

The *Translating Housing* research project aims to inform alternative approaches to housing provision in Northern Irish urban environments, in particular Belfast. It presents research and analysis through a series of case studies of diverse and innovative approaches to housing typologies, financing, and development models, which have emerged uniquely in Berlin. And it considers if, how, and in what form, these typologies could be interpreted in the Belfast context, particularly in relation to creating and maintaining inclusive, sustainable, and civil urban society.

from the *Introduction*

Translating Housing: Berlin-Belfast

building group maintenance squatters  
social housing certificate  
social urban regeneration careful urban renewal  
subletter firewall  
construction self-help cautious procurement procedures tenement house  
reconstruction credit institute  
average local rent building cooperative Berlin Rent Mirror housing association  
homeowners group  
concept-based sale process Berlin public real estate agency passage bathroom civil law partnership

Edited by Dougal Sheridan

# Translating Housing: Berlin-Belfast

Innovative Housing Provision: Precedents and Proposals

Konzeptverbundene Verfahren Liegenschaftsfonds Durchgangsbad Gesellschaft bürgerlichen Rechts  
Wohnungseigentümergeinschaft  
ortsübliche Vergleichsmiete Baugenossenschaft Berliner Mietspiegel Hausgemeinschaft  
Kreditanstalt für Wiederaufbau  
Bauliche Selbsthilfe behutsames Vergabeverfahren Mietskaserne  
Untermieter Brandwand  
Soziale Stadterneuerung behutsame Stadterneuerung  
Wohnungsberechtigungsschein  
Baugruppe Instandbesetzer

Edited by Dougal Sheridan





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# **Translating Housing: Berlin-Belfast**

Innovative Housing Provision: Precedents and Proposals

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## Foreword

<b>Introduction</b>	7
Background	8
Graphic Key	9
Glossary	10
<b>1.0 Berlin Housing</b>	11
1.1 Context and Rationale	13
1.2 Case Studies	15
1.3 Summary and Analysis	61
<b>2.0 Belfast Housing</b>	71
2.1 Context and Rationale	73
2.2 Case Studies	75
2.3 Summary and Analysis	79
<b>3.0 Belfast Housing Studies</b>	81
3.1 Context and Rationale	83
3.2 Projects	85
3.3 Summary and Analysis	147
<b>4.0 Interpretations and Conclusions</b>	149
4.1 Comparative Urban Analysis	150
4.2 Comparison and Interpretation of Housing Typologies	151
4.3 Comparison and Interpretation of Legal, Financial and Procurement Models	153
4.4 Recommendations	156
<b>5.0 Developed Scenarios</b>	159
5.1 Introduction	160
<b>6.0 Bibliography</b>	173
<b>7.0 Image Credits</b>	175

## Contents

## Foreword

Although Belfast has experienced significant regeneration in recent years, the city centre remains largely underdeveloped and underutilised for residential use. There are many reasons for this missed opportunity, not least the impact of "the Troubles"; but the effect has been that city centre living remains an important and largely undelivered priority for the regeneration and economic growth of the city as a whole.

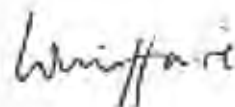
This publication aims to open up discussion around alternative approaches to housing in Belfast City Centre, in support of the aims set out within the Department for Social Development's *Facing the Future: Housing Strategy for NI*, which recognises the significant role housing can play in helping to support and sustain economic recovery, create employment and help to regenerate communities.

By using case studies from Berlin, tested through design-based research in the Belfast context, this publication explores innovative high-quality, mixed-tenure housing development models, together with alternative financing arrangements that may be appropriate for Belfast City Centre.

The publication was developed by Dougal Sheridan and students at University of Ulster Belfast School of Architecture, working with housing practitioners from: the Department for Social Development; Northern Ireland Housing Executive; Strategic Investment Board; Northern Ireland Federation of Housing Associations; Smartmove NI and Forum for an Alternative Belfast.

We would like to thank the architectural practices, residents, and housing organisations that generously contributed to the documentation of the case studies.

We would also like to thank Dougal and his students and the housing practitioners for giving of their time and expertise in developing this valuable tool to support the challenge of ensuring that Belfast City Centre becomes truly vibrant.



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DSD Permanent Secretary



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A/C CE NIHE



# **Translating Housing: Berlin-Belfast**

Innovative Housing Provision: Precedents and Proposals

## Introduction

As its title suggests, this research project aims to inform alternative approaches to housing provision in Northern Irish urban environments, in particular Belfast. It presents research and analysis through a series of case studies of diverse and innovative approaches to housing typologies, financing, and development models, which have emerged uniquely in Berlin. And it considers if, how, and in what form, these typologies could be interpreted in the Belfast context, particularly in relation to creating and maintaining inclusive, sustainable, and civil urban society.

The act of translation is a creative and highly-interpretative process. Meaning, appropriateness to context, etc. are often lost in the direct transposition of words, in the case of the overly-literal translation. To capture true meaning, words need to re-form, restructure, and reconfigure themselves in a way that is appropriate and legible in the new language, and in doing so, to create an evolution of the original in a different context. This is equally applicable to the artefacts and institutions of housing, where a wide range of cultural, social, financial, and environmental factors shape housing in different contexts. It is in this explorative and interpretative sense that translation is conceived of in this study.

Although there are of course interesting and relevant potential housing case studies in many international cities, the methodology chosen for this research project was to focus on a specific urban context. Berlin was selected because of the range of financial and spatial typologies which have emerged there in recent years. These new housing models exemplify the evolution of contemporary urban living in response to changes in society and the new financial landscape arguably more so than in other European cities. These housing projects explore citizen-led approaches to reducing project costs; alternative ownership/rental models; active resident participation in the design and construction processes; innovative changes of use; and flexibility and adaptability in the provision of quality urban living for a diverse mixture of incomes, ages, ethnicities, and

household sizes and profiles, including families.

Focusing on a specific context, rather than cherry-picking case studies in a less focused way from more dispersed international locations, allows a greater understanding of the interrelationship between housing and the social, financial, environmental, cultural parameters of a particular context. This methodology facilitates the clear tracing of emerging trends and the evolution of solutions. This is central to the approach taken in this study, where case studies are analysed and interpreted as a synthesis of factors including density, financing model, design strategy, tenure, programmatic mix, building management, etc. It is only by understanding the close interrelationship between these factors that they can inform future projects in other contexts.



In October 2012, a group of housing and community development professionals working in the greater Belfast area, along with elected representatives from across political parties in Belfast City Council, took part in a Housing Learning Exchange to Berlin. The visit was part of the MOST project, a PEACE III-funded project intended to build institutional capacity among politicians, peace builders and civic leaders.

The objective was to maximise opportunities for social transformation by exploring different approaches to urban planning, regeneration, housing, and community development. In this case, politicians, policy-makers and influencers, and practitioners from Belfast, a divided city in many ways, were asked to observe, question and reflect on the socially-integrative model that has emerged in Berlin.

Over the course of a week, the group toured neighbourhood management areas in Kreuzberg, housing projects like Am Urban and Lausitzer Straße, saw community regeneration in Markthalle 9, and met with city officials and academics. Impressions and reflections were varied: observations on culture and attitudes; the creative use of space; the prevalence of green space in the city; a refusal to be constrained by red tape and conservatism. Community involvement, private investment for public gain, co-operativism, and an integration of working and living, all seemed to translate into a vibrant, sustainable and socially-just approach to place-making that is organic rather than imposed or contrived.

That is not to say that the group were presented with an idyllic view of life in Berlin. The challenges of integrating diverse groups and migrant communities, and of addressing physical decline and social deprivation in neighbourhoods across the city, were openly discussed. Berlin, like Belfast, has high levels of unemployment and significant numbers of people living on social-welfare benefits. Government intervention and subvention has been necessary to help tackle these endemic problems: ground-up activism has not dominated or been able, on its own, to have a comprehensive transforma-

tive impact.

However, it is fair to say that the group came back from Berlin feeling inspired by what we saw and heard. Many of the programmes and projects we saw were not new or innovative. Neighbourhood Management is similar in design, if not in implementation and impact, to Northern Ireland's Neighbourhood Renewal. Community gardens, interim-use arts projects, early-learning initiatives, healthy eating and living schemes, shared space in which community groups can meet – these are all happening across Belfast every day. What seemed different was the coherence, energy, and citizenship driving government programmes, individual action and collective projects. Some of the broad themes identified are:

- *A holistic approach is the only way to effect change – the concept of social urban development and living space;*
- *While political leadership is fundamental, it must also be met by civic leadership and a broader sense of social responsibility and collectivism;*
- *Transformation of cities means acknowledging and then dealing with core problems, rather than just their symptoms or other peripheral issues;*
- *Projects only succeed if they are outcomes-focused, transparent and results-driven;*
- *Social think tanks create a space to develop ideas and push people out of their comfort zones;*
- *Ongoing monitoring with quantitative data and statistics should be built into projects and programmes from the outset – this is the only way to accurately gauge their impact; and*
- *Any intervention should be introduced with a view to how it can be removed and still leave behind a self-sustaining initiative.*

There was a strong sense following the visit to Berlin that the group did not want the learning, connections, and possibilities that began to emerge during the trip to be lost. Further

discussions led to the definition of several distinct areas for continued exploration, amongst which housing was one. Consequently, a small housing sub-group was established, with a view to:

- *Using the knowledge and insight gained in Berlin to help further develop the aims and proposals within the new housing strategy for Northern Ireland;*
- *Producing practice-based research that builds on the ideas and models observed in Berlin but relating them to the specifics of the Belfast context; and*
- *Seeking to roll-out one or more pioneer projects to demonstrate how new housing models can work to bring disused and contested sites back into use for housing and, in doing so, to contribute to the Northern Irish government's housing priorities.*

These terms of reference form the basis for the Translating Housing publication. Working closely with Dougal Sheridan and his students at the University of Ulster's Belfast School of Architecture, the group – comprising members from the Department for Social Development (DSD), Northern Ireland Federation of Housing Associations (NIFHA), Northern Ireland Housing Executive (NIHE), Forum for an Alternative Belfast (FAB), the Strategic Investment Board (SIB), and Smartmove NI – have focused on the second of these objectives. The result is this examination and comparison of specific models from Berlin and their hypothetical implementation on potential sites in Belfast. The intention behind this effort is to demonstrate how density, shared space and amenities, co-housing and flexible design can open up new opportunities for housing in Belfast.

Housing can be a catalyst for a living in a socially-integrative city. We hope that this publication will demonstrate what is possible when people are given the space to imagine and be inspired.

## Background

## Graphic Key

The Density of a project expressed as the Number of Units per Hectare (one hectare = 10,000m<sup>2</sup> or approximately 1.5 acres) regardless of the Total Area of the site (e.g. a project with 12 units on a 1,000m<sup>2</sup> or 0.1 Ha site is said to have a density of 120 units/Ha). The length of the bar represents its value relative to the highest figure for this measure of Density: 603 units/Ha for the Oderberger StraÙe 56 project (i.e. the full bar is 100% of this highest figure).

The total number of Carparking Spaces divided by the total number of residents. A full car corresponds to one Carparking Space per resident.

The total area of Infrastructure (e.g. circulation, plant room, bin storage, etc.) divided by the total number of residents.

The full bar represents the Total Programme Area of the project. The colours/percentages relate to the proportion of the various Programme Area types present in the project. The figures in the Residential (black) portion of the bar relate to unit types in terms of number of bedrooms and the number of each of these types present in the project.

Refer to the **Glossary** section for full descriptions of the various Funding Sources (shown in this graphic as their respective percentages of the Total Project Cost). The length of the bar represents its value relative to the highest figure for Total Project Cost per m<sup>2</sup> of Wfl: €2,580/m<sup>2</sup> in the RitterstraÙe 50 project (i.e. the full bar is 100% of this highest figure).

### Project Title

Project Architects

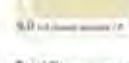
#### Density



Link (200m): 1 m² Site  
Site Cost: 1 m² Wfl



#### Programmatic Analysis



#### Total Programme Area Breakdown



#### Total Project Cost



#### Total Project Cost / m² Wfl (Funding Sources)



The Density of a project expressed in terms of Plot Ratio. Plot Ratio is the Gross Floor Area (total floor area on all floors) of a project divided by the Total Site Area. The figure is expressed either as a single number or as a ratio (e.g. 1,500m<sup>2</sup> GFA / 1,000m<sup>2</sup> TSA = a Plot Ratio of 1.5 or 1.5:1). The dashed box corresponds to a Plot Ratio of 1:1.

Refer to the **Glossary** section for full descriptions of the various methodologies for calculating the Project Area. The length of the bars represents their value relative to the highest figure for Site Cost per m<sup>2</sup> of Site Area: €503/m<sup>2</sup> in the Oderberger StraÙe 56 project (i.e. the full bar is 100% of this highest figure).

Total surface area devoted to the car (e.g. parking, access roads, etc.) divided by the total number of residents. Length of the bars prefixed with a human figure relates to multiples of 1.5m<sup>2</sup>: a rough estimate of the area occupied by an average person.

Total area of shared amenity space (e.g. balcony, terrace, etc.) divided by the total number of units.

Total area of shared amenity space (e.g. garden, guestroom, etc.) divided by the total number of residents.

Refer to the **Glossary** section for full descriptions of the various methodologies for calculating the Project Area. The length of the bars represents their value relative to the highest figure for Total Project Cost per m<sup>2</sup> of Wfl: €2,580/m<sup>2</sup> in the RitterstraÙe 50 project (i.e. the full bar is 100% of this highest figure).



#### *bauliche Selbsthilfe*

"Building Self-Help" is a form of support for regeneration in which existing tenants are encouraged/instructed how to directly participate in design/building processes to achieve lower costs and responsive living environments.

#### *Baugenossenschaft*

"Housing Co-operative"

#### *Baugruppe*

A "Building Group" is formed to initiate and develop a multi-unit housing project for their own occupation.

#### *behutsame Stadterneuerung*

The principles of "Careful Urban Renewal" include consultation with residents/traders at all stages of the process, protection of tenants' rights, the maintenance of the existing urban fabric, support for new forms of living, and the gradual implementation of building works.

#### *Durchgangsbad*

A "Passage Bathroom" is a space-saving strategy in which the functional space of the bathroom doubles as a connector of other spaces.

#### *Erbpacht*

"Long-term Lease"

#### *External Financing*

In terms of the analysis contained in this document, financing secured through a mortgage or other type of external lending.

#### *Gesellschaft bürgerlichen Rechts (GbR)*

A German "Civil Law Partnership" is made up of at least two shareholders bound together by a contract in order to achieve a specified goal (e.g. to construct a housing project).

#### *Ground Rent*

The rent paid for land, according to the terms of the Long-Term Lease, by the leaseholder to the freeholder (the landowner).

#### *Instandbesetzer*

A "Maintenance Squatter" with the stated aim to save decaying buildings from demolition and

make them habitable again.

#### *KfW-40/55/70 Financing*

The KfW (formerly Kreditanstalt für Wiederaufbau or "Reconstruction Credit Institute") is a government-owned development bank. The KfW Förderbank ("KfW Promotional Bank"), provides financing for energy-efficient housing - both for new-build and renovations. Loans are subject to achieving energy efficiency targets (KfW-40/55/70), which have become accepted environmental standards in Germany.

#### *konzeptverbundene Verfahren*

The mechanism by which city-owned lands are disposed of for a fixed-price through a "Concept-Based Process" - the adjudication of offers based on specific urban, social and/or environmental criteria.

#### *kritische Rekonstruktion*

'Critical Reconstruction' has the aim of maintaining the historical urban fabric while creating a contemporary equivalent.

#### *Mietskaserne or Berliner Mietshaus*

The mixed-use 19th century "Berlin Tenement House" of built wings and enclosed courtyards.

#### *Netto-Grundfläche [NGF]*

Translating as "nett floor area", measured according to DIN 277 (2005) and defined as "built area". It includes the NF (which in turn includes the Wfl); area dedicated to vertical/horizontal circulation (e.g. lift/stair cores, shared corridors, entrance lobbies, etc.), and to building services (e.g. service shafts, plant rooms, etc.).

#### *Nutzfläche [NF]*

Translating as "usable area", measured according to DIN 277 (2005) and defined as "the floor area usable for its intended purpose". It includes the Wfl; the other half of balcony, terrace, and loggia areas not included in the Wfl; storage area separate from the unit; basement area; and shared amenity or external built shared area. It does not include area dedicated to vertical/horizontal circulation or building services.

#### *ortsübliche Vergleichsmiete*

"Average Local Rent"

#### *Own Capital*

In terms of the analysis contained in this document, a financial contribution towards a project in which the funds are from savings, or otherwise not borrowed.

#### *Plot Ratio*

The Gross Floor Area (total floor area on all floors) of a project divided by the Total Site Area. The figure is expressed either as a single number or as a ratio (e.g. 1,500m<sup>2</sup> GFA / 1,000m<sup>2</sup> TSA = a Plot Ratio of 1.5 or 1.5:1).

#### *Self-Build/In-Kind*

In terms of the analysis contained in this document, a non-financial contribution towards a project - usually in the form of construction labour ("sweat equity") or professional services.

#### *soziale Stadterneuerung*

"Social Urban Renewal" aims to combine the physical regeneration of an area with improving the lives of its existing inhabitants.

#### *Wohnfläche [Wfl]*

Translating as "living area", measured according to WoFlV (2003) and defined as "floor area unique to each unit". It includes the unit floor area; the area of fully-enclosed semi-external spaces such as wintergardens; half of balcony, terrace, and loggia areas; and, in terms of the analysis contained in this document, it includes retail, office or other type of commercial accommodation. It does not include storage area separate from the unit; basement area; and shared amenity or external built shared area.

#### *Wohnungseigentümergeinschaft (WEG)*

A "Homeowners' Association" (similar to a "Condominium Association") is a semi-legal entity usually charged with the administration and maintenance of those areas and elements of a building that are owned in common.

#### *Wohnungsberechtigungsschein (WBS)*

An official document stating that the holder has satisfied the criteria to avail of social housing.

## Glossary

## 1.0 Berlin Housing





1.2.1 Fraenkelufer 28/38/44

1.2.5 Lausitzer Straße 38

1.2.6 Ritterstraße 50

1.2.4A Strelitzer Straße 53  
1.2.4B Bernauer Straße 5-9

1.2.2 Schwedter Straße 26  
1.2.3 Oderberger Straße 56



## 1.1 Context and Rationale

Since the 19th century, a wide variety of housing types have been built in Berlin: from the prototypical *Berliner Mietshäuser/Mietskaserne* or “tenements”, in an urban block layout established by the 1862 Hobrecht Plan, that is still the prevailing housing type; to seminal modern housing developments of the 1920s by Bruno Taut and other architect-reformers; followed by large post-war housing estates in both East and West Berlin; and finally the widespread urban renewal of the neglected semi-derelict inner city *Mietskaserne* that started with the International Building Exhibition (IBA) in 1987.

The five case studies chosen represent only a small segment of this massive housing production. They were built under widely-varying conditions: while the “historical” example of Block 70 at **Fraenkelufer (1.2.1)** is an outcome of the IBA Alt or “IBA Old” and its exceptional and exemplary praxis of socially-engaged urban renewal, the building in **Schwedter Straße (1.2.2)** was realized in the aftermath of the IBA in the eastern part of the city as one of the last examples of state-subsidised urban renewal. Finally, the other three case studies were built after the millennium, under conditions new to the highly-subsidised city of Berlin: by private initiative, without direct state funding, developed by architects and financed by private owner-occupiers. These projects benefited from very low real estate prices and/or very low interest rates related to the global financial crisis.

Therefore, the case studies, commencing in the 1980s, span a period in which not only the Berlin Wall came down but German society and the welfare state underwent profound changes. The case studies trace a trajectory over the following 30 years, which broadly describes the transformation of innovation in housing provision in Berlin.

### The City Centre as a Place to Live

The International Building Exhibition (IBA) 1984/1987 in Berlin produced two overarching concepts: *behutsame Stadterneuerung* “Careful Urban Renewal” and *kritische Rekonstruktion* “Critical Reconstruction”. The main goal was the rehabilitation of the city

centre as a place to live, which represented a radical shift from post war modernist city planning. The new planning parameters focused on user participation, whether tenant or owner, and on the integration of existing building structures – “*Es gibt keinen schlechten Bestand*”, as IBA-director Hardt-Walther Hämer put it: “There is no such thing as bad housing stock.” Under his direction, the model of *Selbsthilfe* “Self-Help” or empowerment was developed, where users were taught and encouraged to directly take part in the design and building process. This helped to reduce costs and create individualized flats. This profound shift in planning culture became an international role model that is still valid today, especially in Berlin, where the renovated and upgraded dense housing structures of the 19th century are the most successful and lively parts of the city and are increasingly desirable for families as an alternative to the suburban single-family house.

The **Fraenkelufer (1.2.1)** project should be understood in this context. It was one of many building blocks in Berlin-Kreuzberg that were “reconstructed” and renovated, involving hundreds of tenants, various owners and even squatters – an exceptional situation that was made possible through the planning instruments of the IBA and co-ordinated capital investments of 1.5 billion Euros in total (Bodenschatz 2010:42).

### Learning from IBA

Just two years after the IBA, the Berlin Wall came down and the political landscape in relation to urban renewal shifted dramatically. In the neglected inner-city areas of East Berlin, more than 25,000 flats were empty: double the number vacant in West Berlin in the 1980s. The city of Berlin installed S.T.E.R.N., a public development agency that applied the principles of the IBA to the eastern parts of the city, an area of 344 hectares encompassing ca. 47,000 flats (Bodenschatz 2010:126). The renovation of existing buildings was mainly financed with tax incentives for private investors, but increasingly with money from European funds, the federal government and private foundations. The project in **Schwedter Straße (1.2.2)** prof-

ited from the *Selbsthilfe* program, which was closed down by 2002 when programs for urban renewal were radically reduced and an increasing number of apartments shifted from rented tenure to owner-occupied.

### The Decade of the Baugruppen

Against this background, private initiative became the motor for inner-city housing after 2002. The model of *Baugruppen* “Building Groups” emerged as the most sought-after organizational form of new housing. *Baugruppen* were originally developed in the 1990s in the south of Germany, where, for example, the city of Tübingen bought former military areas, parceled them up and encouraged private owners to build collectively on the plots. In Berlin, the emergence of *Baugruppen* was not state-led or initiated, but was introduced mostly by young architects looking for clients and an inner-city living space for themselves. The first of these was the **Streititzer Strasse (1.2.4A)** project, followed by other pioneering *Baugruppen* projects, including **Oderberger Straße (1.2.3)**, which further evolved the model. These projects bundled together interests and formed groups of potential buyers. The *Baugruppen* developed buildings from scratch: buying the site, designing the house (collectively to some degree), building it, and afterwards dividing it up into individual apartments. During the design and building process, the group forms a *Gesellschaft bürgerlichen Rechts (GbR)*, which is afterwards often turned into a *Wohnungseigentümergeinschaft (WEG)* or “Homeowners’ Association”.

There are profound advantages to this model: the apartments are customised to the needs of the owners regarding size, floor plan, and interior fit-out; collective features such as roof terraces, guest apartments and common gardens can be realized; and the price per square meter is usually 15-20% lower than the average for speculatively-financed housing, as the profit margins for the investor/developer are eliminated (Krings-Heckemeier, Fallert, Schwedt, 2009:13). These advantages have led to more than

200 *Baugruppen* projects being built in Berlin since 2005, a number that is still growing.<sup>1</sup> Over this time, however, the limitations of the *Baugruppe* model have also become apparent. Firstly, *Baugruppen* produce primarily housing and not mixed-use buildings with other uses on the ground floor, as is traditionally found in the typical *Berliner Mietshaus*. Second, *Baugruppen* produce owner-occupied apartments and not rental flats, which generally result in homogenous, middle-income groups of inhabitants. Both of these deficiencies relate closely to the fact that individual owner-occupiers rarely take the risk to collectively-finance commercial and rental spaces, although some projects like **Oderberger Straße (1.2.3)** have found methods to address this deficiency.

### New Housing Politics

For decades, building sites and apartments in Berlin were cheap and readily-available. The problem of under-utilized housing stock was more pressing than the more typical shortage of housing. But in recent years, this situation has started to turn. Prices for building sites and flats have risen, in some popular quarters such as Prenzlauer Berg by up to 50%. International investors have discovered the city as a place with “potential”: still inexpensive compared to other European cities. The city of Berlin has sold large numbers of former social housing properties and public land to private investors to generate capital for its depleted treasury – a practice that has been criticized by a number of civic organizations.<sup>2</sup> There are plans to partly restructure the *Liegenschaftsfonds*, Berlin’s “Public Real Estate Agency”: by, for example, inner-city sites no longer being sold for the highest price, but instead by a “Concept-Driven Process” based on social, architectural and ecological criteria. Some sites have already been sold and developed using this new methodology, including the **Ritterstraße (1.2.6)** project, however the city council has not yet established a larger program of “Concept Tenders”. Meanwhile, the city is growing by 40,000 inhabitants per year, and affordable housing in the inner-city has become a significant challenge facing the city. In response, the city’s housing department has set a goal of construct-

ing 6,000 new flats per year by following a policy of densifying the inner-city and developing of new forms of urban living.

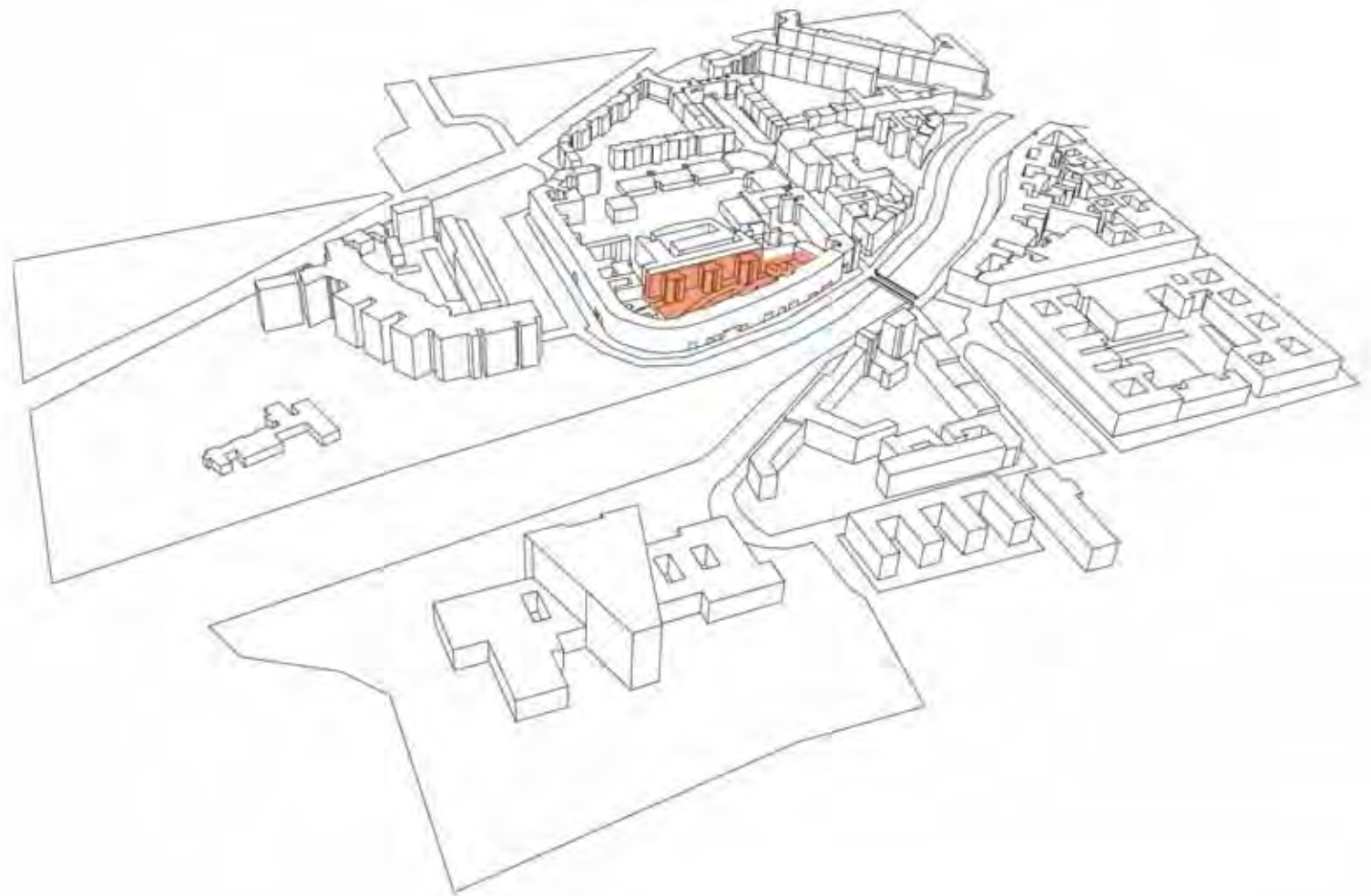
1. [www.wohnportal-berlin.de](http://www.wohnportal-berlin.de)

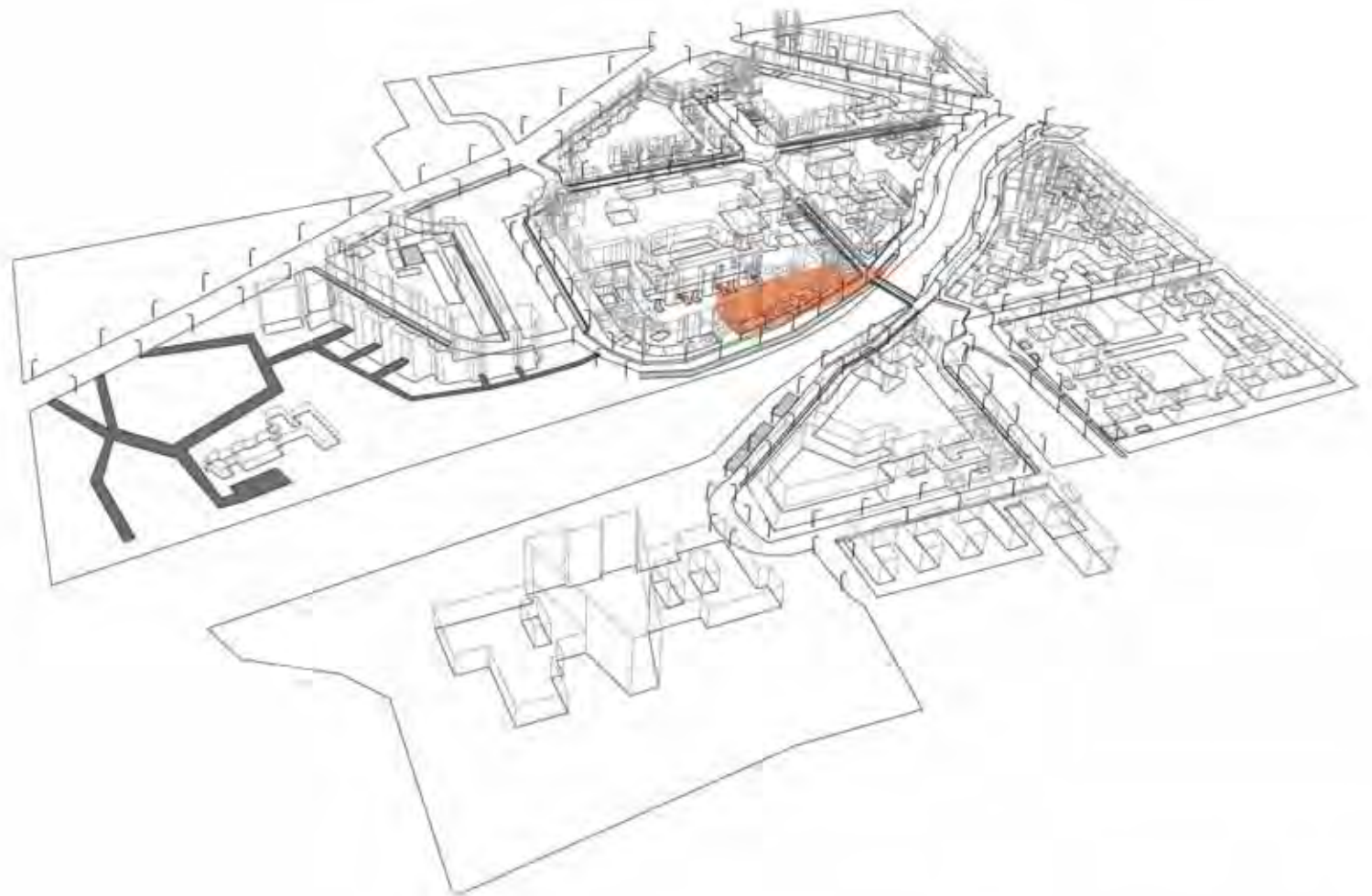
2. The restructuring of the *Liegenschaftsfonds* is the main issue of „Runder Tisch zur Neuausrichtung der Berliner Liegenschaftspolitik“, a round table meeting between politicians and civil organisations that is being held since 2012 on a regular basis in the city parliament (*Berliner Abgeordnetenhaus*). More information can be found at <http://stadt-neudenken.tumblr.com/Runder%20Tisch>.



## 1.2 Berlin Case Studies

### 1.2.1 Fraenkelufer 28/38/44





Infrastructure + Services



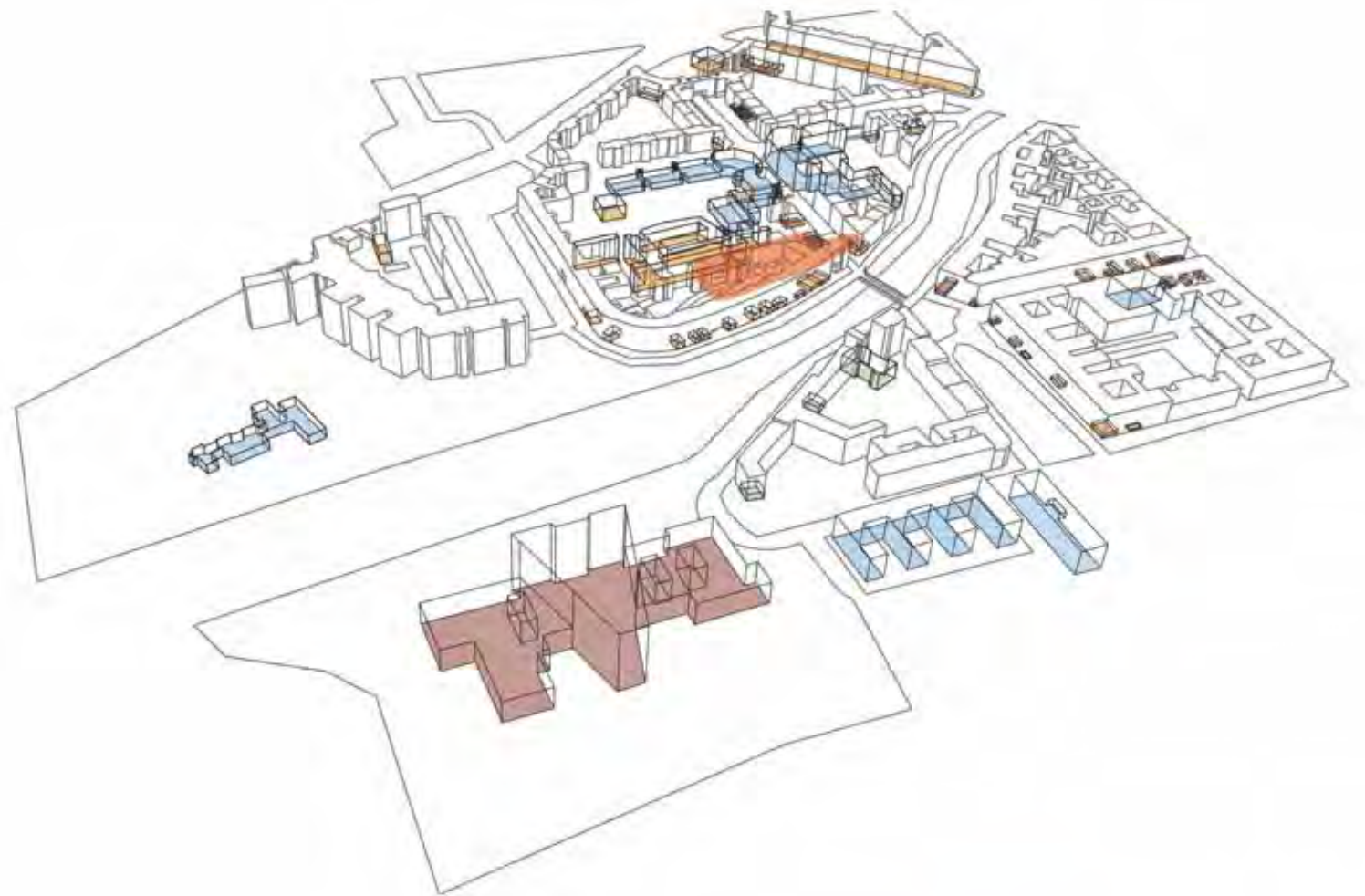


Amenity + Green Space



16m<sup>2</sup>/P [56%]





Public Facilities + Retail



## Fraenkelufer 28/38/44

Berlin-Kreuzberg, 1984

Modernisation and Refurbishment, New Housing Typologies, Garden Design

Client: Charitable Housing Association GSW

Architects: Inken and Hinrich Baller, Berlin



### Context/Site

This perimeter block from the Wilhelminian Era is situated beside the Luisenstädtischer Canal. Despite suffering only minor war damage, "Block 70" was, by the 1960s, in poor condition due to overcrowding and general neglect. In the 1970s, municipal housing companies and private investors bought the buildings and demolished many of the old stables and cheap apartments that occupied the courtyards in the centre of the block. The result was the segregation of residential and commercial property and the extensive termination of leases within the block. By the early 1970s in Kreuzberg, widespread squatting of empty buildings and street protests had developed in reaction to this type of practise.

In 1987, the International Building Exhibition (IBA) "Old" (the part of the IBA which dealt with existing buildings) commenced policies of "Careful Urban Renewal" and "Critical Reconstruction", which were set out in 12 Principles marking a new resident-oriented urban policy based the appropriation of small-scale and existing structures. These concepts took into consideration existing structures, the needs of the remaining residents and the *Instandbesetzer* or "Maintenance/Restoration

Squatters." This latter is a form of *selbsthilfe* "Self-Help" in which squatters occupy vacant derelict buildings and attempt to restore them to liveable condition (Katz, Mayer 1983).

### Legal Format

Subsidised rental housing through the GSW Housing Association.

### Concept

In the existing buildings of "Block 70", 200 apartments were modernised. In addition, three infill apartment buildings were constructed on vacant lots in the perimeter block, and a 110m long apartment building was built against the blank boundary firewall of a neighbouring building, defining the northern edge of a large forested courtyard.

The five-storey infill "gatehouses" at Fraenkelufer 38 and 44 are lifted in the air with concrete columns, thus allowing access to the courtyard under the curved soffits of their concrete balconies. Each building contains ten apartments, two of which are designed as maisonettes orientated towards the courtyard. The "corner house" at the junction of Fraenkelufer and Admiralstraße forms a prominent corner for "Block 70" and marks the entrance to the

new residential courtyard.

The building along the neighbouring firewall contains 48 apartments organised around three stair/lift cores. Each apartment has a substantial balcony or roof terrace. Maisonettes on the ground level have large gardens and maisonettes on the top storey have roof gardens. Overall, there is a good mix of unit sizes, ranging from two- to six-room apartments (from 55m<sup>2</sup> to 167m<sup>2</sup>). The complex has a communal, architecturally-designed courtyard garden, with various play and recreation areas distributed among what has now become a mature grove of trees. These various amenity spaces are defined by planting and landscaping rather than by fences or other enclosures.

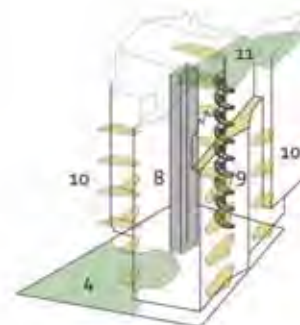
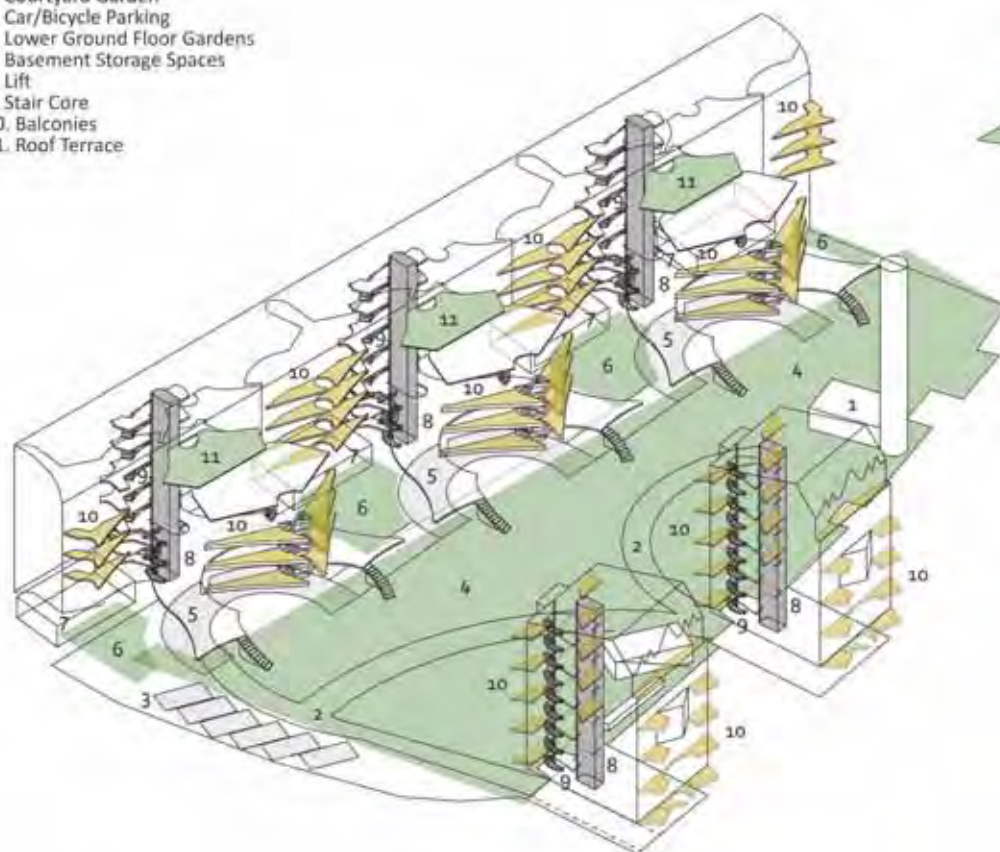
The new buildings are intended to contrast with the large housing blocks of the 1970s and to establish social housing at the scale of the 19th century Berlin tenement building and urban structure. However industry, which typically characterised the back courtyards of the Berlin tenement structure, has been replaced, in this case, by a public space with the characteristics of a park.



1 View of the "corner house" from the Admiralbrücke

# Amenity + Infrastructure

1. Plant Room
2. Parking Access Road
3. Parking
4. Courtyard Garden
5. Car/Bicycle Parking
6. Lower Ground Floor Gardens
7. Basement Storage Spaces
8. Lift
9. Stair Core
10. Balconies
11. Roof Terrace



## Fraenkelufer 28/38/44

Inken und Hinrich Baller

### Density



1.06 units / sqm



108 units / sqm

1.06 units / sqm

Site Cost / m<sup>2</sup> Wfl

€5.1/m<sup>2</sup>

€5.1/m<sup>2</sup>

### Programmatic Analysis



0.1 parking spaces / U



4.2 m<sup>2</sup> car parking / U



9.3 m<sup>2</sup> bicycle parking / U

9.5 m<sup>2</sup> private storage / unit

21.6 m<sup>2</sup> shared storage / U

21.6 m<sup>2</sup> shared storage / U

21.6 m<sup>2</sup> shared storage / U

### Total Programme Area Breakdown



### Total Project Cost

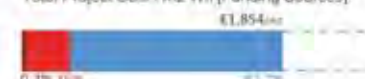
Site Cost / m<sup>2</sup> Wfl

€5.1/m<sup>2</sup>

€5.1/m<sup>2</sup>

€5.1/m<sup>2</sup>

### Total Project Cost / m<sup>2</sup> Wfl (Funding Sources)





## Participation

Residents from the adjacent city blocks participated in the planning process insofar as they supported the project as an alternative to the superseded official planning proposal to extend the adjacent Böcklerstraße through the site, to demolish the remaining existing buildings, and to transform the Fraenkelufer into a park.<sup>1</sup>

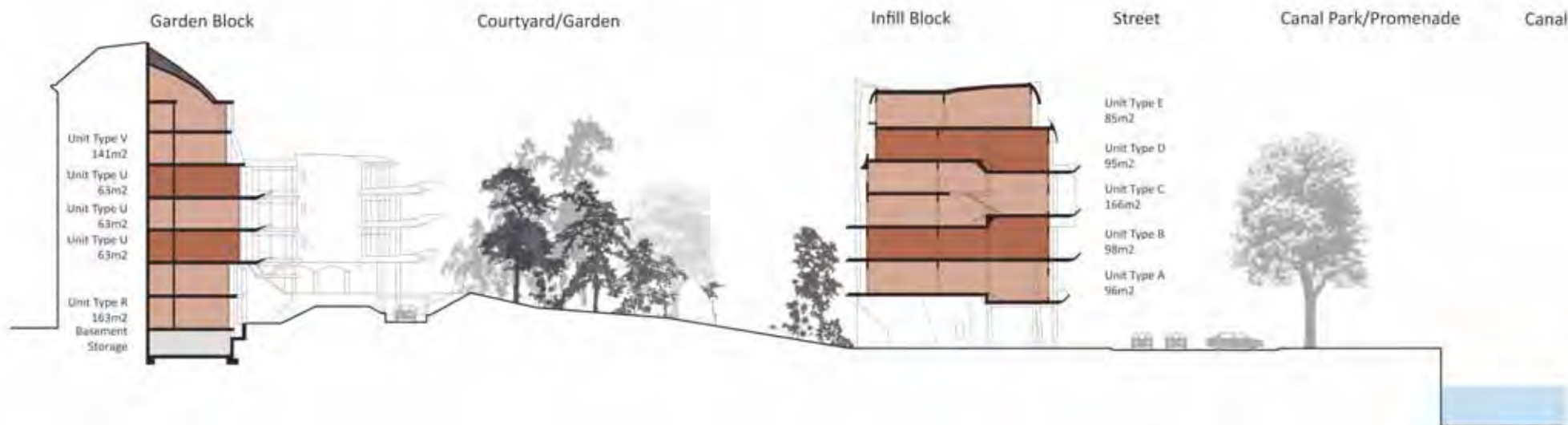
## Financing

The project was financed as social housing, through a combination of grants, tax benefits, and construction loans to private investors provided by the Bundesland of Berlin. An approximate cost analysis reveals total costs of ca. €1,800/m<sup>2</sup> of Wfl, with the site cost comprising only ca. €50/m<sup>2</sup> of Wfl of this. At the time of construction, the project's cost of ca. 3,600 DM/m<sup>2</sup> was very high. These high construction costs are reflective of the construction industry in Berlin at the time, where a policy of extensive building subsidies drove up construction costs to levels not reached by free market construction costs until ten years later.<sup>2</sup> The loan interest rates ranging from 4 to 8% on the financial summary reveal how dependent inexpensive housing is on affordable financing rates.<sup>3</sup>

1. Correspondence with Enker Baller, 3rd December 2013.
2. Correspondence with Enker Baller, 3rd December 2013.
3. Fraenkelufer 28/38/44 Wirtschaftlichkeitsberechnung und Teilwirtschaftlichkeitsberechnung GSW 01/04/2011.



