Exploring Tolerance for change

Fabric transformation for Public space in Friction

Woosung joe
# Contents

1. Preface 4
2. Theoretical framework introduction 5
3. Basic information of report 6
4. Problem overview of the site : urban analysis 8
5. Problem statement 14
6. Conceptual Solution / Project Assignment 17
7. Exploring theoretical strategies for design 18
8. Building analysis (A-BT), Materialization strategy of thematic concept 40
9. Value assessment and initial evaluation 46
10. Overall consequences 52
11. Reflection, Next step 56
12. Appendix 57
13. Bibliography, Reference 61
1. Preface

This report contains the P1 and P2 session result of the graduation project in Heritage and Architecture, TU Delft. The project’s theme is 'Exploring the tolerance for change. From Sept. 2014, I’ve been searching, exploring, and proposing to what extent and how the architectural transformation is probable in the future of Binnengasthuis (BG) which is located in Buffer zone of Amsterdam UNESCO heritage.

Under the studio’s basic research discipline, past, present and future, I’ve researched about the relevance between the Amsterdam’s cultural, architectural context and the site itself. BG has been transformed by many architectural interventions over centuries. Today, the part of BG area, especially in the center, has lost its former appearance, where contemporary and antique structures are mingled. Because of this, BG seems to have a different atmosphere from a typical scene of Amsterdam heritage or medieval area. In this situation, how does BG center, the mixture of old and new, relate to the whole Amsterdam center and its neighborhood? If Architecture is understood as a combination of physical fabrics which result in their appearance, and Human activities in the fabrics, how do the fabric changes influence the future activities in this area?

To answer the questions, I started with the analysis of the current public/private activities in BG Center (see Fig.6), based on a public domain theory and my own observation.[Chapter 2, 3] Together with overview of the development history of the area and the future policy of European university, I defined the problem of the site.[Chapter 4~6] In Chapter 7, strategies to solve the problem was explored with focus on outdoor space organization and fabrics around the 62 social housing. In this context, program study of CREA building (socio-cultural center) and a theme research of Amsterdam typical facade fabric were done. By combining the two research, I aimed to revitalize the currently undefined and deserted BG center, the central public space in Binnengasthuis. In Chapter 8, the exploration was extended to technological possibilities to serve the objectives set up in the previous chapters with a sustainable way. Lastly, based on the value assessment of the analyzed elements and features, parts to be transformed or maintained was decided, initial design proposal was produced, and overall consequences were drawn. [Chapter 9~10]

Studio MSc3
Design & Heritage
Assignment : Exploring the tolerance for change

Main mentor Architecture : Lidy Meijers
Mentor Building Technology : Jan van de Voort
Mentor Research : Sara Stroux
Guest Architect : Annette Marx
2. Theoretical framework introduction

“Public space is in essence a space that is freely accessible for everyone: public is the opposite of private. Public domain entails additional requirements, We are interested in the question of which spaces are positively valued as places of shared experience by people from different backgrounds or with dissimilar interests”

(Hajer and Reijndorp, 2001, p.11)

The term friction was used in the book ‘In Search of New Public Domain’ written by Martin Haajer and Arnold Rijndorp. Public space in friction means public space as a public domain where social exchanges occur. The author separates concepts between public space and public domain. Public space is just a freely accessible space for everyone, but public domain is a place of a shared experience by people from different backgrounds or dissimilar interest. Considering above, I define a ‘lively public space’ as a public domain in ‘friction’ or in exchanges of intended social groups. The space is neither necessarily bustling, nor in conflict. Strategic design can help to prevent negative conflict while improving exchanges and preserving the meaning of friction.
3. Basic information of report

3.1 Concerned part of the site

The part of Binnengasthuis where I am interested in is marked with the dotted area in Fig.6. I will call this from now on BG center. The place is marked with different Facade fabric surrounding the area and contrast between light and dark material. (Fig.3, Fig.4, Fig.5)
3.2 Main basis for Activity Mapping — observation recording, 23. Oct. 2014 and several more times in September in the morning and afternoon.

In order to measure activities in a more objective manner, my observation was voice-recorded then written down. Frequency of a certain activities, social group behavior and the group's interest were drawn in the description.

- Recording time (m.s) -
  - 0.0: here is in front of the CREA buildings bag office (9:28, absolute time)
  - 0.20: opposite to this I can see the social housing now one man looking 40-50 is coming from a porch of the house, a residence has blind shut in windows
  - 0.41: one man is talking on the phone in front of the student center, alone, chatty
  - 0.50: a woman coming out from the daycare
  - 1.00: a mom with a baby ride a bike from a eastern road to the daycare center
  - 1.10: a man riding from south to north
  - 1.16: Im still at the plaza, brick bench
  - 1.24: a car passing from eastern road toward southern road
  - 1.34: ground floor units looks mostly having windows with blind shut
  - 1.48: a man who put his baby in the daycare now disappearing with his bike to eastern road
  - 1.58: a man walking from south toward north
  - 2.37: now 9:32 (current time)
  - 2.45: two woman meet in front of the student center and disappearing between the alleyway between the center and pyramidhall
  - 2.55: here is still near the center, plaza 9:34
  - 3.14: this road from south to north is used as pedestrian in most time
  - 3.19: and frequently in the morning people put their trashbag under the tree sculpture
  - 3.41: a worker at a construction site passing through, a girl park her bike at the bike parkinglot in front of the northern building in renovation
  - 3.52: a guy walk down from north to south with his bike
  - 4.13: a black woman coming from south was a residence of the social housing and now entering the porch beside the tree sculpture 9:36 *till now relentless noise of construction site
  - 4.50: a man with his baby in baby carrier coming from south to the daycare center
  - 4.59: a man from east also with his baby in the carrier to the daycare center entering
  - 5.26: in front of the CREA office a man lock his bike talking with his friend, a girl
  - 5.52: a mom disappearing toward the alleyway to the west with her bike after putting her baby in daycare center
  - 6.06: the man having talked on the phone still talks on the phone in front of the student center
  - 6.29: a female biker coming from east disappearing to the west alleyway, looking like tourist with pink hat
  - 6.56: a man with blue jacket lock his bike at the bike park in front of the north building in renovation and entering through the residence gate adjacent to daycarecenter door
  - 7.26: beside the daycarecenter door there is residence gate to the back-
4. Problem overview of the site: urban analysis

Based on the record, I visualized how intensely different social groups are involved in activities in and around BG center. Simply I roughly counted people doing something on the spot not passing by. The map includes students, tourists and residents, and also vehicles and staffs for services for surrounding buildings. It shows BG center doesn’t have a high value of social exchange. Compare to BG center, its nearby area has more activities. In my observation, BG Center seemed deserted most of the time in terms of social exchange (Fig.8, Fig.9, Fig.10). Activities here seemed even sucked out by surrounding spaces which have relatively good qualities, such as law faculty court and nearby area of pharmacy building. Crowded situations take place in BG center sometimes. But they seemed to be a case of events or festival, may be just a few times a year. Other than that, mostly in normal daytime, social exchanges does not occur frequently.

Fig.7 Activity intensity map (2014)

1 A picture showing the crowded BG center is missing. As I remember the picture, however, the open public space of BG center was full of people and there were parasols on the periphery of the BG center plaza, indicating a festival was going.
» BG Center as a transit zone: Not a space for active social exchanges
4.1 Value assessment of BG center, Basic condition of the site

See below (Fig.13). The south to north route has a high value in terms of car accessibility, because that is the main route large enough to provide goods to surrounding buildings. East Way is too low for trucks and West way is too narrow. The zone should be accessed by car at least in exceptional case, or substitute route for service should be provided, when the plaza is closed.

On the contrary, BG center has less value as a tourist attraction, tourists do not enter the plaza, but pass by the social housing. For students and residents, the plaza has a certain value as a transit zone, but not significant for social exchange. The way from east to west provide a main route for parents bringing their children with bikes to the Daycare center, however no matter who it is, what visitors do at the plaza is parking bike. Even residents don’t take a rest often at the Plaza. They would probably take a rest in the backyard. The reason for this un-liveliness is assumed as follows; Space for watching seating hearing is a precondition for social exchanges, according to Gehl (2011). But simply BG center is not a space for watching, seating and hearing.
4.2 Nearby public space: Lively space (See definition p.5)

Then what about nearby public spaces at day time? (observed at 3pm) Here we can see mingling, chatting, and shopping taking a rest. The spaces are characterized by open access, restricted car, less bike and public friendly programs like shops or cafes.

Filled with people, but no traffic

Welcoming

Fig.14 Nearby context of BG

Fig.15 Shopping (2014)

Fig.16 Mingling, chatting and shopping (2014)

Fig.17 Taking a rest, having coffee (2014)
4.3 Nearby public space : exceptions

Regarding to the atmosphere of the spaces, there are some exceptional cases. Bagijnhof is famous for tourists but some attractive part is controlled and cannot be entered. We can only see it at the side of tourist zone. On the other hand, despite its open access the courtyard of Amsterdam museum is empty most of the time, probably because it has only one access from external street (below), and the surrounding building is not open to the courtyard either. In short, one is controlled to be silent, the other is naturally silent.

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I’m Standing in a public domain, Bagijnhof, but what I look at is access denied zone Exceptional case : it is a public domain with social exchanges, but not a public space with complete open access

Welcoming

Un-lively space, no program connections to surrounding building, Only one access to external streets. Though its architectural quality is good, and its access is open to all, that doesn’t guarantee a ‘lively’ public space or a public domain, where social exchange frequently occurs. Right is a public space open to all pedestrian, but has solely dominant atmosphere of museum, and access is not well exposed to public. In my several visit since 2014 summer, the place was always empty. Only in one picture in which a music concert was held, the place was filled with people. (see App.2)

Welcoming
Residence and their activities can be seen by tourists. Therefore, social exchange happens. Though it is not a direct communication between the two groups, one group has a chance to peek at the other. Protecting resident domain from a flux of tourists provides safety for keeping it parochialized. Thus, both groups can feel public. Tourists observe valuable heritages and the good architectural quality, but residents also watch tourists who entered their domain, here a border keeps the both safe.

