RE-DWELL
MSCA-ITN

Case library for transdisciplinary research in affordable and sustainable housing

Deliverable 4.5

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RE-DWELL

Deliverable 4.5. Case library for transdisciplinary research in affordable and sustainable housing

Version 1

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Executive summary

The RE-DWELL case library, along with the vocabulary (Deliverable 4.4), plays a crucial role in fostering knowledge exchange among researchers within the RE-DWELL network. Both tools aim to promote interdisciplinarity by integrating diverse perspectives and knowledge from various fields, all focused on addressing the challenges of affordable and sustainable housing. Integrated on the RE-DWELL website (Deliverables 5.2-5.7), they are publicly accessible, allowing a wide range of stakeholders to benefit from their content.

Affordable and sustainable housing is a complex field that encompasses a wide range of precedents and initiatives from around the world, making it challenging for researchers to create a comprehensive overview of its geographic and temporal scope. The RE-DWELL case library addresses this issue by providing a platform for researchers to collect and share information about key cases encountered during their studies, thereby fostering collaboration and facilitating knowledge exchange among researchers, policymakers, and practitioners. In a transdisciplinary research context, the case library enables users to analyse various precedents—such as buildings, policies, and urban plans—and reflect on how these examples address the multifaceted challenges of affordable and sustainable housing.

A case is organized into sections that include a description, its alignment with RE-DWELL's interconnected research areas—Design, Planning, and Building; Community Participation; and Policy and Financing—as well as its relevance to the Sustainable Development Goals (SDGs). Additional elements include references, related vocabulary, and publications. Each case also features a relational map illustrating links between concepts, cases, and publications, allowing users to explore the website content associatively. The ARC research group at La Salle's School of Architecture developed and implemented this library as an online tool.

The contents have been introduced over the three-year duration of the network activities. By the end of the project, the library includes a total of 43 cases (see Annexes 1 and 2), distributed across four categories:

- Buildings and designs: 24
- Participatory and learning processes: 7
- Policy and financing: 11
- Urban planning and regulations: 1

The case library is an integral part of the RE-DWELL training programme, helping researchers develop essential skills in desktop research, synthesis, and communication. Creating content for the library also enables researchers to practice and refine their writing and communication abilities. Furthermore, the library serves as a learning resource in network activities designed to promote collaborative knowledge creation across disciplines, including exploring connections between cases and vocabulary entries.

Overall, the RE-DWELL case library has demonstrated its effectiveness as a tool for skill development and interdisciplinary collaboration. Its content will remain accessible online, continuing to serve as a valuable resource for future learners and supporting innovative approaches to affordable and sustainable housing from a transdisciplinary perspective..

1. Introduction

The RE-DWELL case library (Figure 1), together with the vocabulary (Deliverable 4.4), serves as one of the key tools for facilitating knowledge exchange among researchers within the network. Both tools aim to foster interdisciplinarity by integrating the diverse perspectives and knowledge of researchers from various backgrounds, all focused on addressing the challenges of affordable and sustainable housing. These two tools are integrated on the RE-DWELL website, and their contents are available to the public (see Deliverables 5.2-5.5-5.6 and 5-7).

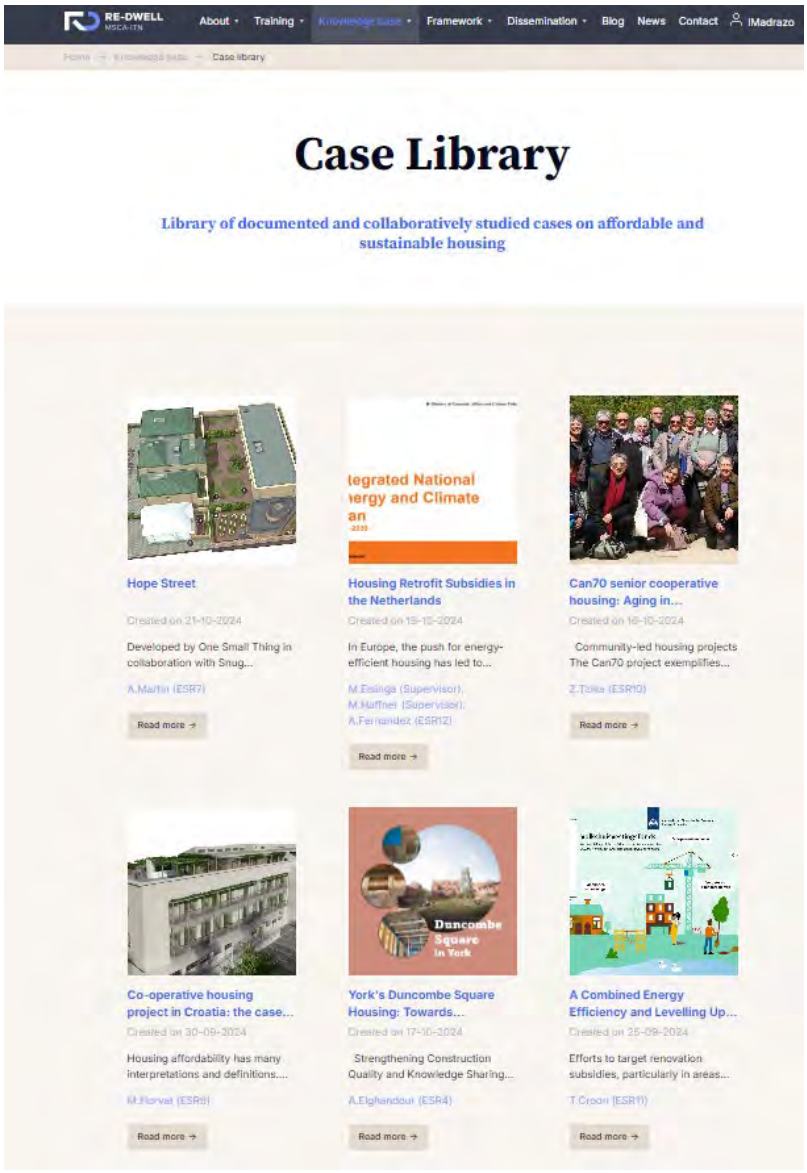


Figure 1. RE-DWELL Case library

Researchers in the field of affordable and sustainable housing, as they carry out their individual studies, must familiarize themselves with relevant precedents –housing buildings and projects, urban developments, socio-political frameworks and policies– spanning various time periods and geographic regions. These precedents can be sourced from diverse materials, including printed and online publications, as well as through personal networks and connections.

The RE-DWELL case library facilitates the collection and sharing of these precedents among researchers and third parties, creating a comprehensive repository of examples that showcase diverse approaches to affordable and sustainable housing. Beyond serving as a repository, the library functions as a dynamic resource for fostering collaboration and knowledge exchange among researchers, policymakers, and practitioners in the field. Moreover, select cases from the library have been deeply investigated in connection with a PhD research and could help lay the groundwork for a case study methodology.

2. Objectives and process

The objective of the library is not merely to describe a case, which can often be adequately detailed in the original sources. Rather, researchers are encouraged to reflect on the extent to which the selected cases address the issues considered in the three RE-DWELL intertwined research areas: Design, Planning and Building; Community Participation and Policy and Financing. Ultimately, the collective analysis helps identify patterns, challenges, and solutions essential for advancing interdisciplinary knowledge and fostering innovation in the field.

3. Implementation

The case library was implemented as an online tool integrated into the project website. It was designed and developed by the ARC research group from the coordinating team at the School of Architecture La Salle, which already had experience in developing online case libraries for housing studies conducted in previous EU projects.[1]

A mock-up of the case structure and visual layout was created in collaboration with early-stage researchers (ESRs) (Figures 2 and 3). The proposals were presented and discussed during a plenary meeting at the summer school in Nicosia, in November 2021. Following this, a final version of the case structure was produced and validated by network members, including ESRs and supervisors. Ultimately, the coordinating team created an online tool based on the discussed structure.

[1] Madrazo, L., Riddy, P., & Sicilia, Á. (2010). OIKODOMOS technological platform. In *EDULEARN10 Proceedings* (pp. 6235-6245). IATED.

Madrazo, L., Riddy, P., & Sicilia, Á. (2010). OIKODOMOS technological platform. In *EDULEARN10 Proceedings* (pp. 6235-6245). IATED

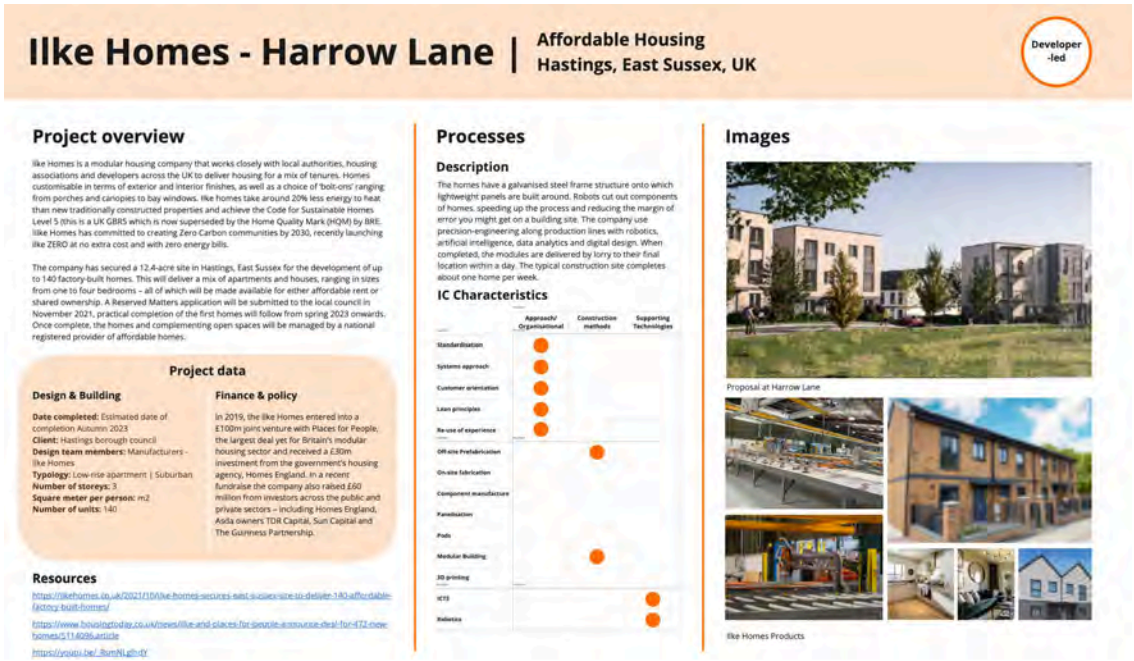


Figure 2. Mock-up of a case description, by Annette Davis

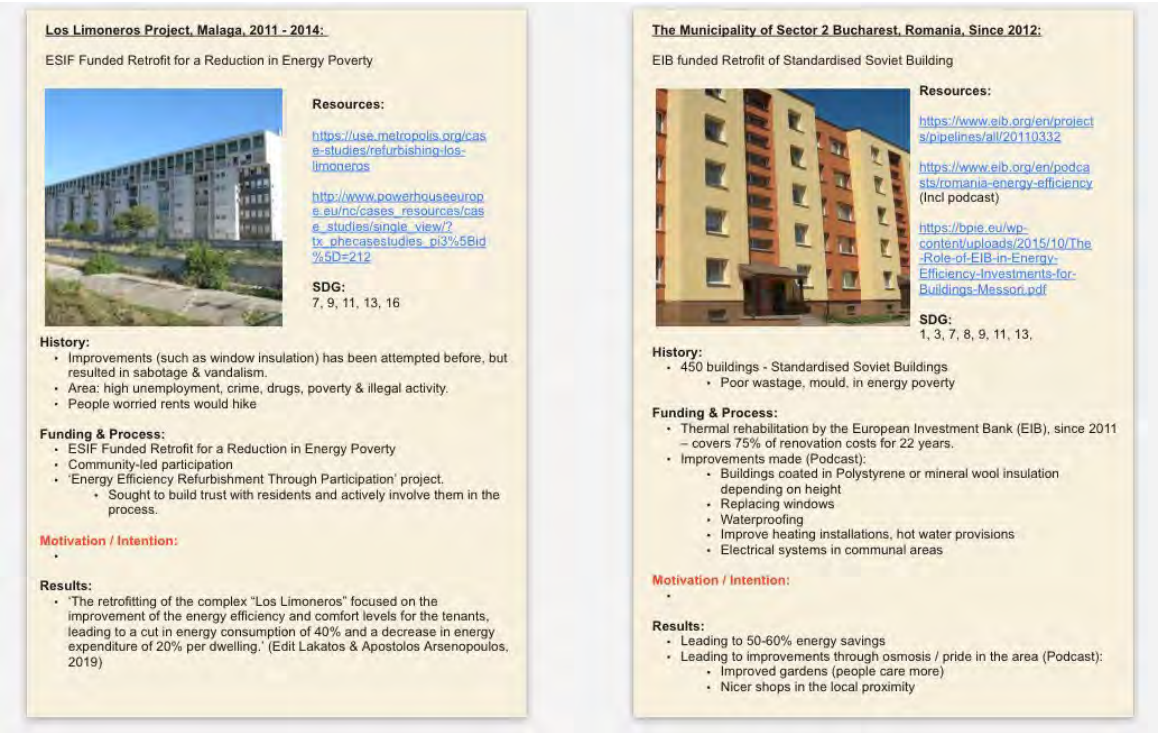


Figure 3. Mock-up of a case description, by Saskia Furman

The case library encompasses four types of cases (see Annex 4- Templates):

- Buildings and designs
- Participatory and learning processes
- Policy and financing
- Urban planning and regulations

Cases are described with a common structure, consisting of the following sections:

