

MASTER

Redevelopment of the Trust Housing Stockbridge

a barrier free design proposal for a sheltered housing complex for elderly people in Edinburgh

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**REDEVELOPMENT OF THE
TRUST HOUSING STOCKBRIDGE**

A BARRIER FREE DESIGN PROPOSAL FOR A SHELTERED HOUSING COMPLEX
FOR ELDERLY PEOPLE IN EDINBURGH

iii / iii

2013
Wouter van Niel

- Part 2 -

Image on cover: Sketch of the Trust Housing Stockbridge
(Matthew, Hamilton and Maclean Architects, 1979))

Colophon

© August 2013

Justification

This is a publication within the framework of the graduation studio '*Cultural Heritage and Sustainability: World Heritage cities as case study*' initiated by the chair of Architecture, History and Theory and led by Bernard Colenbrander, Ana Pereira Roders and Loes Veldpaus.

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Redevelopment of the Trust Housing Stockbridge

- a barrier free design proposal for a sheltered housing complex for elderly people in Edinburgh -

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Preface

This spatial study is the second part of a Master of Science graduation studio at the Eindhoven University of Technology called '*Cultural Heritage and Sustainability, World Heritage as a case study*'. The graduation studio 2012-2013 reflects on five case studies on the World Heritage List (WHL) and is part of the research program '*OUV, WH Cities and Sustainability: Surveying the relationship between Outstanding Universal Value (OUV) assessment practices and the sustainable development of World Heritage (WH) Cities*' led by Ana Pereira Roders (TU/e) and dr. Ron van Oers (UNESCO).

The first part of the graduation studio is a research into the built heritage management of Edinburgh, Scotland, by researching whether minor changes to building attributes differ in occurrence in an area inside and outside the World Heritage property. As the demarked research area is completely part of the New Town Conservation Area and (thus) share the same policy, no differences should be found. However, the WH property is not entirely documented at time of inscription (1995) and therefore no photographic material is available to compare the current state with. A new method, based on the ideal state of the building attributes, was developed to determine differences. Discrepancies between the ideal state and the actual state of conservation are mapped using visual documentation and compared using a Discrepancy Index Number.

One of the findings from the research was the absence of discrepancies in two distinctive streets: the east side of Carlton Street and a part of Deanhaugh Street. The first mentioned is of Georgian architecture; for the most part

designed by James Milne in 1824. The latter one is a redevelopment of the former Stockbridge Free Church into sheltered housing for elderly people; a design made by the architectural office of Matthew, Hamilton and Maclean in 1980. The complex is nowadays known as the Trust Housing Stockbridge and is an outsider in architectural appearance from the surrounding architecture.

The second part of this graduation project takes the Trust Housing Stockbridge (THS), a former church redeveloped in 1980 into sheltered housing for elderly people, as a case study and aims to contribute to the discussion of new developments and redevelopments inside or close related to the World Heritage property of Edinburgh. This report concludes the results of an extensive analysis of the sheltered housing complex into a design strategy and accompanying design proposal.

Special thanks go to my tutors for guiding me in the right direction; Jenny Bruce from the City of Edinburgh Council for providing essential documents and information; Lesley Palmer for giving me great insight in the current housing stock developments for the elderly; Stuart Sinclair for sharing his memories about the former redevelopment of the Stockbridge Church into a sheltered housing complex; Johan Hendriks for sharing his overwhelming construction knowledge; and Savannah for her love and patience during moments of difficulties.

Wouter van Niel



DEANRAUGH STREET

Abstract

The research into the built heritage management revealed, next to discrepancies to building attributes on several categories, the absence of discrepancies in two very distinctive elevations. One of them is the elevation of the Trust Housing Stockbridge (Deanhaugh Street); a former church redeveloped in 1980 into sheltered housing for elderly people.

It has been argued that while sheltered housing remains popular with older people, there is a concern that it is not meeting the needs of the elderly as they become more physically frail or develop dementia (Phillips et al., 2001 and Johnson et al.; 2010). Also sheltered housing stock in the UK is fairly dated, with less demand for bedsit, inadequate space standards and design that does not easily accommodate people with physical disability (Croucher et al. 2006). (Egbu, 2011)

The Trust Housing Stockbridge is taken as a case study to be analyzed on the current building standards, the elderly people' needs and the integration in the urban context, like the integration of the appearance of the building into the surrounding architecture with historical value.

Picture (left): The Trust Housing Stockbridge (van Niel, 2013)

The analysis reveals that the building does not comply with the standards we should live up to today and has a poor integration in the urban context. Seven design criteria are formulated leading into a design strategy and accompanying design proposal. The design itself shows a possible redevelopment of the Trust Housing Stockbridge into a barrier free housing scheme for the elderly, while better integrated.

Keywords:

UNESCO, World Heritage, Edinburgh, Stockbridge, sheltered housing, redevelopment, people's needs, design proposal, barrier free

Abbreviations

ABE: Advisory Body Evaluation
ADUC: Chair Architectural Design and Urban Cultures
AHT: Chair Architecture Theory and History
AUDE: Unit Architectural and Urban Design and Engineering
DT: Decision Text
EAA: Edinburgh Architectural Association
EWHT: Edinburgh World Heritage Trust
HS: Historic Scotland
ICOMOS: International Council on Monuments and Sites
MP: Management Plan
NF: Nomination File
OG: Operational Guidelines for the implementation of the World Heritage Convention
OUV: Outstanding Universal Value
RCAHMS: Royal Commission on the Ancient and Historical Monuments of Scotland
THS: Trust Housing Stockbridge
TU/e: Eindhoven University of Technology
UNESCO: United Nations Educational, Scientific and Cultural Organization
WH: World Heritage
WHC: World Heritage Committee
WHL: World Heritage List
WHS: World Heritage Site

List of Definitions

Attributes

The term (building) attributes is used in this report to describe elements that are part of a building, like entrances and windows, conveying cultural value concerning the OUV of a WHS (Pereira, 2007).

Barrier free

Barrier free design is to allow for the needs of people who have either a permanent or temporary impairment affecting their mobility, agility or sensory protection. (Pickles, 1999)

Elderly People

Older people are generally defined as those over the age of 65 (Pickles, 1999).

Sheltered housing

Sheltered housing is a purpose built self contained accommodation with added facilities for older people who want to live independently in an environment that is secure (Egbu et al, 2011).

Outstanding Universal Value

The United Nations Educational, Scientific and Cultural Organization (UNESCO) seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity (UNESCO, 2008). The term World Heritage (WH) is defined by experts in the Convention Concerning the Protection of the World Cultural and Natural Heritage of 1972. WH is of such value for mankind it should be preserved for future generations (UNESCO, 1972). A site is considered to be WH by UNESCO when it is of Outstanding Universal Value (OUV). UNESCO (2012a) describes OUV in the following way:

“Outstanding universal value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.”

The term OUV has been used since the Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 1972).

World Heritage City

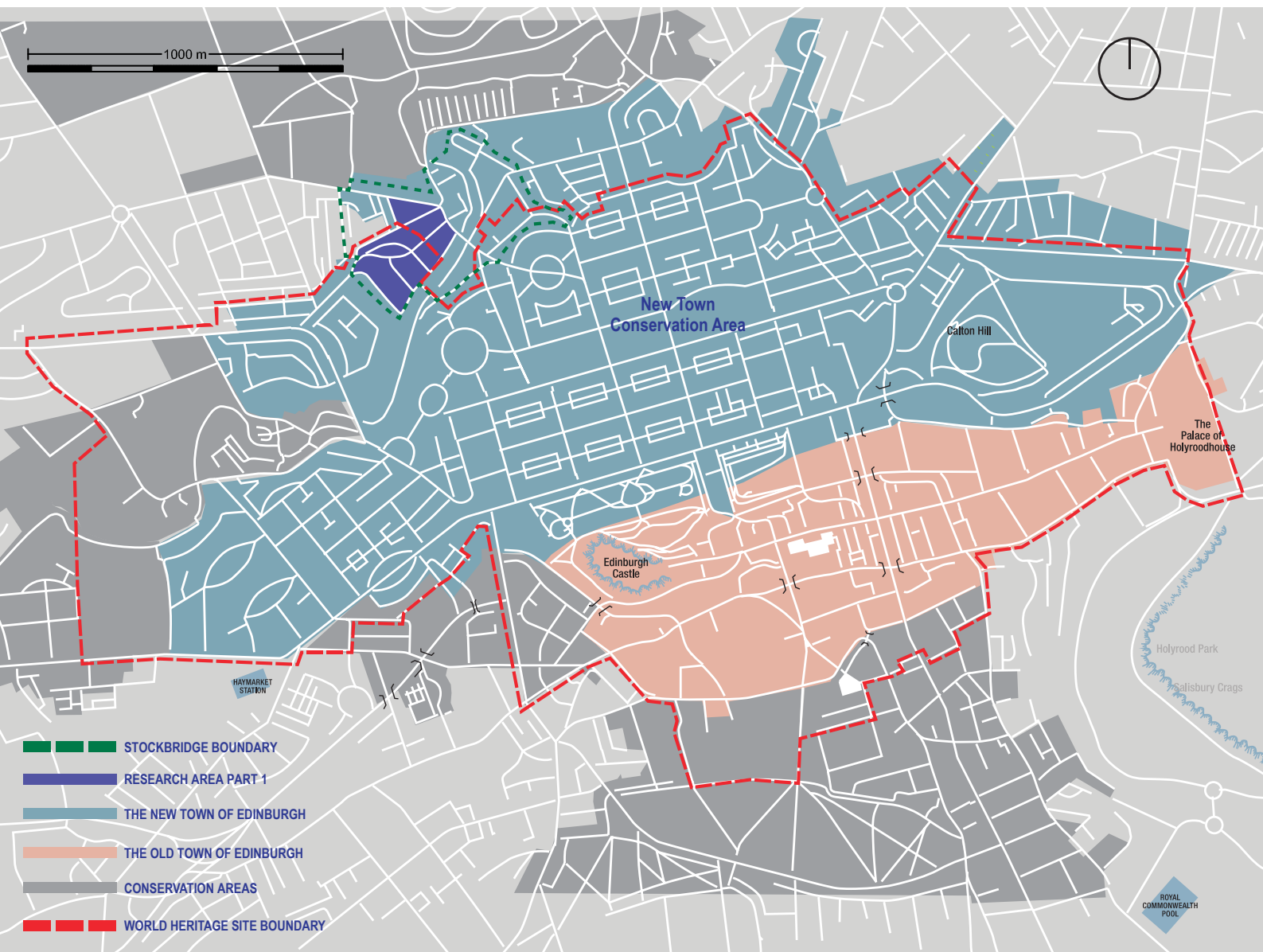
An urban settlement with property inscribed in the World Heritage List in its urban boundary (Turner et al, 2011).

Table of Contents

Preface	05
Abstract	07
Abbreviations	08
List of Definitions	09
Table of Contents	10
1.0 Introduction	13
1.1 Report structure	15
1.2 The preceding research	15
1.3 The Trust Housing Stockbridge as a case study	16
1.4 Research question	16
2.0 Background case study	19
2.1 Stockbridge	25
2.2 History of the Trust Housing Stockbridge	27
2.3 State of the art on housing for the elderly	31
3.0 Methodology	27

4.0 Analysis and results	31
4.1 Location and appearance of the building	33
4.2 Overall plan of the dwellings	43
4.3 Communal facilities within the building plot	57
4.4 Communal access areas and circulation spaces	61
5.0 Conclusions	65
6.0 Design	71
6.1 Design criteria	73
6.2 Design strategy	75
6.3 Design proposal	76
7.0 Discussion and reflection	101
References	107
Appendices	111
i. interview S. Sinclair, April 25th, 2013	
ii. interview R. Cairns, July 26th, 2013	
iii. video about Edinburgh and the Trust Housing Stockbridge	

1 Introduction



Map 1.1: Edinburgh with the Old and New Towns, the research area from the first part and the boundaries of Stockbridge

1.0 Introduction

1.1 REPORT STRUCTURE

This report contains seven chapters, of which the first one introduces the research executed in Edinburgh prior to this second part, the subsequent case study and the accompanying research question.

Chapter two gives insight in the broader context in which the case study should be placed, not only physically but also historically and socially. Historically as it is of importance to understand previous developments and decisions taken regarding the case study, socially as it is necessary to understand the position of and contemporary thoughts about housing for older people in Scotland and the UK.

The methodology discusses the steps taken in order to answer the research question. The subsequent chapter reveals the results of an extensive analysis. From the overall conclusions (chapter 5), seven design criteria are formulated leading to a design strategy and design proposal.

The last chapter discusses and reflects on the method undertaken, the analysis done and the final design proposal.

1.2 THE PRECEDING RESEARCH

The research into the built heritage management (first part of the graduation project) aims to assess the need for a Buffer Zone as a management tool in the WH property of Edinburgh, as UNESCO considers the absence

of a Buffer Zone as a cause for impact of urban development on the WH property. A Buffer Zone is an area surrounding the WH property with complementary restrictions to protect the WH property from outside threats, like new developments and minor changes. (Bennink & van Niel, 2013).

The WH property is covered and surrounded by a large number of Conservation Areas. Focus of the research is the occurrence of minor changes in a part of the New Town Conservation Area, partly within and partly outside the WH property. To be more specific, the research area is located in the area Stockbridge.

Minor changes are a threat to the character of the New Town of Edinburgh (map 1.1) because of the uniformity in the design of its architecture. A new method, based on the 'ideal state of conservation' was devised to assess change in the New Town, because of a lack of data on its state of conservation over time. Discrepancies between the ideal and the actual state of the building attributes are mapped and put into streetscapes and compared using a Discrepancy Index Number (DIN).

Main finding in the research is that within the research area 1.2 times more discrepancies are found in the area outside the WH property, compared to the area within the WH property. Two streets appeared to be discrepancy free: Carlton Street 1-15 and Deanhaugh Street 38 (Trust Housing Stockbridge). (Bennink & van Niel, 2013)

1.3 THE TRUST HOUSING STOCKBRIDGE AS A CASE STUDY

From the preceding research was found two street elevations are free of discrepancies. One of them is very distinctive in architectural language than the surrounding buildings: the elevation of the Trust Housing Stockbridge (THS) on Deanhaugh Street 38. As it is one of the few buildings in the research area which is not constructed in the 19th century, the building attributes could not be examined using the building attribute matrix (Bennink & van Niel, 2013).

The THS is located in in the prior research area just outside the WH property (picture 1.2), but still within the New Town Conservation Area.

The THS used to be a church, until redevelopment in the late 1970's brought the building in residential use: a sheltered housing complex for elderly people. Sheltered housing is a purpose built self contained accommodation with added facilities for older people who want to live independently in an environment that is secure (Egbu et al, 2011).

As the contemporary thoughts about housing the elderly and their specific needs (chapter 2.3) as well as general building standards changed the last three decades, the THS is taken as a case study to analyze on functionality, minimum requirements like space standards, the integration in the urban context and the aesthetical appearance.

1.4 RESEARCH QUESTION

An analysis and forthcoming design proposal aim to contribute to the discussion on (re)developments related to the WH property of Edinburgh by taking the THS as a case study.

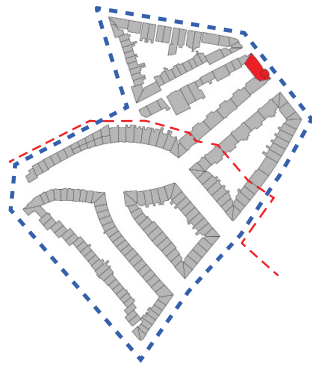
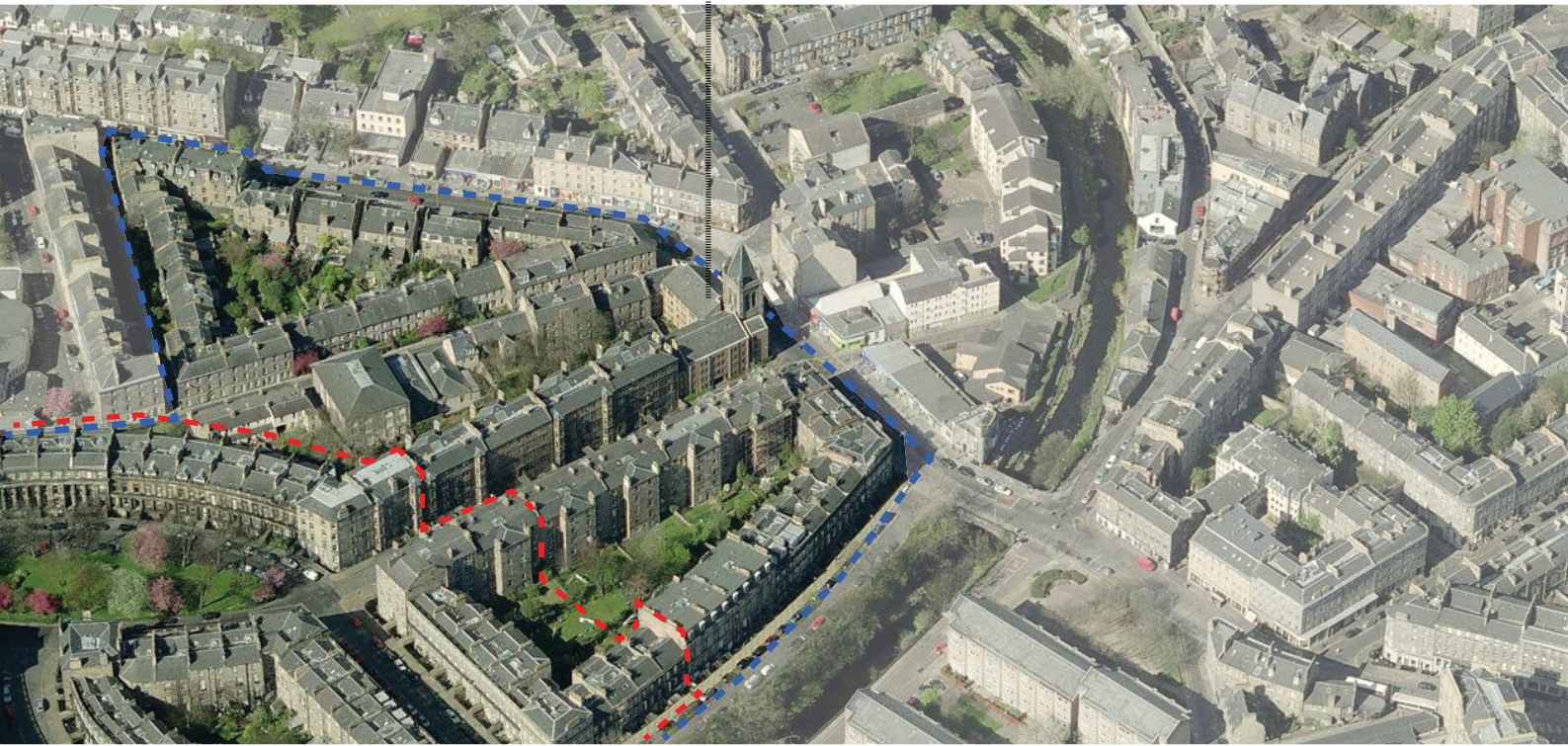
The research question is formulated as follows:

“Does the Trust Housing Stockbridge comply with current housing standards and the elderly people’s needs, and could the building be better integrated in the urban structure and the surrounding appearance?”

Trust Housing Stockbridge

--- boundary prior research area

--- boundary WH property



Picture 1.2: Aerial photograph of a part of Stockbridge, Edinburgh, with centrally located the Trust Housing Stockbridge on the fringe of the prior research area (aerial-view.org, 2013)

2 Background case study

----- boundary prior research area



Map 2.1: 1804
Map 2.2: 1849

Map 2.3: 1865
Map 2.4: 1891

2.0 Background case study

2.1 STOCKBRIDGE

Stockbridge is an area in the north-west of Edinburgh (map 1.1, previous chapter), part of the New Town Conservation Area. The New Town is a planned urban ensemble constructed between 1767 and 1890 consisting of a high concentration of neo-classical ashlar-faced buildings and fine gardens, associated with renowned architects (Historic Scotland, 2008). The Old and New Towns of Edinburgh were inscribed on the World Heritage List in 1995, for its *“unique coupling of medieval Old Town and classical New Town, each of enormous distinction in its own right, [which] has created a town of extraordinary richness and diversity”* (ICOMOS, 1995).

The name Stockbridge originates from the stock bridge first built in 1785, crossing the Water of Leith. This area consisted originally of three villages: Stockbridge, Canonmills and Silvermills; all early industrial settlements around the Water of Leith. ‘Although it continues the Georgian development of the Northern New Town without a break, Stockbridge is a distinctive place with more of the character of a small town than a suburb, albeit quite transformed from the pre-1813 village of riverside cottages, mills and villas’ (Gifford et al, 1984).

Due to the growing prosperity in Edinburgh in the beginning of the 19th Century an increased demand for properties caused the replacement and development of the area. These changes are visible in the maps 2.1 - 2.4 on the next page. Map 2.1, based on Ainslie’s survey in 1804, shows the main transport artery Queensferry Road, which is later called Raeburn Place after Henry Raeburn.

Henry Raeburn, a famous portrait painter, was one of the landowners and responsible for the development of the greater area later known as Stockbridge. He was born in the area in 1756 and acquired a considerable share of the area. From 1813 on he began to lease out his land with James Milne as the architect. Pipes (1994) thinks that *“Henry Raeburn designed the actual Palladian facades, [after which] James Milne came along and built your house behind the windows, because they’re all different inside.”* James Milne was presumably inspired by the style of John Playfair.

2.2 HISTORY OF THE TRUST HOUSING STOCKBRIDGE

In 1868 a church was constructed in the heart of Stockbridge, most recently known as the Stockbridge Free Church. The church was basically the St. George’s Free Church in Lothian Road, which was constructed by David Cousin in 1845 but displaced by the Caledonian Railway, partially re-erected by the architects Peddie & Kinnear, who *“used the left-over stone for the large, well-proportioned tower, capped with a slated pyramid spire”* (Gifford et al, 1984). The big Victorian church tower is a landmark from a distance. (Gifford et al, 1984)

In the late 1970’s demolition of churches with listed status was approved by the government for the development of sheltered housing and housing for the elderly, in order to facilitate a flow-through in the housing stock market (Sinclair, 2013). The Stockbridge Free Church was partially demolished in 1980 for the construction of sheltered housing for elderly



Picture 2.5: Former Stockbridge Free Church (Hunter, A.L., before 1980, RCHAMS)



Picture 2.6: Trust Housing Stockbridge (van Niel, 2013)

people on the site, although the church received a Listed Building Consent in category B in 1974 (Historic Scotland, 2012). Only the tower was incorporated by the architects Matthew, Hamilton and Maclean in the redevelopment.

