7 gives an overview about the current housing situation of the respondents, and their interest for communal housing. The overview shows that almost seventy percent is living or wants to live in communal housing, the other thirty percent could
be called ‘interested group’. From this table, we can observe the opinion of the respondents on communal housing and what is their current housing situation.

<table>
<thead>
<tr>
<th>Are you interested in living communal?</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, I am living communal</td>
<td>42</td>
<td>44,7%</td>
</tr>
<tr>
<td>Yes, I would like to live communal</td>
<td>22</td>
<td>23,4%</td>
</tr>
<tr>
<td>Yes, possibly be</td>
<td>23</td>
<td>24,5%</td>
</tr>
<tr>
<td>Probably not</td>
<td>7</td>
<td>7,4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Are you planning to move?</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between now and two years</td>
<td>51</td>
<td>54,3%</td>
</tr>
<tr>
<td>Over 2-5 year</td>
<td>19</td>
<td>20,2%</td>
</tr>
<tr>
<td>Over more than 5 year</td>
<td>4</td>
<td>4,3%</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>21,3%</td>
</tr>
</tbody>
</table>

Table 7: Housing situation

The target groups will be formed according to the socio demographic backgrounds, price and size preferences and the willingness to live in a communal housing area. Besides these target groups will the research investigate the target groups formed at the building and communal housing preferences. These preferences will be threat in paragraph 4.3.

4.2 Apartment and service preferences

The apartment and service preferences were investigated with help of the SCE. In the following section the estimation of the SCE will be discussed. The choices made by the respondents will be analyzed with help of the MNL models. By using MNL models the housing choice preferences of the focus group will be visualized in graphics and conclusions. Table 8 shows an example of the results from the MNL model estimation. This result is about the attribute ‘Size’, and the columns V1A2C1 and V1A2C2 are giving the utility values derived from the model estimation. These values have to be multiplied with the dummy variables to obtain the preferences for the three levels of the attribute ‘size’. The outcome of this calculation is shown in the column result, what can be used as the accounting value of the three attribute levels.

The signs * indicate the significance level, and the maximum value is ***. Both of the columns have the maximum attribute level, what means that this attribute has significant outcomes. The significance is depending on – among other things – the amount of choices and respondents. There are only 94 respondents, and these respondents have to be divided into target groups. Because of the low amount of residents not all the target groups have significant data. If the amount of respondents had been higher this would have had a positive influence for the significant level.

<table>
<thead>
<tr>
<th>Size</th>
<th>V1A2C1</th>
<th>V1A2C2</th>
<th>Level</th>
<th>Dummy 1</th>
<th>Dummy 2</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>***</td>
<td>-0.63748</td>
<td>0.56732</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>-0.63748 15 m2 under desired surface</td>
</tr>
<tr>
<td>***</td>
<td>-0.63748</td>
<td>0.56732</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0 desired surface</td>
</tr>
<tr>
<td>***</td>
<td>-0.63748</td>
<td>0.56732</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0.56732 15 m2 above desired surface</td>
</tr>
</tbody>
</table>

Table 8: Example of MNL model estimation
The result of the attribute ‘Size’ is converted into a graphic, and this graphic is shown in figure 2. In this case is the attribute level ‘desired surface’ set to zero, in order to measure the deviance from this level. The range of the attributes is equal to the largest difference between the values of the attribute levels.

![Figure 2: Example of a graphic MNL result](image)

The range between the highest and lowest utility of the attribute levels indicates the impact of the attribute. If there is a large range it means that the respondents gave this attribute high importance. Figure 3 shows an overview of the attribute importance according to the conjoint choice experiment, based on the total range of the attributes. The outdoor space has the highest importance, whereas the contribution on the maintenance in the building has the lowest impact. More attribute and attribute level results will be explained in the following paragraph.

![Figure 3: Attribute importance](image)

Figure 4 shows the results of the importance of the attribute levels from the choice experiment. There are only 10 attribute levels with a reliable significance level, which means that the attributes prize and size are the only attribute levels with two significant outcomes. The third attribute level is equal to zero, this is the so called part worth utility. The importance of the attribute levels from the other six attributes did not have enough conviction to become significant, or the number of observations was too small.
The attribute level ‘No outdoor space’ has the lowest utility value, which means that this is the most unwanted attribute level. The range of this attribute level is higher than the range of the second and third attributes prize and size. This results in the fact that ‘No outdoor space’ is not only the highest attribute level, it makes ‘Outdoor space’ the highest variable as well.

The result of this questionnaire is unusual when compared with other studies on housing preferences. Recently research about (student) housing preferences show that prize has the highest preference importance and size is the second (Nijenstein et al. 2014; Louviere & Henley 1977). Another striking result is that the finishing level of the building has a higher importance than the shared facilities of kitchen and bathroom. Studies on other focus groups such as student housing show that private bathroom and private kitchen have a high priority for that focus group (Nijenstein et al. 2014).

The results of the SCE will be analyzed with corresponding results from socio demographics and communal housing preferences. Target groups of the questionnaire will be filtered, and the preferences will be compared. This will be done with help of the MNL model. The most striking results will be analyzed, the tables of the results are shown in appendix X.

4.3 Building- and communal housing preferences
This paragraph will discuss the results of the building and location preferences, and the communal housing preferences. These results are collected with help of multiple and single choice questions. Some of the questions included an open answer option, the most important results are processed into the text.

4.3.1 Building and location preferences
The different respondents of various communal housing areas have specific demands. Aspects as outdoor space, location and communal spaces in the building determine if the building is suitable for a focus group. Besides these practical needs,
the focus group could have esthetical or other reasons why they would prefer one building rather than another one. The questionnaire included several questions about the building and the location.

**Building**
There are many buildings that could be transformed into communal housing areas. The type of building that is suitable for a specific group of respondents needs to be determined by collecting the preference of potential residents.

The respondents could chose out of seven building types, and the option ‘no preference’. The respondent had the possibility to choose more than one building. They had to indicate where they would like to live, and where they would not like to live. This question is to some extent problematic as respondents have to give a preference for general categories of buildings (e.g. office, school, residential, etcetera), and there are many forms of each type of building. For example, there are modern offices in the office park close too highways, but there are also old style offices in the city center. Anyway, this question is giving a clear overview about the expectations of the respondents.

Figure 5 shows that schools, residential and monumental buildings are buildings where respondents want to live. 78,8 percent would like to live in a residential building, and 69,7 percent in a monumental building. Office buildings, and high-rise office building in particular are not popular buildings to live in, as well as retail buildings. It is striking respondents have less strong preference about buildings where they would like to live in relation with a building where they not want to live.

**Location**
The location of the communal housing area is an important priority of the future residents. If the users prefer a crowded environment with many facilities than they would prefer to live nearby the city centre. If respondents prefer to have more space and tranquillity they would find a better location near the border of the city.

Respondents had the possibility to indicate a location where they would like to live. It was possible to select more than one location, because respondents could have more than one preference for the location of their residence. Figure
6 shows that the majority of the residents prefers to live at the border of the city center (90%). The city center is also a popular location (60 percent). The locations other than residential areas of town and remainder have percentages of 32 and 23 percent.

4.3.2 Communal housing preferences
There are many different communal housing areas, and all these areas have their own characteristics. What do members of the focus group expect from the communal areas and activities in the building, and what do they expect from the fellow residents? This part is subdivided into two parts, the building preferences and the activity and residents preferences.

Building preferences
The first correlations are connected to the preferences for the environment of the communal housing area. The questions are not about the building itself, but are related to the activities and facilities of the building. Five subjects will be treated.

(Care) facilities
Some of the communal housing areas have facilities for the residents. These could be a common space where residents could celebrate a birthday, or a place where elderly people could spend the day together. Another facility in communal housing is an area for after school care for the children of the residents.

Figure 7 show that the most popular option the meeting point for the common activities. In fact, more than eighty percent gave their preference for an area for common activities. Only five percent indicated their preference for an area for elderly activities.

This question also includes an open answer option, where respondents could give suggestions for facilities. The option common outdoor space and vegetable garden was suggested six times. Another common proposal was working space areas. These facilities could both be interesting for communal housing areas.

Extern visitors
The main function of the communal areas is residential housing, but this function could also be combined with other functions. Some communal areas have great livability, with activities as a shop, a pub, a restaurant or an exposition area. These activities have extended opening hours and could have a consistent amount of visitors. Another option is that there are less opening
hours and activities, but the communal area is attainable for visitors. For this situation are barbershops, yoga workshops good examples of possible activities. The third option is that there are no activities for people that not live in the communal area. The respondents had to give their preference among the possible activities.

Figure 8 shows the result of the three choice options according to answers of the respondents. Almost 75 percent of the respondents prefer activities in the communal housing area, and 25 percent prefer no activities.

**Accessibility disabled persons**
If you have to live with a physical disability, or have physically disabled person in your surroundings, it is important that the building is accessible to ensure mobility is possible. This report is focusing on existing buildings, which implies that there is a chance that there are high costs to make a building accessible for disabled persons. To get an impression about the importance of accessibility for disabled according to respondents, this issue was included in the questionnaire. Below is an overview shown about the preferences rates of the respondents on this issue.

Figure 9 shows that the majority is voting for an average importance of the accessibility. Around 34 percent voted for low importance, and only 15 percent votes for ‘high importance’. There was a remark in the question that there was a chance that the residents had to pay extra money for the improvement of the accessibility. This result shows that there is only a small group that has a high priority for accessibility for disabled persons.

**Scale residential community**
Communal housing areas exist in several scales of residents. There are communal houses that exist out of four single households that live together. But there are also communal cities with many inhabitants, as Quartier District in Freiburg for example. Quartier District is a former French barrack with more than 5,500 inhabitants and 600 jobs (Dellekom.de). In between these extreme degrees of communal housing, there are several possibilities. In order to get insights on the preferences of the respondents the scale of the housing community was part of the research.

Respondents had the choice between three options, what is shown in figure 10. Almost 50 percent of the respondents prefer the smallest scale ‘maximum 10 households’. The other two options, 11 till 30 households received 35,1 percent of the votes and only 14,9 percent chose for the option more than 30 households. From these results we can conclude that the majority of the respondents prefer a smaller communal area.
This result is in contrast with the arguments of R. Slagmolen on communal housing. R Slagmolen is since 30 years consultant in communal housing, and his findings are that groups around 50 households have the most sustainable constructions. Due to this size the generation switches have less influence for the atmosphere, and the social control is not too much present (see Appendix III). This argument results from the perspective of the housing community, and it does not take into consideration the fact that respondents have their own expectations on living areas. The results of this survey show that the preference of the respondents is aberrant from the appropriate amount of households for communal areas.

**Percentage housing costs**

To get an impression about the balance between private units and common areas the respondents had to fill in the percentage of money they want to spend for communal areas. The costs of common areas have to be divided over the households in the living area. To get an idea about the budget for common spaces it is important to know which budget respondents want to spend.

Figure 11 shows that the majority of the respondents prefer low costs for the common areas. Only 7,4 percent of the residents want to spend 30 percent or more for common spaces. 43,6 percent of the residents want to spend around 10 percent of their housing costs for common areas.