- Name, summary and descriptors (specific for each case category)
- Description
- Alignment with RE-DWELL research areas
- Alignment with SDGs
- References
- Related vocabulary
- Related publications
- Related blogposts

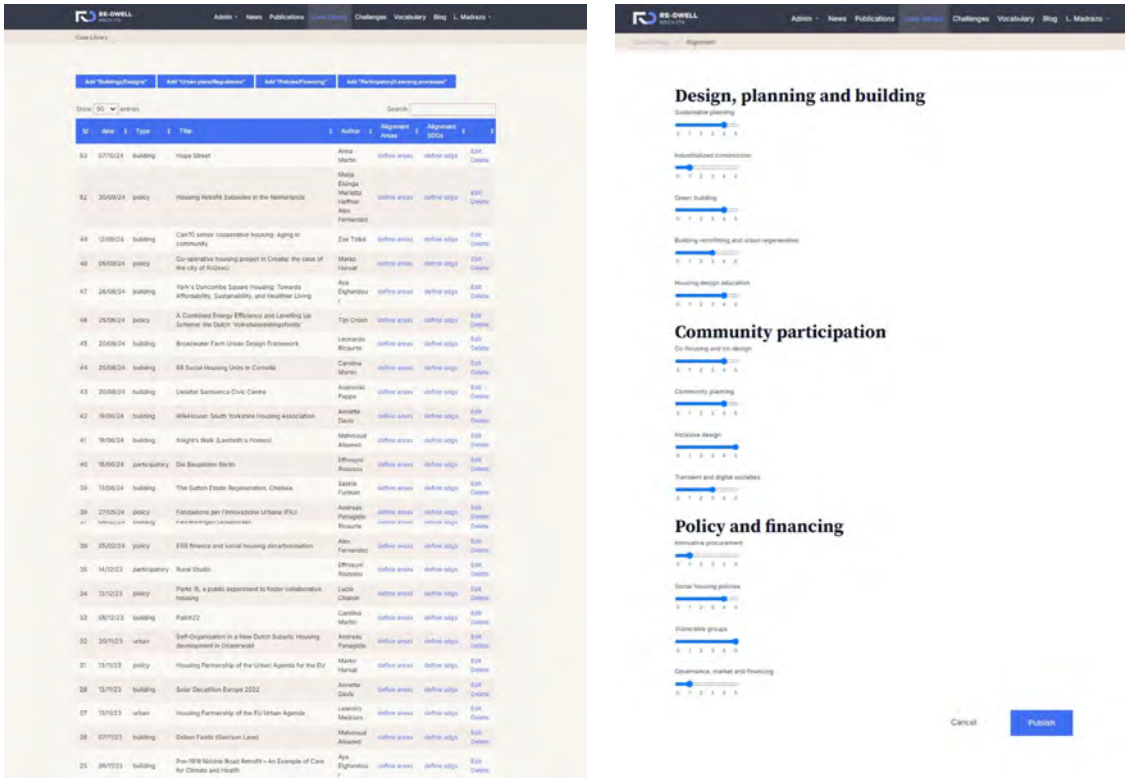


Figure 4. RE-DWELL website back office: Case library

Entries in the case library are either single-authored or collaboratively written by network members, including ESRs and supervisors. Guidelines and recommendations to describe the cases were provided to users (see Annex 3 - Guidelines).

Cases are introduced in the back office of the website (Figure 4). The information displayed on the website features a relational map that visually displays the connections between the reference term and other concepts, cases, publications, and blog posts (Figure 5). This interactive map (Figure 6) allows users to navigate through the website's content in an associative manner.

The vocabulary and case library content has been exported as an RDF dataset, including metadata that third parties can use in applications related to housing affordability and sustainability at various scales. This dataset is publicly available on Zenodo.

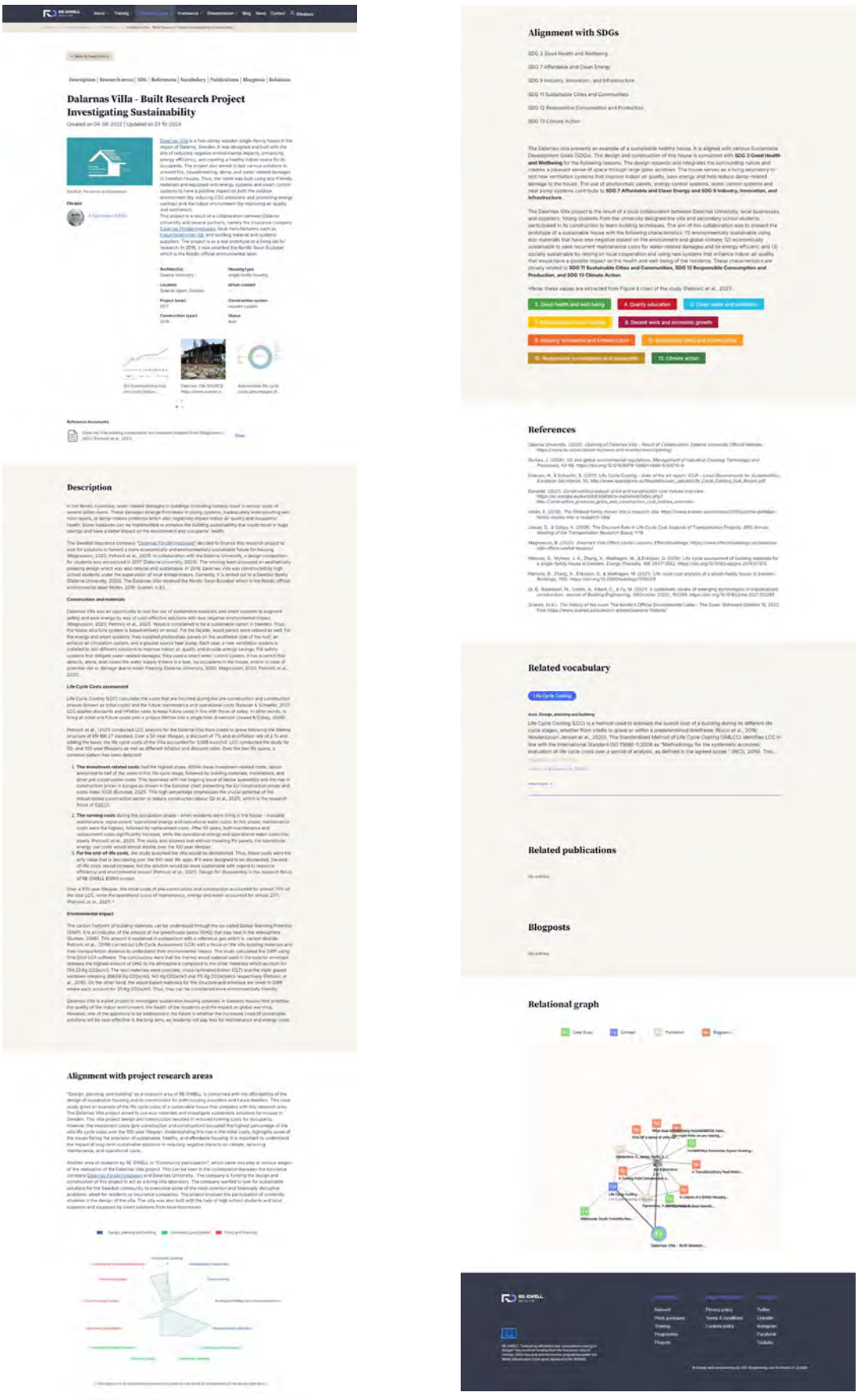


Figure 5. A case published on the library

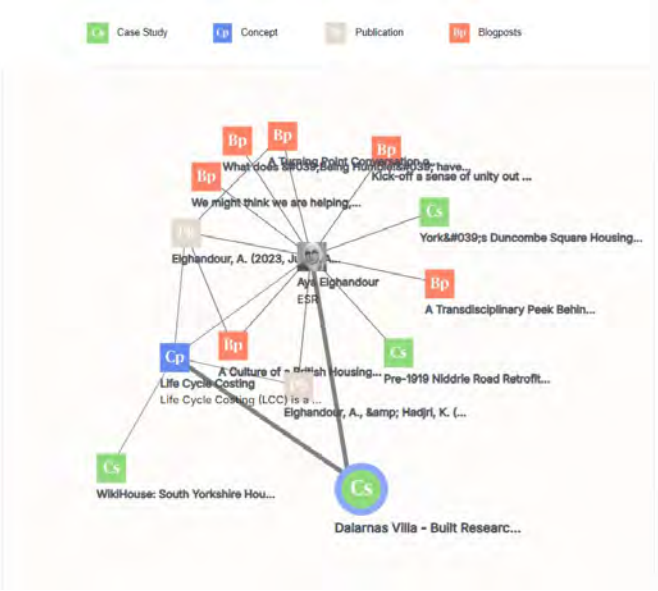


Figure 6. Visual map with a focus on the case "Dalamas Villa" displaying the links between researchers and research outputs

4. Cases

Over the three-year project duration, a total of 43 cases have been documented in the library. The distribution for types of cases is the following:

- **Buildings and designs**: 24
- **Participatory and learning processes:** 7
- **Policy and financing:** 11
- **Urban planning and regulations:** 1

This distribution reflects the predominant backgrounds of the ESRs, who primarily come from architecture and planning disciplines. All entries except one have been produced by a single author.

5. Case library as learning tool and resource

Throughout the network activities, we have used the content collectively created in the library as both a tool and resource in various training contexts, aimed at fostering collaborative creation of knowledge across fields and researchers. With this purpose, specific activities were developed to leverage the knowledge within the library and its connections to other resources, such as the vocabulary.

- Budapest workshop – March 2022

A session was included in the workshop programme in which ESRs presented to their peers a case study (Figures 7 and 8). The session contributed to contrast different ways to describe a case, and to highlight the specific value it has within the ESRs PhD research.

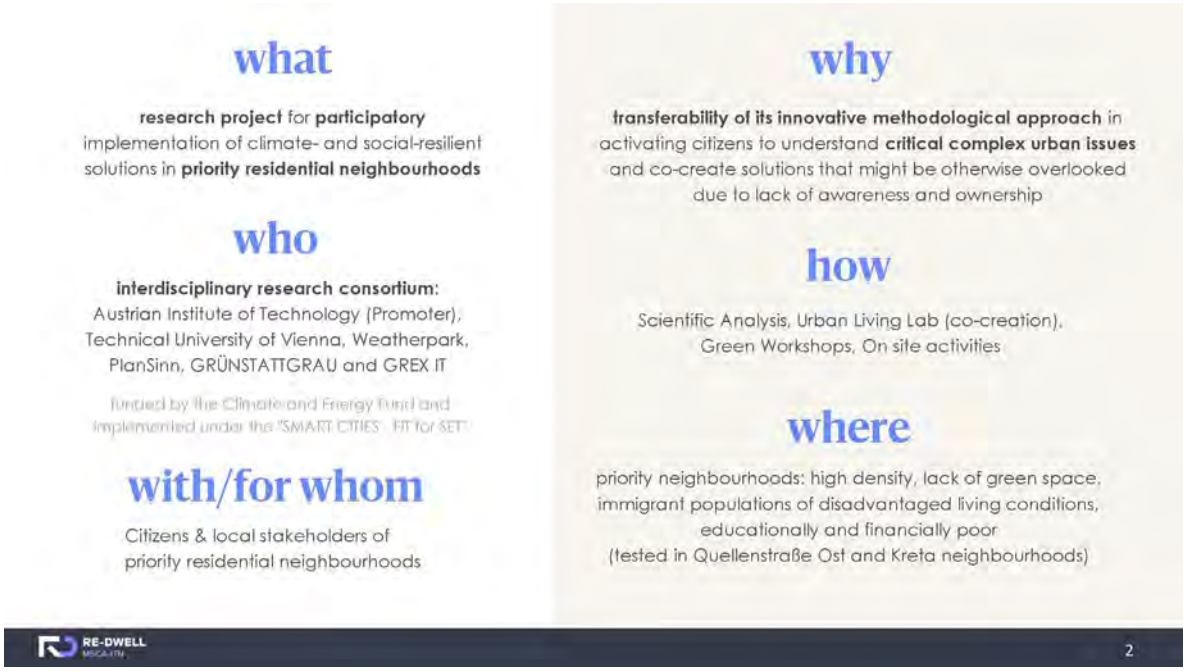


Figure 7. Presentation of the case "Lila4Green", by Androniki Pappa

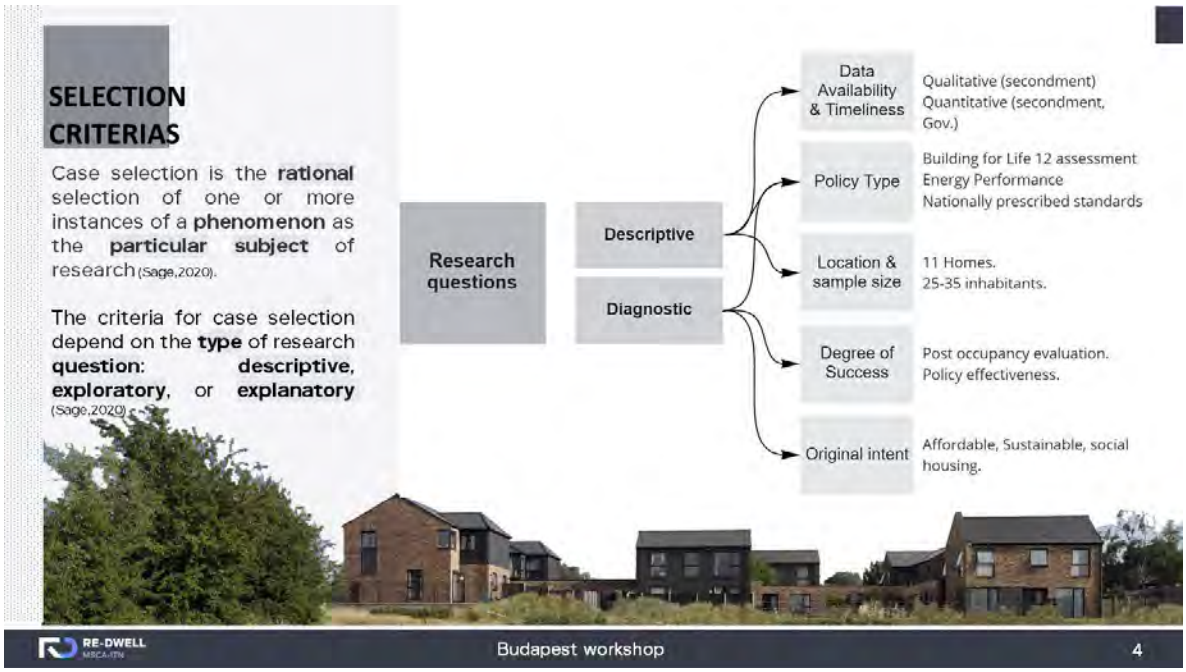


Figure 8. Presentation of the case "North Wingfield", by Mahmoud Alsaeed

- Valencia summer school – July 2022

The purpose of this in-person team activity was to discuss the links between a case study and the vocabulary entries, thus bridging the gap between abstract knowledge and real-world cases (Figure 9).