Planning applications show a change of use of the plot since 1976, from which can be determined the church did not function as a religious place anymore. In March 1976 permission was granted for a limited time to use the hall of the church as a collection point for goods to be sorted and recycled in connection with the 'War on Waste' scheme. In May 1977 the use of the church changed into a rehearsal area and storage space for props, leased by the Long Green Theatre Company.

In 1977 Kirkcare Housing Association planned to redevelop the site of the church into housing for older people and hired the architects Matthew, Hamilton and Maclean. The architects designed a sheltered housing complex in sandstone, the

church being demolished completely (figure 2.7, next page).

However, completely demolition of the church was not approved by the Historic Building Section of the Scottish Development Department. In consultation with the architects Kirkcare Housing Association therefore proposed to partly demolish the church and erect a sheltered housing development with 35 flats. In addition provision was made for a five-person warden's house (a warden is a fulltime coordinator on site, providing assistance 24/7), three guest rooms, a common room and a quiet room.

This official building application with accompanying design proposal from August 1977 would not exceed the height of the existing church and occupied the same part of the site as the church. Materials for the facade were proposed as a facing brick, because *"the major restrictions from the government were in the costs"*

(Sinclair, 2013), slate for the roofs and timber sash and case windows.

After publication of the application, representations were received from The Scottish Civic Trust, the Scottish Georgian Society, The Cockburn Association, The Stockbridge Society and the Ronald Guild. The main objectives were commented by the architects as follows:

- To retain the transepts of the tower would mean reducing the impact on the tower in its setting with the new building and the expense of restoring them would be out of question;
- The use of brick as a finishing material was preferred as all the elevations facing the street should be in the same material and that the use of sandstone would not be economically viable;
- Making use of the internal courtyard for parking is because of planning requirements and that for various functional reasons it is preferred to keep the vehicular access on Leslie Place where it is.

The application was approved on the 24th of August with some conditions, like removal of the parking from the internal courtyard and reducing the vehicular pend to a pedestrian pend. Concerning the materials, a sample panel of the brick and mortar to be used needed to be submitted to the Director of Planning for his further approval before the building work would begin. Another condition was that the windows onto the streets had to be double glazed.

Seven months later, in March 1978, the Scottish Development Department expressed their concern about the non-retention of the side transepts of the church and the proposed use of brick. Although it came to an agreement to modify the design scheme to retain the side transepts and use concrete blocks instead of brick, the Kirkcare Housing Association, in line with their architect's report, considered it to be aesthetically less acceptable and more expensive. The architects were therefore instructed to return to the original plans. One deviation, a variation in the mix of units, meant that the number of units increased from 35 to 38.

As the warden is nowadays replaced by a parttime coordinator providing assistance on the site, the warden's house is split into two flats. The Trust Housing Stockbridge therefore currently contains 39 flats for the elderly population in Edinburgh.

2.3 STATE OF THE ART ON HOUSING FOR THE ELDERLY

The THS (1980) is currently over three decades in use as sheltered housing for the elderly. A significant proportion of the sheltered housing provision [in the UK] was built between the 1960s and 1980s and much of the design features are outdated, and not compatible with promoting independent living (Egbu, 2011). However, people do wish to live independently as long as possible (Pickles, 1999). Besides, the current and rising generations of older people have lived a more privatized lifestyle than their predecessors (Egbu et al, 2011), which changes their needs regarding housing.

Croucher et al. (2006) emphasizes that the sheltered housing stock in the UK is fairly dated, with less demand for bedsit, inadequate space standards and design that does not easily accommodate people with physical disability. According to a report by HAPPI (2009) older people need space to enable them to use the range of daily living aids now available such as walking aids and wheelchairs. Next to this required circulation space, there may be a common misconception that people automatically require less space as they grow older: the study by Croucher et al. (2006) suggests that older people would rather remain in the same sized accommodation as circumstances change (Egbu, 2011). And while Government's strategy for housing in an ageing society (2006) recognizes that spacious apartments are increasingly important, too often the current housing stock does not meet these needs (Egbu, 2011).

The philosophy 'aging in place' is as much as a concept that promotes independency and livability of all types of houses (Lawlor and Thomas, 2008) which refers to the ability to remain in one's home or neighborhood as long as possible (Nasar and Evans-Cowley, 2007) regardless of the age of the occupant or his level of abilities. This concept supports not only fundamental attachments of the older adult but also the level of wellbeing, convenience, security and care. Aspects of universal and barrier free design, adaptability, visibility, and accessibility (Lawlor and Thomas, 2008) are incorporated in the aging in place philosophy. And although 'age is no decease' (Mens en Wagenaar, 2009) the wish and need to get some extra support is sometimes unavoidable. When people

become older disabilities like immovability and difficulties with sight and hearing might appear. Particularly when becoming older or when their disability is caused by a degenerative illness, the user's needs change and vary (Pickles, 1999).

Houses and flats are categorized as 'mainstream housing' for general use, 'specialized housing' for older people, disabled people and others with particular needs where access to support and care is available, and 'residential care or care homes' with care services and facilities (Homes and Communities Agency, 2009). The second mentioned (specialized housing) consists of types like sheltered housing, very sheltered housing and extra care housing. Sheltered housing means independent living while 'designed and constructed for the purpose of providing residential accommodation for people who receive, or who are to receive, a support service' (The building (Scotland) Regulations, 2004).

The Scottish House Condition Survey 1996 (Scottish Homes, 1997) showed a serious shortfall in housing suited to people who are less able. Around the same time the concept of designing all housing 'barrier free' to accommodate the needs of less able people became widely accepted in Scotland (Pickles, 1998). Pickles further states "it is vital that the design of all new housing, and where possible, refurbished housing, recognizes the needs of people as they grow older and become less able to start to rectify this shortfall. The design of a house or flat should not hinder a person's ability to live as independently as possible."

Particularly older and disabled people will be



Figure 2.7: First design by Matthew, Hamilton and Maclean Architects for the development of the Stockbridge Free Church

seeking accommodation that can suit changing physical needs and the consequent changing levels and type of support. Therefore provision should make allowance for impaired mobility, including the possible use of a wheelchair, visual impairment and lack of dexterity. The users will also need an environment that is secure and gives a sense of security and general peace of mind, knowing that help is at hand if required. By choosing housing with integral support, like sheltered housing, they may also enjoy, and benefit from, the opportunities for social contact and activity synonymous with communal meeting

space and other facilities. As people become more frail and less able to go out and about, such facilities will often form the centre of their social contact. Therefore the need for them and the role they have to play becomes greater. (Pickles, 1999)

3

Methodology

John Matthew

Stuart Sinclair



Picture 3.1: Architectural office of Matthew, Hamilton and Maclean Architects in Edinburgh (van Niel, 2013)

3.0 Methodology

The research question as formulated in the first chapter aims to reveal if the Trust Housing Stockbridge could be improved in terms of the elderly people's needs and the integration with the surrounding architecture of historical value. In order to answer this research question the Trust Housing Stockbridge is first analyzed on four main categories, based on:

- data from the research into the built heritage management;
- available information about the building;
- legislated building standards or substitute guidelines;
- barrier free design criteria;
- the elderly people's needs.

Data from the research into the built heritage management is for example information about the current state of the building attributes of the THS and the other buildings surrounding the plot.

Available information about the building is based on literature study, a visit to the complex in april 2013, an interview with Stuart Sinclair, architect at Matthew, Hamilton and Maclean, and the original drawings and planning applications from the archive of the City of Edinburgh Council.

Used legislated building standards are for example the technical handbook (domestic) of The Scottish Government (Building standards, 2013) and the Technical Standards published by the Scottish Office. The substitute guidelines like The London Housing Design Guide and Housing for Varying Needs zoom in more into the requirements of a dwelling in terms of

size, amount of daylight, etc. In the Housing for Varying Needs barrier free criteria, such as wheelchair accessibility, and elderly people's needs are brought forward as well.

The four main categories on which the Trust Housing Stockbridge is analyzed are derived from the structure used in the document Housing for Varying Needs, parts 1 and part 2, and formulated as:

1. Location and appearance of the building;
2. Overall plan of the dwellings;
3. Communal facilities within the building plot;
4. Communal access areas and circulation spaces.

All subjects represented in this analysis are the ones of which relevant information was available. Parts missing are because of a lack of information and therefore not included in this report.

From the conclusions drawn from the analysis, seven design criteria are formulated to take into account making plans for a redevelopment of the housing scheme. A design strategy was developed to implement all design criteria into a design proposal, visualizing a possible redevelopment of the Trust Housing Stockbridge.

4 Analysis and results



Figure 4.1.1: Landscape strip on ground floor (scale 1:1000)

4.1 Location and appearance of the building

This paragraph places the THS in the broader picture of the area, particularly Stockbridge and the prior research area. The analysis and results regarding close related facilities and the urban integration will be discussed.

4.1.1 AXIS OF COMMERCIAL ACTIVITY

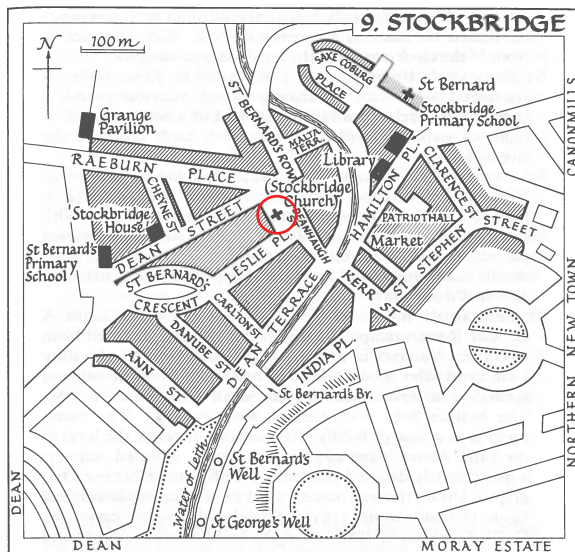
As shown in map 4.1.2 the Trust Housing Stockbridge lies in the heart of the Stockbridge area. Stockbridge is split by the Water of Leith and originates its name to the stock bridge first build in 1785 crossing this river. An analysis of

perpendicular streets, most other building blocks are in residential use.

This main axis of commercial activity runs all the way through NW Circus Place, Bakers Place, Glanville Place, Deanhaugh Street and Raeburn Place and is a continuous route on both sides of the road except for an interruption at the level of the THS where the ground floor is occupied by apartments. As explained by Stuart Sinclair (appendix i), this design decision had to do with the requirement of a maximum amount of units on the building plot. In order to enhance the separation of the public domain and the private section of the inhabitants, specifically for the dwellings in ground floor, a landscape strip (figure 4.1.1) has been realized together with the existing design. This landscape strip consists of a little brick wall with greenery in between.

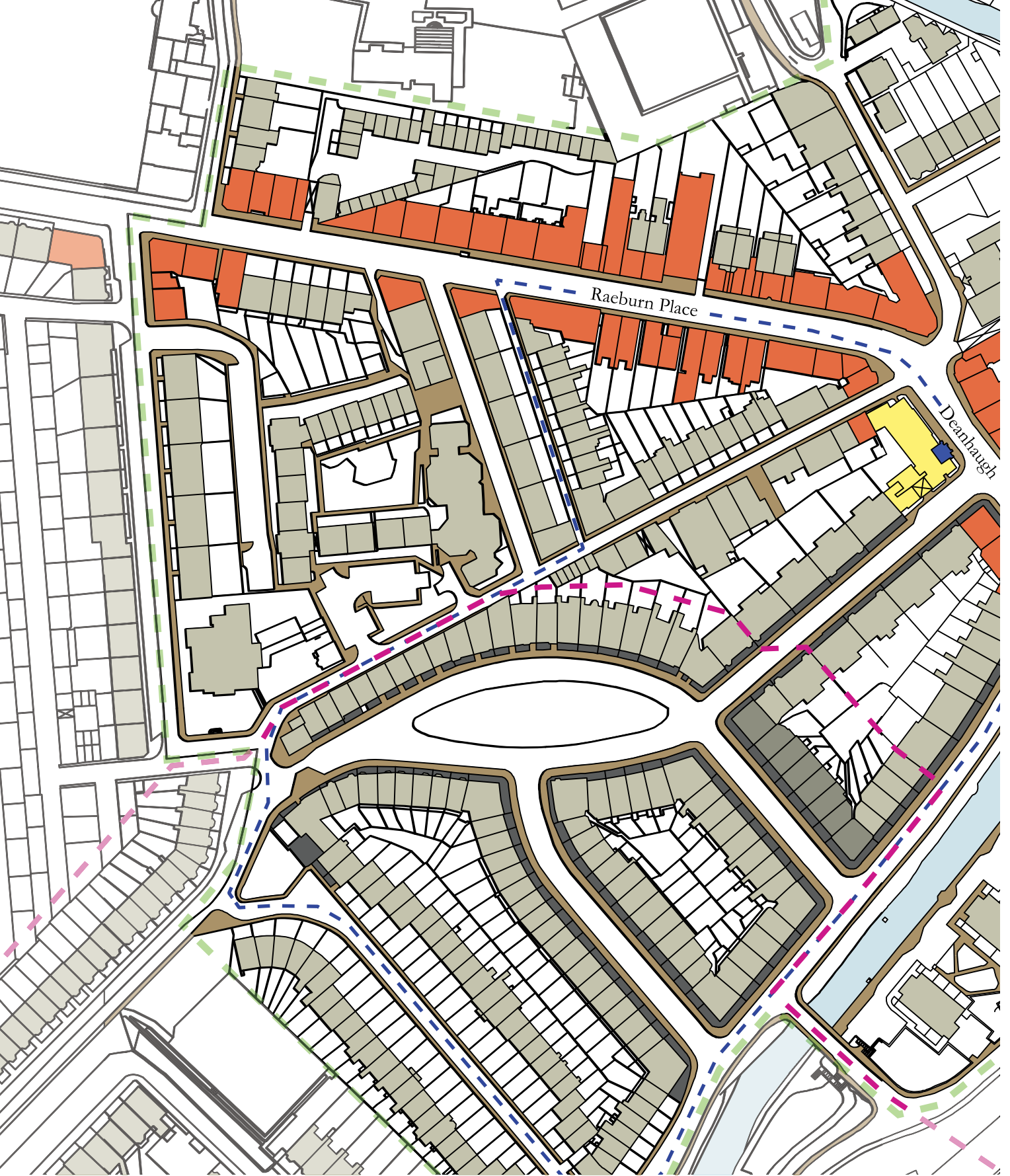
In function of a church the ground floor of the building plot was never used for commercial activity; just the tower was used to enter the building. With the redevelopment in 1980 the church lost its function as a religious place and meaning in the neighborhood, except for the visual landmark of the tower. From then the ground floor was occupied by a function with a more open relation towards the public domain, with windows making this relation. The link between private space and public domain is however rather debatable (Sinclair, 2013).








The interruption of commercial facilities seems to redirect the shopping visitors to cross the road. A video (appendix iii) illustrates a difference in amount of pedestrians walking on the other side of Deanhaugh Street. However, as this is

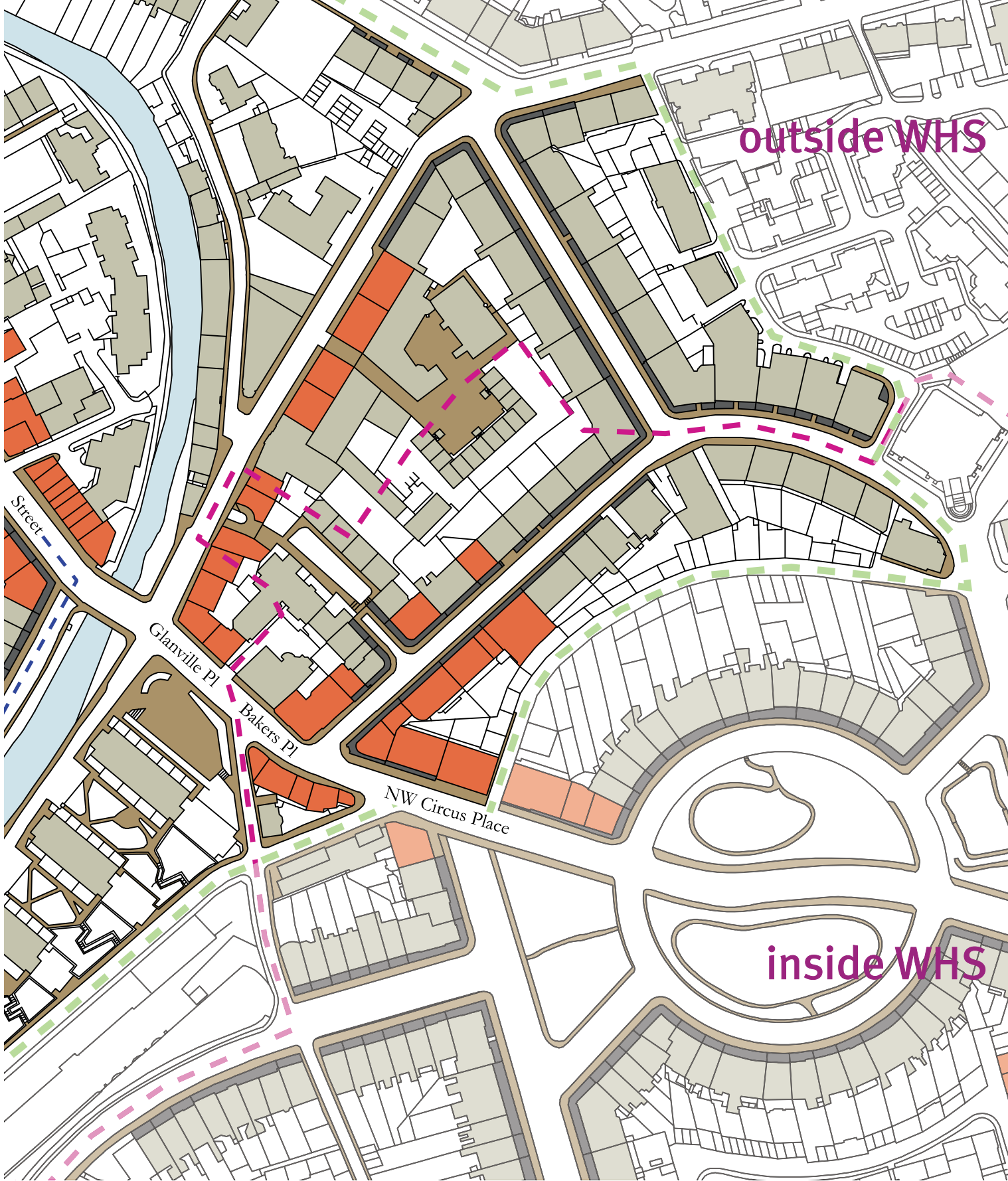


Map 4.1.2 : The Stockbridge area (Gifford et al, 1984), with:
○ the Trust Housing Stockbridge

the Stockbridge area shows this bridge is in both directions in line with the main axis of shopping and activity (map 4.1.3, next page). Apart from some commercial activity in ground floor in



- | | | | |
|---|--|---|---|
|  THS |  B - listed tower |  commercial activity |  residential |
|  research area part 1 |  Stockbridge |  WHS | |



Map 4.1.3 : The main axis of commercial activity in Stockbridge (scale 1:2000)

not properly analyzed (as this video is not taped in different time schedules during the day and during the year), it could for example also be the sun redirecting the pedestrians, because of shading. This remains an assumption.

Conclusion 4.1.1

The THS lies in the heart of Stockbridge, while forming an interruption in the main axis of commercial activities in ground floor. With the redevelopment of the Stockbridge Free Church, the building plot has got a more open function in ground floor, though with a private atmosphere as occupied by apartments. The absence of commercial activity in ground floor seems to make pedestrians to cross the road, although this conclusion is debatable.

4.1.2 ACCESS TO FACILITIES

People leading independent lives must be able to reach various facilities within convenient distance. 'For a location to be considered 'convenient' for people who do not walk easily and who do not have the use of public transport or a car, the distance from a dwelling to the facility should be taken to be no more than 600 meters' (Pickles, 1998). Specifically for older people or disabled people with various impairments, walking distances are even less. The walking distance that can be made without a rest for someone visually impaired or using a wheelchair is for example 150 meters, for someone using a stick the distance is about 50 meters. (Revised Guidelines for: Reducing Mobility Handicaps)

Facilities that should be within walking distance are considered:

- Public transport;
 - Shops and other commercial facilities;
 - Health services;
 - Community and recreational facilities.
- (Pickles, 1998)

Public transport

Within a distance of 200 meters there are two bus stops leading both in north direction to Leith Ocean Terminal (bus 36), Silverknowes (bus 29), Davidson's Mains (bus 42) and West Granton (bus 24) and in south direction passing the city centre to Holyrood (bus 36), Newtongrange Gowkshill and Mayfield (bus 29), Portobello (bus 42) and the Royal Infirmary (bus 24) (Lothian Buses, 2013). As people aged 60+ and people with a disability are allowed to travel for free with the National Entitlement Card on local or Scottish long distance buses (Transport Scotland, 2013), the elderly people living in the THS are well connected to travel services.

Shops and other commercial facilities

Within a distance of 50 meters there are several shops and other commercial facilities located at the commercial axis. A supermarket (Sainsbury's Local) is just across the street, as well is a fruit shop and a bank (Bank of Scotland). A chemist (Lloyds Pharmacy) is about 60 meters away from the main entrance of the THS, a post office 165 meters.

Health services

According to the MacMillan Dictionary the definition of a 'health service' is a public service that is responsible for providing medical care. Just across the street of the THS is a practice called ABC hearing. Within a distance of 100 meters there is an optometrist and a chartered physiotherapist (Josephine M Keys), the Stockbridge Health Centre within 200 meters and the Stockbridge Dental Practice is within 325 meters. These might not cover all health services, but most of them are close related to the THS. On the other hand, inhabitants of the THS get (health assistance from a care and/or a home helper (Cairns, 2013).

Community and recreational facilities

Besides a walk next to the Water of Leith, there is a community centre in the Stockbridge House just 150 meters away from the THS. LifeCare Edinburgh is based in this community centre and organizes several activities especially for "the frail elderly and those with dementia" (LifeCare Edinburgh, 2013). Communal facilities like a pub or café are sufficient available within 50 meters. A library is located just across the Water of Leith, at a distance of 160 meters. Recreational sports facilities are not within close distance.

Conclusion 4.1.2

Without fully mapping all available facilities, it can be concluded that the inhabitants have sufficient facilities within their reach according to the four categories summarized mentioned by Pickles (1998): public transport, shops and other commercial facilities, health services and community and recreational facilities. Just a sports facility for the older population in the area is missing.