2



3





4.



5.

2. View of neighbouring fireproof building from landscaped courtyard
3. Typical section showing distribution of living unit typologies
4. Internal view of Unit Type V maisonette taken from upper level
5. View of "gatehouse" building from Froenkelufer

### Critical Summary

This project is an exemplar of German social housing provision in the 1980s and one of the last examples of the construction of subsidised public housing before the practice ceased in Berlin in 1990. It illustrates a synthesis between the financial model of German social housing provision (market-based, with the public sector subsidising private firms to develop new housing or to renovate existing housing stock, in return for subsidies) and progressive quality design, particularly in the mix of apartment typologies and the provision of both generous private and shared/semi-public outdoor space.

In this model, in exchange for subsidies in the form of either tax relief or grants, private firms are required to operate the housing as 'social' - by enforcing income limits, rent ceilings, etc. - for a determined number of years. The length of this period depends on the type of programme and the extent of the subsidy: in the case of "Block 70" this was to be for 20 years. After its expiry, the owners of the building are free to rent or sell the dwellings at market prices, although in many cases - for example with municipal housing companies (which are still private legal entities) - the housing continues to operate as de facto social housing in terms of rent and access (Droste Knorr-Siedow 2007:97).

This model arguably encourages greater initial investment in quality of design and construction, and is based on the assumption that the dwellings and built environment will remain attractive even to those who are no longer eligible for social housing (allowing, for example, residents to continue to stay even though their incomes have risen or their children have left). Also, if and when the housing is released from its social housing role, there is an incentive for it to be desirable to rent or sell on the open market. This results in the development of social housing in areas that are well-located or which have been subjected to the influence of regeneration and have only a minority of residents that are legally-eligible for social housing still living in them. While this can be interpreted in terms of the adverse effects of gentrification, including pressure on rent levels, it can also

result in more mixed/less-ghettoized neighbourhoods and housing stock. In Berlin, this gentrifying effect is moderated by laws and rental contracts, which regulate rent levels and enforce notice periods of up to eight years in the case of long-term residents.

This is evident in the case of "Block 70", which contains a mix of approximately 50% original tenants (some of whom who have moved between apartments in the building: up-sizing and down-sizing as their circumstances and household sizes have changed), and younger families attracted to the location, design quality, and family-friendly outdoor spaces. This relates to the intention behind German post-war social housing to provide for the majority of the population, in contrast to its pre-war role of providing homogeneous neighbourhoods for "key workers" (Droste Knorr-Siedow 2007:97).

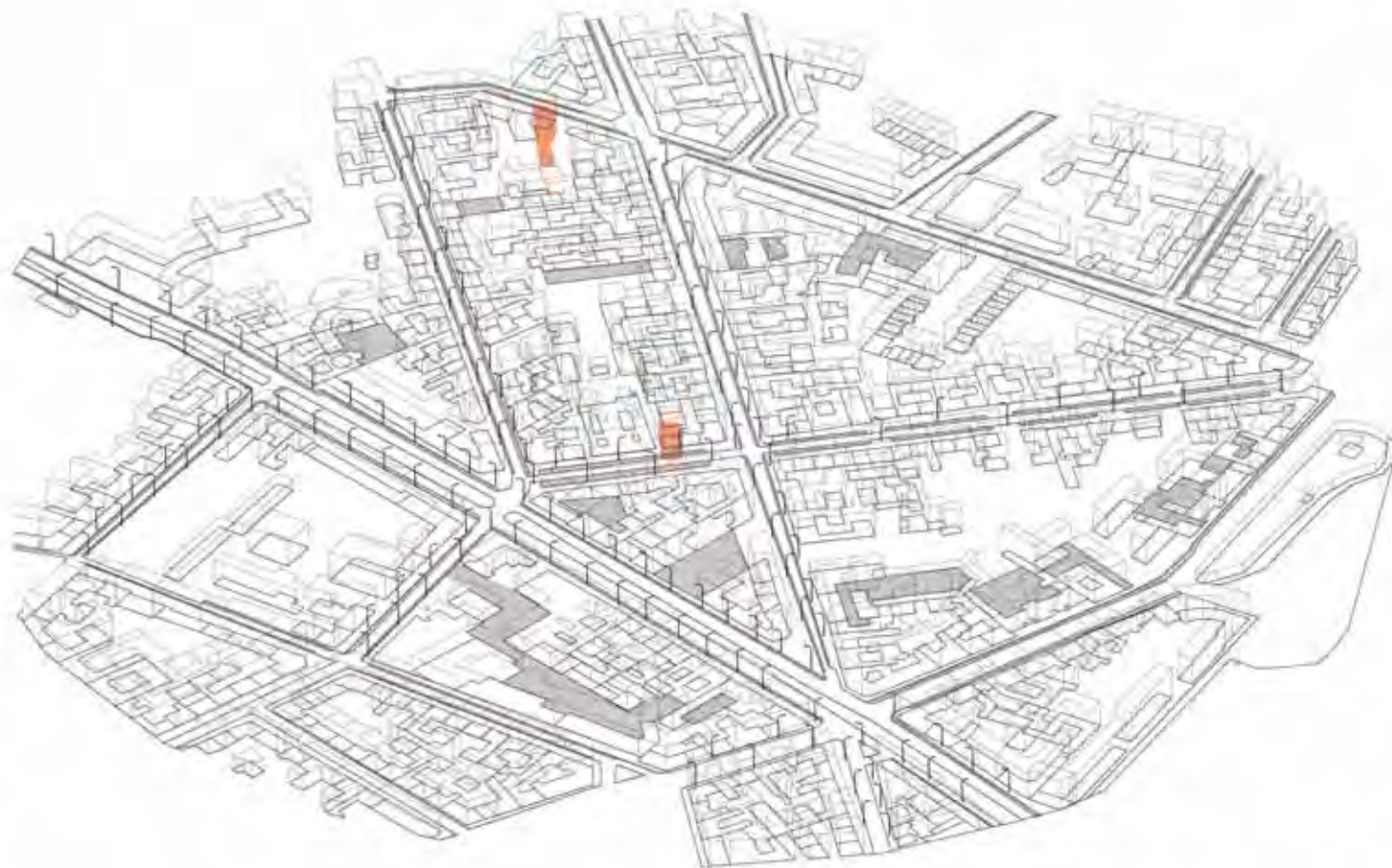
Therefore, the public sector can - in some cases - assume responsibility for maintaining a social mix, when housing companies have considerable scope within their placement policies. When responsibly managed, this can result in mixed resident profiles: "Block 70" is again a good example of this, with a diverse resident profile in terms of age, income, gender, sexual orientation, and ethnicity.

However, the success of such projects is highly dependent upon a good location and design quality: the provision of quality residential spaces of various sizes, quality shared amenities, and housing that is well integrated with its surrounding urban context. When these qualities are not present, this model will struggle to maintain diverse, desirable neighbourhoods. At the time of its construction, "Block 70" and many other social housing projects demonstrated how this financial model of social housing could deliver progressive, innovative housing: for example, by re-imagining urban family living at sustainable densities. This project does not, however, reflect other contemporary developments in models for post-public housing, including such attributes as programmatic flexibility, which allows for a mix of living, working, and other functions.

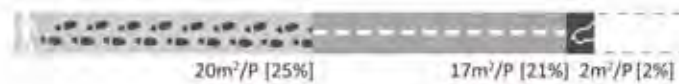
1.2.2 Schwedter Straße 26  
1.2.3 Oderberger Straße 56







Infrastructure + Services





Amenity + Green Space

34m<sup>2</sup>/P [43%]





Public Facilities + Retail

6m<sup>2</sup>/P [8%]



## Schwedter Straße 26

Berlin-Prenzlauer Berg, 2003

Restoration and Modernization of the "Social Urban Renewal" Program  
Client: Private Partnership  
Architect: BARarchitekten, Berlin



### Context/Site

This late 19th century perimeter block from the Wilhelminian Era is located in a central area of Prenzlauer Berg near the Mauerpark. This project involved the reconstruction of a four-storey apartment building from 1866 as part of the "Social Urban Renewal" program launched by the Berlin Department for Urban Development.

### Legal Format

A *Gesellschaft bürgerlichen Rechts* (GbR) or German "Civil Law Partnership" which is made up of at least two shareholders bound together by a contract in order to achieve a specified goal (e.g. to construct a housing project).

### Concept

The building was stripped down to the raw structural shell. In the four storeys of the existing building, kitchen walls and coal heating ovens were removed, and previously bricked-up openings in the central wall were re-opened. This allowed for the efficient arrangement of bathrooms and bedrooms to the rear/garden side of the building, and a flexible, open-plan living/kitchen area oriented towards the street. On top of the existing building, two duplex apartments were constructed beneath a shallow, barrel-vaulted roof. The concept of a col-

umn-free shell structure allowed the individualised, internal, self-build construction of two homes on three levels which make efficient use of these new 6.30m high spaces.

### Financing

Because the building is located in the Teutoburger Platz redevelopment area, the project was eligible for a modernization and repair subsidy within the framework of Berlin's *soziale Stadterneuerung* or "Social Urban Renewal" program. The aim of this program was to keep rents low and subject to only gradual upward adjustment for a period of 20 years after a building's modernisation. To achieve this, the program provided a direct financial contribution towards construction/modernisation costs, and contributed an on-going subsidy to assist with loan servicing. In return, the district redevelopment authorities retain the right to award rental contracts only to prospective tenants in possession of a *Wohnungsberechtigungsschein* (WBS) or "Certificate of Authorised Social Housing Need". The current rent levels for these tenants of €5/m<sup>2</sup> (excluding heating) is between €2-5/m<sup>2</sup> below the market price for the area. The District Re-development Office must be informed of any apartment becoming available in the

building and can determine its re-allocation.

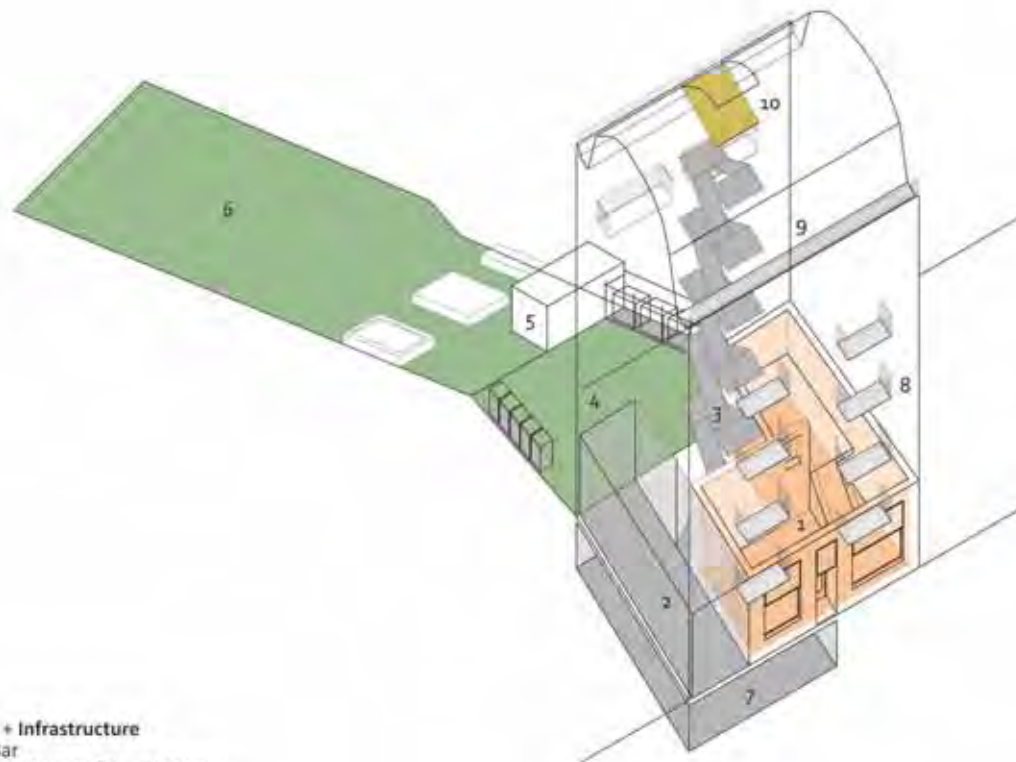
During the renovation period, the original tenants were accommodated in apartments already upgraded under the program. The tenants were able to choose whether they wished to return to their original apartment or to remain living in the replacement apartment. Additional grants were available to cover their moving expenses.

The building owner was required to apply for inclusion in this program. After approval of the application by the redevelopment agency responsible for that particular redevelopment area (in this case S.T.E.R.N.), an action plan catalogue was created, in which all necessary actions are listed and priced. On the basis of this catalogue, the total costs were calculated: the contractually-guaranteed building subsidy costs, as well as the expenses grants which take into account the rent income lost during to the construction period. In this way, the modernisation contract between the owner and the city was developed, in which all services and considerations are re-ordered. As in the case of a bank loan, borrowings were secured through a mortgage and entered in the land register. In the case of contamination on the property



1. View of Schwedter Straße elevation in 2001





#### Amenity + Infrastructure

1. Cafe/Bar
2. Entrance Passage/Bicycle Storage
3. Stair Core
4. Paved Terrace/Bin Storage
5. Cafe/Bar Storage
6. Garden
7. Basement Storage Spaces
8. Front and Rear Balconies
9. Front and Rear Linear Roof Terrace
10. Roof Terrace

## Schwedter Straße 26

BARarchitekten

Density



1.00 units / m²



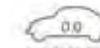
2.09 units / m²

Site Cost / m² Site

Site Cost / m² Wfl



Programmatic Analysis



0.0 carparking spaces / 0



0.0 m² car surface / 0



11.0 m² programme area / 0



3.0 m² private amenity / 0.00



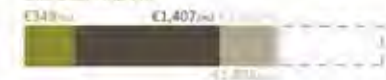
18.0 m² shared amenity / 0

Total Programme Area Breakdown

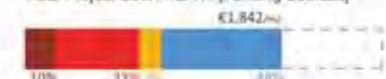


Total Project Cost

Site Cost / m² Wfl



Total Project Cost / m² Wfl (Funding Sources)





(e.g. soil contamination from WWII) or of the building (e.g. asbestos), a contract for required remedial measures was established with the district authorities. The district office assumed these costs, which were also secured by a mortgage in the land register.

For this project's construction budget of €1,088,000, a 10% construction cost subsidy of €108,000 and expense subsidies of approximately €84,000 were granted. The construction cost subsidy was paid incrementally according to the satisfactory execution of the works based on four inspections by the redevelopment authorities at key milestones in the construction process. The program could cover either complete or partial sections of buildings. In this project, six apartments were included; however the roof-level apartments and the business on the ground floor were financed privately.

Another feature of the project was the high proportion of self-build work: in this case approximately 15% of the construction. Under the program, it was possible for certain building tasks that do not require particular qualifications or tendering to specialist tradespeople (such as demolition work, which alone accounted for about 10% of the total construction cost), to be undertaken as self-build by the architects. Some interior work, such as the installation of ceilings, floors and kitchen fit outs, could also be executed as self-build work. For this self-build work, a separate timber and building renovation firm was established, which - with mediation from the welfare office - employed a youth who worked alongside the team of owner/architects for two years. After completion of the project, this youth successfully gained employment with a metal construction company.



2.



3.





4.

2. Schwedter Straße elevation before renovation and rooftop extension and after completion in 2001
3. Section with original (grey/yellow) and new (orange) building profile overlaid with diagram describing funding sources
4. Diagram showing distribution of living and commercial unit typologies

### Critical Summary

This project demonstrates a synthesis of privately-financed, citizen-initiated development and state support, through a funding program that understands the interconnectedness of the regeneration and maintenance of the built and social fabric. The renovation and extension of an existing building in a way that allows both existing residents to stay, but also allows new residents and businesses to invest their own futures in the building, facilitates both social continuity and the on-going positive evolution of the built and social context. These combinations are key to the success of the project.

This project should be understood as a synthesis of: this mixed financial model; the aims of "Social Urban Renewal"; and the multi-role approach - embodying the ethos and financial efficiencies of self-build - it was necessary for the future residents to adopt by acting as developers, architects, and building contractors. It is also interesting that the modest scale of the

project was also integral to the realisation and success of the project: small and inexpensive enough for both self-initiation, self-organisation, and self-build by a group of private individuals and to avoid the anonymity of larger-scale private or state housing development; but also substantial enough to accommodate a mix of uses and tenancies, to have a positive urban presence, and to receive support from an urban renewal program.

"Social Urban Renewal" was a model program, which developed out of the guidelines of former West Berlin's International Building Exhibition in 1987 (IBA87). After the fall of the Berlin Wall, this program was continued in urban areas of former East Berlin, however with reduced funding and more reliance on private investment, which could be deducted for tax purposes. The fact that it was eventually discontinued when state funds were exhausted raises the question of whether and how such a program could function in the current financial climate.



## Oderberger Straße 56

Berlin-Prenzlauer Berg, 2010

Mix of Uses, Density, and Interconnectedness  
Client: *Baugruppe* (Building Group), GbR Oderberger Straße 56  
Architect: BARarchitekten, Berlin



### Context/Site

This late 19th century perimeter block of the Wilhelminian Era is also in a central location in Prenzlauer Berg near the Mauerpark.

The Oderberger Straße 56 project fills a gap that goes back to wartime bombardment and which was used as a car parking garage during the time this area was part of East Germany. The property is adjacent to the protected heritage structure of the Prenzlauer Berg Municipal Baths (now undergoing renovation).

### Legal Format

GbR

### Concept

The Oderberger Straße 56 apartment and studio building is a construction project, initiated by architects, exploring the potential of urban density and diversity of use. It was realized in the framework of a *Baugruppe*. On a minimal site, measuring just 315m<sup>2</sup>, differentiated spaces were created, consisting of 19 units including commercial space, an experimental gallery space, studios, apartments and common areas. The resulting plot ratio is 4:1. To accommodate this complex spatial programme, a sophisticated spatial structure was developed,

defined by interlocking spatial volumes with ceiling heights of either 2.80m or 4.35m, allowing for either the fragmentation or combination of spaces. The three-storey "working and living zone" consists of ground floor commercial units and double-height studio spaces on the first and second floors. The apartments above are designed on three levels and each has a double-height living room. Large living units of more than 80m<sup>2</sup> are supplemented with a 40m<sup>2</sup> "granny flat", resulting in spatial and financial flexibility, as this small apartment can be used as a home office, independent child's apartment or rented out in times of financial need.



1. View of Oderberger Straße elevation





#### Amenity + Infrastructure

1. Cafe/Footpath Terrace
2. Gallery
3. Stair Core
4. Lift
5. Garden
6. Bicycle Parking
7. Bin Storage
8. Shop
9. Car Parking
10. Basement Storage Spaces
11. Studios
12. Front and Rear Balconies
13. Penthouse Linear Terrace
14. Guest Apartment
15. Roof Garden

## Oderberger Straße 56

BARarchitekten

#### Density



Site Cost / m<sup>2</sup> Wfl

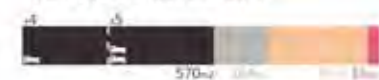
Site Cost / m<sup>2</sup> Wfl



#### Programmatic Analysis



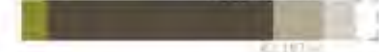
#### Total Programme Area Breakdown



#### Total Project Cost

Site Cost / m<sup>2</sup> Wfl

Site Cost / m<sup>2</sup> Wfl



#### Total Project Cost / m<sup>2</sup> Wfl (Funding Sources)



### Programming/Interconnectedness

Through its complex spatial structure, the building is able to respond to social change. In addition to newly created forms of co- and solitary-living, the traditional segregation of living and working is becoming more and more blurred. Approximately 18 people live in the building, aged from 5 to 80 years. In the studios, four start-up companies have been established, encompassing about 18 work stations. Every day, roughly as many people come to work in the building as the number of residents that leave it each working morning.

The experimental space on the ground floor - *die Raum* or "the Space" - is only 5.6m<sup>2</sup> and is the smallest unit in the house. It was conceived as a void, generates no rent, and is currently being curated as a gallery space by an artist and an art historian. As a minimal space hosting changing site-specific installations, it plays with the threshold between public and private.

### Financing

The project required a very specific funding model and legal format to allow the combination of living and working, and the mix of rented and privately-owned properties. The Baugruppe Oderbergerstraße 56 is incorporated as a GbR and consists of several parties who live or work in the building. Within the overall civil corporation of the *Baugruppe*, 50% of the area is allocated to private ownership, with the remaining 50% rented as studio and commercial space. A separate GbR established to act as the rental agent (BARarchitekten) takes on the risk equivalent to approximately €1.1 million of the total contract price. By refinancing (including amortization) of the project, the net rents come to €15/m<sup>2</sup> for commercial space and €10/m<sup>2</sup> for the studios, which converts to about €110 per month/per workstation, based on four desks per studio.

The calculation of the basic rent incorporates the cost of servicing the loans, as well as the accumulation of reserves for future repairs, and the cost of property management. The monthly rent paid includes, on the one hand, consumption-based costs for heating and water, and, on

the other hand, flat-rate costs for waste disposal, road and house cleaning, lighting, etc. Due to the improved standards of building insulation and of the heating system, the running cost per month is about €1/m<sup>2</sup>. The owner-occupiers of the dwellings pay a monthly charge that includes reserves, property management and operating costs.

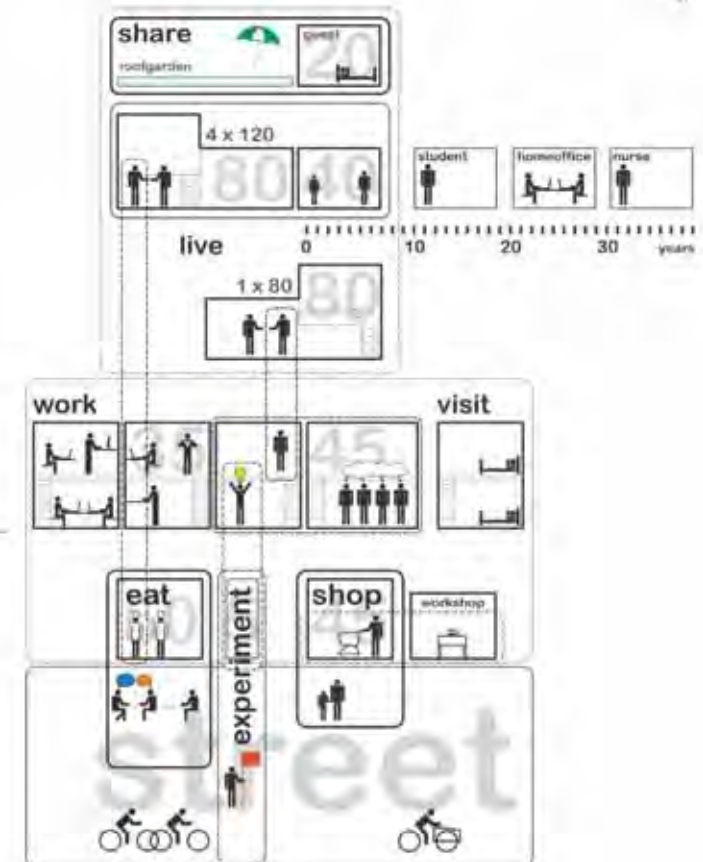


2

2. Internal view of Live/Work Unit
3. Flat as a "house on different levels"
4. Diagram depicting "Internal Urbanism"
5. Diagram showing distribution of living and commercial unit typologies



3

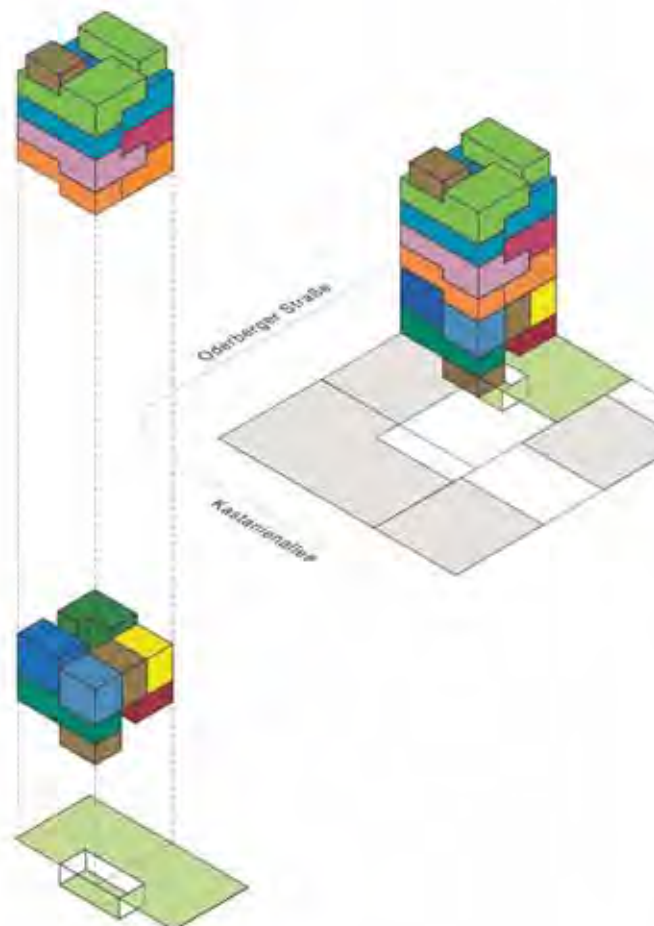




■ Gäste	18
■ Wohnung 5a	78
■ Wohnung 5b	37
	115
■ Wohnung 4a	83
■ Wohnung 4b	45
	128
■ Wohnung 3a	81
■ Wohnung 3b	27
	108
■ Wohnung 2	76
■ Wohnung 1a	82
■ Wohnung 1b	43
	125
■ Studio A	45
■ Studio B	35
■ Studio 1	31
■ Studio 2	33
■ Studio 3	33
■ Café	51
■ Experimentraum	5
■ Laden	43
■ Werkstatt	28
Total	874 m <sup>2</sup>

Wohnungen

Gewerbe/  
Ateliers



### Critical Summary

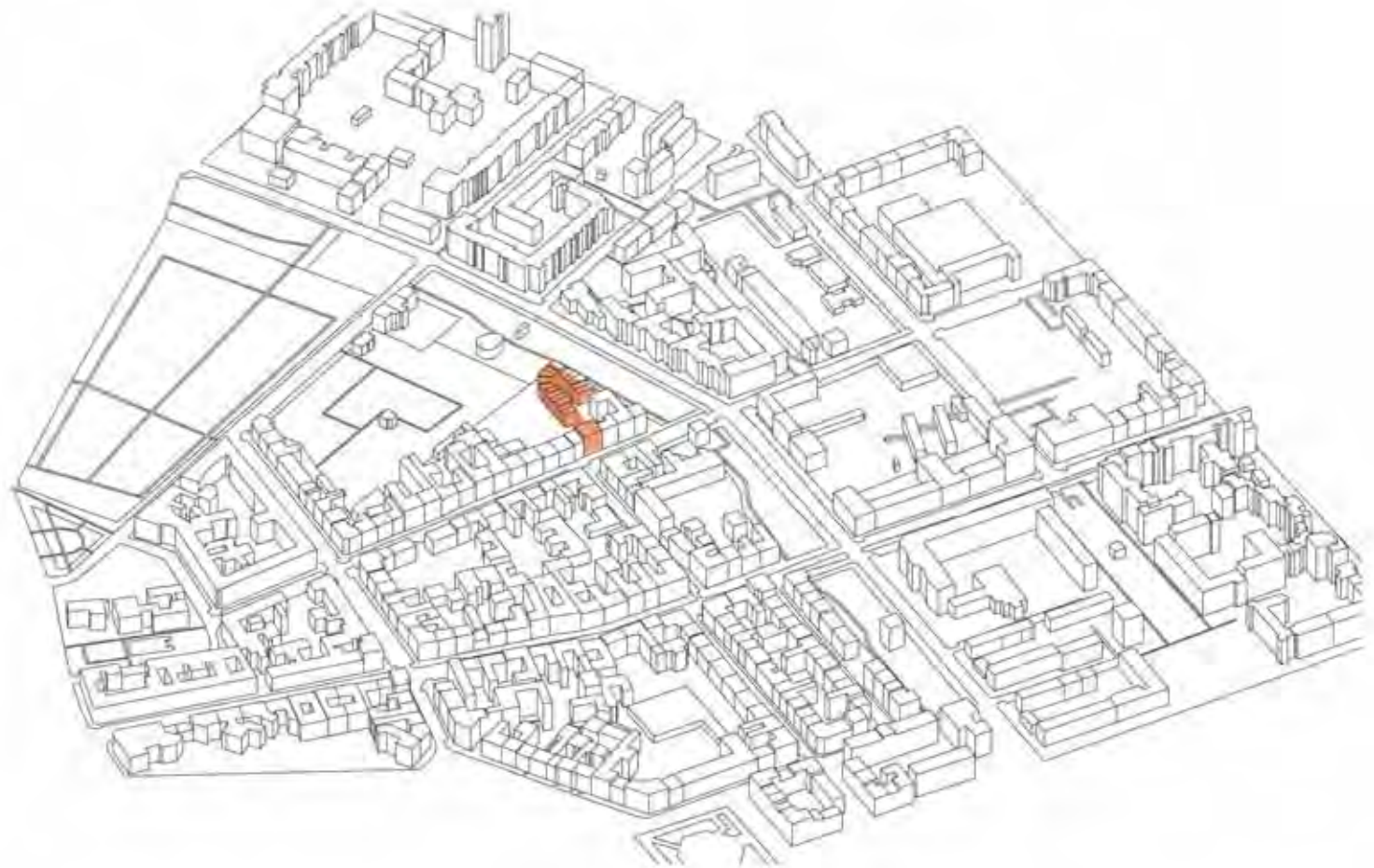
This was one of the first *Baugruppe* projects to incorporate a more diverse programmatic mix than previously possible within the conventional model. As such, it demonstrates the necessary synthesis between a desired programmatic mix; careful design of a more complex spatial arrangement; and a substantially more complex financial/legal version of the *Baugruppe*. This involved both the spatial collection of the rented studio spaces and retail spaces within the building and their financial grouping as a separate GbR or "civil company/corporation", which, together with the residential units, is incorporated as a larger GbR.

The project also demonstrates a synthesis between design and flexibility within the residential portion of the building. The grouping of multiple points of residential entry off the circulation core allows the semi- or total subdivision of these entities to accommodate future up- or down-sizing in response to the residents' changing requirements and life phases. Interestingly, it implies that - with good design - high densities can actually provide more scope for flexibility than lower-density typologies. For example, in comparison to the row house typology, residential entities in multi-storey, multi-unit arrangements can be subdivided off shared vertical circulation spaces, whereas in a row house typology they can generally only be subdivided from vertical circulation spaces that were never designed to be shared regarding structure, room layouts, acoustics, and fire escape requirements.

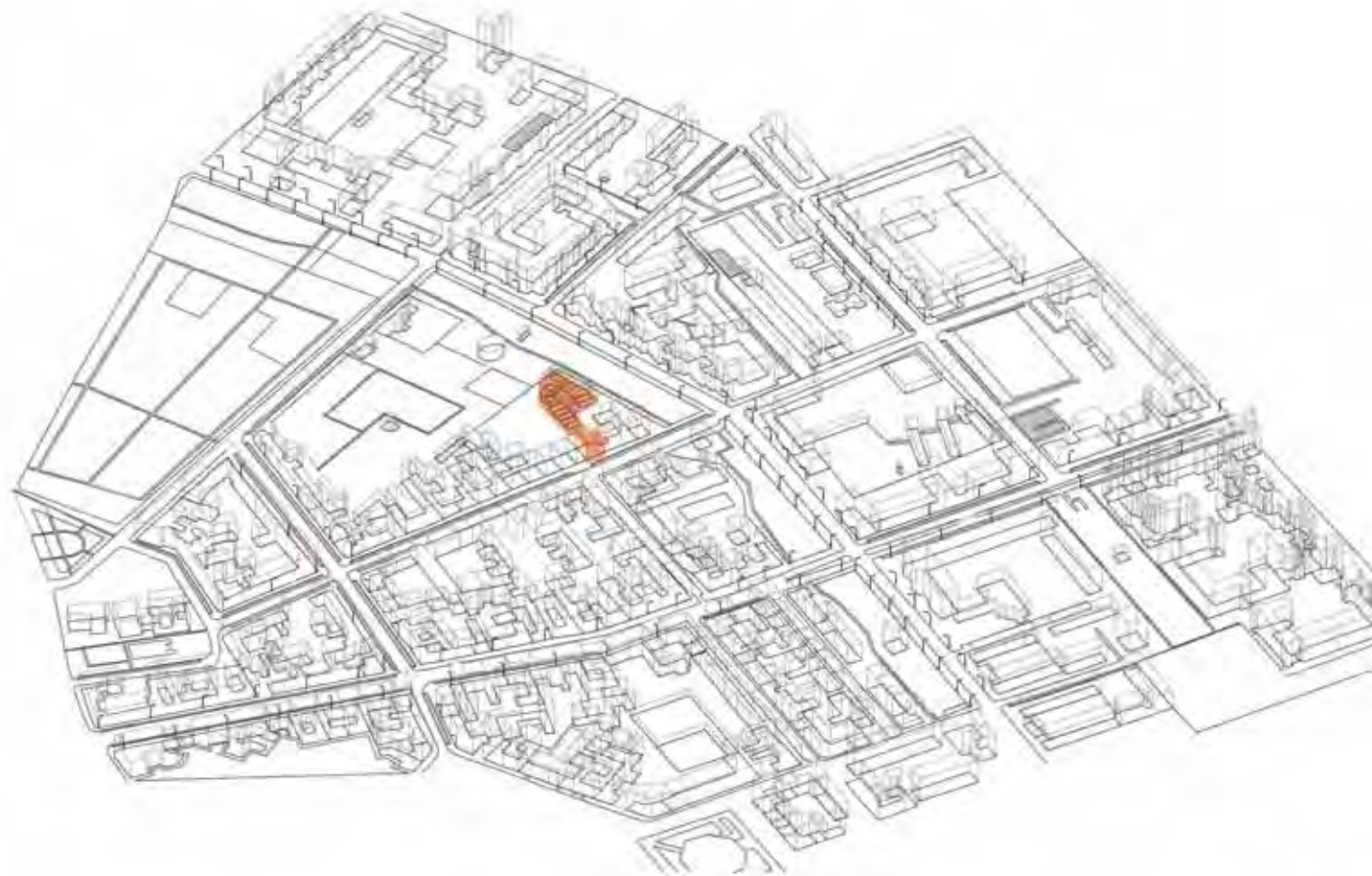
The high density of this model appears appropriate to the demand for space in this desirable urban location. The combination of living and working is nevertheless costly: the many small units, and the provision of these with required services and infrastructure, has resulted in additional building and running costs. On the other hand, since its completion the building has accommodated the creation of four new businesses, which helps to support local livelihoods.



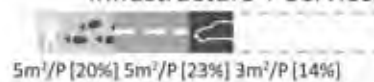
1.2.4A Strelitzer Straße 53  
1.2.4B Bernauer Straße 5-9

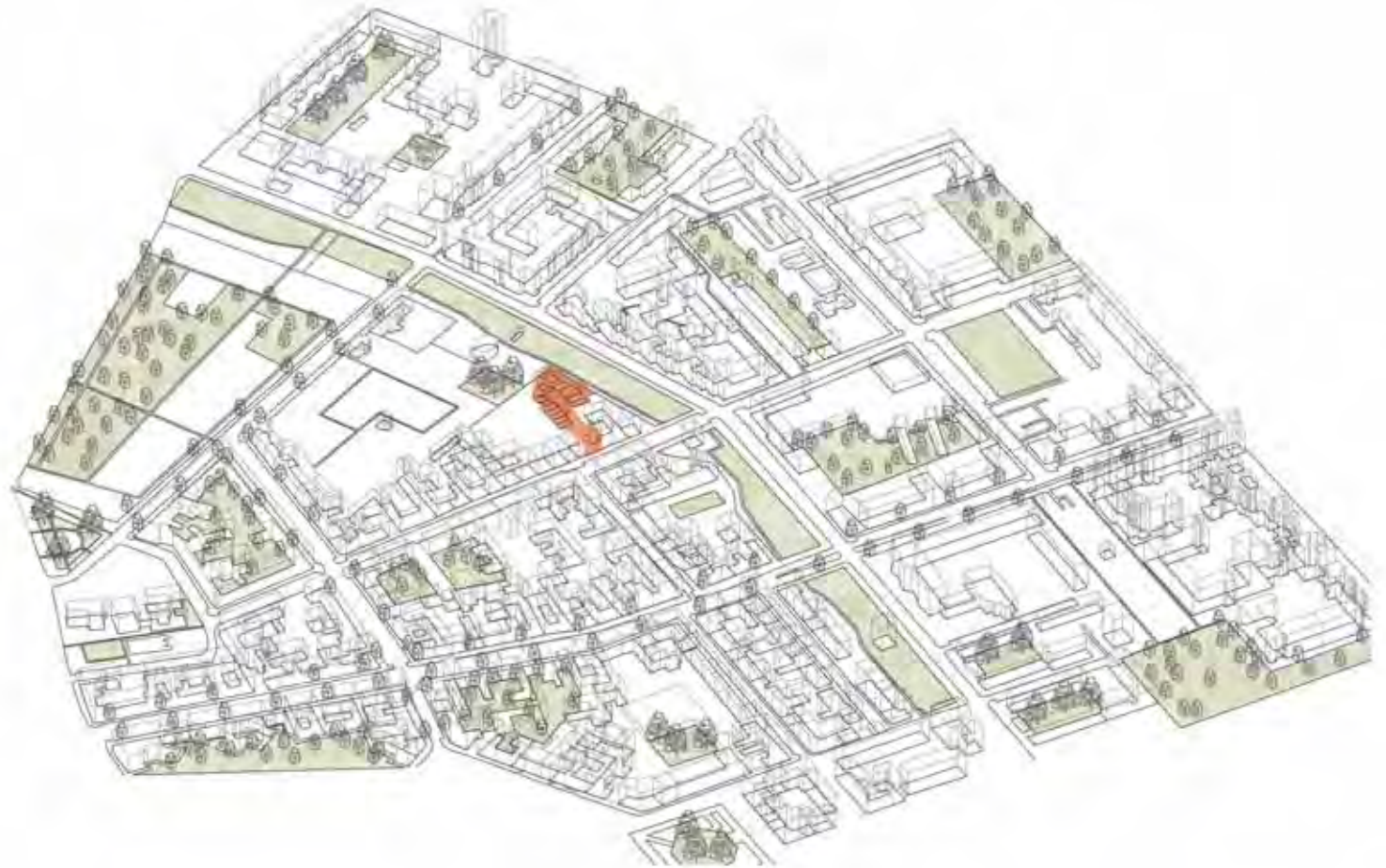


Density  
140 units/Ha



Infrastructure + Services

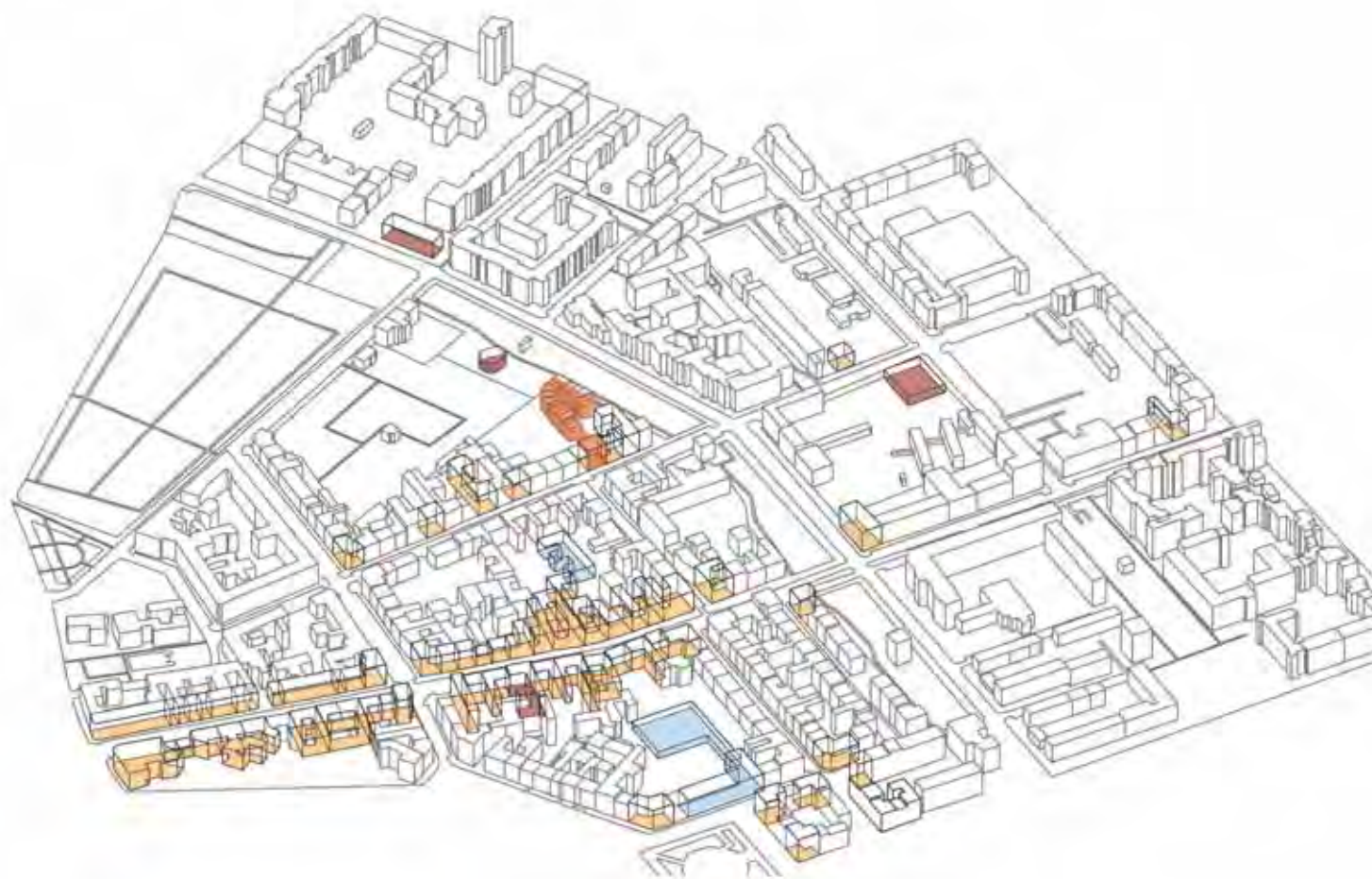




Amenity + Green Space

9m'/P [40%]





Public Facilities + Retail

1m<sup>2</sup>/P (3%)



## Strelitzer Straße 53

Berlin-Mitte, 2006

"Building Group" with individual residential formats

Client: GbR Strelitzer Straße 53

Architects: fatkoehl Architekten, Berlin



### Context/Site

The strip formerly occupied by the Berlin Wall intersects with two successive urban structures: the late 19th century perimeter block development of the Spandau Quarter and the loose urban arrangement of residential buildings constructed in the 1960s and 70s during the demolition and reconstruction of much of Wedding. The Strelitzer Straße project fills a gap in the urban context in a prominent location, with the rear of the site projecting into the land of the former Berlin Wall "death strip", which has been remade in recent years into the "Berlin Wall Memorial Park".

A private investor purchased the 670m<sup>2</sup> vacant lot and the adjoining land in 2001 from the German Federal Government and developed plans for the site in co-operation with the local authorities. The investor suggested closing the gap between the buildings to restore the street frontage, and to subdivide the land to the rear for the construction of 16 townhouses related to the height and fragmented morphology of typical Berlin outbuildings which traditionally housed artisans and other trades. Although these townhouses would have been hidden behind the proposed building edge along Bernauer Straße, the district authorities initially re-

jected this proposal. In 2003, the investor met with fatkoehl Architekten and was very enthusiastic about their proposal to take over the gap on Strelitzer Straße with a *Baugruppe* or "Building Group" project. This prompted the developer to guarantee this site for them for a period of one year at no cost. In exchange, the architects supported the townhouse proposal by preparing numerous models and drawings that eventually persuaded the district authorities to accept this scheme. Thus, a combination of two building typologies emerged: the apartment house to Strelitzer Straße and the townhouses (see Bernauer Straße 5-9) to the rear of the site. Public routes similar to the traditional courtyard gate/passage were planned to connect the townhouses to Strelitzer Straße and Bernauer Straße. After the project's building approval, the Berlin Wall area became a protected monument: consequently, development fronting onto Bernauer Straße did not emerge, and the townhouses are now freely exposed to the Berlin Wall Memorial Park.

### Legal Format

Strelitzer Straße 53 was one of the first *Baugruppen* or "Building Groups" in Berlin to apply the format of the civil law - a *Gesellschaft bürgerlichen Rechts* (GbR) - to a homeowners'

association (WEG): a model first established in the 1990s in the southwest of Germany. The 16 single plots to the rear of the site were assigned by lease agreement to individual private clients, who each completed the construction of their own townhouse project.



1. View of Strelitzer Straße elevation

## FATKOEHL Architekten



### Programmatic Analysis



Total Programme

Age Group	No (%)	Yes (%)	Don't know (%)
18-24	75	15	10
25-34	35	65	0
35-44	45	45	10
45-54	55	35	10
55-64	65	25	10
65+	15	15	70

Total Project Cost = 1000 m<sup>2</sup> / m<sup>2</sup> NGF

Site Cost / m<sup>2</sup> Wp

€244/m<sup>2</sup> €1,687/m<sup>2</sup>

0.111

€2,087,ind

1. Stair Core
2. Lift
3. Office
4. Basement Storage Spaces
5. Front Swing-Out Balconies
6. Roof Garden/Terrace
7. Rear Balconies
8. Garden
9. Bin/Bicycle Storage
10. Access Road



## Concept

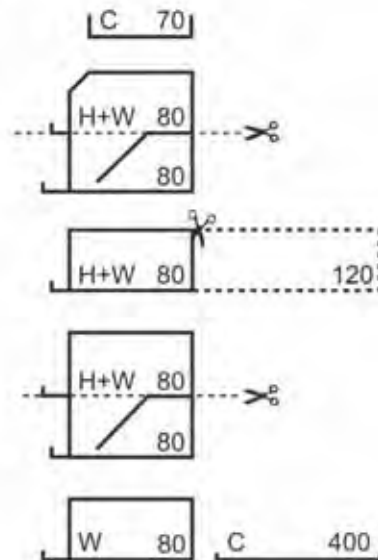
At Strelitzer Straße 53 the architects worked closely with the end-users to develop varied housing types through a process the architects refer to as "shared authorship". This resulted in individualized loft and duplex apartments ranging in size from 120m<sup>2</sup> to 200m<sup>2</sup>. The interiors are spatially-sophisticated, and - in the case of bathroom sculptural elements, built-in furniture, and fold-out mini balconies - experimental. The ground floor incorporates commercial space and there is a shared courtyard garden and roof terrace.

## Participation

The participation process included regular meetings regarding all matters relating to the construction process, and voting on decisions and the awarding of contracts. This process was organized by a project developer and incurred an additional fee equal to about 3% of the construction cost.