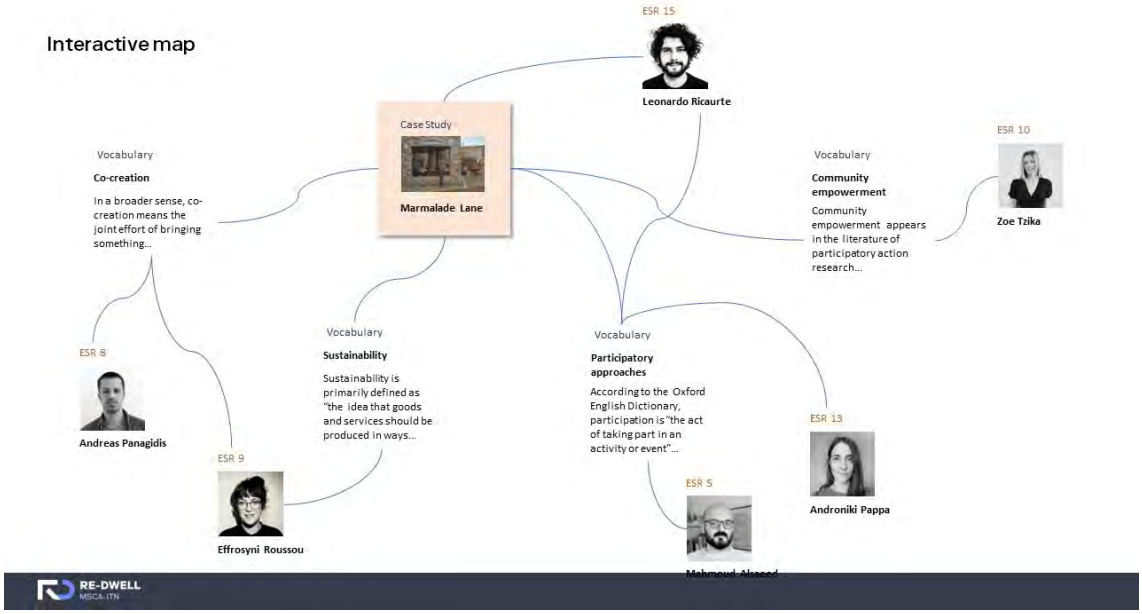


Figure 9. Team discussion focusing on the case "Marmalade Lane"

6. Competencies

The creation of entries for the case library is a key component of the RE-DWELL transdisciplinary learning and research environment. It contributes to develop some basic research skills and also serves as a practical exercise in bridging theory and practice. Researchers are first required to cultivate their ability to systematically gathering and reviewing relevant precedents across diverse fields. This enables them to integrate insights from various disciplines, a critical skill in transdisciplinary work, particularly in complex areas like affordable and sustainable housing.

Furthermore, preparing these case library entries offers researchers a valuable opportunity to refine their writing and communication skills. By contributing to a publicly accessible, structured resource, they learn to distil complex academic knowledge into clear, actionable insights. In this process, documenting and analysing cases enhances researchers' ability to communicate effectively with diverse audiences, ensuring that their work remains both relevant and impactful for society.

7. Conclusions

The case library served as an effective learning tool for developing essential research skills, such as desktop research, synthesis, and communication, within an interdisciplinary or transdisciplinary educational environment. In addition, the collaborative effort resulted in a compendium of representative precedents across multiple fields, which is a valuable resource not only for fellow researchers but also for a broader community of stakeholders, including policymakers, practitioners, and educators. By linking a case to the vocabulary, researchers are encouraged to look beyond their individual research, identifying terms that reflect the perspectives of other researchers. This collective process of knowledge construction could be further strengthened by collaboratively describing the relationships between a case and the RE-DWELL research areas, with multiple researchers involved in each case rather than just one.

The library will remain publicly accessible beyond the project's lifetime and has the potential to grow further, with new contributions from ESRs while the complete their PhD thesis as well as other interested parties. Additionally, it will remain a valuable resource for future learners and researchers, supporting the design of new learning and research activities that address affordable and sustainable housing from a transdisciplinary perspective.

Annex 1 – Case library content

Table 1 summarizes the cases available in the library, with links to the corresponding website content for further details.

Table 1. Case library content

Title	Type	Related vocabulary	Related SDGs	Authors
A Combined Energy Efficiency and Levelling Up Scheme: the Dutch 'Volkshuisvestingsfonds'	Policy	Just Transition Energy Poverty Financial Wellbeing		Tijn Croon (ESR 11)
APROP | Temporary social housing for people at risk to residential exclusion	Building	Design for Disassembly Industrialised Construction	3. Good health and well-being 7. Affordable and clean energy 9. Industry, innovation and infrastructure 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action 17. Partnerships for the goals	Annette Davis (ESR 1)
Broadwater Farm Urban Design Framework	Building	Housing Retrofit Participatory Approaches Energy Retrofit Community Empowerment Social Housing Building Decarbonisation Placemaking Social Value Collaborative Planning Framework	1. No poverty 3. Good health and well-being 5. Gender equality 7. Affordable and clean energy 11. Sustainable cities and communities 13. Climate action 17. Partnerships for the goals	Leonardo Ricaurte (ESR 15)
Can70 senior cooperative housing: Aging in community	Building	Community-led Housing Financial Wellbeing	3. Good health and well-being 10. Reduce inequalities 11. Sustainable cities and communities	Zoe Tzika (ESR 10)

Title	Type	Related vocabulary	Related SDGs	Authors
		Grant-of-use cooperative housing	13. Climate action 17. Partnerships for the goals	
Cooperative housing project in Croatia: the case of the city of Križevci	Policy	Community Empowerment Community-led Housing Social Value	1. No poverty 11. Sustainable cities and communities	Marko Horvat (ESR 6)
Dalarnas Villa - Built Research Project Investigating Sustainability	Building	Life Cycle Costing	3. Good health and well-being 4. Quality education 6. Clean water and sanitation 7. Affordable and clean energy 8. Decent work and economic growth 9. Industry, innovation and infrastructure 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action	Aya Elghandour (ESR 4)
DARE to Build, Chalmers University of Technology	Participatory	Co-creation Participatory Approaches Community Empowerment Social Sustainability Sustainability Spatial Agency	4. Quality education 5. Gender equality 10. Reduce inequalities 11. Sustainable cities and communities 13. Climate action	Effrosyni Roussou (ESR 9)
Deben Fields (Garrison Lane)	Building	Sustainability Sustainability Built Environment Post-occupancy Evaluation Building Decarbonisation Environmentally	3. Good health and well-being 7. Affordable and clean energy 11. Sustainable cities and communities	Mahmoud Alsaeed (ESR 5)

Title	Type	Related vocabulary	Related SDGs	Authors
		Sustainable Social Housing		
Diagoon Houses	Building	Co-creation Community Empowerment Affordability Social Sustainability Industrialised Construction Flexibility	9. Industry, innovation and infrastructure 10. Reduce inequalities 11. Sustainable cities and communities 12. Responsible consumption and production	Carolina Martín (ESR 14)
Die Baupiloten Berlin	Participatory	Co-creation Participatory Approaches Placemaking Spatial Agency Design Activism	4. Quality education 10. Reduce inequalities 11. Sustainable cities and communities	Effrosyni Roussou (ESR 9)
85 Social Housing Units in Cornellà	Building	Social Housing Design for Disassembly Building Decarbonisation Industrialised Construction Spatial Agency	1. No poverty 3. Good health and well-being 7. Affordable and clean energy 9. Industry, innovation and infrastructure 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action	Carolina Martín (ESR 14)
ESG finance and social housing decarbonisation	Policy	Housing Governance Housing Regime Just Transition Sustainability Sustainability Built Environment Housing Policy Social Housing Housing Affordability		Alex Fernandez (ESR 12)

Title	Type	Related vocabulary	Related SDGs	Authors
		Measuring Housing Affordability Building Decarbonisation Framework		
Flexwoningen Oosterdreef	Building	Social Sustainability Design for Disassembly Industrialised Construction Flexibility	1. No poverty 3. Good health and well-being 5. Gender equality 7. Affordable and clean energy 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action	Leonardo Ricaurte (ESR 15)
Fondazione per l'Innovazione Urbana (FIU)	Policy	Collaborative Governance	11. Sustainable cities and communities 13. Climate action 17. Partnerships for the goals	Andreas Panagidis (ESR 8)
Hope Street	Building	Trauma Informed Design	1. No poverty 3. Good health and well-being 4. Quality education 5. Gender equality 10. Reduce inequalities 11. Sustainable cities and communities 13. Climate action	Anna Martin (ESR 7)
HOUSEFUL: Els Mestres, Sabadell	Building	Housing Retrofit Energy Retrofit Sustainability Social Housing		Saskia Furman (ESR 2)
Housing Fund of the Republic of Slovenia	Policy	Housing Governance	1. No poverty 7. Affordable and clean energy 11. Sustainable cities and communities	Marko Horvat (ESR 6)
Housing Partnership of the Urban Agenda for the EU	Policy		11. Sustainable cities and communities	Marko Horvat (ESR 6)

Title	Type	Related vocabulary	Related SDGs	Authors
Housing Retrofit Subsidies in the Netherlands	Policy	Housing Retrofit Affordability Housing Policy Financial Wellbeing Green Land Value Tax Viability		Marja Elsinga (supervisor) Marietta Haffner (supervisor) Alex Fernandez (ESR 12)
Knight's Walk (Lambeth's Homes)	Building	Affordability Sustainability Built Environment Indoor Thermal Comfort Building Decarbonisation Environmentally Sustainable Social Housing	3. Good health and well-being 7. Affordable and clean energy 11. Sustainable cities and communities	Mahmoud Alsaeed (ESR 5)
La Borda	Building	Co-creation Participatory Approaches Community Empowerment Affordability Social Sustainability Community-led Housing Spatial Agency Flexibility Financial Wellbeing Grant-of-use cooperative housing	3. Good health and well-being 5. Gender equality 7. Affordable and clean energy 10. Reduce inequalities 11. Sustainable cities and communities 12. Responsible consumption and production 16. Peace, justice and strong institutions	Zoe Tzika (ESR 10)
LiLa4Green	Participatory	Participatory Approaches	1. No poverty 3. Good health and well-being	Androniki Pappa (ESR 13)

Title	Type	Related vocabulary	Related SDGs	Authors
		Community Empowerment Social Sustainability Placemaking	4. Quality education 6. Clean water and sanitation 7. Affordable and clean energy 8. Decent work and economic growth 9. Industry, innovation and infrastructure 10. Reduce inequalities 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action 16. Peace, justice and strong institutions 17. Partnerships for the goals	
LILAC_Low Impact Living Affordable Community_Leeds	Building	Social Housing Housing Affordability	1. No poverty 2. Zero hunger 3. Good health and well-being 6. Clean water and sanitation 7. Affordable and clean energy 9. Industry, innovation and infrastructure 11. Sustainable cities and communities 12. Responsible consumption and production	Saskia Furman (ESR 2)
Lleialtat Santsenca Civic Centre	Building	Social Sustainability Urban Commons Collaborative Governance		Androniki Pappa (ESR 13)
Marmalade Lane	Building	Co-creation Participatory Approaches Community Empowerment Sustainability Social Value Flexibility	1. No poverty 2. Zero hunger 3. Good health and well-being 7. Affordable and clean energy 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action	Leonardo Ricaurte (ESR 15)
Mason Place Apartments	Building	Social Sustainability	1. No poverty 3. Good health and well-being	Anna Martin (ESR 7)

Title	Type	Related vocabulary	Related SDGs	Authors
		Social Housing Housing Affordability	4. Quality education 6. Clean water and sanitation 8. Decent work and economic growth 10. Reduce inequalities 11. Sustainable cities and communities 13. Climate action	
Mehr als wohnen – More than housing	Participatory	Community Empowerment Urban Commons Community-led Housing		Zoe Tzika (ESR 10)
Mortgage subsidisation policies in Croatia	Policy			Alex Fernandez (ESR 12)
Navarinou Park	Participatory	Co-creation Participatory Approaches Community Empowerment Social Sustainability Urban Commons Placemaking Spatial Agency Direct Action		Androniki Pappa (ESR 13)
North Wingfield Road social housing complex.	Building	Sustainability Built Environment Social Housing Building Decarbonisation	3. Good health and well-being 7. Affordable and clean energy 11. Sustainable cities and communities 13. Climate action	Mahmoud Alsaeed (ESR 5)
Participatory Planning: Re-examining Community Consultation as a process that integrates the Urban Room method with a digital mapping tool	Participatory	Spatial Agency	10. Reduce inequalities 11. Sustainable cities and communities	Andreas Panagidis (ESR 8)