4.1.3 APPEARANCE OF THE BUILDING

In the research into the built heritage management the collective coherence of the buildings and their building attributes was taken as a starting point. The quality of the New Town lies inter alia in the palace-fronted facades of residential building blocks made out of sandstone with black cast iron railings and balconies.

A comparative analysis

A comparative analysis with the urban context and specifically between the elevation of Carlton Street (figure 4.1.4), the only street without any discrepancies found in the research while built in the beginning in the 19th, and the elevation of the THS (figure 4.1.5) shows that the THS differs with the surrounding architecture in terms of proportion of the volume, rhythm and alignment, materials and ornaments. As Carlton Street stands for an example of the surrounding streetscapes (Bennink & Van Niel, 2013, appendix iii),

more elevations in the area comply with the same descriptions and findings discussed in the analysis.

It is necessary to emphasize that the building in function of a church had a different use and appearance than the surrounding architecture. However, when constructing the sheltered housing complex, the incorporated tower and the new volume came in residential use.

Proportion of the volume

The volume of the THS is lower than the surrounding blocks. Especially the difference in height at the connection in Leslie Place is considerable. However, as one of the restrictions from the Local Planning Department the architects were not able to build higher than the original height of the nave of the church (Sinclair, 2013). On the other hand, it makes the tower of the church stand out.

Where Carlton Street has a clear contour with corner blocks at both ends of the core, the THS is more fragmented with a staggered façade. With perspective from street level, the staggered parts seem to differ in height as well. Besides, in front elevation the THS mediates in the height difference between the two volumes of Deanhaugh Street 4-36 and Raeburn Place and the descending ground level. All together it makes the THS fall apart instead of being one entity.

Rhythm and alignment

The façade of Carlton Street has a tight rhythm

of window openings and a clear horizontal alignment. The size of the openings in ground floor is about 900 x 2000 mm. In the core this is about 900 x 2400 mm, where these windows also contain a window architrave. The width of each window (900 mm) is the same size as the space between two architraves. The horizontal alignment is made by several elements like the parapet on the roof, the iron railings in front of the balconies, the difference in expression between ground floor and core and a stone plinth between the ground floor and the upper floor.

The THS has mainly a rhythm in the staggered gable parts, with a main dimension of 2900 mm. As these parts are higher than they are wide, it gives the building a vertical alignment. The windows, with a size of 1150 x 1400 mm, are placed within this rhythm. In the parts set back one opening is made per floor, in the most out-coming parts two windows per floor appear.

Although symmetry is visible, the window rhythm is far from the tight scheme as constructed in Carlton Street. Moreover, the rhythm of the staggered parts makes the building rather fall apart instead of making it one entity, such as the case in Carlton Street. These parts, together with white painted downpipes, give the building as well a vertical alignment.

Materials

Except for the THS all surrounding buildings are made out of sandstone. Although the architects originally planned to design with the same material, restrictions in costs led to the use

Figure 4.1.4: Analysis of the elevation of Carlton Street

1. Photographic streetscape 2013
2. Contour of the block
3. Horizontal alignment of stone plinths and cast iron railings
4. Window architraves as ornament



1.



2.



3.



4.



of a facing brick (Sinclair, 2013). This material, which has a different size, color and construction method, is therefore an exception in the researched area.

Most of the window frames in the researched area are made of wood and painted white (Bennink & van Niel, 2013); as is the case in Carlton Street. The brown colored window frames of the THS are made of aluminum, probably as this material is maintenance friendly.

Ornaments

The facing brick used as material asks for other design solutions, for example in detailing. With new construction methods, such as the use of a lintel, the THS got a different appearance. Where in most Georgian houses stone was used to span gable openings, and thus becoming more expressive, in the THS lintels are hidden within the construction. The sills of the window openings of the THS are designed very minimalistic with bricks put on their side facing down, in contrast with the lack of sills in Carlton Street.

Stone architraves in Carlton Street make the openings more expressive and the building more extravert. Together with the balconies with black cast iron railings in front of the windows, the building has an open attitude towards the urban domain. These railings strengthen as well the horizontal alignment in the façade.

Conclusion 4.1.3

As a church the building had both a different function and appearance than the surrounding architecture: a religious function with a closed façade, especially on ground floor, and mainly a vertical alignment with the tower as sublime height accent.

As a sheltered housing complex however, the THS should have been better integrated in first instance with the surrounding architecture, as it was decided to only preserve the tower while constructing a new volume next to it.

The collective appearance of the surrounding residential blocks has always been of major importance in this area and therefore asks for larger openings in the facade in a tight rhythm, a distinction between ground floor and core and a horizontal alignment. A horizontal aligned volume makes the tower stand out even more.

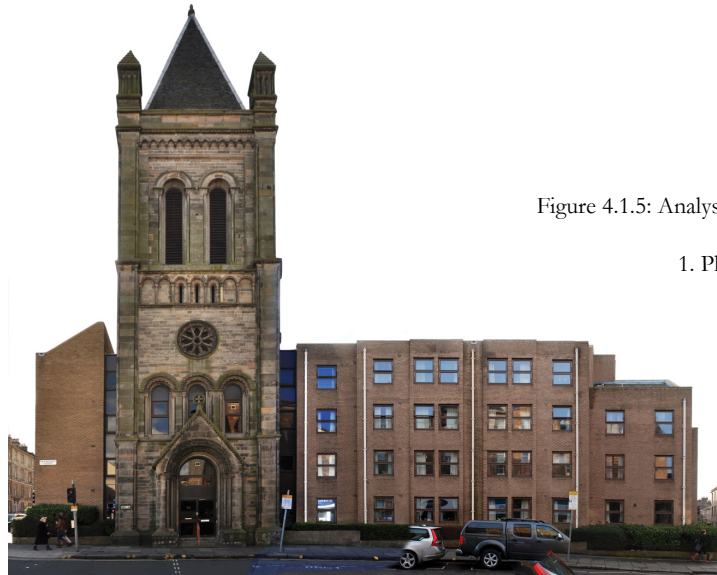
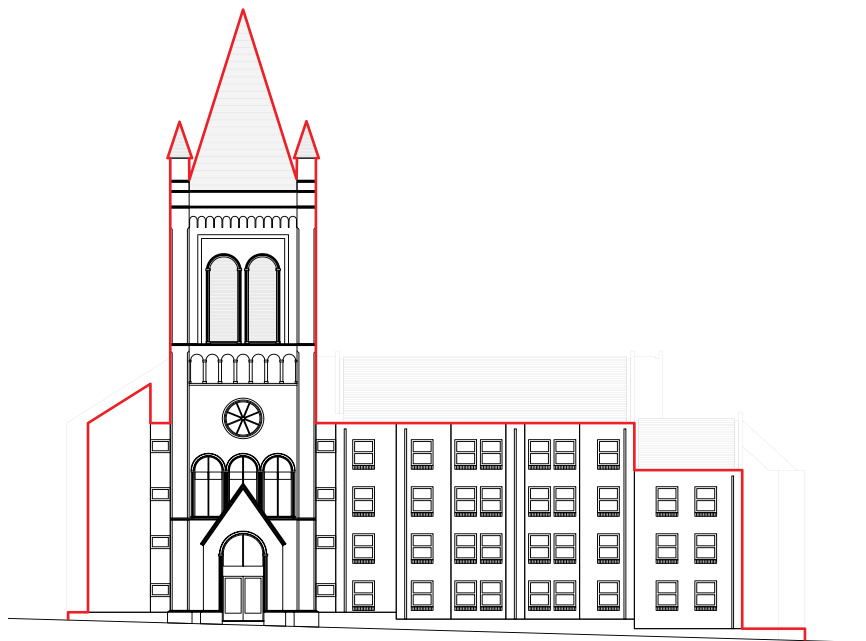


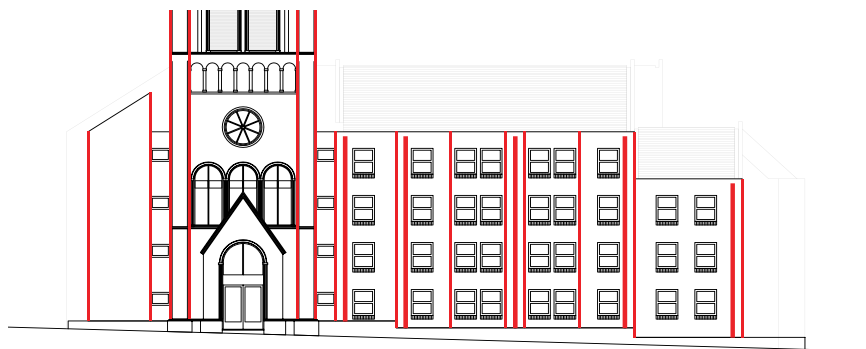
Figure 4.1.5: Analysis of front elevation of THS

1. Photographic streetscape 2013
2. Contour of the block
3. Vertical alignment

1.



2.



3.



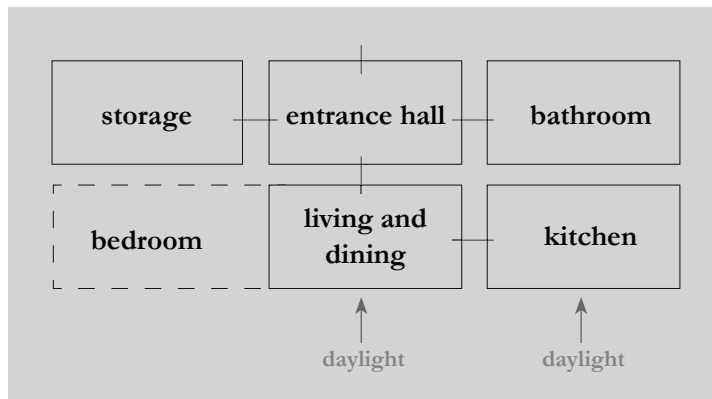
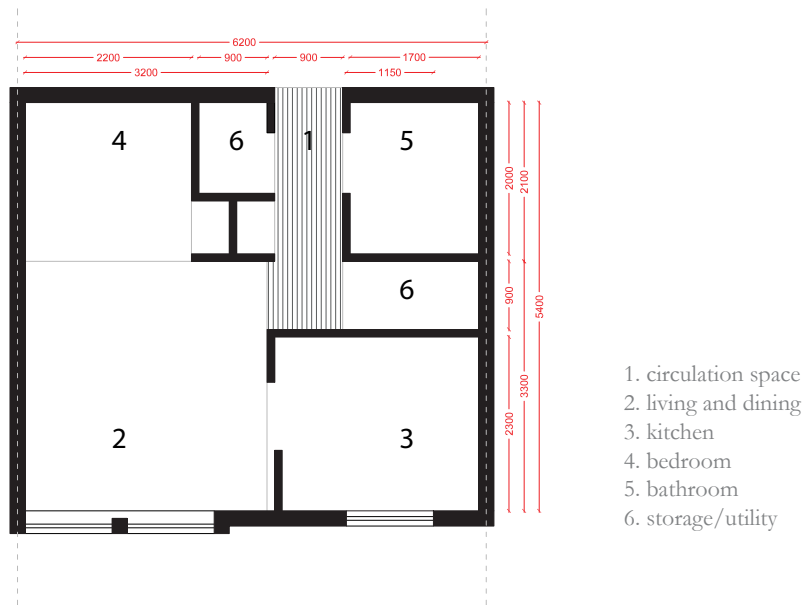


Figure 4.2.1: Current floor plan (scale 1:50) and organization scheme of the 1b1p-flat

4.2 Overall plan of the dwelling

This paragraph zooms in on the several types of apartments and analyzes their qualities. Topics discussed are first of all the size, height and organization of the apartments in relation to contemporary building standards. As well sizes of the habitable rooms and related other recommendations, like specific circulation requirements and provision of daylight are discussed.

4.2.1 TYPE OF APARTMENTS

The THS contains four types of accommodation: a one-bed-one-person flat (1b1p), a one-bed-two-person flat (1b2p), a two-bed-three-person flat (2b3p) and a three-bed-five-person flat (3b5p). The latter one was originally designed for a warden: a full-time coordinator to supply service to the tenants whenever desired, 24 hours a day and 7 days a week. As since 5 years a part-time coordinator is on site, the former warden's house is rented as a two-level apartment (Cairns, 2013). The 3b5p-flat is quite exceptional and therefore not further analyzed. For the analysis of the dwellings, only the three main types of apartments are analyzed.

4.2.2 SIZE OF THE APARTMENTS

Former minimum space standards

The size of the apartments (built in 1980) should originally be in accordance with the guideline Housing for Old People, published in 1970 by the Scottish Development Department. This guideline sets out the rules for flats or single-storey houses (for one or two old people) which are self contained and to which communal facilities may be added. It defines Net Space and General Storage Space, together formulated as the Overall Area. Net space is not the same as the Net Internal Area (NIA) as storage space usually is taken into account with NIA as well. The Overall Area differs from the Gross Internal Area (GIA) as the GIA includes as well separation walls and a part of the construction walls. To check whether the size of the apartments live up to the rules set by this guideline, a calculation was made as defined by the Overall Area.

As shown in table 4.2.2 the floor areas of the 1b1p-flat and 1b2p-flat do not comply with the rules set by this former guideline. In case of the 1b1p-flat, there is a lack of 2.4 square meters

	Guideline Housing for Old People (1970)	Trust Housing Stockbridge (1980)	Difference
1b1p	N = 30.0 S = 2.6 O = 32.6	N = 27.6 S = 3.4 O = 31.0	N = -2.4 S = + 0.8 O = -1.6
1b2p	N = 44.5 S = 3.0 O = 47.5	N = 41.8 S = 2.9 O = 44.7	N = -2.7 S = -0.1 O = -2.8

Table 4.2.2: Sizes in square meters for a flat

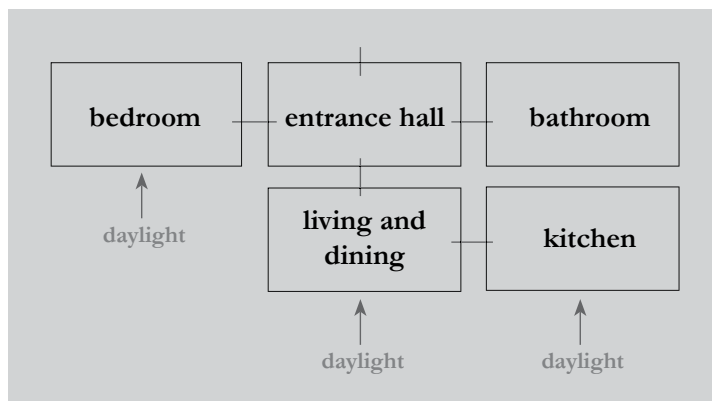
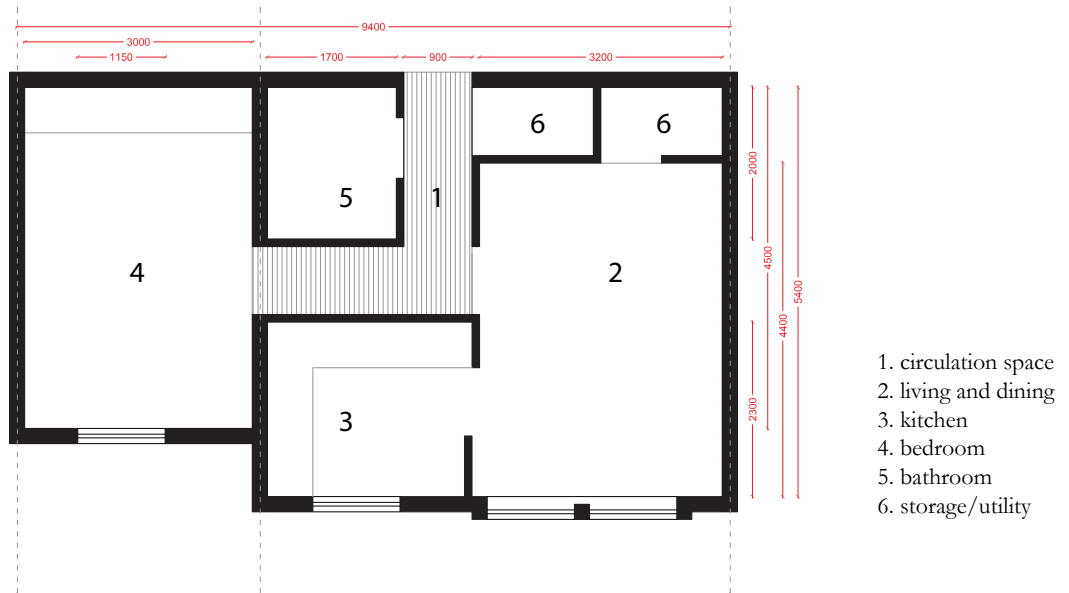


Figure 4.2.3: Current floor plan (scale 1:50) and organization scheme of the 1b2p-flat

Net Space. In case of the 1b2p-flat there is even a lack of 2.7 square meters Net Space. The non-compliance of these rules could have to do with the abolishment of space standards in the United Kingdom by Margaret Thatcher's government in 1980 (The Guardian, 2013), although the latest drawings of the THS available are from the 24th of January 1979. Another option is that the apartments just did not live up to the former rules.

Current space standards

Since the abolishment of space standards British homes are the smallest in Western Europe (The Guardian, 2013). The Royal Institute of British Architects (Riba) just started a national campaign for better quality homes, where they highlight the inequality of existing space and light standards. The campaign is called Without Space and Light and fights for the implementation of minimum standards.

Previously, more fights have been going on about space standards in the UK. In August 2010 the Mayor of London, Boris Johnson, published the London Housing Design Guide (interim edition). Just after, in September 2010, it was Levitt Bernstein who published A new approach to housing standards. In September 2011 published the Riba the research Case for Space, which compares the numbers of the London Housing

Design Guide with the Dublin City Development Plan and German space standards. It appears that the London Housing Design Guide is even below these two foreign standards (table 4.2.4).

Relating the Gross Internal Area of the apartments of the THS to the other numbers, it appears that in all cases they are too small. Compared with the London Housing Design Guide the 1b1p-flat is 3.7 square meters too small, the 1b2p-flat 3.4 square meters and the 2b3p-flat 1.6 square meters.

Conclusion 4.2.2

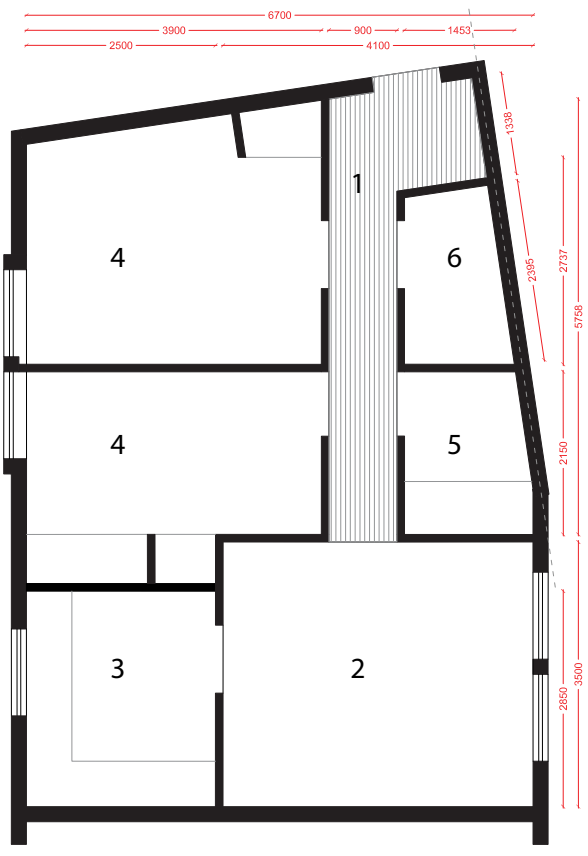
The apartments of the Trust Housing Stockbridge did first of all not comply with the rules at the time of construction, set by the guideline Housing for Old People (1970). As well they do not live up to the contemporary thoughts about space standards in the UK and beyond.

4.2.3 HEIGHT OF THE APARTMENTS

The unfinished floor to ceiling height in the complex is 2400 mm, measured from the original drawings. In the corridors the height is even less as there is a suspended ceiling (picture 4.2.6), probably used for mechanical ventilation. Taking

	THS	LHDG	Levitt Bernstein	Dublin City DP	Germany
1b1p	32.3	37	39	-	48
1b2p	46.6	50	48	55	60
2b3p	59.4	61	61	65	70

Table 4.2.4: Comparison current space standards. Areas in square meters (GIA)



- 1. circulation space
- 2. living and dining
- 3. kitchen
- 4. bedroom
- 5. bathroom
- 6. storage/utility

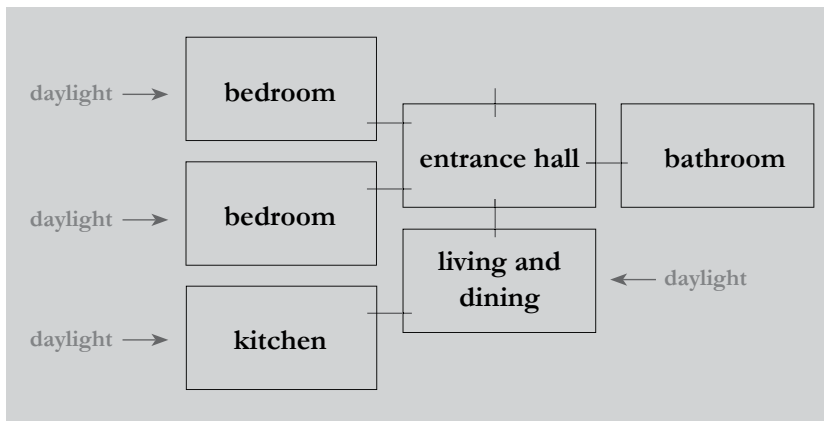


Figure 4.2.5: Current floor plan (scale 1:50) and organization scheme of the 2b3p-flat



Picture 4.2.6: Corridor with suspended ceiling

a floor screed and carpet as well into account, the final floor to ceiling height is 2200 mm in the corridors. In the apartments it is assumed the floor to ceiling height to be around 2350 mm.

The London Housing Design Guide (Mayor of London, 2010) states that for new build homes “the minimum floor to ceiling height in habitable rooms is 2.5m between finished floor level and finished ceiling level. A minimum floor to ceiling height of 2.6m in habitable rooms is considered desirable and taller ceiling heights are encouraged in ground floor dwellings.” The Housing Space Standards (2006), from the Greater London Authority, refers to foreign countries where a minimum ceiling height of 2.3m or 2.4 m is applicable.