## Building Management

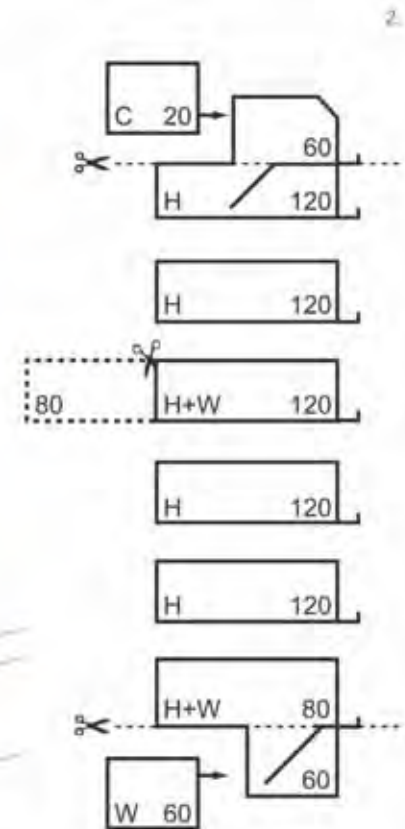
Building management for the project is through an external property management company.



H = HOUSING  
W = WORKING  
C = COMMUNITY



2. Diagram showing how mixed use model can accommodate future changes
3. View of internal street between Bernauer Straße 5-9 houses



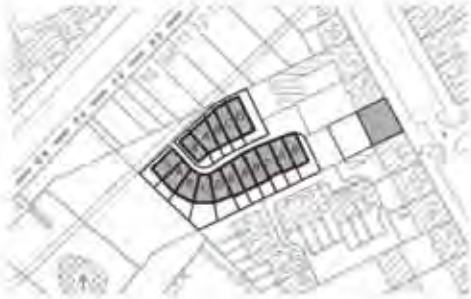
## Bernauer Straße 5-9

Berlin-Mitte, 2007-2008

Individual builders in combination with leasehold

Clients: private

Architects: Ludloff & Ludloff, Kai Hansen, xth architects, Jörg Ebers, et al., Berlin



### Context/Site

See Strelitzer Straße 53.

### Concept

The "Bernauer Snake" consists of bespoke townhouses on small plots lining both sides of a pedestrian passage (see Strelitzer Straße 53). Individual clients commissioned the houses with their own architects, creating a heterogeneous mix of architectural designs. In the lease contract - in addition to setting out the urban arrangement along the service road - additional stipulations of a social and aesthetic nature were included: no externally insulated façades, no PVC doors and windows, no subsequent additions, and no fighting dogs.

"House FL" by Ludloff & Ludloff is built for a family of four and includes an office space, which shields the northern edge of the site from Bernauer Straße with a highly insulated timber wall. The planning responds to the geometry of the plot by extending in a trapezoid form towards the garden. A single staircase connects the three upper floors with the office occupying the lowest level.

### Financing

The plots are held by the private owners through

a leasehold arrangement. For each property, there was a one-off payment of €35,000 followed by a monthly ground rent of €75 for the agreed term of 198 years. This method has two advantages for the buyer: the leasehold reduces the liquidity pressures during construction and the initial private capital requirements, as the land cost usually has to be financed in advance. For the landowner, the lease is extremely profitable (providing an income per plot over the entire term of €213,200).





5.

4.



6.



- 4. Internal view of folding walls in Flat No.3
- 5. Internal view of kitchen in top floor Flat No.4
- 6. Internal view of Flat No.3 bathroom with shower (yellow) and toilet (red)
- 7. View of neighbourhood flea market in Bernauer Straße 5-9
- 8. Internal view of staircase in House FL



### Critical Summary

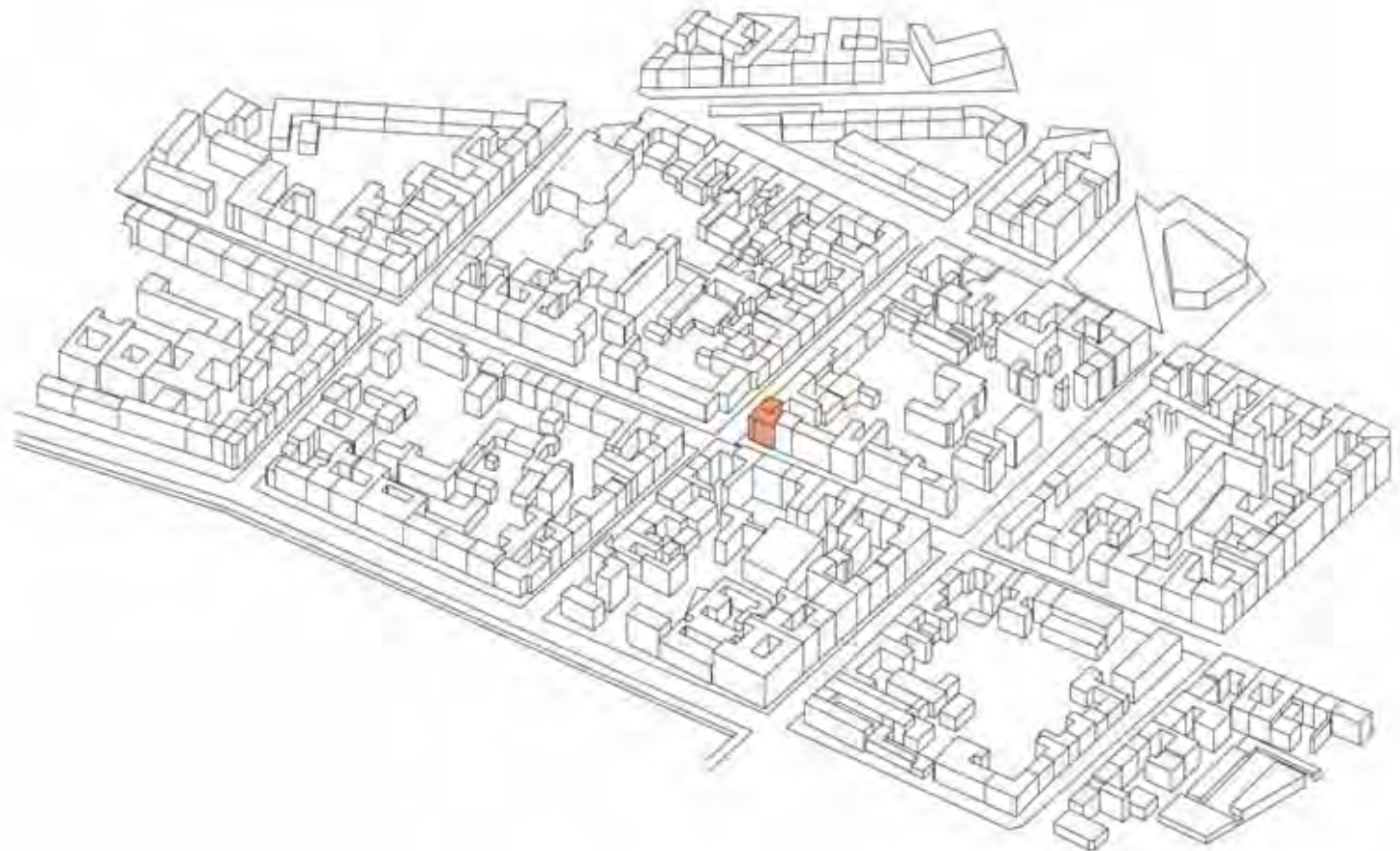
As one of the first projects realised through the *Baugruppe* or "Building Group" model in Berlin, this project explored the potential of this model in terms of the economic advantage of removing a speculative developer's profit margin; the individualisation and self-determination of living space; the benefits and economies of shared amenity; and the potential for social cohesion created through group formation and working collaboration to realise a residential community. This project and subsequent *Baugruppe* projects indicate a correlation between the scale and massing of multi-story, high-density urban infill typologies of the Berlin late 19th century perimeter block and the financial, legal, and social aspects of the *Baugruppe* development model. This spatial typology necessitates and stimulates a collective negotiation and planning of the relationships between individual spaces and shared collective spaces within the project.

This is evident when comparing Strelitzer Straße 53 to the connected Bernauer Straße 5-9 townhouse typology to the rear of the site. Here, a group of individuals also came together to realise housing development. Here, however, negotiated aspects were limited to the collective lease acquisition of the land, its subdivision, and the agreement on some development conditions and restrictions. After this, the individual lots were developed independently. For this reason, shared amenity spaces and collective aspirations did not develop, and the design and building processes were not very efficient, with clients working with separate architects and contractors for the individual houses. Another limitation of the townhouse model is that vertical circulation cannot be shared between residences, further increasing costs. These factors resulted in high costs for each individual private owner and the very heterogeneous appearance of the development. The appropriateness of this highly individualistic expression is questionable in relation to its location on the former "death strip" of the Berlin Wall.



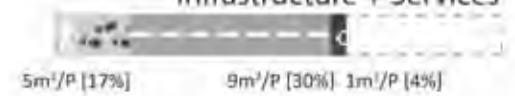
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### 1.2.5 Lausitzer Straße 38





Infrastructure + Services

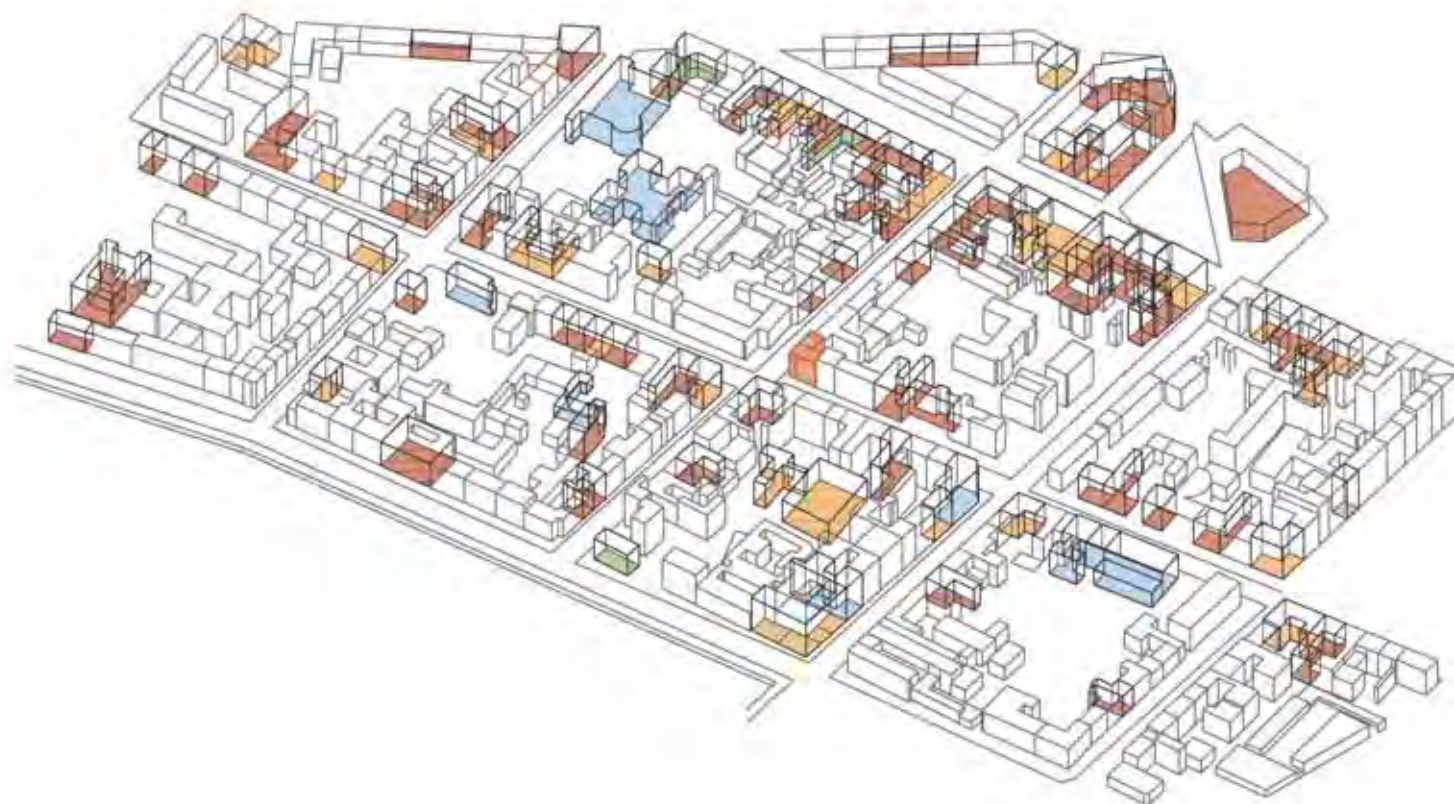






Amenity + Green Space

9m<sup>2</sup> [29%]



Public Facilities + Retail



6m<sup>2</sup>/P [20%]





## Lausitzer Straße 38

Berlin-Kreuzberg, 2011

Cooperative Housing, Affordable Rental Housing, Lease

Client: genowo eG Housing Cooperative

Architect: Stadtoasen – Andreas Wettig, Berlin



### Context/Site

The surrounding context (the Görlitzer Park and the Paul-Linke-Ufer) is predominately late 19th century building stock, occasionally supplemented with residential buildings from the post-war period and 1980s housing from the International Building Exhibition (IBA). This project is a renovation and extension of an existing five-story residential building from the 1950s. The site is an inexpensive leasehold property on a corner, with an existing rental apartment building from 1959 which was incorporated into the new building. The un-built area of the corner site provided the opportunity to re-establish the corner and to frame an entrance to the interior of the block.

### Legal Format

The *genowo* eG Housing Cooperative was founded in 2007, and is focused specifically and exclusively on rental housing rather than private ownership.

### Concept

The new apartment building is an addition to the existing building which was renovated in the first phase of the project. In addition to the ten apartments in the existing building, 13 apartments between 45m<sup>2</sup> and 120m<sup>2</sup> were

realised in the new building, each with either a terrace or large balcony. Crucial in the planning stage were, first, the guarantee that existing tenants could remain, and, second, the participation of future tenants in the design process. Varied floor plans and interior fit-outs were a key focus of the participatory process. In order to keep costs low, expensive fit-outs were avoided. The fifth floor roof terrace with guest room and the resident-managed courtyard garden are for shared use by all members of the housing collaborative.

The tenants of the existing building are not members of the housing co-operative, however relations between existing tenants and new co-operative members are described by the residents as being very good. The existing tenants are invited to participate in collective events such as the quarterly meeting of all residents of both existing and new buildings, and to share the use of the courtyard garden. There is no legal agreement formalising this: it functions on the basis of mutual "good will".

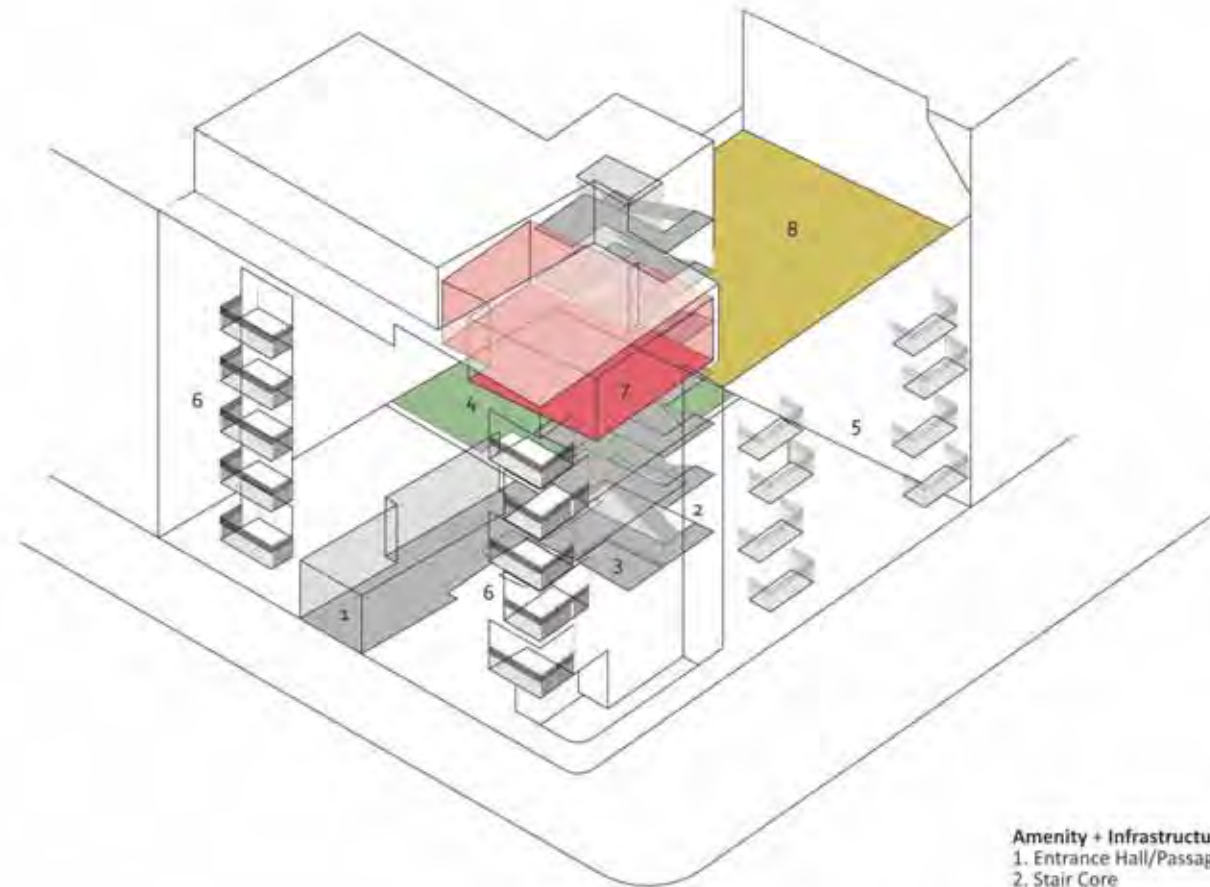
As planned, the existing tenants have not been subjected to any significant increase in rent as a result of the building works, with the rent kept low at €4-5/m<sup>2</sup> per month. In comparison, the

new co-operative members pay rent between €8-9/m<sup>2</sup> per month depending on their flat. These figures exclude heating, rates, and building maintenance and management costs. As part of the new building works, the tenants of the existing building have benefited from new balconies, new lift access, and a heating system shared between new and existing sections of the building. This compensated them for the temporary inconvenience of the construction period and made them stakeholders in the overall project.



1. View from street with new building (left) and integrated 1950s building (right)





- Amenity + Infrastructure**
1. Entrance Hall/Passage
  2. Stair Core
  3. Lift
  4. Courtyard Garden
  5. Balconies
  6. Loggia Balconies
  7. Common/Guest Apartment
  8. Roof Terrace/Garden

## Lausitzer Straße 38 Stadtoasen

Density



Size Cost / m² Wfl  
Size Cost / m² Wfl



Programmatic Analysis



Total Programme Area Breakdown



Total Project Cost



Total Project Cost / m² Wfl (Funding Sources)



The *genowo* has leased the land under the terms of an inheritable leasehold (lease in perpetuity) from a private owner. Instead of a single initial large sum, which would have necessitated a high up-front investment and commensurately high rent, the cost of the land in the monthly lease is 4% of the purchase price per year. A purchase option is also written into the lease. Funding is provided through the *UmweltBank*, a German credit institution funding only what it considers ethical and/or environmental projects. Equity in the order of 27% of the construction costs was made up through compulsory contributions by the members of the co-operative. Each member of the co-operative has acquired a stake of €340/m<sup>2</sup>. The remaining finance was predominantly supplied by low-interest loans from the *KfW Bank*.

As the *genowa* is a relatively new housing co-operative, this being only the second building they own to date, the initial deposit for the tenants was relatively high compared to older, traditional housing cooperatives. For example, the *Berliner Baugenossenschaft* (BBG), one of the oldest housing cooperatives in Berlin (founded in 1886), has 8,800 members and owns 6,779 flats and is thus able to finance new projects by borrowing against this substantial existing housing stock (for which the financing has already been paid off). Therefore, in their case, the deposit for new members is significantly lower than for newly-established housing co-operatives.

The *genowo*, like every other housing co-operative, is subject to specific rules set by the overall *Genossenschaftsverband* or "Federation of Co-operatives". Members are required to meet once a year, the managing board has to reveal its finances, and there is a supervisory board that controls it. If a member of the housing co-operative wants to leave, he or she will have their initial deposit returned to them. In the case of this project, the new member replacing them is chosen/approved collectively by the co-operative members living in the building, not by the overall housing co-operative (*genowo*) and this new member is re-

quired to pay a deposit equal to that returned to the outgoing member. This model aims to guarantee stable low rents by removing the housing from the effects of market forces, including rising real-estate prices, gentrification, speculation, and sub-letting. The only variables that can affect the rents are the interest rates on the loans the co-operative is paying off, and any changes in the ongoing costs of maintenance and management. In this respect, the rents are predicted to rise only slightly over the next 20 years, before starting to fall. In real terms, this equates to a guarantee of long-term stable or decreasing rent levels.



### Outline of Existing Building

Private Roof Terrace/Garden



### Typical Floor

Shared Roof Terrace/Garden  
Private Roof Terrace/Garden

Common Room/Guest Apartment (ca. 39.0m<sup>2</sup>)

5th Floor

Private Roof Terrace/Garden

Circulation Core

Private Roof Terrace/Garden

6th Floor





3.



4.



5.

### Critical Summary

This is one of the few examples in which inexpensive apartments in a good location have been created through a process of participation with the residents. The housing co-operative model allows the participation of households with lower or less-conventional or less-stable incomes (e.g. self-employed or elderly people) who would not be able to get an individual loan from a bank. The members live in conditions similar to ownership: as the first tenants of the building, they were able to participate in the planning process (e.g. in the layout and size of the flats and the collective spaces). This advantage justifies the relatively high initial deposit required. The residents have the right to stay in the flat all their lives, can pass it on through inheritance, and they can directly influence decisions the housing co-operative makes by exercising their voting rights.

The property is actually taken out of the open real estate market: there is no added value that any single member/tenant can gain, as they cannot sell their flat. On the other hand, they benefit from a *Hausgemeinschaft* or "Collective Household" in which everyone has equal rights and no one can sell his/her flat to someone unsympathetic to the rest of the household. The *genowa* describes its social activities as very lively and enriching, as compared to older

housing co-operatives that, over the decades, have turned more into housing administrations once the first generation of pioneers has gone.

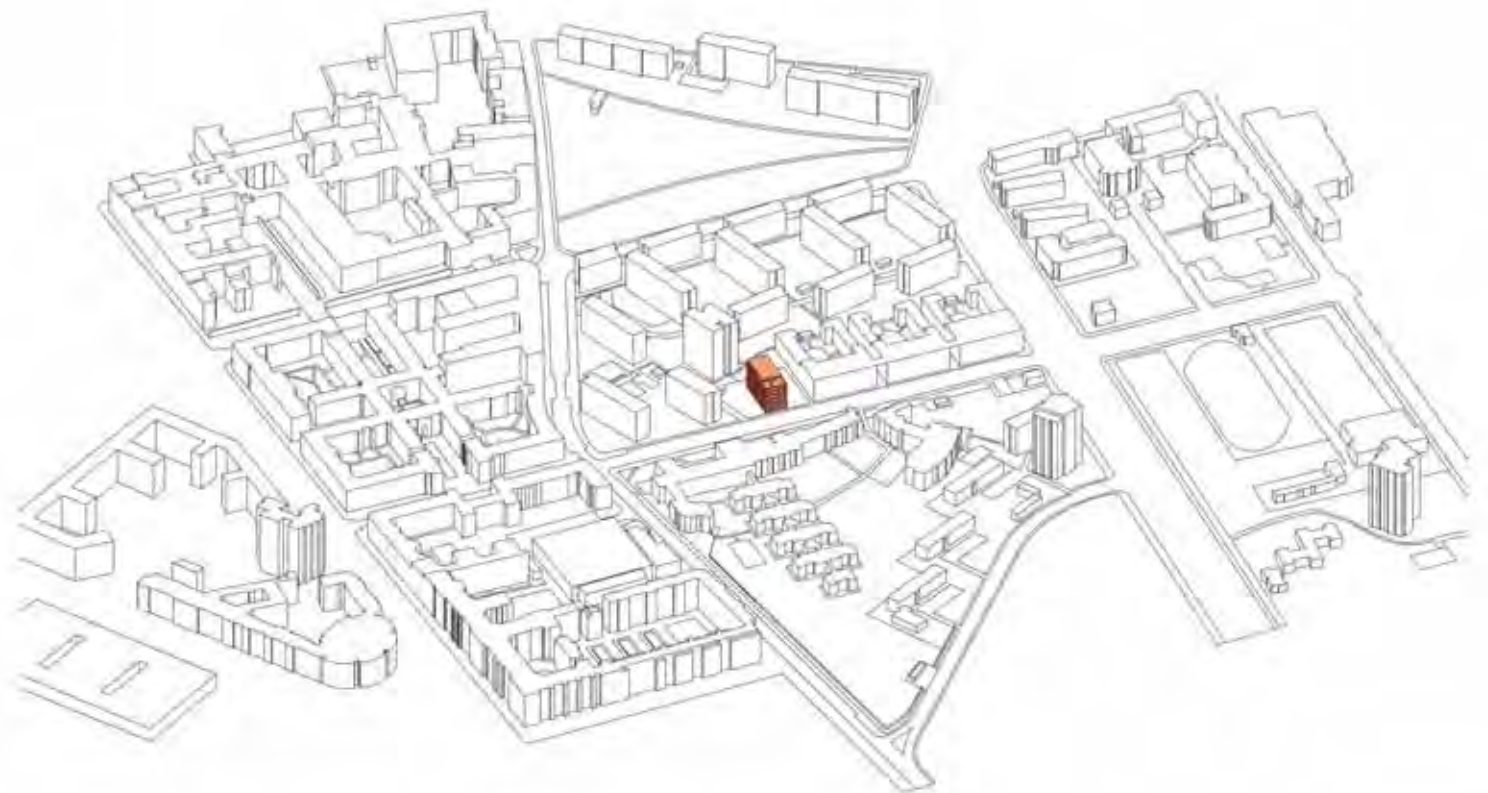
This project demonstrates the appropriateness of the ethos of this financial/legal model to sensitive intervention into both an existing building and a social context. The co-operative development model's participatory methodology and its egalitarian agenda, regarding maintaining reasonable rents and removing the pressures of property speculation, were well-suited to the incorporation of an existing building with existing tenants into the new proposal. Both the complexity of the small site and dealing with existing building tenants would have made such a project unviable for a developer-driven financing model.

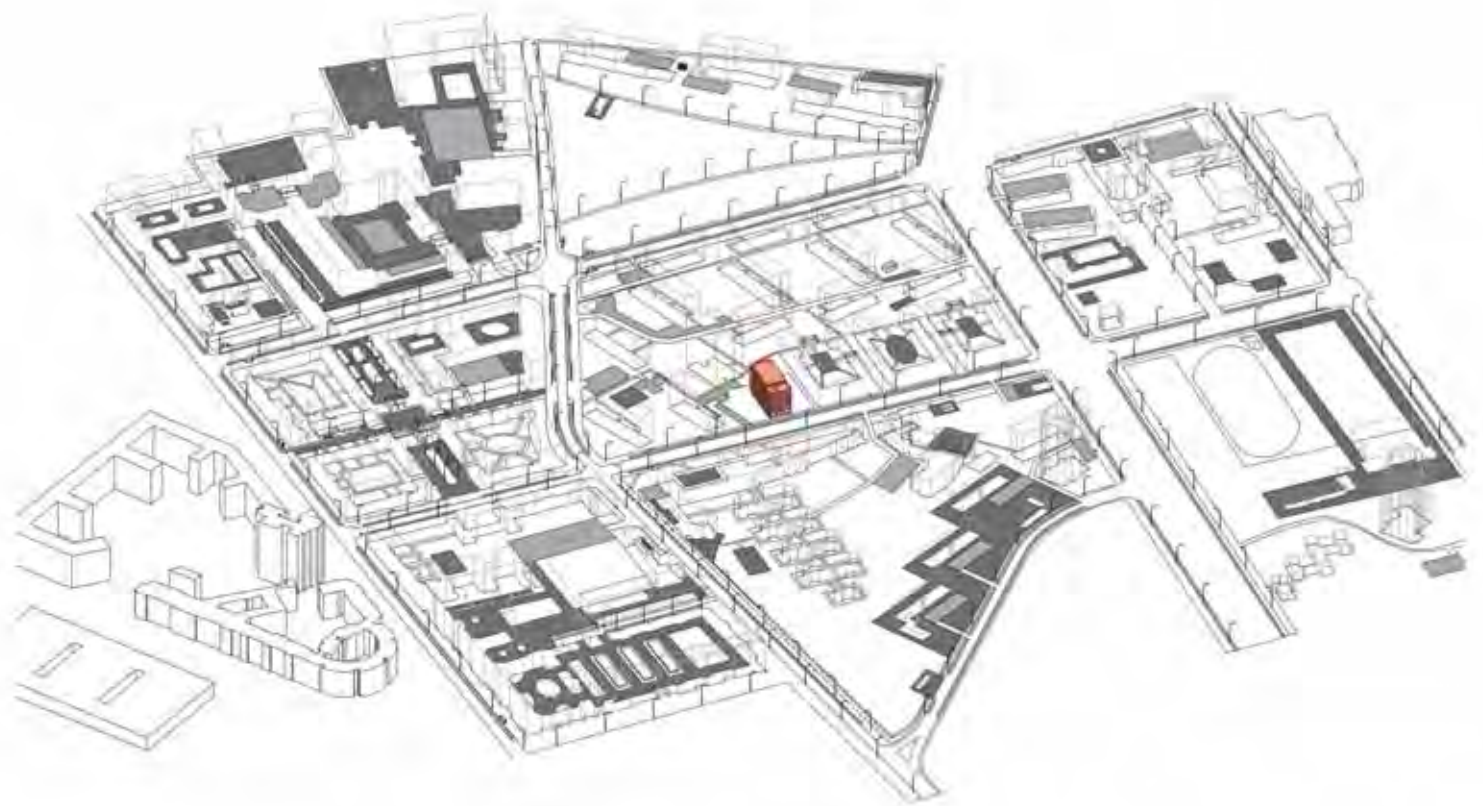
In this particular area of Kreuzberg, there has been significant social activism protesting against perceived gentrification and up-market housing developments adversely affecting rent levels for existing tenants. In this respect, this co-operative development model was quite successful in being able to realise new housing within this sensitive social context. This project also provides an example of how an increase in density has actually resulted in increased amenity for existing residents.

2. Diagram showing distribution of living unit typologies
3. View of roof terrace outside common room
4. Internal view of typical living room looking towards partially-recessed balcony
5. View of courtyard landscaped by residents



### 1.2.6 Ritterstraße 50





Infrastructure + Services



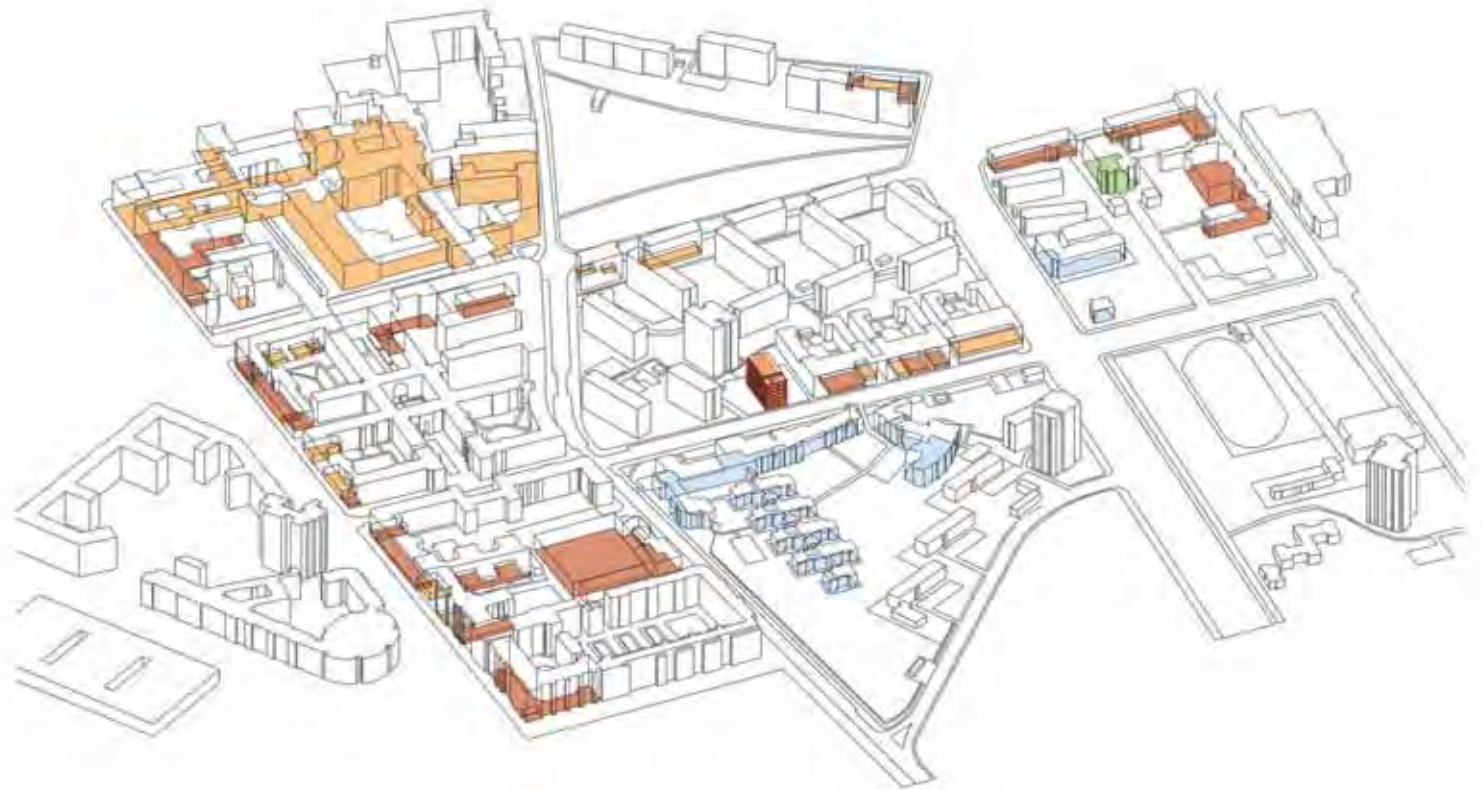
2m²/P [6%] 7m²/P [21%] 3m²/P [9%]



Amenity + Green Space

15m² / P [48%]





Public Facilities + Retail



## Ritterstraße 50

Berlin-Kreuzberg, 2013

Participation and Cost-effective Building  
Strategy

Client: GbR Ritterstrasse 50

Architects: ifau and Jesko Fezer/Heide & von  
Beckerath, Berlin



### Context/Site

The area has been shaped by damage and demolition resulting from WWII and subsequent post-war construction. The site is located in the Otto Suhr housing estate, one of the first Berlin social-housing projects, built in the period 1956-63 by the GSW non-profit housing association. The housing blocks and high-rise apartments of this estate were added to in the 1980s by new housing constructed as part of the International Building Exhibition (IBA).

The land was originally intended for use as an exit ramp from an unrealised motorway planned in the 1950s, and later as a location for a day-care centre. In 2010, it was selected to be one of five state-owned sites, which were the subject of *konzeptverbundene Verfahren* or "Concept-Based Process" of sale organised by the Berlin Department for Urban Development. The institution that managed this process is *Stattbau Berlin*, a re-development agency founded in 1983, which has since become active as a consultant for the city of Berlin.

The "Concept-Based Process" is a new tool of Berlin's *Liegenschaftsfonds* or "Public Real Estate Agency". This involves selling selected sites that belong to the city of Ber-

lin to private owners, not on the basis of the highest available price, but on the basis of social, architectural/urban and ecologically sustainable criteria. The tenderer applies with a concept that is then evaluated by the *Liegenschaftsfonds*. This tool affords middle-income households the possibility to buy and develop sites collectively that would otherwise be too expensive. And in this way, the city of Berlin aims to positively-influence certain neighbourhoods by attracting middle-income households. The precise criteria for the concepts are still evolving, and thus far include, for example, housing collectives for a mix of ages; the incorporation of neighbourhood facilities (e.g. cafés, child care, collective spaces, community gardens etc.); and ecological features (e.g. recycling of household water, combined heat and power (CHP) energy systems, etc.). In this project, the *Baugruppe R50* convinced the *Liegenschaftsfonds* to support a housing concept offering generous collective spaces as well as a participatory planning process that was seen as an example of "best-practice" for urban housing.

### Legal Format

It was originally intended to realise the project as a co-operative, however through the process

it emerged that the establishment of a small co-operative was considered by the *Baugruppe* members to be too expensive, while also not satisfying all their needs. The members wanted to be flexible and mobile and thus to have the right to sell their flat in the future. The expected increase in value of the flats on the property market was an argument against establishing a housing co-operative, as many members are self-employed and see their flat as their pension. Furthermore, the establishment of a legally approved housing co-operative is an elaborate procedure with every new co-operative required to undergo an annual audit and pay an annual fee to the *Genossenschaftsverband* or "Federation of Co-operatives". At the moment, the German Ministry of Justice is working on a new legal format for "small co-operatives", appropriate in such cases as co-operative shops for small villages, or housing co-operatives with only a few members. This new legal format aims to be less bureaucratic and expensive, as co-operatives are seen as a good instrument to support and maintain civil society. In the end, the *Baugruppe R50* was formulated as a GbR.



1. View from Ritter Straße



## Ritterstraße 50

ifau und Jesko Fezer / Heide & von Beckenrath

### Density

1.35 plot ratio

122 units / Ha

Site Cost / m<sup>2</sup> Wfl  
Site Cost / m<sup>2</sup> Wfl

€253/m<sup>2</sup>

### Programmatic Analysis

0.0  
competing spaces / P

0.0 not car surface / P

3.0 m<sup>2</sup> infrastructure / P

0.0 m<sup>2</sup> private amenity / unit

33.9 m<sup>2</sup> shared amenity / P

### Total Programme Area Breakdown

2110 m<sup>2</sup> 28.1 m<sup>2</sup> 17 m<sup>2</sup>

### Total Project Cost

Site Cost / m<sup>2</sup> Wfl

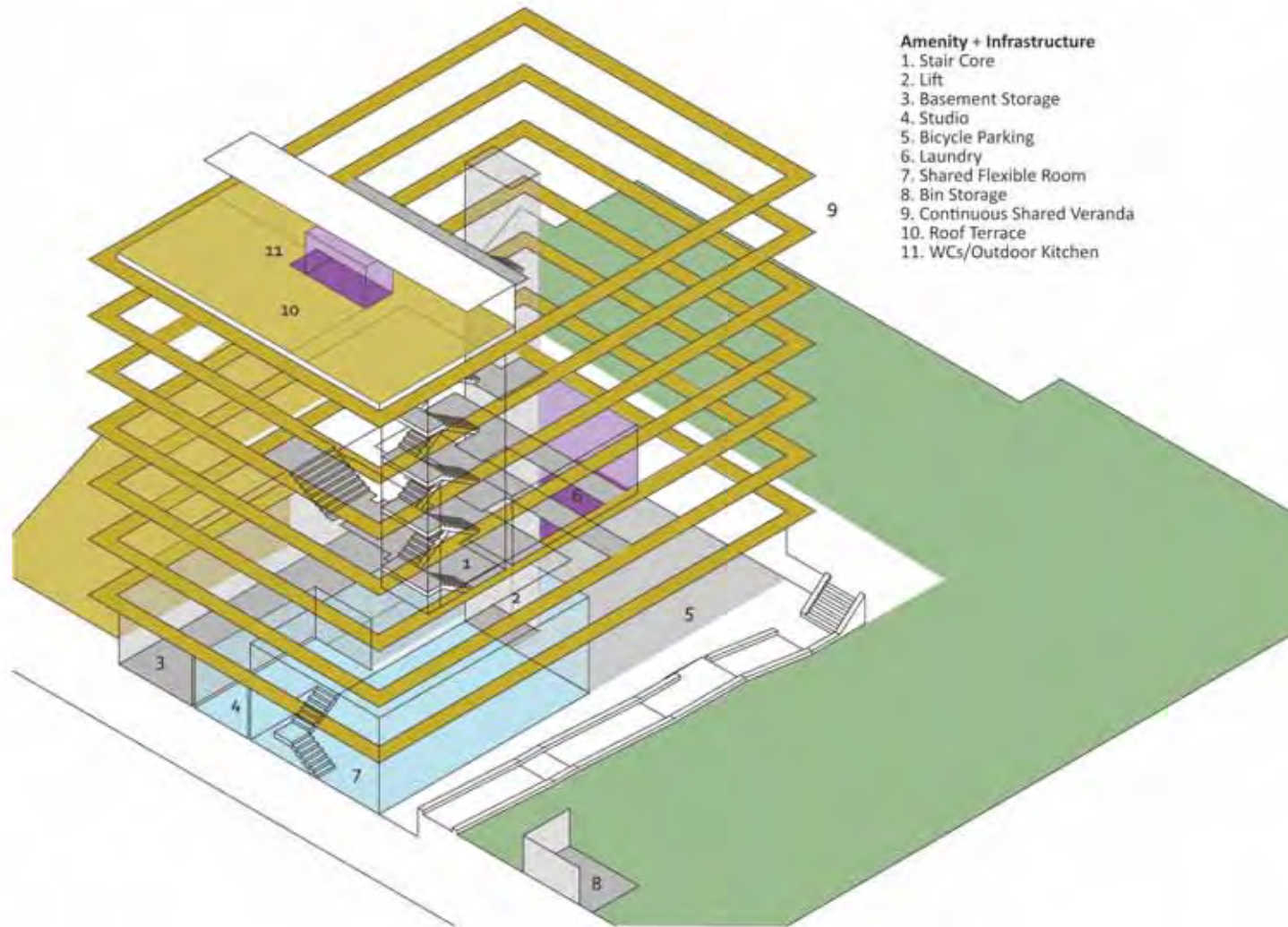
€253/m<sup>2</sup> €1,828/m<sup>2</sup> €2,580/m<sup>2</sup>

### Total Project Cost / m<sup>2</sup> Wfl [Funding Sources]

€2,580/m<sup>2</sup>  
40% 20% 40%

### Amenity + Infrastructure

1. Stair Core
2. Lift
3. Basement Storage
4. Studio
5. Bicycle Parking
6. Laundry
7. Shared Flexible Room
8. Bin Storage
9. Continuous Shared Veranda
10. Roof Terrace
11. WCs/Outdoor Kitchen





## Concept

The architects responded to the adjacent loose urban arrangement from the 1960s with a freestanding, seven-story building. It is centred in its 2056m<sup>2</sup> site with one side directly addressing the Ritterstraße street edge. The minimal reinforced-concrete structure and central internal staircase inside this partially-open infrastructure allowed flexibility in the development of the internal planning of the units: a total of 19 apartments with a standard house size of 110m<sup>2</sup>, with each oriented in at least two directions. The floor plans were developed individually with the owners (on average 3.3 residents per dwelling). The standardisation of window and door sizes, the installation of exposed building services (water pipes, etc.), and the simple cubic building volume were all strategies to reduce the construction cost. There are generous common areas, including a 159m<sup>2</sup> two-storey common area in the lobby, a roof terrace with summer kitchen, a laundry room, and the garden.

One special feature is the continuous shared veranda, which uniformly surrounds all floors, running in front of the modular wooden façade. It is accessible from the stairwell and from all rooms of all the apartments on each level. This encircling balcony is therefore not private, but superimposes public and private external space and provides possibilities for alternative routes of movement between internal spaces.

## Participation

A structured questionnaire facilitated the development of specific "residential formats": individual floor plans designed in collaboration with individual owners. At the beginning of the planning process, all members of the *Baugruppe* worked with the architects on *Wohnreporte* or "housing reports": detailed requirements for spaces, their size, and the relationships between them were elaborated for each unit. In the end, no two 110m<sup>2</sup> units have the same layout.

The members also thought about which facilities could be located outside the individual private flats, such as a laundry room, guest

rooms, and workspaces. As an interim result, the *Baugruppe* developed a concept where one or two rooms on each floor could be shared by the three households, allowing flexible uses for work and leisure. However, as the participatory planning process progressed, the group decided to gather the collective spaces together on the ground and basement levels. This seemed more appropriate and flexible, allowing, for example, the large common room space to be rented out or sold later if it was not sufficiently utilised by future inhabitants.

## Financing

The project was financed through 40% equity (a comparatively high proportion), 20% KfW loans, and 40% debt financing.



2.

2. Internal view of north and south apartments
3. Diagram showing internal organisation flexibility within standardised living units
4. View of north apartment balcony zone
5. View of eastern access ramp

4th Floor

5th Floor

6th Floor





4,



5



### Critical Summary

As a result of the standard apartment size, the ownership structure is very homogeneous and currently consists mainly of young families. The relatively low site cost precipitated a low building density with a plot ratio of only 1.35:1, which can be interpreted as a large consumption of land in this central location. The simple building volume, with its rigid structure, allows for highly-personalised internal spatial configurations, while maintaining a rather anonymous external appearance, comparable to the rigid housing blocks of the 1950s and 60s. This design attitude doesn't over-expose the internal individuality to the surroundings and avoids incurring extra costs (e.g. for spatially-expressive building volumes).

Ideas of flexibility and resident participation were central to the project. Interestingly, in order to achieve this, a very rigorous design strategy had to be developed. Central to the flexibility of layout required by the participatory process was the strategic and efficient placement of permanent elements: structure, building services infrastructure (e.g. service shafts), and shared vertical circulation. Also, the

entrance location for each apartment and the depth and orientation of the apartment areas were carefully considered so that each apartment is at least dual aspect and reasonably well-proportioned to allow many options for its subdivision into rooms. This results in a very rational, rigid, compact and anonymous building volume, which also made it efficient in terms of construction costs. These efficiencies also allowed considerable investment to be made in shared facilities and amenities in the building, such as the summer kitchen on the roof terrace, the laundry room, and the shared common room.

This project illustrates a synthesis between the "Building Group" financial model, the design of rational building mass, cost efficiency, and flexibility for the personalisation of space. Also, although this project was privately financed, it illustrates the key role played by city development authorities in facilitating such initiatives. Firstly, by strategically using its own land assets, and, secondly, by placing an emphasis on qualitative rather than purely market-driven factors in the support of small-scale, citizen-initiated urban housing.



## 1.3 Summary and Analysis

From the comparison of the five case study projects, a number of themes in relation to the realisation of affordable and quality inner-city housing emerged.

### Provision Of Low-Capital Cost Housing

In Berlin, a number of different strategies can be observed that keep housing capital costs as low as possible:

1. The model of the *Baugruppe* ("Building Group") removes the developer's profit margin. The group of future owners, the architect, and, in some instances, a professional communication manager, develop the site. They build at cost price. This saves up to 15% of the building cost, which was the case with the **Strelitzer Straße (1.2.4A)**, **Oderberger Straße (1.2.3)**, and **Ritter Straße (1.2.6)** projects.