Title	Type	Related vocabulary	Related SDGs	Authors
Patch22	Building	Co-creation Sustainability Built Environment Design for Disassembly Industrialised Construction Open Building Flexibility	7. Affordable and clean energy 9. Industry, innovation and infrastructure 11. Sustainable cities and communities 12. Responsible consumption and production 17. Partnerships for the goals	Carolina Martín (ESR 14)
Porto 15, a public experiment to foster collaborative housing	Policy		1. No poverty 3. Good health and well-being 5. Gender equality 9. Industry, innovation and infrastructure 11. Sustainable cities and communities 12. Responsible consumption and production 17. Partnerships for the goals	Lucia Chaloin (ESR 3)
Pre-1919 Niddrie Road Retrofit – An Example of Care for Climate and Health	Building	Housing Retrofit Energy Retrofit Energy Poverty Financial Wellbeing	3. Good health and well-being 7. Affordable and clean energy 9. Industry, innovation and infrastructure 10. Reduce inequalities 11. Sustainable cities and communities 13. Climate action 17. Partnerships for the goals	Aya Elghandour (ESR 4)
Rural Studio	Participatory	Community Empowerment Social Sustainability Sustainability Housing Affordability	4. Quality education 8. Decent work and economic growth 10. Reduce inequalities 11. Sustainable cities and communities	Effrosyni Roussou (ESR 9)
Self-Organisation in a New Dutch Suburb: Housing development in Oosterwold	Urban	Collaborative Governance	3. Good health and well-being 7. Affordable and clean energy 11. Sustainable cities and communities	Andreas Panagidis (ESR 8)

Title	Type	Related vocabulary	Related SDGs	Authors
Solar Decathlon Europe 2022	Building	BIM Design for Disassembly Industrialised Construction	7. Affordable and clean energy 11. Sustainable cities and communities 13. Climate action	Annette Davis (ESR 1)
Targeting and Policy Efficiency: Exploring the Intended Reform of the Warm Home Discount	Policy	Just Transition	1. No poverty 2. Zero hunger 3. Good health and well-being 7. Affordable and clean energy 10. Reduce inequalities 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action	Tijn Croon (ESR 11)
The Elwood Project, Vancouver, Washington	Building	Community Empowerment Affordability Social Sustainability	1. No poverty 3. Good health and well-being 4. Quality education 6. Clean water and sanitation 7. Affordable and clean energy 8. Decent work and economic growth 10. Reduce inequalities 11. Sustainable cities and communities 13. Climate action	Anna Martin (ESR 7)
The Social Climate Fund: Materialising Just Transition Principles?	Policy	Just Transition Housing Affordability	1. No poverty 3. Good health and well-being 7. Affordable and clean energy 10. Reduce inequalities 11. Sustainable cities and communities 17. Partnerships for the goals	Tijn Croon (ESR 11)
The Sutton Estate Regeneration, Chelsea	Building	Housing Retrofit Energy Retrofit	3. Good health and well-being 7. Affordable and clean energy 11. Sustainable cities and communities 12. Responsible consumption and production	Saskia Furman (ESR 2)

Title	Type	Related vocabulary	Related SDGs	Authors
WikiHouse: South Yorkshire Housing Association	Building	Life Cycle Costing Housing Affordability Design for Disassembly Industrialised Construction Circular Economy Life Cycle Assessment (LCA)	3. Good health and well-being 7. Affordable and clean energy 9. Industry, innovation and infrastructure 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action	Annette Davis (ESR 1)
York's Duncombe Square Housing: Towards Affordability, Sustainability, and Healthier Living	Building	Participatory Approaches Social Sustainability Sustainability Housing Affordability Measuring Housing Affordability Financial Wellbeing	3. Good health and well-being 4. Quality education 7. Affordable and clean energy 9. Industry, innovation and infrastructure 10. Reduce inequalities 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action	Aya Elghandour (ESR 4)

Annex 2 – Cases

This Annex provides a brief overview of the cases included in the library, with links to the corresponding website content for further details.

A combined energy efficiency and levelling up scheme: the Dutch 'Volkshuisvestingsfonds'

Instrument
Subsidy fund

Issued (year)
2021

Application period (years)
2021-2024

Scope
Country

Target group
Deprived neighbourhoods

Housing tenure
Private rental sector (primarily)

Discipline
Public policy

Object of study
Instrument

The Dutch 'Volkshuisvestingsfonds' (VHF) aims to address both energy efficiency and socio-economic disparities by targeting renovation subsidies to neighbourhoods with substandard housing and socio-economic deprivation. Initiated in 2021 by the Dutch Ministry of the Interior and Kingdom Relations (BZK), the VHF seeks to prevent the decline of disadvantaged neighbourhoods by supporting the retrofitting and upgrading of existing housing stock, as well as the improvement of public spaces. The fund prioritises municipalities with urban renewal areas and regions with population decline. Despite its innovative design, the VHF faces implementation challenges such as high administrative burdens on municipalities, the need for sustained financial resources, and complexities in measuring long-term impacts. Moreover, stakeholder engagement, particularly involving private landlords, and compliance with EU state-aid legislation present additional hurdles. Addressing these issues is crucial for the VHF to achieve its dual objectives of enhancing energy efficiency and socio-economic upliftment.

Related vocabulary
Energy Poverty, Financial Wellbeing, Just Transition

Alignment with project research areas
The Volkshuisvestingsfonds aligns with my research project by addressing the tensions between housing affordability and sustainability. By supporting municipalities with substandard housing and socio-economic deprivation, and allocating resources based on these conditions' severity, the fund tries to ensure that aid reaches the areas that are most in need. Notably, the fund takes a distinctively Dutch approach, targeting improvements at the neighbourhood level rather than individual households, which enhances overall liveability. Moreover, the fund's focus on effective resource utilisation aligns with my project's goal of enhancing policy impact and public accountability. Its innovative, data-driven monitoring system is commendable, though the high administrative burden requires critical assessment as it diverts valuable resources needed for achieving a just transition towards sustainable housing. This interplay has been central to my recent work on energy poverty and just transition governance, emphasising the importance of recognitional justice and effective multilevel governance frameworks in addressing energy poverty across Europe.

APROP | Temporary social housing for people at risk to residential exclusion

Architect(s)
Straddle3, Eulia Arkitektura, and Yaiza Terré

Location
Barcelona, Spain

Project (year)
2017-2019

Construction (year)
2019

Housing type
multifamily housing

Urban context
City centre

Construction system
Industrialised Construction and prefabricated unit modules

Status
Built

The APROP project in Barcelona appropriates used shipping containers, transforming the lightweight steel structures through off-site construction into temporary social housing units. The project won the New European Bauhaus award 2021 within the “Modular, adaptable and mobile living solutions” category, having successfully demonstrated excellence in sustainability, social impact and design.

APROP Ciutat Vella, situated in the city centre, is the first pilot project by the Municipal Housing Institute of Barcelona (IMHAB), which embraces Industrialised Construction to provide more affordable and sustainable housing that is faster to build. The APROP programme provides low-income households facing eviction with temporary social housing as an intermediate solution that can be accessed through an official register, before applying for permanent social housing (Ajuntament de Barcelona, 2019a). The pilot project is a mid-rise apartment block providing 12 dwellings built from 16 upcycled shipping containers, which were pieced together in just four months on site. There are two types of units: four 60m2 two-bedroom homes and eight 30m2 one-bedroom homes, whilst the ground floor houses a healthcare centre. The units are designed to be disassembled with the intention to occupy sites for a maximum period of 5 years, according to the municipality (Ajuntament de Barcelona, n.d.).

From a methodological perspective the APROP programme is a form of “tactical housing” that serves people at risk of gentrification. This is achieved through the agile modules that can be quickly installed within infill sites in various urban contexts, such as vacant land and existing rooftops, close to the applicant’s neighbourhood of origin. Following the success of the Ciutat Vella pilot project, IMHAB has committed to expanding the APROP programme and have already identified several new sites to build additional APROP apartments and this year completed the second project in the Poblenou neighbourhood.

Related vocabulary
Design for Disassembly, Industrialised Construction

Alignment with project research areas
The interdisciplinary collaboration of stakeholders in the design, community participation, and policy and finance aspects of the programme have been crucial to the successful delivery of the Ciutat Vella pilot project. As the project is ultimately a top-down solution to emergency housing, the project most relates to Design, planning and building and Policy and financing rather than Community participation.

Design, planning and building (Highly related)
The APROP construction system is based on standardised and transportable modules that become more resource efficient through the upcycling of shipping containers, which are also dismountable to enable material reuse and relocation. The design methodology facilitates a city-wide strategy for resource efficiency - a concept known as the urban mine – where the transportable modules are treated as a bank of resources to be managed. High energy efficiency is achieved through passive design strategies and the double-skin façade.

Community participation (Minimally related)
The APROP project is a top-down solution to provide emergency housing, which did not include the direct involvement of future residents. Despite this, the project demonstrated inclusivity with a five-day free exhibition about the project prior to its construction in 2018, which was promoted in collaboration with architecture cooperative Lacol (2018). The public exhibition included a full-scale one-bedroom and two-bedroom unit which were showcased in an outdoor space, complimenting a film screening and talks about the design and aspirations of the project.

Policy and financing (Highly related)
The APROP initiative has been developed through close communication amongst various social agents such as the Federation of Neighbourhood Associations of Barcelona (FAVB), the Technological Institute of Construction of Catalonia (ITeC), and Hàbitat3 Foundation, and has been monitored by the Social Housing Council of Barcelona (CHSB) and the Energy Agency of Barcelona. The APROP programme is currently being expanded by IMHAB and a deal with the European Investment Bank (EIB) is set to provide funding for the construction of eleven additional social housing blocks around the city, providing 489 homes. According to council this project has a budget of €36.2 million, which may be extended up to €65 million (Ajuntament de Barcelona, 2021).

Broadwater Farm urban design framework

Architect(s)
Karakusevic Carson Architects

Location
London, United Kingdom

Project (year)
2024 (ongoing)

Construction (year)
1970s

Housing type
Multifamily housing

Urban context
housing estate

Construction system
Industrialised construction

Status
Unbuilt

The Broadwater Farm Estate provides an illustrative example of the ambitious, council-led, large-scale housing production that characterised the post-war years in Britain. This massive high-density modernist housing project in Tottenham, north London, originated from the Borough of Haringey during a period when local councils led extensive housing production initiatives. As is the case with numerous council estates built during this era, the history of Broadwater Farm Estate has been marked by the fluctuations of housing policies, social struggles, and resistance. Some five decades later, and following a series of remedial redevelopment programmes, the estate is on the brink of its most ambitious and comprehensive regeneration project to date.

The design brief, created through active collaboration between architects, residents, the wider community, and the council, seeks to reconcile the concerns and needs of the existing community with the planning for the estate's future. The proposal entails an increase in densities through the addition of new blocks to replace structurally unsafe ones, the creation of new public spaces, and the refurbishment of existing blocks. The comprehensive regeneration plan, set forth in the Urban Design Framework (UDF), respects the estate's long history by refurbishing and retrofitting wherever feasible, addresses current housing needs with new blocks and infill homes, and revamps the overall appearance of an estate that is home to a resilient community of almost 5,000 residents and represents an emblematic piece of residential architecture in London. This case study outlines the development process and key features of a document that, if materialised, could serve as a blueprint and reference for future social housing regeneration efforts in the UK and Europe.

Related vocabulary

Building Decarbonisation, Collaborative Planning, Community Empowerment, Energy Retrofit, Housing Retrofit, Participatory Approaches, Placemaking, Social Housing, Social Value

Alignment with project research areas

Design, planning and building (Highly related)

The human factor is the focal point of the overall design strategy. New and existing facilities will be within a 15-minute walk distance of all homes. Walking, cycling or the use of public transport will be encouraged through nature-based interventions and improved infrastructure. These measures not only aim to improve the health and well-being of residents, but also have an impact on the environment.

A wide range of flats with different sizes and target groups will be created. They will be equipped with passive measures to ensure adequate insulation and energy performance.

All new homes built as part of the project will remain in the hands of the council, ensuring their social purpose.

Community participation (Highly related)

Community participation has been extensive. The work carried out with the local community has enabled architects to come up with a holistic design strategy. Workshops, co-design events and involvement activities have been conducted involving hard-to-reach communities. The resulting community brief informed the UDF.

The online platform set up by the local council in collaboration with an expert third party ensures that the regeneration process is transparent and that all stakeholders are involved. Residents can find out about the project and follow its development both in person and online.

Local community groups were also involved in the process and even new collectives were formed as a result of the engagement activities. The “Lost Blocks Collective”, for example, is a newly formed group that is now producing a podcast series to share their personal stories and create a new and alternative narrative for life on the estate and in the neighbourhood. All of these groups and residents are expected to be active users of the new community facilities and spaces that are to be built and to play a role in their management.

Policy and financing (Moderately related)

In order to attain a cost-effective regeneration project without resorting to extensive redevelopment and disruption of the existing community – a common outcome when private sales are the mechanism used to fund the development of social housing – the council and planners opted for a substantial retrofit of the majority of the estate.