**Activities and residents**

The aim of the questions related to the activities and residents is to determine the preferences of residents of the community about the compulsory activities. Respondents could give their preference about what they expect from the communal housing area and from the behavior and activities of the residents.

**Social activities fellow residents**

The atmosphere of various communes will be different depending on the preferences of the respondents. Every commune has its own atmosphere, and by selecting new residents accurately the commune will stay close to the history and vision. The vision is determining for the atmosphere of the commune, and the relation between the residents. The amount of collective meetings is different for every community. Some communes have some meetings a week, and some communes meet only a few times a year. In this question the respondents have to give their preference.

The first choice possibility is a few meetings a week or month. This could be eating together on an established night, or a Friday afternoon drink. The second option is a couple of meetings a year. This could be an organized event, a barbeque for example to have structural meetings a couple of times a year. The last option is to meet only when there is something to take care of, for example nomination of a new resident. These options and the results are shown in figure 12.
The results of the questionnaire show that the majority of the respondents prefer to meet a couple of times a year (56.4 percent). The option of meeting some time per week also received considerable support (37.2 percent). The less popular preference (5.3 percent) was that of meeting the other residents only during the necessary meetings. It is not surprising that this group is the smallest, because the relation with the neighboring people is important in a communal area.

Entrepreneurship
Communal housing areas could have more functions than the residential one. Some communal housing areas combine more functions, and these places are interesting for people that are looking for a communal property. In order to get an overview of the amount of residents with interest in such spaces, a question on this topic was included in the survey.

There are several activities that the residents could start in a communal housing area. This could be an activity with many visitors such as a pub, restaurant or shop, or an activity with less visitors, such as a film editing company or a pedicure. It could also be a place where visitors come incidentally, such as an office or an atelier. There is also an open answer option, and the option ‘no’. Figure 13 shows the different options and the response distribution.

The response from the respondents is striking. In fact, more then 70 percent indicated that they would like to start an activity in the community. This means that there is a very high percentage of residents interested in communal property. The highest percentage of the entrepreneurs can be found in the option atelier, working place or office. The other two options are also popular, because 18 percent would like to start a pub, restaurant or shop and 15 percent would like to start a company or pedicure. Popular answers from the open questions are organizing workshops and working places for ZZP’ers (individual entrepreneurs). However, an important remark has to be made on the adaptability of the building to such use. In fact, the type of building determines the possibilities to realize these ambitions, as the building needs to be suited and qualified for accommodating such activities. If there are possibilities for combining several functions for the building it is a big advantage.

Age of the fellow residents
The age of the people in the housing community has big influence on the atmosphere in the residence area. The age could influence the lifestyle and activities, and will have influence on the personal care of residents. Indeed, young families could have children that need after-school care, or old people could need elderly care or help with doing the grocery shopping.

Figure 13: Entrepreneurship
The respondents had to give their preference about the age of the people in the surrounding. The first option is based on young people and young families, in the age of 20 till 40 year. The other levels are from 40 till 60 years, older than 60 years and the last option is about varying ages. Figure 14 shows the options and the response distribution.

Less than 10 percent of the respondents gave the priority for the options 40 till 60 years and older than 60 years. 37,4 percent gave the priority for a young housing situation, with the majority of the people from 20 till 40 years. This is quite a large group. The most residents gave their preference for varying ages in the community (50,7 percent).

Experts say that mixed ages could create sustainable relations in the housing community. In some cases the different age groups could do services for the other, for example the old people could take care for the children of the young people, and the young people could do the shopping for older people. Another advantage is that people from all ages have together all phases of life, and that could never give the feeling that you are too old or too young, but you are always part of the community (Interview Slagmolen + Smits, appendix III).

**Acquaintance community**

In order to achieve a communal housing scenario in which residents are congruent and fitting with one another, it is interesting to focus on the selection procedure to enter the community. This report is focusing on collaborating groups and start new housing communities, but there is a possibility that some of the participating respondents would like to live in an existing communal housing area. For owners of property it is interesting how they could reach the focus group. This question could help give answer to these questions.

The questionnaire includes three answer options, and two of the options are based on non-existing housing areas: these options are based on starting a new community on own initiative, or starting a community with help of a mediator. The third option is based on finding an existing group. Figure 15 shows the preferences of the focus group.

The results show that 36 percent prefers to join an existing corporation. The biggest group is the group that wants to start a communal housing area on their own initiative (43 percent), and only 22 percent want to start a corporation with help of a mediator. The respondents that prefer a mediator is almost the half of those that
want to start from their own initiative. The advantage of a mediator is that he/she could have an overview of all possible residents and has knowledge of the process. This result shows that the respondents are from an enterprising group.

4.4 Target group preferences

Now the three parts of the research are investigated individually, the results could be combined and the preferences of specific target groups could be investigated. The preferences of a specific target group could give information about which type of group is interested or not interested in a specific situation.

4.4.1 Apartment and services VS target groups

When the apartment and service preferences will be combined with the different target groups, there could follow some conclusions about specific target groups. These preferences may differ from the general preferences. Here are the most striking results from the target groups.

Price and size

It is striking that the target group ‘Living with more adolescents’ is the one that gives the highest importance to the housing costs. The group ‘one-person households’ did not give much priority to a lower or higher price, but the adolescents that live in communal housing projects would like to pay a lower price, and do not want to pay more than the desired budget. The results of the size of the residential unit show that people do not like to arrange a unit smaller than the desired surface. One-person households respondents give more priority to this aspect.

Finish level and maintenance

The results of the finishing level of the unit show that two of the three attributes levels have a positive value for the respondents. These attribute levels are turnkey and fix up homes. Respondents prefer the option turnkey the most, but there is also a group of respondents that prefer fix up homes. These results are contradictory compared to the contribution of the maintenance, because this attribute includes two attribute levels with negative values. These levels are 104 hours per year and the level contribution of € 75, - a month. The group single-parent households, and couples (with children) are less negative about spending 104 hours a year for maintenance.

Outdoor space and location

A striking result from the different target groups and the outdoor space is that the group of 50 years and older gives outdoor space the highest priority. The group of respondents that prefer to rent a house gives outdoor space a higher priority than the group that prefers to buy a house. The most popular location for the communal housing is located one kilometer near the city center. Of all the target groups is the group 35 till 49 years old the one that gives the location near the city center the highest priority.

Kitchen and sanitary

The respondents prefer to have a private sanitary, and the group of buyers gives this the highest priority. The priority for a private kitchen has more importance for the
respondents than the preferences for private sanitary. The one-person households have the highest priority for a private kitchen, while the group that is living with more adolescents has less interest in it. The group up to and including 34 years old is the only group attaching significant negative value to a shared kitchen.

4.4.2 Building and location VS target groups
Because this report is based on existing buildings is it important what type of building the respondents prefer. The location of the building is also important for the potential new user. The respondents could be divided in different target groups, which have different preferences. In this way it is possible to find an appropriate user for different buildings. The results will be combined with the results of the socio-demographics.

The most remarkable results from the crosstabs of the location are coming from the activity preferences. When relating the results of the location with the entrepreneurship it is striking that many entrepreneurs prefer location outside the center. Those who would like to start an entrepreneurial activity have a preference for a business such as a pub, restaurant or a shop. Ateliers and workplaces are the most popular enterprises out of the city center.

Residents of the city center prefer to live in a busy environment, but the results show that they do not prefer activities with visitors in their own communal housing area. The largest group of respondents that would like activities with limited visitors in the city center is only 33 percent, while this percentage is 48 percent in areas other than residential areas. In the group residential areas other than in town the answer ‘no activities’ is the largest, but there is only a minimum difference with the second option ‘activities with many visitors’. This shows that the different respondents have a very deviating preference.

When combining the results of the location with the social activities with other residents, it is striking that the residents have more interest in activities out of the city center instead of in the city center. In the city center the residents prefer some meetings per year, while the respondents in the other residential areas in town and in remaining areas prefer some meetings per week/month. These results may indicate that the residents in the city center are more focused on their own private life, and the people out of the center have more interest in having a relation with the communal housing area. These results can be found in appendix IX.

4.4.3 Communal housing preferences VS target groups
When combining the results of the size of the residential house and the communal housing preferences, we can observe interesting results concerning the group not interested in communal activities: this group has the largest interest in extra squared meters (more than the given surface). This group has a higher amount then the other target groups. There are no striking results related to the amount of costs for the housing area. The costs of all the target groups are in the same line, what means that they prefer to pay less then estimated, and do not like to pay more than estimated. The group ‘no activities for visitors’ is the group that gives the highest rating for the attribute level ‘10 till 25 percent under budget’.
The last level of the residential unit shows that the majority of the respondents prefer turnkey delivery. Some residents of the group that prefer no activities for visitors gave their priority for the finishing level ‘fix up home’. Strikingly, this focus group also has the highest amount of preferences in turnkey delivery. These two attribute levels are contradictory, so it could be concluded that there are two main preferences in this target group. It is also possible that the respondents prefer both options above the middle level casco. In the attribute ‘contribute maintenance’, the target group that prefers many visitors in the housing commune has a preference to pay contribution instead of performing the maintenance. This is the only target group with significant parameters for two attribute levels.

Outdoor space has the highest importance for the respondents, and the relation with the communal housing preferences shows that no outdoor space is a major downside. The target group ‘activities with limited visitors’ gives the attribute level no outdoor space the most importance. The target group that prefers activities with limited visitors in communal housing has the preference to live close to the city center. The residents that do not prefer too many communal activities give the attribute level ‘circa one kilometer till center’ the lowest priority of all the target groups.

If the relation between the communal housing preferences and the shared facilities will be correlated, it is remarkable that the residents who prefer many visitors prefer to have their own sanitary and kitchen. They like to have an active living environment, but they prefer to have their own unit with facilities. The respondents that have less interest in recreational contact with social activities, have less problems with sharing sanitary for comparison with the respondents that prefer many activities.

The combination of the preferences of the target groups could result in groups with common preferences. For example could this be the a group that is living out of the city center, with shared facilities as kitchen and bathroom, that would like many visitors in there communal housing area and they do not like to pay above budget.

4.5 Conclusion
The research is subdivided into three parts. The first part is the statistic descriptive part, which has to lead to target groups. The total amount of respondents that has participated and meets the condition is 94. The biggest part of these respondents is younger than 35 years old, and there is a balanced relationship between man and woman. The respondents are divided in all types of households, which is positive for the analyzing process of the results. The descriptive statistics could be used to create target groups with specific preferences, other than the general preferences.

The second part of the questionnaire is about the apartment and service preferences. According to the results of the SCE, are there 10 attribute levels with a reliable significance level. The attributes prize and size are the only attribute levels with two significant outcomes. Outdoor space is the most important attribute level, because respondents are very negative if the house does not have outdoor space.
Contribution to the maintenance had the lowest priority. The outcome of communal housing interested differs from researches with other focus groups, especially the priority for shared facilities different.