One notion important in Bagijnhof is that being silent or less direct social contact/engagement does not necessarily mean less social exchange. Right opposite to the controlled zone there are many people watching monuments and the residence zone with silence. We can see tourist and residents looking at each others. While staying, I felt the area very public. This situation is better explained by Maarten Haajer. (see citation above) He says public domain is not so much a place as an experience. One experiences this space as public domain because one does not belong to that specific dominant group.

The paradox is that what many people experience as pleasant public space is in reality often dominated by a relatively homogeneous group. However, these are not the spaces dominated by one’s own group. Any one reflecting on personal ‘public-domain experiences’ will notice on closer inspection that the key experiences with shared use of space often involve entering the parochial domains of ‘others’. Public domain is thus not so much a place as an experience. One experiences this space as public domain because one does not belong to that specific dominant group.

(Hajer and Reijndorp, 2001, p.88)

One notion important in Bagijnhof is that being silent or less direct social contact/engagement does not necessarily mean less social exchange. Right opposite to the controlled zone there are many people watching monuments and the residence zone with silence. We can see tourist and residents looking at each others. While staying, I felt the area very public. This situation is better explained by Maarten Haajer. (see citation above) He says public domain is not so much a place as an experience. One experiences this spaces because one does not belong to the dominant group. That means a good public domain does not necessarily entails direct involvement between different social groups.

Rather, we need strategic bordering between different groups in order to facilitate peek and serendipity on each other. In Bagijnhof I also learned architecture showing identity of a culture attracts new visitor and tourists to a place¹, however long term social group seems more sensitive to program and safety settings they have been already get used to. The area with the border in characteristic is called enclaves, or parochialization (Hajer and Reijndorp, 2001, p.84)

¹ Soeters (2012) also argues tourist are attracted by the Netherlands’ banal architecture rather than the modernist architecture.
5. Problem statement

5.1 Failed 'parochialization’ resulting in the deserted BG Center

Under the aforementioned perspective, I looked back the site. Then I came to see the problem why the plaza is lacking social exchanges. It seems because of the excessive parochialization in the surrounding courtyards, not the BG center itself. In comparisons of 1,2,3 in the figure below, we can see how different architectural border CREAtes or remove the chances for better social exchanges.

1 “The key experiences with shared use of space often involve entering the parochial domains of ‘others’.” (Hajer and Reijndorp, 2001, p.88)

2 “A sense of safety is often a precondition for full participation... The trick is rather to prevent safety improvements being at the expense of the development of the public domain-the soul of an urban society-can flourish” (Hajer and Reijndorp, 2001, p.116)

3 Parochial domain of day care/residence, Space itself is calm, safe and attractive to me. There are sitting place with greens and enclosed atmosphere gives me coziness. However access to this place is hidden. Thus social exchange rarely occurs

Fig.22 BG parochializations and social exchange
5.2 Consequence of failed ‘parochialization;’ Disposal place, Tensions between different social groups

What is following in this ambiguous plaza, number 2 in Fig.23, is putting garbage, parking bikes and building services etc. (see also p.9) Due to the overly strengthened enclaves, characteristics of social groups are not exposed to the plaza and the current spatial failure seems to happen. Thus, number two has low value in social exchange and tourist attraction. Number three is important for residence and daycare because it provide protected area for children’s activity, but no value for students. Probably because of this UVA has once planned to change the area (from Fig.23 to Fig.24); removing residences and building a mega library for students.(see also App.4) However this was canceled due to the protest of the residents (Fig.25). For residents, the social housing seems to be very important due to its location near to the center because it has a large open space in the courtyard.

“This committee is very upset about the plan because it means that they have to leave their homes. The 62 social-built structures that were delivered in 87 will be demolished and the current information.....”
5.3 Consequence of failed ‘parochialization;’ Lack of integrity in use of University facilities

Currently the library plan is reduced. It doesn’t include the social housing. Considering the issues in the previous page, preserving the quantity of current residence is important. However when nothing is changed, the problem of social exchange will not be solved either. Furthermore the residence in the middle of Binnengasthuis blocking path to the museum causes integrity problems to UvA.

In my observation, a conference was held in the faculty at the north and almost all members took a break in Mensa. However, Few of them could be seen in the museum. If the residence didn’t block the path to the museum from Mensa through the plaza, there would have been more people in the museum. Also the other facilities like cafes are scattered over the whole Binnengasthuis. If they are arranged in the center and connected, it will be more efficiently used by surrounding buildings.

In the book ‘the European campus heritage and challenges’, Heijer and Tzovlas (2014) recommended for universities to have more flexible space use and more shared space on every level, individual, group, and faculty, in order to achieve Enabler for Europe 2020 plan.(Fig.27) That means UVA needs to densify its facilities to make them efficient in the use. The conference example and the above recommendation shows in terms of functional integrity of UvA and economical space use, BG Center has low value, thus spatially it needs to be enhanced.
6. Conceptual Solution / Project Assignment

» Design Assignment
To transform BG center from a mere public space to a meaningful public domain for tourists, students and residents by renovating the 62 social housing as a mediator accordingly and by reorganizing the role of BG center and the backyard of the housing.

However, as confirmed in the previous page, even after the new library comes, the lacking integrity of the site use will not be improved, as long as the housing separates the area. Thus, efficient use of public space in Binnengasthuis would be farcry. Therefore my assignment is to improve the current status of public space which is lacking of social exchanges, and also causing inefficient use for UvA. As a conceptual solution (Fig.28), I want to make BG center and part of social housing to become enclaves for student. On the contrary to residence, student program is more open to public therefore tourist can enter the area of student, watch student activities and feel public. For residents, if they open their courtyard to students but with control, then we can expect probably similar scene of Bagijnhof aforementioned, in which students or tourist come into the special atmosphere of residence. (see p.13)
7. Exploring theoretical strategies for design

In order to make the space for proper Enclaves and to connect them, I referred to the strategy of Hajer and Reijndorp (2001), theming compressing and connecting. Theming is a way to CREATE places that can become ‘meaningful to specific groups’, compressing is a way to bringing the themed spaces for ‘different groups into close proximity with one another’. Connecting can help to ‘make a confrontational character as a seductive one’. These 3 strategies (Fig.29 up) are interrelated. And when they are well materialized, the friction between student residence and tourist can be achieved. (Fig.29 up)

In Street profile (Fig.30), theming is more relevant to the facade and connecting and compressing is more relevant to ground-floor program. Let me go over firstly compressing and connecting from next page.

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Theming - the creation of places that can become meaningful to specific groups
Compressing - bringing a number of elements that are meaningful for different groups into close proximity with one another
Connecting - can just as easily have a confrontational character as a seductive one, just as readily entail the direct opposition of two worlds
(Hajer and Reijndorp, 2001, p.117)
7.1 Compressing and Connecting: Basic strategy (U-A analysis)

Referring to Hajer and Reijndorp (2001, p.117), Public domain is realized by rather homogeneous character in its space use, leading to the invitation of other groups. Therefore, it is necessary to make the character of the space clearer. This means, in order to achieve the status of Fig.31, each space actually should have a strong characteristic for a certain group. Thus, the left statement and conceptual diagram should be revised as Fig.32. The BG center plaza invites residence and tourists as a students domain. The social housing backyard invites students as a residence domain. In addition to this, a new path passing the residence backyard will be created and the existing tourist route will be strengthened.

Above illustration shows what should be achieved ultimately by the project intervention. The plaza and the street area will be mainly for social exchanges of three groups. On the other hand, backyard of residence is for social exchanges between students and residents.
Fig. 33 is zoom-in graphic of current situation. Because too many types of social group are involved, BG center is undefined and not well used as a public domain, compared to nearby public spaces. Considering the conclusion in previous page, the use of the space should be reorganized.

(see Fig. 34) Thus I relocated service function to each courtyard, and decided to take a measure to attract more students at the center. The service relocation is not very difficult because the new library plan by MVSA has already enough bicycle parkings. Plus, it is also better to have Homogeneous character of students in the street between the residence and the new library building. Consequently, residents activities will be facilitated in the backyard in contrast to the major activities for student in BG center plaza and the street.
Separation is no good

Why does one seem to be a transit area, but the other an area for social exchange?

Road lane an no seating place deprive pedestrian chances of wandering around, straying around

Then what is urban, architectural obstacles in achieving the strategy in the previous page?

I want to compare Binnengasts(upper) to MQ, the museum quartier in Austria (lower). In my observation, BG center does not have much car traffics. But there is a clear level difference between pedestrian zone and the car lane. There are few spots to sit on. The spaces are very directed in a certain orientation.

On the other hand, in MQ, bunch of stools are scattered and no specific lanes exist. People can stray around in the open plaza. Here I think a road lane could deprive pedestrians of the chances for wandering around. This somewhat uncomfortable situation against passing through actually make the space not a transit zone, but a public domain where people can take time in, experience and get used to.
Therefore, in order to make BG center used by students, I argue the priority of the use of the place should be given to pedestrians, who will be mostly students, when the ground programs turn into student functions. Thus in a new situation, level difference is removed (Fig. 39 mid), service activities is relocated to the backyard (Fig. 39 down, black dot). The residents access can be also relocated to the backyard, because there is Gardens for residents.

In the new situation (Fig. 39 top), the street is surrounded by student program. By relocating the access, residents can use the garden more collectively. And the reduction of residence can be partly compensated by adding floors.

» Setting safe conditions for enclaves and their exposures to other groups for invitation is precondition in order to form a well-working public domain.
Also, the housing façade can be transformed accordingly (Fig. 41 up). Now the housing building are opened up at both sides, but the side facing the new library could be more closed in a new situation. As seen in the section the right transformation can be suitable for the well-functioning enclaves of social groups and their safe exposures to each other.