Can70 senior cooperative housing: aging in community

Architect(s)
Peris+Torral

Location
Barcelona, Spain

Project (year)
2018-ongoing

Construction (year)
2024-2026

Housing type
Senior co-housing

Urban context
urban context

Construction system
Compressed earth blocks

Status
Unbuilt

Can70 is the first senior co-housing project in the city of Barcelona, and the first to be constructed on public land in Spain, under the grant-of-use regime. It forms part of the umbrella cooperative, or cooperative of projects, Sostre Civic. Can70 pioneers a new way of living in the third age, where mutual support and collective living empower its members to take an active role in shaping their future. The project also reflects a public-community partnership, with the city council providing public land, reinforcing the project's non-speculative and community-driven approach. The initiative began in 2015 when a group of friends started discussing their options as they grew older. It took many years for the group to solidify their project, develop their vision, navigate challenges, such as securing public support, finding land and financing, and building a strong community. In 2021, they achieved a milestone by securing a 99-year lease on a public plot from the city council, with construction set to begin soon.

The project introduces several innovations in housing provision, design, management, and community-building. From the very beginning, the residents have been fully involved in making decisions, collaborating closely with architects and other experts. Their model emphasizes mutual support at the core of daily life, with a careful balance between communal and private spaces. The project also includes spaces for public use, further strengthening ties with the wider neighbourhood. Can70 aims not only to create a strong, supportive community but also to serve as a replicable model for future senior co-housing projects.

Related vocabulary

Community-led Housing, Financial Wellbeing

Alignment with project research areas

The Can70 project intersects with the three research areas outlined in the RE-DWELL program in the domains of design, planning, building, community participation, and policy and financing:

Design, Planning, and Building

Can70 exemplifies sustainable planning by integrating environmental, social, and economic dimensions into its housing design. The project's emphasis on community involvement ensures that sustainability considerations are addressed at various scales, from the building to the neighbourhood level. It incorporates methods and tools to support environmental sustainability in its design, planning, and operation. Choices such as using compressed earth blocks and shared resources enhance the building's sustainability while promoting community engagement.

Community Participation

Can70 represents a community-led housing project with a very high degree of participation from its members. From its initiation to the construction phase, the group has been actively engaged, fostering a robust community, and collaboratively achieving their housing objectives. Can70 embodies collaborative principles by fostering sustainable dwellings through co-creation and resident participation.

Policy and Financing

Can70 explores policy innovations and regulatory instruments to support community-led social housing for older populations, such as the grant-of-use cooperative housing model. The project demonstrates a sustainable approach to housing provision by leveraging public-community partnerships and innovative procurement strategies. Can70 contributes to the discourse on social housing policies by advocating for collective infrastructures managed by the residents. The project's engagement with local governance frameworks highlights the importance of policy interventions and access to public land in promoting sustainable and inclusive housing solutions.

Cooperative housing project in Croatia: the case of the city of Križevci

Instrument
regulation, incentive

Issued (year)
2021

Application period (years)
2021-2023

Scope
local

Target group
young, first-time buyers, elderly

Housing tenure
co-operative housing

Discipline
economics, fiscal policy

Object of study

Housing affordability is interpreted and measured in different ways, with the EU generally using the relationship between price and income as the main indicator. The affordability of housing is influenced by local housing prices, income levels and interest rates. In Croatia, housing affordability problems exist in both urban and rural areas due to low incomes and high energy inefficiency of houses, particularly for homeowners in the rural areas. Low interest rates have boosted investment in property, driving up prices and contributing to market speculation, especially in tourist areas. The financialization of housing and foreign investment further exacerbate the affordability problem. To overcome these challenges, collaborative housing models, including co-housing and co-operatives, offer potential solutions. These models emphasise user participation, mutual respect and solidarity, often financed through crowdfunding. Housing cooperatives, where members share ownership and control, prevent market speculation and maintain long-term affordability. Croatia is testing this approach through pilot projects, such as in Križevci, which aims to create a framework for cooperative housing. The project involves the conversion of a former military facility into cooperative housing and is supported by the local government and various organisations. This initiative underlines the potential of cooperative housing to provide sustainable, community-oriented solutions to Croatia's overheated housing market.

Related vocabulary

Community Empowerment, Community-led Housing, Social Value

Alignment with project research areas

This pilot project addresses the three research areas of the RE-DWELL project as described below.

Design, planning and building

The pilot project contributes significantly to several areas of design, planning, and construction, including industrial construction, building retrofitting, and urban regeneration. Regarding industrial construction, the project emphasizes the use of natural and local materials in the construction and renovation of the designated building. For building renovation and urban regeneration, the project focuses on enhancing energy efficiency through deep renovation and implementing energy-efficient technologies such as photovoltaic systems for electricity generation.

Furthermore, the pilot project includes educational activities aimed at potential future members to educate them about the responsibilities within a housing co-operative, expected behaviours, and methods to ensure the sustainable operation of the co-operative.

Community participation

Community participation is essential in cooperative housing projects because it fosters a sense of ownership and commitment among residents, leading to long-term engagement and support. By involving community members in the planning and decision-making processes, these projects can tailor solutions that meet specific needs and preferences, enhancing design functionality and liveability. Active participation also promotes social cohesion by fostering relationships and networking opportunities among residents. Moreover, community input ensures sustainability by encouraging better management practices and maintenance efforts, while promoting democratic governance through transparent decision-making processes. Ultimately, community participation not only shapes the development to reflect the desires of its members but also strengthens the co-operative's foundation for a thriving and cohesive community environment.

Policy and financing

This pilot project is proving to be highly significant for assessing the potential of alternative housing forms in the Croatian housing market. It demonstrates that citizens in smaller cities are interested in establishing a housing co-operative, indicating potential interest in larger cities as well. Currently, affordable housing, including cooperative housing, is a neglected policy area, lacking a supportive legal framework for those interested in these initiatives. The challenges withing the current legal framework include the regulation of housing co-operatives and the institutionalisation of such a relationship, as well as the lack of long-term loan options available in the Croatian financial market. The most viable solution appears to be the establishment of an intermediary organisation capable of professionally managing all critical aspects from financing to project execution.

Dalarnas Villa - Built Research Project Investigating Sustainability

Architect(s)
Dalarna University

Location
Dalarna region, Sweden

Project (year)
2017

Construction (year)
2019

Housing type
single-family housing

Urban context
-

Construction system
wooden system

Status
Built

Dalarnas Villa is a two-storey wooden single-family house in the region of Dalarna, Sweden. It was designed and built with the aim of reducing negative environmental impacts, enhancing energy efficiency, and creating a healthy indoor space for its occupants. The project also aimed to test various solutions to prevent fire, housebreaking, damp, and water-related damages in Swedish houses. Thus, the home was built using eco-friendly materials and equipped with energy systems and smart control systems to have a positive impact on both the outdoor environment (by reducing CO2 emissions and promoting energy savings) and the indoor environment (by improving air quality and ventilation).

This project is a result of a collaboration between Dalarna University and several partners, namely the insurance company Dalarnas Försäkringsbolag, local manufacturers such as Fiskarhedenvillan AB, and building material and systems suppliers. The project is as a test prototype or a living lab for research. In 2019, it was awarded the Nordic Swan Ecolabel which is the Nordic official environmental label.

Related vocabulary
Life Cycle Costing

Alignment with project research areas
“Design, planning, and building” as a research area of RE-DWELL is concerned with the affordability of the design of sustainable housing and its construction for both housing providers and future dwellers. This case study gives an example of the life cycle costs of a sustainable house that corelates with this research area. The Dalarnas Villa project aimed to use eco-materials and investigate sustainable solutions for houses in Sweden. This villa project design and construction resulted in reduced running costs for occupants, however, the investment costs (pre-construction and construction) occupied the highest percentage of the villa life cycle costs over the 100-year lifespan. Understanding this rise in the initial costs, highlights some of the issues facing the provision of sustainable, healthy, and affordable housing. It is important to understand the impact of long-term sustainable solutions in reducing negative impacts on climate, recurring maintenance, and operational costs.

Another area of research by RE-DWELL is “Community participation”, which came into play at various stages of the realisation of the Dalarnas Villa project. This can be seen in the collaboration between the insurance company Dalarnas Försäkringsbolag and Dalarnas University. The company is funding the design and construction of this project to act as a living villa laboratory. The company wanted to look for sustainable solutions for the Swedish community to overcome some of the most common and financially disruptive problems, albeit for residents or insurance companies. The project involved the participation of university students in the design of the villa. The villa was also built with the help of high school students and local suppliers and equipped by smart solutions from local businesses.

DARE to Build, Chalmers University of Technology

Initiating entity
Chalmers University of Technology

Objectives
Reconcile the disparity between monodisciplinary education and multi-disciplinary practice, while at the same time creating impact and outreach in local communities

Educational/participatory methods
Problem-and-project-based learning (PPBL), design & build, CDIO (conceive, design, implement, operate)

Context
Million home programme (Miljonprogrammet) areas in Gothenburg

Place
neighbourhood-level interventions, Gothenburg, Sweden

Period
2018 –

Duration
5 weeks, fulltime (7,5 ECTS)

Stakeholders
Municipality of Gothenburg, local housing companies, local community

Object of study
Live Project Neihbourhood

“DARE to build” is an elective summer course developed at Chalmers University of Technology, in Gothenburg, Sweden, that aims to enhance the collaboration between engineers and architects, while at the same time create impact and outreach in local communities. The overall vision of the course revolves around equipping future professionals with the necessary skills to be able to collaborate across disciplines so that they can help build a sustainable society. By taking into account the increasing need of multidisciplinary teams and collaborative practices within the building industry, the aim of “DARE to build” is to provide students with the collaborative and communication skills needed to effectively operationalise and take full advantage of the contents of each discipline, while working towards a sustainable, hands-on project.

Related vocabulary
Co-creation, Community Empowerment, Participatory Approaches, Social Sustainability, Spatial Agency, Sustainability

Alignment with project research areas
This case study predominantly resonates with two of the research areas of the RE-DWELL project - 'Design, planning and building' and 'Community participation- , with a special focus on housing design education and sustainable planning, in particular with regard to the following research issues:

- Housing design education: Students engage in multi-stakeholder projects in suburban housing areas on the neighbourhood scale and learn through a practice-based approach.
- Sustainable planning: Students are encouraged to adopt a holistic approach while having a specific focus in each project (e.g. biomimicry, mobility, etc.)
- Green building: A prerequisite of the course is that natural and recycled materials should be used as much as possible.
- Inclusive design: All projects favour inclusion, often for humans and non-humans alike.

Deben Fields (Garrison Lane)

Architect(s)
TateHindle

Location
Felixstowe, England

Project (year)
2021

Construction (year)
2022-2024

Housing type
Multifamily housing (apartments and semi-detached)

Urban context
Housing estate

Construction system
Timber frame (Modern Methods of Construction)

Status
Built

Deben Fields, formerly known as Garrison Lane, is an exemplary Passivhaus scheme for East Suffolk Council comprising 61 new homes, 67 per cent of which are affordable. The new community on this brownfield, former high school site will not only deliver highly efficient homes but also take a sustainable approach to construction in the process – with heritage buildings retained, existing materials recycled, and modular efficiencies embraced. A series of linked landscape spaces lead to a new park with a cricket pitch and pavilion – using the former school sports field to provide leisure facilities, preserve green space and provide active, edge-to-edge connectivity across the site. Homes are strategically positioned around these communal areas, including a community hall and allotment, creating inclusive spaces that promote health and well-being. Using Passivhaus standards and Modern Methods of Construction, this project achieves environmentally, socially and economically sustainable outcomes. In 2022, Deben Fields won a project award at the Housing Design Awards, which recognise excellence and innovation in sustainable and affordable housing.

Related vocabulary
Building Decarbonisation, Post-occupancy Evaluation, Sustainability, Sustainability Built Environment

Alignment with project research areas
The analysis of the Deben Fields case demonstrates a significant alignment with the three research areas of RE-DWELL. However, the strength of these connections varies depending on the research area. While there are clear and direct links to design, planning, and building, the connections to policy and financing were less pronounced. This section aims to explain and emphasise these connections.

Design, planning and building
Sustainable planning: the project carefully integrates the three pillars of sustainability into its design and construction. Environmentally sustainable solutions such as the use of Passivhaus standards were adapted, while economically sustainable solutions focused on the use of with Modern Methods of Construction (MMC) and fabric-first approaches to reduce construction time and costs. Socially sustainable solutions consider the engagement of local communities to create socially inclusive spaces.

Green building: The architect positioned the project firmly within the principles of green building by applying and implementing several strategies, including the use of alternative energy sources, responsible use of materials, reducing carbon emissions, and enhancing the social and economic value of the project.

Industrialised construction: Integrating and linking the fabric-first approach with MMC resulted in several positive impacts, including maximising the use of off-site construction and achieving a high level of quality through factory-controlled assembly, reducing construction time, minimising noise pollution and construction waste, and reducing CO2 emissions.

Community participation
Inclusive design: creating publicly accessible spaces (e.g. public garden and cricket field) and adapting existing buildings (e.g. the re-use of the Deben Fields High School assembly hall). And improving living conditions for all tenants, regardless of age (e.g. play streets for children and easily accessible pedestrian corridors for older and disabled people).

Policy and financing
Governance, market and financing: The project has successfully navigated a complex regulatory landscape by harmonising various policies and standards, including national policy (the National Planning Policy Framework), local policy (East Suffolk Council's Sustainable Construction) and voluntary standards (Passivhaus). This has led to the development of energy-efficient and sustainable outcome. Consequently, this project has the potential to provide valuable insight into achieving this critical balance and could be translated into comprehensive design guidelines for other projects to draw upon.

Possible links across other RE-DWELL areas
Whilst this case study does not directly relate to the pillars of building retrofitting and design education - as it is a new build - it is still a valuable example worthy of analysis, particularly if a further post-occupancy evaluation is conducted to assess the viability of the integrated building systems and sustainability features. Furthermore, the connection to community planning and co-housing may not be immediately evident. The communication plan and tools used in this project have the potential to provide valuable insights for other projects taking similar approaches and seeking to mitigate the associated risks.