The third part of the research is based on the communal housing preferences, and building preferences. This data has to give insights in the expectations of the shared facilities, expectations of the living environment and the type of building. Different multiple and single choice questions have resulted in an overview of preferences of the focus group. The most striking result is that more than 70% of the respondents would like to start an enterprise in the communal housing area. From this result could be concluded that it is a plus if a building has space for entrepreneurial activities. Another result shows that residential buildings, monumental- and school buildings are the most popular building, while office buildings and retail buildings are not popular.

The relation between the outcome of the apartment and service preferences and the target groups show many features. The various personal preferences ensure that it is more complicated to give straight conclusions for the entire focus group. This differs from the preferences for a group such as students, because they have more common daytime activities and socio demographic backgrounds.

Remarkable results are the high importance of outdoor space for people with an age above 50 years. They give this attribute more importance than other target groups. Another fact is that people who would like to live in the city center would like to start an enterprise such as a bar, pub or restaurant, and people out of the city center would like to start other activities such as starting a business, atelier space or a barbershop. More information about the conclusions of the research is shown in chapter 6 of this report.
5. Case study

In this chapter two case studies will be tested in order to determine whether they are suitable for transformation into communal housing areas. This will be done according to the results of the survey, by weighting pros and cons, control the financial feasibility and testing if the preferences of the future users could be integrated into the building.

In order to decide which are the preferred sorts of buildings it is important to determine whether they comply with the expressed interests for communal housing. As mentioned before, it results from the survey that the most popular building types are residential buildings, monuments and school buildings. The municipality of Nijmegen is owner of several buildings identified as such preferred buildings, which currently are only fulfilling a subordinate function. This is to say that the current employment of these buildings is under the expectations and therefore constitutes an economical loss for the municipality. In fact, such buildings that could potentially be destined to housing areas are currently employed for low renting prices, and temporary initiatives. The buildings that are chosen as case studies for this study are: a monumental building, and a practical school building. These buildings are quite different from each other for their characteristics: for example their location, appearance, size, floor plan and outdoor space. This chapter will determine if the buildings could fulfill the preferences of the future users, according to the results of this survey.

The following paragraphs will describe the characteristics of Prins Hendrikstraat 7 (PH7) and Streekweg 21. The cases will be arranged with a floor plan as a communal housing area, and the cases will be tested according to the financial feasibilities.

5.1 School building PH7
The first selected building is a monumental building, located at Prins Hendrikkstraat 7 (PH7). The PH7 building is located in the popular city district Nijmegen-Oost, nearby the city center of Nijmegen. The building was realized in 1905 and has functioned as a school. The building is a monument, and it is part of the ‘nineteenth century ring’, which consists out of monumental buildings around the city center. A photo of PH7 is shown in figure 16.

PH7 has a lettable floor area of 1706m², divided over two floors. The deviation of the diverse areas is shown in table 10. Remarkable is the amount of areas with the surface of 45 -50m². The reason why this size is so common is based on the previous function of the building, school building. In fact, this size was based on the size of a school class.

5.1.1 New design

The rooms of PH7 are well distributed in the current form, whereby all areas have good accessibility. The majority of the rooms have sufficient incoming daylight. The maximum width of the building is 14 meters, and all areas are located near a façade. This gives opportunities for the areas with limited daylight, because there is a possibility to add windows in the facade. There are in fact two areas with limited incoming daylight and a small façade surface; these areas are not suitable for transform into a housing unit. These areas are located one above the other, and could be used as common kitchen/ living room. Figure 17 and 18 are showing the new design of PH7.

<table>
<thead>
<tr>
<th>Area deviation</th>
<th>amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>45-50 m²</td>
<td>12</td>
</tr>
<tr>
<td>20-25 m²</td>
<td>8</td>
</tr>
<tr>
<td>112,1 m²</td>
<td>1</td>
</tr>
<tr>
<td>28,5 m²</td>
<td>1</td>
</tr>
<tr>
<td>13,7 m²</td>
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</tr>
<tr>
<td>66,9 m²</td>
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</tr>
<tr>
<td>4,6 m²</td>
<td>1</td>
</tr>
<tr>
<td>13,5 m²</td>
<td>2</td>
</tr>
<tr>
<td>Total amount of areas</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 10: Deviation of the areas
The new design includes 21 living areas, 4 communal areas (without bathrooms and sanitary areas) and 2 business units. The current division of the areas and the sizes of the rooms are fulfilling the wishes of the future users. Major renovations because of redesigning are not necessary. The deviation of the different areas is shown in table 11.

<table>
<thead>
<tr>
<th>New deviation</th>
<th>amount</th>
<th>surface</th>
<th>total surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living unit 45-50 m²</td>
<td>12</td>
<td>49</td>
<td>588</td>
</tr>
<tr>
<td>Living unit 1 +/- 71 m²</td>
<td>1</td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td>Living unit 2 +/- 27 m²</td>
<td>1</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Living unit 3 +/- 53 m²</td>
<td>1</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Living unit 4 +/- 27 m²</td>
<td>1</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Business space 1</td>
<td>1</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Business space 2</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Communal central area</td>
<td>1</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Communal kitchen/living room</td>
<td>2</td>
<td>48</td>
<td>96</td>
</tr>
<tr>
<td>Communal hobby room</td>
<td>1</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Surface incl. communal areas</td>
<td>22</td>
<td></td>
<td>1035</td>
</tr>
<tr>
<td>Surface excl. communal areas</td>
<td>19</td>
<td></td>
<td>925</td>
</tr>
</tbody>
</table>

Table 11: New distribution of the PH7 areas

The most frequent size of the living unit has a surface of 45 – 50 m². Users have the possibility to split an area of 45 m² into two areas of 22,5 m², or rent two rooms on a row, which will double the size. According to the results seems it the most obvious deviation that one person households would like a size 22,5 or 45-50 m², couples would like at least 45-50 m² and households with more than two persons will need more space, so that would mean a double room.
Besides these living areas, the building also includes two business areas, which are located on the ground floor. The outcome of this research showed that a substantial part of the focus group has the ambition to start an enterprise. Two areas are available for starting business such as a workplace, atelier, company, pedicure, gallery, pub, restaurant or a shop. The business areas are located at the ground floor because that part has the best accessibility for visitors.

There is one more area that could be partially used for enterprises, this is the communal central area near the business areas. This is a multifunctional area that could be used for initiatives such as yoga, workshops, birthday parties, meetings and other activities that require a larger amount of space. Other activities that were suggested in the questionnaire were theatre, movie nights, rehearsal music place, and spirituality area. The communal central area is the gathering point of the housing community, and the area has a surface of 70 m².

**Outdoor space**
The surface of the parcel is established at 2388 m². The surface of the building is 740m², which means that there are possibilities for outdoor space. In the current situation the terrain is completely tiled, and some parking places are located near the building.

The research has shown that outdoor space is a very important variable for the target group. There are no possibilities for (private) outdoor space at the first floor. The housing units at the ground floor do not have proper circumstances to rebuild the façade, so this option is not an obvious option.

The outdoor space could be used for parking places, a shared terrace, a playing area for children and a small-scale vegetable garden. The parking places will be useful for the cars of inhabitants, visitors need to park the car outside the terrain because of the limited amount of space. Parking places for bicycles need to be reserved at the terrain of PH7 as well. Future inhabitants need to discuss how their preferred terrain will look like, and if they will apply all these facilities.

**Kitchen and sanitary**
The research has shown that the focus group prefers to have a private kitchen, and a private sanitary. This is an expected outcome, because these private facilities have more luxury then share them. The need for private kitchen and sanitary is lower for this focus group, if the results will be compared with other focus groups. Because of the limited space in the PH7 building less priority is given to sanitary areas. The ground floor and the first floor will both have three showers, which will be located near the corridors. The inhabitants have the possibility to create a bathroom in their own housing unit on own initiative. Especially the housing units bigger than 45-50 m² have opportunities to create an own bathroom, but the costs and the initiative are their own responsibility.

The research has shown that the focus group has more priority for a private kitchen rather than a private bathroom. The presence of a private kitchen is a surplus for the
housing unit, and the presence of a water tap is a priority. Every housing unit will include a sink, which makes it possible to cook simple meals, or brushing the teeth’s. Besides these sinks, there will be a communal kitchen where it is possible to eat with larger groups, as there are more facilities available to cook more elaborate meals.

5.2 Practical school Streekweg 21

Streekweg 21 is a former practical school, which was used for practical learning processes for the secondary school. Examples of offered programs are carpenter, metalworker or hairdresser. The design of the building is based on these education activities, which gave the building a specific design. The municipality became owner of the building since August 2014. Figure 19 shows a picture of the building.

The building is located at the border of the city, seven kilometers from the city center. This location is at the moment not interesting for new housing or industrial projects, what means that demolishing and redevelopment is not an interesting option. The costs will be too high for this location, which is at the moment not attractive for these functions. Reusing the building seems to be the most attractive possibility. The big surface of the building, the practical facilities and the low prices are interesting characteristics to find a new designation for the building. Transforming the building into communal housing is an option, especially when the housing function could be combined with other functions.

Streekweg 21 has a lettable floor area of 9469 m², divided over three floors. The ground floor includes a big entrance hall, an auditorium, three gym areas and many practical classrooms. The practical areas are unfurnished with tools for processing of wood, metal and other practical working processes. These equipment’s could be interesting for reusing the building for the future users of the building.
5.2.1 New design
The enormous surface of the building has many opportunities. The new design has to fulfill the preferences of the future users, based on the results of this report. The new arrangement of the building need to carried out as efficient as possible. If current characteristics of the building could be joined together with the needs of the future users, it could save costs and will have advantages for all concerned. The practical areas in the building could be used for entrepreneurs that would like to start practical businesses. These users could live in the building, but they could also live somewhere else and just have their business at Streekweg 21.

The ground floor of the building will be used as entrepreneurial area, and the first and second floor will be used as housing areas. The first floor and the second floor have more incoming daylight then the ground floor, what makes them more suitable for the function housing. The ground floor is more attainable for visitors, and has the advantage that it is easier to transport tools. The practical areas are also located at the ground floor, what makes it logical that this area will be used for the entrepreneurial activities. Figures 20 and 21 are showing the new design of Streekweg 21.
The new design includes 36 living areas, 7 communal areas (without communal bathrooms and sanitary areas), 5 communal workplace areas and 4874 m² of business area. The current divisions of the areas at the first and second floor are left intact, because the sizes of the rooms are fulfilling the wishes of the future users according to this report. The sizes of the rooms are varying from 20 m² until 113 m², which gives opportunities for all types of households.

The ground floor in this overview is divided in m² instead rooms, so that the future users could determine the surface of their area. The most intern walls of the current building are not part of the construction, which is an advantage for the flexible deviation of spaces. The distribution of the areas is shown in table 12,13, 14 and 15.