* Major structural transformation was not yet reflected in above graphics. Only program changes was marked by color difference.
7.2 Compressing and Connecting: program formulation

The next question is exactly how much and what kind of program should be accommodated for students, and how residents and students should be connected through the program. The answer was hinted from the former situation. Formerly there were CREA buildings. It was socio cultural center for students. The graphic above shows Gross Floor Area of CREA one and CREA two and residence. And here we can see many bike Parkings in the public space.

- **Past**
- **Present, ongoing plan**
- **Future plan**

Today new CREA has been built 1.3 km away from BG center, whose area is 700 m² smaller than the sum of the former CREAs’. New library planned by MVSA (2013) incorporates Zusterhuis and its courtyard in indoor space. 900 bike parkings in the plan seems to cover the whole amount in the current situation. This means BG center will not be mainly used as parking lots anymore. CREA1 building is currently under transformation to faculty building. It could probably accommodate the former program located in Zusterhuis.

Under this situation, my proposal is to replace part of the social housing with ‘linking’ programs between students and residents. Because CREA has a socio-cultural character, the ‘linking’ program proposal can refer to it. (CREA, 2015) Especially studios in CREA are able to be rented for everyone, and thus be shared with residence. Therefore, I analyzed the CREA program as follows.

**Program connecting residence, students, and tourists**
According to the Hompage of CREA (2015), its studios are open for everyone, thus can also be shared with residence. Moreover, the socio cultural role of CREA for students and residence can work as a catalyst to connect the different social groups. In this case, CREA will not have anymore student-specified programs.

Re-interpretation of the role of CREA for connecting students and residence

I analyzed the floor plan of new CREA, marked the whole rooms and then selected what is necessary to connect residents and students. They are music hall, discussion rooms, office, AV studio, theater studio, music, dance studio and toilets. The actual function can be changed, but the reference gives me a sense of space volume for the general activities.

In addition to the selection, additional proposals can be considered. The net square meter is near 2000.
As a next step I try to apply the studied program in current situation. The housing is composed of 54 flats, 7 duplex, 8 studios. And it also has office at the ground floor. Units are connected mostly in vertical direction, the Row house typology.

As addressed, program change will be more or less 2000 m² and residence addition will be a thousand square meter for the compensation of the residence-loss caused by the ground floor transformation. Another Loss 1000 m² should be accommodated at nearby area.

In horizontal application (Above) the two floors at the bottom are changed, which amount to 2000 m², and 600 m² is added as residence.

Vertical transformation (Above) is also possible. The Both horizontal and vertical transformation have each own pros and cons. Because the two zoning have the students-residents program at the ground floor, they have not much difference in terms of public space activities at ground floor. Together with archi - technological value assessment, the zoning type will be decided in the chapter 9.6. This is the end of the exploration in connecting and compressing.
7.3 Theming and Connecting: Prologue

7.3.1 Theme of surface and its influence in public space

From here I want to talk more about the façade fabric in terms of strategy theming and connecting. Before digging into the analysis of the façade, I did a case study in search of the role of regularity and singularity in façade. In many European architecture, spaces are characterized by the contrast between regularity and singularity. For instance MQ has a contrast between its dominant regular periphery and distinctive Inner points of two museums. Their classic and contemporary style also make a contrast. In Palais Royal, Paris, what is contrasting is regular architecture as background and its inner landscape. Additional layer of trees can protect people taking a rest in the middle, from unwanted visual connection between buildings and the people. In the case of St. Peters Basilica, its plaza is surrounded by colonnade. Compared to its regular periphery, the obelisk in the center is distinctive. Also the colonnade visually masks housings behind, which could be otherwise distracting during holy mass. Thanks to the colonnade, attention can focus at the center or the Basilica front.

As a conclusion, regardless of the case, peripheries (Fig.46, Fig.48, Fig.50) provide their inner place with 'safety,' which is also asserted by Hajer and Reijndorp (2001). The periphery architecture draws a clear boundary between external area and internal area, whose regularity contributes to forming an identity in the space.

On the other hand, Highlighting features inside (Fig.45, Fig.47, Fig.49) often works as a stage where activities are anchored to and exposed. The highlighting features are not necessarily architecture. Sometimes it is, for instance in case of MQ. However in Palais royal, what is highlighting is the green and the fountain. In Saint Peter Basilica it is the obelisk and the basilica front where holy mass is going. As a conclusion, this means periphery architecture is boundary for safety, and the highlighting part inside represents the activities of its dominant social group.
7.3.2 How people use public space today: Stage arranged by Mobility and Technology

But, the stage can be rather easily changed today in its characteristic. Fig.51 ~ Fig.54 show that. The first one is Stephan Cathedral in Austria Wien in Pfingsten. For the festival, the theme of the cathedral was changed by using lighting technology. The second one is an office building in Champs Elyses near triumphal arch in Paris. At night the media façade makes a strong contrast to its neighbor. At the moment, it draws so many attention of tourists, speaking for itself as an architectural stage. The third one is delft square, which is transformed to a temporary theme park in Christmas. In the same context, Hajer and Reijndorp (2001) says thematization of public space today is often arranged by mobility and technology.

The mobile thematization has been also used in Binengasthuis. The UVA museum has used a media wall inside the building, though it is not well visible in daytime. The fact implies UVA want to advertise itself to external social groups by using the current mobile technology; tourists or other visitors. As the same manner, the mobility and the contemporary technology can give hints to the renewal of the 62 social housing.
7.4 Theming and Connecting: theme research question

» **It is too private and uninviting to be a stage**

Now let’s think about the problems in BG center. What is its regular periphery and what is its highlight? In Fig.56 (above), the white housing clearly makes contrast to other brown color buildings. Therefore in terms of perception it is like a stage, the highlighting feature. The distinctive look is supposed to draw visitors’ attention. However, the housing doesn’t have any public functions, and do not need to be a stage either. This irony and mismatch is the point where I feel uncomfortable with the appearance of the social housing.

» **It is too spotted, explicit and distinctive to be a periphery, thus repelling public activities nearby**

On the other hand, even though I regard it as a periphery, it is problematic. Rather than ensuring public activities as a safe border, too many windows of the private housing units do not seem to facilitate activities in the plaza. It reminds me of panopticon. (Fig.56 below)

Considering above, I think the relationship between stage and background in BG center should be redefined. Therefore, the research question is **what defines a regularity as a background and a singularity as a stage at BG center’s facade fabric in terms of visitors perception when they approach to BG center.**

» **Exploring tools to define regularity and singularity**

However the answer to the question, what should be a regularity of Binnenhuis, is not that easy to get. According to one gestalt theory, past experience (Wikipedia, 2014), Not only the currently what we ‘see’ but also what we ‘saw’ in the past influence our perception in distinguishing or identifying something. This means when we look at the social housing we perceptually compare it not only to the neighboring buildings, but also to the most typical building in Amsterdam, the canal house. (Grey area in the left figure)

As seen in this map what people experience while coming to BG center is mostly narrow canal houses. In short, in this map (Fig.57) and Fig.56, there are three phases of typology; typical narrow canal houses, big volumes of binnengasthuis buildings, and even among them, the different materiality of the social housing.

Therefore I took samples in the three areas. By analyzing features of the facades I can get insights to distinguish regularity and singularity in Amsterdam facades and it can also provide a design tool to thematize background or stage in BG center.
7.5 Theming and Connecting: facade research process/ result

Insights to distinguish regularity and singularity of Amsterdam facade can provide a design tool to thematize ‘background’ and ‘stage’ in BG center - by altering the social housing facade accordingly.
However, when it comes to the Amsterdam facade, we perceive it sometimes as a whole, but sometimes as a part. Sometimes we see a series of facades, sometimes an individual facade entity. Depending on the vantage point or our attention, perceived rhythm differs, horizontally or vertically. This perceptual phenomenon is generally explained by gestalt Theory. (Fig.60) (Wikipedia, 2014)

How we recognize a facade in a continuing series of facades is very important because this makes it possible to set up a criteria and an unit of the facade analysis. (Fig.61)

For example in sample M3 (Fig.58), I counted 11 facades (Entity 37~47), and in the sample S, I counted 3 (could be 8 in different groupings). This identification is not completely objective, but based on a similarity rule of gestalt theory. Thus, the counting is not completely arbitrary either because we human has a certain consensus of similarity, which is formed by the unit of construction or design intention. For example, see sample H 107 (Fig.58). 107 can be counted as 2 twin facades perceptually. But I counted 1, because its twin parts seems constructed at one time, considering its identical elements. And it seems not to intended to be separated completely, considering there is no boundary lines in the middle. Thus one facade is counted.

However in sample H 108 (Fig.58), I counted 4 facades. It was constructed at a time but clearly show separation with different material uses. The glass stripes separate the brick surface into 4 parts, and their roof silhouettes vary accordingly. In the social housing Sample S (Fig.58), it seems even controversial what is right count for facade entities. The glass stripes seems sometimes separation, but sometimes just outstanding points in one long horizontal facade with green windows. However, considering various similarities in the facade elements (opening layout, material use, roof shape) and the design intension, I concluded that the facade do not necessarily intended to be identified as 8 separate facades, but 3. Thus, I counted 3 facade entities in the social housing. In some way, the following research result is showing why I came to the conclusion in which I identified the social housing facade only 3 at best, but not 8 vertical entities. (see also Fig.102)

Likewise, the identification was done on the all samples for appropriate comparisons (Fig.58 Entity), and then I could see them in groups or in entities.

This identification influences the analysis at entity level. For example, if I set an entity broader, then the entity width will be large. However, in a group rhythm analysis, identifying entity is not influential because the unit of analysis is a group of facades.
7.5.2 Which rhythm is perceivable in a series of facades?

Parallel to entity identification, in a group of facades, we can perceive a horizontal rhythm of roof, windows arrangements in an aerial rhythm or in a linear rhythm. Personally experienced, an aerial rhythms is easily observable in a distant part of a facade group, and a linear rhythm in a close part (Fig.63). This might be because our sight is broader in horizontal direction, as Gehl(2011) pointed out. And it is also because we can see broader part of facade at a distance.