2. The *Erbpacht* ("Long-Term Lease") of the building site means a reduction in initial costs. Instead of buying, which requires a substantial loan from a bank from the beginning of the building process, the Long-Term Lease allows households with low equity to secure property. Only a small portion of the purchase price is required at the beginning, e.g. €35,000 per owner at **Bernauer Straße (1.2.4B)**. The remaining cost is paid off with rather low annual rates over a very long period (usually 99 years and more). For example, at **Lausitzer Straße (1.2.5)**, the co-operative pays 4% of the purchase price per year.

3. The efficient re-use of existing building fabric can provide a less expensive option to new building. To incorporate existing building structures is not only important because it saves "grey energy", but also as a way of providing affordable housing; as in the case of **Schwedter Straße (1.2.2)**, where the building was stripped back to its primary structure and modernised with the provision of new bathrooms and kitchens.

4. Subsidised urban development programs can moderate social segregation caused by uncontrolled "gentrification" and rising rent levels within certain time frames. In the case

of **Schwedter Straße (1.2.2)** and **Fraenkelufer (1.2.1)**, both the reconstruction of an existing building and the construction of new housing occurred within urban development programs that subsidised construction, reconstruction and modernisation, as well as subsidising affordable rents for contractually-agreed periods of time. In these cases, the building owners were required to rent the apartments for a period of 20 years to tenants within a certain income bracket. Currently, approximately 20% of Berlin's population have their rents subsidised through such programs.<sup>1</sup>

5. Efficiencies in design and density can provide greater quantity and quality of usable space within economical-sized apartments. A small, but well-organised flat with an efficient ground floor plan is a key tool for keeping rents low. Some functions can be removed from the individual flat and shared with neighbours, as in the **Ritterstraße (1.3.6)** project, where the laundry, common room, balconies, the roof terrace, and the guest apartment are shared. Furthermore, carefully-considered apartment volumes provide the possibility for built-in galleries without increasing the original cost per square meter of the apartments, as was the case in the **Oderberger Straße (1.2.3)** and **Strelitzer Straße (1.3.4A)** projects.

### Minimising And Stabilising Rent

1. *Baugenossenschaften* or "Building Co-operatives" can provide an efficient model for keeping long-term rent levels low. It is revealing to compare the **Lausitzer Straße (1.2.5)** building co-operative project to the **Fraenkelufer (1.2.1)** housing association project, which both deal with a combination of existing and new building, though at very different scales. It is evident that while rents in the building co-operative are projected to decrease over time, the rents at the housing association flats tend to increase according to cutbacks in public housing subsidies. The *Baugenossenschaften* are not dependent on public subsidies and shifts in the political landscape. They were not, for example, affected by the dramatic cutback in support for social housing in Berlin after 2003, when the tenants

of approximately 28,000 subsidised flats built in the 1980s and 90s were suddenly required to pay rent up to €21/m<sup>2</sup> due to the incoming government's decision to cut subsidies (Englert 2011). The *Baugenossenschaften* model aims to guarantee a stable, low rent by removing housing from the effects of market forces, including real estate price inflation, gentrification, speculation, and sub-letting. The only variables affecting the rent are the interest on the financing loans and any changes in the ongoing costs of maintenance and management. In this respect, the rent in the **Lausitzer Straße (1.2.5)** project of €8-9/m<sup>2</sup> is predicted to remain stable, or fall, over the next 20 years.

2. Rent controls like the *Berliner Mietspiegel* or "Berlin Rent-Mirror" protect tenants on the private housing market from excessive rent increases. The *Mietspiegel* is published every two years by the Berlin city council. It records data for 1.2 million Berlin flats in buildings of more than three units. The rent (without operating and heating costs) is broken down according to quarter, location and internal fit-out, as well as the age of the building (Senatsverwaltung für Stadtentwicklung 2013). From this data, an average rent for the respective flat is calculated and published by the city council on an interactive map – tenants can research the *ortsübliche Vergleichsmiete* or "average local rent" within their area by street and house number (<http://stadtentwicklung.berlin.de/wohnen/mietspiegel/>). This rent control only applies for existing lease contracts, not sub-lets. While the *Mietspiegel* is an indicator rather than a law, it provides support for arguments in court. If the owner wants to increase the rent above the local average, extraordinary improvements from a defined list – such as a second bathroom, new heating system, high quality floors, etc. – must be present. Moreover, the rent cannot be increased by more than 15% within a four-year period (Bürgerliches Gesetzbuch der Bundesrepublik Deutschland 2053: § 558).

### Alternatives to Either Home-Ownership Or Rental

*Baugenossenschaften* or "Building Co-operatives" provide a middle ground between own



-ership and rent. In this model, members pay a deposit to acquire ownership-like conditions (including life-long inhabitation rights, the right to pass this on through inheritance, and control over the rent, and, to a certain degree, over decisions concerning investments and maintenance). There is usually an annual meeting at which every member has a voice regardless of the size of their deposit/unit. If a member wishes to leave the housing collaborative, his/her initial deposit is returned in full, plus possible negotiated payments to compensate for any additional investments made in the apartment.

In this democratic model of self-administration, co-operative members are simultaneously both landlord and tenant, and the building is effectively taken out of the speculative realm of the property market. Compared to purchasing a flat, the initial investment required by residents in small, newly-founded housing cooperatives is low. In the case of the **Lausitzer Straße (1.2.5)** project, the deposit was €340/m<sup>2</sup>. On the other hand, the owner can't sell the flat and can't profit from increasing values on the open property market. There is no accumulation of individual capital. Capital is held collectively and re-invested in the property. The housing co-operative is an attractive alternative, especially for households with little equity. Currently, the founding of a building co-operative in Germany is a rather complicated and bureaucratic process. However a new law for the so called *Kleinen Genossenschaften* or "Small Co-operatives" is currently in development, which aims to make the process easier and less costly for small co-operatives such as that for an individual housing project (Referentenentwurf des Bundesministeriums der Justiz: Gesetz zur Einführung der Kooperationsgesellschaft und zum weiteren Bürokratieabbau bei Genossenschaften 2013).

#### Methods Of Resident Participation In The Design And Construction Processes

*Bauguppen* ("Building Groups") and *Baugenossenschaften* ("Building Co-operatives") allow a certain degree of participation in the design process, mostly concerning floor plans, interior fixtures, and the type and size of shared

amenities. In some cases, it even includes participation in the building process through self-construction. The integration of this "sweat equity" to reduce costs was explicitly explored at **Schwedter Straße (1.2.2)**, where the inhabitants worked on demolishing existing structures, as well as simple building tasks such as floor construction, and in this way saved up to 15 % of the construction cost.

In fact, every *Baugruppe* or *Baugenossenschaft* finds special models of participation, ranging from simple choices out of a catalogue proposed by the architects (for example, an open or closed interior staircase) up to a general influence on the size and arrangement of the individual flats depending on needs and budget. In the **Strelitzer Straße (1.2.2)** project, for example, the group met on a regular basis with a professional project manager and developed highly individualised duplex apartments and flats, so that every apartment in the house is different. At **Lausitzer Straße (1.2.5)**, the budget was much lower, but tenants could still influence the interior division of floor plans. Participatory methodologies in the design process were more explicitly explored in the **Ritterstraße (1.2.6)** project. The members of the group defined their needs and formats through a standardised questionnaire or *Wohnreport* or "Living Report" proposed by the architects. On this basis, the architects worked out the ground floor plans as well as the shared amenities. In order to control costs, the building volume, the facade, and the stair cores were kept simple. Generally, the participation of owners and tenants in the planning and building process leads to a high degree of resident identification and satisfaction with the completed building.

#### Innovative Re-Use Of Existing Or Historic Building For Housing (And Retention of Existing Residents)

Ever since the "Critical Reconstruction" approach to urban regeneration was initiated in Berlin through the IBA Alt or "International Building Exhibition Old", the integration of existing buildings has become common practice in Berlin. In the **Lausitzer Straße (1.2.5)** project, the building co-operative man-

aged to integrate an existing 1950s building into a new configuration, while simultaneously allowing existing tenants to remain in the building throughout most of the construction process, and to return after completion.

In the **Schwedter Straße (1.2.2)** project, the existing late 19th century perimeter block building was reduced to its basic structure and a new layout developed with the bathroom and the bedrooms to the rear and spacious kitchen and living spaces on the southern street side. The open shell structure of the newly built barrel-vaulted roof provided space to integrate two homes over three levels.

Compared to these two projects, the **Fraenkelufer (1.2.1)** project operates at a much bigger scale. Around 200 apartments were modernised and equipped with new balconies in the existing buildings. The existing urban block was completed and re-interpreted with the insertion of the expressive new buildings and landscaping.

In Berlin, the densification of the existing urban fabric is seen as an appropriate strategy to provide inner-city housing by emphasising the character and urban quality of this historic fabric in order to discourage inhabitants from moving to the suburbs.

#### Innovative Integration of Other Social Functions, Services, and Uses Into Housing Provision

Generally speaking, only the minority of *Baugruppen* and *Genossenschaften* projects succeed in integrating facilities other than housing into their buildings, as the individual owners usually can't or won't take the risk to finance more than their own flat and the shared infrastructure. The case study houses on **Oderberger Straße (1.2.3)** and **Schwedter Straße (1.2.2)** can be seen as role models in this respect, developed from the archetype of the *Berliner Mietshaus*, which historically had retail, manufacturing, or gastronomy on the ground and/or first floors. In the case of the **Schwedter Straße (1.2.2)** project, this involved the restoration and modernization of a run-down *Berliner Mietshaus*

from 1886 in which the existing retail space on the ground floor was enlarged and turned into a cafe/bar. BARarchitekten further developed this mixed-use approach in the **Oderberger Straße (1.2.3)** project, which was a new-build project in the same area, by including retail, gastronomy and a small gallery on the ground floor, plus duplex studios accommodating work and live/work on the first and second floors. This built-in, fine-grained structure of working, living and leisure enables the building to be a vital part of its neighbourhood without disturbing the quality of living on the upper floors. It also allows integrated live/work models for families within the building. It was made possible through an elaborate financial model, consisting of a *Baugruppe* and a "Renting Pool" with silent investors that rent out part of the apartments as well as the offices and retail space.

#### Mixture, Flexibility and Adaptability, Allowing Buildings To Adapt Over Time To Changing Needs and Ages Of Residents

The quality of inner city housing is often linked to the ability of the building to adapt to the changing needs of its residents.

1. Multiple entrances to flats allow flexibility in size and organisation as well as live/work arrangements. In the case of the **Oderberger Straße (1.2.3)** project, each of the flats has two entrances on different levels, so that a family-sized flat can be split according to various needs including, for example, renting when the children leave the house, accommodating grandparents, or use as a home office. Furthermore, the different heights of the rooms (up to 4,30m high) allow for densification through built-in galleries and the different levels allow efficient zoning within the flat.

2. The careful consideration of structure and services allows flexibility of internal layout. In the case of **Schwedter Straße (1.2.2)**, the *Durchgangsbad* or "Passage Bathroom" with two doors provides a second circulation route when not in use. At **Ritterstraße (1.2.6)**, the small internal bathrooms can expand into the hallway by opening parts of the walls. In this

## Berlin Case Studies Graphic Data



**Fraenkelufer 28/38/44**  
Inken und Hinrich Baller

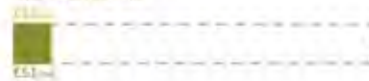
Density



1.06 units/m²



Site Cost / m² Wfl



Programmatic Analysis



0.1 car parking spaces / F



4.2 m² car surface / F



9.8 m² infrastructure / F



9.5 m² private amenity / unit



21.6 m² shared amenity / F

Total Programme Area Breakdown



Total Project Cost Site Cost / m² Wfl



Total Project Cost / m² Wfl (Funding Sources)



**Schwedter Straße 26**  
BARarchitekten

Density



1.00 units/m²



Site Cost / m² Wfl



Programmatic Analysis



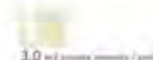
0.0 car parking spaces / F



0.0 m² car surface / F



11.0 m² infrastructure / F



3.0 m² private amenity / unit

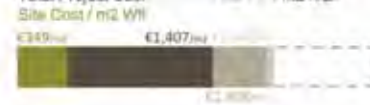


18.0 m² shared amenity / F

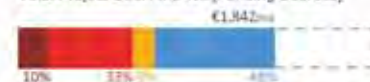
Total Programme Area Breakdown



Total Project Cost Site Cost / m² Wfl



Total Project Cost / m² Wfl (Funding Sources)



**Oderberger Straße 56**  
BARarchitekten

Density



4.05 units/m²



Site Cost / m² Wfl



Programmatic Analysis



0.0 car parking spaces / F



0.0 m² car surface / F



5.1 m² infrastructure / F

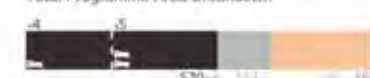


7.0 m² private amenity / unit

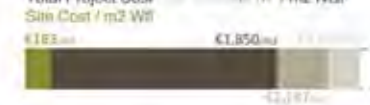


3.8 m² shared amenity / F

Total Programme Area Breakdown



Total Project Cost Site Cost / m² Wfl



Total Project Cost / m² Wfl (Funding Sources)





## Strelitzer Straße 53

FATKOEHL Architekten

### Density



### Site Cost / m² Wfl



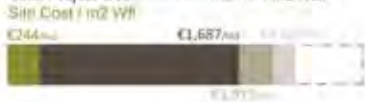
### Programmatic Analysis



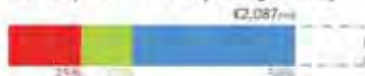
### Total Programme Area Breakdown



### Total Project Cost



### Total Project Cost / m² Wfl [Funding Sources]



## Lausitzer Straße 38

Stadtoasen

### Density



### Site Cost / m² Wfl



### Programmatic Analysis



### Total Programme Area Breakdown



### Total Project Cost



### Total Project Cost / m² Wfl [Funding Sources]



## Ritterstraße 50

ifau und Jesko Fezer / Heide & von Beckenrath

### Density



### Site Cost / m² Wfl



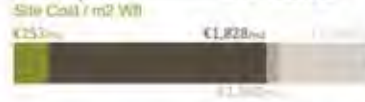
### Programmatic Analysis



### Total Programme Area Breakdown



### Total Project Cost



### Total Project Cost / m² Wfl [Funding Sources]





way the bathroom can be spacious when in use but compact when vacant.

3. *Baugruppen* often promote social flexibility through community and negotiation within the house, enabling spaces to be shared or passed from one party to another. For example, at **Ritterstraße (1.2.6)**, there are two flexible spaces on each floor, located and built such that they can easily be taken away from one flat and added to its neighbour. Apartments can also change to home offices, for example in the case of the **Schwedter Straße (1.2.2)** project.

4. Providing a diverse mix of apartment sizes and typologies potentially allows residents to both up-size and down-size in response to changing households in different life phases. This is the case in the **Fraenkelufer (1.2.1)** project, where many of the original tenants have moved between flats in the same building since its construction almost 30 years ago.

#### **Providing Quality Urban Living for a Mixture of Incomes, Ages, Genders, Ethnicity, and Household Sizes and Household Profiles Including Families**

The *Baugruppe* model nurtures quality urban living, usually achieving diversity in terms of household size, age, and gender, but not necessarily income and ethnicity. Case studies show that the model is generally limited to a group defined by education and income (Kleilein, Ballhausen 2008:20). However *Baugenossenschaften* and housing associations provide examples of greater diversity in this regard, due to their agenda and the mechanisms available to them.

In Berlin, the city's six public housing associations (*Degewo*, *Gesobau*, *Gewobag*, *Howoge*, *Stadt und Land*, *WBM*) together own 269,000 flats, which represents 16% of the city's housing stock. Another 186,000 flats (12%) belong to a wide variety of *Wohnungsbaugenossenschaften* ("Housing Co-operatives"), like the **Lausitzer Straße (1.2.5)** project, that are self-administered, allowing weaker financial members to find security of tenure as part of larger group (Senatsverwaltung für Stadtentwicklung 2011:4). The strong position of

both housing associations and co-operatives is very important in Berlin, where 86% of the inhabitants are tenants (Senatsverwaltung für Stadtentwicklung 2011:2). In order to maintain a social mix, there is a general strategy that not only people with low incomes need occupy housing association apartments, which allows tenants whose incomes rise above the eligibility limits to remain residents of their buildings and communities.

#### **Creating Shared Amenity Spaces for Residents (Including External Spaces Which are not Gated Communities)**

The idea of shared amenity is quite central to the *Baugruppe* and *Genossenschaft* models, with most including a guest apartment, a shared roof garden, a shared common room, or a combination of these. This allows a level of convenience and access to facilities that would not otherwise be financially-viable on an individual basis. This also extends to quite practical or specific shared utility spaces such as laundry rooms or workshop spaces. Outdoor garden spaces tend to be for residents or their guests only, as such having controlled access, as is the case in the **Schwedter (1.2.2)** and **Streilitzer Straße (1.2.4A)** projects. An exception is the **Ritterstraße (1.2.6)** project, where most of the outdoor space is consciously seen as part of a shared space connected to, and for the use of, residents of surrounding buildings. Only a third of the outdoor space is used and designed as a garden specifically for residents of the **Ritterstraße (1.2.6)** project.

Also in this project, there are no private outdoor spaces at all: even the balconies are categorised as being of shared ownership in the building deeds. The innovative model of the **Ritterstraße (1.2.6)** project managed to integrate a variety of shared spaces through a participatory planning process that redefined the traditional breakdown and distribution of building functions. In addition to the shared continuous balconies, there is a collective roof terrace with summer kitchen (instead of the usual expensive penthouse) and a large common space with a guest flat on the ground floor (instead of an additional individual housing

unit). Relinquishing the additional capital these elements would have generated is compensated for by a very simple building volume and efficient circulation that resulted in a relatively low per/m<sup>2</sup> building cost. The inhabitants, most of them young families, profit from the generous shared amenities that are perceived to "enlarge" their private flats.

A successful mix of private gardens, residents' gardens and semi-public space characterises the courtyard park of the **Fraenkelufer (1.2.1)** project. Both residents and visiting families use it actively for play, garden parties, picnics, etc. The reason for the success of this space is its large-scale integration of play areas, the landscaped topography including slopes and pathways, trees, etc., and the fact that it is well overlooked. The private gardens of the ground-floor duplex units are not separated by fences but through topography and vegetation. The courtyard park is not gated but connected to the street with large five meter high passageways beneath the two "gateway" buildings, which are articulated with a "forest" of pilots that indicate the transition from public to semi-public space.

1. According to IBB Wohnungsmarktbericht 2013, Investitionsbank Berlin, Berlin 2013 ([www.ibb.de/wohnungsmarktbericht](http://www.ibb.de/wohnungsmarktbericht)), p. 9 and p. 43, 279,000 flats out of the total housing stock of 1,899,335 flats in Berlin are Social Housing (Sozialwohnungen nach WoBindG und BeilBindG). Together with 30,000 households receiving "Wohngeld" (housing money) this sums rises to 20%, though the trend is decreasing.

### Site Cost Comparisons

This graphic compares the total site cost/m<sup>2</sup> to site cost per/m<sup>2</sup> of apartment space. This ratio has a direct relationship to the density of development on the site as expressed by the plot ratio, with higher density reducing the cost of the site passed on the residents through capital, loan and or rent payments. Although the site costs vary substantially between projects, it can be seen how density through good design has been used as a mechanism to generally bring the site costs/m<sup>2</sup> of living space down into a similar range for all projects (averaging approximately 250€/m<sup>2</sup>). These m<sup>2</sup> costs are slightly distorted in the case of the **Schwedter Straße (1.2.2)** project because this figure includes the existing building, albeit a building that required substantial modernisation. In this project, the higher site cost was offset by lower building costs due to the efficiency of re-using an existing building. The other distinctive projects in this comparison are the **Fraenkelufer (1.2.1)** and **Ritterstraße (1.2.6)** projects, which both have low absolute site costs: the former because of the very low land values at the time it was built, and the latter because the land was sold at a controlled low price by the city development authorities to support the project. Both responded with lower plot ratios compared to the other projects, (approximately 1.06:1 and 1.35:1). Interestingly, the **Ritterstraße (1.2.6)** project was selected in the competition process to purchase the land cheaply partly because it proposed to share a large part of the site with its surrounding neighbours. It achieved this through its lower-density approach, which was made possible by the low site costs, the spatial benefits of which were passed on to the surrounding context. In effect, the city development authorities indirectly subsidised a generosity of amenity to the surrounding neighbourhood.

#### "Block 70" Fraenkelufer 28/38/44

Inken und Hinrich Baller

#### Schwedter Straße 26

BARarchitekten

#### Strelitzer Straße 53

FATKOEHL Architekten

#### Oderberger Straße 56

BARarchitekten

#### Lausitzer Straße 38

Stadtöasen

#### Ritterstraße 50

Ifau und Jesko Fezer / Heide & von Beckenrath

Site Cost / m<sup>2</sup> Wfl



\* Included cost of existing building to be renovated

### Project Cost Comparisons

This bar overlays and represents the project cost/m<sup>2</sup> in relation to three different methods for measuring building area. These are the cost/m<sup>2</sup> of [NGF] Total Building Area in black, [NF] Usable Building Area in dark grey, and [Wfl] Rentable/Saleable Building Area in light grey. The site purchase costs as per/m<sup>2</sup> of Rentable/Saleable area is also represented in green.

The cost/m<sup>2</sup> [NGF] Total Building Area describes the construction and site costs/m<sup>2</sup> of the total floor area of the building (i.e. including shared facilities, circulation, plant room, etc.) and this figure most accurately represents the economy of a building's construction. The cost/m<sup>2</sup> [NF] Usable Area represents the cost per square meter of the experienced or utilised space (i.e. the individual apartment plus other shared facilities like common rooms, guest apartments, etc.). Lastly, the cost/m<sup>2</sup> of [Wfl] Rentable/Saleable represents the cost the residents actually pay per m<sup>2</sup> though the mechanisms of purchase/loans/rent (i.e. the m<sup>2</sup> cost of their own apartment). However, included in this are the costs to them of all the other aspects of the building's services and amenities beyond what is enclosed within the private realm of their apartment.

Representing the building costs in this overlaid bar format reveals the relative proportion of cost that is given over in each project to the shared amenities and services that are often central to the success of these projects. In effect, the exposed area of light grey provides a graphic representation of the proportion of cost a resident contributes towards the shared facilities in the building, with the exposed area of dark grey representing the proportion the resident contributes to the infrastructure (i.e. circulation and building service areas) of the building, and the green area indicates the proportion of cost the resident contributes to the site purchase.

Finally, comparing the black areas of the bands allows comparison of the economies of the buildings' construction costs. For example, if we compare the **Strelitzer Straße (1.2.4A)**, **Oder-**

**berger Straße (1.2.3)**, and **Ritterstraße (1.2.6)** projects, we can see that the construction costs/m<sup>2</sup> are all very similar (between €1815 and €1850/m<sup>2</sup>), whereas the actual costs to the residents vary more significantly (from €2287 to €2580/m<sup>2</sup>) due to the varied degrees of investment in shared facilities and infrastructure. For example, the **Ritterstraße (1.2.6)** project has the highest per m<sup>2</sup> cost because it has the largest proportion of shared facilities and amenities. It also has a very small proportion in dark grey allocated to circulation and building services. This reflects the efficiency of the design. In this respect, the size of the dark grey areas can be understood to represent the relative efficiency of the designs in terms of areas devoted to circulation, building services, etc. However, it should be noted that in some cases, these larger circulation areas – as, for example, in the **Fraenkelufer (1.2.1)** and **Schwedter Straße (1.2.2)** projects – contribute considerably to the amenity and usability of the residences, by being used as bicycle/pram storage, as laundry-drying areas, and as spaces for informal social interaction.

#### "Block 70" Fraenkelufer 28/38/44

Inken und Hinrich Baller

#### Schwedter Straße 26

BARarchitekten

#### Strelitzer Straße 53

FATKOEHL Architekten

#### Oderberger Straße 56

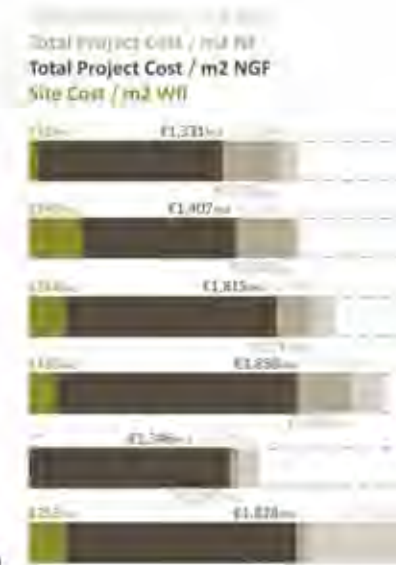
BARarchitekten

#### Lausitzer Straße 38

Stadtoasen

#### Ritterstraße 50

Ifau und Jesko Fezer / Heide & von Beckenrath



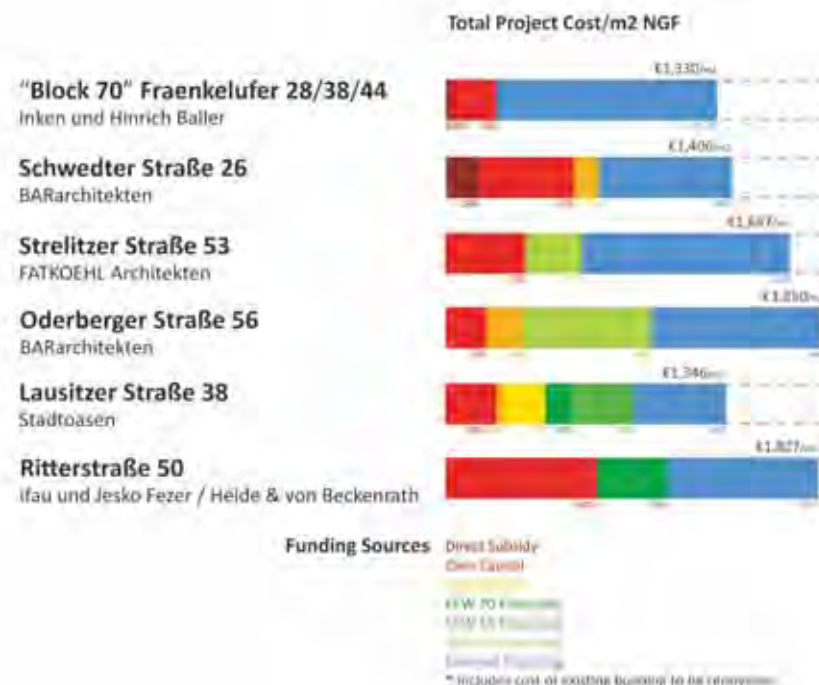


## Financing Comparisons

These bars represent both the relative total costs of the project based on total cost/m<sup>2</sup> and the proportional break down of the sources of funding. The proportional representation of financing has been organised in a progression of desirability moving from the more stable finance on the left, to the more vulnerable, high-interest rate financing on the right. This spectrum runs in the following order – direct capital subsidies (through competitive rigorously-administered regeneration programs), resident/landlord capital contributions, self-build “sweat-equity” contributions, specialised low-interest lenders such as the “Reconstruction Credit Institute” and “Environmental Bank”, and finally, to external financing provided by private banks on the open market.

The principal specialised low-interest lender in Berlin is the *KfW Kreditanstalt für Wiederaufbau* or “Reconstruction Credit Institute” which was formed in 1948 after World War II as part of the Marshall Plan. It specialises in lending to energy-efficient new-build and refurbishment housing projects, both owner-occupied and landlord-managed. Its lending corresponds to a series of energy efficiency bands ranging from KfW-40 to KfW-70, which are also represented in the funding bars.

It can be seen that the projects with specific criteria such as environmental performance or inclusive co-operative living, like the **Oderberger Straße (1.2.3)** or **Lausitzer Straße (1.2.5)** projects, have been able to minimise their reliance on external bank loans considerably through access to more sophisticated criteria-based lenders. By contrast, the **Fraenkelufer (1.2.1)** project, the example of housing constructed by a housing association, has the least desirable financing model (largely from private banks with interest rates in some cases up to 8%). One could speculate that this is because the residents are not part of the financing process in this model, so there is no inherent motivation to seek the best forms of financing or make the strategic design investments or risks to gain access to better forms of finance.



### Programmatic Comparisons

These bars represent not only the breakdown of the residential element into the different sizes and typologies of units, ranging from one- to five-bedroom types, but also shared residential facilities and other functions. Generally, this mixture of size and typology of residential unit is diverse in all the projects except in the **Ritterstraße (1.2.6)** project. This reflects the similarity of resident profiles in this project, with most being young families. However this project does have the built-in flexibility for these apartment sizes to change considerably. Generally, the housing association, co-operative and simple *Baugruppe* models tend to be primarily-residential with some live/work and shared facilities with semi-public mixed programming potential. The slightly more complex legal model of the “*Baugruppe* within a *Baugruppe*” of the **Oderberger Straße (1.2.3)** project, and the mixed private- and state-supported model of the **Schwedter Straße (1.2.2)** project are those which successfully incorporate a mix of residential/commercial/retail uses.

#### “Block 70” Fraenkelufer 28/38/44

Inken und Hinrich Baller

#### Schwedter Straße 26

BARarchitekten

#### Strelitzer Straße 53

FATKOEHL Architekten

#### Oderberger Straße 56

BARarchitekten

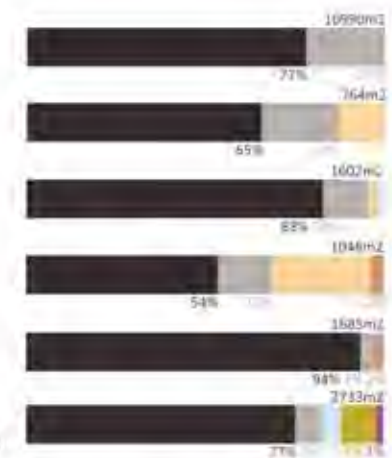
#### Lausitzer Straße 38

Stadtoasen

#### Ritterstraße 50

Ifau und Jesko Fezer / Heide & von Beckenrath

#### Programmatic Proportional Analysis



Programmatic Analysis

Residential

Commercial

Other

Legend

Legend

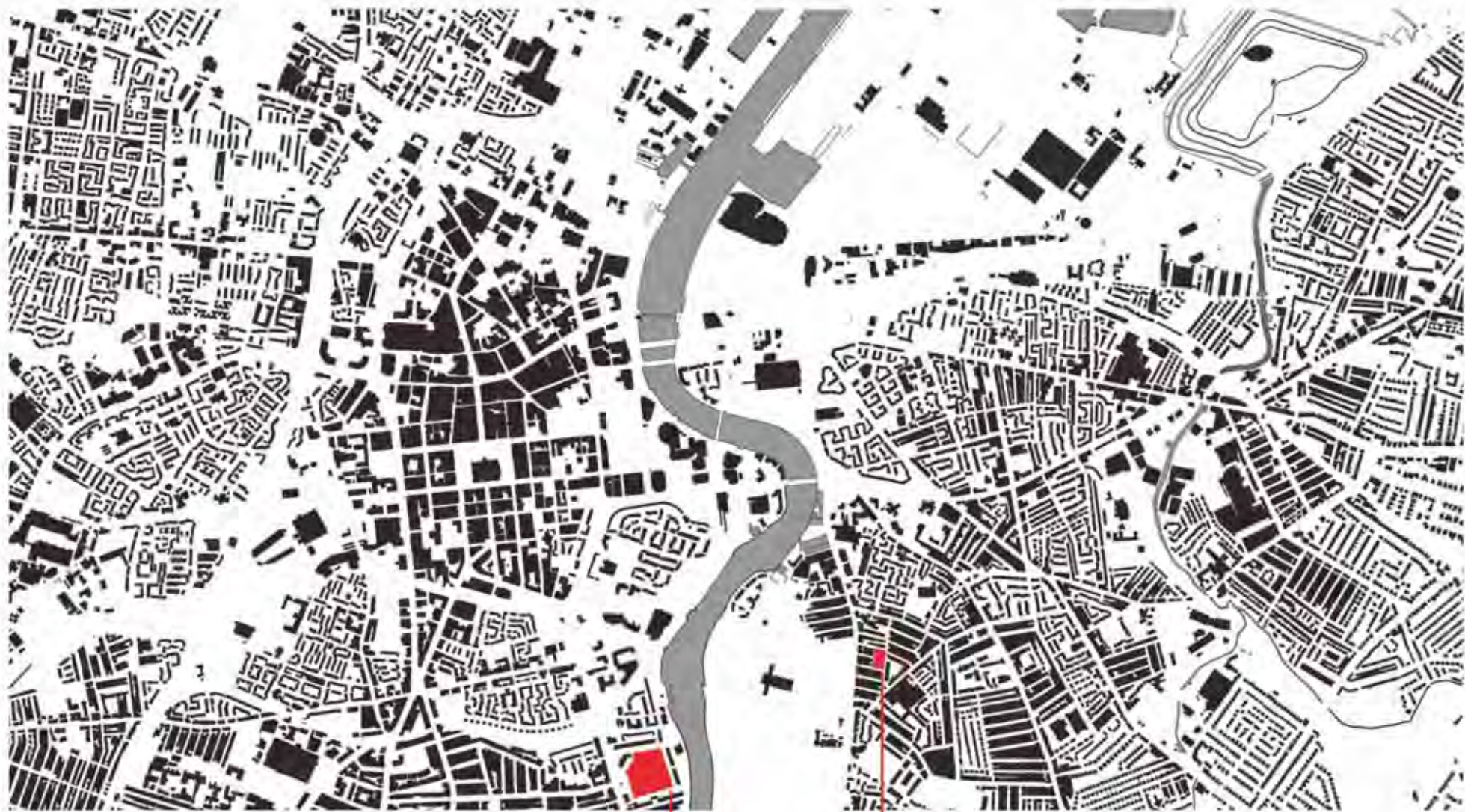
Legend

Legend





## 2.0 Belfast Housing



Lavinia Square  
2.2.2A Lavinia Square Centre Block  
2.2.2B Lavinia Square No.57

2.2.1 Traditional Terraced  
Housing



## 2.1 Context and Rationale

Before moving on to the Belfast study proposals in Section 3, which test, and are informed by, some of the ideas observed in the Berlin case studies, it is useful first to consider existing housing provision in Belfast. This will allow useful comparison between the Berlin typologies, existing Belfast typologies, and where to situate the proposals - developed in the Belfast housing studies in the next section - relative to these two points of reference.

Firstly, we will briefly consider the recent history, context, and current challenges facing housing provision in Belfast, before moving on to consider two case studies. The first case study is an example of the original housing stock typical of Belfast: the Victorian/Edwardian terraced house. This is the Belfast equivalent the Berlin *Mietskaserne* typology into which the Berlin case studies generally fit. The second is an example of a recently-completed housing association project, which is broadly representative of the typology and density adopted by housing associations in all urban areas of Belfast. It is also the most centrally-located of recent housing association projects. It includes examples of both the contemporary terraced and semi-detached house and multi-storey apartment typologies.

Northern Ireland has a strong culture of home-ownership. Apartment living is not popular: detached and semi-detached houses (including the ubiquitous bungalow) are the most prominent housing typologies. Public/social housing and private rental share similar space within the overall housing market.

Northern Ireland experienced an acute housing crisis in 1960s/70s: nearly 25% of Belfast housing was deemed unfit. The Northern Ireland Housing Executive was formed in 1971 in response to these conditions and to discrimination in housing allocation. Housing associations also emerged in the 1970s: mostly to serve specific disadvantaged groups. The 1980s and 90s saw many residents leave the city for new developments within commuting distance. Today the city is physically, as well as socially and economically,

segregated; street patterns have changed, with traditional streets replaced by cul-de-sacs; the connections between home and workplace has eroded; and inner-city areas are separated from the city centre by motorways and ringroads.

Belfast has become a city to visit to shop, eat and socialise, but not in which to live. Social housing dominates what little housing there is within the city centre and on its boundaries. The housing boom of the mid-2000s led to a spate of speculative, two-bedroom apartment building on the edges of the city centre, which has not rejuvenated the city centre or positively altered perceptions of city centre living. Recently, however, the city has seen the beginnings of a re-emergence of city neighbourhoods combining living, working, retail/entertainment uses, and social diversity on arterial routes such as Ballyhackamore on the Upper Newtownards Road.

According to census figures, in Belfast the predominant typology (40%) is still the terraced house. Semi-detached properties (29%), purpose-built flats or apartments (16%) and detached properties (12%) are the next most common. A small number (2.5%) of flats or apartments are also provided within converted houses. Unlike Berlin, Belfast has very little shared accommodation - only 40 dwellings. Similarly, there are only 456 flats or apartments within commercial buildings. Only 13% of all dwellings are pre-1919, with almost 30% of all dwellings in Belfast built after 1980, compared to just 22% built during the post-WWII construction boom.

The majority of homes in the city are either owned outright (24%) or through a mortgage (30%). The percentage of shared ownership properties (0.6%) is very low. Likewise, the social housing share of the market: the Housing Executive has a 17% share, with 8% of households living in housing association properties. About 20% of households rent their home in the private sector market.

The largest landlord in Northern Ireland is the Housing Executive, which owns and manages

around 90,000 homes. The Housing Executive no longer develops new social or affordable housing: this became the sole preserve of housing associations in the 1990s. The Housing Executive also acts as the strategic authority, and its remit extends to include energy efficiency and community development. Northern Ireland also has a housing strategy which runs from 2012 to 2015 and covers all tenures and aspects of housing activity, with broad aims and objectives around access, affordability, fairness and support. The centralised nature of housing in Northern Ireland means that though there are Annual District Housing Plans, published by the NIHE, that cover local areas on a District Council basis, there is no strategy for Belfast that takes into account the unique challenges and opportunities of the city and that links in with other investment and initiatives led by Belfast City Council. The transfer of planning and regeneration powers to new councils in May 2014 will undoubtedly change the way in which housing is viewed by local government and may offer opportunities for a more holistic approach to place-making than currently exists.

There are now 26 housing associations in Northern Ireland, which develop new social housing, manage properties and increasingly undertake a wide range of social and economic activities in local communities. They continue to provide the majority of specialist accommodation in Northern Ireland.

With the fall in the number of owner-occupied properties due to decreasing private sector construction and difficulties in accessing mortgage finance, the private rental sector has emerged as the second-largest tenure type in Northern Ireland, more than doubling in size since 2001.<sup>1</sup> In addition to students and young professionals, this sector has increasingly become home to low-income and vulnerable households unable to access social housing due to growing demand and insufficient supply. The large and increasing size of this sector makes pertinent the investigation, pursued in this study, of housing typologies suited to forms of non-ownership based tenure. It also makes relevant the investigation in the case studies of models



of tenure that provide residents with a longer-term sense of security and control of their living environment, without requiring the capital and exposure to the economic risks of the property market that comes with individualised, mortgage-based home ownership.

Tenants in social rented homes in Northern Ireland have secure tenancies, meaning that after an introductory period of 12 months, their tenancy is protected for the duration of their lifetime. Both the NIHE and housing associations use introductory tenancies for new tenants; they essentially provide the tenant with more limited rights and landlords with the option to pursue possession and eviction more readily than with secure tenancies. Secure tenants have considerable rights, such as the right to buy their home, the right to pass their tenancy to a co-habiting family member upon their death and protection from eviction without due cause.<sup>2</sup> All social landlords in Northern Ireland use this common form of long-term tenancy.

The demography of Northern Ireland continues to change. It has the highest proportion of people under the age of 16 in the UK.<sup>3</sup> The number of new households continues to rise, but household formation has slowed and there is a growing trend towards single-person households.<sup>4</sup> A new social geography was observed in the mid 2000s, namely a return of middle income households to the inner-city: young, mobile, generally professional, residents “whose lifestyle is suited to higher-density urban living and who want to be free to choose communities of interest rather than be constrained by the community identities of the past” (Gaffikin, et al 2008: 122). However the dislocation of these groups from adjacent existing communities on the edge of the inner-city was also observed. The city centre could be a compatible location for a new generation of smaller households, but if this younger generation is to stay and establish inner-city neighbourhoods and communities the quality, amenity, and flexibility of accommodation needs to be conducive to this in order to avoid merely the creation of transient communities. If these

communities become more established, the resulting new infrastructure (e.g. new schools) is something that will also benefit existing inner-city residents.

Northern Ireland is currently in the midst of a systemic and substantial change to the housing system. Supply is reaching a crisis point: the right homes, in the right places, at the right price, are increasingly difficult to find. Planning, procurement, access to suitable land for development, opposition to the development of new social housing, financing and regulation are all cited as major barriers to the delivery of new housing. Government faces sectarian division and a growing socio-economic divide in Belfast in particular, which is hampering sustainable urban place-making. There is a strong cultural resistance to density, city centre living and mixed-use development that has been exacerbated by the poor examples set by the speculatively-constructed apartments of the mid-2000s. Without positive models, the desire for traditional typologies and tenures will continue to prevail. In spite of a desire for innovation and a progressive and diverse approach to the design, financing and delivery of new housing, from parts of government and housing professionals, be they academics or practitioners, the status quo looks set to continue.

1. The 2013-2016 Northern Ireland Housing Market: Review and Perspectives (NIHE, 2013) notes a fall to approximately 62% of the population owning their home.

2. The Housing (NI) Order 1983 <http://www.legislation.gov.uk/nisi/1983/1118/contents>.

3. Office of National Statistics 2013 <http://www.ons.gov.uk/ons/rel/regional-trends/region-and-country-profiles/region-and-country-profiles-key-statistics-and-profiles-october-2013/key-statistics-and-profiles-northern-ireland-october-2013.html>.

4. NIHE, Northern Ireland Housing Market Review and Perspectives 2013-2016.

## 2.2 Belfast Case Studies

## Traditional Terraced Housing

Ravenhill, Belfast, constructed ca. 1890

Tenure: Privately Owner-Occupied or -Rented

Architects: unknown



### Context/Site

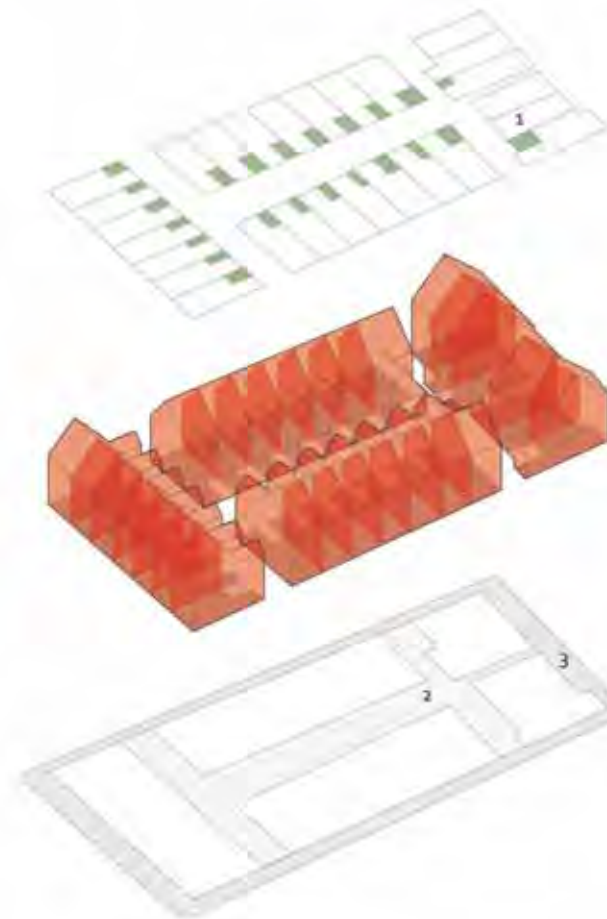
This small block between Cappy, Ravenhill, Toronto, and London Streets is located in one the most dense and intact areas of original Victorian/Edwardian terraced housing in the Ravenhill area of East Belfast.

### Legal Format

Originally built as workers' housing, these houses are now individually-owned by either owner-occupiers or individual landlords who rent them out.

### Financing

Currently owned through private capital and/or mortgage financing.



### Amenity + Infrastructure

1. Rear Garden
2. Back Lanes
3. Footpath

## Belfast Ravenhill

### Traditional Terraced Housing

#### Density



1.14 units / Ha



130 units / Ha

#### Programmatic Analysis



0.0 m<sup>2</sup> / 0.0 m<sup>2</sup>



4.1 m<sup>2</sup> / 4.1 m<sup>2</sup>



0.0 m<sup>2</sup> / 0.0 m<sup>2</sup>



5.0 m<sup>2</sup> / 5.0 m<sup>2</sup>



4.1 m<sup>2</sup> / 4.1 m<sup>2</sup>

#### Total Programme Area Breakdown

27



23/76=



## Lavinia Court Houses/Centre Block Belfast, 2011

Client: Canmil Housing Association  
Architects: JNP Architects



### Context/Site

Lavinia Court is a mixed-tenure residential development constructed in four phases on the site of the former North Rugby Club in South Belfast.

The development is located off the Lower Ormeau Road, within walking distance of the city centre and central rail station. The surrounding built context consists of intact, dense, terraced housing and the corresponding defined and close-knit community of the Lower Ormeau Road. On the other side of the intensely trafficked Ormeau Road is the 'Holy Lands' area, which is largely inhabited by students. This development benefits from nearby shops and services located along the Ormeau Road which are sustained by both the density of the surrounding population and passing trade generated by Ormeau Avenue as a substantial arterial route to/from the city centre. The area also benefits from the directly adjacent recreational and leisure facilities and cycle path along the River Lagan. This cycle path gives access to the central station in five minutes and inner city areas within ten minutes.

The site's former occupation by rugby and cricket fields accounts for the atypical depth

## Apartment Block/No. 57 Belfast, 2011

Client: Canmil Housing Association  
Architects: JNP Architects



of the block. Original terraced houses line the outer street frontage of this block on two sides.

### Legal Format

This development was built by a housing association, which also manages this affordable rented accommodation. This housing association currently manages 3,477 residential units and is governed by a voluntary board of management.

### Concept

The design and layout of the project followed Best Practice Design, the DSD Housing Association Guide, and the Clanmil Housing Association Design Guide. The aims of the project were to: create a sustainable residential community that integrates residents with the wider community and neighbouring areas; enhance the physical environment and make this area a landmark feature on a main arterial route into the city centre; create public access through the site to the River Lagan; ensure that the houses meet lifetime home standards regarding barrier-free design for all; and to promote high energy-efficiency throughout to help reduce fuel poverty.

### Participation

While there was no direct participation of the

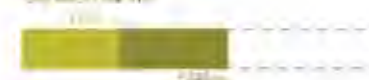
future end-users, the house types were derived from the demographic profile of the NIHE waiting list for the area and, in the end, incorporated mostly family homes. Local political representatives worked with the Clanmil Housing Association and the community to pursue the success of the project and to seek ways to develop a sense of community 'ownership'. For example, the name "Lavinia" was suggested by members of the community group and comes from street names lost during the redevelopment of the area in the late 1970s early 1980s. To sustain this community engagement, the Clanmil Housing Association conducts an on-going liaison with local groups and resources in the area.