<table>
<thead>
<tr>
<th>Communal areas groundfloor</th>
<th>amount</th>
<th>surface</th>
<th>total surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditorium</td>
<td>1</td>
<td>422</td>
<td>422</td>
</tr>
<tr>
<td>Stage auditorium</td>
<td>1</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Gym</td>
<td>1</td>
<td>284</td>
<td>284</td>
</tr>
<tr>
<td>Sanitary gym</td>
<td>1</td>
<td>102</td>
<td>102</td>
</tr>
<tr>
<td>Toilet auditorium</td>
<td>1</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Toilet</td>
<td>2</td>
<td>45</td>
<td>90</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7</td>
<td><strong>1013</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 13: Surface communal areas ground floor

<table>
<thead>
<tr>
<th>Communal Workplace</th>
<th>surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood workplace</td>
<td>309</td>
</tr>
<tr>
<td>Office</td>
<td>56</td>
</tr>
<tr>
<td>Electro</td>
<td>169</td>
</tr>
<tr>
<td>Steal workplace</td>
<td>379</td>
</tr>
<tr>
<td><strong>Total communal workplace</strong></td>
<td><strong>913</strong></td>
</tr>
<tr>
<td><strong>Surface communal area</strong></td>
<td><strong>1013</strong></td>
</tr>
<tr>
<td><strong>Surface rental area</strong></td>
<td><strong>2852</strong></td>
</tr>
<tr>
<td><strong>Total surface groundfloor</strong></td>
<td><strong>4778</strong></td>
</tr>
</tbody>
</table>

Table 12: Surface communal workplaces
Table 14: Surface living areas

<table>
<thead>
<tr>
<th>Living units 1st + 2nd floor</th>
<th>amount</th>
<th>surface</th>
<th>total surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living unit 2, 95 m²</td>
<td>2</td>
<td>95</td>
<td>190</td>
</tr>
<tr>
<td>Living unit 75-85 m²</td>
<td>5</td>
<td>80</td>
<td>400</td>
</tr>
<tr>
<td>Living unit 65-74 m²</td>
<td>4</td>
<td>70</td>
<td>280</td>
</tr>
<tr>
<td>Living unit +/- 55 m²</td>
<td>16</td>
<td>53</td>
<td>848</td>
</tr>
<tr>
<td>Living unit 35-44 m²</td>
<td>2</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Living unit 15-25 m²</td>
<td>6</td>
<td>20</td>
<td>120</td>
</tr>
<tr>
<td>Living unit 1, 113 m²</td>
<td>1</td>
<td>113</td>
<td>113</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>2031</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 15: Surface communal areas

<table>
<thead>
<tr>
<th>Communal areas 1st + 2nd floor</th>
<th>amount</th>
<th>surface</th>
<th>total surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary 2nd floor</td>
<td>2</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Toilet 2nd floor</td>
<td>2</td>
<td>23</td>
<td>46</td>
</tr>
<tr>
<td>Sanitary 1st floor</td>
<td>2</td>
<td>94</td>
<td>188</td>
</tr>
<tr>
<td>Kitchen 1st floor</td>
<td>2</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Communal space 1st floor</td>
<td>1</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
<td><strong>464</strong></td>
<td></td>
</tr>
</tbody>
</table>

The living areas are all situated near the façade, which means that all living units have incoming daylight or at least the possibility to build an extra window. The different sizes are divided over the two floors, and the most frequent size has the surface of 55 m².

The ground floor of the building includes practical areas that will be used as communal workplaces. The group of entrepreneurs in the building could use these areas and the associated tools. In this way the costs, space and the procurement of materials could be shared among all the entrepreneurs. The workplace areas are suitable for wood-, electro- and metal jobs. The fourth area that will stay intact is the professional kitchen inclusive a restaurant. This area could be used for an entrepreneur that could give cook lessons, or a corporation that starts workshops about cooking.

The workplaces are suitable for individual artist, small independent businesses, collective businesses or small companies. The area that has had the function of gym area is a big and high area, which can be arranged as workplace but also as storage room. There is also place for individual artist that would like to have atelier space. The artists could create work in their own leased unit, and they could use tools from the communal area that are not available in their own unit.

The previous design of Streekweg 21 included three gym areas. Two of these three areas will be transformed into business areas, the third will remain the same and be used as gym area for future users of the building. The auditorium of the building will remain the current function as well, and it will act as communal space. This area could be used for activities that need higher amount of space. This could be an exposition, but also lessons of yoga what was a common suggested activity from this research. Another option is to create a meeting space for the entrepreneurs, or a place like a pub for all inhabitants of the building. With a total amount of 551 m², this area has multiple possibilities of combining different functions. A proper
alignment between the future users could fill in the right function of this area, which could result in a delicate environment for all involved parties.

Outdoor space
The surface of the parcel is established at 5700 m². The total surface of the ground floor is established at 3865 m², which means there will be outdoor space on the parcel. In the current situation the outdoor space is completely tilled and there are many parking places available.

Because the housing units are located at the first and second floor it is impossible to have private outdoor space in front of the housing unit. There are possibilities to create vegetable gardens, sport activities such as a table tennis, playing garden for children and a terrace. The outdoor area that is located near the auditorium could be a suitable location for a terrace. In this way it would be possible to easily access the facilities of the auditorium.

There will be a high amount of future users at the Streekweg, what means there must be a lot of parking places for all inhabitants and visitors. The basement of the building is provided with bicycle storage, which will be enough for all future users. The street Streekweg has free parking places, so visitors have the possibility to park the car outside the terrain.

Kitchen and sanitary
Every housing unit will include a basic kitchen, because this relative small adjustment has big advantages for the comfort of the users. Besides the private kitchen there will be two kitchens for communal use. These kitchens are located at the first floor, and they will have comprehensive facilities for cooking. Beside the kitchen there is a big area for eating or hanging out with a few persons or big groups.

Streekweg 21 is generously sized, which offers opportunities for creating large sized facilities. The sanitary areas will be realized as communal areas, but with some comfort. Both floors have two sanitary areas, where the toilets and showers will be divided over a quarter for men and one for women. The future users have the possibility to create a private bathroom, but they have to realize it on own initiative and costs.

5.3 Financial feasibility
The feasibility of the transformation processes of Streekweg 21 and PH7 into communal housing areas is largely depending on the financial feasibilities. If there is no financial profit for the building owner, it is less interesting to invest money in the project. In these cases is the municipality the owner of the buildings, what means there is a different position instead a commercial party should be the owner. This is because municipalities have more criteria than only the financial aspect.

Municipalities want to prevent degradation of a neighborhood, and want to stimulate creative breeding sides in the city. These factors have less priority for the
real estate dealer, because their main objective is a financial positive result. Transforming the buildings into the restructured plan will be an addition for the users of the building, the building itself and the surrounding of the building. This could be a reason for the municipality to stimulate the transformation, even when it could result in a financial loss.

There are several financial costs concerned by a transformation process, the following paragraph will give a short summary of them. After this introduction will the financial feasibility of PH7 and Streekweg 21 be determined.

**Property act**
The property act (WOZ-waarde) is the market value of a building, which is determined by the municipality. The value of the property act becomes updated every year. To make a calculation about the financial feasibility, the property act will be used to give an impression about the purchase value of the building in the current form.

**Transformation costs**
The property act gives an impression about the purchase value of the building, but the building needs to be transformed before it is suitable for living. The transformation costs will differ considerably for each building; moreover, the current condition of the building has a major impact. The most expected costs will be the reclassification of the building, the access to the building and the areas, kitchen and sanitary, the communal areas and the terrain.

**Building act**
A building should prevent any risk for the inhabitants, users and the environment. The government has realized the building act, which is prescribing rules about safety, health, usability, energy efficiency and the environment. Buildings always have to meet these requirements. The most important requirements for these two buildings will be the fire safety and incoming daylight.

**Zoning plan**
Every location in the city has a specific function, which is determined in the zoning plan. The municipality will determine the function of a location, and processing the function into the zoning plan. Schools and dwellings have different functions, what means the zoning plan needs to be changed if the building will get another function because of the transformation process.

### 5.3.1 PH7
The monumental school PH7 has an impressive appearance, finds in good condition and is located in a popular neighborhood. The result of these attributes is that the building belongs to the financial higher classes of the buildings. The financial feasibility will be investigated for this building, by calculating the financial costs in relation with the financial income.
**Property act**
The property act of PH7 is determined on the amount of €936.000,-. This amount is registered in the accounting of the municipality Nijmegen.

**Transforming costs**
The current building floor plan is based on the previous function, school function. This means that there are with corridors and many classrooms. These classrooms and the corridors have to meet the legislation of the school functions, which have do to the attendance of huge amount of people. Many safety and residence legislations will comply as well for the housing function. This is a big advantage, because otherwise these changes will have huge financial investments.

The transformation costs of the building will become mainly practical changes, which will make the building sufficient for the function housing. The building is in good condition; the term maintenance plan is showing that two interventions need to be developed. These interventions are paint works and maintenance for the roof.

The biggest costs for remodeling the floor plan and the interior will be the placement of interior walls, outdoor windows, sinks in the housing units, communal kitchens and the communal sanitary areas. The building is in a good condition, and the previous function complies in many fields according to the legislation of housing functions. The costs for comply the building act remain quite low.

The budget that will be reserved for the transformation costs will be determined on a value of €300.000,-. Because the building has a beautiful appearance, the finish level of these changes will be carried out with high quality. The housing unit and the communal areas will be delivered in casco form. This means they have to finishing the ceiling, walls and floors, but the basic facilities are present.

**Rental fee**
The incoming rent fees need to cover the costs of the property act and the transforming costs. These costs will be divided over the 19 areas that will be for rented. The properties of the area will determine the price of an area, and the costs of the communal areas will be divided over all the renters of the housing community. According to their policy, has the municipality the amount of expected income based on a value of €150.000,-per year. Table 16 shows how these costs will be divided over the areas.
The largest costs of the transformation of the first and second floor will exist mainly out of practical changes, because the areas will broadly meet the requirements of the building act. The largest costs of the transformation of the first and second floor will

### 5.3.2 Streekweg 21

Streekweg 21 is a huge building, which has many areas that are especially made for the previous function as a practical school. The inconvenient spaces (which were designed for practical education) make the building difficult to transform into a new designation. These limitations, combined with the unpopular location make the building part of the lower financial class of buildings.

**Property act**

The current property act (WOZ-waarde) is established at an amount of € 2.500.000,-. Based on this value, has the municipality the rental income determined on a value of € 250.000,- per year.

**Transforming costs**

The current floor plan is based on the previous function, which was a school function. The aberrant property is that this building has many practical classrooms, which differ from the classical classrooms. The building has conventional classrooms, which are situated at the first and second floor. The classrooms and the corridors have to meet the legislation of the school functions, which have to do to the attendance of huge amount of people. The redistribution of the ground floor, where the entrepreneurial areas will establish, will have to meet the requirements as well. This could have some financial expenses, depending on the deviation of the floor plan.