7.5.3 What criteria can be drawn based on sample observation?

Based on the observation, I set up criteria (Fig.64) for the comparisons of the three samples in Fig.58. A facade is largely composed of its boundary formed by an area of main material, window openings, roof, materials and ornaments. Comparable attributes of these elements are above. For example Facade boundary or silhouette has its own entity proportion, absolute scale of width and height. And entity proportion contributes to forming verticality when it is matched with window proportions. And when facade entities form a group, a group pattern is also made, for example by a series of widths and heights of facade entities. Thus there are not only independent attributes, but also interrelated attributes.

In addition to this, by referring to gestalt theories and my personal observation, symmetries become an important factor in identifying a facade entity. Probably, one can easily identify a facade as an entity, if it has gable, which is in symmetry. When both the opening layout and the roof in a facade entity have symmetry, it can be said the effect of symmetry is strengthened, therefore we can easily identify the facade. (see Fig.60, Fig.61 symmetry and continuity)
7.5.4 Under the criteria, how pure, separate rhythms of the attributes can be drawn, and what is their common characteristics?

Under this criteria, I made graphs to see the separate rhythms in group level and absolute scale in entity level. In most attributes of elements, sample S has high scales, but lacks of entity numbers which is important for forming a complex rhythms with various fluctuations. And the pattern itself is rather monotonous compared to sample H. The lacking entities of Sample S is due to the fact that I set the number of entity only 3. But even if I subdivide the 3 facade into 8 (see Fig.58 sample S entity), the graph results do not change except the width graph. What is important is that the attributes of the social housing has very regular rhythms or very different scales, compared to the other samples. That makes the social housing differently perceived from typical Amsterdam facade. Thus, the social housing facade does not show regularity but singularity in Amsterdam due to the sum of its different architectural features and their different rhythms.

**Sample S compared to the others - Width, Height rhythms**

Lacking entities, different scale of width. Height is rather similar to each other.
Sample S compared to the others - Openings

Lacking entities over large width, overly larger scale of opening widths. Regular patterns. Strong horizontality in opening arrangement. The statistic of all individual opening heights and widths show averagely the window openings of the social housing is too wide, horizontal. Most windows in other samples has a similar proportion in a certain range. But the social housing is exception. This difference in openings and their arrangement is quite significant compared to other attributes. This implies the modification of opening proportion can have leverage effect in facade impression; less change, more effect.

Opening interval/ rhythm in horizontal and vertical

Sample H

Sample M1

M2

M3

Sample S

Fig. 66: Topological rhythms of opening layout in every sample
*Chart : Based on every opening measurement in every Sample, bar charts for frequency distribution were made at first. For better recognition, the bar charts were converted into curve charts.

F-G : Actual silhouette at close distance
F-GH : Full silhouette including volumes behind

Sample S compared to the others - Roof silhouettes

There is rare fluctuation. Repetitions of symmetries is hard to be found. Thus, the social housing facade is perceived as one large chunk at a glance rather than sum of various individuals. This silhouettes of volume seems also a decisive part to identify entities in a series of facades. On the contrary to other Samples, in the social housing roof line, the characteristic of the housing rows is not revealed. (see Fig.69 sample S)

**Average opening width, height, deviation in distribution**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Body Width (m)</th>
<th>Ground Width (m)</th>
<th>Body Height (m)</th>
<th>Ground Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Amsterdam</td>
<td>1.51 0.51</td>
<td>1.45 0.32</td>
<td>2.22 0.94</td>
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<td>B</td>
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<td>1.51 0.45</td>
<td>2.14 0.51</td>
</tr>
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<td>Medieval (a)</td>
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<td>1.51 0.45</td>
<td>2.14 0.51</td>
</tr>
<tr>
<td>D</td>
<td>Medieval-2</td>
<td>1.37 0.26</td>
<td>1.51 0.45</td>
<td>2.14 0.51</td>
</tr>
<tr>
<td>E</td>
<td>Medieval-3</td>
<td>1.47 0.26</td>
<td>1.51 0.45</td>
<td>2.14 0.51</td>
</tr>
<tr>
<td>F</td>
<td>Social housing</td>
<td>3.15 0.84</td>
<td>3.43 1.49</td>
<td>4.41 2.35</td>
</tr>
</tbody>
</table>

*Fig.67 Average width, height of openings in each sample with deviation*

**Two possible roof silhouettes near/ far**

**Sample H**

**Sample M1**

**Sample S**

**Sample M2**

*Fig.69 Differently perceivable roof silhouettes of each Sample*
Sample S compared to the others - Material

Main material tint and color don’t have variation. And white is too prevalent.
Sample S compared to the others - window frames
(see below) The social housing has far less types of window frame in a comparable facade group length. This is obvious and natural, because the social housing is designed by one architect at a certain moment. On the other hand, many narrow canal houses making the same length of street richer is a result of intervention by various designers or carpenters. And those interventions were densely situated in a facade group. Thus one can experience far richer variety of architecture in Amsterdam except the social housing area.

7.5.5 Conclusion
In spite of its large width, the 62 social housing facade lacks rhythms and variety in entity width, opening arrangement, material and roof shape - which is typically observed in nearby areas of Amsterdam and the Heritage area. Also, figures of elements itself are different. Such as window proportion, white material etc.

To attain a regular look of facade in Amsterdam which is achieved by variety of elements arranged in a complex repetition (see App.2), the social housing elements should be reorganized accordingly. Findings in the graphs based on the criteria should be considered as a reference to the facade design. Depending on the degree of synchronization in the rhythms and scales of the other samples, the social housing facade can be assimilated or partly dissimilated. By doing so, the wanted effects of facade can contribute to forming a regular periphery, under the theming strategy for BG center as a working public domain.
7.6 Application of research result

» Regularity of Amsterdam facade = Variety of facade elements in vertical direction

How to achieve this? Learning from history and respect to current condition

The next question is how I can inject such varieties shown in previous pages in the social housing facade. To avoid confusion, I want to make clear of the previous conclusion beforehand. Regularity can be misunderstood to be antonym of variety. However, we need to know that what is regular in Amsterdam facade is the element variation in micro scale in vertical direction. Thus regularity of Amsterdam is variety.

But the variation is not created at once. The transformation of sample H (Fig.74) shows new interventions in most cases referred to the previous buildings. And sample M (Fig.75) transformation shows its variety actually began with simple repetition of the same facades (Phase1 in Fig.75), which along with time, have been replaced by other shapes of facades (Phase 2~5). However when the new building broke up verticality, the increased variety was reduced back, because the large width reduces the number of entities (Phase3).

This means keeping and improving verticality in facade intervention is important, in order to make facade accord with the spirit of Amsterdam. Also, respect to the current situation and condition can create a newly discovered varieties.

Fig.74 Facade development in Sample H

Sample M

Phase 6 (1926 - 1995)
7 entities in various shapes of facade. Entities are reduced. Thus variation is also reduced compared to Phase 5.

Phase 5 (1914 - 1926)
8 entities in various shapes of facade. Entities are reduced. Thus variation is also reduced compared to Phase 4.

Phase 4 (1890 - 1914)
9 entities in various shapes of facade. Entities are reduced. Thus variation is also reduced compared to Phase 3.

Phase 3 (1864 - 1890)
10 entities in various shapes of facade. Entities are reduced. Thus variation is also reduced compared to Phase 2.

Phase 2 (1855 - 1864)
15 entities in various shapes of facade. Features (width, roof shapes, window layout) are various. I see them in the most complex repetition

Phase 1 (1643 - 1855)
15 entities in the same or similar shapes of facade. I see them in a repetition of the same or simple repetition

Fig.75 Facade development in Sample M
Reflection of current condition and application of Stage-Periphery strategy at facade fabric

This learning can be applied in the site as the same manner. To add variety in the social housing facade we can change its piece, not the whole, in vertical direction. Fig.76 is one tryout. I applied symmetry, opening proportions, material and height in direction of vertical stripes. Though I don’t change the whole window layout, similar rhythm with Amsterdam Heritage area can be made by breaking horizontal window proportion and redefining boundaries of facade entity vertically. Moreover, in this way some beautiful part of current facade can stand out explicitly from the former monotonous horizontal layout. In contrast to the assimilated part, making dissimulation is also possible, in which I applied totally different materials and technology (Fig.77, stage). Therefore by synthesizing every strategies aforementioned, preconditions for social exchanges between students, tourist and residents can be made. (Fig.77, Fig.78, Fig.79) Especially in the facade, contrast between regularity and singularity can make a perceptual influence on visitors (Fig.78). By using this fact, attraction to the area can be controlled to some extent.

Reference for mobile, technological thematization
8. Building analysis (A-BT), Materialization strategy of thematic concept

Based on the urban strategy explored in the previous chapters, I want to make the social housing as a mediator between its two adjacent outdoor public spaces. When the mediator functions well, the surrounding outdoor space can be a well functioning public domain. This means, however, I need to intervene in the physical structure of the social housing. Thus, analysis of the building’s history and current physical condition is necessary. What is the physical tolerance of the building for the transformation proposed in the previous chapter? What can be an appropriate construction types under the discovered conditions? Let me start with the building’s basic information.

8.1 Basic building information

» **Well functioning housing types**
18 unit type variation (flats, studios), private gardens on ground floor, balconies

» **1986 built**
30 years old reinforced concrete structure, not very old, (Generally known, depending on the maintenance concrete life span is up to 100 years)

» **Once after 2000**
Refurbishment of the facade was executed in its surface (NAI, 2005)\(^1\). Its appearance looks young, but its insulation performance is still questioned in terms of sustainability.