Relating to specific heights Pickles (1998 and 1999) only refers to car ports and garages which should a clear height of 2200mm to the underside of the roof. On the other hand, she discusses the anthropometrics of a human being. The average human being is 1800 mm, where older and ambulant disabled people have an average height of 1600 mm. Although still not very pleasant for taller older people or visitors, this difference of 200 mm between the height averages of human beings might be a reason to accept the floor to ceiling height of 2200 mm in the corridors and 2350 mm within the apartments.

Conclusion 4.2.3

According to contemporary thoughts for new build homes, the floor to ceiling height in the THS is too low. However, taking into account the building does already exist for 30 years and the anthropometrics of older and ambulant disabled people, the floor to ceiling height in the THS is acceptable.

4.2.4 ORGANIZATION OF THE APARTMENTS

The organization of the habitable rooms and circulation space(s) is important for the quality of the dwellings. The right organization will improve the usability of the apartment and the circulation area should be kept to a minimum. An ‘open plan’ arrangement in which different activity spaces (e.g. living room and kitchen) are screened from each other, rather than fully segregated, can be an advantage. For people with mobility

problems it reduces the number of doors and partitions, which can make moving around easier, and for people with dementia or cognitive impairment it allows them to see where they need to go. This is particularly relevant in dwellings for one or two people where individual privacy is less critical. The relationship and circulation between the bathroom and bedroom(s) is particularly important. The route should be as direct as possible. This will help people with mobility problems to move more easily between the two. The toilet being visible from the bedroom is of benefit to people with dementia. (Pickles, 1998)

1b1p-flat

The 1b1p-flat has a circulation space of 2.70 square meters, from which you can reach the living room, the bathroom and two storage spaces. The living room is at the same time meant for dining and related to the kitchen, which is accessible through a door out of fire safety regulations. The living room and kitchen both receive natural daylight. The bedroom is directly related to the living room. However, there is no direct connection between the bedroom and bathroom. Therefore it is impossible for the WC to be visible from the bedroom. Five doors are within the apartment, of which three lead to habitable rooms: one from hall to bathroom, a door to enter the living room and one between the living room and the kitchen. The location of the kitchen next to a window is probably for ventilation, as there is an opening visible in the façade.

1b2p-flat

The 1b2p-flat has a circulation space of 4.50 square meters, from which you can reach the living room, the bathroom, the bedroom and storage space. Although they are located next to each other, there is no direct connection between the bedroom and the bathroom. The kitchen is connected with the living room through a door. The living room, the kitchen and the bedroom receive natural light from a window. Six doors are within the apartment, of which four lead to habitable rooms: from entrance hall to bathroom, bedroom and living room and one door from living room to enter the kitchen. The location of the kitchen on the outer side of the building is probably for the same reason as mentioned previously: for ventilation.

2b3p-flat

The 2b3p-flat has a circulation space of 6.80 square meters, from which you can reach the living room, the bathroom, two bedrooms and a storage space. The bathroom is just across the hall of the smallest bedroom. The kitchen is accessible through a door in the living room. The living room, kitchen and the two bedrooms receive natural light from one or more windows. Nine doors are within the apartment, of which five lead to a habitable room: one from hall to bathroom, two to enter two bedrooms, one to enter the living room and one between living room and kitchen.

1b1p	THS (sq. m.)	LHDG (sq. m.)	Differences
Kitchen	6.13	6.20	- 0.07
Living and dining	10.73	15.20	- 4.47
Bedroom	4.62	8.0	- 3.38
Bathroom	3.40	3.60	- 0.20
Storage/utility	3.40	1.0	+ 2.40
Outdoor amenity space	0	4.0	- 4.0
Circulation	2.88	1.50	+ 1.38
Partition walls (5%)	1.17	2.0	- 0.83

1b2p	THS (sq. m.)	LHDG (sq. m.)	Differences (sq. m.)
Kitchen	6.13	6.80	- 0.67
Living and dining	14.25	16.60	- 2.35
Bedroom	13.50	12.00	+ 1.50
Bathroom	3.40	4.40	- 1.0
Storage/utility	2.88	1.50	+ 1.38
Outdoor amenity space	0	5.0	- 5.0
Circulation	4.50	6.50	- 2.0
Partition walls (5%)	1.89	2.50	- 0.61

2b3p	THS (sq. m.)	LHDG (sq. m.)	Differences (sq. m.)
Kitchen	7.13	7.50	- 0.37
Dining + living	14.35	17.60	- 3.25
Bedroom 1	11.72	12.00	- 0.28
Bedroom 2	8.39	8.0	+ 0.39
Bathroom	3.48	4.40	- 0.92
Storage/utility	5.20	2.0	+ 3.20
Outdoor amenity space	0	6.0	- 6.0
Circulation	6.80	6.50	+ 0.30
Partition walls (5%)	2.30	3.0	- 0.70

Table 4.2.7: Minimum floor areas per room

Conclusion 4.2.4

All three types of apartments have not the desired organization of the floor plan for older and ambulant disabled people. None of the apartments is in the idea of an 'open plan' arrangement. For most of the spaces separate rooms are created, for example the kitchen being separated from the living room. Only in the 1b1p-flat the bedroom and living room are directly related, although it is more convenient to combine living room and kitchen and therewith having a private bedroom. Besides, in none of the dwellings is the bathroom directly related to the bedroom.

4.2.5 SIZES OF THE HABITABLE ROOMS

Besides minimum space standards for the entire apartment, the London Housing Design Guide also specifies requirements per room, for example the minimum floor area of the room. These minima are calculated according to minimum furniture sizes and minimum circulation space needed. Putting the numbers of minimum required floor area per room next to the existing room sizes of the apartments of the THS, it is specified where is a lack of space as concluded in the previous paragraph (table 4.2.7).

1b1p-flat

The 1b1p-flat is according to the London Housing Design Guide 3.7 square meters too small. The lack of space in living and dining room is however 4.47 square meters, as there is more space for storage and circulation elsewhere in the dwelling. Next to that the bedroom is too small with 3.38 square meters.

1b2p-flat

The 1b2p-flat is according to the London Housing Design Guide 3.4 square meters too small. The lack of space in living and dining is 2.35 square meters. Combined with the kitchen, the living and dining should comply with an area of 23 square meters (Mayor of London, 2010). In that scenario the 1b2p-flat has even a lack of 2.6 square meters. The bedroom is large enough, but the bathroom is missing one square meter.

2b3p-flat

The 2b3p-flat is according to the London Housing Design Guide 1.6 square meters too small. The lack of space in living and dining is 3.25 square meters. Combined with the kitchen, the living and dining should comply with an area of 25 square meters (Mayor of London, 2010). In that scenario the 2b3p-flat has a lack of 3.5 square meters. The size of both bedrooms are more or less large enough, but the bathroom is missing about 1 square meter.

Conclusion 4.2.5

The lack of space is mainly in the living and dining room, in every type of accommodation. Furthermore, the 1b1p-flat has a bedroom which is too small and the other two apartments have a lack of space in the bathroom. None of the dwellings has an outdoor amenity space.

4.2.6 OTHER RECOMMENDATIONS FOR HABITABLE ROOMS

Besides minimum space standards, minimum widths of rooms and recommendations for floor plans layouts, according to desired circulation space in combination with minimum furniture sizes, exist as well. The London Housing Design Guide specifies minimum widths for all habitable rooms. The design guide 'Housing for Varying Needs' specifies demands to which habitable rooms need to comply, like furnishing and circulation space:

"Rooms must be of a size and shape that when furnished they allow space for circulation and access to each item of furniture and to windows, heating appliances, etc. To assess compliance with these criteria nominal furniture and associated activity spaces should be assumed. A 600mm wide 'path' must be allowed for the necessary circulation. For wheelchairs the 'path' must be 800 mm wide and there must be space for a wheelchair to turn through 180°, i.e. a circular area of 1500 mm diameter, in living rooms and bedrooms. The 'path' may overlap activity spaces."
(Pickles, 1998)

All habitable rooms are discussed below taking the criteria as a starting point.

Living and dining room

“Narrow living rooms are not usually useful, enjoyable or flexible. To allow sufficient space for circulation around furniture, and allow people to sit or play as a group, the guide recommends that the width of the principal sitting space is at least 3.2m for dwellings with four or more occupants, and at least 2.8m in dwellings for those with fewer than four occupants.” (LHDG, 2010)

As the analyzed apartments have less than four occupants, they all have to comply with the minimal width of 2.8 meters. The living room of the 1b1p-flat is 3300 x 3200 mm, the 1b2p-flat is 4400 x 3100 mm and the 2b3p-flat is 4100 x 3500 mm. As regards the minimum width, they thus comply with this demand.

Pickles (1998) prescribes for the living room notional furniture for easy sitting for the number of bed spaces plus two, a bookcase or storage fitment(s) with a total length of 2000 mm, a television and an occasional table. Including minimal dimensions of living room furniture it prescribes the activity space related to a specific furniture object. This activity space is in general a depth of 700 mm in front of the object.

The dining space asks for a dining table and chairs for the number of bed spaces plus occasional visitors (Pickles, 1998). For one or two persons a table of 800 x 800 mm (or circular 850 mm) is prescribed, for three persons a table of

1000 x 800 mm (or circular 950 mm). The dining space needs to be placed within the living room, as there is no option for putting a dining table in the kitchen.

Within the existing floor plans it is currently impossible to comply with these living room and dining space furniture and circulation space criteria.

Kitchen

There are several general kitchen layouts, like a rectangular shaped or an L-shaped kitchen unit. Pickles (1998) defines a clear space of at least 1200 mm in front of all fittings and appliances to allow easy access and circulation space. In case of wheelchair adaptation there should be a clear floor area of 1500 x 1500 mm. Related to the THS this rule makes it impossible to place the dining table and chairs in the kitchen area in all three apartments.

Bedroom(s)

Double and twin bedrooms should have a minimum width of 2.75m (Mayor of London, 2010). As this recommendation not suits single bedrooms, only the 1b2p- and the 2b3p- apartments are taken into account. The 1b2p-flat has a bedroom of 4500 x 3000 mm, the bedroom of the 2b3p-flat has a size of 3900 x 2900 mm. As “double bedrooms should be able to accommodate two single beds to allow for different types of households” (Pickles, 1998), two single beds were taken to analyze the apartments of the THS.

Pickles (1998) prescribes for bedrooms notional furniture, besides the bed itself, like hanging space (minimum 600 mm), drawer units of 1000 mm high and in total of 1200 mm in length and a bedside table. Furthermore is mentioned that for single bedrooms it can be helpful to get access to the bed from three sides, as *“people with any form of mobility problem have difficulty making a bed that is positioned close to a wall.”* This will also suit the possibility for help in case of nursing attention.

Moreover, the design guide mentions that frail or disabled people may be confined to bed over long periods. In such scenarios location of the bedroom in relation with the living areas and the window are important, which is not the case in the 1b1p-flat.

Bathroom

A bathroom should consist of a toilet, a wash basin and a shower or bath. Pickles (1998) prescribes certain rules for these elements:

- The toilet should be positioned with their centre line 450 mm from a wall capable of taking support rails;
- The wash basin should have a minimum dimension of 550 x 425 mm;
- The centre line of the wash basin should be at least 500 mm from any adjacent wall to allow space for arms while hair washing;
- The shower should accommodate either a stool or a drop-down for older people and it therefore preferable that it has approximate dimensions of 900 x 1500 mm.

Taking the activity space into account as well it can be concluded that the bathrooms are too small to fit all the furniture with their criteria.

Conclusion 4.2.6

All rooms of the apartments of the THS comply with the specified minimum widths of each room, set by the London Housing Design Guide. However, the rooms do not comply with the desired floor areas as the nominal needed furniture and circulation spaces do not fit within the existing layouts of the apartments.

4.2.7 ENTRANCE DOORS AND AREAS

All entrance doors should have a minimum clear opening width of at least 840 mm with a clear space of at least 300 mm beyond the handle edge, although specifically for older or disabled people the clear space should be 550 mm (Pickles, 1999).

The circulation space immediately inside the door should allow for a person in a wheelchair to turn through 180°. It must therefore have a minimum width of 1500 mm extending at least 1500 mm back from the face of the door (figure 3.2.8). Internal passages should generally be at least 1200 mm wide, but a width of 1000 mm is adequate for lengths of up to 900 mm. (Pickles, 1998 and 1999)

Based on the architects technical drawings of the THS, the entrance doors to the dwelling are including the framework 900 mm wide. The

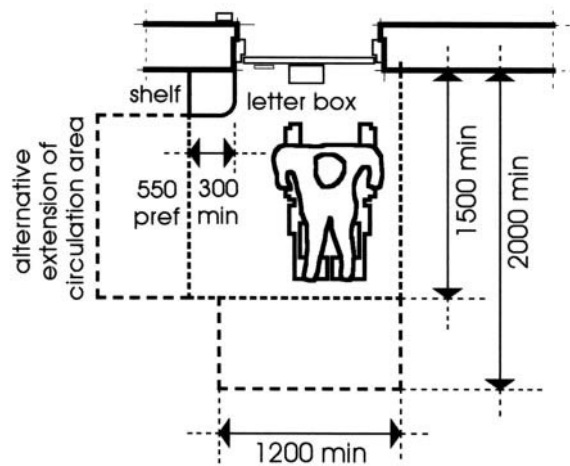


Figure 3.2.8: Entrance area for wheelchair dwelling (Pickles, 1998)

passage right behind the doors is as well 900 mm wide and therefore not suited for a wheelchair. As the passage is only 900 mm and the door itself should have a width of 840 mm, the offset of the handle edge could never be 550 mm or 300 mm.

Conclusion 4.2.7

The entrance doors are wide enough for a wheelchair to pass. However, the entrance area immediately behind the door is not big enough for a wheelchair to turn through 180°.

4.2.8 DAYLIGHT IN THE APARTMENTS

Quantity and quality

The amount of natural light entering a room is important for the quality of that room, while the quantity is time-dependent as daylight is dynamic: changing throughout the day and from season to season (Boubekri, 2008). Natural light will be reduced if the sky visible through a window is blocked by trees or other buildings, or increased if the window admits light from the sun. Despite

the variation in the position of the sun and the amount of cloud, daylight provides a reasonably even light source, with the dome of the sky providing diffuse light from every direction (Drake, 2007).

The quality of light is determined by the proportion of the room and its fenestration and not the actual dimensions. In other words: it is the depth of the space relative to the height of the window. A higher indoor illumination does not per definition mean a higher quality of the room, as glare is a form of discomfort caused by excessive contrast. In case of glare brightness levels in the field of view are too far apart for the eye to adapt easily. (Drake, 2007)

Daylight legislation

Building codes worldwide generally prescribe a minimum percentage of the floor area of the room, or exceptionally of the area of the wall containing the window, that the window must be. Such requirements, however, are not intended to supply daylight but rather to facilitate the venting of smoke or to provide exits in case of fire or other emergencies. Although several countries, for example Germany, The Netherlands, and Canada, have made recommendations for daylighting, none has made them mandatory. (Boubekri, 2008)

Scotland prescribes a set of daylight recommendations in the Building (Scotland) Regulations 2004. The Building Standards Technical Handbook (domestic version) gives guidance in achieving these standards in residential buildings. Main point in this document

is that ‘every building must be designed and constructed in such a way that natural lighting is provided to ensure that the health of the occupants is not threatened’ (Building Standards, 2013). More detailed it states that ‘every apartment should have a translucent glazed opening, or openings, of an aggregate glazed area equal to at least 1/15th of the floor area of the apartment and located in an external wall or roof or in a wall between the apartment and a conservatory’ (Building Standards, 2013).

The London Housing Design Guide (Major of London, 2010) recommends glazing to all habitable rooms not to be less than 20% of the internal floor area of the room. It appears none of the rooms live up to this percentage (chart 4.2.9). The Building Standards (2013) relates the minimum glazed area, which is equal to 7%, to the whole apartment instead of just a habitable room. Applying this rule all apartments just comply: 1b1p-flat 9.7%, 1b2p-flat 8.9% and the 2b3p-flat 10.5%. However, as mentioned before this rule is rather intended for example to facilitate venting of smoke instead of providing daylight.

Daylight calculation

The easiest way to anticipate the effects of daylight within a building while it is being designed is to construct models, since apart from changes in texture or material the scale does not alter the physical behavior of the light. And as daylight calculations can be very complex because of the factors influencing the results, most architects rely on an intuitive judgment regarding

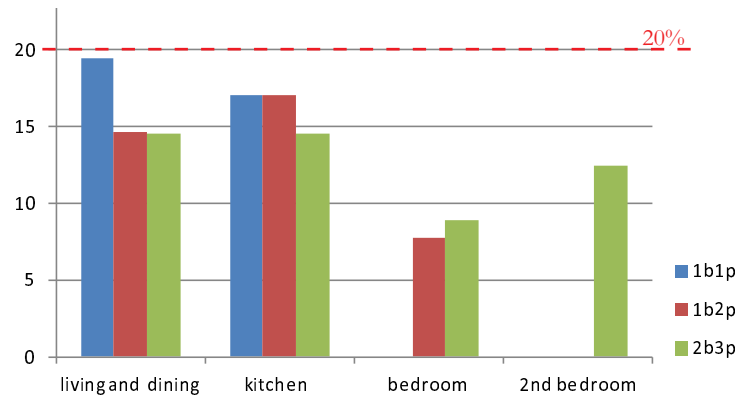


Chart 4.2.9: Percentage of window related to habitable room

the amount of windows needed in relation to the size and shape of any space. (Drake, 2007)

Throughout the 20th century, a range of manual techniques for estimating lighting levels were developed, using charts, tables, protractors and methods of projection to overcome this problem. Methods including the CIE Chart, the BRS Protractor (nowadays known as BRE), the Pleijel Diagram and the Waldram Diagram enable daylight levels to be calculated using only plan and section drawings. These calculating techniques are quite extensive and complex. (Drake, 2007)

Nowadays digital techniques are available to calculate daylight levels. This could be Daylight factor-based or illuminance-based. The Daylight Factor (DF) is defined as the percentage of horizontal indoor illuminance in relation to the outdoor illuminance on the ground under an overcast sky condition, as defined by the Commission Internationale de l’Eclairage (CIE). DF-based legislation does not target a specific daylight illuminance level in a room because of constantly changing outdoor conditions. Illuminance-based requirements are usually recommendations for a minimum illuminance level (in lux) necessary to perform specific visual tasks. (Boubekri, 2008)

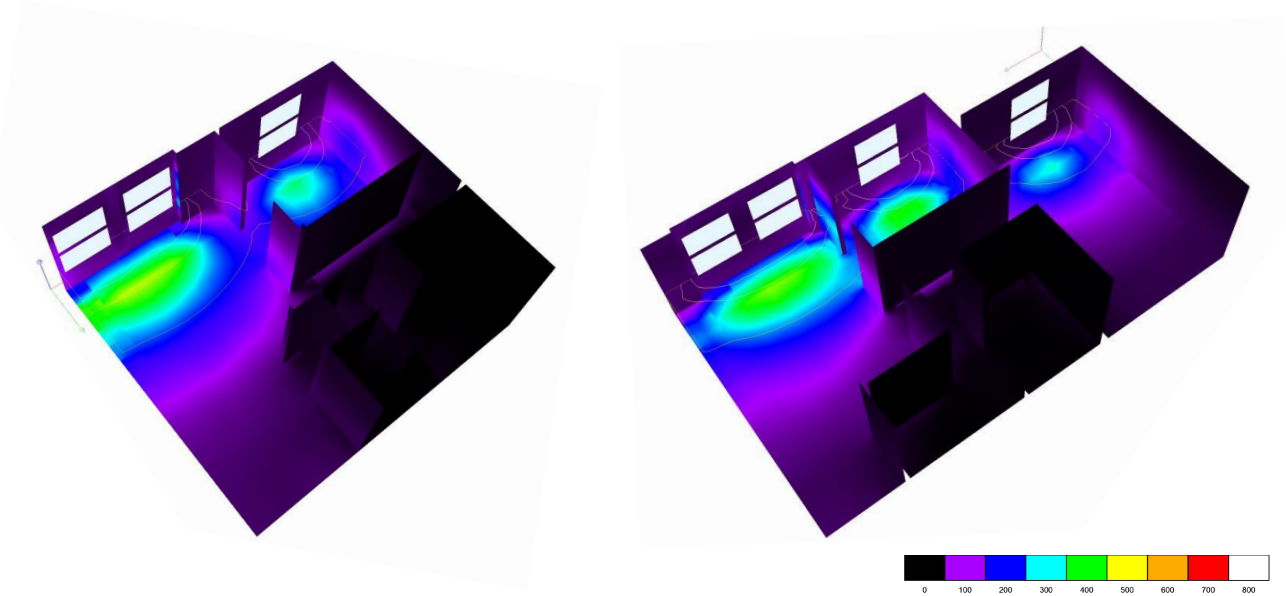


Figure 4.2.10: DIALux False Color Rendering of the 1b1p-flat (left) and the 1b2p-flat (right)

DIALux

DIALux is a free ware program using the algorithms of radiosity to make calculations. The program is relatively easy to use. By making a 3D-model of the apartment with the several rooms and windows and by setting a uniformly overcast sky at the right position on the globe (in this case Edinburgh), specific calculations can be made both in terms of DF and illuminance. Together with calculating the daylight in the existing situation in the 1b1p-flat and 1b2p-flat a false color rendering was made showing the illuminance of the rooms (figure 4.2.10).

Both types of apartments appear to receive a maximum of 400 lux just one meter away from the window. Since people can read comfortably at an illuminance level of around 300-400 lux (Drake, 2007), and keeping in mind that the visibility of people becoming older decrease, it can be concluded that the dwellings are not well lit by natural daylight.

Higher windows are necessary to let daylight come in deeper into the apartment, as it is the depth of the space relative to the height of the window. Larger openings by making them wider will cause glare (Drake, 2007).

Conclusion 4.2.8

The glazed area of the window openings is too small to sufficiently light the 1b1p and the 1b2p-flat naturally. Although the minimum set by the Scottish Building Standards of 7% is made, this rule is not intended for providing habitable rooms with daylight. The recommendation of the London Housing Design Guide of 20% does intend to provide a healthy living condition. However, none of the rooms exceeds this value. A calculation using DIALux made clear as well daylight is not able to enter the apartment sufficiently deep enough. Higher windows are desired.



- entrance hall + reception
- hair room
- laundry
- guest room
- quiet common room
- common room + kitchen
- communal toilets
- garden + parking

Figure 4.3.1: Floor plans of the building (scale 1:1000)

4.3 Communal facilities

within the building plot

There are several communal facilities on the plot, both functional and recreational (figure 4.3.1). This paragraph discusses the amount, quality and location of those communal facilities. Where possible, photographs were taken during a tour through the building.