Diagoon Houses

Architect(s)
Herman Hertzberger

Location
Delft, The Netherlands

Project (year)
1967-1971

Construction (year)
1971

Housing type
Terraced houses

Urban context
Suburb

Construction system
Mix of in-situ and prefabricated components

Status
Built

In an increasingly heterogeneous society, with varied family structures, incomes and cultural backgrounds, there is a need to provide for housing alternatives that adapt to the users' requirements. Since the past century, there has been an increasing concern on how dwellings should incorporate the space-time concept as a way to allow for the change and growth of a dwelling. Herman Hertzberger introduced the term "spatial polyvalency" in the late 1960's which is strongly related to Habraken's theories to divide the building into different control levels to facilitate user participation and freedom of choice. This spatial polyvalency was applied in the development of the experimental Diagoon Houses (1967-1971), where the architecture was understood as a carcase that allowed each user to inhabit the space differently, which led to the change and growth of the dwelling, characteristic features of a mass society. This case study proves that true value of participation lies in the effects it has on its participants. The same living spaces when seen from different eyes at different situations, resulted in unique arrangements and acquired different significance. Through the signs of occupancy, the building has become a visual demonstration of its own use.

With regard to its construction system, the repetition of mass-produced components and the prefabrication of the façade elements allowed to lower the cost of the housing units. This intertwining between flexible spatial configurations and the affordability associated with mass production was the spark of mass customisation in the housebuilding industry, which combines the efficiency of prefabrication and the flexibility of personalisation, aiming for a more democratic architecture.

Related vocabulary
Affordability, Co-creation, Community Empowerment, Industrialised Construction, Social Sustainability

Alignment with project research areas
Even though the Diagoon experimental houses were built in the late 1960s with very different building techniques, planning, or financing schemes, some of their features and achievements demonstrate a significant relevance with the three research areas of the RE-DWELL transdisciplinary research.

With regard to Design, Planning and Building, the project promotes resilient design by creating a system that can adapt and incorporate new uses over time supporting the creation of building regeneration through versatility and flexible housing layouts. This, along with the use of prefabricated components to lower the costs making it possible to approach a greater segment of society, leads to a democratization of housing. In addition, Diagoon could be considered as sustainable housing in the way it promotes social cohesion, green spaces and integrates changes with minimum waste.

The case study demonstrates a strong alignment with the Community Participation area, where not only the interior arrangements were completely decided by the users, but as well the boundaries between their individual green spaces were agreed between neighbours, stimulating collective activities and decision-making amongst them. The control levels proposed by Habraken are exemplified in the different ways of participation, from the urban level until the individual dwelling layout.

Regarding Policy and Financing, the approach that Hertzberger proposes by dividing the house into the support and the infill, could potentially facilitate certain financial innovative strategies to increase housing affordability, as for example the shared ownership schemes.

Therefore, in order to implement an affordable and flexible housing system supported by community participation, the three research areas should be taken into account, as the interrelations and dependencies between each other would be necessary for a successful outcome.

Die Baupiloten Berlin

Initiating entity
TU Berlin, Susanne Hofmann Architects

Objectives
Prepare students more effectively for their professional life by combining education, practice and research

Educational/participatory methods
participatory design; co-creation; experiential learning

Context
Neighbourhood level

Place
Berlin, Germany

Period
2001 -

Duration
Depending on each project: small projects run part-time and conclude in one semester, larger ones may span over multiple semesters. The projects engage fourth and fifth year students

Stakeholders
Municipalities, public schools, local communities, associations, design & construction professionals

Object of study
Neighbourhood Building Live Project

Baupiloten, founded by Susanne Hofmann, is an architecture practice and educational platform at TU Berlin, which engages 4th and 5th year students in participatory design-build projects. Hofmann believes that integrating practice and research in education provides students with a much-needed real-world experience, thus contributing to bridging the gap between architectural education and professional practice. This initiative arose from concerns within German architectural associations about the breach between architectural education and professional practice, with the latter criticising the absence of reality-anchored pedagogies.

The purpose is to connect practice and research-oriented learning through building projects, explore the interdependence between design and construction, enhance interdisciplinary connections, foster student motivation by involving them in all project stages, and encourage testing ideas on real projects. Participation is central to Baupiloten, recognising user knowledge as equal to expert knowledge. Despite criticisms of participation, Hofmann argues it can amplify creativity, reduce costs, promote social cohesion, and ensure architectural quality. Through this process, the role of the architect is expanded to include facilitating and moderating interactions, maintaining a balance between technical design and human experience.

A key focus of Baupiloten is the use of atmospheres as a tool for communication. Atmosphere, in this context, is understood as the emotional and sensory qualities of a space. By articulating these atmospheres, designers are able to communicate complex ideas, engage users, and ensure the final design meets user needs. The methodology includes team-building, observing users' everyday life, researching their needs, and optimizing the designs based on feedback. This approach ensures students learn through real-world projects, enhancing both their professional competences and interpersonal skills.

Related vocabulary

Co-creation, Design Activism, Participatory Approaches, Placemaking, Spatial Agency

Alignment with project research areas

This case study predominantly resonates with two of the research areas of the RE-DWELL project: “Design, planning and building” and “Community participation”. It particular addresses (housing) design education and (co-housing, co-design) in the following ways:

1. Housing design education: Baupiloten promotes a reality-anchored design education, allowing students to come in contact with real conditions and limitations.
2. Co-housing and co-design: It operates on the principle that “architecture is participation”; user participation and inclusion cover all the facets of the design process, from conception to detailing.
3. Inclusive design: Inclusive design is one of the overarching goals in the Baupiloten projects. The activities conducted show a special interest in lifting the voices of those less privileged and in working with cultural and language differences. There has been a special focus, illustrated by the number of projects, in addressing and highlighting children’s perspectives and ideas, throughout the participatory processes.
4. Vulnerable groups: A significant number of projects carried out within Baupiloten address underserved areas and communities in Berlin and beyond.

85 social housing units in Cornellà

Architect(s)
Peris + Toral Arquitectes

Location
Cornellà de Llobregat, Spain

Project (year)
2017-2020

Construction (year)
2018-2020

Housing type
Multifamily housing

Urban context
City centre

Construction system
Industrialised hybrid construction; mass timber construction on a concrete podium

Status
Built

The 85 social housing units in Cornellà, designed by Peris + Toral Arquitectes, represent an innovative collective housing project that addresses the environmental, social, and economic challenges of our times. The architects adopted mass timber construction to enhance industrialisation, reduce CO2 emissions, and optimise building quality and speed. Inspired by Japanese tatami room principles, the building emphasises spatial adaptability through non-hierarchical layouts, facilitating various uses by sequencing 13 m^2 rooms to promote fluid movement and spatial flexibility.

The project reduces design and construction processes to their most essential elements. By leveraging industrialisation for precision and efficiency, the architects achieve high-quality construction with minimal waste. The building also supports a circular economy by allowing for potential disassembly and reuse of materials. This pioneering housing has garnered significant acclaim, winning twenty-five awards and attracting widespread interest, highlighting its potential to influence future public and private housing developments.

Related vocabulary

Building Decarbonisation, Design for Disassembly, Industrialised Construction, Social Housing, Spatial Agency

Alignment with project research areas

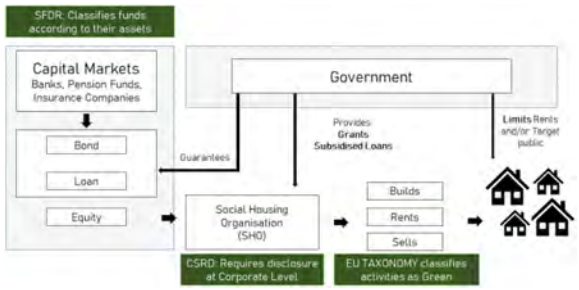
The dwellings in Cornellà address key aspects that are aligned with the three research areas, achieving affordability while pursuing the three pillars of sustainability.

The case demonstrates a strong alignment to the Design, Planning and Building area by emphasising the importance of reducing resource consumption, designing for adaptability and long-term resilience. The incorporation of mass timber enhances construction quality, reduces execution times, and lowers CO2 emissions, thereby aligning with environmental goals and promoting building precision and circularity. Besides, the polyvalent room layout, inspired by Japanese tatami rooms, enables spaces to serve multiple purposes depending on the user's chosen degree of porosity, accommodating diverse household structures and evolving needs. By eliminating traditional corridor distributions and creating generous room sizes, the project maximises usable space, reduces material usage, and minimises both costs and environmental impact.

With regards to the Community Participation area, while the design team couldn't involve residents in the decision-making process because they were not known, the project exemplifies various strategies to foster social interactions and cultivate a sense of belonging. Firstly, the central courtyard functions as a communal space enhancing social cohesion by encouraging interactions among residents, with all dwellings accessed through this semi-private shared area. To promote neighbourly encounters, most dwellings open onto terraces overlooking the courtyard. These terraces are visually connected, and their separations serve as filters rather than segregating doors. Additionally, including a common space managed by residents on the top floor aims to empower the community to take ownership of communal areas, thus strengthening community ties and engagement. Finally, residents' ability to adapt their living spaces according to their needs promotes inclusivity and a deeper sense of belonging.

Finally, regarding the Policy and Financing area, the project showcases the feasibility of implementing innovative housing strategies while adhering to building regulations and stringent social housing budget constraints. Close collaboration with public administrations, such as IMPSOL, offered opportunities for experimenting with non-traditional housing layouts and adopting alternative design strategies to enhance dwelling adaptability. Furthermore, early collaboration with manufacturers promoted resource optimisation and efficient building practices, combining financial prudence with sustainable practices to ensure the affordability and viability of the housing units.

ESG finance and social housing decarbonisation



Instrument
Regulation

Issued (year)
2020s

Application period (years)
2020s

Scope
European-Global

Target group
NA

Housing tenure
NA

Discipline
economics-sociology-finance

Object of study
Instrument

The regulation of financial markets according to Environmental, Social and Governance (ESG) criteria has become a priority for the European Union (EU). Recent legislation, such as the EU Green Taxonomy, aims to identify sustainable investments enhancing transparency and accountability while steering private finance toward environmental objectives. The introduction of ESG criteria poses specific questions for Social Housing Organisations (SHOs), particularly as the decarbonisation of the housing stock is also incorporated into the national legislation of Member States. This case study analyses ESG finance in the context of social housing, examining the main legislative changes and their impact on social housing provision systems in abstract. For more detailed information, readers are invited to read the full-paper published in the Journal of Housing Studies.

Related vocabulary
Building Decarbonisation, Housing Affordability, Housing Governance, Housing Policy, Housing Regime, Just Transition, Measuring Housing Affordability, Social Housing, Sustainability, Sustainability Built Environment

Alignment with project research areas
ESG finance emerges as a critical driver within the research framework of RE-DWELL, emphasizing its alignment with policy and financing strategies to address housing affordability within the energy transition, particularly for vulnerable groups. The integration of ESG principles into the research framework is pivotal, as it offers a comprehensive approach to sustainable investments that extend beyond the traditional financial metrics.

The factors at the core of ESG finance resonate in RE-DWELL's research objectives, where the focus extends beyond mere energy efficiency to encompass the broader social impact of housing affordability. By prioritizing the well-being of vulnerable demographic groups, ESG finance ensures that investments contribute not only to environmental sustainability but also to the improvement of social conditions, aligning with the overarching goals of RE-DWELL's research framework.

ESG finance's commitment to environmental considerations aligns seamlessly with the energy transition objectives outlined in RE-DWELL's research. By incorporating criteria that assess and promote energy efficiency, ESG finance directs investments towards technologies and practices that contribute to reducing carbon emissions, fostering an environmentally sustainable housing landscape.

Moreover, the emphasis on social factors within ESG criteria directly addresses the challenges faced by vulnerable groups in the context of housing affordability. By considering the social implications of investments, ESG finance becomes a strategic tool for ensuring that housing solutions are not only ecologically responsible but also inclusive and supportive of marginalized communities.

The governance component of ESG principles ensures transparency, accountability, and ethical decision-making, which are essential elements in effective policy implementation. As RE-DWELL's research framework navigates the complexities of financing solutions, the governance-focused approach of ESG finance becomes integral to establishing robust structures that facilitate responsible and sustainable housing initiatives.

In conclusion, ESG finance serves as a linchpin in the research framework of RE-DWELL, offering a holistic and integrated approach to housing affordability within the energy transition. By aligning with policy objectives and financing strategies, ESG finance transcends traditional investment metrics, contributing to a future where housing solutions are not only environmentally conscious but also socially inclusive and governed by ethical practices. This collaboration highlights the transformative potential of ESG finance in shaping sustainable and equitable housing ecosystems.

Flexwoningen Oosterdreef

Architect(s)
FARO Architects, Ymere, Homes Factory

Location
Nieuw-Vennep, Netherlands

Project (year)
2022

Construction (year)
2022

Housing type
Multifamily housing: Flexwoningen (temporary housing 15 years), 60 flats

Urban context
Suburban

Construction system
Prefab construction/movable

Status
Built

The Oosterdreef project in Nieuw-Vennep, Netherlands, is a great example of collaboration between national and local stakeholders to quickly provide housing solutions to combat the housing shortage that affects certain regions while at the same time innovating in planning and construction methods. This project exemplifies one of the most recent approaches in housing provision developed in the Netherlands -the Flexwonen model. The national government has launched an ambitious campaign to accelerate the production of housing across the country, and perhaps one of the most compelling aspects of the endeavour is to develop a more dynamic and responsive housing market that can meet both short-term and long-term demands. By supporting more efficient construction methods and making the housing stock more resilient, the Flexwonen model has spearheaded the government's housing approach. In this context, the municipality of Harlemmermeer, along with Ymere, one of the largest housing corporations in the country, and FARO architects have come together to create a housing project that stands out for its innovative building techniques, planning process, design and community building approach.