The appearance of the Streekweg is not of a high level, and the costs will be high if this property needs to be improved. It could be concluded that the best use of this property is not that of mere housing. This fact, combined with the attractiveness of the building for entrepreneurial purposes, makes practical entrepreneurs will be the most interesting group of future users. The future users have to participate during the process of transformation. This building is particularly suitable for the participation of future residents in the transformation process, which will have financial advantages for the costs of the transformation. This is especially for the users of the ground floor, which will become the entrepreneurial area.

The transformation costs of the first and second floor will exist mainly out of practical changes, because the areas will broadly meet the requirements of the building act. The largest costs of the transformation of the first and second floor will

<table>
<thead>
<tr>
<th>Living area</th>
<th>price</th>
<th>amount</th>
<th>income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living unit 45-50 m2</td>
<td>€ 630</td>
<td>7</td>
<td>€ 4.410</td>
</tr>
<tr>
<td>Living unit 23-25 m2</td>
<td>€ 400</td>
<td>10</td>
<td>€ 4.000</td>
</tr>
<tr>
<td>Living unit 1 +/- 71 m2</td>
<td>€ 710</td>
<td>1</td>
<td>€ 710</td>
</tr>
<tr>
<td>Living unit 2 +/- 27 m2</td>
<td>€ 400</td>
<td>1</td>
<td>€ 400</td>
</tr>
<tr>
<td>Living unit 3 +/- 53 m2</td>
<td>€ 750</td>
<td>1</td>
<td>€ 750</td>
</tr>
<tr>
<td>Living unit 4 +/- 27 m2</td>
<td>€ 400</td>
<td>1</td>
<td>€ 400</td>
</tr>
<tr>
<td>Business space 1</td>
<td>€ 500</td>
<td>1</td>
<td>€ 500</td>
</tr>
<tr>
<td>Business space 2</td>
<td>€ 650</td>
<td>1</td>
<td>€ 650</td>
</tr>
<tr>
<td>Communal central area</td>
<td>€ 700</td>
<td>1</td>
<td>€ 700</td>
</tr>
<tr>
<td><strong>Income per month</strong></td>
<td></td>
<td></td>
<td>€ 12.520</td>
</tr>
<tr>
<td><strong>Income per year</strong></td>
<td></td>
<td></td>
<td>€ 150.240</td>
</tr>
</tbody>
</table>

Table 16: Rental fees PH7


be used for the implementation of the kitchens and the sanitary areas. The sanitary areas will need a source of heating system as well. The areas will broadly remain according to the existing floor plan.

The budget that will be reserved for the transformation costs will be determined on a value of € 150.000,-. This value includes the costs of the private and communal kitchen, and the realization of the sanitary areas.

The inhabitants of the communal housing area will receive their housing unit, and the communal areas in casco form. This means they have to finishing the ceiling, walls and floors, but the basic facilities are present. The entrepreneurs that will start a business at the ground floor will receive their working place as a fixing area, what means they have to furnishing their own area. Depending on the chosen area and the amount of m², are some areas already in casco form. Otherwise is it possible that the future user needs to create walls and electricity facilities.

**Rental fee**
The incoming rent fees need to cover the costs of the property act and the transforming costs. These costs will be divided over the 34 housing areas that will be for rented, and an unknown number of entrepreneurs. According to their policy, has the municipality the amount of expected income based on a value of € 250.000,- per year. The tables 17, 18 and 19 are giving an overview how these costs will be divided over the areas.

<table>
<thead>
<tr>
<th>Living area</th>
<th>price</th>
<th>amount</th>
<th>income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living unit 2, 95 m²</td>
<td>€ 450</td>
<td>2</td>
<td>€ 900</td>
</tr>
<tr>
<td>Living unit 75-85 m²</td>
<td>€ 400</td>
<td>5</td>
<td>€ 2.000</td>
</tr>
<tr>
<td>Living unit 65-74 m²</td>
<td>€ 350</td>
<td>4</td>
<td>€ 1.400</td>
</tr>
<tr>
<td>Living unit +/- 55 m²</td>
<td>€ 300</td>
<td>16</td>
<td>€ 4.800</td>
</tr>
<tr>
<td>Living unit 35-44 m²</td>
<td>€ 250</td>
<td>2</td>
<td>€ 500</td>
</tr>
<tr>
<td>Living unit 15-25 m²</td>
<td>€ 200</td>
<td>6</td>
<td>€ 1.200</td>
</tr>
<tr>
<td>Living unit 1, 113 m²</td>
<td>€ 500</td>
<td>1</td>
<td>€ 500</td>
</tr>
</tbody>
</table>

| Income per month | € 11.300 |
| Income per year | € 135.600 |

Table 17: Rental fees Streekweg 21

<table>
<thead>
<tr>
<th>Entrepreneurial area</th>
<th>surface</th>
<th>price per m² per year</th>
<th>price per m² per month</th>
<th>Total income per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of m²</td>
<td>4874 m²</td>
<td>€ 30</td>
<td>€ 2,5</td>
<td>€ 146.220</td>
</tr>
</tbody>
</table>

Table 18: Rental fees Entrepreneurial areas Streekweg 21

<table>
<thead>
<tr>
<th>Income per year:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Living area</td>
<td>€ 135.600</td>
</tr>
<tr>
<td>Entrepreneurial area</td>
<td>€ 146.220</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>€ 281.820</strong></td>
</tr>
</tbody>
</table>

Table19: Total income Streekweg 21

As shown in table 19 is the incoming amount higher as the requested income of € 250.000,- per year. This extra amount will be used for the maintenance of the building, and extra facilities the residents would like. Examples of possible investments are facilities in the outdoor space, or facilities in the communal areas.
5.4 Conclusion

When determining the feasibility of PH7 and Streekweg 21, it could be concluded that both buildings have the feasibility to be transformed into communal housing. Both buildings will need different focus groups, and both buildings have specific characteristics. The financial feasibility shows that both buildings could meet the requirements.

PH7 is an attractive building, where renting a housing units has a relative high price for communal housing areas. The result of this high price is that a large amount of users won’t be interested in this communal housing area. This makes it more difficult to find the desired user. An appropriate group could be future users, but the group with an age above 50 years seems to be the most attractive group. This is because the criteria’s small amount of activities for visitors, the building is situated in the center and the finish level of the unit is casco.

Streekweg 21 is a building with less attractive aesthetical appearance. The location is less popular for the majority of the respondents, according to the questionnaire. But the location is popular for the people that would like to start an entrepreneurship. The entrepreneurs have a high quantity under the respondents, because 70% has indicated that they are interested in starting an entrepreneurship. The practical school has many opportunities for this group.

The building Streekweg 21 had a very attractive price/space ratio, what gives the building many possibilities for entrepreneurs. The many possibilities, and the attractive price/space ratio make Streekweg 21 a suitable building for transforming into communal housing.

The most important aspects for this decision are based on the location, condition of the building, entrepreneurial possibilities and communal areas.
6 Conclusions and discussion

6.1 Introduction
The Dutch property market has vacant buildings and this has negative financial and social consequences. The market is searching for initiatives for the rehabilitation of those buildings and their reintegration into society. Communal housing could be an interesting target group for reducing the amount of vacant buildings owned by the government. In order to meet the requirements for this focus group their preferences need to be investigated. In this way, individual or groups interested in communal housing get the opportunity to choose housing more easily according to their preferences, reducing residential stress and improving housing satisfaction.

The current research was conducted to get to know communal housing preferences. The goal of this report is to reuse property owned by the government by giving housing communes a chance to create their own attractive living environment in the vacant building stock. Eight housing communities and four communal housing associations were invited and accepted the invitation to participate. Inhabitants and interested persons of these community’s (the focus group) are approached to fill in the questionnaire.

The aim of the questionnaire is to get insights in the preferences of the communal housing interests’. Main topics are apartment and services, communal housing preferences and building preferences. Student housing preferences has already been investigated (Schwartz 2009; Nijensteine et al. 2014), but the group of communal housing has probably different interests. The similarity of communal housing and student housing is that the residents have in most cases communal areas. In order to get insights in the expectations of the residents of communal housing, specific variables have been determined.

Hypothetical housing alternatives were described by eight housing characteristics: price, size, finishing level of the residential unit, personal contribution in maintenance, outdoor space, bathroom, kitchen and location. Additionally, communal housing preferences and building preferences where asked to examine the preferences. The combination of these subjects makes it possible to give insights in the preferences of the focus group. This may provide information to select the most suitable vacant buildings for communal housing.

By using data collected from 94 respondents, the multinomial logit (MNL) was estimated to describe communal housing choice behavior. The MNL model is used to analyze individual apartment and service preferences from the Stated Choice Experiments (SCE), given socio-demographic, communal housing preferences and building preferences. These combinations result in focus groups, and these focus groups have different interests and preferences. Specific preferences could be used to select buildings that meet the requirements for this group of possible future residents.
6.2 Housing preferences

6.2.1 Apartment and service preferences
The MNL results indicated that the attribute level ‘outdoor space’ was the most important housing characteristic in communal housing preferences. The second and third most important attributes are price and size. These results are anomalous when compared with other studies on housing preferences. Recent research on (student) housing preferences show that price has the highest preference importance and size is the second, (Nijenstein et al. 2014; Louviere & Henley 1977). This result shows that this focus group has specific housing preferences that are different from other groups.

The finishing level of the residential unit has a higher importance than the shared facilities kitchen and bathroom. Studies on other focus groups such as student housing show that private bathroom and private kitchen have a higher priority for the focus group (Nijenstein et al. 2014). The group that is interested in communal housing is a group that is more open for sharing facilities than other households. This could be the reason why respondents give the finishing level a higher importance level. This is an important conclusion, because this means that there is more flexibility during the design phase of the interior of the building. An example is that two small areas could become two residential units, and a third area could be used as a shared kitchen/ bathroom. These results were expected for communal housing groups.

Location and the contribution to maintenance of the building were less important in the choice decisions. With exception of outdoor space, it could be seen that physical housing characteristics were more important than locational characteristics in communal housing choices. This finding was also presented in other studies (Louviere & Timmermans 1990; Molin et al. 2001; Nijenstein et al. 2014).

6.2.2 Building and communal housing preferences
There are many buildings that potentially may be transformed into a residential building. The characteristics of the building determine if the building is suitable for reallocation, and for which future users. Communal housing residents gave high attention to the living environment. The respondents give high priority to the composition of fellow occupants, which means that there is a specific selection procedure. The main reason why communal housing exists is that the residents would like to live together because they have corresponding interests or expectations of a residential area. Individual reasons of the residents could be saving costs by sharing facilities, but most of the communities also have a particular vision.

Different buildings have different properties: depending on the requirements and preferences of the residents it can be determined whether the building fulfills their requirements. The location and the type of building are decisive to determine if the vision of the group could be fulfilled in a specific building. In this report is chosen for the indication of seven types of buildings, and four different locations, spread in and around the city. The selected types of buildings are: school, retail building, corporate building, monumental building, low-rise office, high-rise office and residential
building. The different locations are: city center, border of the city center, other residential areas in town and remaining areas other than residential areas.

According to the multiple and single choice questions, the respondents have indicated that schools, residential and monumental buildings are the buildings they would prefer the most. Office buildings, and high-rise office building in particular are not popular buildings, as well as retail buildings.