4.3.1 INTERNAL COMMUNAL FACILITIES

Common rooms

There are two common rooms within the building, both of the same size: 29.5 square meters. The one on the first floor is known as the quiet room and the one on the second floor as the common room. Both have a height of 2200 millimeter, as there is a suspended ceiling for providing lights in the ceiling. Especially the quiet room is very dark and needs to be lit continuously, as there is only one window (picture 4.3.2, next page).

Both common rooms are in the tower of the former Stockbridge Free Church. From an architectural point of view it is a pity there is no sense of historical value inside.

Kitchen

Next to and directly connected to the common room on the second floor is a kitchen facility of 6.8 square meters, with a water supply and sink, a dish washer and a stove. The kitchen is probably used by the tenants while making use of the common room (picture 4.3.3, next page).

Laundry room

On ground floor is a laundry room where all residents communally make use of, except for the ones who have extra reasons to get permission for a washing machine in their own flat (Cairns, 2013). Directly related to the garden area, it should be possible to provide facilities for clothes drying outside as amended in the guideline Housing for Varying Needs, although it is unknown whether the full extent of washing line is provided.

As the laundry room is only accessible from outside, residents will always have to go outside to enter the facility. Although it could cause health problems in cold temperatures, the coordinator never experienced a problem from the tenants going outside. According to her the laundry is done “most of the time by a carer or home helper” (Cairns, 2013).

The distance to the laundry service depends on the location of the apartment in the complex. Someone living on the third floor in the very north of the building has two options. The more credible option, as the resident is carrying laundry, is to first go down using the elevator, then take the back entrance to go outside and enter the laundry room. The walking distance to be traveled is 44 meters. As the resident might not want to pass the main entrance, where other residents see him/her doing the laundry, there is a second option to use the staircase in the south of the complex. In that scenario the resident will have to travel horizontally 53 meters and walk down using the steps. Carrying the laundry downwards is however less convenient.



Picture 4.3.2: The quiet room

Hair room

On the first floor, located next to the quiet common room, is a hair room (picture 4.3.4). The room is 6.8 square meters and has one window. According to Cairns (2013) the room is used quite frequently, in any case every Tuesday when the tenants can get a hair treatment.

Guest rooms

The two guest rooms in the complex are regularly occupied according to Jenny Voisy, development manager at the Trust Housing Association, and just to be reserved by inhabitants. Unfortunately, it was not possible to stay over for one night, during my revisit to the complex.

Both guest rooms are located next to the elevator, quite in the centre of the building. Although they are just 10.7 square meters and only have one window in the corner, the facility is of beneficial value for the tenants and for temporary use only.

External toilets

Every level contains a separate toilet. Where on the first and second floor these are located next to the guest rooms, on the third floor the area for communal bath room is larger.

Conclusion 4.3.1

The present internal facilities are not of outstanding quality in terms of size, daylight and accessibility. The laundry room would be more convenient when accessible from within the building, while still connected to the garden area for outside drying of clothes. The two common rooms would be immensely improved when larger and, especially the quiet room, when receiving more natural light. The hair room, although used extensively according to the coordinator (Cairns, 2013), is like the kitchen pretty small and dark.



4.3.3



4.3.4



4.3.5



4.3.6

Pictures 4.3.3 - 4.3.6: The kitchen, the hair room, the communal garden and the parking area

4.3.2 EXTERNAL COMMUNAL FACILITIES

The backyard is 295 square meters and used for a communal garden, parking and the placement of bins; the latter one is probably not the most esthetic solution as they are in sight, but they serve their goal.

Communal garden

The garden (picture 4.3.5) is orientated in south direction and totally surrounded by the volume of the building and thus pretty comfortable in terms of wind and, whenever bright in the sky, sun. Except for the opening at ground floor which serves as car port, the garden is totally enclosed and accessible only to residents. This satisfies with the recommendation in the guideline Housing for Varying Needs.

According to Pickles (1998) “many people, while appreciating an external area, will not be able to cope with the upkeep of a lawn. Therefore the communal garden is found to be of sufficient size to be maintained by the tenants as they, according to the temporary replacement of the coordinator, form a little community together and undertake such activities.

Parking

According to Pickles “convenient parking is advantageous to everyone, but can be crucial to anyone with a mobility problem. For [the tenants] parking therefore needs to be a reasonable distance from their entrance door and also needs to be always available for residents.”

The parking of the THS is accessible from Leslie Place, where a car port is created to go underneath the building (picture 4.3.6). Although the parking is within reasonable distance, it just provides place for around 4 to 5 cars and thus clearly not offers a place for every tenant owning a car. Besides, the parking places are not structured at all: there are no fixed contours and the parking thus not certainly provides enough space to get into or out of the car.

Conclusion 4.3.2

The parking is not very convenient in amount of parking places and structure. However, some tenants are in favor of having a possibility to park their car close by. The communal garden is a positive element for social activity and connection between the tenants.

Figure 4.4.1: Entrance areas (scale 1:200)

1. Main entrance with steps in front
2. Back entrance into corridor
3. Back entrance to staircase



4.4 Communal access areas and circulation spaces

4.4.1 ACCESS AREAS

The THS is accessible through three entrances: a main entrance and two back entrances. Next to that there are as well two fire exits, both at the end of the main corridor. In compliance with barrier free criteria, access to the building “*must be step-free and in all other respects allow for people with impaired mobility or impaired sight or hearing*” (Pickles, 1999).



Picture 4.4.2: Back entrance of the building from inside

Main entrance

The main entrance is in the tower of the church. The hall of the main entrance has a floor area of 29.5 square meters and a height of 2200 mm. Total width of the entrance is 2100 mm and consists of two doors with a total width of 1800 mm. With three steps in front it is however not barrier free. Residents using a walking stick, a walking frame or a wheelchair therefore rather choose to use the back entrance.

Back entrances

Two back entrances are accessible through the car port which connects the street with the parking place and the garden. Both have a width of 900 mm. As one of the back entrances is connected to the corridor on ground floor (picture 4.4.2) and the other to a staircase, these entrances are less welcoming than the main entrance with entrance hall.

Conclusion 4.4.1

The main entrance is because of three steps not barrier free and therefore not very convenient for people with impaired mobility. Older people using a walking stick or frame or a wheelchair will therefore have to use the less welcoming back entrance.

4.4.2 TRANSITION SPACES

Transition spaces are in this case study defined as areas of vertical movement. Vertical movement in the THS is provided by one elevator and three staircases. The transition spaces also have to function in case of an emergency, when the elevator is out of order. 'The maximum distance for an emergency exit in residential care buildings with more than one possible direction is 18 meters' (Technical Standards, 1999).

Staircases

The three staircases comply with the emergency safety rule as the maximum distance to the nearest staircase from an apartment is 10.5 meters. Access stairs to upper floor flats should be designed to be easy and safe to use by people with impaired mobility or visual impairment. Steps should have a rise no greater than 170mm and a going no less than 280mm (Pickles, 1999). All three staircases are designed with identical measurements, containing 16 steps to cover a height of 2600 mm: a rise of 162.5 mm per step. The going is assumed from the drawing to be 250 mm.

Elevator

Although there are two elevators drawn in the original floor plan from 1979, there is only one elevator in the complex. The maximum distance from an apartment to the elevator is in both corridors 24 meters. The elevator is about 8 meters away from the main entrance door and has to serve 47 occupants (Cairns, 2013), 57

when the complex is fully occupied. Although there are no regulations found according to the minimum amount of elevators which have to be present for the amount of occupants, it could be imagined however that two elevators will suit the complex and the tenants' needs.

Conclusion 4.4.2

The three staircases are well located to cover emergencies. However, from the floor plans it seems that the going is a little too short. The only elevator in the building could be complemented with a second one.

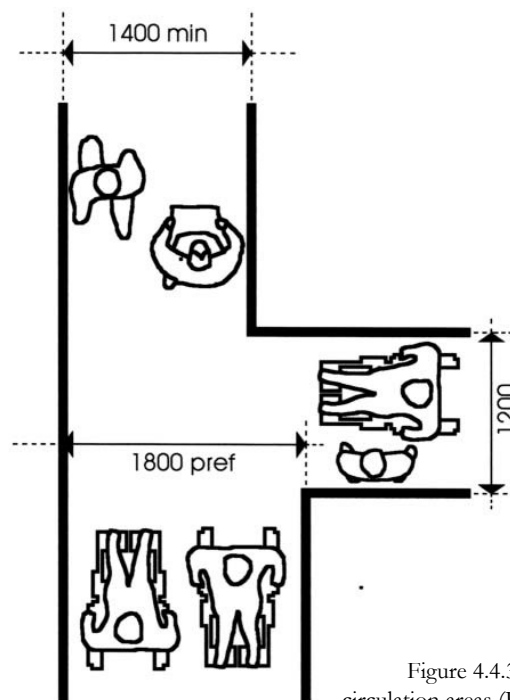


Figure 4.4.3: Communal circulation areas (Pickles, 1998)

4.4.3 HORIZONTAL CIRCULATION SPACES

Circulation areas should generally be at least 1200 mm wide. However, for elderly people and those who may possibly use a wheelchair, circulation spaces should generally be 1800 mm wide (figure 4.4.3), though a reduction to 1200 mm for short lengths is acceptable. (Pickles, 1999) The two corridors of the THS are located in the centre of the building and have a width of 1500 mm. One has a length of 20 meters, the other is 28.5 meters.

The corridors receive a minimum of natural light only from both ends of the corridor. The corridors are mainly lit by artificial light. No natural light is coming through the entrance doors of the apartments, which would both lit the corridor and clarify the entrance area of each apartment.

Conclusion 4.4.3

The corridors of the THS are too small for the use of a wheelchair. A broadening to a width of 1800 mm is therefore desired, at least on a few points in this passage. Whenever the corridor could be lit by more natural light next to the light coming from the end of the corridor, for example entering from the apartment accesses, it would improve the quality of the corridor. The rhythm of light would show where the entrances are located and break the length of the corridor in several parts.

5 Conclusions

5.0 Conclusions

The analysis of the Trust Housing Stockbridge was conducted first of all to gain insight on the quality of all facets of importance for elderly people living in the sheltered housing complex. Secondly, it was conducted to check the level of integration with the surrounding architecture, which is partly of Outstanding Universal Value as the WHS is nearby the property, and partly of regional importance, as being part of the New Town Conservation Area.

Lying in the heart of Stockbridge, directly connected to the main commercial axis, the building used to have a different function and appearance as a church. Nowadays, as a residential complex, it forms an interruption in the line of commercial activities as it contains no commercial facilities in ground floor. The introvert appearance of the building is partly caused by this lack of commercial activity in the ground floor. The lack of an 'open' ground floor and thus the introvert character and the position of this elevation in north direction, seem to make the pedestrians cross the road and continue their way on the other side.

This main axis contains several (daily) facilities of which the tenants could make use of, like a supermarket and a chemist. More facilities in the neighborhood are present, besides this one shopping street are, which make it very convenient for the elderly to live in the THS: within close distance there are public transport options, several health services and recreational facilities. A sports facility is however not nearby; especially one were older people could do some exercise is missing.

By having a vertical alignment in the façade, the complex does not very well integrate with the surrounding architecture. Although this alignment is in line with the incorporated tower, the brick facing volume seems to neglect the historical and esthetical value of this landmark. Since the collective appearance is of major importance in the New Town, the building should better fit into the surround architecture. A horizontal alignment in the volume for example would be better in line, while both giving more expression to the tower as the tower stands out even more by this contrast.

The three main types of apartments (1b1p-flat, 1b2p-flat, and 2b3p-flat) are too small and too low, as they do not comply with the contemporary thoughts about space standards. The lack of floor space appears to be related mainly to the living and dining rooms of the apartments, as all three are over two till almost five square meters too small. Furthermore the 1b1p-flat has a very small bedsit, the bathrooms of the 1b2p-flat and the 2b3p-flat miss one square meter and none of the apartments has an outdoor amenity space. Nonetheless, all rooms comply with the minimum width set by the London Housing Design Guide (Mayor of London, 2010), except for the entrance area which should have a clear circulation space of 1500 mm. The lack in floor-to-ceiling height in the apartments is mainly a problem in the corridors and adjacent common rooms where the height is about 2200 mm, as a suspended ceiling is needed for mechanical ventilation. The height within the apartments is about 2350 mm. Taking into account older people are smaller than the average person (Pickles, 1998), is the height of

the apartments therefore found acceptable.

The organization of the floor plans and the quantity of daylight entering the apartments are not as desired. Referring to the organization, none of the apartments is designed in the idea of an 'open plan' arrangement. In all cases the kitchen is separated from the living room and the bedroom is not directly connected with the bathroom. In order to let more daylight penetrate the windows, higher openings are desired as it is the depth of the space relative to the height of the window to determine the quality of the light (Drake, 2007).

The internal facilities are not of outstanding quality in terms of size, daylight and accessibility. For example the hair room is very small, the quiet room is only lit by one small window (and thus needs to be lit by artificial light all the time) and the laundry room is only accessible through outdoors. A reorganization and upgrade of the internal facilities is therefore desired. The external parking space is not very convenient as it has no structure and only provides a parking place for a limited amount of cars. However, as the communal garden is found big enough in order with the upkeep by the tenants, the parking space is in favor for the ones with impaired mobility.

The building is accessed through the main entrance in the tower or through one of the two back entrances. As the main entrance is not step free, tenants with impaired mobility will have to use the less welcoming back entrance. One of the back entrances is directly connected to a corridor, from which the apartments in ground floor can be reached. As all corridors in the building

have a width of 1500 mm, they are too small for two wheelchairs to pass each other. The other back entrance is connected to one of the three staircases in the building. The staircases are well located in cases of emergency, but not very welcoming to use. Besides, the going of the steps of the staircases are just a bit too short for convenient use by the tenants. Another possibility to go up and down in the building is by using the elevator.

The main conclusions drawn are that the building does not comply with the current building standards and the elderly people's needs. Besides, the building is not very well integrated in the urban structure and the surrounding architecture.

6 Design

Summary of design criteria:

1. Extension of floor areas of all apartments;
2. Reorganization of floor plans of all apartments;
3. Supplying sufficient amount of daylight in the apartments;
4. Reorganization and upgrade of the communal facilities;
5. Making the building barrier free;
6. Tackle the interruption on the main axis of commercial facilities;
7. Better integrate the building with the surrounding architecture.

6.0 Design

6.1 DESIGN CRITERIA

In order to improve the building to the current building standards, the older people's needs and the integration into the urban context and surrounding architecture as concluded from the analysis, a strategy is developed which combines all elements. Prior to explaining this strategy, a clear summary of the seven formulated design criteria is necessary.

Criteria 1, 2 and 3. First of all the floor plans need to be improved. Next to an extension in size of the floor area they need a reorganization of the floor plan in order to make the apartments convenient for the elderly to live their lives, even when that comes together with a wheelchair. The floor plan will be organized based on the idea of an 'open plan' arrangement. Kitchen, living room and dining space will be combined and function as the main space of the apartment. The bedroom and the entrance area will be directly related to this main space, with the bathroom right between the entrance area and the bathroom, accessible from both ways. In order to provide more daylight in the apartments, larger windows need to be installed. An outdoor amenity space will be realized in front of the bedroom, accessible from both the bedroom and the main space of the apartment. The outdoor amenity space, i.e. the balcony, sets back the (private) bedroom from the public domain.

Criterion 4. A reorganization and upgrade of the communal facilities is desired as well. Spaces which are too small and/or too dark will be extended, repositioned or upgraded, like the hair room and the quiet room. When possible,

more communal areas will be created where tenants could enjoy a space outside of their own property. The laundry room will be repositioned so it is accessible from within the building, while still connected with the garden to contain the possibility of outside drying of clothes.

Criterion 5. The building will be made barrier free for people with impaired mobility. The main entrance will be step free and the corridors will be partly broadened. The staircases will be redesigned to comply with a going of 280 mm and to make them more attractive to use. For the convenience, the single elevator will be complemented with a second one next to it.

Criterion 6. To tackle the existing interruption in the main axis, a better connection will be made between the building and the public domain. The interruption will be weakened by redesigning the plinth of the building which is in direct connection with the main axis. Functions like a sport facility, targeting older people, in the ground floor and a distinction in the design between the plinth and the core of the building will make the building less introvert.

Criterion 7. Whenever it appears the best solution to redesign the whole façade, it should be done in such a way it integrates the whole building's appearance better in the surrounding architecture and makes the tower stand out even more. This could for example be achieved by the implementation of a new rhythm of window openings and a horizontal alignment in the façade, constructed with another material instead of facing brick and the addition of balconies and accompanying railings.

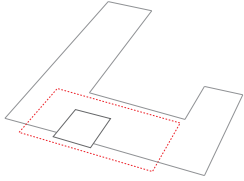
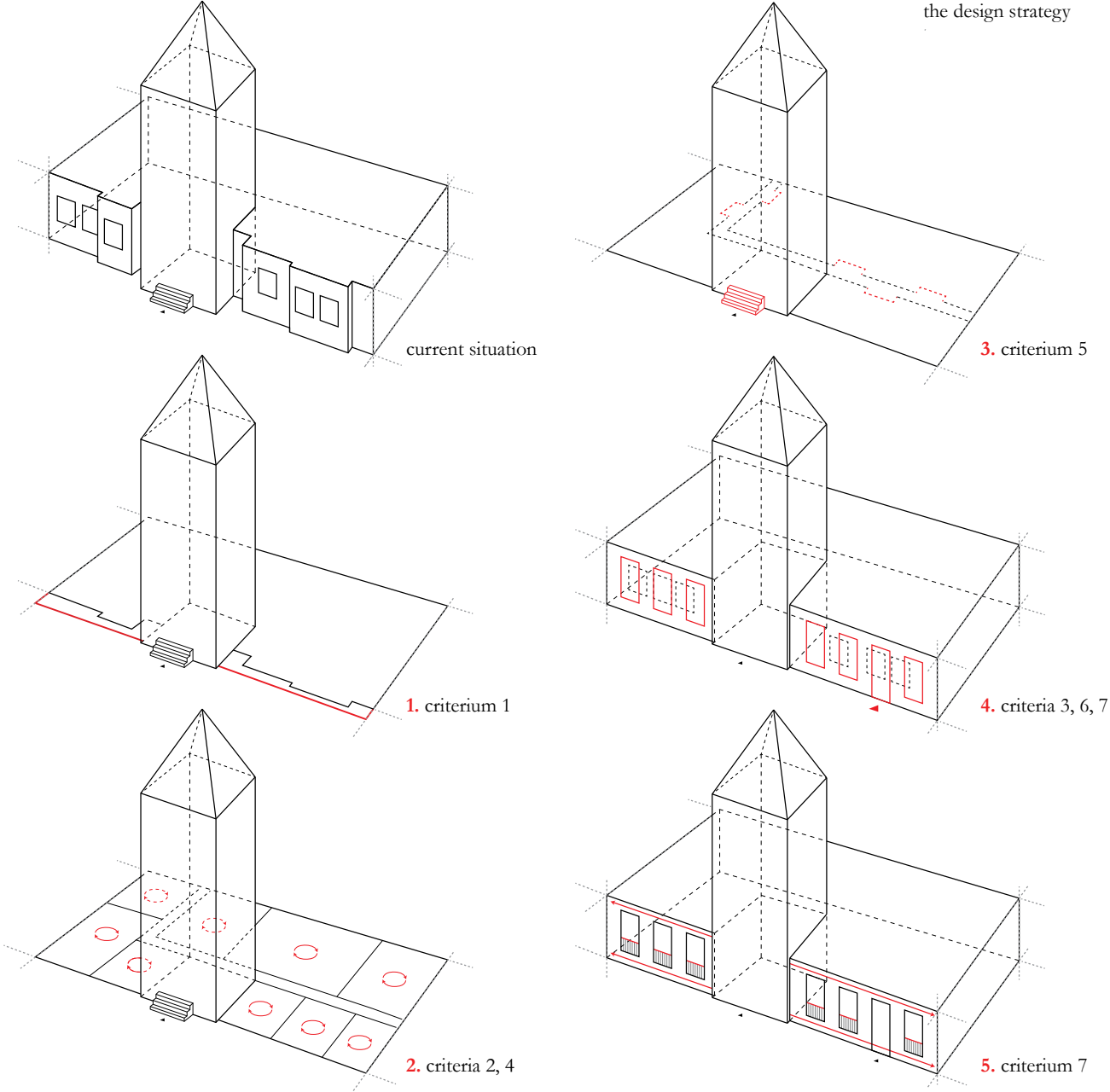


Figure 6.1: Five steps of the design strategy



6.2 DESIGN STRATEGY

A design strategy is developed to combine all criteria into one design proposal. This strategy consists of five steps (figure 6.1) and does not only incorporate every single criterium, it also strengthens each other as it all fits together. The design strategy tries not to affect the structural design of the existing building too much, as the structure of the building is important for the stability. A structural analysis revealed the façade carries its own weight. An extension in outward direction, by removing the existing façade, makes it possible to implement all design criteria.

The outward extension first of all provides sufficient floor area and the possibility to reorganize the floor plans. In every apartment kitchen, living room and dining space will be combined into one 'living area'. The bedroom and bathroom will be placed next to each other and interrelated, where the bedroom is directly connected to the living area and the bathroom to the access area. An outdoor amenity space is designed in front of the bedroom, where it sets back this more private sleeping space from the façade (and thus from the public domain). The balcony therefore provides not only a possibility to sit outside within your own apartment; it is as well a threshold.

As the extension asks for a new gable design, larger openings can be created to allow more daylight to penetrate the windows and supply the apartments with a sufficient amount of daylight.

The new gable, which will be aligned both in

depth and height to strengthen the contour of the block, finds a connection with the surrounding architecture, while making a contrast with the tower. By implementing a new rhythm of openings (in line with the desired amount of daylight), elements of horizontal alignment, a distinction between plinth and core and appropriate materials to construct the façade, the redevelopment of the THS will better integrate with other buildings of historical value in the area.

Extra space coming along with the aligned extension of the façade makes it possible to upgrade and reorganize the communal facilities within the building. Besides more space for existing facilities, new spaces in the corners of the building are created as well. It is therefore possible to move the quiet room to another spot in the building, away from the elevator and the relatively attended corridor in the centre of the building, to a more quiet, spacious and bright place. The entrance hall will be upgraded by removing the floor of the current quiet room in the tower, to create double height and a visual relation with a part of the corridor on the first floor.

The difference between plinth and core in the new façade communicates the presence of another function in ground floor. The two apartments connected to the main axis of commercial activity will be replaced by a sports facility and a barber, both targeting older people. The barber will be in combination with the hair room, which will move from the second floor. Both new functions are accessible via the corridor inside the building and from outside the building.