The project consists of 60 one-bedroom flats arranged in low-rise blocks, featuring common spaces and facilities, situated on a temporary site over fifteen years. The project targets specific population groups often overlooked by the constrained social housing supply and facing difficulties in the private housing market. The project integrates innovative planning tools with efficient construction methods, thereby reducing construction time and addressing the urgent need for housing in the region.

Related vocabulary

Design for disassembly, Industrialised construction, Social sustainability

Alignment with project research areas

This case study predominantly resonates with two of the research areas of the RE-DWELL project, i.e., 'Design, planning and building' and 'Community participation.' Nonetheless, the 'Policy and financing' aspect was relatively significant during the procurement and commercialisation stages:

Design, planning and building (Highly related)

- Collaboration between stakeholders permits the generation of synergies from the procurement and planning phases to the construction and management of the scheme
- Architecture and landscape design aligned with strong sustainability criteria, targeting the reduction of embodied and operational carbon emissions.
- Emphasis on the human scale experience and pedestrian flows over car-oriented urban design
- The 'Slack' spaces, adaptability and flexibility in the design allow the inhabitants to shape their environment and accommodate different uses for private and common spaces.
- Affordability is targeted through a rationalised design that privileges simple forms and the use of a prefabricated panel system to make construction less expensive.

Community participation (Highly related)

- The K1 Cohousing community participated from the inception of the project, closely collaborating with the local authority in the creation of the brief that developers would have to realise. At this point, sustainable living and community building were at the heart of the community members' ambitions, an aspect that was reflected in the design brief.
- After the appointment of the developers, the community continued involved throughout the different stages of development actively participating in design meetings with architects and developers.
- After the project was sold the ownership of land and common assets was transferred to the Cohousing group, which is responsible for managing the property.
- The community has a non-hierarchical structure, each household has a representative and a stake in decision-making. Additional funds for the management and maintenance of shared spaces and community initiatives are funded by the group that works as a membership body.

Policy and financing (Moderately related)

- The project received seed funding from the local council and a grant from the HCA.
- The council allowed the deferral of the purchase of the land to be paid out of the sales revenue as units were handed over to the K1 Cohousing members, assuring the execution of the brief and aiding the cash flow of the operation.
- Early buyers received a discount.

Fondazione per l’Innovazione Urbana (FIU)

Instrument
Regulation, incentives

Issued (year)
-

Application period (years)
-

Scope
Country

Target group
All people

Housing tenure
-

Discipline
Public policy

Object of study
Instrument

In this strategic experiment pioneered by the city of Bologna, the principles of the urban commons are able to be institutionalised by political advocacy groups and active citizens who are grounded in the territory of their respective community, while also able to reach the level of municipal process. The Fondazione per l’Innovazione Urbana (FIU) was founded by the city of Bologna to promote "relationships between local government, universities, firms, the tertiary sector and citizens" (FIU, 2024). The goal has been to produce better communication instruments and to foster social equity, cultural innovation and the transition to climate neutrality by identifying the most effective methodologies for citizen participation in local urban regeneration strategies.

Related vocabulary
Collaborative Governance

Alignment with project research areas
This case study aligns with the Community Participation research area and it's sub-category Community Planning regarding public-private partnerships to support urban regeneration programmes. It also aligns with Policy and Financing as the Bologna model implements innovative local governance frameworks allowing for innovative regeneration projects to emerge.

Hope Street

Architect(s)
Snug Architects

Location
Southampton, Hampshire, UK

Project (year)
2023

Construction (year)
2023

Housing type
Residential building

Urban context
-

Construction system
-

Status
Built

Hope Street is an innovative residential community in Southampton, UK, specifically designed for female offenders, particularly mothers with children, who are serving custodial sentences. This pioneering project adopts a holistic approach to rehabilitation, integrating trauma-informed design principles to foster a calming and therapeutic environment. By creating spaces that minimize the risk of re-traumatization, Hope Street promotes healing and recovery. Beyond providing secure housing, it offers access to mental health services, substance abuse programs, and support for nurturing healthy relationships. Launched as a pilot project in Hampshire in 2019 and completed in the summer of 2023, Hope Street has garnered significant acclaim, including the 2024 RIBA MacEwen Award for architecture serving the common good.

Related vocabulary

Trauma Informed Design

Alignment with project research areas

Hope Street exemplifies how the three research areas of RE-DWELL are interlinked and interdependent, demonstrating how quality design can have a significant social impact.

Design Planning and building

One Small Thing envisions the project as a prototype for a trauma-informed justice system. Its objective is to establish a healing residential environment with specialized support, setting a new standard for nationwide reform. The architectural design is intended to build trust with residents, encouraging their active engagement in the healing process. The housing not only offers sanctuary but also fosters community, supporting personal recovery while cultivating collective support. Women with first-hand experience of the justice system contributed to the design process, influencing decisions on layout, materials, and colours. Their input ensured the creation of a nurturing environment devoid of institutional overtones. At Hope Street, communal areas are designed to promote connection. For instance, the coffee shop and resident lounges play a crucial role in building community. The coffee shop serves both the public and residents, providing women with opportunities to gain hospitality skills and integrate with the local community. Communal lounges and kitchens are spaces where residents can unwind, socialize, and build trust—key components of the healing journey. Hope Street's trauma-informed design exemplifies how deliberate, thoughtful architectural changes can significantly enhance individuals' lives.

Community Participation

"One Small Thing" underscored the critical role of community involvement throughout its development process. The project’s design team engaged with women who had first-hand experience of the justice system to ensure the spaces would be tailored to their needs. Through a series of workshops, the architects gained valuable insights into which design elements evoked negative associations and which ones contributed to a sense of safety and empowerment for the residents.

The design team worked directly with these women, incorporating their feedback into every facet of the project, from architectural layouts to landscape and interior design. This collaborative approach was pivotal in making sure that the lived experiences and requirements of justice-involved women were at the forefront of the design process. Their contributions significantly influenced key design aspects, including the organization of living spaces, material selection, and colour palettes.

For instance, consultations revealed that pastel colours, which were initially intended to create a soothing environment, were instead associated with institutional settings like prisons and hospitals. This insight led to a re-evaluation of the colour choices to better align them with the residents’ needs and preferences.

Policy and financing

The project benefited from supportive policies and financing mechanisms, including land use provisions for affordable housing and expedited development reviews. These measures helped reduce costs and ensure timely completion. The collaboration with local authorities and funding bodies was crucial in navigating planning regulations and securing the necessary financial support to realize the project’s vision.

HOUSEFUL: Els Mestres, Sabadell

Architect(s)
In-house at Agència de l'Habitatge de Catalunya (AHC)

Location
Sabadell, Spain

Project (year)
2018 - 2021

Construction (year)
1956

Housing type
Social housing block, 4-bedroom apartments (converted from teachers' apartments)

Urban context
suburb

Construction system
Solid brick and ceramic

Status
Building renovation

Bloc Els Mestres (The Teachers Block) is a social housing apartment block in Sabadell, Spain, that has recently undergone a deep energy retrofit (DER). Built in 1956 to house the teachers of the adjoining school, the building is one of four pilot projects in Spain and Austria to undergo retrofitting as part of the EU-funded project, HOUSEFUL (2018-2023). This initiative aimed to integrate circular solutions and services into the retrofit.

The school, the teachers' residences, and the expansion of two housing estates were some of the first buildings to occupy the sparsely populated location of Sabadell Sud, which is near the city's airport. By 1984, the expansion had reached Bloc Els Mestres which was no longer isolated between fields, but surrounded by residences to the North, West and East. By the year 2000, it was nestled in at all sides. By 2018, however, Bloc Els Mestres sat vacant, neglected, and in major need of renovation.

Today, the nine-story residential building, which occupies a triangular corner plot, boasts a distinctive façade of harmonious natural limestone, yellow render, terracotta brick, and glass panels, creating a warmth complemented by the Mediterranean sun. Two structurally sound wings fan out either side of the bright central stairwell, with two approximately 100m² four-bedroom apartments per floor—one in each wing (1st – 8th floor). The ground floor belongs to the community. The south-east building orientation allows light to stream through the square windows that punctuate the longest façades; slightly cantilevered balconies also benefit from this orientation. The apartment interiors are a simple white, giving tenants a wide scope to personalise and redecorate.

Related vocabulary
Energy Retrofit, Housing Retrofit, Social Housing, Sustainability

Alignment with project research areas

Design, planning, and building

- Existing building designed to retrofit with circular principles
- Novel NBS for greywater, through plants.
- Biowaste considered but removed.

Community participation

- Inclusive design for marginalised groups—keeping cost of bills low and neutral interiors
- Workshops and interviews with residents
- Decision-making with tenants' association members on the board.

Policy and Financing

- The building is owned and managed by Agència de l'Habitatge de Catalunya (AHC).
- Partly financed by the HOUSEFUL Horizon 2020 project
- Part of the EU's "Affordable housing initiative".

Housing Fund of the Republic of Slovenia

Instrument
Regulation, subsidy, incentive, policy

Issued (year)
1991

Application period (years)
1991-2025

Scope
The Republic of Slovenia

Target group
young, first time buyers, elderly, low income group, other vulnerable groups

Housing tenure
public rental housing, social rental housing, co-housing, affordable homeownership

Discipline
economics, public policy

Object of study
Cross-country comparison

The National Housing Fund of the Republic of Slovenia was founded in October 1991 under the National Housing Act with its main role being to oversee the implementation of the National Housing Programme in collaboration with other governmental bodies and agencies on a national and municipal level. The National Housing Fund was created over 30 years ago now and in this period it has sold almost 3,000 housing units at favourable prices to families struggling to find affordable homes and currently manages over 3,800 public rental apartments across the country. Within the current National Housing Programme, the National Housing Fund aims to acquire 500 public rental apartments, 150 serviced rental apartments, and 50 places in homes for seniors and acquire up to 3,280 public rental apartments for young families.

Related vocabulary
Housing Governance

Alignment with project research areas
The case of the Housing Fund of the Republic of Slovenia is related to the three project research areas: “Design, planning and building”, “Community participation” and “Policy and financing”. Each project research area is subdivided into categories; in the sections below, only subcategories that are relevant to this case study are explained.

Design, planning and building
Under the research area "Design, planning and building", this case mainly considers the subcategory "Sustainable Planning". Sustainable planning is mainly included in the long-term objectives and code of conduct set out in the Fund's strategy, which is currently valid until 2025. An example of sustainable planning is the Fund's internal document in Annex 2, Measure 6.1 entitled "Sustainable construction and renovation in the provision of public rental housing and in the management of SSRS-owned housing/facilities", which states that only materials that are "environmentally sound, durable and resilient" will be used in the construction of buildings. The Fund plans to pursue this goal by conducting a life-cycle cost assessment of multifamily housing (HFRSa, 2021).

Policy and Financing
Within the research area "Policy and financing", the sub-category "Governance, market and finance" mainly refers to this case study. As mentioned in the previous section, the operations of the funds recognise the sustainability aspect of construction in terms of financing. There are other operations, such as 3.4, in which the Fund acquires land or housing that it then offers for rent to vulnerable groups, namely young and elderly people in need of special services. In general, one of the Fund's main tasks is to co-finance projects with local authorities to build affordable housing. In particular, in the context of governance, the Fund aims to establish a public rental management service (Measure 2.1) to improve affordability through the possible introduction of tax incentives and reliefs for tenants using this service (HFRSa, 2021).

Community participation
There are two related subcategories in this research area: inclusive design and community planning. An example of inclusive design is that the Fund builds housing in central and well-connected areas near city centres to ensure proximity to various public services. In addition, flats for residents with limited mobility, such as wheelchair users, are located on the ground floor to facilitate access, while all buildings have lifts in case someone with limited mobility lives on higher floors. As far as community planning is concerned, the Fund proceeds with the allocation of flats according to the applicant list, which is also an indicator of housing demand. There are more applicants on the list than flats available, but the number on the list is used to project future building plans. In many projects, the Fund and the local communities are jointly involved and share the costs of construction. In such a case, the Fund relies on the specific knowledge of the local context regarding the needs of the community and plans the project accordingly (HFRS, 2021). Finally, some of the dwellings built by the Fund allow for shared indoor spaces that are used by the residents, which contributes to a more inclusive and participatory neighbourhood life.

Housing partnership of the EU Urban Agenda

Instrument
cooperation, incentive, partnership, good governance, strategic framework

Issued (year)
2018

Application period (years)
2015-2018

Scope
European, country, regional, local

Target group
young, first time buyers, elderly, low income group

Housing tenure
renters, home owners, co-ownership, co-management, co-design, short-stay rental

Discipline
economics, public policy, spatial planning

Object of study
Cross-country comparison

The financial crisis has led to a decline in investment in affordable housing, resulting in reduced housing supply. This scarcity has, in turn, pushed up housing prices. Consequently, the issue of housing affordability has been acknowledged and recognized at the EU level. The "Pact of Amsterdam" is a multi-level agreement that was signed during the Dutch EU Presidency in 2016 and which marked the beginning of EU initiatives to strengthen the urban dimension in European legislation and policymaking through the creation of the Urban Agenda. It includes twelve priority themes, the fourth of which is housing.

The Urban Agenda operates through partnerships involving stakeholders, with a dedicated partnership for each priority theme. The Housing Partnership, which addresses the lack of affordable housing, was assigned the task of analysing public and affordable housing, state aid regulations and overall housing policy. This partnership brought together various stakeholders, including local and national authorities, as well as academic institutions. The group was jointly coordinated by the city of Vienna and the Slovak Republic.

The EU faces an annual deficit of €57 billion in affordable housing investment, leading to a housing cost burden which affected over 10% of its population in 2021. In addition, around 48% of the young adults in the EU reside with their parents, posing significant economic and demographic challenges.