---

\(^1\) In 2000, the project was saved from demolition serving the construction of large and University Library. Commissioned by Stichting Lieven De Key has INTRON BV in Geldermalsen conducted research into various aspects of the residential building. The study covered the concrete outside stairs in the front and rear facades, the stuccoed facade surfaces and the glass brick walls of the stairwells. Following this study, there are several repairs done to the facade. The facades are extensively refurbished, the stucco on the square side has received a beige color with orange frames, to the New Doelenstraat far this is ocher yellow with green frames.
8.1.2 Floor level, height

8.1.3 Access/ Routing

Ground floor

Total residence

Fig. 81 Ground floor level, floor height difference

Fig. 82 Routing at ground floor and upper floor units
8.1.4 Structure

Fig. 83 Structural analysis

- 200mm Load bearing wall, In situ concrete
- 150mm Load bearing wall, In situ concrete
- 214mm Wall (probably in brick, considering its dimension)
- Not clear, vertically continuing part in plans

Fig. 84 Construction of the social housing
8.1.5 Ducts/ Pipelines

![Diagram of ducts and pipelines]

**Fig. 85 Duct pipeline analysis**

- **Pipe duct**
- **Horizontal pipe, tank (Line connection is assumed)**
- **Pump**
- **G.E.B**
8.2 Transformation possibilities of structures

In order to materialize the strategy, I searched four construction methods. Slab lowering (↓), adding timber frame (+), making holes or cutting part of the concrete structure (-). Housing row demolishing and rebuilding with the different structure grid and increased floor height (⊙). First, Slab lowering (↓) can be applied to the part where the floor level is above ground 50 cm (see Fig.81). The construction method can lower the floor to the same level as ground-level outdoor. Secondly adding timber frame (+) can be applied on top of the current concrete structure, because timber structure is far lighter than concrete (Timber 400~740kg/m³, Concrete 2406kg/m³). When adding floors, the stress of the underneath structure is much smaller compared to concrete. Considering the maximum number of the current structure is six and the load bearing wall thickness is regular at every part, timber structure can be safely added on top of the building part which has four or five floors, without its reinforcement. Third, making holes or cutting part of the concrete structure (slab, wall) (-) can be applied for changing routing or merging units, as long as it does not harm the structural performance. Lastly, demolition part of a housing row (⊙) is not problematic, because the row has its own access, structures, duct and programs independently. (see Fig.80 ~ Fig.85) I have chosen two rows for replacement, considering these factors. The parts are teared down and rebuilt with higher floor height and larger grid. (Fig.103 mid)
Basement underpinning / Slab replacement

Concrete structure partial cut out

Rebuilding

Timber structure Addition
9. Value assessment and initial evaluation

9.1 Public/Private Program

Currently the residence program seems to function well internally. Considering the protest against the new library plan (see Fig.25), residents seem to settle in the area well and don’t want to leave their current dwellings. It has 18 types of unit variation (Fig.80). Ground-floor unit have private gardens and also many units have Balconies (Fig.86, Fig.87). Especially, the calm atmosphere of the housing back yard seem to be valuable for residence. On the other hand, part of housings to the plaza side can cause negative private-public friction, if the plaza become overly crowded (Fig.86). BG street and plaza often work as transition zone to more crowded areas in Amsterdam.(Fig.13) The housing typology is row house, thus the vertical access is directly connected to the street.(Fig.82) Therefore, current silent situation of the plaza and the street is to some extent valuable for residence in terms of privacy protection. On the other hand as discussed in previous chapters, the plaza and the street can create a new value for student and other social groups, if the ground floor program of the social housing become public (Fig.31, Fig.34, Fig.77, Fig.94 - location value). The housing’s ground floor part facing the future library building (Fig.94, A0”A”) has special value in terms of close building proximity. In many part of Amsterdam, narrow alleyways are often well used for commercial activities which are open to public. Likewise, if the ground floors of the social housing and the future library share the in-between street with accommodating their own student programs, various activities can be facilitated, and eventually a lively public domain can be expected. Here, exterior fabric designs can contribute to the facilitation. Not only the street part, but also plaza side of housing (Fig.94, A”A”) have important values. If the housing’s ground floor is opened up to the plaza, more communication between building interior and outdoor will be expected. On the other hand, the ground floor part from A” to A0 has high commercial value rather than student/resident program value, because it faces a street at the southern part of Binnengasthuis, which has more traffics and where more commercial programs and hotels are located already.

9.2 Structure

Because the structure is only 30 years of in-situ concrete, a regular condition of structure over whole part is expected. Most part seem to be able to be cut or modified to some extent without harming structural performance. (Fig.91) However, most vertical structure should be considered critically in transformation. Because the structural grid is 5.15m (Fig.83), it is not suitable for large public rooms such as dancings or cinemas. However, some small rooms for discussions or music lesson can be accommodated successfully by removing interior walls of housing units. In this sense, horizontal grid can be valued depending on a specific program accommodation. However, Current housing structure has 2.8m floor height except office part, 3.2m. Also, referring to CREA (2014) and the social housing plan, public program normally has 3.2m floor height. Thus, the social housing part other than the office part (Fig.81) at the ground floor should have floor heights increased in order to accommodate public programs. This means, demolishing part of housing is inevitable in order to accommodate 2000sqr of public program.(see p.26) It can be done by the housing row demolishing or slab lowering of the ground floor, as introduced before. Lastly, the vertical stair cases are spines of the housing row’s routing (Fig.82, Fig.94 structure location), therefore transformation of the stair case can entail many other building transformation. Thus, if minimum transformation is aimed, transformation of vertical core (levels, location, connection etc.) should be minimized. Plus, the public space infill only in horizontal way (Fig.44 mid) is not recommended either, because the option entails transformation of all the cores.

9.3 Facade

Current housing building and its facade is not very highly valued as a heritage or a cultural asset officially (BMA, 1999). It is not assigned as heritage building by government. However, I heard from one of my colleague, the reason why the building was not demolished by the UvA library plan was because the city government and UvA finally concluded it had its own architectural value of uniqueness in Amsterdam. Parallel to this, in my analysis it seems rather too distinctive and disparate rather than unique. To some extent, transformation of the facade seems necessary. In this sense, difference of values in terms of eye catching or ‘uniqueness’ was found out with mapping (Fig.86, Fig.94 facade stripe value). In the stripe value, Balcony part(1) is highly valued because it juts out of the flat facade surface. Thus it makes uniqueness and contribute to forming complex repetition. Second, Stair case part with glass block(2) is also valued. Its door-stair composition at porch and hook(2) on top of the roof (Fig.86 up) reminds of traditional canal house. Some window layout in vertical direction (3) was valued based on my theme research. Horizontal window layout(4) is not valued and encouraged to be changed. When transformation, it is recommended to preserve at least one of each type of facade part. Uniqueness or complex layout is relevant to singularity. Though some arrangement or part is now prevalent, it can look unique in perception if adjacent rhythm or composition is changed. Parallel to this, vista of facade was searched and assessed.(Fig.94 facade vista) Facade part at plaza and south corner is easily visible from a distance. However, the part facing the future library building is not visible from far away, because the part is going parallel along with the narrow street. The corner of housing volume between street part and plaza part (1) is most easily visible from east street and north street where tourist are mainly coming from (Fig.13). According to Gehl(2011), an effective perceptual anchor ranges 100m~500m, depending on scale. He argues, using this fact in a strategic allocation of eye-cathing anchor in city sace can help pedestrians to experience cities continuously by walk without getting bored. Thus, facade transformation at a strategic position can lead the tourists staying at the northern spot of BG into BG center.
<table>
<thead>
<tr>
<th>Floor/Loadbearing walls</th>
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<th>Facade</th>
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<td>Private/public program</td>
<td>Location value</td>
<td>Degree of significance</td>
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<td>1 special</td>
</tr>
<tr>
<td>Office, Shared kitchen</td>
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<td>2 more important</td>
</tr>
<tr>
<td>Basement</td>
<td>3 less important</td>
<td>3 less important</td>
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<tr>
<td></td>
<td>4 Indifferent</td>
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<table>
<thead>
<tr>
<th>Ground floor height</th>
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<tr>
<td>3.2m height: re usable</td>
<td>2.8m height: floor lowering necessary</td>
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<table>
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<tr>
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<table>
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<table>
<thead>
<tr>
<th>Facade vista</th>
<th>Facade vista</th>
</tr>
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</table>

Fig. 94 Total value assessment bar
9.4 Dutch housing development and Sustainability

As discussed before, the transformation of the physical structure is necessary at the social housing in order to materialize the ‘friction’ strategy. However, that doesn’t mean I will eagerly improve the housing quality by demolishing the whole structure. I want to be aware of the overestimated housing transformation merely for the internal functional improvements. Reasons are below.

First, considering the basic information of the buildings in the previous chapter, it seems not that urgent to improve the quality of housing. The social housing itself seems working well internally. It has various sizes of units from 30sqrm to 120 sqrm (Fig.80). This means the housing has been used for various types of families. And it has been renovated not far ago according to NAI (2005). Because the building was built in 1982 and once renovated at facade surface after 2000, renovation only for the housing is not necessary. Also, in my observation, the building seemed not that much deteriorated. By the way, changing housing program from social housing to student housing was once considered. However, this was not very reasonable either. As a student, I experienced both housing rent types arranged by a housing institution or an individual housing sharing. However, there is no significant spatial difference between the two. Housing institutions seem to buy any available housing stocks and provide students with them. If I plan a new housing for students, it is reasonable to consider of housings having specialized features for students’ community. However, non-specialized housing also work well for student community, as long as it is designed for a family or single communities. The 62 social housing has both the family units and the single units. Thus, it is not necessary to change the housing structure specialized for students.

**Overestimated architectural intervention in dwellings = unsustainable**

Secondly, overestimated architectural intervention in dwellings isn’t sustainable. Gruis et al. (2006) argues, by weaving several researches, that the life-extension of existing structure is recommended for sustainability than the building replacement. However, they point out the current Dutch situation is opposite to such a sustainability. According to the book, this tendency is driven by housing institutions’ investment. In my opinion, they might not care much of sustainability, but pursue the short-term fascination of market demand, considering the similar development tendency in my home country Korea, where most apartments are known to be reconstructed every 20.5 years. (Rho, 2014)

---

**Demolition and replacement strategies were now accepted, even for dwellings of technically good quality, in order to improve the climate for economically stronger functions and groups.**

(Vermeijden, 1997)

**The current urban restructuring policy in the Netherlands is an exponent of the new urban renewal policy that was introduced in the 1990s.**

(Gruis et al., 2006, p.4)

**What is the average life span of dwellings? Unlike that of human beings, the life span of dwellings can technically be endless; extension is subject to decisions of the owner. Recent research shows that life-cycle extension of existing dwellings is often a more sustainable choice than replacement by new construction. A recent OECD white paper emphasizes the need for sustainable use of the building stock (SUSB), where life-cycle extension is a key issue**

(Awano, 2006). **However, current practice is still overwhelming opposed to this and the awareness of SUBS is still a far cry.**

(Gruis et al., 2006, p.23)
The trends in CO2 emissions per capita in the top 6 emitting countries are shown in Figure 2.6a. These trends, which dampened the impact of strong international variation in oil prices, reinforced retail prices.