## Lavinia Court Houses/Centre Block JNP Architects

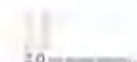
### Density



### Site Coverage / Floor Site Cover / m<sup>2</sup> WFI



### Programmatic Analysis



### Total Programme Area Breakdown



### Total Project Cost Site Cost / m<sup>2</sup> WFI



## Lavinia Court Apartment Block/No.57

JNP Architects

Density



140 units / Ha



Site Cost / m<sup>2</sup> Site

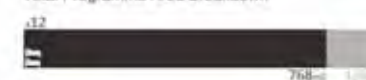
Site Cost / m<sup>2</sup> Wf



Programmatic Analysis

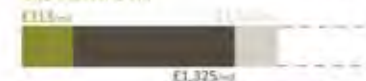


Total Programme Area Breakdown



Total Project Cost

Site Cost / m<sup>2</sup> Wf



Private Amenity + Infrastructure

1. Front Garden
2. Parking
3. Rear Garden



Shared External Amenity

4. Paved Path
5. Planting Beds



Shared Internal Infrastructure

1. Stair Core/Hallway
2. Lift

Shared External Infrastructure

3. Parking
4. Planting Beds
5. Bicycle Parking
6. Bin Storage

- Two-Bed House/Apartment
- Three-Bed House
- Four-Bed House

## 2.3 Summary and Analysis

The most immediate observation one can make regards the low density of the housing association terraced house typology in the **Lavinia Court Centre Block (2.2.2A)**. In terms of plot ratio and units/Hectare, it is less than half the density of the **Traditional Terraced Housing (2.2.1)** typology, of which the surrounding building stock is composed. As a result, the amount of private and shared amenity space was higher in the **Lavinia Court Centre Block (2.2.2A)** project, however a large amount of this space was given over to car access and parking. This deep block could have offered the possibility of alternative typologies to the terraced or semi-detached formats, which require this extensive additional road infrastructure.

The housing association apartments, **Lavinia Court No.57 (2.2.2B)**, are of a density equivalent to the **Traditional Terraced Housing (2.2.1)** typology, but without the private outdoor space and with less shared amenity space per person. The ground surface area gained through the higher density of the apartments is primarily dedicated to sealed-surface carparking rather than usable outdoor amenity space. The little shared outdoor amenity space that is provided is also of questionable utility, apart from as external circulation around the building. This amenity space, as well as that in the **Lavinia Court Centre Block (2.2.2A)** is divided by multiple layers of fencing into narrow strips, often not wider than one meter, and so is not conducive to use for play, seating, or other outdoor recreation activities. This spatial configuration suggests that security and the prevention of anti-social behaviour are primary concerns, though perhaps if the spaces were more extensively overlooked - which is difficult to achieve with terraced or semi-detached housing with gable walls and large, fenced-in rear gardens - and more intensively used throughout the day by a diverse demographic of residents, these concerns could be more positively managed. In the end, the road surfaces, because of their unobstructed nature, are probably more flexible and likely to be used as play spaces for, for example, ball games.

The **Traditional Terraced Housing (2.2.1)** typol-

ogy provides the additional utility and flexibility of rear access to the property, allowing separation of waste handling from the front of house.

The housing association apartment block, **Lavinia Court No.57 (2.2.2B)**, while of the same density as the **Traditional Terraced Housing (2.2.1)**, provides no private outdoor space, no usable shared amenity space, and lacks the individualised street address of the terraced house. However, one advantage of the housing association apartment **Lavinia Court No.57 (2.2.2B)** format is the level access to each unit provided by the lift.

In summary, the density of the housing association project is arguably too low, considering that it is both lower than the existing surrounding building stock by up to 50% and also because its good connections to amenity and cycle and public transport links could support a higher density. While the introduction of additional residences to a previously uninhabited inner urban area is a positive step, a more compact, less car-orientated proposal could have further reinforced the existing urban character and the sustainability and growth of shops, services and amenities.

For example, if this project had been developed at the historical densities of the Belfast terraced housing or those established in the Belfast housing studies we will be considering in the next section, it would have resulted in approximately an additional 710 residents. This would have had the potential to further improve local shops and services. In the hypothetical scenario that an additional 710 people were to live here, rather than further out along the Ormeau Road, this could also have potentially reduced the flow of traffic on the Ormeau Road and the degrading effect it has on adjacent residential areas due to the atmospheric and sound pollution generated by up to 300 cars/day.





### Belfast Ravenhill Traditional Terraced Housing

Density



1.14 gpa ratio



130 units / ha

Programmatic Analysis



0.0 car parking spaces / ha



4.1 m<sup>2</sup> car parking / ha



0.0 m<sup>2</sup> pedestrian access / ha



5.0 m<sup>2</sup> pedestrian access / ha



4.1 m<sup>2</sup> pedestrian access / ha

Total Programme Area Breakdown



2376 m<sup>2</sup>



### Lavinia Court Apartment Block/No.57 JNP Architects

Density



1.06 gpa ratio



140 units / ha

Site Cost / m<sup>2</sup> Site  
Site Cost / m<sup>2</sup> Wt



Programmatic Analysis



0.22 car parking spaces / ha



7.1 m<sup>2</sup> car parking / ha



3.6 m<sup>2</sup> pedestrian access / ha



0.0 m<sup>2</sup> pedestrian access / ha



4.0 m<sup>2</sup> pedestrian access / ha

Total Programme Area Breakdown



768 m<sup>2</sup>

Total Project Cost / m<sup>2</sup> NGF  
Site Cost / m<sup>2</sup> Wt



£1,525/m<sup>2</sup>



### Lavinia Court Houses/Centre Block JNP Architects

Density



0.52 gpa ratio



52 units / ha

Site Cost / m<sup>2</sup> Site  
Site Cost / m<sup>2</sup> Wt



Programmatic Analysis



0.23 car parking spaces / ha



4.5 m<sup>2</sup> car parking / ha



2.0 m<sup>2</sup> pedestrian access / ha



47.2 m<sup>2</sup> pedestrian access / ha



2.0 m<sup>2</sup> pedestrian access / ha

Total Programme Area Breakdown



2,263 m<sup>2</sup>

Total Project Cost / m<sup>2</sup> NGF  
Site Cost / m<sup>2</sup> Wt



£1,245/m<sup>2</sup>

## Belfast Case Studies Graphic Data

### 3.0 Belfast Housing Studies







### 3.1 Context and Rationale

The following section presents urban analysis and housing proposals for a number of sites in Belfast. Sites were selected that offered potential for urban living which could utilise and reinforce city centre infrastructure, amenities, and connections to existing adjacent residential communities. These sites were also selected on the basis of viability and availability: as each site is in the ownership of the DSD they could potentially be made available for development, with the DSD in a position to facilitate their urban regenerative potential.

The same urban analysis techniques applied to the urban contexts of the Berlin case studies are used for the contexts of each of the Belfast sites. This allows for comparisons between these urban environments, but also assists in the recalibration of appropriate housing densities to consolidate the urban centre with regard to green space, amenities and services, existing densities, etc. that were mapped in this urban analysis.

The Berlin case studies, which all the students visited and analysed both qualitatively and statistically, formed an important point of reference and departure for the Belfast housing studies. Their work can be viewed as research and testing of alternative housing forms to the more typical terraced or semi-detached Belfast house typologies. In this regard, they are also testing possible and appropriate densities for these sites, the transferability of typological strategies, and how such strategies might need to be transformed in response to both the wider Belfast social and physical context and specific site circumstances.

The Belfast housing studies were also informed by particular aspects of the Berlin case studies observed to be central to the success of these projects, yet which are generally missing from housing developments in the Northern Ireland. In particular, the shared facilities and amenities, that become viable at high densities, are significant advantages of less dispersed forms of living: the simple concept that by sharing facilities and amenities residents can have more than would be financially-

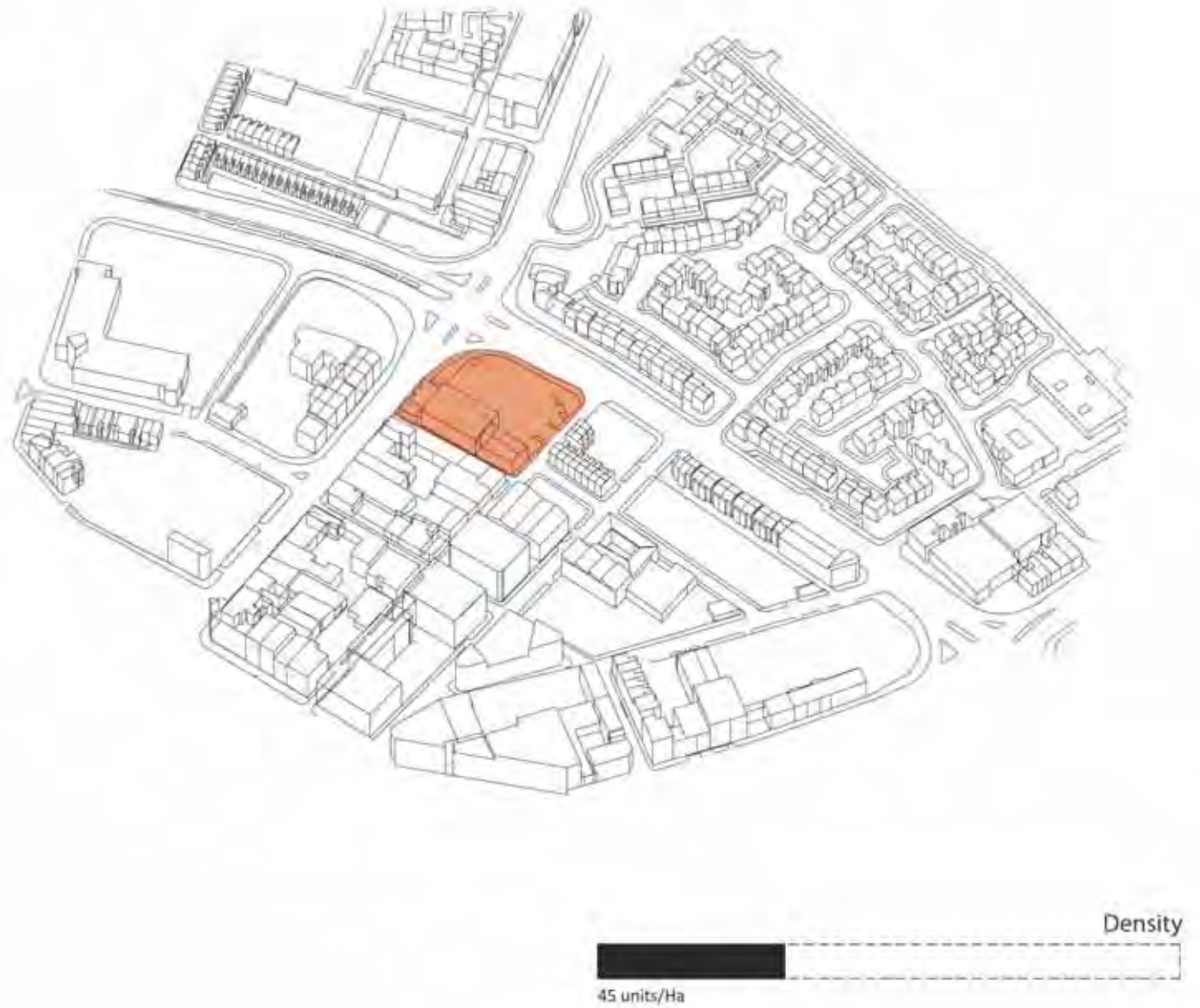
or spatially-possible individually.

All of the student proposals are included in this document, because it is not just the more developed and viable proposals that are informative, but the full scope of testing. Revealing the pros and cons of differing strategies allows for a better-informed judgment of the more successful proposals based on comparisons made across the whole body of work. To facilitate these comparisons, project information and data has been gathered and communicated graphically to allow both easy comparison between projects and also between these housing studies, the more typical traditional terraced housing, the contemporary housing association typologies, and the Berlin precedents.

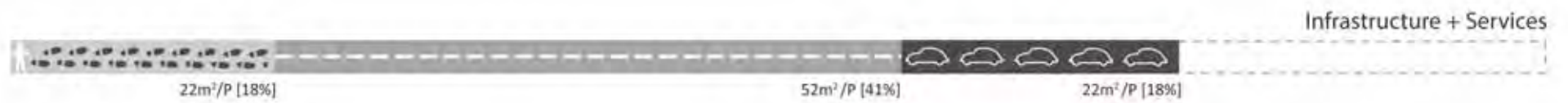
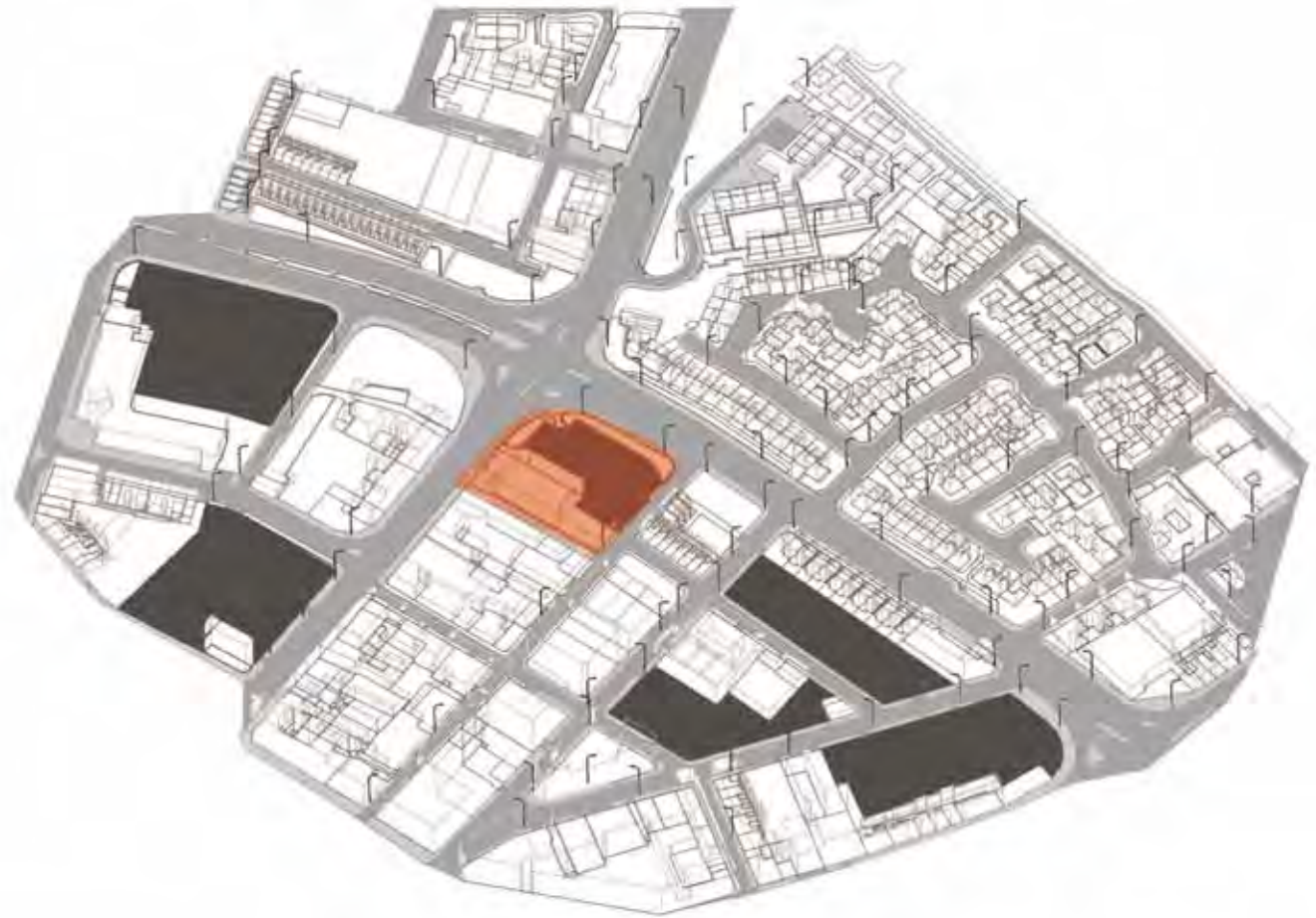


## 3.2 Projects

### 3.2.1 Carrick Hill









Amenity + Green Space

13m<sup>2</sup>/P [11%]



Public Facilities + Retail



16m<sup>2</sup>/P [13%]







This scheme addresses the needs of the area by providing a café/restaurant, a place to relax, a safe park and a place for adult education. The design provides underground parking, storage, and has a landscaped heart. A mix of tenure is provided consisting of one to three bedroom units: the area of Carrick Hill has sufficient three to four bedroom accommodation. With an increase in single people wanting affordable housing, providing one to three bedroom units seemed appropriate. Each unit has its own private outdoor space, which isn't overshadowed and feeds into the surrounding semi-public space. The project provides an honesty café, an adult education centre and a small crèche which can be used in conjunction with the education centre, either for studying child care or for the young kids of studying parents. An existing bingo hall is in a dilapidated state but heavily used by the local community. The scheme keeps the bingo hall as a multifunction space to be used and adapted by both residents and the wider community. The courtyard garden is landscaped with hills and mounds, a play area and seating. The hills prevent visual disturbances between neighbours and provide a "natural" setting. There is also a stepped area for seating to accommodate an outdoor theatre/cinema to create a media hub. The project responds to the local community and interacts with the city and the suburbs, acting as a slowing filter between home and town. The design aims to achieve inclusivity and not to exclude.





## Project Data

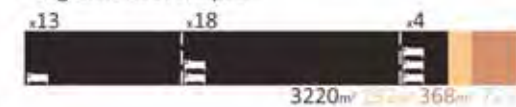


## Density

1.2 plot ratio

92 units / Ha

## Programmatic Analysis



21m² shared amenity / P

29m² private amenity / unit

10m² infrastructure / P

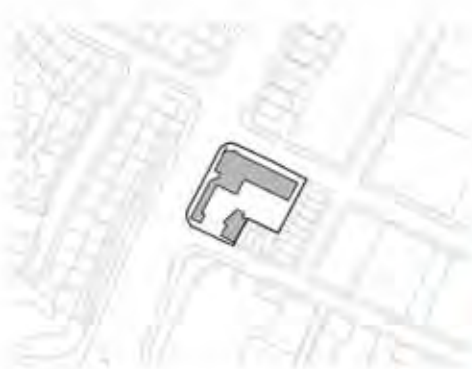
10m² car surface / P

0.5 carparks / P



## Anita Quinn

Housing + Corner Shop + Allotment



This 'L' shaped piece of land is clearly defined by rows of terraced houses on the adjacent site. The site at present is incomplete, with the back of the existing terraced houses left exposed. The site this scheme addresses has no identity. This scheme aims to find the site's identity, to respect the local character of the surrounding context, and to create a focal point. The design aims to create a home, a home of traditional family values and home life: hearth and home. This scheme is influenced by the surrounding terrace typology. The project aims to develop a stable environment for families, but also to provide accommodation for young and old. Having studied the area, I looked at the surrounding housing, to realise what does and doesn't work. Carrick Hill is known as a 'residential cultural interface'. Separating these communities are unsuccessful 'barbed wire' boundaries. This scheme proposes to create a porous edge boundary and to increase permeability on site. It aims to re-establish a sense of community spirit and 'knowing your neighbour' way of living by forming a large shared and central allotment plot, bringing both the new and existing residents together. This proposal gives the site a new lease of life, character and presence again, by creating towered housing at the corner, with a much needed corner shop on ground level, and lower housing apartments towards the minor street. It adds a terraced house to the end of the existing terrace, thus making the overall site enclosed and complete.







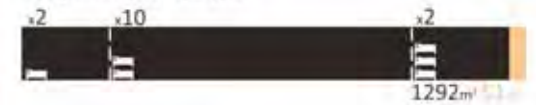
## Project Data

### Density



117 units / Ha

### Programmatic Analysis



12m² shared amenity / P

22m² private amenity / unit

5m² infrastructure / P

2m² car surface / P

0.2 carpark / P

**Chris Mullan**  
Housing + Courtyard



The initial idea behind this scheme came from the orientation and dynamics of the site. The site is located between the commercial city centre, the Carrick Hill dual carriageway and a number of residential developments. The idea of a stepping roofscape was in response to the scale of the surrounding context. The lower parts of the scheme in the design of their elevation imitate the surrounding Georgian terrace housing. The 16m high corner responds to the surrounding commercial city scale. The orientation of the scheme allows the quality of the central courtyard space to be maximized. This central space can become a very social space connecting the existing terrace houses and their residents with the new development and the new residents. The orientation also maximizes sunlight and reduces wind and traffic pollution to the courtyard space and private terrace spaces. The stepped roofscape integrates large green terrace spaces for each unit. These stepped terraces all visually connect to the courtyard space creating an almost Amphitheatre surrounding the central space. The design encourage interaction, outdoor living and a sense of community in a location which over time has become broken and disjointed.







### Project Data

Density



1.15 plot ratio

103 units / Ha

### Programmatic Analysis

5m<sup>2</sup> shaded amenity / P

26m<sup>2</sup> private amenity / unit.

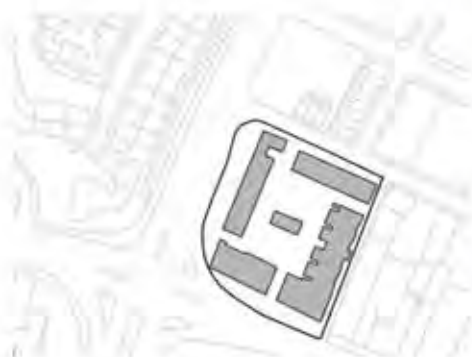
3m<sup>2</sup> infrastructure / P $3\text{m}^2$  car surface / P

0.4 carparks / V



## Sarah Jennings

Housing + Bingo Hall + Child Care Facilities



This site, which sits on the border between the city centre and Carrick Hill, is in danger of becoming a barrier for the existing Carrick Hill residents, who see themselves as inner city residents. The aim behind this design is to use the site to create a connection between existing residents, the city centre and further afield (the Carrick Hill road leads to the M1, a main infrastructural element in Belfast). The existing site is used as a car park, which is underused, and a bingo hall, which is heavily used. There are daily games in the bingo hall, on the hour from eleven until four every weekday. Some bingo players have been using the bingo hall for so long that they even have their own seat. The new design includes a new bingo hall to cater for those users, as well as child care facilities, a coffee 'stop' and underground parking. The idea is that the apartments will be multi-generational and mixed tenure, therefore, catering for a range of family types and residents. Two, three and four bedroom apartments can be extended for growing families, divided to create a 'granny flat', modified to contain a work space or work shop on the street front or shared between students and young professionals. All the apartments have access to their own private terrace as well as benefiting from shared semi-public space in the central courtyard, a communal space and garden plots.



## Project Data



### Density



76 units / Ha

### Programmatic Analysis



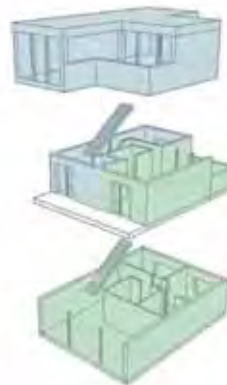
11m² shared amenity / P

19m² private amenity / unit

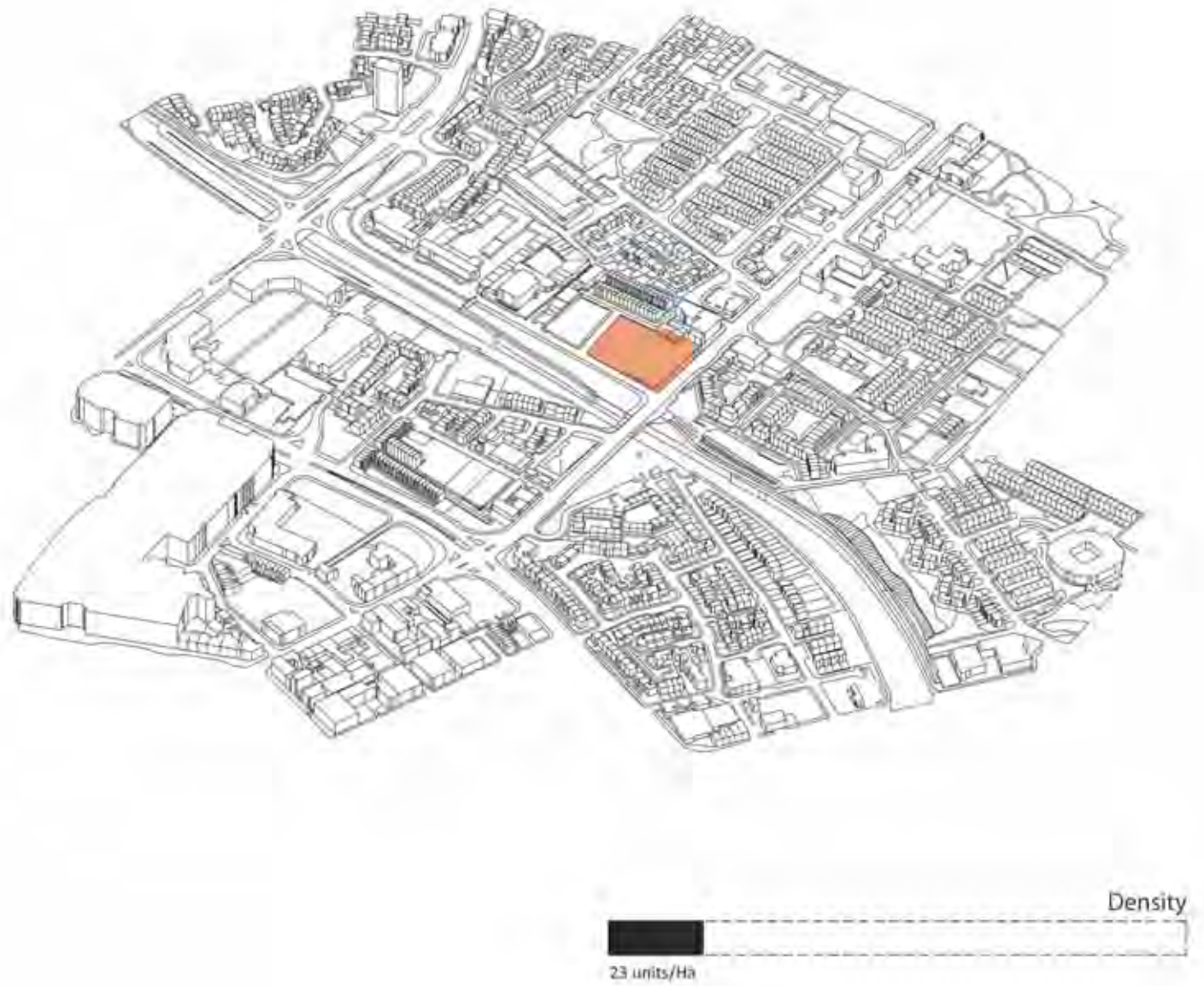
3m² infrastructure / P

10m² car surface / P

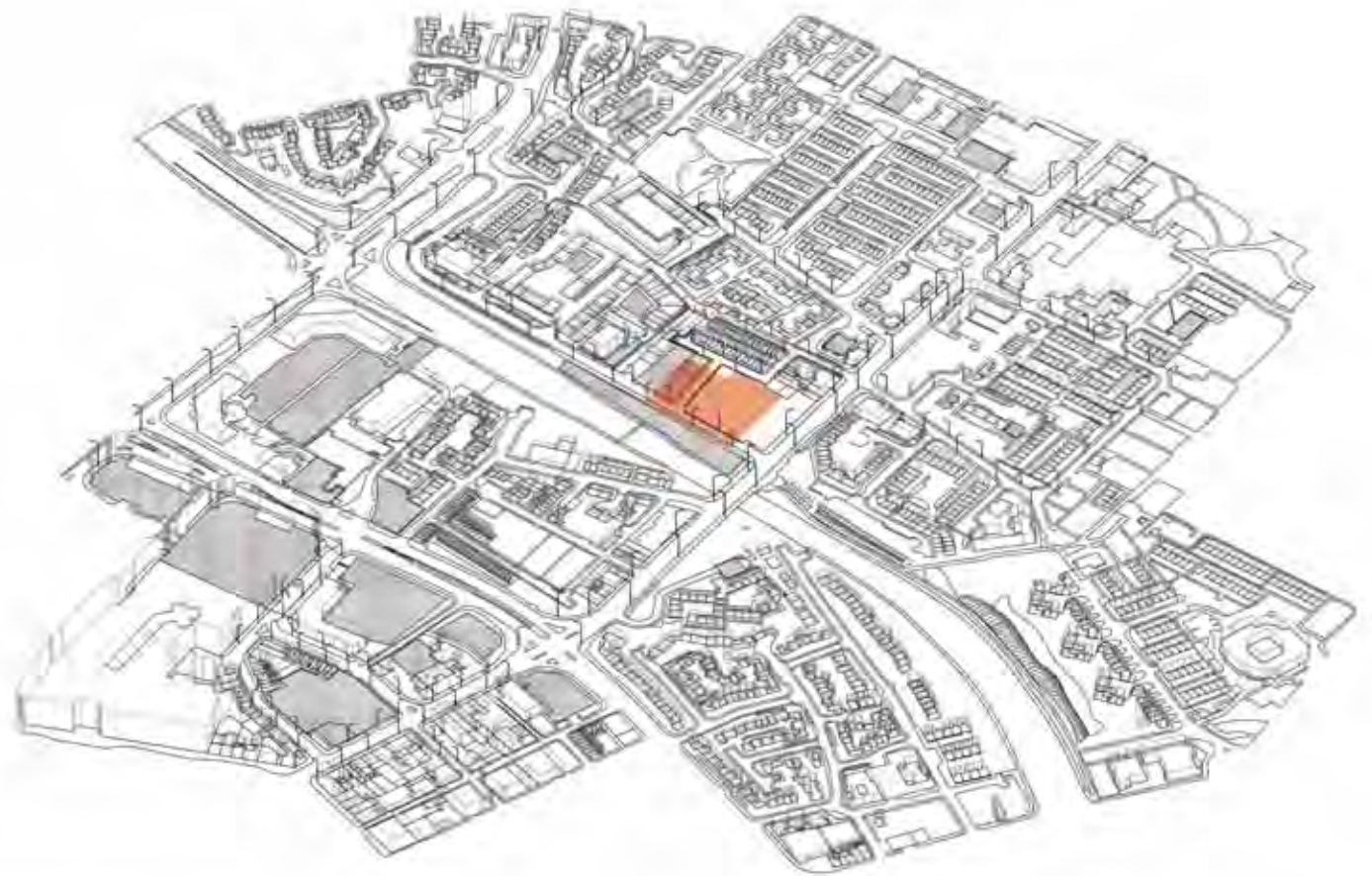
0.4 carparks / P



### 3.2.2 Peter's Hill

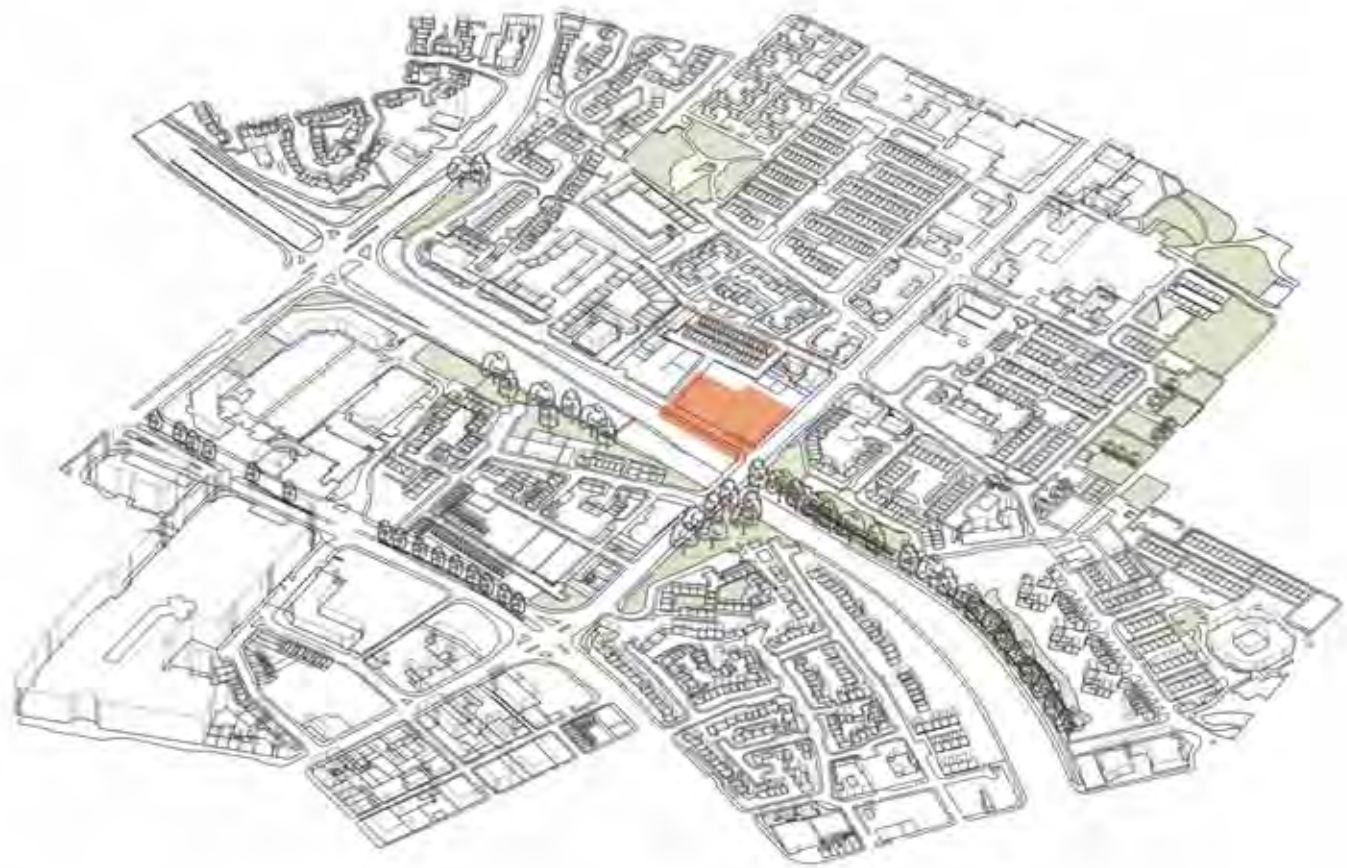






Infrastructure + Services

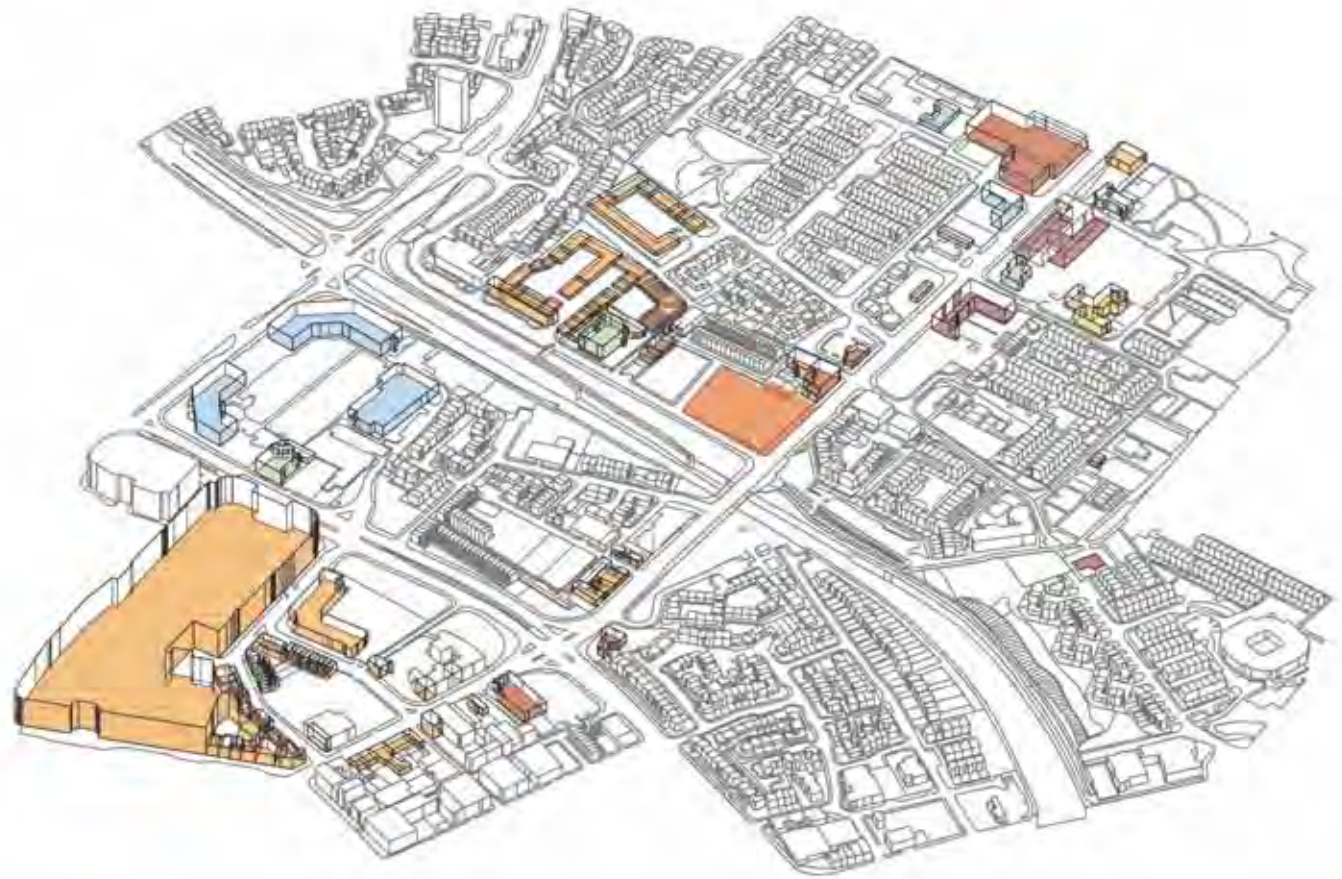




7m<sup>2</sup>/P [8%]

Amenity + Green Space





Public Facilities + Retail



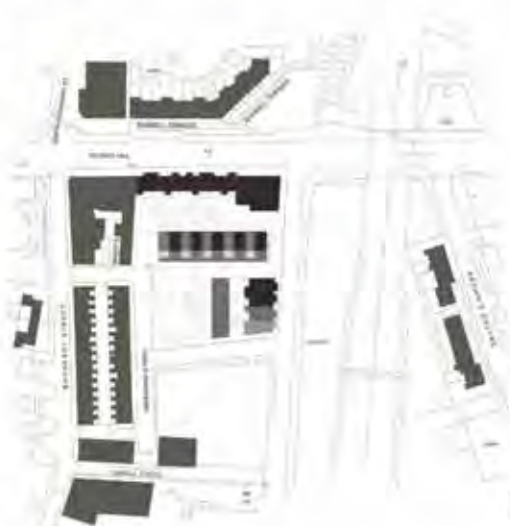


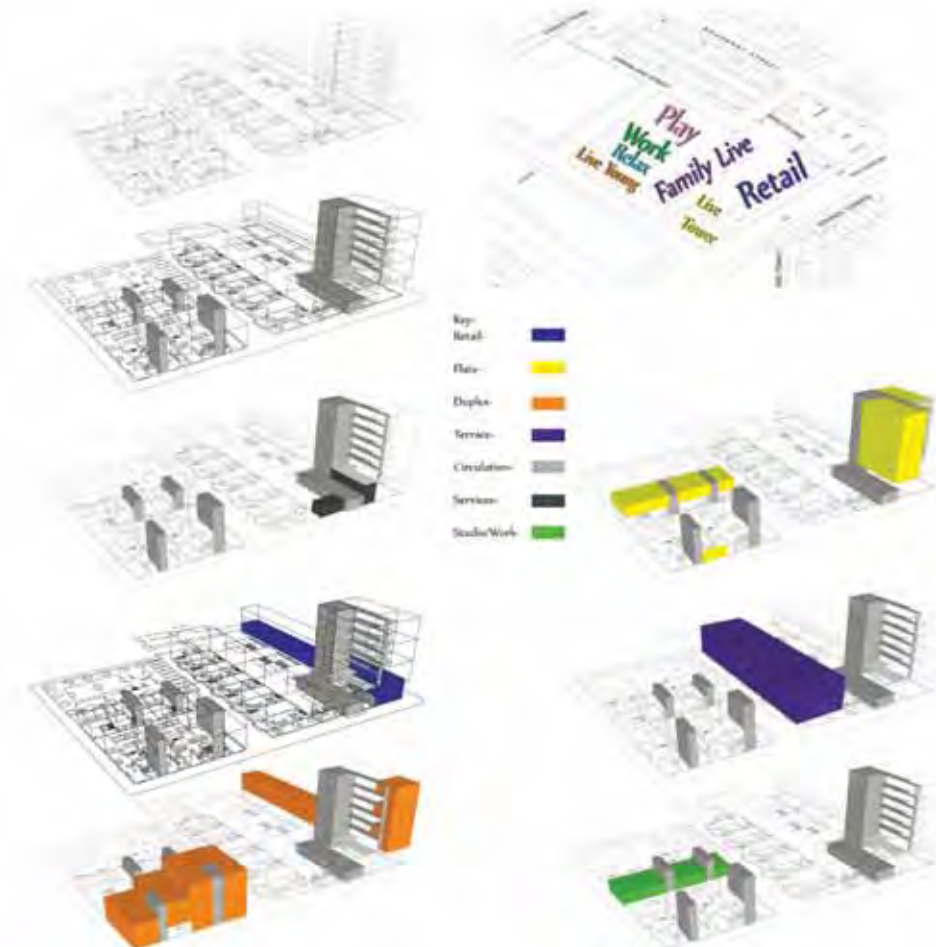
## Chris Campbell

### Housing + Play Space



The design of this scheme takes the form of separate blocks of courtyard style buildings, some being elevated and others at ground level. The design incorporates a play space designed to link the new scheme into the existing housing and fabric of the Shankhill road. The housing types are designed to be flexible for the end user and were also designed to be usable by many different user types. For example, a one bedroom apartment can be rented by a mature student, or a single person off the social housing waiting list, to address the increased need for singles under Welfare Reform. This idea for the design to be multi-user and flexible is to try to eliminate the social class divide, through 'tenure-blind' housing. Adding to this non segregation, the courtyard space encourages residents to use the space to meet others and to congregate in these 'streets' in the way people used to communicate and get to know each other when the houses were first built in the area.





## Project Data

### Density

1.09 plot ratio

68 units / Ha

### Programmatic Analysis



25m² shared amenity / P

11m² private amenity / unit

4m² infrastructure / P

7m² car surface / P

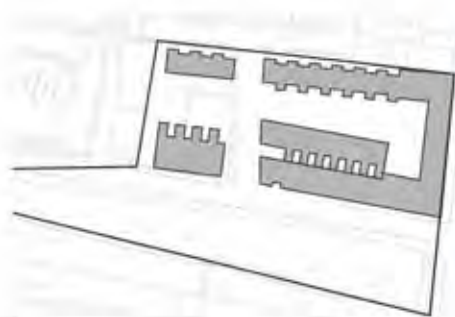
carparks / P





## Claire McAteer

Housing + Retail + Cafe + Workspaces



This site is located within close walking distance to Belfast city centre. The location lends itself to a mixed-tenancy residential and commercial scheme due to its proximity to the Shankill Road, with abundant healthcare and leisure facilities within walking distance. The scheme incorporates flexible retail units along the Shankill Road frontage allowing different retail space sizes, and a cafe unit on the corner of Townsend Street to act as a meeting area with activity on the corner seen immediately upon crossing the Westlink bridge. The housing is designed to appeal to people at all stages of life, from one bedroom apartments for young professionals, to ground floor garden apartments suitable for both elderly people and young families. The mews design creates an internal sense of community with outdoor space between terraces. Workspaces have been integrated into the ground floor courtyard apartments along Townsend Street. By doing this, residents can use these spaces for pop-up shops, office space or when not used for work purposes can be reintegrated into the dwelling to ensure the frontage of Townsend Street maintains a lively occupied status. Townsend Street car park will also be integrated into the scheme to create community facilities not only for residents but for the wider surrounding community. The scheme also includes sports facilities, landscaped areas with safe outdoor play facilities for children and a community hub for workshops and youth facilities.





## Project Data



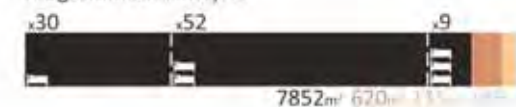
### Density



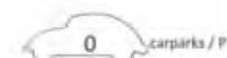
1.06 plot ratio



### Programmatic Analysis



0m² car surface / P



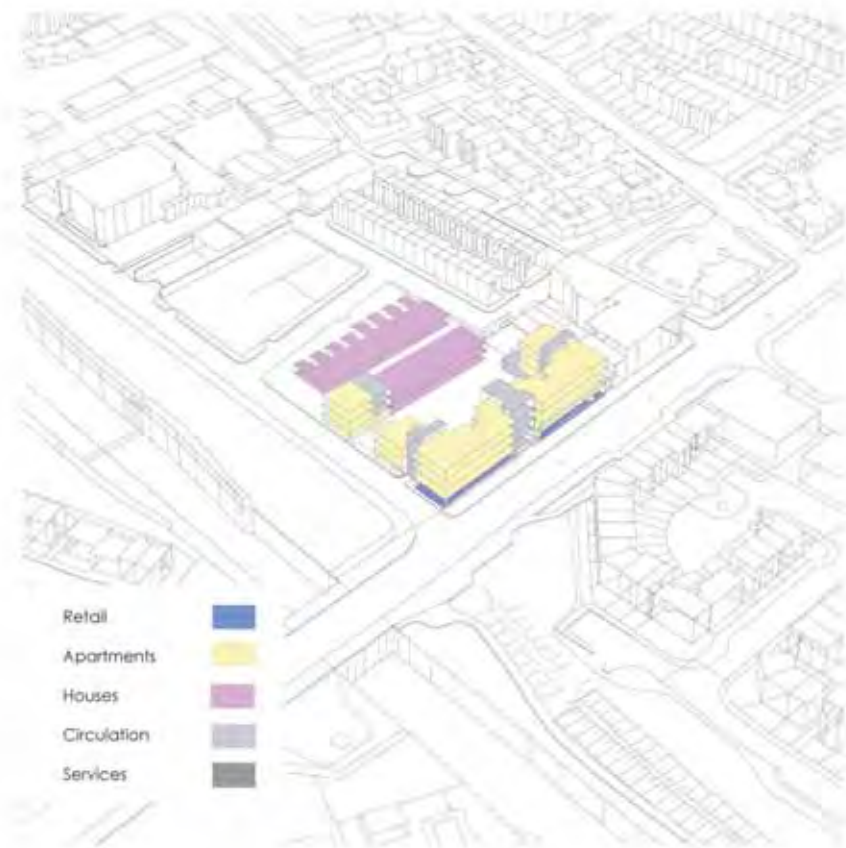
## Meadhbh Caldwell

Housing + Communal Garden Space



This site provides a variety of opportunities for the design of housing typologies. Having conducted site research and analysis of the existing community in the Shankill area it became clear that there was a need for a greater range of housing sizes. The changing family sizes, aging population and economic conditions that remain key factors were important design drivers when considering unit types and sizes. Having completed the study trip to Berlin and in particular studying the Fraenkelufer Housing project, I wanted to create a community at the site in Peter's Hill. The design of a communal garden space to be used and cared for by all of the inhabitants will create a shared space, which a community can grow around. This is why the apartments and housing are arranged to look over the courtyard and why their private balconies are the thresholds between private space and the public garden. The site moves from a busy street front to a small-scale residential area. The scale of the scheme is staggered from high-rise apartment buildings including retail units to small private terrace housing. In keeping with traditional terrace housing in Belfast a grid of 5.5m runs across the scheme again changing scale and construction typology from standard house construction to concrete slab and column construction for the larger apartment block. The aim of the design is to increase the quality of life of all the inhabitants by the quality of the spaces they live in.