The majority of the residents prefer that the building is located at the border of the city or in the city center. Among the respondents who would like to engage in entrepreneurial activities, the majority would prefer to be located outside of the city centre. The most popular enterprises for this group are ateliers and workspaces. However, in the case entrepreneurs prefer to start a business in the city center, the preferences for enterprises go to pubs, restaurants or shops.

**Communal housing preferences**

To get insights in the preferences of the communal housing interests’ some multiple and single choice questions were added to the questionnaire. The subject communal housing preferences need to give insights in the preferred living environment of the respondents. The most important questions are about the expectation of the building and the expectation of the future respondents.

The first subject is about the size of the communal housing area. Almost 50 percent of the respondents prefer a small-scale area, with maximum 10 households. The other two options, 11 till 30 households received 35,1 percent of the votes and only 14,9 percent chose for the option more than 30 households. From these results we can conclude that the majority of the respondents prefer a smaller communal area.

Almost 75 percent of the respondents prefer activities in the communal housing area, and 25 percent prefer no activities for external visitors. The amount of persons that would like an entrepreneurship is strikingly high, because more than 70 percent indicated that they would like to start an activity in the community. The highest percentage of the entrepreneurs can be found in the option atelier, working place or office. The other two options are also popular, because 18 percent would like to start a pub, restaurant or shop and 15 percent would like to start a company or pedicure.

The results of the questionnaire show that the majority of the respondents prefer to meet a couple of times a year (56,4 percent). The option of meeting some time per week also received considerable support (37,2 percent). The less popular preference (5,3 percent) was that of meeting the other residents only during the necessary meetings. More than eighty percent of the respondents gave their preference for an area for these common activities, such as a diner, a tournament or a drink.

**6.2.4 The added value of the target groups**

The combination of the preferences of the different background of the respondents could result in groups with common preferences. These target groups could be more suitable for specific buildings. For example could this be the a group that is living out
of the city center, with shared facilities as kitchen and bathroom, that would like many visitors in there communal housing area and they do not like to pay above budget.

The results of the correlation between the target groups and the communal housing preferences could also be used to determine which target group is expected to be the most suitable group for a vacant building. The building owner could correlate the characteristics of the building with the results from the preferences of the target groups. The preferences of the target groups determine if the characteristics of the building fulfill the expectations. The target group with the most matches for this building seems to be the most appropriate future user of the building.

**Apartment and services VS target groups**

The group of households that is living with more adolescents gives the highest importance to the attribute price. The adolescents that live in communal housing projects have high interest in reducing the price, and they do not want to pay more than the initial budget. This is clearly different from the one-person households, as they give much less priority to the price. The results of the size of the residential unit show that people do not like to accept a unit that is smaller than the desired surface. Male respondents in particular give more priority to this aspect. The female respondent had less problems with a residential unit under the desired size.

The results of the finishing level of the residential unit show that there are two interesting attribute levels. These levels are turnkey and fix up homes, and both options have a positive value for the respondents. Turnkey is the most popular option, and it is plausible that the majority of the respondents prefer one of these options. These results are contradictory compared to the contribution of the maintenance, because this attribute includes two attribute levels with negative influences. These levels are 104 hours per year and the level contribution of € 75,- a month. The group single-parent households, and couples (with children) are very negative about spending 104 hours a year for maintenance.

A striking result outdoor space is that the group of 50 years and older gives outdoor space a high priority. The reason of this could be that this group has to spend more hours at home, because this group will include more retired people. The group of respondents that prefers to rent a house gives outdoor space a higher priority than the group that prefers to buy a house. The most popular location for the communal housing is located one kilometer near the city center. The group 35 till 49 years old is the group that gives the location near the city center the highest priority.

The respondents prefer to have a private sanitary. In particular, this subject is for the group that would like to buy a house the highest priority. The priority for a private kitchen has more importance for the respondents than the preferences for private sanitary. One-person households give this attribute level the highest priority, while the group that is living with more adolescents have less interest in a private kitchen. The group up to and including 34 years old is the only group attaching a significant negative value to a shared kitchen. From the open questions can be observed that a
common suggestion is to have a small kitchen in the residential unit and a shared kitchen in case residents have guests or dinner with housemates.

Building and location VS target groups
Taking into consideration of household types, it is striking that the single-parent and couples (with children) have a lot of interest in school buildings. For the one-person households, corporate buildings are attractive buildings to live in. These one-person households have more negative interest then the other households when it is about living in retail buildings. The households with more adolescents do not like to live in high-rise office buildings.

The group respondents with the age of 35 – 49 year have a specific preference for schools and residential buildings (95 and 80 percent). Respondents in the age of 50 years and older often choose the answer ‘no preference’. It seems difficult for this group to make a decision for one or more specific building.

The respondents who prefer to live outside the city center are more interested in activities in the communal area than the respondents that would like to live in the city center. This indicates that they would like to create an area with activities they could create in their own building. Combined with social activities with neighbors, respondents in the city center seem to be more focused on their own private life. On the other hand, people out of the city center have more interest in having a relation with other residents in the communal housing area.

Communal housing preferences VS target groups
Some residents of the group that prefers no activities for visitors gave their priority for the finishing level ‘fix up home’. It is remarkable to notice that this focus group also has the highest amount of preferences in turnkey delivery. These two attribute levels are contradictory, so it could be concluded that there are two main preferences in this target group. In the attribute ‘contribute maintenance’ the target group that prefers many visitors in the housing commune has a preference to pay contribution instead of performing the maintenance. This is the only target group with significant parameters for two attribute levels.

The target group ‘activities with limited visitors’ gives the attribute level no outdoor space the most importance. The target group that prefers activities with limited visitors in communal housing has the preference to live close to the city center. The residents that do not prefer too many communal activities give the attribute level ‘circa one kilometer till center’ the lowest priority.

When the communal housing preferences and the shared facilities preferences will be combined, it is remarkable that the residents who prefer many visitors prefer to have their own sanitary and kitchen. They like to have an active living environment, but they prefer to have their own unit with facilities. The group that does not like to have recreational contact with social activities also prefers an independent sanitary.
6.3 Managerial implications
By investigating the preferences of the focus group it can be evaluated if vacant buildings owned by the government are suitable for reallocation. These housing preferences are derived from respondents mainly from the region of Nijmegen. The focus of the research is based on the reallocation of existing buildings, but some of the preferences could as well be used for new building projects. This being said, the results should be treated with care when considering applying them for new building projects.

With the MNL model, different target groups that are interested in specific buildings could be identified. The characteristics of the building need to be investigated, and the possibilities need to be determined. Important questions are: What is the location? How many households could live in the building, and how many meters need to be arranged as common space? Is it possible to combine the housing function with other functions? The results of this research give insights in specific socio-demographic results and communal housing preferences, which could be used to find the appropriate user.

The municipality of Nijmegen is interested in the reallocation of vacant buildings into communal housing projects. This research gave them insights in the preferences of the future users, based on the building, terrain, location and communal expectations. Further research is necessary to reallocate vacant buildings, because important issues still need further investigation. One of the issues, which need to be, clarified the financial feasibility of the reallocation. The results show that there is a considerable number of entrepreneurs among the respondents. Such dynamism of the respondents indicates that communal housing is an interesting group for the livability of the city.

If the municipality as builder owner would like reallocate a building into communal housing, it would be recommended to investigate the characteristics of a vacant building. The characteristics of the building need to be analyzed, and must be compared with the socio-demographics and preferences of the communal housing interests. The building owner needs to find the most appropriate group of users for this building, and the outcomes of this research could give an impression about the most suitable group of future users. To reach this desired group there must be a mediator that is specialized in communal housing. This person needs to give insights in the preferences of the potential future residents, and their expectations of their new living environment. The majority of the respondents from this research gave their priority to find a building on own initiative, but this mediator is a proper point of contact for the municipality as well for the future residents.

6.4 Limitations and future research
Research on communal housing preferences is quite scarce. This study adds some further insights into the preferences for communal housing projects. However, this study also has some limitations – which offer opportunities for future research.
Only a limited number of attributes can be taken into account within the stated choice experiment. Therefore, in the current research only eight attributes were included while more attributes might influence communal housing choice behavior. From the literature review, pre-test and comments in the questionnaire it is clear that many other attributes might be important and could be investigated in another study. These include the condition of the building, which was often mentioned, and also (common) outdoor space, vegetable gardens and common fixing rooms. This research is generalizing common spaces, and there could be more focus on what respondents specifically expect. Outdoor space is mentioned as general option, but the possibilities are not mentioned: these could be parking space, garden, playground etcetera. Further research could give insights in the preference of the focus group for these facilities.

The collected data about the expectations of the building is limited. Seven building types were selected, and the different buildings that could comply with this type of building are various. For example there are several types of office buildings, but we can assume that respondents prefer one above the other. In this report they all are considered the same type.

Another issue that needs attention is the sample of respondents. There were 94 respondents, and this amount was too low to generate significant parameters for all attribute levels. The majority of these respondents are coming from the region of Nijmegen; the preferences of these respondents could differ from the national preferences. It would be interesting to study whether and how preferences differ across cities and communal housing groups.

The case studies that have been studied give a useful first impression about the feasibility of transforming the buildings into communal housing areas. However, if the feasibility of the projects will be tested, there is some extra research necessary. An important measuring value is the financial feasibility, and in this case it is substantiated on indicators. Depth investigation will be needed to get a reliable prediction about the financial feasibility. Another possible improvement for testing the case study is a checklist that could indicate the feasibility. This checklist could give an indication in a short period of time.

Despite these limitations, the current research has contributed to the understanding of communal housing choice behavior. Communal housing is a niche market, and there was, so far, not much information collected for this specific type of housing.
Bibliography


Appendix

Appendix I Choice models

1. Utility function
The utility function describes the importance of each attribute and the overall preference for an alternative (Louviere et al., 2000):

\[ u_{ni} = V_{ni} + \varepsilon_{ni} = \sum_{k=1}^{k} \beta_k x_{nik} + \varepsilon_{ni} \]

- \( U_{ni} \) = overall utility that consumer \( n \) obtains from alternative \( i \);
- \( V_{ni} \) = structural utility of alternative \( i \) for individual \( n \);
- \( \varepsilon_{ni} \) = error term (random utility component);
- \( \beta_k \) = utility weight for attribute variable \( k \);
- \( x_{nik} \) = attribute variable \( k \).