![Figure 2.6a: CO2 emissions per capita from fossil-fuel use and cement production](image)

**Industrialised countries (Annex I)**

<table>
<thead>
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<th>Year</th>
<th>Netherlands</th>
<th>Germany</th>
<th>Poland</th>
<th>Russia</th>
<th>Canada</th>
<th>Saudi Arabia</th>
<th>South Korea</th>
<th>United Kingdom</th>
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**Developing countries**

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CO2 emissions per capita from fossil-fuel use and cement production


![Figure 95: Demolition rates and volumes - International and Domestic](image)

![Figure 96: CO2 emission per capita from fossil-fuel and cement production](image)

More demolition and More consumption >> Unsustainable

Probably due to the high demolition rate (Fig.95), Netherlands is ranked at 9th in the use of fossil-fuel and cement production (Fig.96) (Jos G.J. Olivier et al., 2013), which is higher than EU 27 countries, far higher than China. South Korea, whose demolishing and rebuilding cycle is supposed to be shorter (every 20.5 years generally known (Rho, 2014)) and more massive than the Netherlands shows more CO2 emissions and fossil fuel use.

By reflecting the hazardous situation in South Korea, I am very against demolishing the functioning housing building without very critical reasons. And I want to put more importance in environmental impact than any other factors. This requires me to discern the most essential intervention in the BG center. Only when the intervention is able to be achieved by a certain type of demolition, the demolition will be allowed.
9.5 Integrated value assessment

Refer to the left scheme. For sustainable design in architecture, Spatial quality, social quality, economic quality and environmental quality should be harmonized to achieve maximum sustainability. For example, if I only focus on the facade aesthetics, outdoor spatial quality could be satisfied, but environmental and economic quality could be undermined. If I demolish the whole housing building and build a new, Spatial quality could be improved, but environmental quality could be damaged. The transformation should be in the direction in which the sum of those four values are improved rather than the present.

Therefore, the total value assessment is based on the integration of each assessment in urban/socio cultural aspect (Social, Economic), architectural aspect (spatial) and Environmental aspect. They are discussed separately in previous pages. For example, chapter 8.1 deals with social quality, 8.2 and 8.3 with spatial quality and 8.4 with Environmental quality.

For an integrated assessment, I tested three scenarios of development for measuring economic quality. In order to measure economic quality, construction cost and environmental impact were roughly calculated in currency. Together with the qualitative discussion of each scenarios’ social, spatial impact, the calculated cost make economic and environmental impact explicit in number. By doing so, the basic design strategy can be made in a sustainable way. The sustainable issue will not end at the strategic level, but extended to further technological elaborations in P3 and P4 session.

The three scenarios mentioned are:
1. Complete demolition and replacement of the social housing
2. Partial demolition and replacement of the social housing
3. No demolition, program infill without the housing’s major structure changes

**Option 1. Complete demolition and replacement**

Building cost: \((5600\text{sqrm(residence)}+2000\text{sqrm(public program)}) \times 800\text{£/m2} \text{(refer to App.5)} = 6080000\text{£} \)

Ecological impact in concrete construction: Increased CO2 emission over production chain, chromate toxicity over life cycle. More energy consumption at cement production process than timber structure (Bijleveld, Bergsma, and Lieshout, 2013). Ecological impact in euro (concrete) \(1964\text{cum} \times 20\text{euro/cum} \text{(refer to App.6)} = 39280\text{ euro} \)

Social impact: Increased rental cost expected. May be not suitable for low income tenant

**Option 2. Partial demolition and replacement**

Building cost: \(1000\text{sqrm(horizontal)} \times 500\text{£/m2} + 1000\text{sqrm(vertical)} \times 800\text{£/m2} + 520\text{sqrm(new residence building)} \times 800\text{£/m2} = 2516000\text{£} \)

Ecological impact in concrete construction: Ecological impact in euro (concrete) \(1964\text{cum} \times 20\text{euro/cum} = 19640\text{ euro} \). Actual Ecological impact is lower than this, because part of the plan is constructed in timber, which has less ecological impact than concrete construction (refer to App.7, App.8)

Social impact: Majority of tenant don’t need to move during construction. Rental cost will increase less

**Option 3. No demolition, program infill without major structure changes**

Building cost: \(2000\text{sqrm(horizontal)} \times 170\text{£/m2} + 2000 \text{(new residential building)} \times 800\text{£/m2} = 1940000\text{£} \)

Ecological impact in concrete construction: Minimum ecological impact, Ecological impact in euro (concrete) \(1964\text{cum} \times 20\text{euro/cum} = 12962\text{ euro} \)

Architectural impact: Proposed program does not fully work. Only small rooms can fit in current structure. Some large rooms should be built out of the Social housing. This can cause additional cost, spatial impact.
### 9.6 Option 2 development based on the integrated value assessment

<table>
<thead>
<tr>
<th></th>
<th>Option 1. Complete demolition and replacement</th>
<th>Option 2. Partial demolition and replacement</th>
<th>Option 3. No demolition, program infill without major structure changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction cost</strong></td>
<td>6,080,000€</td>
<td>2,516,000€</td>
<td>1,940,000€</td>
</tr>
<tr>
<td><strong>Ecological cost</strong></td>
<td>39,280€</td>
<td>&lt;19,640€</td>
<td>12,962€</td>
</tr>
<tr>
<td><strong>Social impact</strong></td>
<td>Increased rental fee</td>
<td>Migration minimized</td>
<td>No migration</td>
</tr>
<tr>
<td><strong>Spatial impact</strong></td>
<td>Larger, vast space can be provided. However, the large space could be redundant for UvA. Nearby plan of library also has large internal functions</td>
<td>Proposed programs fit except Music hall. Open air music hall can solve spatial problem. Routing using outdoor can facilitate social exchanges</td>
<td>Many programs do not fit</td>
</tr>
</tbody>
</table>

Previously I showed two types of program zoning (Fig. 99). Both options satisfy the urban strategy. But considering minimum structural changes. The second option, The combination of horizontal and vertical public program is better; it causes less structural transformation. Under this option, I tested various program combination with actual volume. The ground residence now goes on top of the housing. Selected sociocultural program is accommodated horizontally and vertically. Most of the program fit into current housing. But still the music hall doesn’t have a enough room to fit in social housing. Finally, I come up with the idea to accommodate the music hall in the Public plaza. (Fig. 100) This can facilitate social exchanges in the plaza too. Also the plaza now can have multiple use, meaning more spatial efficiency.
10. Overall consequences

10.1 Master plan

Current situation (Ground floor)

Proposal (consequence)

Fig. 101 Masterplan before/after
10.2 Facade fabric

Based on the value assessment and initial evaluation, new proposal was drawn. Spatially, the backyard of the housing (Fig. 101) is turned into a private garden for residence including a public passage passing through it. Here, social exchanges between residents and students are expected. Second, a newly located housing volume separates the large backyard into two spaces, one of which is residence and the other for the daycare center. This means the children in the daycare center part can still remain unexposed to public, even though the housing part accepts public access. Third, at facade fabric, the overall social housing facade is made resemble the typical Amsterdam canal house. (Fig. 102) What is perceptually emphasized in turn is the student centrum. Beforehand, what was eye-catching was the white colored social housing, but in the new proposal the most distinctive building is the round-shaped steel glass structure. I suppose the new facade relationship could recover what Theo boss, the architect, initially imagined of the area, when he designed the student centrum; its round shape speaks for itself as the ‘center’ of the BG center.

Consequently, in the new master plan, the Theo boss student centrum will work as a primary eye catcher. From time to time when the media facade lights on, however, the social housing can still draw attention of visitors or tourists. The mobile seats which can be rearranged upon events will dynamically communicate with the both student centrum side and new socio-culture center side. Depending on times and events, the role of stage could be changed accordingly. For example, when the atelier which is newly accommodated in the social housing uses its adjacent outdoor space, more people will turn to the social housing side. On the other hand, when a performance is going on the stage in front of the student centrum, public interest will be focused on the side to the student centrum. Parallel to this, cafe, discussion rooms and other programs located along with the south street will face the future library planned by MVSA. Thus, in the south street profile, public functions can enclose the both side of the street. (Fig. 41) This can increase the chances of public activities in the south street and improve the flexible use of the university spaces.

» Achieve minimum social, economical and environmental impact under maximizing the spatial benefit of public space in ‘friction’
10.3 Building structure, facade

In order to minimize the impact of structural alteration, demolished part of the social housing was carefully chosen. Also, timber structures were added on top of the concrete structure. Thus, the structure which doesn’t need functional changes can remain intact in most cases. Only minor structure changes for the modified routings are necessary. (refer to Fig.41) Further ideas to minimize the social, environmental impact will be considered to achieve the maximum sustainability.

At facade level, the strategy to minimize economical impact was considered (Fig.103 down). The changed facade sometimes entail structural changes, but sometimes not. Because the facade change only for the aesthetics is not desirable in terms of building economy and environmental impact, it was marked with orange color in Fig.103. This part will have less priority in transformation or need to incorporate insulation enhancement to justify the intervention. The insulation enhancement will be determined in terms of sustainability, in P3 research.
In the new proposal, housing program is not reduced significantly in spite of the new public program infill; The loss are compensated by building a new residence annex and adding floors. Consequently, more public programs will be added in the current area. This will increase the density of the BG center. Considering the strategy of Heijer and Tzovlas (2014), this spatial densification is desirable for UvA. Together with the further elaboration on ‘friction’ issues in different social groups, the potential negative impact caused by the new program will be investigated and resolved in the plan.
The research done up until now makes further questions arise.