Furthermore, the whole building will be made barrier free. The reorganization of the floor plans of the apartments will enable wheelchairs to make use of the whole dwelling. The corridors of the building are partly broadened by setting back the entrances of the apartments, in order to enable wheelchairs to pass each other more easily. This operation also clarifies the location of the entrances of the apartments for tenants with impaired sight. For the convenience of immobility the main entrance will be redesigned without steps.

6.3 DESIGN PROPOSAL

The design strategy revealed some major design decisions, like an outward extension of the dwellings and aligning the façade, how to reorganize the floor plans of the dwellings into an ‘open’ plan arrangement and the design concept of the new façade with the enlargement of openings in the façade and the difference between plinth and core. The design proposal shows the exact implementation of the design strategy, both in visual and textual explanation.

6.3.1 *New floor plans of the dwellings*

An extension of 900 mm of the current living room in outward direction and by aligning the whole new façade to this line (figures 6.2 - 6.4), sufficient floor area arises which corresponds to the current thought about space standards in the UK; both in terms of Gross Internal Area (GIA) and in space standards per room. The 1b1p-flat increases with 6.8 square meters to a GIA of 39.1 square meters, the 1b2p-flat increases with 7.7 square meters to a GIA of 54.3 square meters

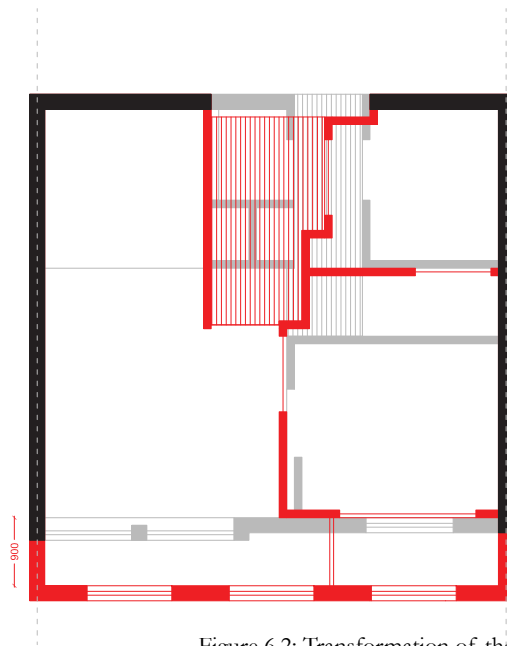


Figure 6.2: Transformation of the 1b1p-flat floor plan (scale 1:100)

and the 2b3p-flat increases with 6.4 square meters to a GIA of 65.7 square meters (table 6.5, next page).

The new organizations of the dwellings are designed in the idea of an ‘open’ plan arrangement. The kitchen, living room and dining spaces are combined and serve as the ‘living area’. This living area is connected with the entrance hall, the bedroom and an outdoor amenity space, i.e. a balcony. The bathroom is accessible from both the entrance hall and the bedroom. The balcony is positioned in front of the bedroom; therewith it forms an extra transition between the private space of the bedroom and the public domain outside (figures 6.6 - 6.8, next pages).

- current situation
- retained parts
- extended/new parts

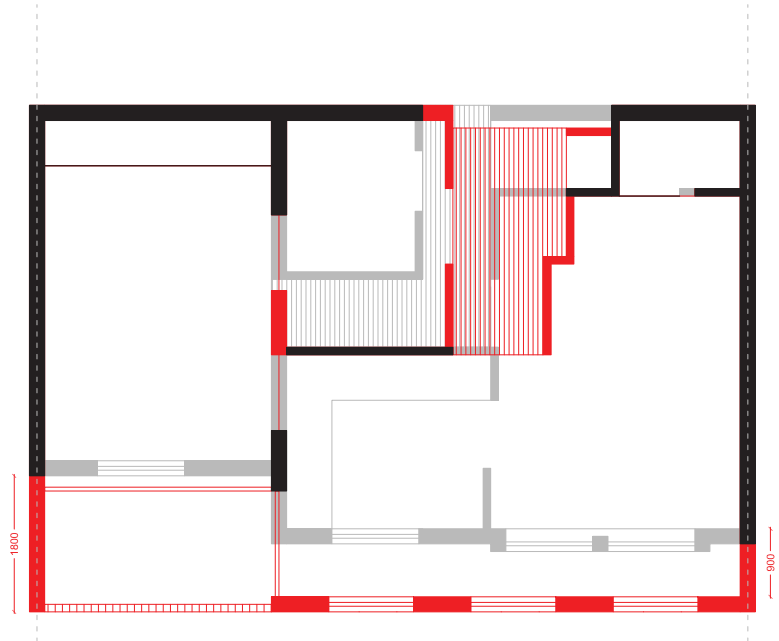


Figure 6.3: Transformation of the 1b2p-flat floor plan (scale 1:100)

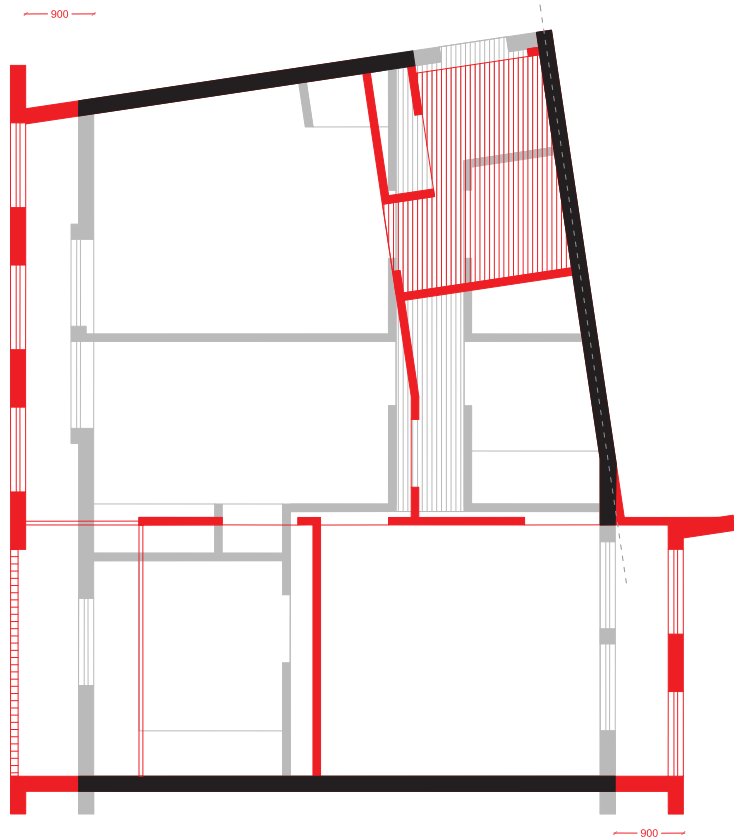
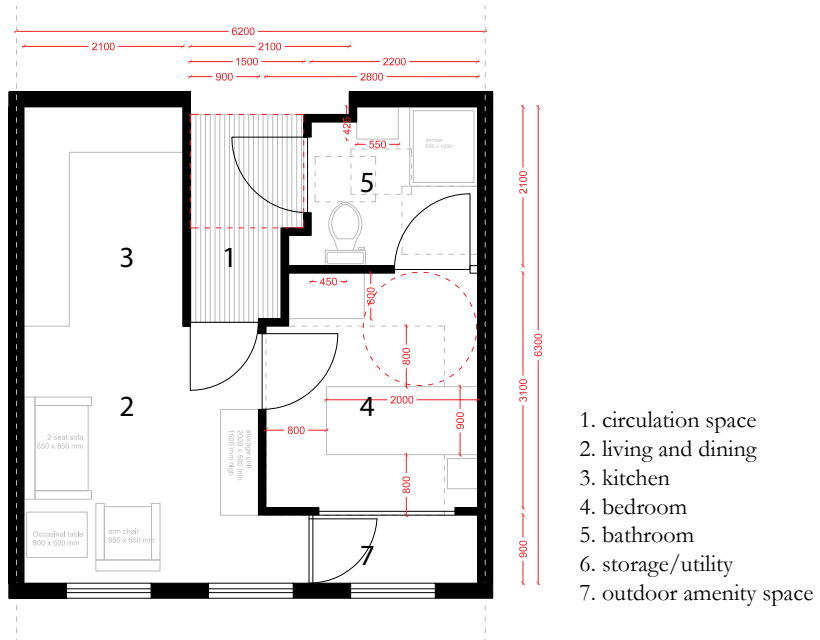


Figure 6.4: Transformation of the 2b3p-flat floor plan (scale 1:100)



	THS (sq.m.)	LHDG (sq.m.)	Proposal (sq.m.)
1b1p			
Gross Internal area	32,3	37,5	39,1
1 circulation / hall	2,88	1,5	3,7
2 living + dining	10,73	15,2	16,9
3 kitchen	6,13	6,2	-
4 bedroom	4,62	8	8,8
5 bathroom	3,4	3,6	4,5
6 storage/utility	3,4	1	0
7 outdoor amenity space	0	4	2,6
2b2p			
Gross Internal area	46,6	50,3	54,3
1 circulation / hall	4,5	6,5	4,1
2 living + dining	14,25	16,6	27,6
3 kitchen	6,13	6,8	-
4 bedroom	13,5	12	14,4
5 bathroom	3,4	4,4	6,3
6 storage/utility	2,88	1,5	1,8
7 outdoor amenity space	0	5	4,5
2b3p			
Gross Internal area	59,3	61	65,7
1 circulation / hall	6,8	6,5	6,3
2 living + dining	14,35	17,6	26,3
3 kitchen	7,13	7,5	-
4 bedroom 1	11,72	12	7,5
4 bedroom 2	8,39	8	15,3
5 bathroom	3,48	4,4	7
6 storage/utility	5,2	2	1
7 outdoor amenity space	0	6	5

Table 6.5: New floor areas per room and Gross Internal Area



1. circulation space
2. living and dining
3. kitchen
4. bedroom
5. bathroom
6. storage/utility
7. outdoor amenity space

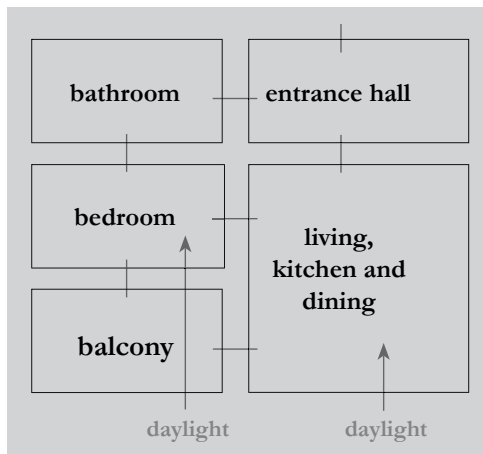


Figure 6.6: New floor plan (scale 1:100) and organization scheme of the 1b1p-flat

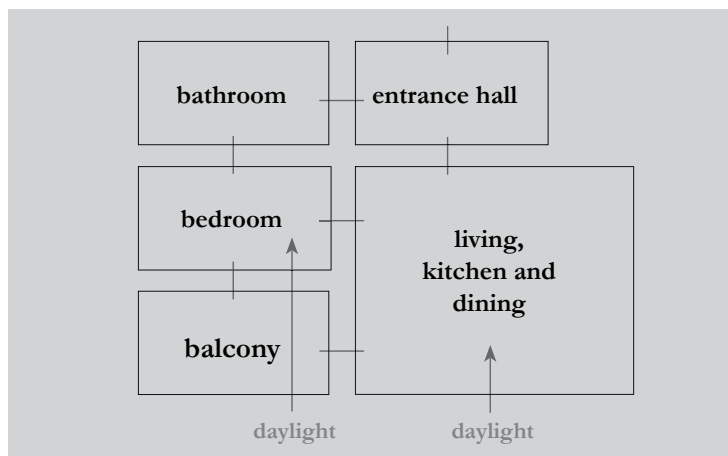
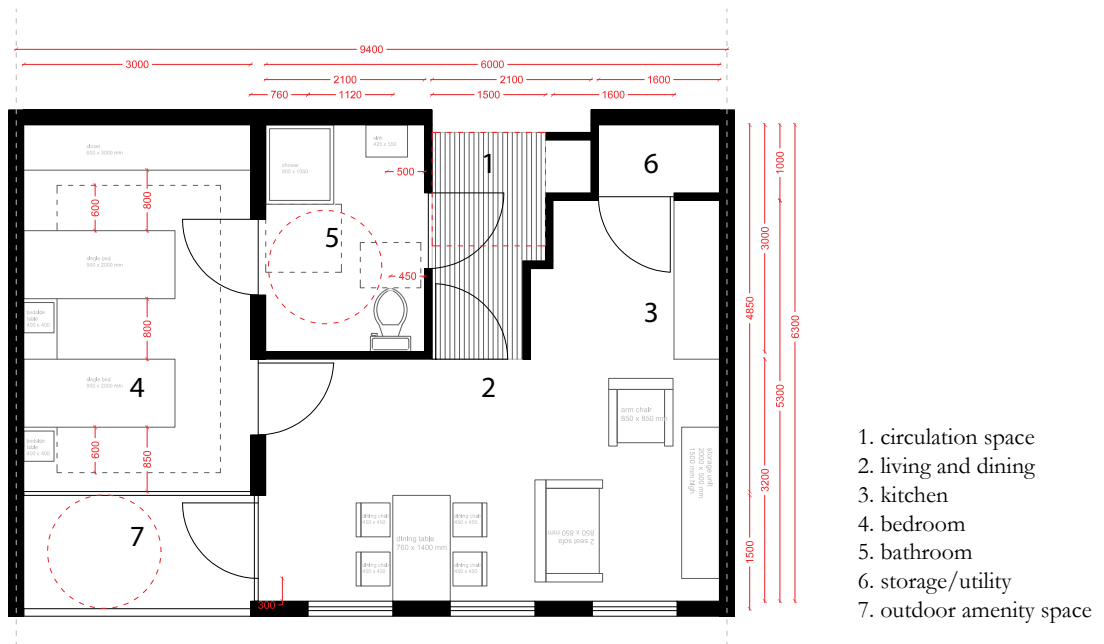


Figure 6.7: New floor plan (scale 1:100) and organization scheme of the 1b2p-flat

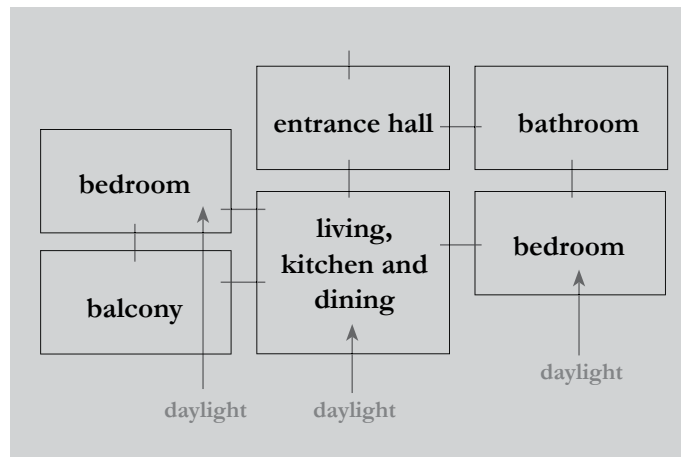
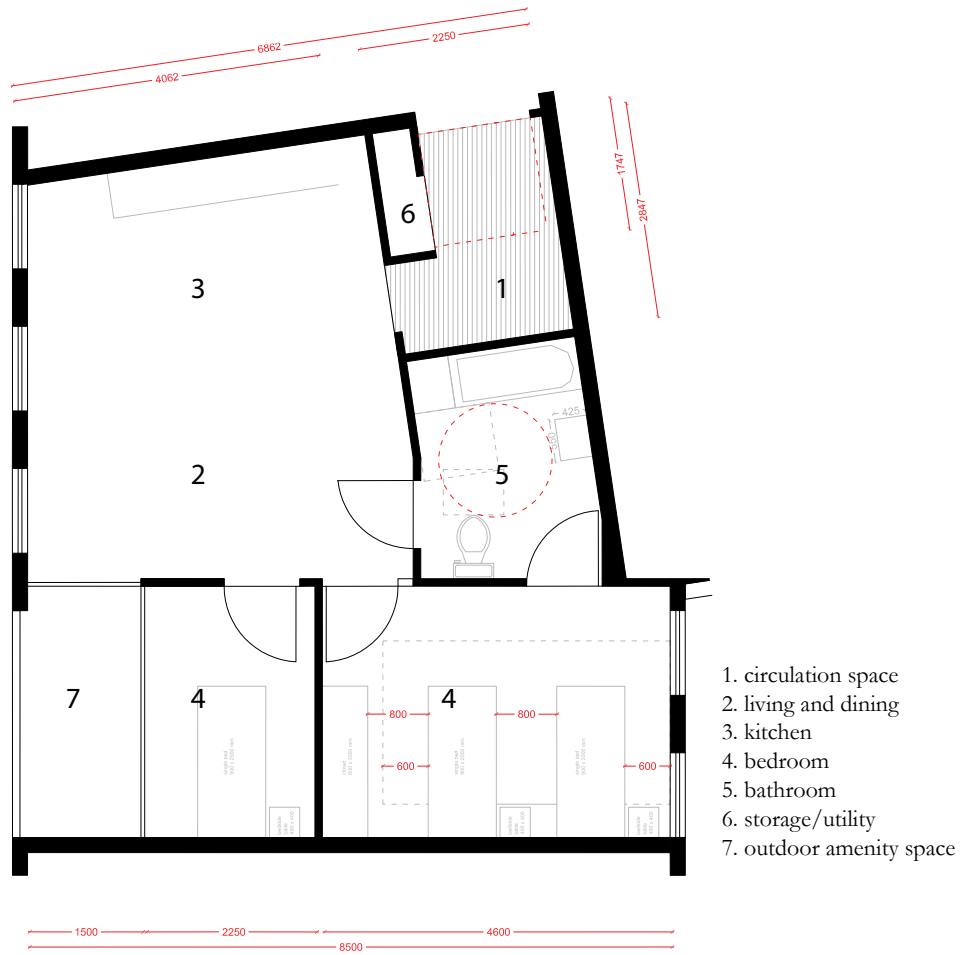


Figure 6.8: New floor plan (scale 1:100) and organization scheme of the 2b3p-flat



Figure 6.9: Overview of combined apartments in floor plan of the first floor (scale 1:200)

The entrances of the apartments are set back 300 mm from the corridor over a length of 2100 mm, in order to enable wheelchairs to pass each other in the corridor. This set back partially broadens the corridor from 1500 to 1800 mm. Besides, it creates a threshold between the corridor and the dwelling (figure 6.9).

The entrance areas behind the door comply with the minimum clear floor area of 1500 x 1500 mm and furthermore a free width of 1200 mm in the continuous entrance hall. In the whole apartment a circulation path of 800 mm is established as defined by Pickles (1998), taking nominal furniture into account.

In order to enable sufficient daylight to enter the apartments higher windows are desired. A calculation in DIALux revealed that windows with a height of 1900 mm comply, based on the width of the original windows. The exact measurements of the openings, the type of windows and the rhythm are discussed in paragraph 6.3.3.

In the current situation there are twenty-six 1b1p-flats, nine 1b2p-flats, three 2b3p-flats and one two-story apartment (the former warden's house); a total of 39 apartments. In the proposed situation the two-storey warden's house is split in two separate 1b2p-flats, which means there are twenty 1b1p-flats, thirteen 1b2p-flats and four 2b3p-flats; a total of 37 apartments.

6.3.2 New organization of communal facilities

The extra space coming along with the extension makes it possible to reorganize and upgrade

the communal facilities. Figure 6.10 (next page) shows the changes in size and location of the communal facilities, by putting the floor plans of the old and proposed situation side by side.

Ground floor

On ground floor three major changes are proposed. First of all the entrance hall and reception are upgraded. Double height is created by removing one floor in the tower, the entrance hall has a more spacious and bright character. The former window opening in the wall of the tower served for a visual connection with the reception. This opening is enlarged into a door, moving the reception around the corner. From the entrance hall are now two options: going straight ahead to the corridor of the ground floor and the elevator, or going left to the reception and the staircase. The staircase is visually more in sight and hopefully more attractive to use. The steps have a rise of 162.5 mm and a going of 280 mm, as defined by Pickles (1998).

Secondly, the laundry room is repositioned behind the elevators and therewith increased in size. The laundry room is now accessible from within the building. At the current location of the laundry room a 1b1p-flat is realized.

Last but not least, the two apartments connected to the main axis are replaced by, although targeting specifically older people, two public functions. The space in the most northern corner is the entrance and reception of a sports facility, accessible from both inside and outside the building. The sports facility has a size of 83.5 square meters. In between the sports facility and the entrance of the complex is a barber of 37.7

- quiet common room
- common room + kitchen
- unspecified communal space
- communal toilets
- garden + parking
- entrance hall + reception
- sports facility
- barber
- hair room
- laundry
- guest room

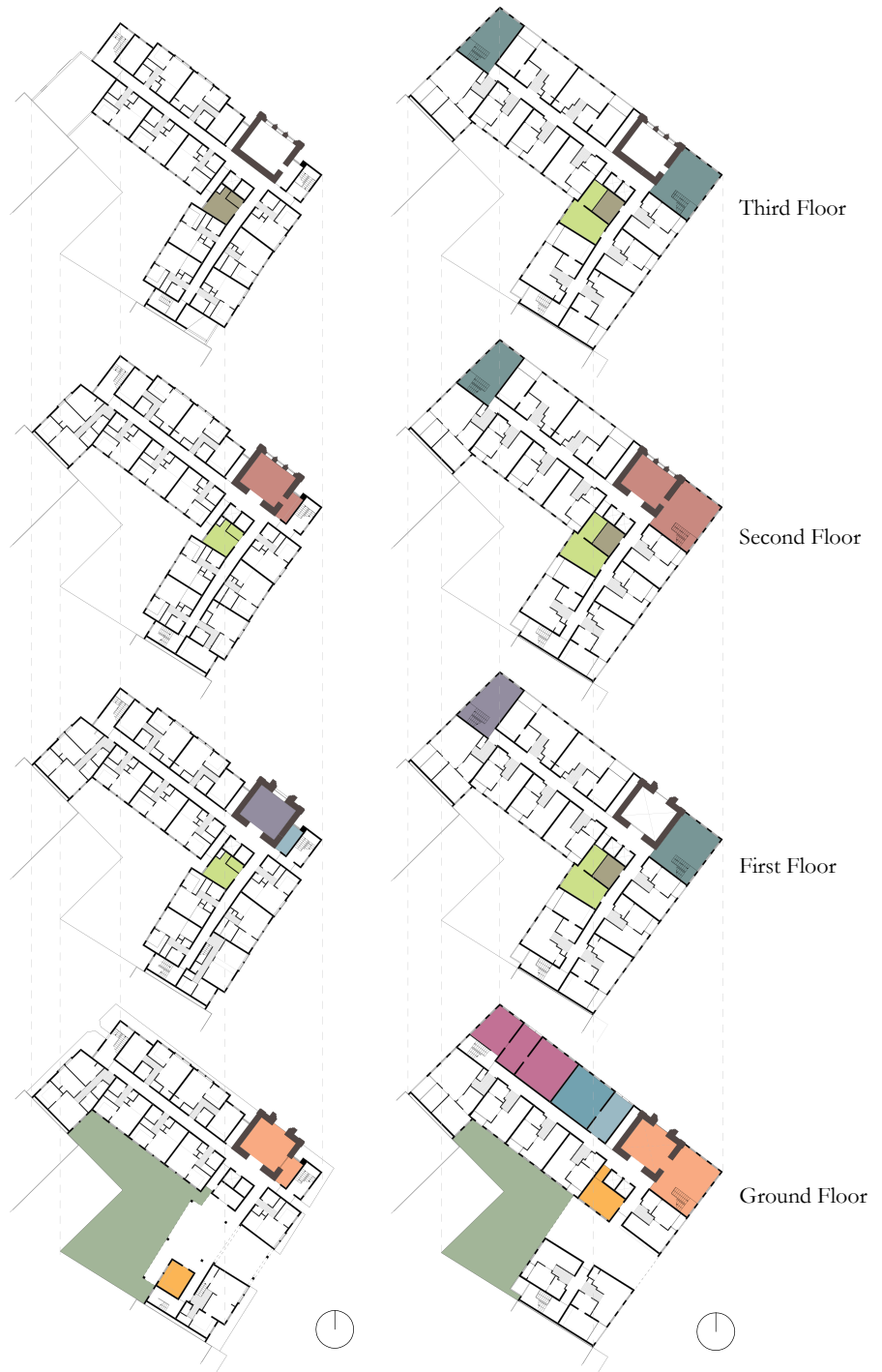


Figure 6.10: Communal facilities, old and new organization (scale 1:1000)

square meters and a hair room of 18.9 square meters. The barber, accessible from outside, and a hair room, accessible from inside, are physically connected. Tenants are thus able to go to the barber without leaving the complex.