- Retail
- Apartments
- Houses
- Circulation
- Services

Terrace Housing Type B



Second Floor Plan 1:100



First Floor Plan 1:100



Ground Floor Plan 1:100

## Density

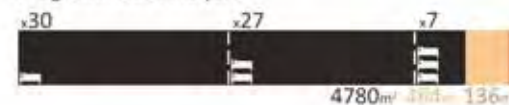


1.00 plot ratio



114 units / Ha

## Programmatic Analysis



15m² shared amenity / P



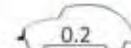
9m² private amenity / unit



1m² infrastructure / P



6m² car surface / P



0.2 car parks / P





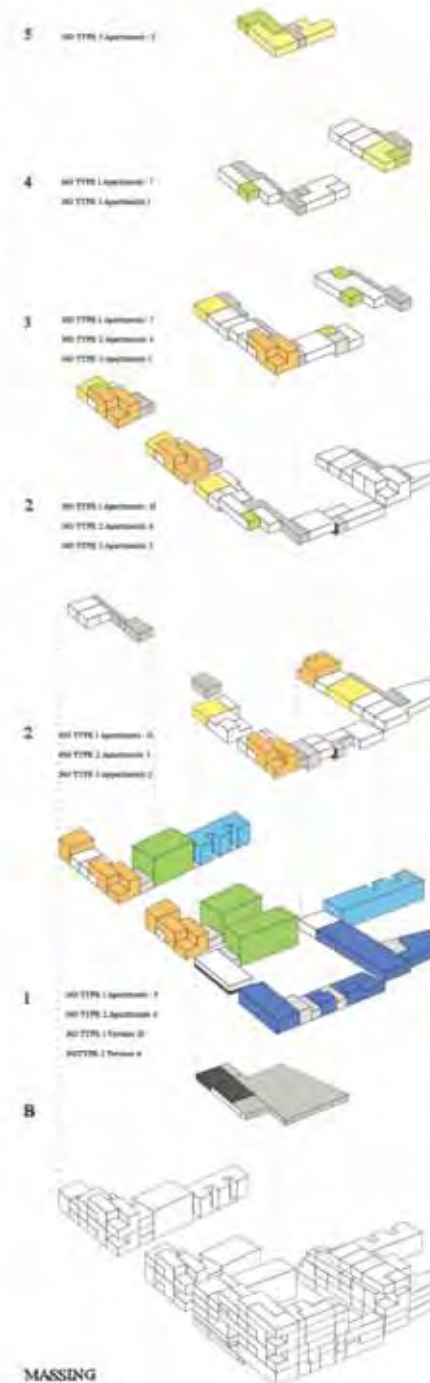
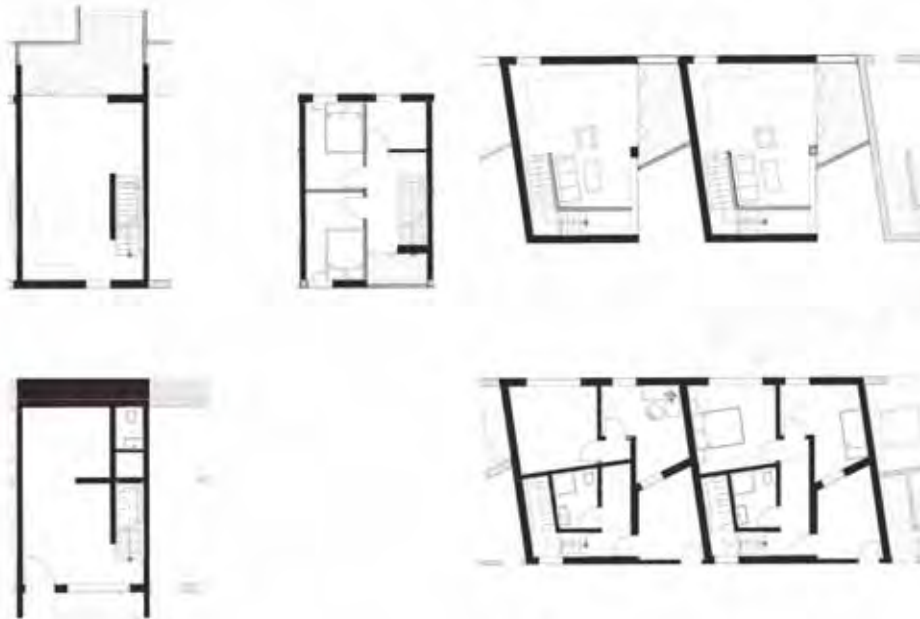
## Richard Hall

Housing



After study of the site located on Peters Hill Belfast just off the Shankill road we found that the area itself was quite run-down with many derelict sites in close vicinity, this left the opportunity to really develop an apartment based strategy that would fill the gap between the existing terraced houses and the city centre. The strategy itself was aimed to accommodate a mixed occupancy from young professionals due to the sites central location and proximity to the university, to young family and elderly accommodation in keeping with the existing communities located around the site. In order to provide this mixed occupancy, I incorporated a modular design that could adapt to the needs of the occupant that larger and smaller apartments both with outdoor space are available within the one building. Another major guiding element to the design was the provision of shared and private external space as I felt this was lacking within many existing apartment strategies in Belfast and the provision of external space would provide a better quality of living for the occupants. As mentioned earlier the site provided a real opportunity to bridge the gap between the existing two stories terraced housing and the more modern city centre buildings. Within the typologies of the scheme I have tried to bridge this gap by gradually increasing the number of floors from one side of the site to the other to avoid over-shadowing the existing two story houses.





MASSING

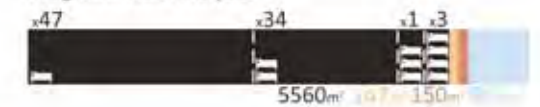
## Project Data

### Density

1.30 plot ratio

139 units / Ha

### Programmatic Analysis



22m<sup>2</sup> shared amenity / P

19m<sup>2</sup> private amenity / unit

6m<sup>2</sup> infrastructure / P

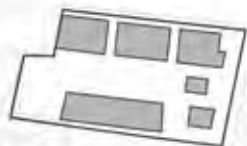
4m<sup>2</sup> car surface / P

0.1 carparks / P

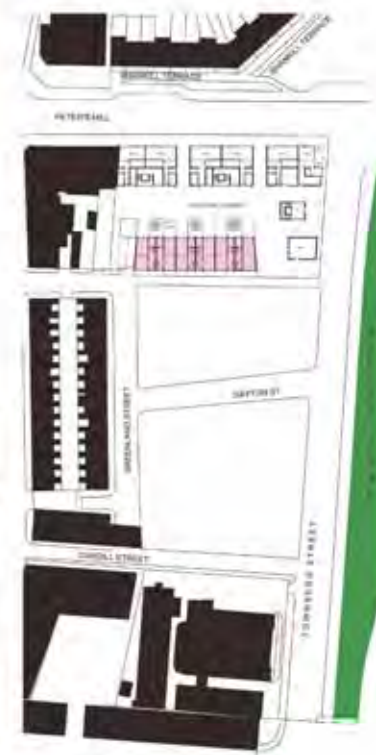


## Sarah Kingston

Housing + Café + Retail + Shared Amenity Space



The aim of this scheme is to address the emptiness of the site, bridging what was already present nearby, focusing on the break in the streetscape from the Shankill to the city centre. The design had to meet the needs of residents, both present and future, while creating economic opportunities for those living in the area. The proposal contains five retail units and a café on the ground floor, which address the street. Above these are seventeen housing units in the form of apartments and duplexes. These are one and two bedroom units, designed for small families. For larger family groupings, six three-bedroom terrace units are placed furthest from the street, facing the hundred year old traditional terraces already present on Greenland Street. In total there are twenty-three living units, each unit is accessible and multi-aspect. The massing of the building allows for maximum permeability throughout the site for pedestrians. It has a central courtyard, which acts as a shared amenity space for recreational use. There are five walkways to the courtyard from neighbouring streets. Balconies and windows overlook these walkways, creating a constant visual connection throughout the site. The proposal itself, aims to make the best use of its south facing orientation. From north to south the complex decreases in height, thus allowing for maximum light and heat penetration by means of passive solar. Large glazed areas facing south allow for direct gain of heat and light into the building complex.







## Project Data



### Density

1.6 plot ratio

85 units / Ha

### Programmatic Analysis

x9 x8 x6  
2948m<sup>2</sup> 3190m<sup>2</sup> 90m<sup>2</sup>

27m<sup>2</sup> shared amenity / P

16m<sup>2</sup> private amenity / unit

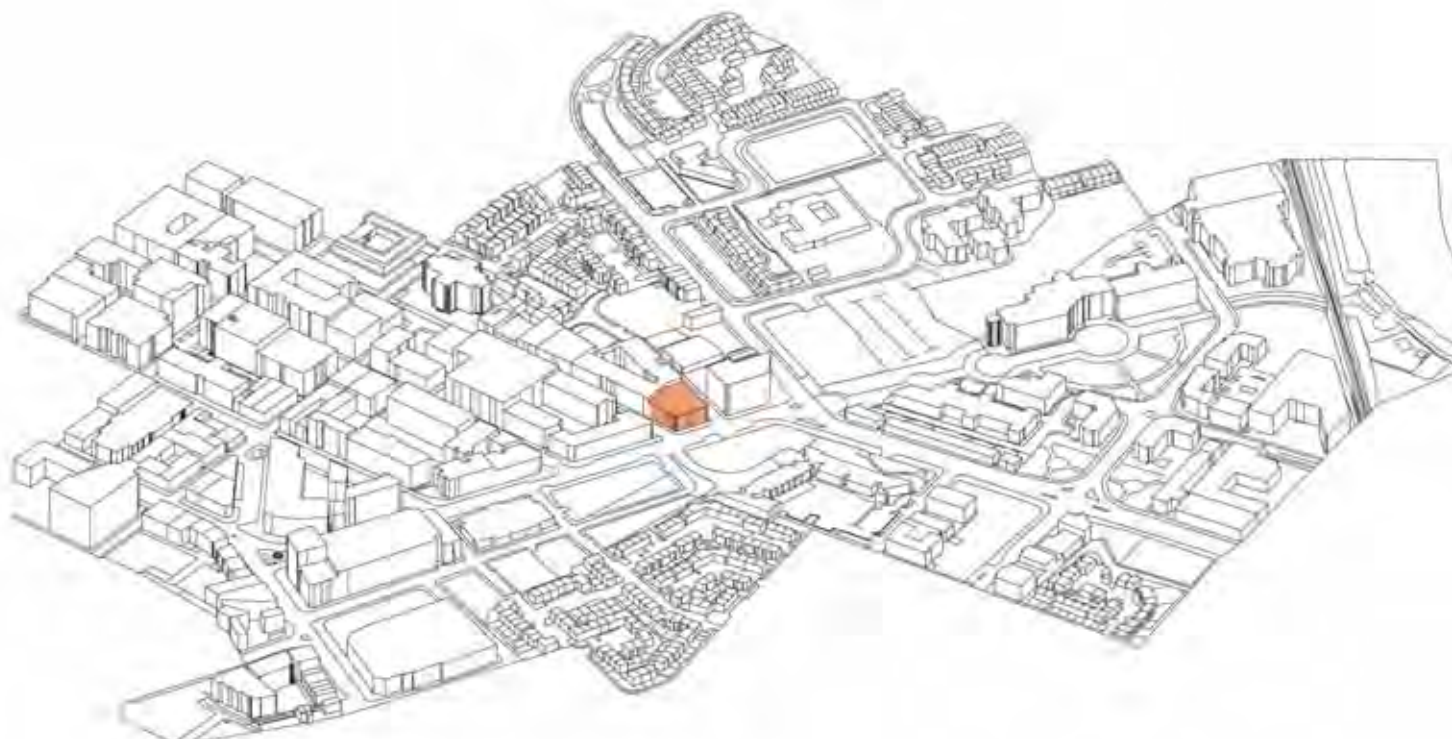
20m<sup>2</sup> infrastructure / P

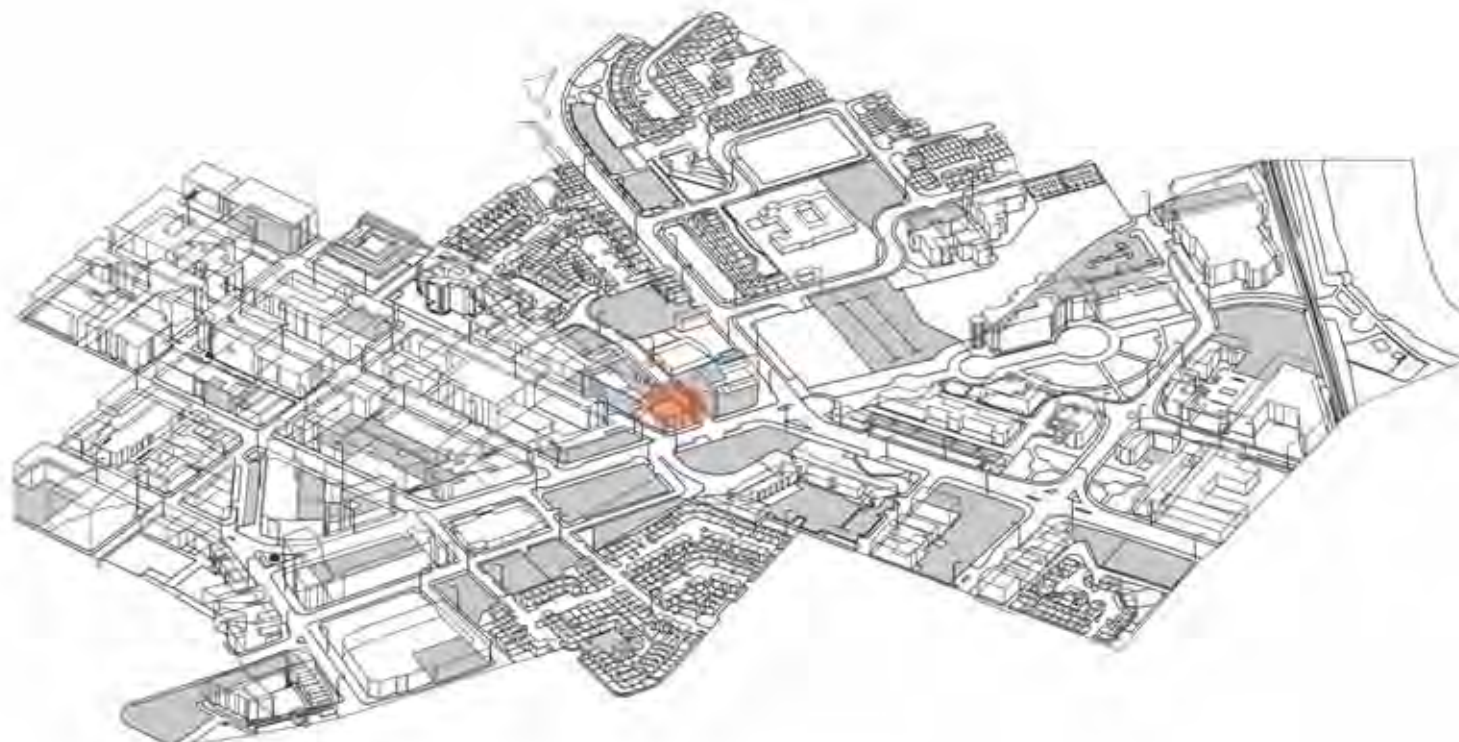
17m<sup>2</sup> car surface / P

0.4 carparks / P



### 3.2.3 Ormeau Avenue

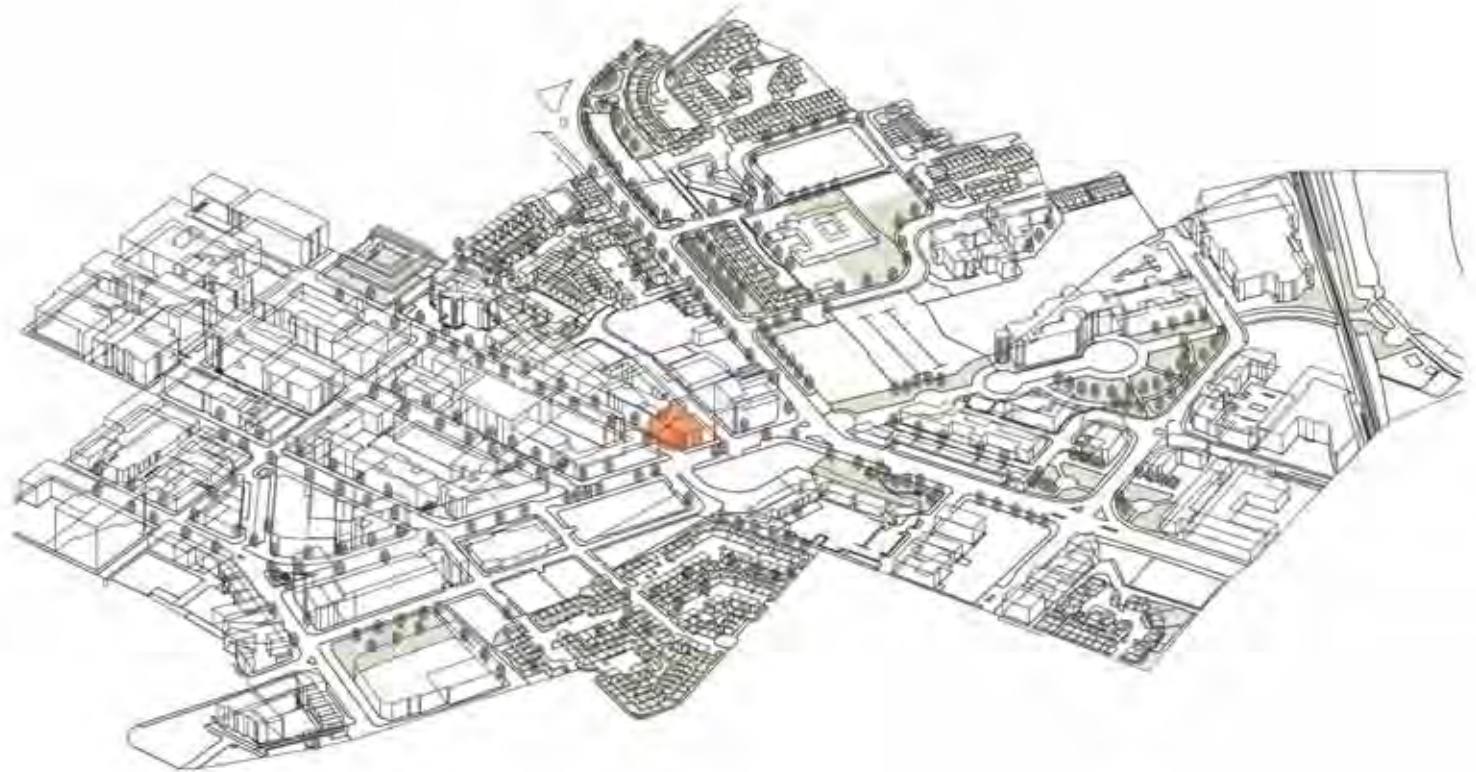




Infrastructure + Services

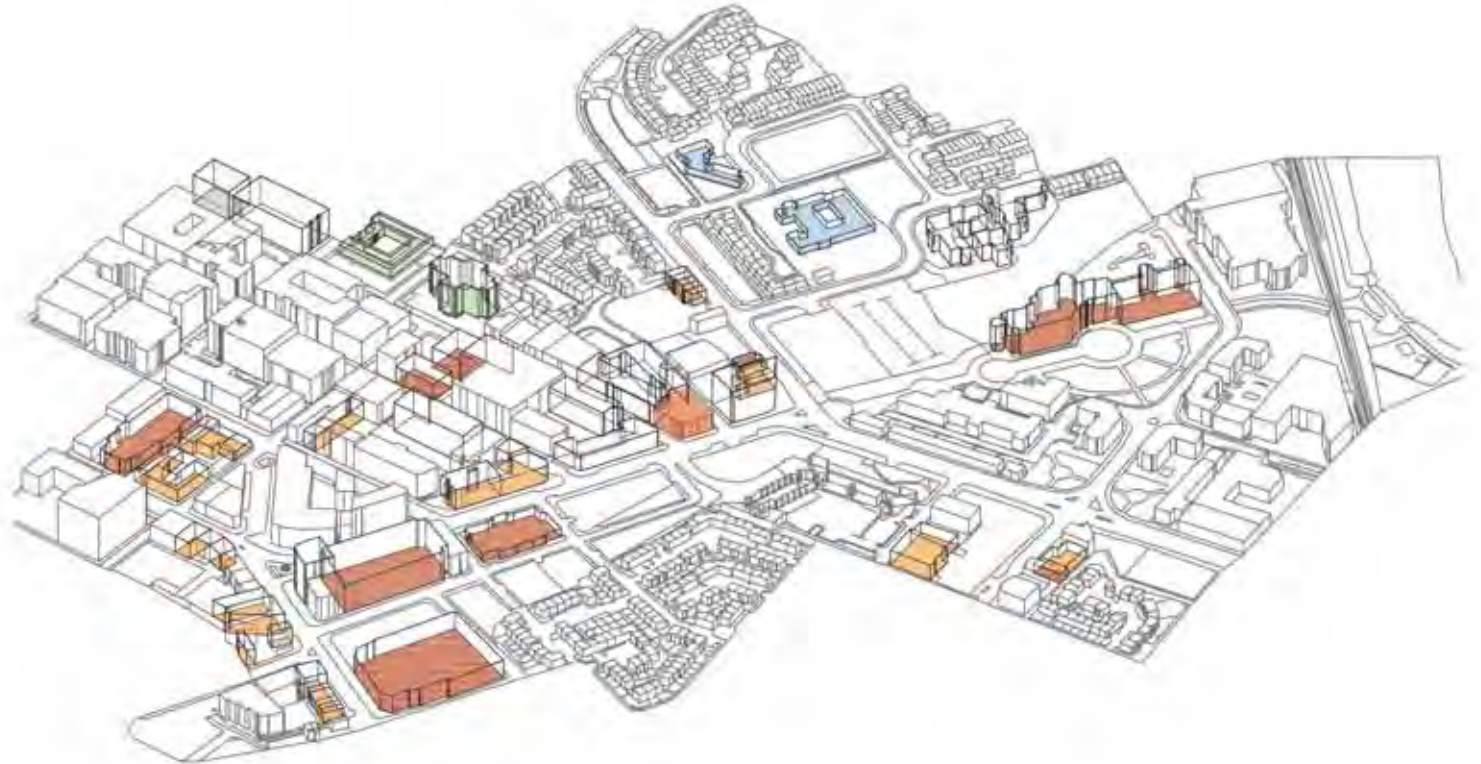






Amenity + Green Space

16m<sup>2</sup>/P (5%)



Public Facilities + Retail

54m<sup>2</sup>/P [20%]



## Anthony Stafford

Housing + Cafe + Grocery + Artists Studio  
+ Gallery

This project is located on the site of 11a Ormeau Avenue. It retrofits the old and abandoned former linen mill known as "Armagh House". As the building is over 100 years old the building is entirely retained. The scheme proposed provides over 16 apartment types including a guest apartment, all of which are intended for a varied mix of inhabitants, namely young families, young professionals, larger families, elderly and students. This was important, as the location of the project is on the liminal space of the city centre, neither truly city or suburban. A healthy mix of inhabitants should help inject a true city feel and address the current needs of people seeking accommodation. The ground floor of this scheme accommodates the cities needs with a cafe, a grocery and also an artist's residency studio and gallery space (which harks back to the much missed Ormeau Baths gallery). Each apartment follows one of 4 particular typologies, but varies in size due to the planning of these spaces. One of the key apartment types is the "Corb" apartment type, which is a study into getting maximum light penetration and double aspect vantage points within the existing structure. This was a play on a sectional relationship by Le Corbusier in his Unité d'Habitation project. All apartments feature either a terrace or winter garden and all but 4 apartments have the option of downsizing to allow a neighbour to increase their overall floor space, a feature referencing the Berlin case studies.





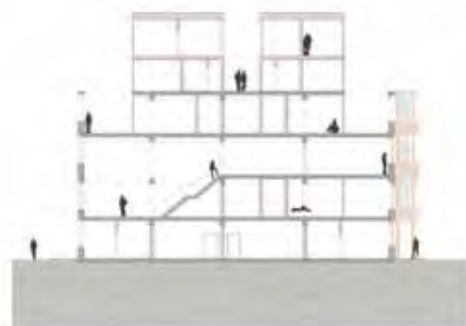
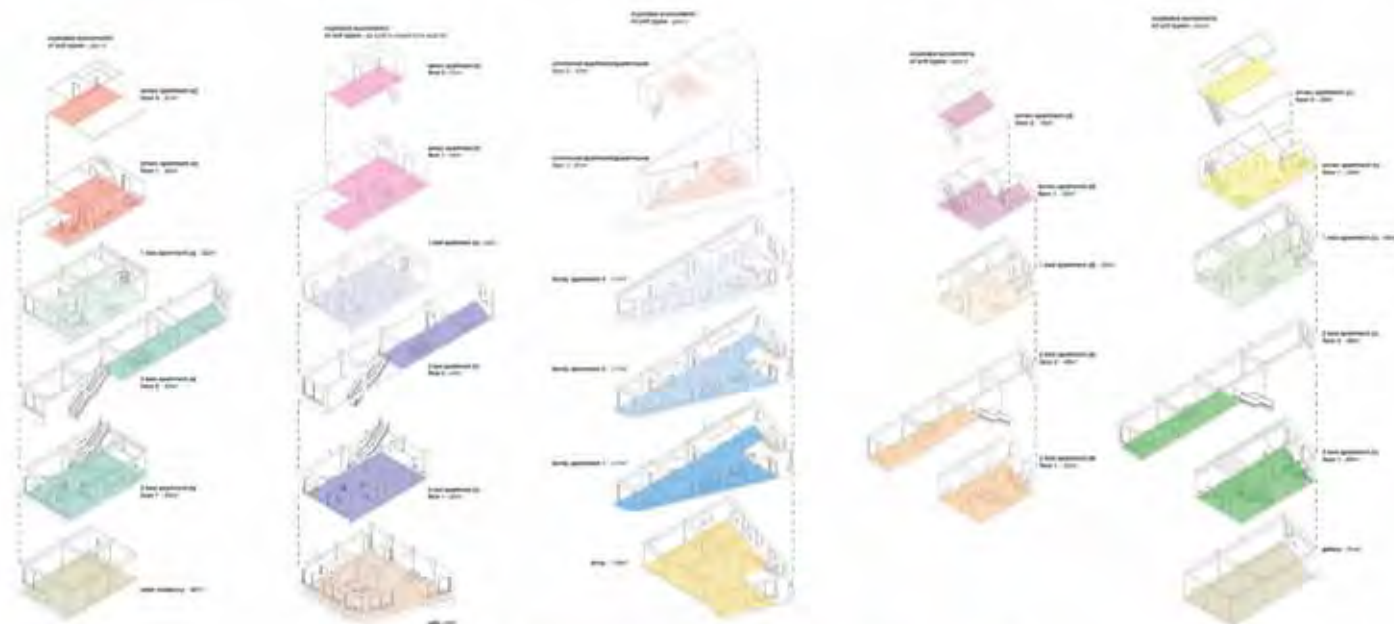
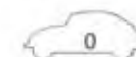
## Density

215 units / Ha

5      5      6

3220m 284m 15.2m

16m<sup>2</sup> private amenity / unit

 $0 \text{ m}^2 \text{ car surface} / P$  0 carparks / P

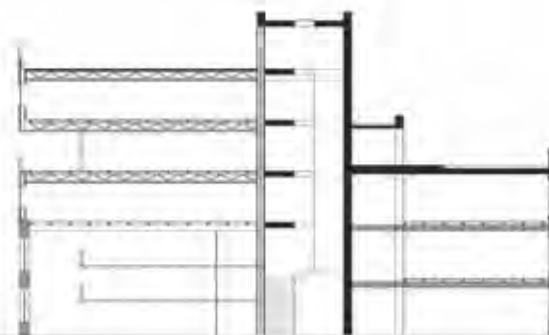
above image - aeromagnetic of 1998 available

## Marie Hughes

Housing



This scheme is located at a strategic point in Belfast city centre. The site marks the end of the high-rise grid of the city centre and faces a more dispersed urban landscape with terraced housing and parking. It is at the junction between three very different streets. On the South side of the site is Ormeau Avenue, a generous avenue with the potential to become a promenade into the city centre. On the west side is Alfred Street, which runs to city hall and is lined with high-rise office buildings. On the eastern side is Joy Street, which is lined with fine examples of Georgian architecture. The design aims to enhance the existing character of these streets. The scheme is aimed at young families looking to settle near the city centre. It provides a nursery for working parents. To keep in contact with the city's vibrant art scene, a medium-sized theatre is provided. Small spaces on the ground floor offer a flexible studio space/apartment or a shop/studio space that opens onto Alfred Street. The scheme also gives back a well-orientated public space on Ormeau Avenue, which serves as an entrance and outside space for the theatre. To make maximum use of the existing structure and materials, the 1st and 2nd floor are kept in their original state. The existing grid of the linen factory were not ideal for housing units. Therefore, the top floors of the building have been taken away and an extra floor added. A light metal structure supported on the existing pillars with wooden cladding frames the 12 housing units.



## Project Data



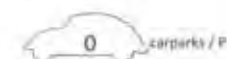
### Density



### Programmatic Analysis



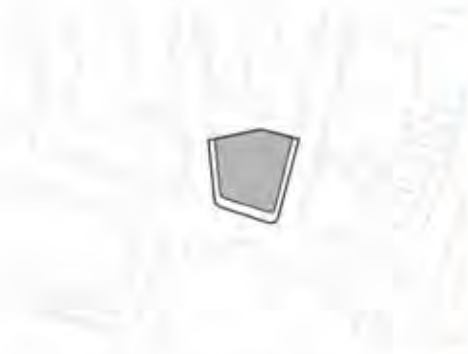
0m² car surface / P



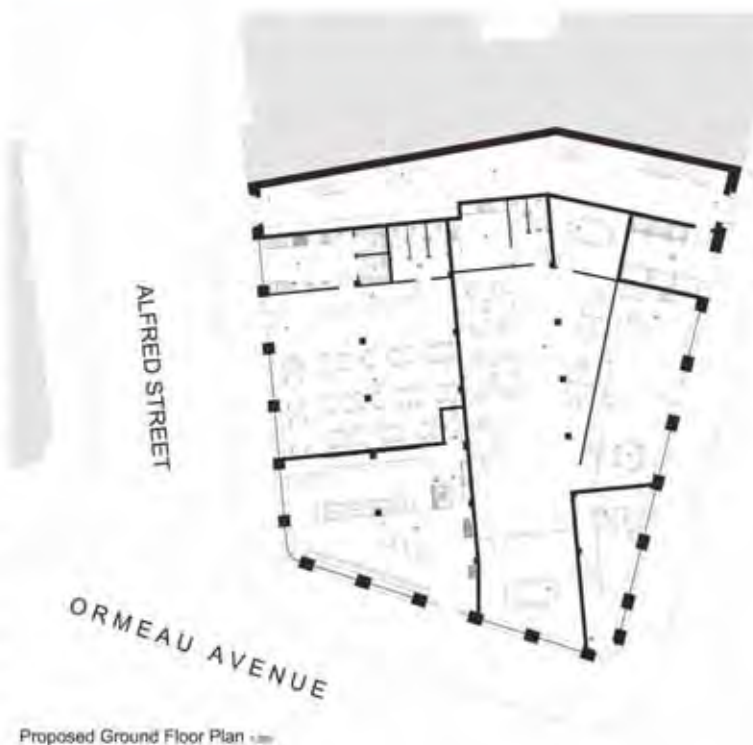


## Matthew Weir

Housing + Roof Garden



This scheme addresses an existing dilapidated building on Ormeau Avenue. The intention was to retain as much of the existing building as possible, including its interesting internal structure of concrete columns and beams, and to provide a series of individual apartments of varied size to promote a wide and diverse range of occupants. The guiding philosophy was to create rooms with natural light and providing every person access to a private outdoor space. The varied-sized apartments will promote a varied selection of residents, at different stages of life. This combined with the spacious shared building community space on the roof that accesses the "secret (roof) garden" will encourage the residents to interact with each other. The roof top garden is an urban retreat providing a safe and secure space to: relax with friends, play with kids, enjoy the rare days of sun, take up yoga or simply meet your neighbours. The apartments are ideally located in the city centre, within walking distance of the whole city centre, and with excellent public transport links to everywhere else. Eleven apartments ranging from single bedroom apartments to a four bedroom family duplex apartment make the building able to cater for different stages and circumstances of life, with an average of nearly 30m<sup>2</sup> of private outdoor space per apartment and a shared space of 420m<sup>2</sup> in which the building lives up to its aspirations, and even surpasses them.



Proposed Ground Floor Plan 1:200





## Project Data

### Density



162 units / Ha

### Programmatic Analysis



9m² shared amenity / P

28m² private amenity / unit

12m² infrastructure / P

0m² car surface / P

0 carparks / P



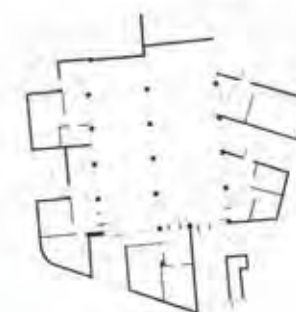
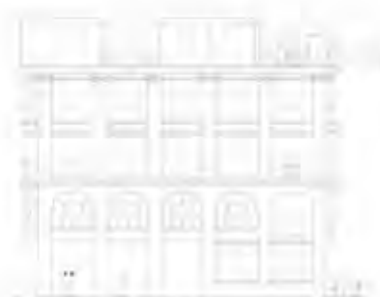


## Stephanie Magilton

Housing + Cafe + Nursery + Grocery Shop +  
Common Room + Roof Garden

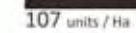
The design of the project was influenced by the trip to Berlin, which showed the value of courtyard spaces. These courtyards create a sense of security for families and enjoyable places for children to play. Children are at the centre of this design as most people refuse to live in the city due to the lack of family friendly buildings or public parks. The design features a semi-outdoor shared space carved out of the centre of the existing building. The remaining beams and columns create lighting effects and are dressed with planting. A great place for kids to play in or adults to socialise and with the climate in Northern Ireland it is an alternative for those rainy days as it has a glazed roof. It was an important part of the design to keep the circulation as bright as possible. Each floor's circulation has some sort of decking that makes a connection with outside. An existing car park 50m from the building has been replaced by gardens, play areas and a basketball court. Ground floor contains a cafe, nursery and grocery shop. Eight apartments are in the building ranging from one bedroom to three bedrooms. These can have anything from two bed spaces to six bed spaces which make it suitable for a varied range of tenants. Each apartment has access to a balcony and a shared roof garden; apartments on the fourth floor have their very own roof garden. A common room has been provided with a deck space that allows tenants to socialise and meet to discuss issues related to the management of the building.

123





## Density



34m<sup>2</sup> private amenity / unit

0m<sup>2</sup> cat surface / P 0 car parks / P

### 3.2.4 Ravenhill Reach





Infrastructure + Services









Public Facilities + Retail



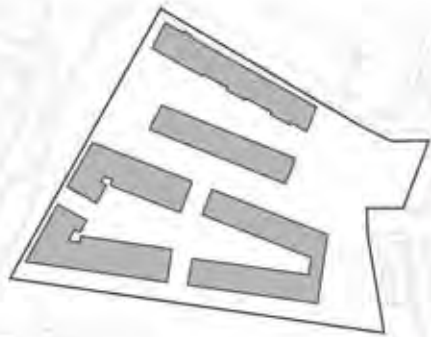
9m<sup>2</sup>/P [8%]



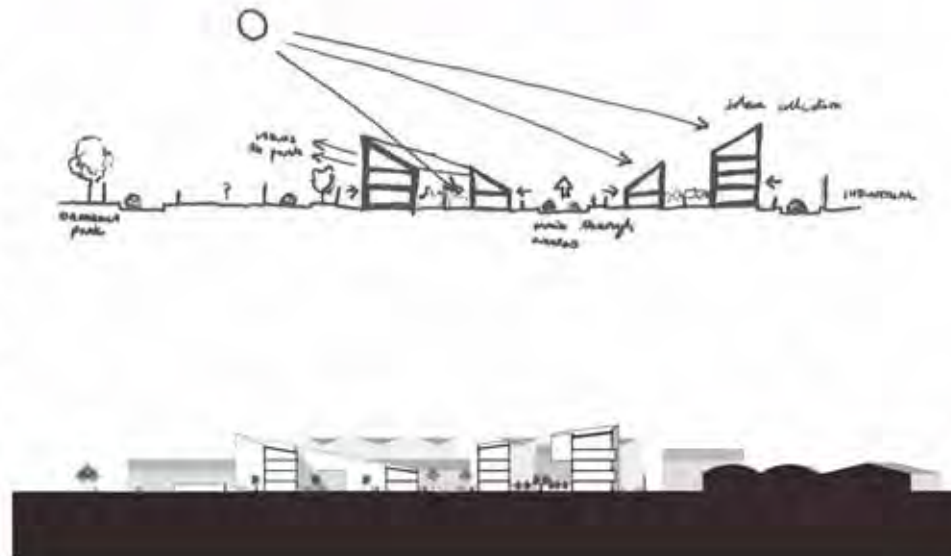


## Alison Elliot

Housing + Community Centre + Medical Centre

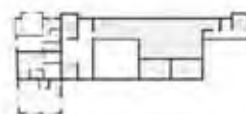
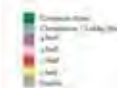


This site is situated at the corner of Ravenhill Reach and Ormeau Embankment in East Belfast, close to the city centre. It is approximately one hectare in size and is primarily covered with hard surfaces of tarmac and concrete. The site is flat and lies near the eastern bank of the River Lagan. The site can be accessed from three points: Ballarat Street to the North, Bendigo Street to the East, and Ravenhill Reach to the West. The first priority of the design was to increase movement and fluidity through the site. At present it is surrounded by a 4m high fence and because of its size and position, it prevents movement of foot traffic from the Ravenhill Road area through the river walkways and Ormeau Park. There was an opportunity here to allow movement of both people and cars through the site and for the site to become the central node of the community. The second priority behind this design was to provide spaces for the community to gather and to use both formally and informally. Just North of the site is The Lagan Village Youth and Community Group Centre. It is tucked into a corner with no presence in the community. A key part of this design is to give more space and better facilities for the community group. From the mapping exercises it was noted that there were no medical services in the area, there is a potential to include a doctor's surgery on the site near the community centre also. This would in turn draw more people to the site.





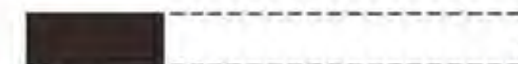
## Project Data



### Density



1.40 plot ratio



57 units / Ha

### Programmatic Analysis



5m<sup>2</sup> shared amenity / P



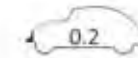
19m<sup>2</sup> private amenity / unit



2m<sup>2</sup> infrastructure / P



2m<sup>2</sup> car surface / P



0.2 car parks / P



# Caroline Gillespie

Housing + Creche



The large flat site is situated in East Belfast where the Ravenhill Road meets the Ormeau Embankment. It is the perfect setting for a housing project as it is located within five minutes of the city centre, the Ormeau park and the River Lagan. After spending time researching the area and the current residents it was noted that this area would benefit from a mixture of housing types. Having mixed-tenure housing should encourage a diverse range of people to move to the area. It was also decided that the community would benefit from new community facilities such as a gym and a crèche. Currently there is a community centre but it is in need of updating. As the site is large the design involves carving it up with infrastructure. I wanted to create an area which took a modern take on the Belfast terrace house. The scheme provides five different terrace types, which can be altered and changed to suit the needs of the family as it grows and changes. Each house type also has a raised garden or roof terrace. The design also incorporates an apartment block which helps define the site boundary. Each apartment has a view over the River Lagan or a view overlooking the Ormeau park. The apartments are mostly accessed from the main foyer, which also allows access to the community spaces. This should help encourage relationships between people. Each apartment block also has a small allotment space to encourage the growth of a shared kitchen garden for the community.





## Project Data

### Density



1.00 plot ratio

58 units / Ha

### Programmatic Analysis

x17

x2

x53

11382m<sup>2</sup> 1687m<sup>2</sup> 235m<sup>2</sup>

9m<sup>2</sup> shared amenity / P

33m<sup>2</sup> private amenity / unit

2m<sup>2</sup> infrastructure / P

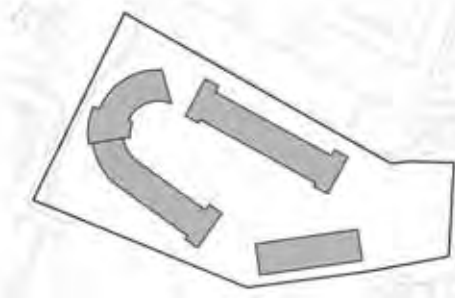
3m<sup>2</sup> car surface / P

0.2 carparks / P



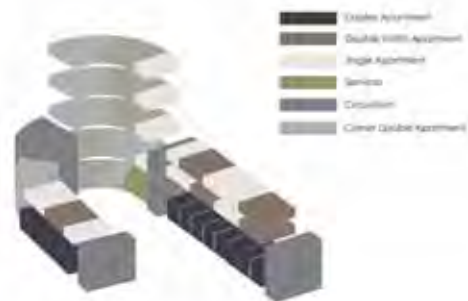
## Daniel Mackinnon

Housing + Shared Garden Space



The brief for this scheme is social housing, suitable for a wide range of people: young professionals, families, those on a lower income and the elderly. Investigating the local area during site analysis it was discovered that there are many young families and older people living close to the site. It was therefore considered beneficial to incorporate these typologies as well as trying to create new typologies for the area. With its close proximity to Ormeau Park and the River Lagan and Towpath, I wanted to incorporate more green space into the design that would be dedicated specifically to the users of the building. The surrounding terrace houses don't have gardens big enough to allow children to play in, so they play on the street. The building is set up to mimic the surrounding terrace houses nearby by the ground floor duplex apartments, giving the inhabitants their own garden and access to the shared garden space located in the courtyard. I also wanted the building to allow better use of the Community Center located on Ballarat Street by providing links to it through the courtyard and developing a square with a drop off point at the front of the Community Centre. The apartments are intended to grow with the user. As the family expands or gets smaller, the intention would be that the user could move into the apartment to the left, right, above or below. The timber frame construction and dedicated service tunnels ensure the adaptability of the apartments and life long possibilities for expansion.

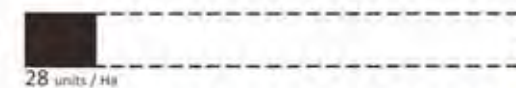




## Project Data

### Density

0.47 plot ratio



### Programmatic Analysis



36m<sup>2</sup> shared amenity / P

36m<sup>2</sup> private amenity / unit

23m<sup>2</sup> infrastructure / P

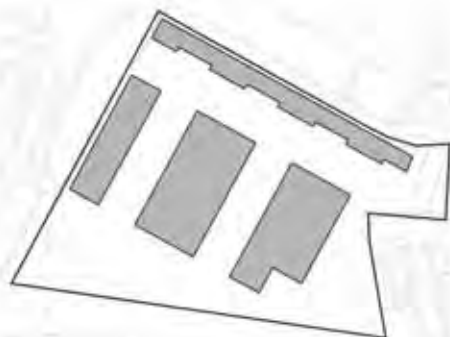
26m<sup>2</sup> car surface / P

0.4 car parks / P



## Léa Jean Jacques

Housing

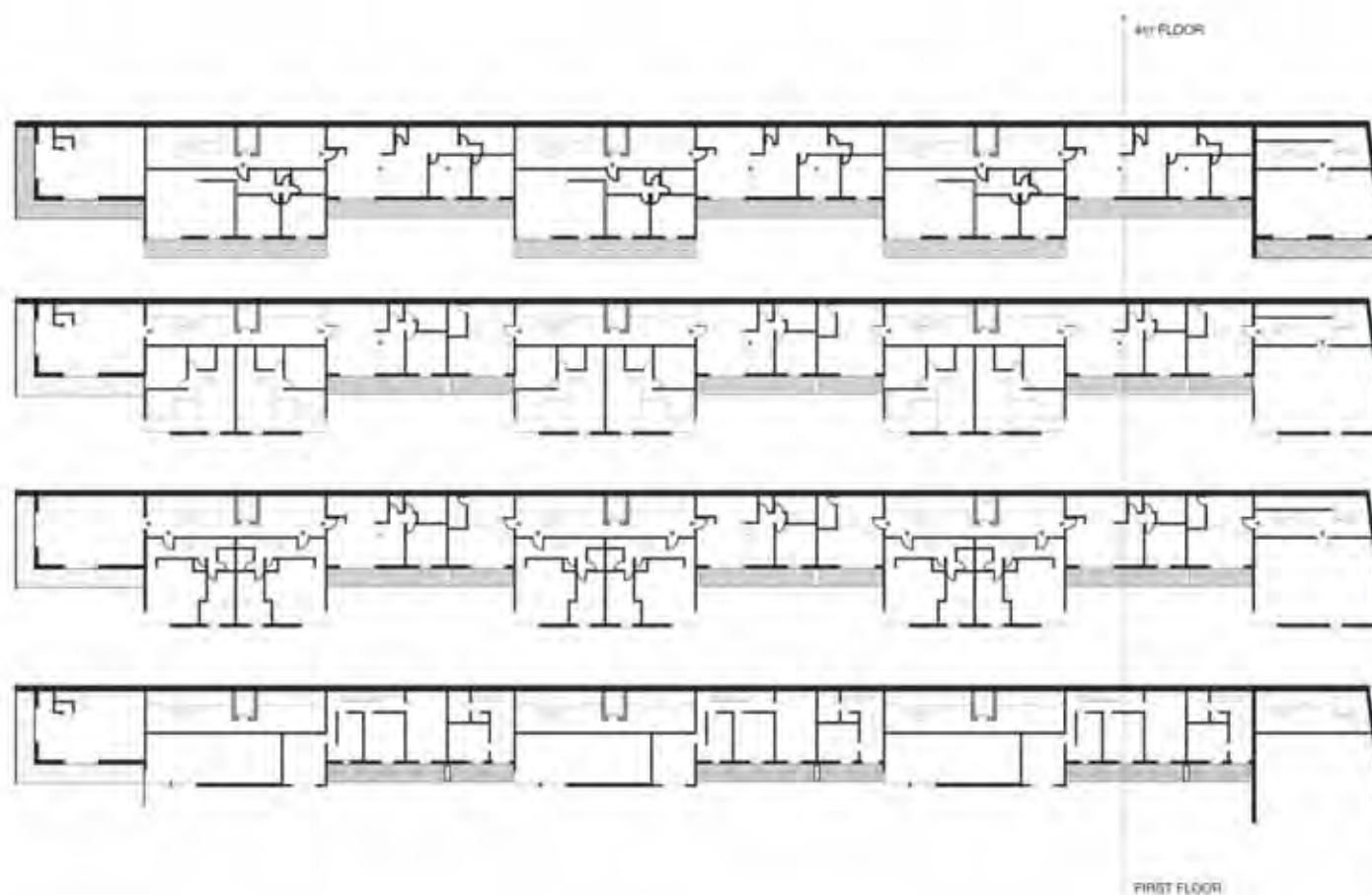


The site is located at a strategic intersection between a residential area, the Lagan side and the Ormeau Park. The strategy was to link both the residential and the Lagan side, with a green path on the south, and a vehicular road to the north. These two main axes weft a new housing unit. It is made with two entities: 48 houses, reinterpreting the typology of the traditional English terrace houses. On the North, leant against the ancient industrial brick wall, there is a 40 apartments building, south-oriented, benefiting from the surrounding views. The building is made as an excrescence of the existing brick wall. It is hanging to it, as if the wall has grown thicker to let the project settle in. The front walls are made with a brick facing, reminiscent of the wall. The roof hangs directly off the wall, letting the light in-between the two entities. At its base, the building gets thicker, and small brick walls create a dark base line that is repeated across the area.