The initial proposal is based on the perception of the typical Amsterdam facade, especially one of the canal house which developed in the former era. Then what can be a more advanced, contemporary interpretation architecturally and technologically. How is the ‘fusion’ for the future able to be made based on the investigation of the ‘past’ (facade aesthetics, Amsterdam identity) and ‘present’ (social housing structure, contemporary style, technology and function). How could it be sustainably intervened?

What composes contemporary architecture? Is it a denial of ornament, or its recovery? Is it a hi-tech oriented or more about an appropriate technology? Is it brick, steel or solar panel? Though ‘contemporary’ include every ongoing phenomenon of architecture today, it seems necessary to take position how I look at it and interpret it thus create a specialty of the project. Basically, what I’m doing is giving variety in the monotonous social-housing, and transition of the time. Therefore, there are possibility of mixing several options. How, in which way can I achieve the proper status of mixing ‘traditional’ and ‘contemporary’?

Hinted from fig.74 and fig.75, how can I properly established the status of the time transition in my intervention?

If I introduce traditional features of Amsterdam facade (ornaments etc.) in the current modern look of the social housing, it will be a ‘staged’ traditional look. - could be a sort of ‘fake’ to someones. What is my clear position on this? Should ornament be reinterpreted today or still denied? What significance does the ornament have today? How does it function perceptually to visitors today, and applied in a more strategic manner?

How could my negative position against the ‘overly’ reacting sustainability be implemented in the further elaboration of design, regarding to envelope, program, structure changes? Aren’t there better, efficient ways to achieve the objective - public space in friction with less physical interventions?

To get answers to this, in next step, consequences of design proposals will be further tested and evaluated under the criteria of public space in ‘friction.’ How could the new facade can interact with visitors and students, how could the newly introduced programs indoors and outdoors work over 24 hour / 7 days? How is the positive ‘friction’ facilitating social exchange planned, according to the scenario? or how does the friction turn to a negative ‘friction’ between private and public. How could they be encouraged or discouraged by design?

All these questions will be clarified through further developments of the initial proposal and alternatives, and their evaluation.

In P3, mutual ways of thinking/writing and actual designing/craftsmanship will be encouraged. Through the P1, P2, I’ve learned a power of research process in creating a proposal. Organizing information and articulating it is as important as just drawing a nice look of building. The research process provides a background and reasons of the design product, thus provide the project with authenticity and reality. This was the most important discipline that I’ve learned.

» **Discipline**

*thinking and organizing before producing. Being aware of what I’m doing in design process*
12. Appendix

App.1 Voice recording of verbal description on site visit (23. Oct. 2014)

Recording time (m.s) -
0.0 here is in front of the CREA buildings bag office (9:28, absolute time) 8.29 I’m passing CREA center along with the east road
0.20 opposite to this I can see the social housing now one man looking 8.37 a girl with a singing song approaching to west, maybe to daycare
40-50 is coming from a porch of the house. a residence has blind 8.47 I’ve lost the pink girl in my sight
shut in windows 9.00 court at east of pyramidhall-east backyard, *noise with repairing
7.42 buildings, now no people at the garden of houses here
9.24 upperfloor of oudemanshuisport on the east backyard side is library, I’m looking at bookshelves which was not seen in afternoon because of strong daylight.
1.00 one man riding from south to north
10.00 2 construction workers passing by me
1.10 a mom with a baby ride a bike from a eastern road to the daycare- 10.07 now in the law faculty courtyard, there is no one now, ah 2, 3 enter-
center. ing one african student entering
1.16 Im still at the plaza, brick bench 10.31 one staff member having entered and now coming out
1.24 a car passing from easternroad toward southern road 10.38 the tree in the courtyard is huge soaring over the surrounding build-
1.34 ground floor units looks mostly having windows with blind shut ings, the tree is located right next to the gate to the court at leftside
ings, the tree is located right next to the gate to the court at leftside
1.48 a man who put his baby in the daycare now disappearing with his 11.04 now one girl student in front of the faculty porch taking her tabak
bike to eastern road and smoking
1.58 a man walking from south toward north
2.37 now 9:32 (current time) 11.23 here is three door to the faculty building, now one student enters
2.45 two woman meet in front of the student center and disappearing 11.26 people now I see here in this courtyard is 5, 2 staying and talking, 3
to the east door. students are entering by ones and twos, 5 people, 12.02 entering toward the faculty building
9:46, plus 1 entering, plus 2, 12.12 the eastern door doesn’t have any security, only doorknob I see
12.02 people now I see here in this courtyard is 5, 2 staying and talking, 3 12.30 2 staff with carrier entering the faculty building
entering toward the faculty building
12.39 except the two girls still talking, here 4 people I see
12.08 a girl student in front of the faculty porch taking her tabak
12.47 a student with an umbrella entering the faculty 9:48
12.59 the girl with the umbrella not entering anymore, he’s sitting on the
13.16 a girl sitting under a sunshade under the huge tree, benches in this
tree top canopy are well used
13.33 now the umbrella guy is eating an apple
13.40 now another guy talking on the phone
13.57 the guy eating an apple is meeting a friend, a girl and talking
14.07 the staff having entered the faculty are now coming out full
14.18 now a girl coming out from the eastern door
14.33 a guy entering the maing door
14.38 the western door doesn’t look used 14.58 security man telling to the smoking two girls ‘not here’, the girls move
15.08 and then move to the sunshade where people can smoke maybe.
15.30 a man entering faculty through the main door
15.45 another guy talking on the phone, here some activities happening
15.58 under the sunshade now 3 girls smoking, one girl entering through
the west gate now I see it used
16.16 one going out
16.25 if this court were totally covered with atrium, there would be no
room for smoking, then the smoker would move out across the
oudemanshuisport
16.47 a girl entering to the east door
16.57 the man who has talked on the phone is now smoking
17.14 one old man is going out of the building and smoking, this court is
used as staying area with smoking, thorugh this area people enter
mostly through themain gate and east and west doors
17.58 the girl who has smoked under the sunshade is now entering
through the east door 9:55
18.23 now I’ll go to the social housing area
18.17 now I see one man passing through oudemanshuisport by riding his
bike, I can imagine this can be used by bike at some moment when
the area is not crowded. now the bookshops are closed. so one guy
did.
19.00 the bike staff now mingling with the cat that I’ve seen while coming
from the center plaza
19.12 now I see the letter ‘studentvra’ on the windows of former CREA
building, which might be used before as sudenttv office
19.43 who is staying here in this cerial area up until now is the bike staff-
the old man
20.00 now I’m back to the plaza, the curtain I saw firstly is white, next to it
black curtain, next to it blind, ground, first, second floor all the units
of the residence have curtain down, normally in the Netherlands it is
not usual I think
20.53 now I’m at southern part of UVA near theater building, at the corner
block of the socialhousing at south has all curtain down except the
office at ground floor
21.11 in the groundfloor office one office worker is working among 10
office desk, after I saw the empty office first, she seems to enter the
office desk
21.32 what is written on the window?
21.38 meanwhile, family tourist, 4people passing in front of me, they don’t
get interested in the residential building, though they have camera.
22.14 as shown in the movement map of people, the east and north road
surrounding center are mostly used, but there area also meaningful
use of south road of center, meanwhile I’m saying this, two persons
ride bike by using south and north passages
22.55 wyckcentrum d’oude stad on the office windows written
23.08 an elderly woman come out of her flat, time 10:00
23.12 garbage gathered around this tree means many people have already
come out before, not hundred percent sure if this garbage belong to
the residence. But one guy who put his garbage surely put here
around tree bottom
23.46 ‘advocaten kantoor binnenstadt’ on the next windows of office at
the residence ground floor
24.10 now in the tunnel from street to the backyard of the residence are
used as bike parkinglot. many bikes are leaned on the wall
24.28 now I see one man going out CREA office putting paper box garbage
under the tree sculpture with the garbage. The tree sculptures is used as garbage collection 10:04

24.45 now in this large space, I cannot see any people staying. that might be a shortcoming of this place, so to say.

25.06 it is because this place is mainly used now as a parkin lot or for passerby. some put their bikes in the bike shed under the student centrum. the flow of people is quite active, that’s nice thing I think, but is that the reason we have this large space here I’m not sure *at the moment scooter passing sound

26.05 another thought coming up, when I saw one man with his baby riding a bike from east to the plaza to take his baby to the daycare, was stuck at the step separating car lane and pedestrian zone, ..... I’ll take photo of this situation

26.30 another guy put his garbage after going out of CREA office

26.48 now I see a truck of alberthijn coming from south heading to the east road, so this junction is quite well used by cars, compared to other area of binnengasthuis, courtyard.

27.13 now I see the truck is not heading to the east but the truck driver get off and make some rooms for parking truck in the plaza by put some garbage under the tree sculpture aside

27.26 *hm the plaza is used in various way, parking bikes, cars, putting garbages, what is the driver going to do.

27.49 now I’me sitting on the brick fence in front of the CREA building, watching tow guy with their trolly

28.00 ah, now I saw why the truck parked in the plaza, it seems to be the delivery service of food which might be provided for the children in the daycare

28.19 now the food boxes are unloaded

28.28 passing bikes, cars, taking his/her baby, from time to time unloading stuffs, parking cars

28.58 what is the 3 guys? are they tourist? passerby passerby....

29.12 one couple coming from the north to the south road

29.31 Now I see a van,hyundai starex coming from south to the north, but then turning toward the road to the west passage, well is it possible for a car passing through the west passage?

29.45 ah the van didn’t pass through the west passage but park at the northenside of the plaza

30.03 the passage between daycare and archeaology faculty is very narrow, so I suppose it might not be possible for a car to pass through, then what is the installation barring the passage? doesn’t that mean the car can go through the passage?