First floor

On the first floor one major change is proposed. The quiet room moved to the north corner of the building, out of the main route, away from the elevator. Besides, with five windows it receives a much larger amount of daylight than in previous position, where it only had one small window.

Second floor

Likewise on the second floor one major change is proposed: the common room and kitchen are increased in size. Next to that, they are connected with the staircase which the tenants hopefully find rather more attractive to use.

Next to these major changes there are some minor changes which need to be addressed. The first, second and third floor contain in the proposed situation a convenient guest room in terms of size and daylight and an external lavatory. Besides, there are four more spaces in the building, next to the staircases, which are yet unspecified communal spaces.

6.3.3 A new façade

By removing the current façade and extending the floors, a new façade can be realized that better integrates with the urban context and the surrounding architecture of historical value. The analysis (chapter 4) and the research into

the built heritage management (Bennink & van Niel, 2013) revealed that a clear contour of the block, a tight rhythm of openings, a horizontal alignment and appropriate materials like stone and iron railings would improve the integration. As shown in this paragraph, the new façade can better integrate in the area while strengthening the existence of the tower. The new facade emphasizes the presence of the historical tower more than the current building.

The contour of the block

By aligning the new façade in depth and height the building will be perceived as one volume (figure 6.11; 1), instead of the current fragmented staggered façade. The plinth of the building plus two slight strips on both sides of the tower, are set back 20 mm (6.11; 2). This creates some depth in the facade, next to openings in the facade.

The openings in the façade

In cohesion with the floor plans, the desired amount of daylight entering the apartments (figure 6.11, next page) and the design of the façade, a tight rhythm of openings is created. The size of a clear opening is 1120 x 2000 mm, the space between two windows is 760 mm. The opening for a balcony has a width of 3000 mm: the width of two windows plus 760 mm.

The balconies create a visual connection with the public domain and thereby give the building a more extravert character. The windows are able to tilt and turn and can therefore, besides providing ventilation, also completely open up the room to the outside world.

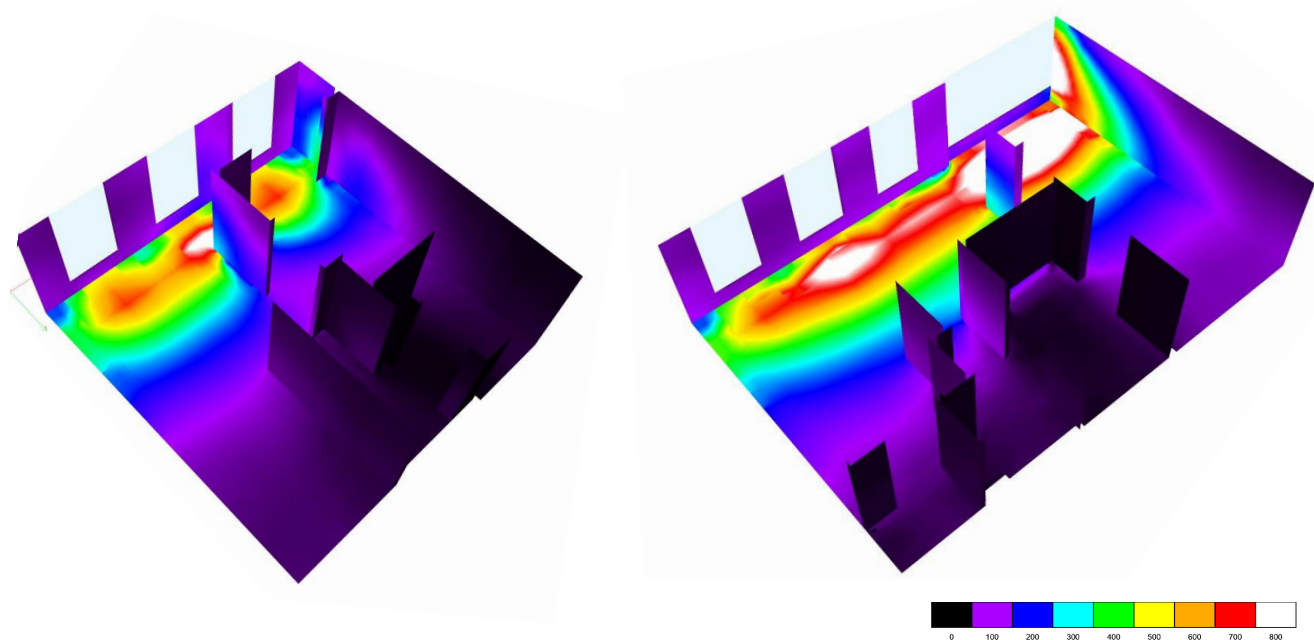


Figure 6.11: DIALux False Color Rendering of the 1b1p-flat (left) and the 1b2p-flat (right) in new situation

Horizontal alignment

A horizontal alignment of the building is created first of all by the new volume itself. Next to that the difference between plinth and core makes the building stretch in horizontal direction. The alignment is further emphasized by UNP profiles on three distinctive heights, by the cohesion of fences and by the proportion and treatment of the stone panels used in the façade.

Materials and ornaments

The new facade is made of stone panels, like the surrounding buildings, and have approximately the same size and color. Each panel has a size of 250 x 360 mm and differs slightly in tone, which gives the façade a playful character. The panels in ground floor are treated differently than the ones in the core, to emphasize the difference between plinth and core of the building. In the plinth of the building a smooth finish of the stone panels was chosen, in contrast the panels in the core are milled with rounded grooves in horizontal direction. The grooves will

not only emphasize the horizontal alignment, but as well create nice shadows in the elevation.

The openings in the façade for windows and balconies are strengthened by steel frames of 5 mm thick. The steel frames come 30 mm forward out of the façade and thereby express the more extravert character of the building. Besides, the steel frames create thin lines of shadow which, together with the grooved stone panels, result in detailed patterns on the facade. The window frames are made of aluminum, as this material is maintenance friendly, and are partially hidden behind the steel frames (figures 6.18).

A steel fence in front of the balconies and the turn and tilt windows is designed to protect tenants from falling down. The fence is however at the same time an ornament in the façade, expressing the extravert character. Other ornaments in the façade, showing the tectonic of the building, are the UNP steel profiles. The roof edge does not reveal an aluminum strip, as this strip is designed out of sight (figure 6.17).

Figure 6.12: Scheme of the new front elevation (scale 1:500)

1. Contour of the block
2. Plinth and connection with the tower
3. Openings in the facade
4. Horizontal alignment



1.



2.



3.



4.



First Floor



Ground Floor

Figure 6.13: New floor plan Trust Housing Stockbridge (scale 1:500)

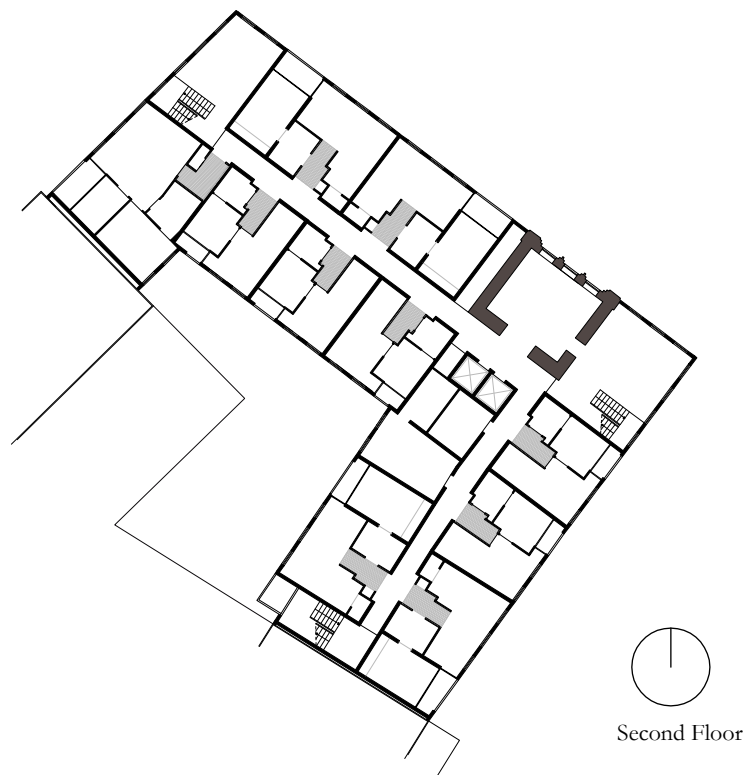
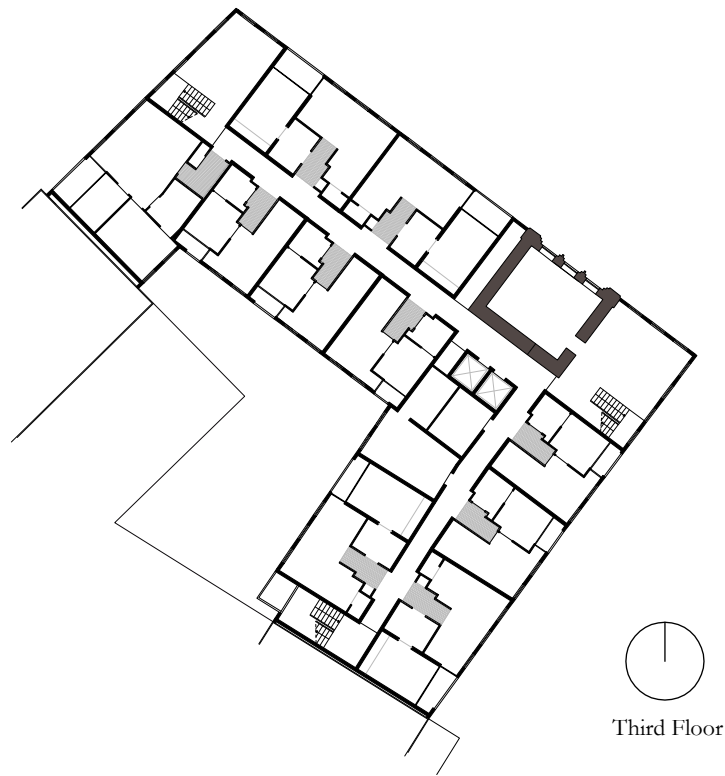




Figure 6.14: South elevation in Leslie Place (scale 1:200)



Figure 6.15: East elevation in Deanhaugh Street, front elevation (scale 1:200)

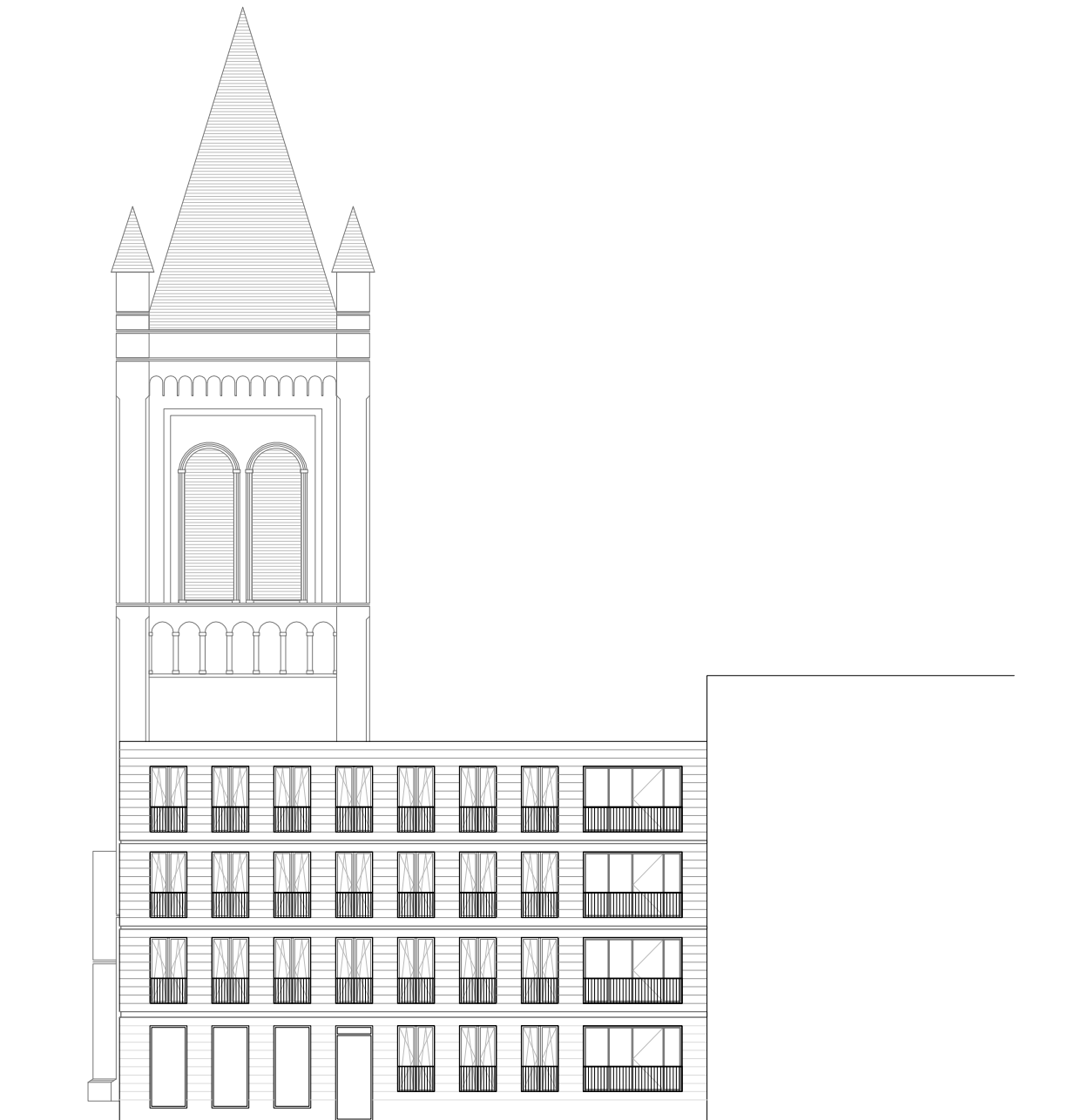


Figure 6.16: North elevation in Dean Street (scale 1:200)

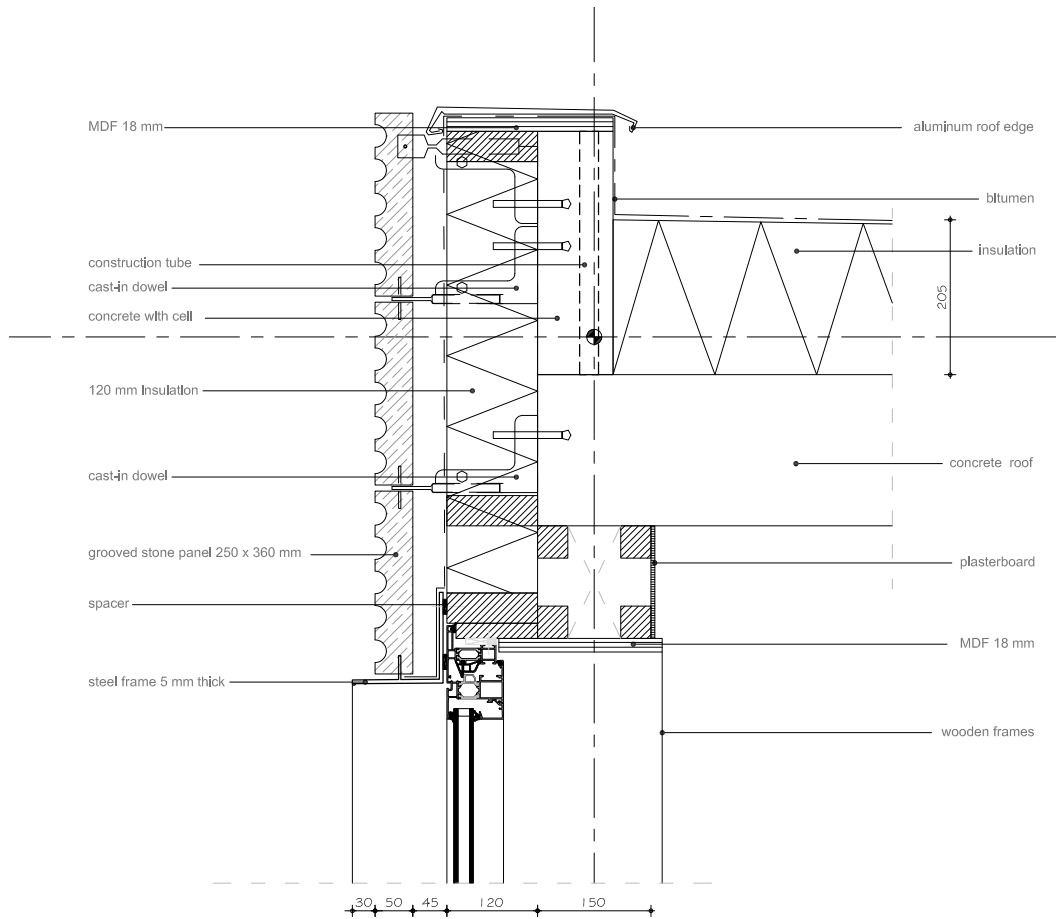


Figure 6.17: Detail roof (scale 1:10)

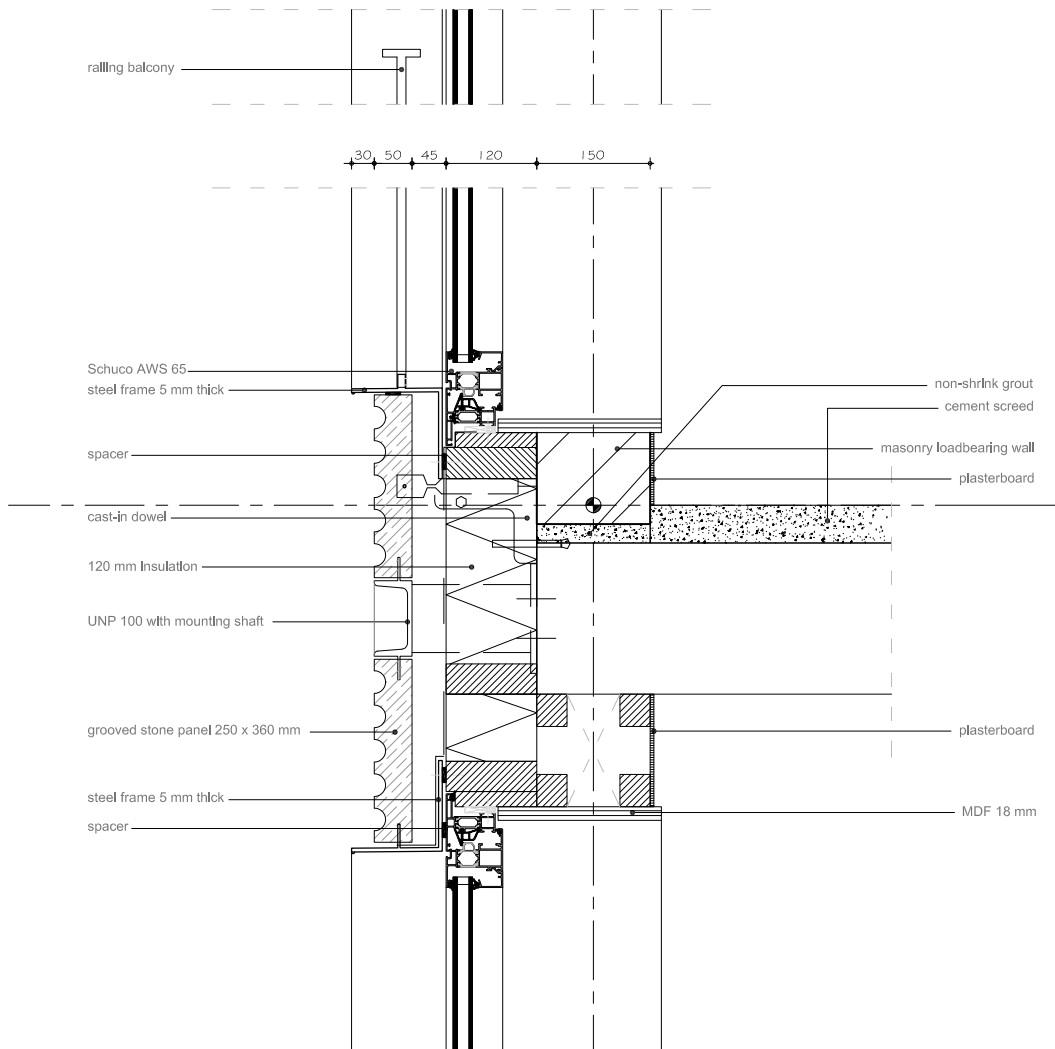


Figure 6.18: Detail balcony (scale 1:10)