## Project Data



### Density



0.66 plot ratio

59 units / Ha

### Programmatic Analysis



17m<sup>2</sup> shared amenity / P

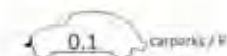
35m<sup>2</sup> private amenity / unit



2m<sup>2</sup> infrastructure / P



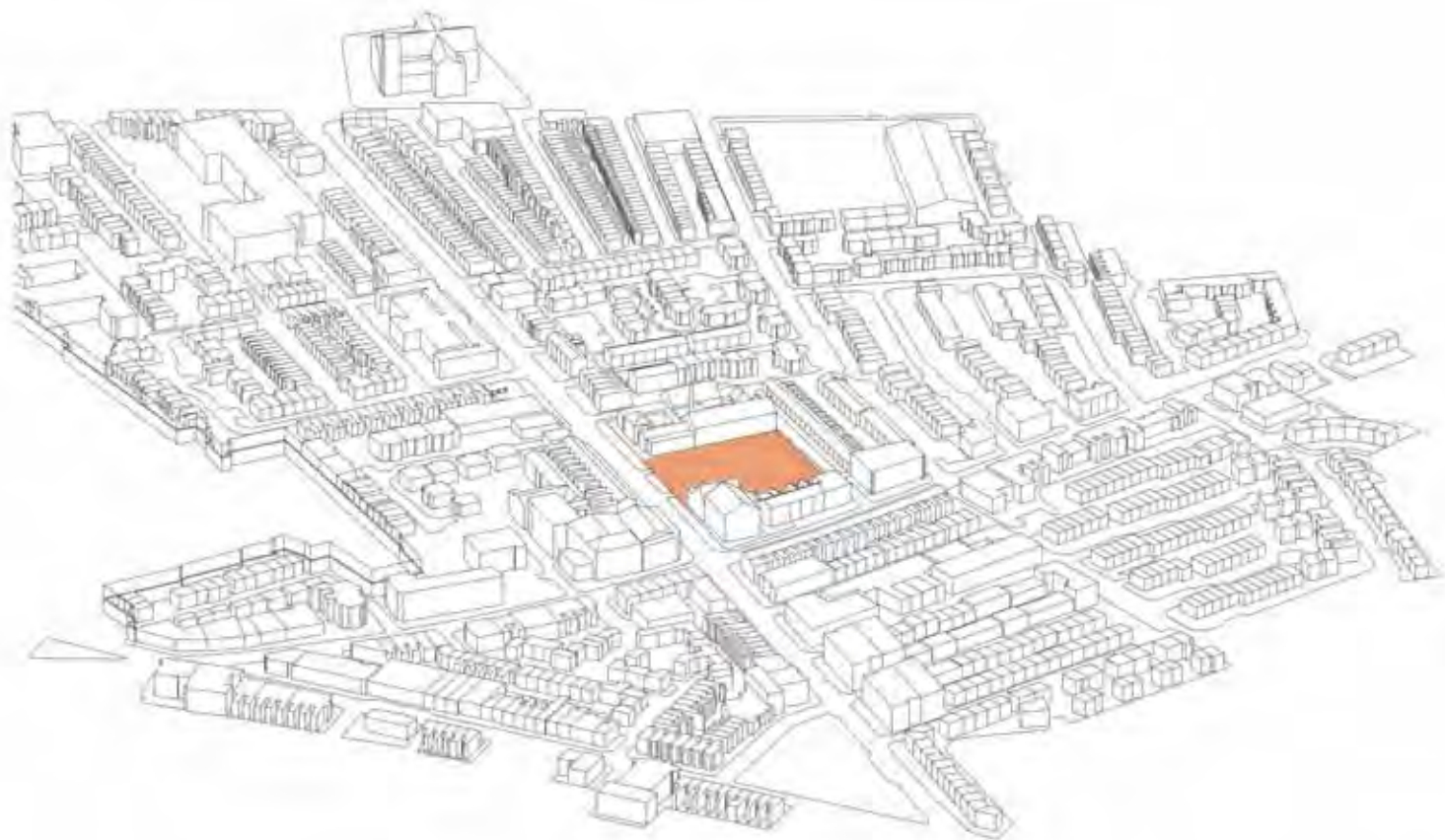
12m<sup>2</sup> car surface / P

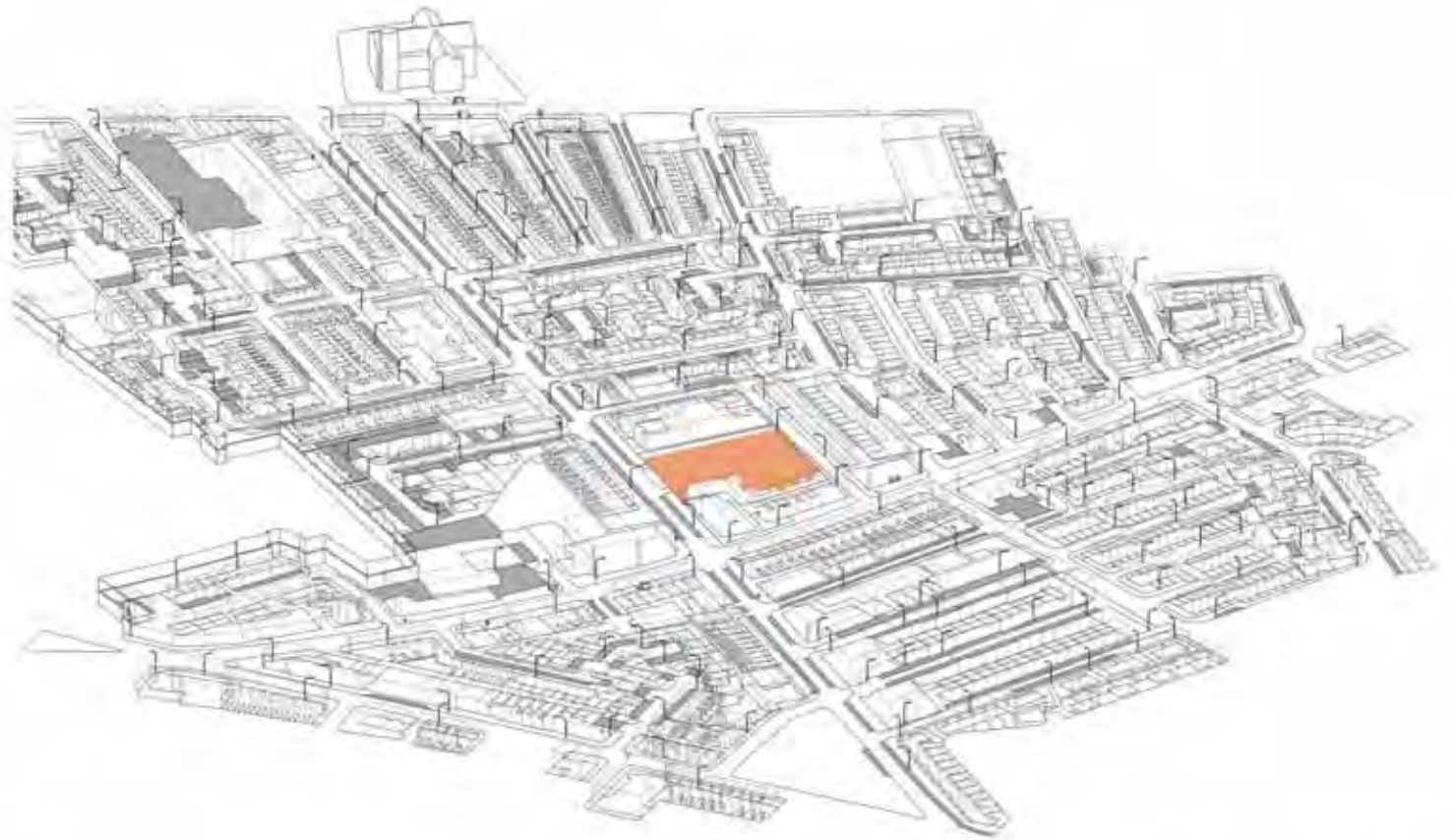


0.1

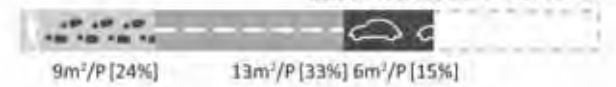
carparks / P

### 3.2.5 Templemore Avenue

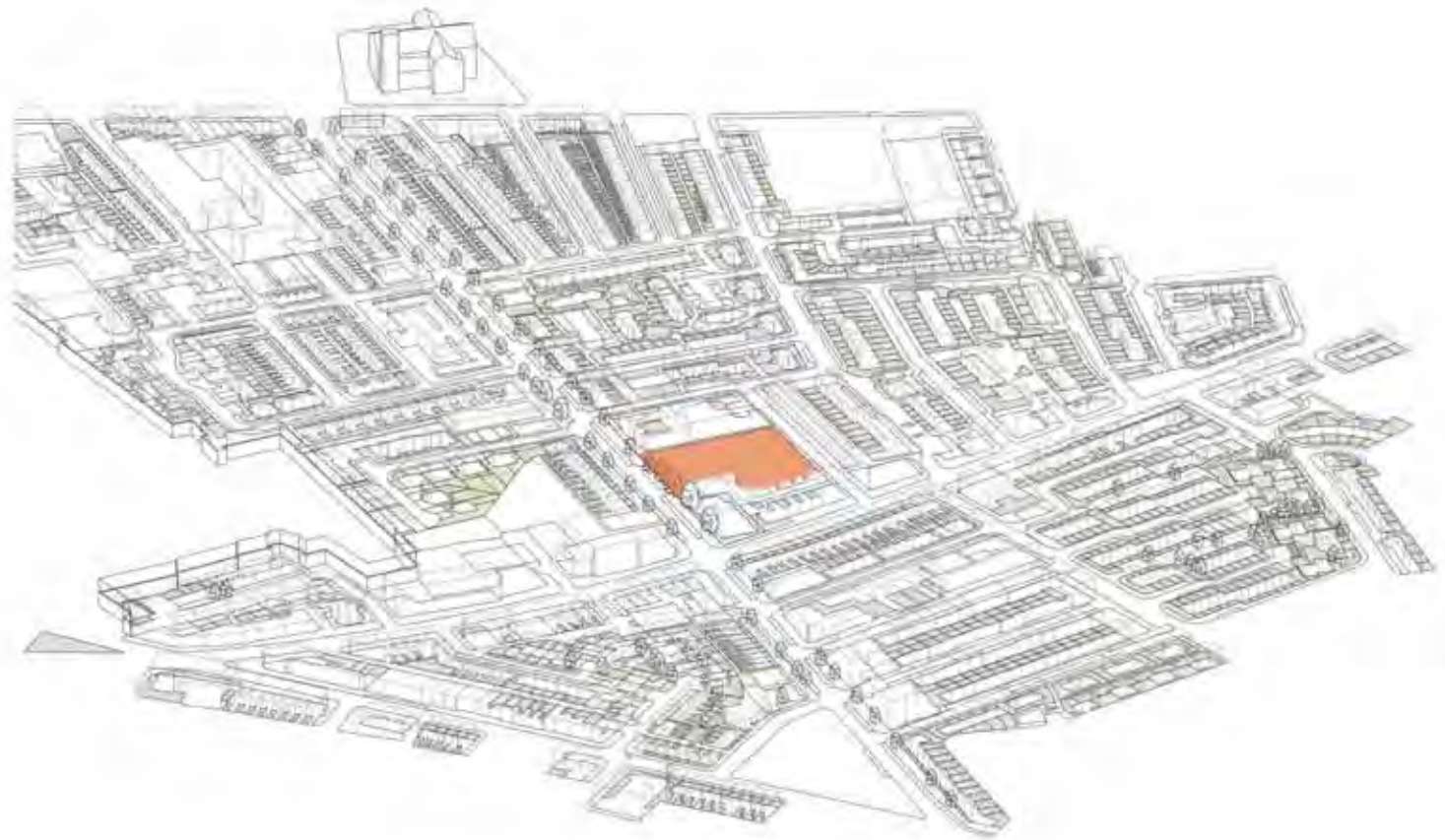




Infrastructure + Services







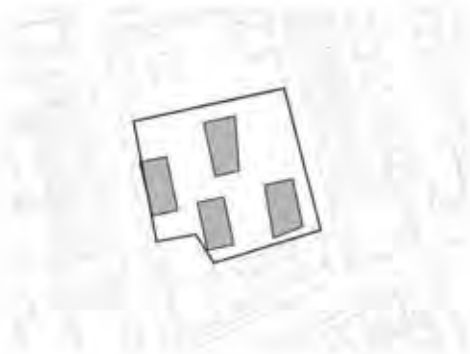
Amenity + Green Space

3m/P [8%]

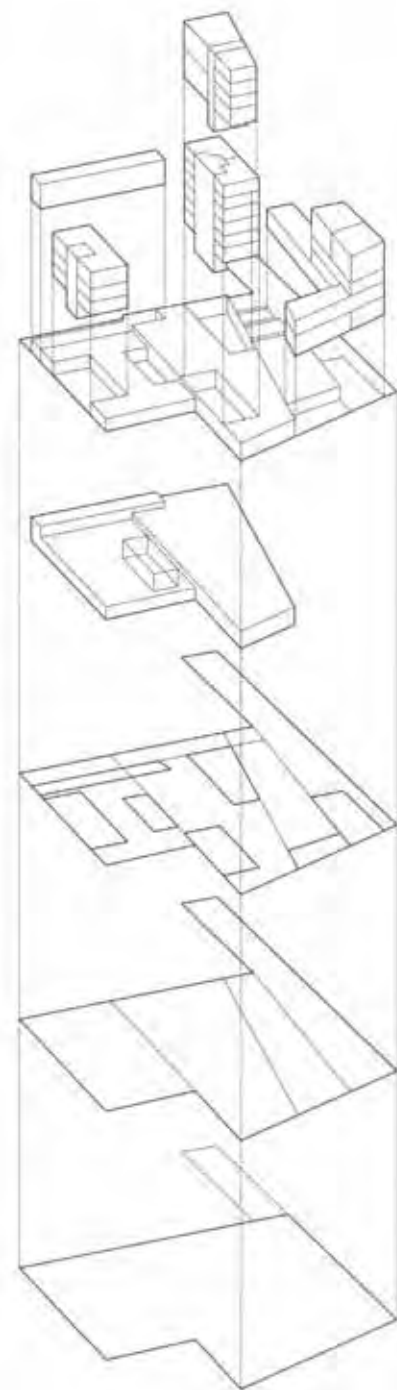
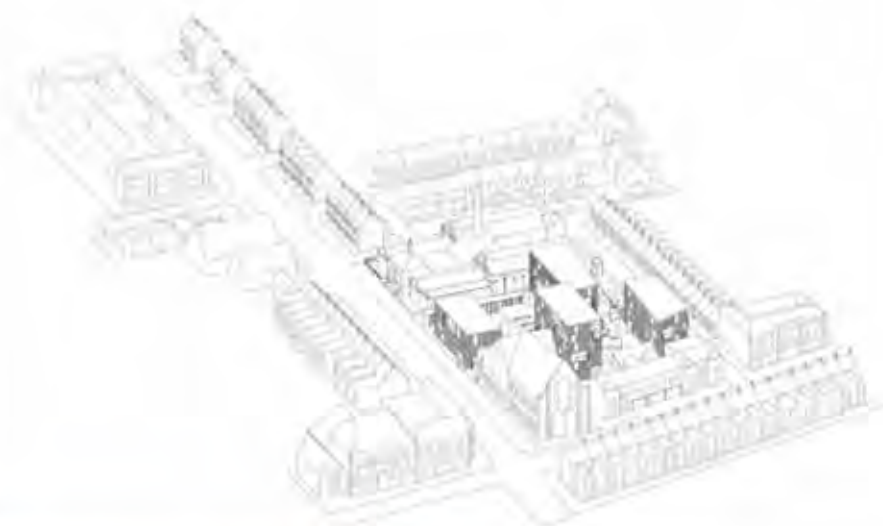


## Christopher Weir

Housing + Elderly Care + Library + Workshops + Cafe



This site is situated in East Belfast, on Templemore Avenue. Through mapping a 500m route around the site I discovered the depths and complexities of the context. The design also incorporates different typologies, the 'street,' 'garden' and alley.' The garden typology creates different levels, which all the housing 'touches' and connects all the spaces. Ultimately the design concept is 'towers in a garden.' Through mapping I discovered an old hospital on the site in the 1800s. This finding informed my figure ground design. The housing design provides elderly accommodation, with daycare facilities to assist living. It also has family and single accommodation, allowing for a multi-generational approach to housing. In total the scheme provides 23 housing units, which would provide housing for around 65 inhabitants. 'Wrap around' balconies create private space for the users to inhabit, and are seen as a continuation of the living space, so blurring the distinction between inside and out. Other functions were established from the mapping exercise, which act as an extension to the social needs for the elderly accommodation. A café space connects to the new urban promenade, which has seating areas and play spaces. In the same tower a library and reading room overlooks the gardens and creates spaces to sit and learn. To address the alleyway a series of workshops with a folding facade, allows opportunity for local business or functional spaces for inhabitants to utilise.

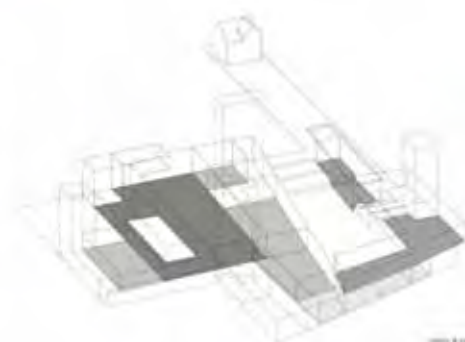




## Project Data



Family Apartment int.



## Density

1.18 plot ratio

66 units / Ha

## Programmatic Analysis



Site Section a-a  
1:200

34m² shared amenity / P

24m² private amenity / unit

11m² infrastructure / P

0m² car surface / P

0 carparks / P

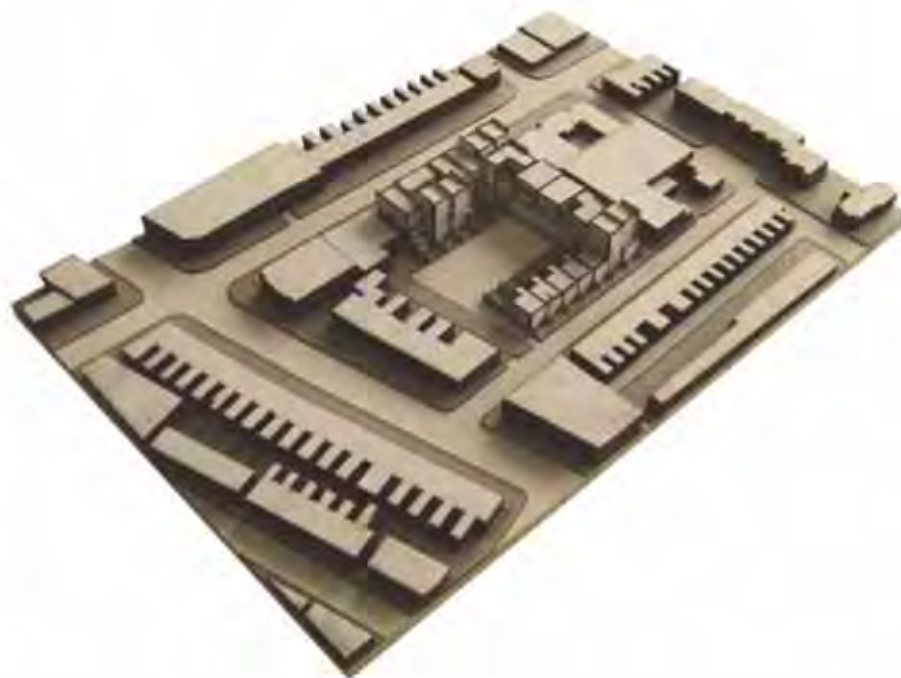
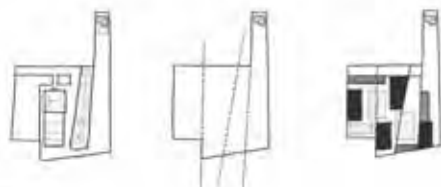


## Jérémie Wawszczyk

Housing + Laundry + TV Room + Play-  
ground + Bicycle Store



This scheme is located on the site of 84 - 84a Templemore Avenue in East Belfast. This plot used to be occupied by a hospital and is located next to the Corporation Public Bath. The building is three-storey's on the main part but in some areas there is an extra floor creating small towers. There are 40 living units from single to triple bedroom flats and houses to fit with the needs of different types of family. They mainly all have private gardens or terraces. Some of them have double height spaces to provide good natural light. They also all have at least one space in the underground carpark. The scheme provides shared spaces such as a laundry room, a TV room, several rooms to park bicycles and pushchairs and a big outside playground for children. This outside space continues under a wing of the building as a covered playground. This allows people to be outside even if it is raining and offers a view towards the baths. A new pedestrian passageway is created between the building and the old baths allowing pedestrian and bicycles to cross the plot.



One bedroom duplex flat with private garden

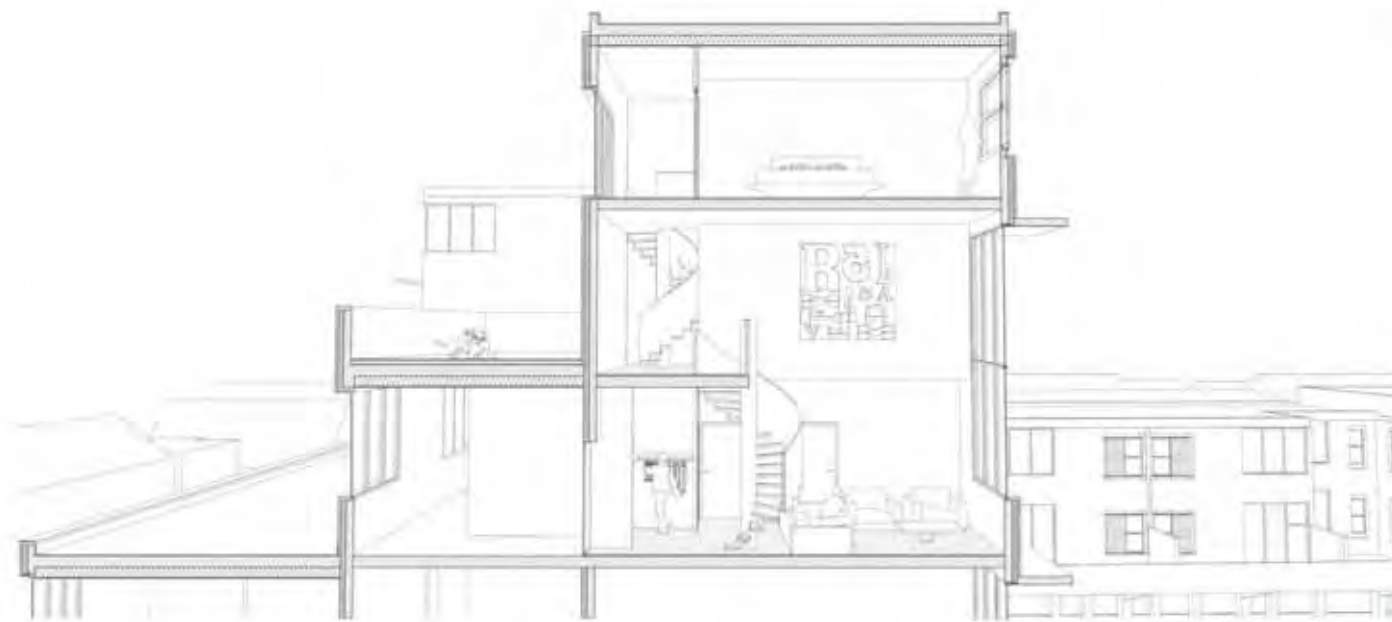


Two bedroom duplex flat double aspect West / East with terrace



Three bedroom triplex with private access to the roof

## Project Data



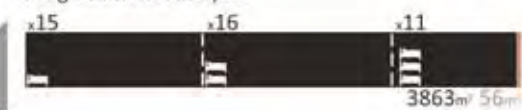
### Density



1.07 plot ratio

105 units / Ha

### Programmatic Analysis



18m² shared amenity / P

38m² private amenity / unit

2m² infrastructure / P

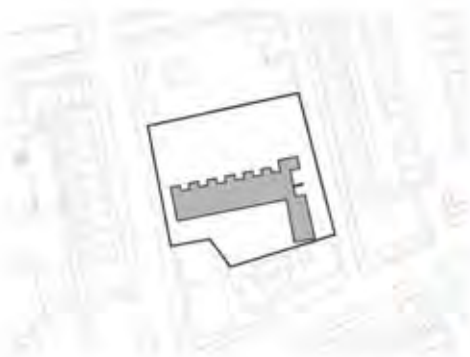
15m² car surface / P

0.3 carparks / P



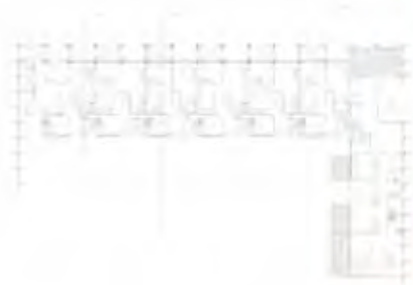
## Mairead Gallagher

Housing +

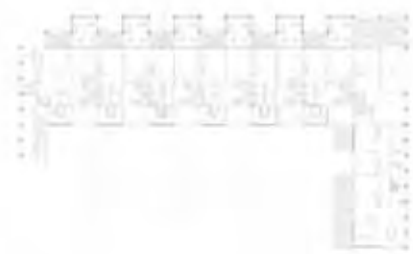


The design is an interaction between the indoors and outdoors: a concept bringing the outside inside, a breathable home, designed for optimum daylighting to the rear, with floor-to-ceiling glazing, controlled by balconies providing shading at different times of the day and seasons. This green wall enclosure, creates an inviting place for people to come relax at lunch, and is suitable for all ages. The outdoor space includes a childrens play area, sand pit, five allotments (2x3m) , a football pitch (15mx20m), a seated walkway along the baths, housed with a green wall and suitable for community interactions such as book fairs, sport days, gardening workshops. A place designed to be an outdoor community hub for people of all ages to interact, bringing young professionals to the area, along with reclaiming a sense of community for the area. There is also an opportunity for rental purposes on the top right-hand side of the plan, with views towards the tourist attraction of the Harland and Wolff cranes. All of the second floor two-storey apartments are suitable for work/live situations, this encouraging a strong sense of community even at this level, with a connecting walkway and breathable exterior looking through the building at different angles and capturing different lights.





## Project Data



### Density



1.05 plot ratio



55 units / Ha

### Programmatic Analysis

x.5

x.14



2502m² 374m²

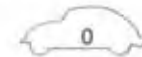
18m² shared amenity / P

35m² private amenity / unit



4m² infrastructure / P

0m² car surface / P



0 carparks / P



## Sarah Mitchell

Housing + Crèche + Community Hall +  
Courtyard + Garden Terrace

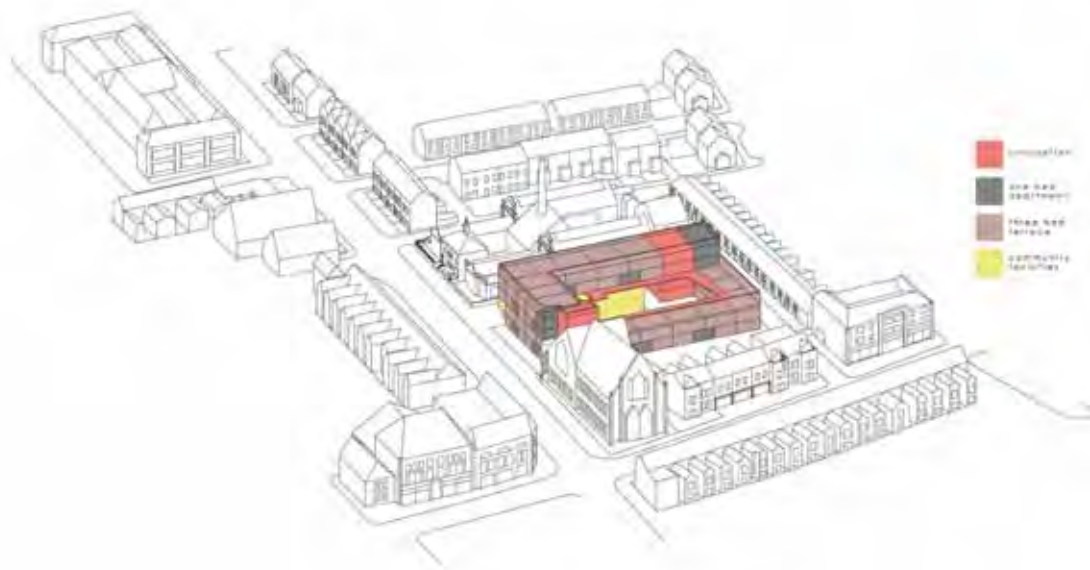


The Templemore Avenue site provides a fantastic setting for a carefully considered housing scheme. The investigation of the surrounding area suggested the need for mixed-tenure housing integrated with community facilities, with the discovery that the one-bedroom apartment was the most required unit type for the area. The site is enclosed between the historic Templemore Baths and Mountpottinger Methodist Church. The remainder of the site is enclosed with two edges along Templemore Avenue and Glenmore Street, both housing on either side acting as boundary edges. The aim behind the scheme is to create a housing scheme that provides a community for the inhabitants as well as the surrounding community. The housing comprises 27 living units, as well as a crèche that can be rented out as a larger community hall. The living units incorporate both the required tenure of one bedroom apartments along with a family-sized three bedroom terrace with private external gardens on the ground floor. The scheme is influenced by the Berlin courtyard model, with the number of floors varying in accordance to the surrounding buildings. The courtyard allows excellent aspect for each unit, all of which are at least double aspect. The apartments are mainly accessed from this courtyard, therefore encouraging a relationship between those who would live and work here. The upper floors have a large shared garden terrace which allows views into the courtyard and beyond into Belfast City.





## Project Data



### Density



1.29 plot ratio

81 units / Ha

### Programmatic Analysis



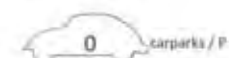
25m² shared amenity / P

32m² private amenity / unit



4m² infrastructure / P

0m² car surface / P



## 3.3 Summary/Analysis

Below are some of the primary observations and trends that emerged from the Belfast Housing Studies developed with University of Ulster masters students.

### Density

The building density across all the projects averaged a plot ratio of 2:1, which as we will see is considerably higher than typical housing schemes in Belfast. The corresponding residential density of approximately 100 units/Ha is a level of urban density that makes public transport viable and the provision of shops, services, and amenities within walking distance sustainable and, as a result, active street frontage and public space more vibrant. The main variation in density amongst the project study areas was between the **Ormeau Avenue (3.2.3)** projects which reused an existing four-storey inner-city building which had a understandably high plot ratio of approximately 3.5:1, and most of the other projects, in which the plot ratio tended to average around 1.2:1.

### Residential/Commercial Flexibility at Ground Level

While many of the projects developed medium-density mixed typologies, it became apparent that in the lower-density context of Belfast, particularly in the current economic landscape, that ground floor spaces were not viable as purely commercial or retail. This resulted in most projects developing housing typologies that addressed the street/ground level with residential living spaces. In the more urban city centre, typologies were developed for ground-level living with the potential for these to be used as home offices or as live/work units which could, if the need develops, evolve into start ups or small retail/commercial spaces.

The scale of residential units and business start-up units can be quite similar and compatible if the spaces are designed correctly. This possibility was explored through two- to three-storey terraced typologies with flexible commercial-scale spaces on the ground floor suitable both as domestic social spaces but also as small-scale commercial/retail spaces. This was achieved through higher floor to ceiling heights,

and or double-height or galley arrangements. Often large retail-sized windows were used to the street, but with the option of obscure glazing or sliding screens that could make these spaces more private when necessary; maximising daylight and orientation while still giving the options of privacy. This typology was combined with apartments above to provide an urban level of density and make the larger shared courtyard spaces and shared facilities viable.

### Courtyard Typologies

A number of projects were able to successfully organise their housing around residential courtyard spaces. These were most successful when of a size that would allow leisure activities to occur that would not be possible within smaller private outdoor spaces. Examples of this would include community gardens, children's playgrounds, small scale recreational areas, and outdoor seating/eating areas. The projects demonstrated that, to be successful, the courtyards need to be of a scale and orientation to be sunny, and provide protection from the elements and traffic noise. Because of the high proportion of ground-level living, these courtyards were generally lined with small private gardens or terraces that looked onto a shared central amenity space.

### Building Infrastructure and Shared Facilities

Many projects incorporated remote storage in basement or ground floor areas, informed by observations of the importance of these spaces to apartment living in the Berlin Case Studies, and the logic of their grouping together in appropriate areas of the buildings.

This includes both individualised storage spaces for each apartment but also collective areas for bicycles, prams etc. Also collective waste handling areas, the efficiencies of which become feasible and desirable at higher densities, were often strategically and discreetly located in courtyards or adjacent to exit points from buildings. Shared facilities like larger flexible common room spaces with kitchen facilities were often included usually with direct connection to shared outdoor areas. Such spaces have potential to be used for larger events, or par-

-ties not possible in an individual's apartment, or for organisational residents' meeting. Childcare and indoor play spaces were sometimes seen as another possible use for these common flexible spaces, while in other cases, more bespoke childcare crèche spaces were designed as separate areas.

### Amenity Spaces

Generally all the projects achieved high levels of shared amenity space per person despite having reasonable densities. This averages at approximately 18m<sup>2</sup> across all the projects with the private outdoor private space averaging at 24m<sup>2</sup> per unit. While these figures were generally similar across all proposals, the projects utilising the courtyard typology most notably for the **Carrick Hill (3.2.1)** and **Templemore Avenue (3.2.5)** sites tended to have the most useful and successful outdoor spaces. In contrast, those on the **Ravenhill Reach (3.2.4)** and **Peter's Hill (3.2.2)** sites tended to have outdoor space in linear or less-defined formats and, as a result, often the possible use of these outdoor spaces was not as clear and lacked the sense of joint ownership and overlooking of the projects organised around defined visually-controlled courtyards.

### Reuse of Existing Buildings

The **Ormeau Avenue (3.2.3)** Armagh House project provided excellent scope for this strategy, having a desirable central location within walking distance of the city centre, transport, and amenities. It also has excellent aspect with south, west and east facades with large windows and generously-scaled spaces with high floor to ceiling heights. The building is a robust concrete-framed structure that allows flexibility in the subdivision of space uninhibited by substantial internal load-bearing walls. The substantial external walls have significant architectural character in terms of the façade handling and brick detailing.

The schemes developed for this building all endeavoured to work with the structure and substance of the existing building, rather than the common approach of essentially destroying the existing building with the exception of the

façade. In such cases, usually a completely-new development is built behind the façade, one based on the economics of maximising floor area rather than the “capital” of the historical and spatial character of the existing building. As places to live, buildings with genuine historic character have significant long-term financial value if carefully handled. The more typical approach can be seen on the adjacent Lucas Building, where the new apartments have no relationship to the existing building beyond the fact that they hide behind the original façade.

The qualities and desirability of living in a substantial historic building of this nature stem primarily from the connection to the structure, scale, and materiality of the building internally, and the relationship of these spaces to openings in the building’s external walls, rather than just from the two-dimensional “image” of the building’s façade.



## 4.0 Interpretations and Conclusions

The majority of the traditional housing stock in both Belfast and Berlin was built during parallel periods of rapid urban growth between 1850 to 1900. The urban densities of these cities at this time were significantly higher than today: roughly 300 and 150 inhabitants/Ha, respectively, across the case study areas in Berlin and Belfast. Berlin's density has since decreased to approximately 110 inhabitants/Ha, while Belfast's has decreased more significantly and disproportionately, now ranging from 5 to 100 inhabitants/Ha (with an average of about 25 inhabitants/Ha).

The densities of the Berlin and Belfast study areas, mapped and analysed as part of this study, vary considerably. The Belfast study areas are on average between four times less dense than the Berlin study areas, with the notable exception of the Templemore Avenue study area,

which had a comparable density to that prevailing in Berlin. Interestingly, this is one of the most intact areas of Belfast's original terraced housing stock.

Although the density comparison was generally as one might expect, the comparison of other urban conditions revealed some perhaps more surprising observations. For example, the percentage area of green space is significantly higher in Berlin, despite its greater density; the percentage of green space is often twice that of Belfast. When compared in terms of m<sup>2</sup> green space/person, the levels in the two cities is more comparable, again despite Berlin's significantly higher population density.

With Berlin's combination of a significantly higher proportion of area devoted to green space and more building to accommodate a

greater population density, the question arises: what surface condition exists in place of this in Belfast? The answer: hard surface paving, predominately for cars, either in the form of road infrastructure or surface carparking. Belfast has approximately twice the area dedicated to accommodating car usage than Berlin. When considered in terms of the area of car-dominated surface per person, the picture becomes more extreme: approximately five times more area, or 100m<sup>2</sup> of car surface/person across the Belfast study areas. The proportion of hard surface dedicated to pedestrian use in the two cities is similar, although in Berlin this surface is activated and enlivened by a greater density of inhabitants. This contradicts the popular association between high-density and the urban "concrete jungle". In fact, as we observe in Belfast, it can be lower densities that actually result in a concrete and tarmac "desert".

## 4.1 Comparative Urban Analysis

### Berlin Urban Analysis

Case Study Areas Average Figures  
39 m<sup>2</sup>/P Non-Residential Area (100%)



### Belfast Urban Analysis

Case Study Areas Average Figures  
126m<sup>2</sup>/P Non-Residential Area (100%)



### Berlin/Belfast Comparative Urban Analysis

Case Study Areas Average Figures



## 4.2 Comparison and Interpretation of Housing Typologies

Having documented and analysed innovative precedents from Berlin, existing housing provision in Belfast, and investigatory proposals for new housing in Belfast, we are in a position to consider and compare these three studies. Where do the proposals informed by both the Berlin case studies and observations regarding the existing Belfast context and housing provision locate themselves relative to these contrasting points of reference? What can these proposals, as syntheses of these investigations, suggest regarding appropriate locations, densities and typologies for housing in Belfast?

The Berlin case studies, as one might expect, are considerably more dense, averaging a plot ratio of 2.5:1 and 240 units/Ha. The housing association terraced house typology has approximately one fifth of this density. The Belfast study proposals are roughly in the middle, averaging a plot ratio of 1.6:1 and just over 100 units/Ha. Both the housing association apartments and the traditional terraced house typology were of lower density, with plot ratios closer to 1:1. However, interestingly, both the traditional terraced housing and the housing association typology had significantly less private and shared outdoor space and a less programmatic mix of the two when compared with the study proposals: the study proposals on average have five times as much shared and private amenity space.

This demonstrates that well-designed urban residential environments can incorporate more substantial quality outdoor amenity spaces; the key factors are the spatial arrangement and housing typologies. Of all the case studies, the low-density housing association terraced housing typologies, as one might expect, had the largest amount of private outdoor space. However, the study proposals, while four times more dense, still achieved half as much private outdoor space. And significantly, when private and shared outdoor space were calculated together, the combined quantity of outdoor space was roughly the same, despite the extreme disparity in density.

Generally, in the comparison of outdoor space:

(both shared and private), there is a considerable divergence between the Berlin and Belfast case studies, with the Berlin models having substantially more shared outdoor space. The Belfast examples have almost no shared outdoor space but have, in the case of the low density housing association terraced typology, considerably more private outdoor space. As a result, the outdoor spaces collectively-accessible to the residents of these housing association schemes are small and limited in recreational potential. Whereas the larger shared (courtyard) spaces in the Berlin case studies allow larger-scale and more diverse activities (e.g. sport/games, outdoor social events, etc.).

Private outdoor space in the Belfast case studies is polarised between the apartment and terraced house typologies, with substantial provision in the housing association terraced typology and none for the apartments. The Berlin case studies demonstrate the importance and compatibility of private outdoor space with high-density urban apartment living.

The Berlin housing studies found a better balance between these two forms of outdoor space. This combination can arguably mutually-enrich the understanding and appropriation of each type of space. Having private outdoor space informs our spatial practices for appropriating and domesticating shared outdoor space, while understanding the use of shared outdoor space increases the civility of our use of private space.

### Berlin Case Studies

#### Average Values

##### Density



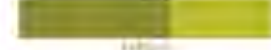
2.48



240



1.6



1.6

#### Programmatic Analysis



0.02



0.3



0.4



0.5



0.5

#### Total Programmatic Area Breakdown



75%

#### Total Project Cost

£11.1m

£11.1m

£11.1m

£11.1m





## Belfast Ravenhill Traditional Terraced Housing

Density



1.14 units / plot



130 units / Ha

### Programmatic Analysis



0.0 recording spaces / P



4.1 m2 car-washes / P



0.0 m2 telecommunication / P



5.0 m2 private amenity / unit



4.1 m2 storage amenity / P

### Total Programme Area Breakdown



2376m2



## Lavinia Court Apartment Block/No.57 JNP Architects

Density



1.06 units / plot



140 units / Ha

Site Cost / m2 Site  
Site Cost / m2 Wt



### Programmatic Analysis



0.22 recording spaces / P



7.1 m2 car-washes / P



3.8 m2 telecommunication / P



0.0 m2 private amenity / unit



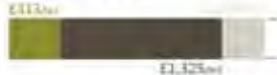
4.0 m2 storage amenity / P

### Total Programme Area Breakdown



768m2

Total Project Cost  
Site Cost / m2 Wt



## Lavinia Court Houses/Centre Block JNP Architects

Density



0.52 units / plot



52 units / Ha

Site Cost / m2 Site  
Site Cost / m2 Wt



### Programmatic Analysis



0.23 recording spaces / P



4.5 m2 car-washes / P



2.0 m2 telecommunication / P



47.2 m2 private amenity / unit



7.0 m2 storage amenity / P

### Total Programme Area Breakdown



2,263m2

Total Project Cost  
Site Cost / m2 Wt



## Belfast Housing Studies Average Values

Density



2.00 units / plot



101 units / Ha

### Programmatic Analysis



0.2 recording spaces / P



6.0 m2 car-washes / P



8.0 m2 telecommunication / P



24.0 m2 private amenity / unit



18.0 m2 storage amenity / P

## 4.3 Comparison and Interpretation of Legal, Financial and Procurement Models

In this section, a number of the legal, financial and procurement models, which were identified as integral to the success of the Berlin case study projects, are considered in relation to the equivalent legal, financial and procurement context governing housing in Northern Ireland. Accepting that there are of course significant cultural and administrative differences between Berlin and Belfast, this section also considers some of the other barriers and possible potentials to their transposition into the Belfast context.

### *Wohnungsbaugesellschaft* ("Housing Association")

In comparing the German equivalent of the housing association model with how housing associations operate in Northern Ireland, one of the most significant differences is that, in the German system, after the housing has been operated as "social" for a determined number of years, in return for tax relief or grants it reverts to the market. This arguably encourages greater initial investment in the quality of design and construction and is based on the assumption that the dwellings and built environment would remain attractive to those who are not, or are no longer, eligible for social housing, as is seen in the *Fraenkelufer* (1.2.1) project.

Housing associations in Northern Ireland (as in the rest of the UK) are private, independent, not-for-profit organisations. Their legal status varies, with many registered as industrial and provident societies, but co-operatives and companies are not uncommon. Housing associations in Northern Ireland are also required to register with the Charities Commission.<sup>7</sup>

Housing associations have social objectives to provide and maintain homes for low-income households or vulnerable groups, making them a natural delivery partner for government. They took over the development of all new social housing in Northern Ireland in the 1990s and receive grant funding to support this activity.

Traditionally, housing associations have primarily developed and managed social housing using a mixed funding model with capital grants

from central government and private finance secured against rental income and their asset base. Northern Ireland has one housing association dedicated solely to the provision of low-cost shared-ownership housing (Co-ownership Housing), but other associations are increasingly moving into the market for affordable housing for sale. Housing associations offering market or affordable housing for sale must do so through subsidiary companies in order to protect their social assets.

Housing association rents are not currently controlled in Northern Ireland and are determined by size, development costs, and the association's loan portfolio. There are proposals to introduce a rent policy for all social housing in Northern Ireland in order to maintain affordable rents and encourage rent convergence between housing association and Housing Executive properties.

Although housing associations are private entities, they are considered to be public bodies for procurement purposes (EU directives and UK Public Contract regulations). In Northern Ireland, this also means that they are bound by Public Procurement Policy and Guidance Notes. Housing associations contend that this level of control and oversight limits their operational flexibility and creativity.

Housing associations in Northern Ireland must seek consent from the Department of Social Development (DSD), as a funder and regulator, before disposing of buildings or land. There is likely a requirement for any capital grant provided to be repaid before a property is sold.<sup>8</sup>

Housing associations in Northern Ireland of course operate in a different context to Berlin, in that properties are developed as social rented accommodation and tenants are allocated to those properties with secure tenure. Security of tenure only applies to social housing tenants and means that, after an introductory period of 12 months, their tenancy is protected for the duration of their lifetime. Secure tenants have certain rights around succession, assignment and the right to repair and improve.<sup>9</sup> There is

no expectation that housing associations properties can be developed for social rent for a set period and then sold or rented at market value. The nature of housing association tenancies would currently prohibit this model, or make it extremely complicated. For this process to work in a way that would allow a more gradual evolution of social housing to include a wider variety of income groups it would be necessary for tenants' rights to be improved. In the Berlin context laws protecting tenants' rights and rental regulation counteract forces of rapid so called "gentrification" and help maintain diversity both within buildings and neighbourhoods including ex-housing association projects.

### Privately-Financed, Citizen-Initiated Development and State Support

The *Schwedter Straße* (1.2.2) project demonstrated such a synthesis of privately financed, citizen-initiated development and state support, through an urban social regeneration program. The Northern Ireland Housing Strategy 2012-2017 considered the potential to support self-build initiatives, but there are no proposals included within the strategy's action plan. Government interventions in Northern Ireland tend to focus on supporting individuals to purchase existing market, shared-ownership, or social rented properties rather than to facilitate citizen-led development.

In early 2014, the Northern Ireland Executive approved a policy on Community Asset Transfer.<sup>4</sup> This aims to encourage the growth of social enterprise and support communities so that they build the capacity to own and manage public sector assets. Assets could be transferred to "third sector organisations" (a term implying a formally constituted group) which differs from the provision of state support to individuals or informal groups that exists in Berlin. Public sector assets could only be transferred for social benefit and the case would have to be made demonstrating value to the wider community.