2. Multinomial logit (MNL)
In the MNL model, the error terms are assumed to be independent and identically distributed (IID) according to a double exponential distribution. This means that the error terms of different alternatives have the same standard deviation and are not correlated. Consequently, the cross-elasticity between all pairs of alternatives is identically. Therefore, the probability ratios of choosing an alternative over another is unaffected by the presence of additional alternatives in the choice set (Adamowicz, Louviere, & Swait 1998). This independence from irrelevant alternatives (IIA) assumption makes that the choice model is easy to compute and alternatives can be introduced and eliminated without re-estimation (Train, 2009). This results in the following MNL model (Louviere et al., 2000):

\[ P_{ni} = \frac{e^{V_{ni}}}{\sum_{j=1}^{j} e^{V_{nj}}} \]

The structural utility \( (V_{ni}) \) is used to calculate the probability of alternative \( i \) being chosen by individual \( n \). As can be seen in the utility function (Formula 1), this utility component \( (V_i) \) can be described by summing the observed attribute variables \( x_{nik} \) multiplied by the corresponding utility weights (Louviere et al., 2000).
Appendix II Involved communal housing projects and institutions
Eight housing communities and four communal housing associations where invited and accepted the invitation to participate. This is the list of participants:

- Meergeneratie woonproject, Nijmegen
- Initiatiegroep ecologisch wonen, Nijmegen
- Casa de Pauw, Arnhem
- De Rafter, Ubbergen
- Paraplufabrieken, Nijmegen
- De Grote Broek, Nijmegen
- Woningbouwvereniging Soweto, Amsterdam
- Stut consult, Nijmegen
- Woningbouwvereniging Gelderland (WBVG)
- Landelijke Vereniging Centraal Wonen (LVCW)
- Omslag, werkplaats voor duurzame ontwikkelingen
- Transitiestad Nijmegen
Appendix III Interview experts

- Debatavond ‘Nijmegen de spontane stad’ Lux Nijmegen #11-03-2013
- Honig ‘Leegstand Honigcomplex’ Stevenskerk Nijmegen #5-04-13
- Ing. E.P. (Bert) Mol, docent bouwrecht #21-05-13
- Vincent Cantrijn, Programmamanager Portaal #5-06-13
- Woud Jansen + Jim Teunissen, Senior kostendeskundigen Brink Groep Kosten & kwaliteitsadvies #diverse gesprekken
- Peter Kluver Bedrijfshoofd afdeling Vastgoed Sport en Acomedatie gemeente Nijmegen #13-09-13
- Michel Pot, Projectleider Talis Nijmegen #16-09-13
- Roeland Slagmolen, Directeur Stut Consult – wonen in gemeenschappelijk eigendom - Nijmegen #19-09-13
- Bram Verhoef, afdeling onderzoek en statistiek gemeente Nijmegen, #diverse gesprekken
- Esther Lamers, Directeur Standvast wonen Nijmegen #20-09-13
- Bernard Smits, Directeur Woningbouw Vereniging Gelderland #3-10-13
- Peter Bakker, Landelijke Vereniging Centraal Wonen # 3-02-14
- Sjoerd Raaijmakers, afgestudeerd TU/e gemeenschappelijk wonen #25-02-14
Appendix IV Inventory of attributes

Often mentioned in literature:

- Price
- Size
- Outdoor space (garden, balcony)
- Communal activities
- Private/shared facilities (kitchen, bathroom)
- Distance to city center
- Attribution to maintenance of common spaces
- Activities in the building
- Type of building
- Condition of the house/complex
- Number of households
- Common housing areas (indoor and outdoor)
- Distance to supermarket
- Distance to public transport
- Construction year
Appendix V Experimental design

The design of the experimental design is determined based on the amount of attributes, and the attribute levels. This design contains eight attributes and three attribute levels per attribute. The columns 1, 2, 5, 6, 10, 11, 12 and 13 are used by the determination of the order in choice sets according to the stated choice experiment.
Appendix VI Goodness-of-fit measures

3. Log-likelihood function (Train, 2009):

\[ LL(\beta) = \sum_{n=1}^{N} \sum_{i} y_{ni} \ln (p_{ni}) \]

\( LL(\beta) \) = log-likelihood function at estimated parameters;
\( N \) = sample size;
\( y_{ni} \) = choice of person \( n \) for alternative \( i \) (=1 when chosen; =0 otherwise).


\[ p^2 = 1 - \frac{LL(\beta)}{LL(0)} \]

\( LL(0) \) = log-likelihood function at zero parameters;

5. Adjusted McFadden’s Rho Square (Greene, 2002):

\[ p_{adj}^2 = 1 - \frac{LL (\beta) - K}{LL (0)} \]

K = number of estimated parameters.
Appendix VII Building preferences

**Care facilities**

(care) facility vs age

- Meeting point for (common) activities
- Possibility for day care of elderly in common area
- Possibility for after school care in common area

- 50 years and older
- 35 - 49 years
- Up to and including 34 years

**Activities with external visitors**

Activities vs households

- Living with more adolescents
- Single-parent household, couple (with children)
- One person household

- No activities
- Activities with limited visitors
- Activities with many visitors

**Scale residential community**

Activities vs age

- 50 year and older
- 35 - 49 year
- Up to and including 34 year

- No activities
- Activities with limited visitors
- Activities with many visitors
Appendix VIII Activities and residents

Entrepreneurship

Entrepreneurship vs age

Entrepreneurship vs households

- atelier or workplace
- company, pedicure or a gallery
- pub, restaurant or a shop
- No

Living with more adolescents
Single-parent household, couple (with children)
One person household
Appendix IX Building and location

Want to live vs households

Not want to live vs households
Age vs want to live

- No preference
- Residential building
- High-rise office
- Low-rise office
- Monumental heritage
- Corporate building
- Retail building
- School

Age vs not want to live

- No preference
- Residential building
- High-rise office
- Low-rise office
- Monumental heritage
- Corporate building
- Retail building
- School
City center

Border of the city center

Other residential areas of town

Remainder, other than residential area

Location vs age

- 50 years and older
- 35 - 49 years
- Up to and including 34 years

Location vs households

- Living with more adolescents
- Single-parent household, couple (with children)
- One person household
Appendix X SCE

Below are the results of the Nlogit outcome shown. These results are based on the total amount of respondents.

Discrete choice (multinomial logit) model

Dependent variable: Choice

Log likelihood function: -750.44841

Estimation based on N = 846, K = 16

Inf.Cr.AIC = 1532.9 AIC/N = 1.812

Model estimated: Apr 17, 2014, 14:41:29

R² = 1

Constants only must be computed directly

Use NLOGIT ;...;RHS=ONE$

Response data are given as ind. choices

Number of obs.= 846, skipped 0 obs

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Note: ***, **, * ==> Significance at 1%, 5%, 10% level.
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**Description attributes stated choice experiments:**

Contact with people in communal housing area:
- Only to make decisions
- Some meetings per year
- Some meetings per week/month

Activities in the communal housing area:
- No activities
- Activities with limited visitors
- Activities with many visitors
Stated choice experiment versus Socio demographics

**Price**
- 10 till 25% under budget
- 10 till 25% above budget

**Size**
- 15 m² under desired surface
- 15 m² above desired surface

**Finish level unit**
- Fix up home
- Turnkey

**Contribute maintenance**
- 104 hours per year
- Contribution of € 75,- a month

**Outdoor space**
- No outdoor space

**Sanitary**
- Independent Sanitary

**Kitchen**
- Share with other persons
- Independent kitchen

**Location**
- Circa 1 km till center
Stated choice experiments versus Communal housing preferences

**Price**
- 10 till 25% under budget
- 10 till 25% above budget

**Size**
- 15 m² under desired surface
- 15 m² above desired surface

**Finish level unit**
- Fix up home
- Turnkey

**Contribute maintenance**
- 104 hours per year
- Contribution of € 75,- a month

**Outdoor space**
- No outdoor space

**Sanitary**
- Independent Sanitary

**Kitchen**
- Share with other persons
- Independent kitchen

**Location**
- Circa 1 km till center
Appendix XI Online questionnaire
This appendix is giving an overview of questions from the questionnaire.

Beste meeneer/ mevrouw,

Tijdens mijn afstuderen onderzoek ik de mogelijkheid om leegstaande gebouwen in het bezit van de gemeente Nijmegen om te vormen tot gemeenschappelijke woonprojecten. Door de woonwensen van u en andere gebruikers te onderzoeken kan er uitspraak worden gedaan over de geschiktheid en de mogelijkheden voor gemeenschappelijke woonprojecten in deze leegstaande gebouwen.

Deze vragenlijst is opgebouwd uit 3 delen. Deel 1 van de vragenlijst bestaat uit 5 algemene vragen over uw (wenselijke) woonsituatie, deel 2 moet inzicht geven in uw woonwensen en deel 3 richt zich op het gebouw en het gemeenschappelijk wonen.

De vragenlijst bestaat uit gesloten vragen en is samengesteld aan de hand van literatuuronderzoek en interviews met experts. Uw medewerking is van belang om de vraag en het aanbod dichter bij elkaar te brengen. Ik wil u erop wijzen dat u in deel 2 van de vragenlijst 9x een keuze moet maken uit 3 keuzepakkettens, hopelijk schikt u hier niet van. Het invullen van de vragenlijst kost u ongeveer 10 minuten.

Alvast hartelijk dank voor uw medewerking,
Bouke Janssen Steenberg

Deel 1: Persoonlijke informatie

Het eerste deel van de vragenlijst bestaat uit een aantal algemene vragen.

Hoe is uw huishouden samengesteld?
- Eenpersoonshuishouden
- Eenouderhuishouden
- Paar zonder kinderen
- Paar met minimaal 1 kind
- Huishouden met meerdere volwassenen

Welke oppervlakte voor de zelfstandige woonruimte is voor u wenselijk?
- Circa 45 m²
- Circa 75 m²
- Circa 105 m²

Zou u gemeenschappelijk willen wonen?*
- Ja, ik ben al gemeenschappelijk wonend
- Ja, ik wil gemeenschappelijk gaan wonen
- Ja, eventueel wel
- Nee, waarschijnlijk niet
- Nee, zeker niet
- Weet niet/ geen mening

* Onder gemeenschappelijk wonen vallen alle vormen van wonen waarbij meerdere huishoudens een of meer ontmoetings- en/of werkruimten gemeenschappelijk gebruiken en beheren, waarbij het lidmaatschap vrijwillig is en de groep zelf beslist over de toelating van nieuwe leden. (Bron FGW) (Studentenhuizen behoren niet tot de groep gemeenschappelijk wonen)
Deel 1: Persoonlijke informatie

Mocht u willen verhuizen, wat zou dan uw voorkeur genieten?
- Koopwoning
- Huurwoning

Deel 1: Persoonlijke informatie

Welke huursom wilt u bij voorkeur besteden aan uw woning (exclusief service- en stookkosten)?
- Circa € 400,-
- Circa € 600,-
- Circa € 800,-

Deel 2: De keuzepakketten

Het doel van het tweede deel van de vragenlijst is het verkrijgen inzicht in uw woonwensen. Om uw woonwensen inzichtelijk te maken moet u uw voorkeur bepalen tussen een aantal pakketten. Deze pakketten zijn opgebouwd uit 8 onderdelen die een hypothetische woon situatie vormen. Een aantal van deze onderdelen zijn samengesteld aan de hand van antwoorden die u bij deel 1 van de vragenlijst heeft ingevoerd.

Overzicht keuzeopties

De kenmerken zullen steeds per pakket verschillen. De onderstaande tabel geeft een compleet overzicht van de kenmerken die in de pakketten zullen voorkomen. Op de volgende schermen zal 9 maal naar uw voorkeur worden gevraagd.