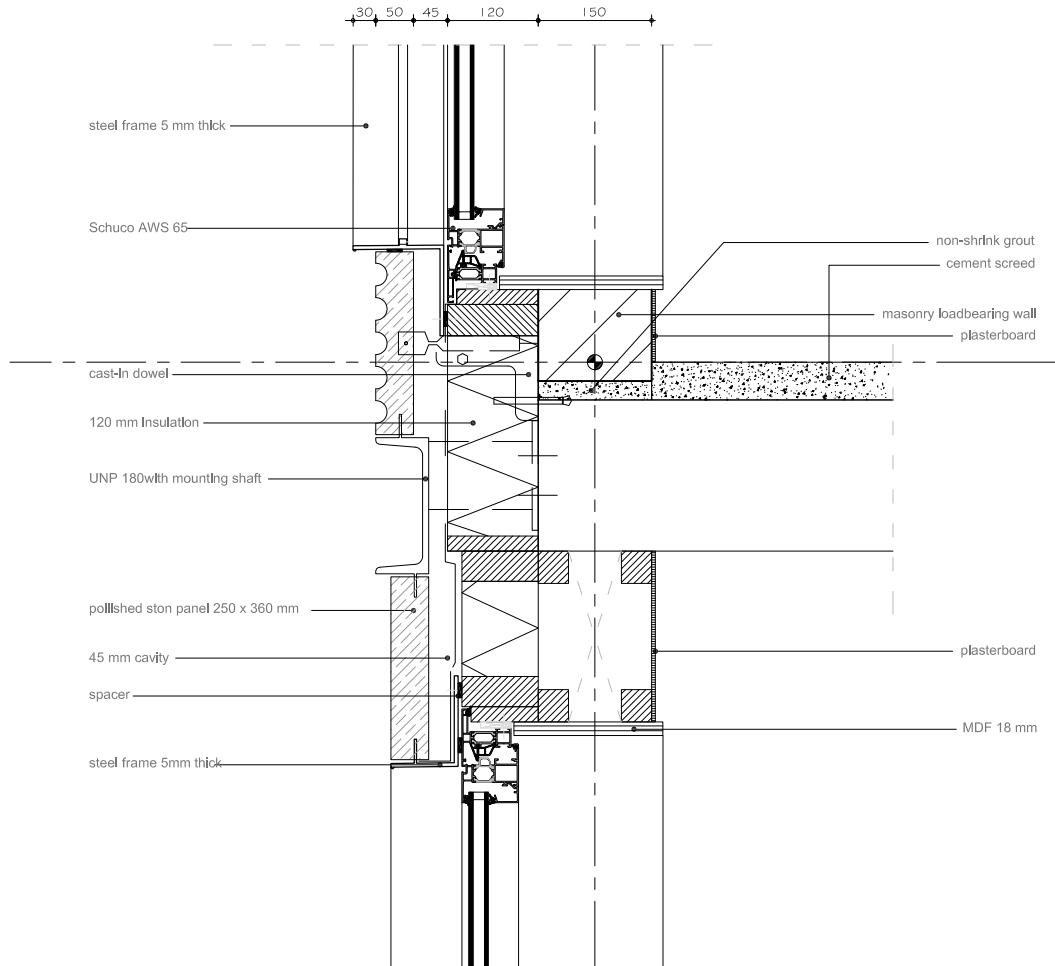


Figure 6.19: detail transition plinth to core (scale 1:10)

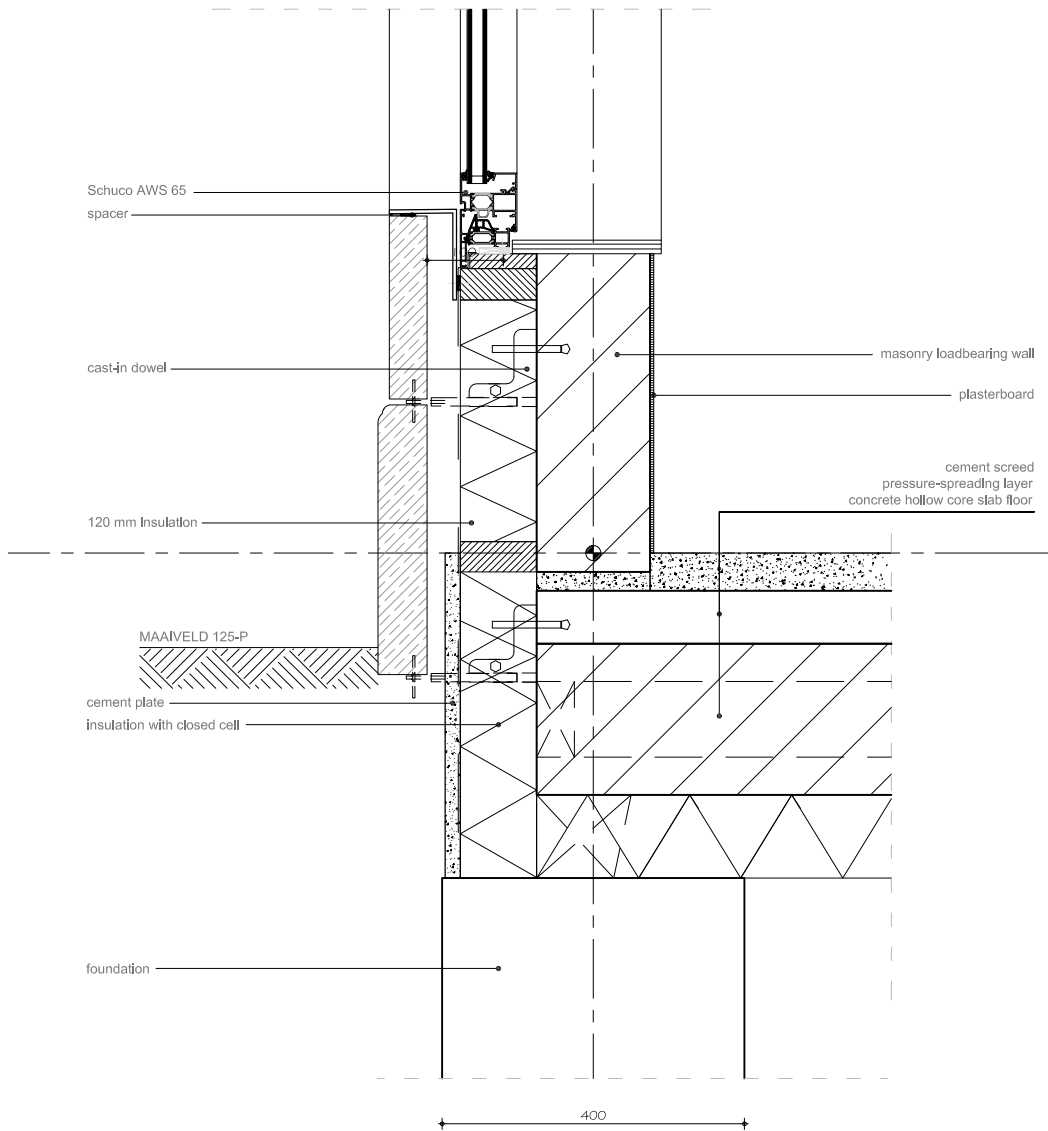


Figure 6.20: detail ground no. 1 (scale 1:10)

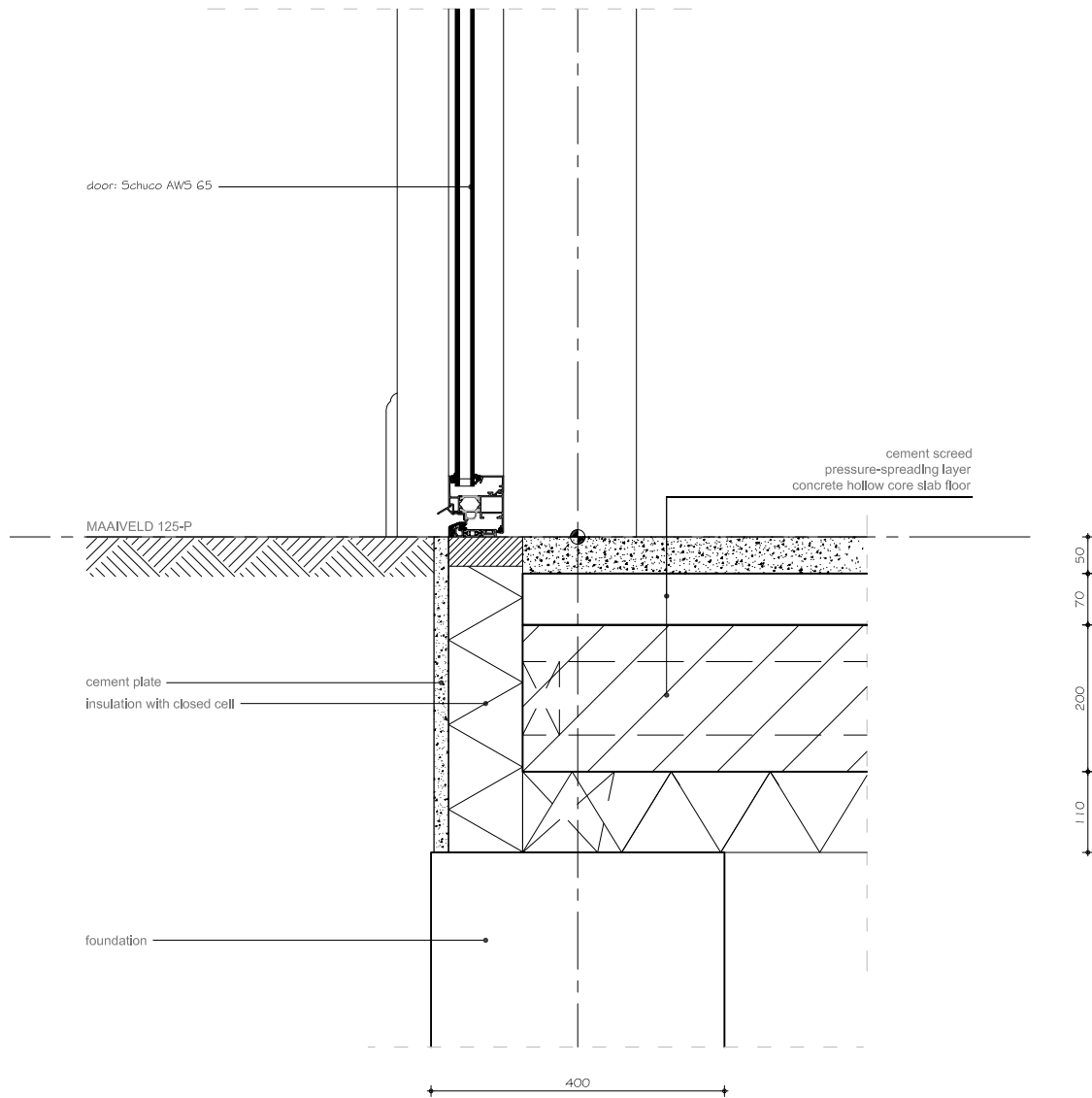


Figure 6.21: detail ground no. 2 (scale 1:10)

7

Discussion and reflection

7.0 Discussion and reflection

Taking the Trust Housing Stockbridge as a case study was not the easiest path in the graduation project. However, the building got my attention right from the beginning of the preceding research. The THS stands out in architectural appearance from the surrounding architecture in the researched area, as the building seemed very introvert while at the same being a pioneer in the area for its tower as a landmark.

Redeveloping this project only based on the architectural appearance is from my point of view however no option, as it is no sustainable solution nor economically feasible (not to forget the social impact for the users of the building). A more profound research would be necessary into the structure, use and history of the building to understand the contemporary position of the building in the Stockbridge area.

The connection between this case study and the preceding research into the built heritage management by determining minor changes to building attributes remained rather vague for a long time. It was a trip back to Edinburgh and Glasgow (to meet with one of the responsible architects of the redevelopment of the THS, to collect the original drawings at the City of Edinburgh Council, to visit the complex and meeting a contemporary architect who is into sheltered housing) which gave new insights for the second part of the graduation project. By approaching the quality of the building from inside, taking the elderly people's needs as a starting point, a design solution might offer an opportunity to redesign the façade as well. In this case, the façade could be designed in such a way it better integrates with the surrounding architecture.

The analysis and forthcoming design proposal do give an answer to the research question; "Does the Trust Housing Stockbridge comply with current housing standards and elderly people's needs, and could the building be better integrated in the urban structure and the surrounding appearance?"

First of all the Trust Housing Stockbridge does not comply with all current housing standards or all elderly people's needs. The design proposal shows that with a surgical approach most of these shortcomings can be solved. Secondly, the building could be better integrated in the urban structure and the surrounding architecture, by redesigning the façade. However, some remarks on the methodology and the design strategy need to be made.

The methodology of the analysis is based on some documents which are rather old. The guidelines Housing for Varying Needs parts 1 and 2 are from respectively from 1998 and 1999. However, no other guidelines more up to date were found to take into account. Besides, the analysis is based on four main categories which do not cover all needs for the elderly people. The well-being and comfort of the tenants are as well influenced by for example heat and noise. These were not examined, simply because no information was available about these subjects.

Interviewing the tenants would have been another option regarding collecting information on the quality of the building, as they are finally the users of the building.

The design strategy and the forthcoming design

proposal are very practically approached. It would have been of extra value for the project when supported by a theoretical framework about interfering in an existing building in a context of historical value like the THS. On the other hand, the evidence based design solution is very convenient.

It would be interesting to find out whether the design strategy, or the methodology to design the strategy, could be projected on other similar projects in Edinburgh and beyond.

The proposed design is probably not the only option. Although most design decisions follow from the conclusions drawn from the analysis, the architects' signature would be mainly visible in the facade. The actual design of the façade could have been studied further on. In this case, the starting and ending point was to design the new façade as a better integration with the surrounding architecture, taking architectural elements like rhythm and alignment into the account.

Furthermore it would be interesting to check the design proposal to the 'Edinburgh Design Guideline', published December 2012 as a draft, in order to guide new developments and redevelopments in Edinburgh. Tough the question whether a city should have a policy or guidance regarding (re)developments is a separate matter.

The graduation studio introduced me into the world of research. It taught me to question every statement, how to collect and process data, to draw conclusions from data, and how to justify design decisions in an evidence-based way. Although some struggles, I do not regret my decision to participate in this graduation studio. It made me a different person.

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Appendices

- i. Interview with S. Sinclair, April 25th, 2013
- ii. Interview with R. Cairns, July 26th, 2013
- iii. Video about Edinburgh and the Trust Housing Stockbridge

i. Interview with Stuart Sinclair

Architect at Matthew, Hamilton and Maclean Architects, Edinburgh

18th of April 2013, by phone;
25th of April, face to face.

By Wouter van Niel

Dear Stuart Sinclair, is it true you designed the sheltered housing complex at Deanhaugh Street 38, in the former Stockbridge Free Church?

The building was designed by Frank Tinson, an associate partner in the practice, who died around 2000. I was responsible for the project management of the project, but also involved in the design process. It was quite some time ago, so I'll try to remember as much as possible. Drawings of the building were destroyed along with a great deal of our archive information when we moved to a smaller office in 1998.

How was the situation in Edinburgh for elderly people? Was there a big demand for housing for them?

Yes, in the late seventies a lot of sheltered housing and housing for the elderly developments were being built in and around Edinburgh. As the government was generally freeing up family homes in order to facilitate a flow-through, the conditions were not too strictly applied.

Nonetheless there was very little alternative housing for the elderly at that time, the idea was to bring the elderly more closely into the community and many of these new buildings were close the centers of towns and cities. Although all church buildings had (and still have) listed status, it was possible to demolish where they were providing sites for essential housing projects. In case of the Deanhaugh Street project the planning authorities would not allow demolition of the tower which they regarded as a local landmark. A further restriction required that we could not construct to a greater height than the existing adjoining houses.

Besides the height of the new building, were there any other rules in order to comply with?

The Local Planning Department of the City Council of Edinburgh required that we use stone or good quality face brick and that the roofs be finished in natural slate. The major restrictions were in the costs. The government of the day was encouraging this type of housing and provided funding through the formation of local Housing Associations. They published guidelines regarding minimum house areas and basic design requirements and applied stringent cost restrictions requiring a minimum number of units related to the size and development costs of the site. In the case of Stockbridge Church this was 38 apartments plus a family house for the warden, communal laundry, passenger lift, kitchen and common lounge.

Did the guideline influence your design a lot? Or did you find it a challenge to realize a building with all the restrictions?

It was certainly a challenge. But we had little freedom to design something spectacular. Originally we designed the building in sandstone, but the costs would not allow it. The facing brick made us however search for an interesting visual appearance. Therefore we came up with the staggered façade. The height restriction and the amount of units already determined, would for example not allow us to implement any other function [in the ground floor].

How is the internal program organized? Were you able to design any common rooms in the building where the elderly could meet or spend their time?

I do not have a clear memory of the project, but there are common rooms in the tower above the entrance with a laundry room, a guest room and residential quarters. We had no flexibility in the program. The apartments were generally designed for two people along with a number of single person units. Why is it you are so interested in this building?

The Stockbridge Church lies in the research area of the research I conducted with a colleague student a few months ago. For the second part of my graduation I would like to focus on a building and study if it could be improved with a fictional design. A solid analysis should be part this: not just if it is a good or bad building, but as well an understanding how the building came to existence in time.

It is not particularly a good looking building as it was very much restricted by costs and very strict

government guidelines. Despite this it does work well and has required little maintenance in its 30 year life span.

The building is quite introvert and stands back from the public domain. For example, the windows are pretty small compared with the Georgian Houses and the building is withdrawn from the building line by designing a wee wall and some greenery. Do you think the building could be or even should be improved, so it better fits within the urban structures of the area?

The windows are actually fairly large in relation to the room sizes. The building is withdrawn to afford some privacy to the occupants; central city areas like this, with many bars and restaurants, can be quite intimidating, particularly at night. The landscape strip, complete with thorny plants, does keep the public away from the building rather than the other way around.

Yes I do think it should be possible to improve the building. Removal of the tower might help, but whether or not the occupants would appreciate a more open light building with the unavoidable loss of some of their privacy is possibly debatable. I will be very interested to see what you come up with, particularly if you stick to the original brief in terms of size and number of apartments. Good luck!

Thank you very much for your time.

You are welcome.

ii. Interview with Rachel Cairns

Coordinator at the Trust Housing Stockbridge,
Edinburgh

26th of July 2013, by phone

By Wouter van Niel

I was informed by the Trust Housing Association you are the coordinator of the Trust Housing Stockbridge. Is your job the same as of a warden?

I am indeed the coordinator, but I am not a warden. There used to be a warden way back in the days staying on site 24 hours a day, 7 days a week. Since 5 years I am present Monday's to Friday's from 8.00 till 16.00 o'clock. My task is to assist the tenants with health issues, well being and security. It can be pretty stressful with all the alarm bells to handle.

The original floor plans show there are a few types of apartments: a 1b1p-flat, a 1b2p-flat, a 2b3p-flat and a warden's house, an apartment with 3 bedrooms. What happened with the warden's house when there is no warden anymore?

The former warden's house, a 3b5p-flat, is nowadays used by a tenant. His partner unfortunately past away recently, so he is living there on his own. Including this two-level

apartment there are in total 39 apartments, rented by currently 47 tenants.

There are a few facilities within the building, like a laundry room and a hair room. Are those used frequently and is it not a problem the laundry room is only accessible out doors?

Because of noise levels it is only possible for extra reasons to get permission for a washing machine in your own flat. Therefore the laundry room is used a lot. I never experienced it is a problem for the tenants to go outside for their laundry, as most of the time the carer or the home helper does the laundry. The hair room is used every Tuesday, when the tenants can get a hair treatment.

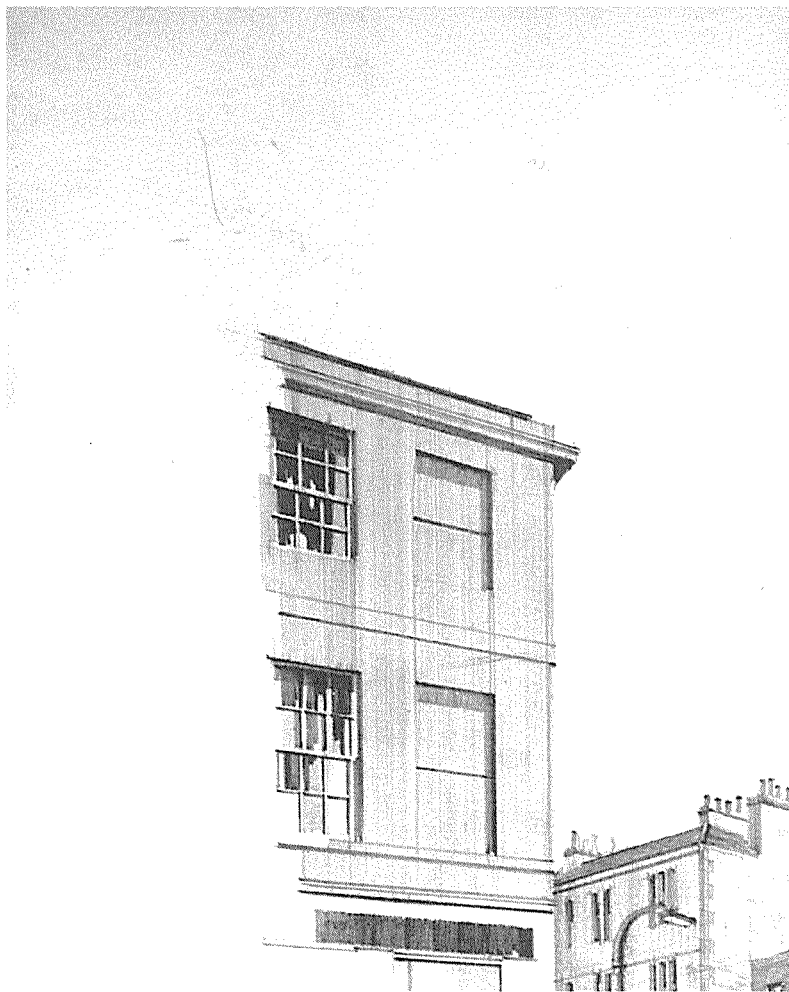
Thank you very much for your time.

You are welcome.

iii. Video about Edinburgh and the Trust Housing Stockbridge

Recorded 24th - 27th of April 2013

By Wouter van Niel



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