The Localism Agenda and Act in England has introduced a number of measures such as the Community Right to Bid, Buy and Build. Right to Build powers enable communities that have

established a corporate body to build new homes, shops, recreational facilities, etc. without having to go through the normal planning application process. Although they must identify suitable land, arrange sources of finance, and secure local agreement (50%), there is a package of government funding to support groups wishing to exercise the Right to Build.<sup>5</sup>

An interesting partnership and funding model was developed in Scotland to provide mid-market/intermediate homes for rent that could provide a starting point for a similar model to the **Schwedter Straße (1.2.2)** project. The Resonance Model involves a partnership between a housing association and a private developer, with potential for the Scottish Government to act as a guarantor for any loans in order to lower the cost of borrowing. The model proposes that the mid-market/intermediate homes would be sold at market value in five or ten years (the housing association is not required to manage them for the lifetime of the property) but there would be a dividend of a certain number of houses that would remain as social housing in perpetuity.<sup>6</sup>

### Housing Co-operative Model

Although Northern Ireland does not have housing co-operatives, like the one investigated in the **Lausitzer Straße (1.2.5)** case study, the model is in use in other parts of the UK and the Republic of Ireland. There are a range of different co-operative models, including Community Land Trusts, where a group may develop new housing for wider community benefit without the intention to live in it themselves. Some of these models are:

- Rental housing co-operatives
- Co-operative home ownership
- Co-housing communities
- Tenant management organisations
- Co-operative leasehold ownership
- Shared and student co-operatives
- Shared ownership co-operatives
- Mutual home ownership
- Community self-build co-operatives

There has been a resurgence of interest in co-operative and mutual housing in Wales,

with successive Housing Ministers expressing support for co-operative and community-led housing. As a result, a new guide to co-operative and community-led homes in England and Wales was launched in Wales in March 2014, with information on how to set up housing co-operatives, how to fund them and how to manage the dwellings.<sup>7</sup>

Financing for co-operative housing is generally through institutional loans: either short-term or long-term bank lending; loan stock or community shares (where private individuals or organisations invest in small sums of withdrawable share capital that yields a dividend for the investor, although this is generally a 'top-up measure' rather than the primary source of finance); personal equity, through savings or a mortgage; and public grant, with the English and Welsh governments providing grants towards co-operative housing build costs.

There are no obvious legal, financial or procurement barriers to co-operative housing models in Northern Ireland. A policy focus on co-operative and mutual housing as methods to encourage more democratic and diverse forms of housing provision could enable this model. Co-operative housing is recognised for its transformative potential within neighbourhoods and communities and the relatively small scale of co-operative developments could make them an ideal fit for city centre buildings and infill sites.

### Baugruppe Development Model

The *Baugruppe* development model has no direct, or even indirect, analogue in Northern Ireland, therefore the Civil Code Partnership that provides the legal and financial context for this model has no explicit equivalent in Northern Ireland law. Legal partnership agreements are common, however, and there would be no legal reason why a similar form of contract could not be drawn up to facilitate citizen-led development.

There is potential for complexities and concerns to arise if debt financing is being sought by members of a Northern Ireland *Baugruppe*

and early discussions with lenders would be necessary if this model was to be pursued.

The *Baugruppe* model would be free from many of the potential procurement restrictions that would impact on a housing association or housing co-operative approach, as it is an entirely private development with no, or limited, state involvement. Public procurement policy in Northern Ireland only applies to public-sector contracts or those of organisations deemed to be public bodies for procurement purposes, such as housing associations.

Because there is no precedent in Northern Ireland for the *Baugruppe* model, such an initiative would probably encounter barriers to receiving conventional debt financing and some form of state support or facilitation might be necessary to allow such a project to get off the ground. Such a new form of housing could be supported as a pilot project using Community Asset Transfer, if the *Baugruppe* could be formed in a way that was recognised as a third sector organisation providing a social urban regeneration benefit to a neighbourhood. Introduction of the Community Right to Build scheme from England (already mentioned above) might be another route to support such building groups.

### Leasehold Strategy

There is currently no equivalent in Northern Ireland to citizen-led projects in combination with a leasehold model, as seen with the **Lausitzer Straße (1.2.5)** and **Bernauer Straße (1.2.4B)** case studies, however, there are no legal impediments to a similar approach. This model could be utilised as a way of helping projects get off the ground, by removing the up-front cost of land purchase while still allowing an income to be generated through ground rent. Such long-term ground leases would also allow the DSD (when they are the land owners) to influence long-term urban regeneration strategy by placing conditions on the lease of the land to ensure urban regeneration criteria or other appropriate standards are achieved.



### City Development Authorities Facilitating Privately-Financed Projects

Could the Belfast local authority strategically use its own land assets, and place an emphasis on qualitative rather than purely market-driven factors in the support of small-scale, citizen-initiated urban housing? It is worth considering this question in the context of the draft Strategic Planning Policy Statement that will form the framework within which the new 11 councils will prepare development plans, and which requires them to ensure that there is an adequate pipeline of land for housing development.<sup>8</sup>

The Local Government Reform Programme will also provide a general power of competence, enabling local councils to operate with the same freedoms as private individuals, effectively offering options for how to be more flexible, innovative, and responsive to local needs. Greater control over its land assets to meet local need and demand, and planning and regenerations powers, coupled with the general power of competence, suggest that, moving forward, local councils in Northern Ireland will have considerable scope to authorise, facilitate, and support citizen-initiated housing.

Belfast City Council has a £5m Local Investment Fund as part of its 2012-2015 Investment Programme. Although this is currently being used to fund traditional community-investment and development activity through established groups, this fund or a similar initiative could be used to financially-support citizen-led urban housing development.<sup>9</sup>

Northern Ireland has a very traditional approach to housing development. Private house builders provide new homes for market, and shared-ownership, sale and housing associations provide homes for social rent, and affordable housing such as shared-ownership and shared-equity. The growth of the private rented sector in Northern Ireland (from 2001 onwards) has added another significant tenure to this model, but amateur or accidental landlords and market factors, rather than institutional investment in new properties, has dominated it. Larger scale institutional or pri-

vately-financed, well-built and -managed housing for rent on the private market might, for this reason, be an area of the housing market which could be encouraged and improved.

Perhaps the biggest constraint to the introduction of some of the Berlin housing development models is, of course, cultural rather than strategic, financial, or legal. These entrepreneurial models require a significant amount of personal drive, direction and management. In saying that, there is potential to explore these options, particularly in Belfast city centre and within the current market, but it may be necessary for the local council to take a leading role in facilitating and supporting pioneering efforts until a model has been tried and tested. While the *Baugruppe* model, for example, may be difficult to envisage working in Belfast, certainly in light of the housing market collapse and a more cautious approach of financial institutions, the availability of inexpensive land and empty buildings in the city centre could have some potential for more creative housing approaches from individuals and groups.

1. Further information on individual housing associations and the work that the movement does can be found at [www.nifha.org](http://www.nifha.org).

2. The Department for Social Development, which regulates housing associations in Northern Ireland, publishes a Housing Association Guide, detailing some of the parameters in which housing associations must operate, particularly where government has provided funding for development.

3. The Housing (NI) Order 1983 can be found at <http://www.legislation.gov.uk/nisi/1983/1118/contents>.

4. The policy for Community Asset Transfer was published as a draft by the Department for Social Development in 2013 and approved in 2014.

5. More information on the activities enabled by the Localism Act can be found at the Homes and Communities Agency.

6. More information on the Resonance Model can be found here: <http://www.rettie.co.uk/site/uploads/Resonance%20Details.pdf>.

7. Nic Bliss and Blaise Lambert (2014) *New Co-operative and Community Led Homes* [www.cch.coop/newcoophomes/docs/new-co-operative-and-community-led-homes.pdf](http://www.cch.coop/newcoophomes/docs/new-co-operative-and-community-led-homes.pdf).

8. The consultation on the draft Strategic Planning Policy Statement closed in April.

9. More information on Belfast City Council's Investment Programme 2012-2015 and Local Investment Fund can be found on their website [www.belfastcity.gov.uk](http://www.belfastcity.gov.uk).

### City Living = A Living City

This investigation of innovative housing through case studies and practice-based research attempts to achieve an understanding of housing beyond the mere “provision” of homes. Housing can provide opportunities to create places of inhabitation that build and sustain vibrant urban environments and promote diverse, but cohesive, civil society. The most concise answer to the question, “What does housing-led urban regeneration mean in the context of Belfast?” is that, “*City Living* is what is required to make Belfast a *Living City*”.

The Berlin case studies investigate examples of the conception, design, and construction of housing synonymous with the building of cohesive residential communities as part of a larger civil society. This occurred not as an imposed process of social engineering, but as an organic process of people making the city and, in so doing, taking responsibility for it. The self-generated nature of these projects, although perhaps initially difficult to imagine in the Belfast context, makes them a useful point of reference on a number of levels. These include the spatial level of typology, flexibility, scale, and density; the organisational level of finance, procurement, and legal framework; and the strategic level of urban regeneration policy.

The following recommendations also span the breadth of these parameters, as the answers to these questions can only be successfully understood as syntheses. Implementation must likewise be approached in a holistic manner.

### Medium-Density Housing Typologies

Medium-density housing typologies such as those arrived at through testing in the Belfast Housing Studies could provide a more suitable model for mixed residential neighbourhoods than the current polarisation into either the low-density terrace/semi-detached house or high-density/high-rise apartment block typologies. Such medium density typologies offer the potential to absorb a diversity of household types, in contrast to the segregation of age groups and household sizes that often prevails between high-density, high-rise

apartments and low-density house typologies.

### Quality Amenity and Private Outdoor Space

Quality amenity and private outdoor spaces that satisfy the expectations of house/terraced house typologies should be provided for all residential typologies. These are, contrary to popular belief, achievable in medium-density schemes, as was demonstrated by the Belfast Housing Studies proposals. Such medium-density schemes can, in fact, also simultaneously achieve many of the spatial and financial efficiencies of higher-density typologies.

### Shared Outdoor Space and Facilities

Quality well-designed shared outdoor space and facilities, in addition to private outdoor space, are important, achievable, and one of the great advantages of medium-density urban living. Larger shared outdoor spaces provide additional possibilities for, and flexibility of, outdoor activities. These exterior spaces, in conjunction with other shared facilities (e.g. guest rooms, multi-use common rooms, outdoor kitchen facilities, etc.), should be included in medium-density housing to ensure liveability and desirability.

### Appropriate Scale of Development

Adopting appropriate scales for development should be carefully considered. The Berlin case studies indicate a scale of development averaging 12 residential units/project, which was successful on a number of related levels.

It is a scale that is small enough to function in terms of the careful financial organisation necessary for both the self-initiated *Baugruppe* (“Building Group”) and co-operative models. It also corresponds to a scale that works well informally on the level of shared spaces and facilities, while being large enough for their financial viability.

This scale also allows inhabitants to identify closely with the building as *their* house. Critically, it also corresponds to a scale that can operate around a single shared vertical circulation core. This means that inhabitants will most likely know, and see regu-

larly, everyone living in the building.

The projects at this scale are also compatible with existing inner-city land parcelisation and the building stock of 19th century city centres, which is generally larger than the scale of the single house but smaller than most post-war urban housing and regeneration schemes. This again suggests that inner-city Belfast, where such land parcelisation and building stock occurs, is the most suitable location for projects of this scale, whether on infill sites, on subdivided larger areas, or through the renovation of existing buildings.

It is also a substantial enough scale to have a positive impact on a neighbourhood, while remaining modest enough to avoid its perception as a threat to existing residential communities. Furthermore, at this scale, new residents will not feel alone in a new neighbourhood: as part of a collective, they might feel sufficiently confident to move into a part of town an individual buyer might not consider.

### Adapting to Smaller Networks

To encourage a DIY scale of urbanism, government departments should update their processes to address smaller networks rather than simply catering to large development companies or institutions. This could include developing methods for promoting self-initiated projects: not through financial aid, but through administrative enablement and support.

Housing, planning and regeneration functions are currently spread across a number of NI government departments, creating a system that can be inaccessible and bureaucratic, even for those interacting with it on a regular basis. A system that takes into account the needs and challenges of the end user, in this case those seeking to develop new city living initiatives, would be an important step towards unlocking the potential for DIY urbanism. The transfer of planning and regeneration powers to local authorities may open up such opportunities.

### Middle-Income Households in the City Centre

Middle-income households should be encour-

## 4.4 Recommendations

aged and supported to live in the city centre. It is important that the city centre avoids being perceived as a ghetto for low-income households or particular residential groups, such as students or foreign nationals. With the right housing typologies, the city centre has the infrastructure, services, cultural life and character buildings to become a desirable place to live for all sectors of society. New city centre housing should be considered on a mixed-tenure, mixed-income basis, and the Building Group model could be adopted and encouraged by the city authorities to achieve this, through the application of some combination of the following recommendations.

#### **Concept-Driven Sales Processes**

The city authorities could adopt the *konzeptgebundene Verfahren* or “Concept-Driven Sales Process” model, which was utilised to successfully support projects in Berlin through the allocation of state-owned real estate to projects with a positive urban agenda. This would represent an alternative to the current process of Development Brief Tenders aimed at speculative developers, which are usually awarded to the highest bidder on the basis of “best value for money”. This developer-orientated development brief model is susceptible to encouraging inappropriate scales and quantities of development in order to achieve the best return. Instead, an attractive fixed-price could be set, with bids evaluated on the basis of social urban renewal criteria in order to achieve “best value for the city” in a broader, more sustainable, sense. Exclusive option/longer application periods of up to 12 to 18 months have also been recommended, as Building Groups require more extensive organisation and time to generate capital than private developers (Ring, 2013:203). Beyond this facilitation, subsidies could be provided in certain instances to citizen-led Building Groups or co-operatives if certain criteria are met (e.g. the inclusion of social- and/or affordable-living units).

#### **Develop Alternative Lending Institutions**

Specialised lending institutions could be established, which support projects by lending at low interest rates if certain social or environmental

criteria are met. As opposed to short-term grant programs, this more long-term approach allows lenders to build expertise and knowledge in their area of lending speciality (e.g. energy efficiency). For example, the lending band criteria established by the KfW bank in Germany, which lends to projects on the basis of energy efficiency, are now recognised as the industry standard. Loans from such specialised, criteria-based lenders also give projects validity, which can, in turn, make further financing easier to obtain. In 2010, the Chartered Institute of Housing presented options to move from grant- to loan-funding for private sector repairs and improvements. A similar approach could be used to facilitate new development models.

#### **Long Term Lease Arrangements**

City authorities could use a strategy of long-term leasing of city-owned land as a method of both supporting and influencing housing-led urban regeneration. Site leasing minimises costs for project initiators, allowing investment to be concentrated on the built fabric rather than on land purchase. It would also allow the city development authorities, as landowners, to set conditions and criteria for leasing land, thus maintaining control of development and determining long-term urban development policy. The Department of the Environment, Community and Local Government and Housing Agency in the Republic of Ireland have introduced such leasing models for the provision of social housing through local authorities.

#### **The City Centre for the Next Generation**

It is well established that Belfast is largely segregated by socio-economic class and community/religious background (Gaffikin, et al 2008:97). This “residualisation” also extends to other homogeneous groups, such as the almost-total concentration of students in the Holy Lands area. Within this context, the inner city is the major exception. Largely because it is under-populated, and as such is generally perceived as a neutral environment, it isn’t associated with any particular socio-economic or community group. This area also has the prime location, building typologies, and amenities to

potentially sustain social and programmatic diversity. The inner city also has urban infill sites and empty buildings at scales which could lend themselves to co-operative housing or Building Group projects.

In Belfast, socio-economic stratification is generally directly reflected in both the size and type of housing typologies (e.g. small terrace, large terrace, semi-detached house, free-standing house, etc.). Neighbourhoods commonly have one dominant type and scale of typology, and often a correspondingly-homogeneous socio-economic profile. The city centre offers the opportunity for more diversity in this respect, with the possibility of medium-density housing typologies which could contain a mix of apartment types and scales. The continuation of current housing typologies and levels of design quality in Belfast may be further building segregation into the urban environment to a degree that may prove irreversible. Concentrating housing in the city centre that caters to one particular demographic group, for example social or student housing, runs the risk of the one remaining un-segregated area of the city becoming overly homogeneous and undesirable to the broad social spectrum required to create a diverse and vibrant urban core.

The time scale and planning for this shift in the character and desirability of the city centre needs to be generational. It is unlikely that existing middle-income households will abandon their peripheral middle class enclaves for the city centre. However the next generation of professionals could, under the right conditions, find the city centre an affordable, diverse and demographically-neutral, and well-located opportunity for urban living. Given the right opportunities to create their own living environments and to invest financially, socially, and spatially, the next generation might be convinced to stay in the city centre as they progress through their life phases, including living with a family.





## 5.0 Developed Scenarios

This section investigates and develops a selection of the Belfast Housing Study student projects in terms of their possible costs and financial and procurement models. From the entire investigation conducted in the University of Ulster 2012-2013 Urban Design Studio, four of the six sites studied emerged as offering considerable potential as urban housing locations. These were the Ormeau Avenue site, the Templemore Avenue site, and the two Carrick Hill sites. From these four locations, five projects were chosen which represent clear and interesting proposals, and which lend themselves to further study as development scenarios.

This scenario development process involved the review, and where necessary rationalisation, of the exact sizes and numbers of residential units within the design strategies as developed by the students. Based on this and proposed constructional typologies, project cost estimates were developed. These feasibility studies have been further extended to suggest organisational, financial and procurement models that might be both innovative and appropriate to the particular proposals. These are suggested not as fixed propositions, but as scenarios to explore and test some of the alternative models and processes employed in the Berlin Case Studies. Importantly however, these scenarios are developed out of the specific designs and the urban and social circumstances of their Belfast contexts.

Of the five different financial delivery models for housing in Belfast which were explored, three are new to the city: the *Baugruppe*; the Co-operative; and large-scale 'build-to-rent' schemes, which can be compared to the traditional Housing Association and private sector 'build-to-sell' models.

Each model encompasses of a number of variables, from site and construction costs, to future interest rates. Altering any of these variables changes the output and potential viability of the project.

Delivery models are chosen due to their appropriateness to the scheme design: these could

be exchanged or combined in some cases.

Comparison of the models raises interesting issues for discussion with current housing providers. This work can also represent good guidance for further student research work - to enable decisions in the design process - and also to be seen and considered in the context of final delivery.

The sources for the information contributing to the Developed Scenarios are:

**Site Costs:** Provided by the Department for Social Development (DSD)

**Area/Cost Bands:** Figures for General Needs Housing from the DSD ([www.dsni.gov.uk](http://www.dsni.gov.uk))

**Weekly Housing Rentals:** Northern Ireland Housing Executive (NIHE) weekly housing rate bands ([www.nihe.gov.uk](http://www.nihe.gov.uk))

**Co-operatives:** North West Housing Group of Cooperatives, England ([www.nwhousing.org.uk](http://www.nwhousing.org.uk))

**Building Costs:** Based on knowledge from leading industry experts

**Private Rental Costs:** From telephone survey with young professional people currently renting in Belfast conducted in April 2014

**Interest Rates:** Long-term interest rate projections from newspaper reports published in April 2014

**Interest Rate Calculator:** Which? consumer guides ([www.which.co.uk](http://www.which.co.uk))

**Property Sale Costs:** Average figures for Belfast based on of survey of Estate Agent advertisements in 2014

## 5.1 Introduction



## Templemore Avenue

### Scenario One

Student Project: Sara Mitchell



### Delivery Model

Private sector building with a long-term view towards rental is rarely used in the UK or Ireland for housing delivery. But it is common in the commercial sector, and elsewhere in Europe. As the ability to buy becomes more difficult due to substantial deposit requirements, this form of financing needs to play a larger role in housing delivery. This scheme is chosen to test this model due to its medium density and its location on the edge of central Belfast. It has a good range of dwelling sizes, with generous shared and private amenity spaces.

### Analysis and Adjustment

The student scheme has a large percentage of dwellings in the higher area bands and well above the recommended housing association standards. The massing has been maintained, but additional units added to reduce unit sizes. Additional walkways are added to allow secondary means of escape from the duplex units. Adjustment is needed to the internal layout of some of the dwellings to meet the fire regulations. The costs of the ground floor creche have been removed for the housing calculation.

### Outcome

The economic model shows a long term pay-back period. To meet the short term demands of pension funds and financial institutions, dwelling size, construction costs and monthly rent may require further adjustment.

### PROJECT INFORMATION

Site Area: 3,346m<sup>2</sup>

Number of Units: 28 (would be 18 if standard Housing Executive rate of 52 units/Ha was applied)

Projected Population: 117 persons

Construction Description: Four-storey load-bearing masonry construction (100/140/215); precast concrete floors with sound insulation and screed; and flat roof.

### PROJECT CONSTRUCTION COSTS

Housing Area	2,851m <sup>2</sup> x £650/m <sup>2</sup>	£1,853,150
Creche (Shell)	592m <sup>2</sup> x £500/m <sup>2</sup>	-
Circulation	624m <sup>2</sup> x £600/m <sup>2</sup>	£374,400
Lift	2 x £50,000	£100,000
Common Amenity	715m <sup>2</sup> x £50/m <sup>2</sup>	£35,750
Garden/Balconies	420m <sup>2</sup> x £50/m <sup>2</sup>	£21,000
<b>Construction Works Subtotal</b>		<b>£2,384,300</b>

Preliminaries/Contingency (13%)	£309,959
<b>Construction Works Total</b>	<b>£2,694,259</b>

Professional Fees (8%)	£215,540
<b>Total Project Cost (Excluding Site Cost)</b>	<b>£2,909,799</b>

Site Cost	£218,000
<b>TOTAL PROJECT COST (Including Site Cost)</b>	<b>£3,127,799</b>



Ground Floor Flats  
GF1/GF12 52m<sup>2</sup>

Ground/First Floor Duplexes	
GD1-GD3	108m <sup>2</sup>
GD4	118m <sup>2</sup>
GD5-GD7	132m <sup>2</sup>
GD8	209m <sup>2</sup>
GD9	115m <sup>2</sup>
GD10-GD12	105m <sup>2</sup>

Ground Floor Creche 592m<sup>2</sup>



First Floor Flat  
1F1 52m<sup>2</sup>



Second Floor Flats  
2F1 63m<sup>2</sup>  
2F2 94m<sup>2</sup>  
2F3 81m<sup>2</sup>

Second/Third Floor Duplexes  
2D1-2D3 108m<sup>2</sup>  
2D4-2D7 105m<sup>2</sup>

## PRIVATE SECTOR TO RENT DELIVERY MODEL

Total Project Development Cost: £3,127,799

Housing Area: 2,851m<sup>2</sup>

Cost/m<sup>2</sup>: £1,097/m<sup>2</sup>

### Approximate Belfast Rental Income Levels

45m<sup>2</sup> 1-Bed Flat: £400/month (£8.8/m<sup>2</sup>)

65m<sup>2</sup> 2-Bed Flat: £600/month (£9.2/m<sup>2</sup>)

85m<sup>2</sup> 3-Bed Duplex/House: £750/month (£8.8/m<sup>2</sup>)

Housing Area: 2,851m<sup>2</sup>

Monthly Average Income: £9/m<sup>2</sup>

Gross Annual Income: 2,851m<sup>2</sup> x £9 x 12 =  
£307,908

Monthly Service Charge: £1.2/m<sup>2</sup>

Annual Service Charge: 2,851m<sup>2</sup> x £1.2 x 12 =  
£41,054

Rental Income - Service Charge/Total  
Project Development Cost) £307,908 -  
£41,054/£3,127,799 = 8.5%

Therefore a pension fund/private investor  
would receive an 8.5% return on their invest-  
ment.

### Sample Dwelling Costs

Unit	BRs/People	Area	TCI Area	£/m <sup>2</sup>	Unit Cost	TCI Cost	Rent (£9/m <sup>2</sup> )
2D4	3B/5P	105m <sup>2</sup>	95m <sup>2</sup>	£1,097	£115,185	£116,900	£945/month
GF1	1B/2P	52m <sup>2</sup>	55m <sup>2</sup>	£1,097	£57,044	-	£468/month
2F3	2B/4P	81m <sup>2</sup>	75m <sup>2</sup>	£1,097	£88,857	£92,400	£729/month



#### Third Floor Flats

3F1	67m <sup>2</sup>
3F2	94m <sup>2</sup>
3F3	81m <sup>2</sup>



## Templemore Avenue Scenario One

Student Project: Sara Mitchell

### Density



1.20 units/sqm



0.4 units/sqm

Units: 1,020 units (357 units)

Rent Cost: £1m<sup>2</sup> W8

£1.20/m<sup>2</sup>



£1.20/m<sup>2</sup>

### Programmatic Analysis



0.0 units/sqm



0.0 units/sqm



0.0 units/sqm



0.0 units/sqm



0.0 units/sqm

### Total Programme Area Breakdown



### Total Project Cost

Site Cost: £1m<sup>2</sup> W8

£1.20/m<sup>2</sup>



£1.20/m<sup>2</sup>

## Templemore Avenue

### Scenario Two

Student Project: Máiread Gallagher



### Delivery Model

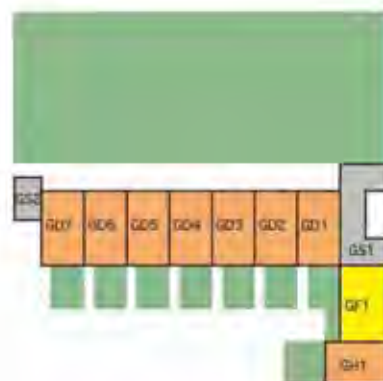
This scheme makes a significant contribution to the local neighbourhood by giving half the site over to a small park/play space. A Housing Association manages both the housing and the park and is an appropriate neighbour to the community-run swimming baths and fitness centre. It is interesting to note that this medium-density typology delivers the same number of units as a traditional housing association two-storey solution spread over the whole site.

### Analysis and Adjustment

The student scheme delivers a large percentage of dwellings in the higher area bands and well above the recommended housing association standards. The massing of the scheme remains, with additional units added to reduce dwelling size and to increase unit numbers. Additional walkways are added to provide a secondary means of escape from the duplex units. Adjustment of some of the internal layouts is required to meet the fire regulations.

### Outcome

Removing the cost of the site, on the condition that a percentage is given over and maintained as a public park, brings the costs of the units close to the recommended total costs and allows housing association rentals to be applied.





## HOUSING ASSOCIATION DELIVERY MODEL

Total Project Development Cost: £2,592,226

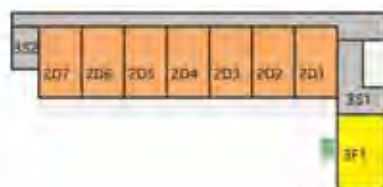
Housing Area: 2,262m<sup>2</sup>

Cost/m<sup>2</sup>: £1,050/m<sup>2</sup>

As neighbourhood contribution provided by way of public park, land cost converted into long-term lease (cost of land removed). Applying this 'Housing Association' model, dwelling costs come close to TCI figures (see below) and therefore Housing Executive weekly local rental rates can apply.

### Sample Dwelling Costs

Unit	BRs/People	Area	TCI Area	£/m <sup>2</sup>	Unit Cost	TCI Cost	Rent (Housing Executive)
2D1	3B/5P	116m <sup>2</sup>	95m <sup>2</sup>	£1,050	£121,800	£116,900	£414/month
GD1	3B/5P	140m <sup>2</sup>	95m <sup>2</sup>	£1,050	£147,000	£116,900	£414/month
GF1	2B/4P	77m <sup>2</sup>	75m <sup>2</sup>	£1,050	£80,850	£92,400	£372/month



Third Floor Flat  
3F1

77m<sup>2</sup>



## Templemore Avenue Scenario Two

Student Project: Malread Gallagher

Density



0.84 people/m<sup>2</sup>



55 units/ha

Cost / m<sup>2</sup> NGF

Cost / m<sup>2</sup> WH

£150/m<sup>2</sup>

£90/m<sup>2</sup>

£150/m<sup>2</sup>

£90/m<sup>2</sup>

Programmatic Analysis



0.0

0.0



0.0



0.0

0.0

29.0

29.0

29.0

29.0

29.0

29.0

Total Programme Area Breakdown



2.262m<sup>2</sup>

2.262m<sup>2</sup>

2.262m<sup>2</sup>

2.262m<sup>2</sup>

2.262m<sup>2</sup>

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2.262m<sup>2</sup>

2.262m<sup>2</sup>

2.262m<sup>2</sup>

Total Project Cost

Site Cost / m<sup>2</sup> WH

£150/m<sup>2</sup>

£90/m<sup>2</sup>

£150/m<sup>2</sup>

£90/m<sup>2</sup>

£150/m<sup>2</sup>

£90/m<sup>2</sup>

£150/m<sup>2</sup>

£90/m<sup>2</sup>

£150/m<sup>2</sup>

## Ormeau Avenue

### Scenario One

Student Project: Anthony Stafford



### Delivery Model

The city centre location, combined with revitalising a historic building, makes this scheme suitable for the *Baugruppe* model. This is rare in the UK and allows people to join together to have a say in the design, construction and management of their living space. People own their property and contribute 30% towards the capital cost and 10% by way of self-build. The number of dwellings is, at 16, also suitable - based on examples from Berlin - for this model. Urban development grants for this government-owned building are also available, with the remaining 50% financed through mortgages.

### Analysis and Adjustment

The floor areas and double-height spaces in some of the units are generous, but these are appropriate in view of the special nature of the historic building and the delivery model. Adjustment is needed to provide secondary escape from the duplex units and for internal layouts to meet the fire regulations. The cost of the ground floor ancillary accommodation has been omitted for the feasibility analysis.

### Outcome

The economic model shows creative solutions can deliver exceptional models of housing at achievable costs in the city centre at realistic land values.

### PROJECT INFORMATION

Site Area: 743m<sup>2</sup>

Number of Units: 16

Projected Population: 59 persons

Construction Description: Refurbishment and upgrade of existing four-storey brick building with two additional storeys in lightweight timber construction - as much of original building maintained as possible.

### PROJECT CONSTRUCTION COSTS

Housing Area	1,416m <sup>2</sup> x £750/m <sup>2</sup>	£1,062,000
Ground Floor Ancillary	436m <sup>2</sup> x £650/m <sup>2</sup>	-
Circulation	686m <sup>2</sup> x £700/m <sup>2</sup>	£480,200
Wintergardens	156m <sup>2</sup> x £750/m <sup>2</sup>	£117,000
Facade Retention		£250,000
<b>Construction Works Subtotal</b>		<b>£1,909,200</b>

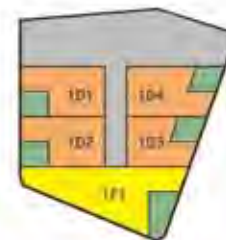
Preliminaries/Contingency (13%)	£248,196
<b>Construction Works Total</b>	<b>£2,157,396</b>

Professional Fees (8%)	£172,591
<b>Total Project Cost (Excluding Site Cost)</b>	<b>£2,329,987</b>

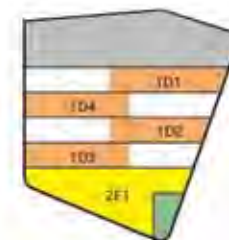
Site Cost	£336,000
<b>TOTAL PROJECT COST (Including Site Cost)</b>	<b>£2,665,987</b>



Ground Floor Studio	
G1	66m <sup>2</sup>
Ground Floor Cafe	
G2	126m <sup>2</sup>
Ground Floor Shop	
G3	152m <sup>2</sup>
Ground Floor Gallery	
G4	92m <sup>2</sup>



First Floor Flat	
1F1	117m <sup>2</sup>
First/Second Floor Duplexes	
1D1	153m <sup>2</sup>
1D2	145m <sup>2</sup>
1D3	130m <sup>2</sup>
1D4	154m <sup>2</sup>



Second Floor Flat	
2F1	117m <sup>2</sup>

## BAUGRUPPE DELIVERY MODEL

Total Project Development Cost: £2,665,987

Housing Area: 1,416m<sup>2</sup>

Cost/m<sup>2</sup>: £1,882/m<sup>2</sup>

As Baugruppe: 30% Capital

Each member of the *Baugruppe* contributes 30% of the project development costs.

10% Self-Build

Each person contributes according to his/her specialist skills and/or abilities.

20% Urban Development Grant

The Department of Social Development advise that a grant is available to stimulate the development of the vacant building. The grant covers the shortfall between the cost of the development and its estimated value on the open market upon completion, which in this case was calculated to be 20%.

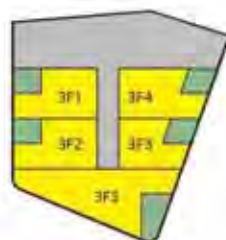
50% Financing Need

Each member of the Baugruppe pays a mortgage at 6% over 25 years.

(the above does not include service charge of £1.2/m<sup>2</sup>/month)

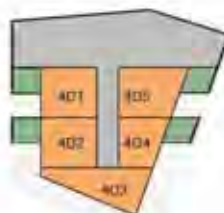
### Sample Dwelling Costs

Unit	BRs/People	Area	TCI Area	£/m <sup>2</sup>	Unit Cost	50% Financing	Mortgage Interest (6%)	Market Value
1D1	2B/4P	153m <sup>2</sup>	80m <sup>2</sup>	£1,882	£287,946	£143,973	£927/month	£230,356
3F1	1B/2P	63m <sup>2</sup>	55m <sup>2</sup>	£1,882	£118,566	£59,283	£381/month	£94,852
3F3	3B/5P	117m <sup>2</sup>	85m <sup>2</sup>	£1,882	£220,194	£110,097	£709/month	£176,155



#### Third Floor Flats

3F1-3F2	63m <sup>2</sup>
3F3	117m <sup>2</sup>
3F4	53m <sup>2</sup>
3F5	89m <sup>2</sup>



#### Fourth/Fifth Floor Duplexes

4D1-4D2	71m <sup>2</sup>
4D3	82m <sup>2</sup>
4D4	58m <sup>2</sup>
4D5	83m <sup>2</sup>



## Ormeau Avenue Scenario

Student Project: Anthony Stafford

Density

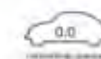


Sample Costs (m<sup>2</sup> WPI)

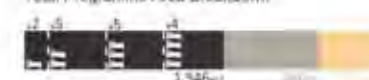
Site Cost (m<sup>2</sup> WPI)



Programmatic Analysis

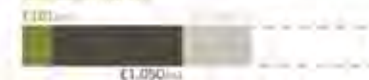


Total Programme Area Breakdown



Total Project Cost

Site Cost (m<sup>2</sup> WPI)





## Carrickhill

### Scenario One

Student Project: Anita Quinn



#### Delivery Model

The advantage of the housing co-operative model is that by pooling together the financial capability, knowledge, and skills of a number of people, rented accommodation is obtained at a lower price than market levels, and people have a say in the design, building, and management of the place where they live. Banks working generally lend co-operatives 70% over a period of 25 years: as such, 30% of the project financing needs to be arranged separately. This scheme is chosen as a co-operative due to its appropriate number of dwellings, 14, which lends itself to this model, its proximity to existing established communities in central Belfast, and the large shared amenity space, which can facilitate diverse activities and the development of the co-operative.

#### Analysis and Adjustment

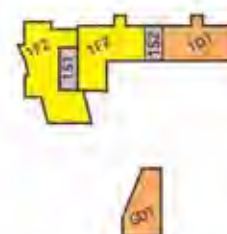
The size of the units are within recommended area bands, and the layouts remain as per the student's work. Some adjustment of internal layouts is needed to meet fire regulations.

#### Outcome

Efficiency of dwelling layout makes this scheme feasible subject to the 30% initial financing being available. Interest payments are below the local market value.



<b>Ground Floor Flats</b>	
GF1	65m <sup>2</sup>
GF2	50m <sup>2</sup>
<b>Ground/First Floor Duplex</b>	
GD1	18.8m <sup>2</sup>
<b>Ground Floor Shop</b>	
51m <sup>2</sup>	



<b>First Floor Flats</b>	
1F1	82m <sup>2</sup>
1F2	65m <sup>2</sup>
<b>First/Second Floor Duplex</b>	
1D1	89m <sup>2</sup>



<b>Second Floor Flats</b>	
2F1	98m <sup>2</sup>
2F2	87m <sup>2</sup>

#### PROJECT INFORMATION

Site Area: 1,196m<sup>2</sup>

Number of Units: 14 (would be 6 if standard Housing Executive rate of 52 units/Ha was applied)

Projected Population: 48 persons

Construction Description: Six-storey tower element with flat roof - reinforced concrete frame; pile foundations. Two-storey house - masonry construction.

#### PROJECT CONSTRUCTION COSTS

Housing Area	858m <sup>2</sup> x £850/m <sup>2</sup>	£729,300
House	88m <sup>2</sup> x £650/m <sup>2</sup>	£57,200
Shop (Shell)	51m <sup>2</sup> x £650/m <sup>2</sup>	£33,150
Circulation	156m <sup>2</sup> x £800/m <sup>2</sup>	£124,800
Lift	1 x £50,000	£50,000
Common Amenity	493m <sup>2</sup> x £50/m <sup>2</sup>	£24,650
Balconies	263m <sup>2</sup> x £50/m <sup>2</sup>	£13,150
<b>Construction Works Subtotal</b>		<b>£1,032,250</b>

Preliminaries/Contingency (13%)	£134,192
<b>Construction Works Total</b>	<b>£1,166,442</b>

Professional Fees (8%)	£93,315
<b>Total Project Cost (Excluding Site Cost)</b>	<b>£1,259,757</b>

Site Cost	£300,000
<b>TOTAL PROJECT COST (Including Site Cost)</b>	<b>£1,559,757</b>

## CO-OPERATIVE DELIVERY MODEL

Total Project Development Cost: £1,559,757

Housing Area: 946m<sup>2</sup>

Cost/m<sup>2</sup>: £1,648/m<sup>2</sup>

As Co-operative: 30% Capital Contribution required - this can be provided individually or by the local authority (each co-operative member pays monthly rent to cover interest set at 6% for a 25 year pay-off).

No service charge due to co-operative undertaking building management.

See table below for comparison of interest against market rental rate.

### Sample Dwelling Costs

Unit	BRs/People	Area	TCI Area	£/m <sup>2</sup>	Unit Cost	70% Financing	Financing Cost (6%)	Market Rate
3F1	2B/3P	65m <sup>2</sup>	65m <sup>2</sup>	£1,648	£107,120	£74,984	£483/month	£600/month
2F2	1B/2P	47m <sup>2</sup>	50m <sup>2</sup>	£1,648	£77,456	£54,219	£349/month	£400/month
1F1	3B/5P	82m <sup>2</sup>	85m <sup>2</sup>	£1,648	£135,136	£94,595	£609/month	£750/month



## Carrickhill Scenario One

Student Project: Anita Quinn

Density



0.96 persons/m<sup>2</sup>



1.17 persons/m<sup>2</sup>

Site Cost / m<sup>2</sup> WYS

Total Cost / m<sup>2</sup> WYS

£100/m<sup>2</sup>

£100/m<sup>2</sup>

£100/m<sup>2</sup>

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Total Project Cost

Site Cost / m<sup>2</sup> WYS

£100/m<sup>2</sup>

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£100/m<sup>2</sup>

## Carrickhill

### Scenario Two

Student Project: Andrew O'Doherty



### Delivery Model

This scheme is developed as a traditional 'build-to-sell' model, to allow comparison with other models. Its city centre location; the variety in dwelling size - including larger dwellings; and the live/work approach make it suitable to this form of delivery. The accommodation also includes good private and shared amenity space.

The delivery and monthly payment costs are based on the availability of private mortgages with a 10% deposit, which have become difficult over the past few years since the 2008 financial crisis. A realistic interest rate of 6% has been applied.

### Analysis and Adjustment

A large percentage of the duplex units are above the recommended band sizes, however this facilitates the live/work model. Secondary escape from the upper floor duplex units must be addressed and some internal layouts need adjustment to meet the fire regulations. The design incorporates community, education, and creche and semi-basement parking; these costs have been taken out for the housing feasibility comparison.

### Outcome

The cost of the dwellings benefits from combining a medium-density typology on a relatively low value site. This makes it realistic - with a good return - for the private sector investor.

### PROJECT INFORMATION

Site Area: 3,780m<sup>2</sup>

Number of Units: 37 (would be 20 if standard Housing Executive rate of 52 units/Ha was applied)

Projected Population: 136 persons

Construction Description: Four-storey load-bearing masonry construction on in-situ semi-basement podium.

### PROJECT CONSTRUCTION COSTS

Housing Area	3,333m <sup>2</sup> x £650/m <sup>2</sup>	£2,166,450
ED/Gym/Canteen (Shell)	888m <sup>2</sup> x £500/m <sup>2</sup>	-
Community/Semi-Basement	477m <sup>2</sup> x £650/m <sup>2</sup>	-
Storage/Carpark/Semi-Basement	1,661m <sup>2</sup> x £650/m <sup>2</sup>	-
Circulation	963m <sup>2</sup> x £600/m <sup>2</sup>	£577,800
Lift	3 x £50,000	£150,000
Common Amenity	779m <sup>2</sup> x £50/m <sup>2</sup>	£38,950
Balconies	843m <sup>2</sup> x £50/m <sup>2</sup>	£42,150
<b>Construction Works Subtotal</b>		<b>£2,975,350</b>

Preliminaries/Contingency (13%)

£386,795

**Construction Works Total**

**£3,362,145**

Professional Fees (8%)

£268,971

**Total Project Cost (Excluding Site Cost)**

**£3,631,116**

Site Cost

£360,000

**TOTAL PROJECT COST (Including Site Cost)**

**£3,991,116**



GROUND FLOOR

<b>Ground/First Floor Duplexes</b>	
GD1-GD7	131m <sup>2</sup>
GD8-GD13	94m <sup>2</sup>
GD14-GD17	115m <sup>2</sup>

<b>Ground Floor Other</b>	829m <sup>2</sup>
Community/Education/Creche	



<b>First Floor Other</b>	459m <sup>2</sup>
Community/Education	



<b>Second Floor Flats</b>	
2F1	55m <sup>2</sup>
2F2/2F4/2F5/2F7	46m <sup>2</sup>
2F3	95m <sup>2</sup>
2F6	69m <sup>2</sup>
2F8	50m <sup>2</sup>
2F9	63m <sup>2</sup>

<b>Second/Third Floor Duplexes</b>	
2D1	129m <sup>2</sup>
2D2	112m <sup>2</sup>
2D3	144m <sup>2</sup>



## PRIVATE SECTOR TO SELL DELIVERY MODEL

Total Project Development Cost: £3,991,116

Housing Area: 3,333m<sup>2</sup>

Cost/m<sup>2</sup>: £1,197/m<sup>2</sup>

### Approximate Current Costs in Belfast

45m<sup>2</sup> 1-Bed Flat: £85,000 (£1,888/m<sup>2</sup>)

65m<sup>2</sup> 2-Bed Flat: £110,000 (£1,692/m<sup>2</sup>)

95m<sup>2</sup> 3-Bed Duplex/House: £140,000 (£1,473/m<sup>2</sup>)

Average Cost: £1,700/m<sup>2</sup>

Housing Area: 3,333m<sup>2</sup>

Total Sales Value: £5,666,100

### Feasible Project

Developer Profit: £5,666,100 - £3,991,116 = £1,674,984

Mortgage cost based on 10% deposit and 6% interest over 25 years (including profit).

Does not include monthly building service charge of £1.2/m<sup>2</sup>/month.

### Sample Dwelling Costs

Unit	BRs/Persons	Area	TCI Area	£/m <sup>2</sup>	Unit Cost	TCI Cost	Sale Cost
G08 2B/4P		94m <sup>2</sup>	80m <sup>2</sup>	£1,197	£112,518	£116,900	£140,000
GD14 2B/4P		115m <sup>2</sup>	80m <sup>2</sup>	£1,197	£137,655	£116,900	£150,000
2F4 1B/2P		46m <sup>2</sup>	50m <sup>2</sup>	£1,197	£55,062	-	£85,000
3F3 2B/4P		71m <sup>2</sup>	75m <sup>2</sup>	£1,197	£84,987	£92,400	£115,000

### Mortgage Interest

(90% at 6%)

£811/month

£869/month

£547/month

£666/month



### Third Floor Flats

2F1/2F2/2F4 46m<sup>2</sup>

2F3

2F5

2F6

2F7

2F8

71m<sup>2</sup>

115m<sup>2</sup>

52m<sup>2</sup>

50m<sup>2</sup>

63m<sup>2</sup>



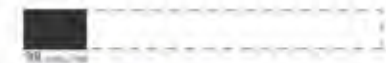
## Carrickhill Scenario Two

Student Project: Andrew O'Doherly

Density



0.69 persons/m<sup>2</sup>



Unit Cost / m<sup>2</sup> NGF

Site Cost / m<sup>2</sup> NGF



Programmatic Analysis



1.5 persons/m<sup>2</sup>



1.5 persons/m<sup>2</sup>



Total Programme Area Breakdown



Total Project Cost

Site Cost / m<sup>2</sup> NGF





## Templemore Avenue Scenario One

Student Project: Sara Mitchell

Density

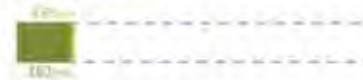


1.20 units / plot



84 units / ha

Site Cost / m<sup>2</sup> NGF  
Site Cost / m<sup>2</sup> Wf



Programmatic Analysis



0.0 car parking spaces / P



0.0 m<sup>2</sup> car surface / P



5.3 m<sup>2</sup> infrastructure / P



15.0 m<sup>2</sup> shared amenity / P



6.0 m<sup>2</sup> shared amenity / P

Total Programme Area Breakdown



Total Project Cost / m<sup>2</sup> NGF  
Site Cost / m<sup>2</sup> Wf



## Templemore Avenue Scenario Two

Student Project: Mairead Gallagher

Density



0.84 units / plot



56 units / ha

Site Cost / m<sup>2</sup> NGF  
Site Cost / m<sup>2</sup> Wf



Programmatic Analysis



0.0 car parking spaces / P



0.0 m<sup>2</sup> car surface / P



6.0 m<sup>2</sup> infrastructure / P



29.0 m<sup>2</sup> shared amenity / P



13.0 m<sup>2</sup> shared amenity / P

Total Programme Area Breakdown



Total Project Cost / m<sup>2</sup> NGF  
Site Cost / m<sup>2</sup> Wf



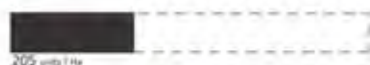
## Scenario Comparative Graphic Data



## Ormeau Avenue Scenario

Student Project: Anthony Stafford

### Density



### Site Cost / m<sup>2</sup> Site Site Cost / m<sup>2</sup> Wf



### Programmatic Analysis



### Total Programme Area Breakdown



### Total Project Cost / m<sup>2</sup> Wf / m<sup>2</sup> NGF Site Cost / m<sup>2</sup> Wf



## Carrickhill Scenario One

Student Project: Anita Quinn

### Density



### Site Cost / m<sup>2</sup> Site Site Cost / m<sup>2</sup> Wf



### Programmatic Analysis



### Total Programme Area Breakdown



### Total Project Cost / m<sup>2</sup> Wf / m<sup>2</sup> NGF Site Cost / m<sup>2</sup> Wf



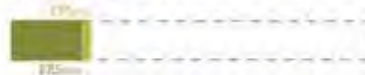
## Carrickhill Scenario Two

Student Project: Andrew O'Doherty

### Density



### Site Cost / m<sup>2</sup> Site Site Cost / m<sup>2</sup> Wf



### Programmatic Analysis



### Total Programme Area Breakdown



### Total Project Cost / m<sup>2</sup> Wf / m<sup>2</sup> NGF Site Cost / m<sup>2</sup> Wf





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## Notes