Parallel to Gestalt principles, there is another notion useful; ‘difference and repetition,’ by Deleuze, G. (1994). In this book, the concepts are discussed in the perspective of the philosophy of perception. The literature implies repetition and variation is not caused by the absolute difference of quality, but by our perceptual frame of view whereby one sees nearly the same features as quite different or quite different features as belonged to the same group. According to him, repetition without any conceptual (location, shape, etc.) difference does not exist, or it will be meaningless even if there is (Fig.105). That is, repetition necessarily entails difference, however the core of repetition in his philosophical thinking is expressed as the pure rhythm/exercise of difference which is free from any concept, or ‘without concept.’ (p.13, Deleuze, G., 1994)

If this meta-physical discussion is understood at a more tangible level, the variation or the repetition in real is located in a polarity, where at one end, the extreme and chaotic variation which is not possible to extract any commonality with any concept is located, and at the other end, the meaningless repetition without any difference is located. In general sense, variation/complex repetition is closer to chaos, but repetition/simple repetition to meaningless repetition. I think high level of art and interesting visual effect could happen in the complex repetition, where various concept/attributes overlap each other.

In this point of view, the complex repetition/variation could be also observed in a facade group. Compared to the typical Amsterdam facade, the social housing seems to have the attributes in less complex repetition (less difference in opening location, roof shape, material etc.), thus be relatively monotonous. Injecting complex repetition in the social housing facade can be a way to make it assimilated to the typical Amsterdam facade group.
### App.5 Lump sum cost of concrete structure refurbishment

<table>
<thead>
<tr>
<th>Type</th>
<th>Cost £/m²</th>
<th>Approximate time to carry out (months)</th>
<th>Approximate payback period (years)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor cosmetic</td>
<td>170 - 400</td>
<td>1 - 3</td>
<td>2 - 5</td>
<td>This will involve redecorating, improving signage and lighting, replacing floor coverings, exterior painting and repair, minor changes to the fittings. Typically takes place at 5-year intervals.</td>
</tr>
<tr>
<td>Services</td>
<td>200 - 400</td>
<td>3 - 6</td>
<td>5 - 15</td>
<td>Complete replacement of heating, ventilation and air-conditioning plant. Associated pipework, ducting, terminal units, controls and insulation may be replaced or upgraded as necessary. Typically takes place at 25 year intervals (control systems more frequently).</td>
</tr>
<tr>
<td>Structural</td>
<td>150 - 400</td>
<td>2 - 6</td>
<td>5 - 15</td>
<td>Addition of new lift shaft, escalators or riser, necessitating structural alterations.</td>
</tr>
<tr>
<td>Major</td>
<td>500 - 700</td>
<td>2 - 12</td>
<td>5 - 15</td>
<td>This will involve major changes to the services and the interior fittings but without any significant structural alterations. May include addition of raised floor, improvements to core areas and entrance halls, new lighting, internal shading. Typically takes place at 25 year intervals and in conjunction with a lease renewal.</td>
</tr>
<tr>
<td>Complete</td>
<td>800 - 1500</td>
<td>6 - 18</td>
<td>10 - 30</td>
<td>Construction of a new building, excluding demolition of an existing building and loss of rent.</td>
</tr>
<tr>
<td>New Build</td>
<td>800 - 1500</td>
<td>18 - 24</td>
<td>10 - 30</td>
<td></td>
</tr>
</tbody>
</table>

### App.6 Environmental effect of concrete use in the Netherlands construction

#### Table 3.1: Fossil fuel required to produce four common building materials. Source: Ferguson et al 1996

<table>
<thead>
<tr>
<th>Material</th>
<th>Fossil fuel energy (MJ/kg)</th>
<th>Fossil fuel energy (MJ/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough sawn timber</td>
<td>1.5</td>
<td>750</td>
</tr>
<tr>
<td>Steel</td>
<td>35</td>
<td>266000</td>
</tr>
<tr>
<td>Concrete</td>
<td>2</td>
<td>4800</td>
</tr>
<tr>
<td>Aluminium</td>
<td>435</td>
<td>1100000</td>
</tr>
</tbody>
</table>

#### Table 3.2: CO₂ release and storage of four major building materials. Source: Ferguson et al 1996

<table>
<thead>
<tr>
<th>Material</th>
<th>Carbon released (kg/t)</th>
<th>Carbon released (kg/m³)</th>
<th>Carbon stored (kg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough sawn timber</td>
<td>30</td>
<td>15</td>
<td>250</td>
</tr>
<tr>
<td>Steel</td>
<td>700</td>
<td>5320</td>
<td>0</td>
</tr>
<tr>
<td>Concrete</td>
<td>50</td>
<td>120</td>
<td>0</td>
</tr>
<tr>
<td>Aluminium</td>
<td>8700</td>
<td>22000</td>
<td>0</td>
</tr>
</tbody>
</table>
Current proposal:

- Residence: 4509m², 57 units
- Residence annex: 520m², 8 units (refer to masterplan)
- Socio-culture: 1933m², cafe, studios, rooms

Consequence in m²:

<table>
<thead>
<tr>
<th>Current</th>
<th>Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residence: 4957m², 57 units</td>
<td>Residence: 5790m², 67 units</td>
</tr>
<tr>
<td>Office: 442m²</td>
<td>Socio-culture: 1952m², cafe, studios, rooms</td>
</tr>
<tr>
<td>Plaza: Outdoor</td>
<td>Open air music hall: Outdoor</td>
</tr>
<tr>
<td>Courtyard: Outdoor</td>
<td>Collective/Private garden: Outdoor</td>
</tr>
</tbody>
</table>
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Kapitol S.A., Bruxelles

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Image source

Fig.1 Cover page (2014), Own img., [Photograph]
Fig.2 In search of public domain (2001), Hajer.M,Reijndorp. A, [Photograph], At: http://www.kittymolenaar.nl/voormeving/13_01_grafisch_onwerp_boek.html, (Accessed on: 12.01.15)
Fig.3 BG center from east (2014), Own img., [Photograph]
Fig.4 BG center (2014), Igor Faraday, [Photograph], At: http://www.panoramio.com/photo/107029435, (Accessed on: 12.01.15)
Fig.5 South road from BG center (2014), Own img., [Photograph]
Fig.6 BG center indication (2014), Own img., [Collage on Google earth (2014)]
Fig.7 Activity intensity map (2014), Own img., [Collage on Google earth (2014)]
Fig.8 Transit zone to tourists, not attractive to them (2014), Own img., [Collage on photo]
Fig.9 Parking lot for students 9 am to 4 pm (2014), Own img., [Collage on photo]
Fig.10 Garbage disposal spot for service, residence and vehicles 9 am-12pm (2014), Own img., [Collage on photo]
Fig.11 Parents bringing babies 9am (2014), Own img., [Collage on photo]
Fig.12 Life between buildings (2011), Gehl,J, [Photograph], At: http://www.amazon.com-Life-Between-Buildings-Using-Public/dp/1597268275, (Accessed on: 02.02.15)
Fig.13 Routes to BG center (2015), Own img., [Collage on Google earth (2014)]
Fig.14 Nearby context of BG (2014), Own img., [Collage on Google earth (2014)]
Fig.15 Shopping (2014), Own img., [Photo edit digital]
Fig.16 Mingling, chatting and shopping (2014), Own img., [Photo edit digital]
Fig.17 Taking a rest, having coffee (2014), Own img., [Photo edit digital]
Fig.18 Nearby context of BG-exception (2014), Own img., [Photograph]
Fig.19 Bagijnhof -Residents zone (2014), Own img., [Photograph]
Fig.20 Bagijnhof -Tourists zone (2014), Own img., [Photograph]
Fig.21 Amsterdam museum court-empty (2014), Own img., [Photograph]
Fig.22 BG parochializations and social exchange (2014), Own img., [Collage on Google earth (2014)]
Fig.23 Current : Disposal place BG center (2014), Own img., [Collage on Google earth (2014)]
Fig.24 Rejected strategy of UvA by protests (2014), Own img., [Collage on Google earth (2014)]
Fig.25 Residents protest against the library plan (2000), De ECHO, [Newspaper scan], At: http://www.globalmind.info/BCBig.html, (Accessed on: 02.02.15)
Fig.26 Integrity problem in UvA function use (2014), Own img., [Collage on Google earth (2014)]
Fig.27 Campus enabler plan (2014), Heijer A., Tzovlas, [Diagram], In: The European Campus Heritage and Challenges in search of new public domain, NAI Publishers, Rotterdam
Fig.28 Conceptual solution-OpenBMx (2014), Own img., [Collage on Google earth (2014)]
Fig.29 Thematic framework diagram (2014), Own img., [Digital Illustration]
Fig.30 Application of the frame in research & Analysis (2014), Own img., [Collage]
Fig.31 Basic strategy of friction (2014), Own img., [Collage]
Fig.32 Strategy of friction with intensity of domain character (2014), Own img., [Collage]
Fig.33 BG center-undefined enclave (2014), Own img., [Collage]
Fig.34 New space use scenario of BG center (2014), Own img., [Collage]
Fig.35 Service activity (2014), Own img., [Photograph]
Fig.36 BG Center from east view-Transit zone (2014), Own img., [Collage on photo]
Fig.37 MZ-Working public domain with seating (2014), Own img., [Photograph]
Fig.38 Current relationship between public private (2014), Own img., [Collage]
Fig.39 Proposed relationship between public private (2014), Own img., [Collage]
Fig.40 Access, facade change for compressing and connecting -Before (2014), Own img., [Collage]
Fig.41 Access, facade change for compressing and connecting -After (2014), Own img., [Collage]
Fig.42 Net floor area of concerned buildings in the past, present, and the future proposal (2014), Own img., [Collage]
Fig.43 New CREA building program analysis (2014), Own img., [Collage], Partly at: http://www.designboom.com/architecture/koost-glisseenar-CREA-cultural-center/, (Accessed on: 02.02.15)
Fig.44 Program Allocation alternatives (2014), Own img., [Digital Illustration]
Fig.45 MZ-stage (2013), Own img., [Photograph]
Fig.46 MZ-Periphery (2013), Own img., [Photograph]