<table>
<thead>
<tr>
<th>Kenmerken</th>
<th>Kenmerk waarden 1</th>
<th>Kenmerk waarden 2</th>
<th>Kenmerk waarden 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kosten</td>
<td>300 Euro</td>
<td>400 Euro</td>
<td>500 Euro</td>
</tr>
<tr>
<td>Oppervlakte</td>
<td>60 m²</td>
<td>75 m²</td>
<td>90 m²</td>
</tr>
<tr>
<td>Afwerkingsniveau zelfstandige woon-unit*</td>
<td>Kluswoning</td>
<td>Casco</td>
<td>Sleutel klaar</td>
</tr>
<tr>
<td>Persoonlijke bijdrage onderhoud pand</td>
<td>52 uur per jaar</td>
<td>104 uur per jaar</td>
<td>Bijdrage van 75 Euro per maand</td>
</tr>
<tr>
<td>Buitenuitleg</td>
<td>Geen buitenuitleg</td>
<td>Gemeenschappelijke buitenuitleg</td>
<td>PRIVÉ buitenuitleg</td>
</tr>
<tr>
<td>Sanitaire ruimte</td>
<td>Delen met 4 personen</td>
<td>Delen met 2 personen</td>
<td>Zelfstandig</td>
</tr>
<tr>
<td>Keuken</td>
<td>Delen met 4 personen</td>
<td>Delen met 2 personen</td>
<td>Zelfstandig</td>
</tr>
<tr>
<td>Locatie</td>
<td>Circa 1 km tot centrum</td>
<td>Circa 3 km tot centrum</td>
<td>Circa 5 km tot centrum</td>
</tr>
</tbody>
</table>

* Kluswoning: Woon-unit wordt opgeleverd zonder bouwkundige aanpassingen, deze aanpassingen moeten door de bewoner worden uitgevoerd en bekostigd.
* Casco: Schelingswanden worden geplast, binnenwanden, keuken en sanitair moeten door de bewoner worden geplast en bekostigd.
* Sleutel klaar: Er hoeven geen bouwkundige werkzaamheden meer te worden uitgevoerd aan de woon-unit.
De Keuzepakketten

Welk van de drie onderstaande woonsituaties vindt u het meest aantrekkelijk en welke woonsituatie vindt u het minst aantrekkelijk? En zou u in de aangeboden woonsituaties willen wonen?

<table>
<thead>
<tr>
<th>Kenmerken</th>
<th>Optie 1</th>
<th>Optie 2</th>
<th>Optie 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kosten</td>
<td>300 Euro</td>
<td>400 Euro</td>
<td>300 Euro</td>
</tr>
<tr>
<td>Oppervlakte</td>
<td>60 m²</td>
<td>75 m²</td>
<td>90 m²</td>
</tr>
<tr>
<td>Afwerkniveaus zelfstandige won-uit</td>
<td>Kluswoning</td>
<td>Sleutelblok</td>
<td>Casco</td>
</tr>
<tr>
<td>Persoonlijke bijdrage onderhoud pand</td>
<td>52 uur per jaar</td>
<td>52 uur per jaar</td>
<td>104 uur per jaar</td>
</tr>
<tr>
<td>Buitennuimte</td>
<td>Prive binnenuimte</td>
<td>Gemeenschappelijke binnenuimte</td>
<td>Prive binnenuimte</td>
</tr>
<tr>
<td>Sanitaire ruimte</td>
<td>Delen met 2 personen</td>
<td>Delen met 2 personen</td>
<td>Delen met 4 personen</td>
</tr>
<tr>
<td>Keuken</td>
<td>Delen met 2 personen</td>
<td>Zelfstandig</td>
<td>Zelfstandig</td>
</tr>
<tr>
<td>Locatie</td>
<td>Circa 1 km tot centrum</td>
<td>Circa 3 km tot centrum</td>
<td>Circa 1 km tot centrum</td>
</tr>
</tbody>
</table>

Meest aantrekkelijke optie: [ ]
Minst aantrekkelijke optie: [ ]
Zou u in deze woonsituatie willen wonen? [ ]

Deel 3: Het gebouw en het gemeenschappelijk wonen

Het derde deel van de vragenlijst heeft betrekking op het gebouw en uw voorkeur voor gemeenschappelijkheid.

Op welke locatie zou u in een gemeenschappelijk wonen gemeenschap willen wonen? (meerdere antwoorden mogelijk)
- Centrum, binnestadelijk
- Rand centrum, stadsbuurten nabij het centrum
- Overige woonwijken van een stad
- Overige, anders dan woonwijk
- Anders, Namelijk: 

Wat is het type gebouw waar uw voorkeur naar uit gaat? (meerdere antwoorden mogelijk)
- Schoolgebouw: grote units met hoge piafonds, veel oppervlakte in de gangen en entreeruimte
- Winkelpand: veelal gelegen op de begane grond en in gebieden met passerende mensen
- Bedrijfsgebouw: industriële uitstraling: grote verblijfsruimten en veel mogelijkheden voor de indeling van het pand
- Monumentaal erfgoed: specifieke gebouwen zoals bijvoorbeeld kerken, molens en kenmerkende fabrieksgebouwen
- Kantoorpand: laagbouw; eenvoudige inrichting van units met een sober afwerkniveaus
- Kantoorpand: hoogbouw; eenvoudige inrichting van units met een sober afwerkniveaus
- Woongebouw: gebouw en haar ruimte hebben veel ruimtelijke overeenkomsten met een oud klooster of verzorgingstehuis
- Geen voorkeur

Wat is het type gebouw waar u niet zou willen wonen? (meerdere antwoorden mogelijk)
- Schoolgebouw: grote units met hoge piafonds, veel oppervlakte in de gangen en entreeruimte
- Winkelpand: veelal gelegen op de begane grond en in gebieden met passerende mensen
- Bedrijfsgebouw: industriële uitstraling: grote verblijfsruimten en veel mogelijkheden voor de indeling van het pand
- Monumentaal erfgoed: specifieke gebouwen zoals bijvoorbeeld kerken, molens en kenmerkende fabrieksgebouwen
- Kantoorpand: laagbouw; eenvoudige inrichting van units met een sober afwerkniveaus
- Kantoorpand: hoogbouw; eenvoudige inrichting van units met een sober afwerkniveaus
- Woongebouw, gebouw en haar ruimte hebben veel ruimtelijke overeenkomsten met een oud klooster of verzorgingstehuis
- Geen voorkeur
Het gebouw en het gemeenschappelijk wonen

Naar welke omvang van de woongemeenschap gaat uw voorkeur uit?
- Maximaal 10 huishoudens
- 11 tot 30 huishoudens
- Meer dan 30 huishoudens

Welke leeftijd van de bewoners zou voor u wenselijk zijn?
- Merendeel van de bewoners heeft een leeftijd van 20 tot 40 jaar
- Merendeel van de bewoners heeft een leeftijd van 40 tot 60 jaar
- Bewoners met een leeftijd vanaf 60 jaar
- Bewoners met variërende leeftijden
- Geen voorkeur
- Anders, namelijk

Hoeveel procent van uw woonlasten bent u bereid te investeren in de algemene ruimte, zodat er naast uw zelfstandige woonruimte ook mogelijkheden zijn voor bijvoorbeeld een gezamenlijke woonkamer, clubhuis, werkstal, wasruimte of logeerkamer?
- < 10%
- Circa 10%
- Circa 20%
- Circa 30%
- > 30%

In welke mate hecht u waarde aan de toegankelijkheid voor mindervaliden en gehandicapten?
- Lage prioriteit
- Gemiddelde prioriteit
- Hoge prioriteit

Zijn er bepaalde (zorg)voorzieningen voor u wenselijk binnen de woongemeenschap?
- Mogelijkheden voor kinderopvang in algemene ruimte
- Mogelijkheden voor dagbesteding voor ouderen in algemene ruimte
- Ontmoetingsruimten waar (gezamenlijke) activiteiten plaats kunnen vinden
- Anders, namelijk
Het gebouw en het gemeenschappelijk wonen

Wat heeft uw voorkeur m.b.t. activiteiten die bezoekers van buitenaf naar uw gemeenschappelijk woongebouw trekken?

☐ Activiteiten die veel bezoekers trekken, bijvoorbeeld een winkel, kleinschalige horeca of hobby/activiteiten ruimte
☐ Activiteiten die een beperkt aantal bezoekers trekken, bijvoorbeeld een kapper of een atelier (‘s avonds en in het weekend gesloten)
☐ Geen activiteiten die bezoekers van buitenaf trekken

Zijn er activiteiten die u zelf zou willen ondernemen binnen de woongemeenschap?

☐ Nee
☐ Ja, ik zou graag een café, restaurant of winkel willen beginnen in het pand
☐ Ja, ik zou graag een ruimte hebben waar ik een bedrijfje, een pedicure, een galerie of dergelijke kan beginnen
☐ Ja, ik zou graag een eigen atelier of werkplaats willen hebben in het pand
☐ Ja, namelijk

Heb je behoefte aan sociale activiteiten met medebewoners?

☐ Ja, ik zou graag een aantal vaste activiteiten per week/maand hebben om de onderlinge relatie te versterken (bijvoorbeeld een avond in de week gezamenlijk eten, een filmavond, een sportactiviteit, of een infavond organiseren)
☐ Ja, ik zou graag een aantal vaste activiteiten per jaar plannen (zoals een jaarlijkse BBQ, spulletjesavond of kroegavond)
☐ Nee, alleen de benodigde activiteiten als vergaderingen of gezamenlijke besluiten nemen (bijvoorbeeld over gezamenlijke investeringen)

Op welke manier zou u graag uw intrek willen nemen binnen een centrale woongemeenschap?

☐ Op eigen initiatief een groep gelijkgestemden bij elkaar brengen
☐ Met behulp van een bemiddelaar een groep gelijkgestemden bij elkaar brengen en gezamenlijk de mogelijkheden onderzoeken
☐ Aansluiten bij een groep door te reageren op een oproep in krant of internet
☐ Anders, namelijk

Uw gegevens

Tot slot volgen er wat vragen over u als respondent

Wat is uw geslacht?

☐ Man
☐ Vrouw

Wat is uw leeftijd?

☐ Jonger dan 25 jaar
☐ 25 - 34 jaar
☐ 35 - 49 jaar
☐ 50 - 64 jaar
☐ 65 jaar of ouder

Bent u van plan om binnen afzienbare tijd uw huidige woning te verlaten?

☐ Tussen nu en 2 jaar
☐ Over 2-5 jaar
☐ Over meer dan 5 jaar
☐ Nee
Hartelijk dank!

Hartelijk dank voor uw medewerking!

Misschien wilt u de vragenlijst nog verspreiden naar een bekende, dan kan u deze link kopiëren en doorsturen: http://vragen1.ddss.nl/g/Gemeenschappelijk_wonen

Met vriendelijke groet,

Bouke Janssen Steenberg
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