The findings of the Housing Partnership highlight the growing concerns about housing affordability across all income levels. The problems are exacerbated by escalating house prices relative to incomes, increasing fragmentation in the housing market, and a decline in investments specifically targeted at affordable housing.

Related vocabulary

Alignment with project research areas

The Housing Partnership initiative addresses issues which cut across the three main interconnected RE-DWELL research areas - “Design, planning and building,” “Community participation” and “Policy and financing”- in the following ways.

Design, planning and building

In addition to the twelve actions and recommendations mentioned earlier, the Action Plan includes three main recommendations focusing on good policies, governance, and practices. Among these recommendations, one pertains to “spatial planning” and another addresses “land use and building ground.” These recommendations deal with sustainable planning, one of the issues with which RE-DWELL is concerned.

Within the Housing Partnership, a sub-group dedicated to “general housing policy” tackled issues the related to spatial planning and land use. They developed a comprehensive list of recommendations, including planning obligations as an instrument to ensure a quota of affordable units in new residential development projects.

Furthermore, the Action Plan outlines recommendations that fall under the category of "themes for the future." One of these recommendations is of particular importance to RE-DWELL's focus on "green building" and the "responsible construction sector."

Policy and financing

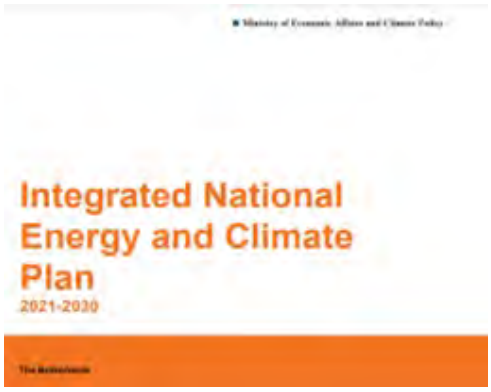
The Housing Partnership included a sub-group of partners dedicated to finding optimal policy and financing solutions. The policy impact of the Housing Partnership is most evident in the set of actions and recommendations laid down in the Action Plan, with several direct connections to the RE-DWELL’s research. One such example is the recommendation that falls under the “themes for the future,” namely, the “social, environmental and economic impact assessment in affordable housing production”. In this recommendation, the Housing Partnership asserts that investments in affordable housing production not only contribute to good quality housing but also enhance social cohesion, help achieve climate targets, and positive influence the local economy. They argue that such investments in affordable housing supply led to a reduction in housing allowances.

Another example is the recommendation for the protection of vulnerable groups, which falls under “good housing policy and governance at local, regional and national EU level”. These recommendations focus on energy poverty and data availability of, for example, gender disaggregated data, to have better insights for policy making. The Housing Partnership recommends revising the definition on housing cost overburden rate.

Community participation

The Action Plan clearly advocates for the encouragement of co-management and co-creation of housing and neighbourhoods at the EU level (Housing Partnership, 2018, p. 36). The document also states that “community-led urban development has the potential to create and revive deprived neighbourhoods in cities and to help the local economy, including the creation of new businesses. Examples of such initiatives include citizens’ participation in the design of local development plans, integrated urban planning, promotion of co-ownership models like housing cooperatives, setting up tenants’ organizations, creation of not-for-profit housing associations, implementation anti-speculation measures, protection of vulnerable groups, and connecting housing and urban renewal with labour markets.” (p. 37).

Housing retrofit subsidies in the Netherlands



Instrument
Fiscal Policy

Issued (year)
-

Application period (years)
-

Scope
Country

Target group
Homeowners

Housing tenure
Owner

Discipline
economics-sociology-finance

Object of study
Instrument Outcomes

The Dutch government incentivises energy-efficient housing retrofit through subsidies, grants, and loans. However, the Netherlands also implements a regressive carbon tax, impacting lower incomes due to the inelasticity of energy consumption. The EU's Retrofit Wave promotes this approach, proposing to include buildings in the Emissions Trading Scheme. The Dutch fiscal system favours owner-occupation, with large income tax deductions for mortgages. This, combined with generous retrofit subsidies, increases the fiscal burden on energy consumption impinging on affordability. Alternatively a green tax could incentivise retrofit more progressively. The Dutch government incentivises energy-efficient housing retrofit through subsidies, grants, and loans. However, the Netherlands also implements a regressive carbon tax, impacting lower incomes due to the inelasticity of energy consumption. The EU's Retrofit Wave promotes this approach, proposing to include buildings in the Emissions Trading Scheme. The Dutch fiscal system favours owner-occupation, with large income tax deductions for mortgages. This, combined with generous retrofit subsidies, increases the fiscal burden on energy consumption impinging on affordability. Alternatively a green tax could incentivize retrofit more progressively.

Related vocabulary

Affordability, Financial Viability, Financial Wellbeing, Green Land Value Tax, Housing Policy, Housing Retrofit

Alignment with project research areas

The Dutch government's approach to incentivizing energy-efficient retrofits through subsidies, grants, and low-interest loans is a clear example of policy in action. The implementation of a regressive carbon tax and the proposed green tax also demonstrate how policy can be used to drive sustainable practices and behaviours. These policies align with RE-DWELL's focus on developing and implementing effective policies for affordable and sustainable housing.

The energy-efficient retrofits encouraged by the Dutch government's subsidies and grants involve the design of sustainable housing solutions. These retrofits may include the installation of solar boilers and heat pumps, which contribute to the design of homes that are more energy-efficient and environmentally friendly. This aligns with RE-DWELL's emphasis on sustainable design in the housing sector.

The Dutch housing policies require active participation from homeowners, who must apply for grants and loans, and undertake energy-saving measures in their homes. This highlights the importance of public participation in achieving sustainability goals, a key aspect of the RE-DWELL project. However, the potential impact of these policies on lower-income households underscores the need for inclusive participation, ensuring that all segments of society can benefit from sustainable housing initiatives.

Knight’s Walk (Lambeth’s Homes)

Architect(s)
Mae Architects

Location
Renfrew Road, London Borough of Lambeth (SE11 4NA), England

Project (year)
2019 (planning permission obtained)

Construction (year)
Phase 1 (completed 2022), phase 2 (ongoing)

Housing type
Multifamily housing (apartments)

Urban context
Housing estate

Construction system
Steel structure (fabric first approach)

Status
Built

The Knight's Walk project, also known as Lambeth's Homes, comprises 84 residential units, all of which are council housing – a form of social housing managed directly by the local council. It is located in the densely populated urban landscape of Renfrew Road in the north London borough of Lambeth, London, England. The development unfolded in two phases. Initially, 16 rental flats were constructed, replacing an existing multi-storey car park. In the second phase, 17 council units and one private dwelling were demolished to make way for 68 additional flats.

At its core, this initiative aimed to regenerate the urban fabric by creating new, healthy environments and fostering strong connections with the surrounding area, enhancing social cohesion through community spaces and activities while aligning with the local authority's overarching vision and long-term sustainability objectives. Knight's Walk is distinguished by its "fabric first approach" and high sustainability standards, addressing challenges such as energy consumption, overheating, tenant relocation, quality of outcomes, and the provision of a warm, comfortable homes.

In 2022, Knight's Walk was awarded the Local Authority Building Control (LABC) Building Excellence London Regional Award, the Construction News Awards and the Housing Design Awards, all of which recognise excellence in sustainable and affordable housing practices.

Related vocabulary

Affordability, Building Decarbonisation, Indoor Thermal Comfort, Sustainability Built Environment

Alignment with project research areas

The objective of this section is to elucidate and emphasise the alignments and connections between the presented case study and the research domains within the RE-DWELL research framework.

Design, planning and construction

Sustainable design: The project demonstrates a commitment to sustainable design, integrating the four sustainability pillars (economic, environmental, social, and human) into its design and construction processes. Environmental sustainability is promoted through the incorporation of passive measures, while economic sustainability was pursued through accelerated construction methods and fabric-first approach, which reduced construction time and cost. Social sustainability considerations include community engagement strategies that prioritise local needs and promote a socially inclusive environment.

Green building: Architectural design is firmly linked to the green building ethos, which is reflected in the incorporation of a diverse range of strategies, including the use of renewable energy sources, the reduction of carbon emissions, and the enhancement of the project's social and economic benefits.

Industrialised construction: The adoption and implementation of a fabric-first approach has been demonstrated to confer several benefits, including a reduction in construction time, acoustic and material waste, and CO_2 emissions.

Community engagement

Inclusive design: The creation of publicly accessible areas, such as a public garden and cricket pitch, and the adaptive reuse of existing open spaces, such as the revitalisation of Cotton Garden Park, were key elements of the project. At the same time, the living conditions of all residents, irrespective of age, were enhanced, as evidenced by the design and implementation of "The Walk" concept.

Policy and funding

Governance, market, and financing: The project navigates the complex regulatory landscape by aligning disparate policies and standards, including national mandates and voluntary standards. This unified effort yields energy-efficient and sustainable outcomes, offering a valuable opportunity to gain insights that can inform the development of comprehensive design guidelines for similar projects.

Potential synergies with other RE-DWELL areas

Although this case study does not directly address the topics of building retrofit and housing pedagogy, as it is focused on demolition and subsequent new construction, it is nevertheless a valuable and relevant example for further empirical studies, particularly those related to post-occupancy evaluation implementation.

La Borda

Architect(s)
Lacol cooperativa

Location
Barcelona, Spain

Project (year)
2012-present

Construction (year)
2017-2018

Housing type
cooperative housing

Urban context
part of an old industrial site

Construction system
first floor with concrete and the next six with CLT

Status
built

La Borda is a housing cooperative, located in the neighbourhood of La Bordeta-Sants in Barcelona, a working-class neighbourhood with a long tradition of cooperatives. The plot is part of the former industrial estate of Can Batlló and was the outcome of a neighbourhood movement to reclaim the area and empower its social fabric. It is an experiment that emerged from local grassroots initiatives, to provide decent, non-speculative and long-term affordable housing with the active participation of the community, as well as to minimise environmental impact and energy consumption. Through a participatory process, the group worked together with local organisations, architects, and professionals to rethink the way they wanted to dwell, questioning the individualisation of living, and suggesting more communitarian forms. They produced new forms of coexistence, social bonds, and self-organization by promoting reciprocal relations and equality. The group aspired to create a scalable alternative in the social housing field by articulating a model of accessible housing for people with lower incomes. The property is characterised as social housing, as the group managed to achieve an agreement with the municipality, which owns the plot, for a 75-year leasehold. The legal framework under which the cooperative secures long-term affordability is called “grant of use”, prioritizing the use value instead of the exchange value, thus avoiding speculation.

Related vocabulary
Affordability, Co-creation, Community Empowerment, Community-led housing. Participatory Approaches, Social Sustainability, Spatial Agency

Alignment with project research areas
The project is relevant to RE-DWELL as it follows an innovative approach in relation to each of the three research areas: 1) Design, planning, and building, 2) Community participation and 3) Policy and financing.

In relation to “Design, planning and building”, one of the group's objectives was to promote a sustainable building model. The construction was designed in order to have a low environmental impact and to promote energy efficiency. The dwellers were involved in the decision-making of the building's energy performance, by evaluating their actions and living patterns. The building is understood as a totality made up of interrelated dwellings and households which demonstrates the importance of a more holistic vision, encompassing issues of social, environmental, and economic sustainability.

In relation to “Community participation", the project followed a robust participatory process throughout all the phases, from its initiation and research activities to decisions regarding the legal model, co-design of the building, final construction and management and maintenance. The project’s initiators used open assemblies as spaces for participation, where neighbours and local organisations could meet, exchange information, and make decisions together. Furthermore, the project fosters a community-oriented type of living, with common spaces, shared facilities, and a schedule for distributing everyday activities. The collectivisation of facilities and services fosters social values, such as mutual support. For example, residents share the tasks of childcare, preparing shared meals, gardening, cleaning of the common areas, and laundry equally among themselves. This creates a sense of community and encourages mutual aid and cooperation among the residents.

Finally, with regard to "Policy and Financing", the project developed an innovative housing plan for the provision of affordable housing, which led to legislative change and pushed for new policies. The "grant of use" model was used to separate the use-value from the exchange value of the property, thus preventing speculation and advocating for different types of ownership that are secure and affordable in the long-term. Following the success of La Borda, the municipality of Barcelona implemented the same model on seven other plots, extrapolating the experiment. The project also developed a unique funding model, demonstrating an innovative approach by securing funding from the credit cooperative Coop57, which offered an alternative solution and overcame the traditional barriers and downgrades of obtaining funding from mainstream banking systems. However, as the credit cooperative was only able to lend a limited amount, the remaining cost was covered by alternative sources of funding, such as participatory bonds and voluntary contributions to the "social capital fund," which is the share capital fund of the cooperative.

LiLa4Green

Initiating entity
Austrian Institute of Technology (AIT)

Objectives
Smart user participation for the implementation of climate- and social-resilient solutions in priority residential neighbourhoods

Educational/participatory methods
Scientific Analysis, Urban Living Lab, Green Workshops, On site activities

Context
Environmentally and socially priority neighbourhoods / funded by the Climate and Energy Fund and implemented under the "SMART CITIES - FIT for SET" program.

Place
Neighbourhood Scale, “Quellenstraße Ost” and ‘Kreta’ neighbourhoods in Vienna

Period
Completed / 2018-2021

Duration
3 years

Stakeholders
Research consortium (Austrian Institute of Technology, Technical University of Vienna, Weatherpark, PlanSinn, GRÜNSTATTGRAU and GREX IT), citizens, local stakeholders

Object of study
Neihbourhood Event

LiLa4Green is a research project that aims to foment participatory creation and the implementation of nature-based solutions in densely built neighbourhoods in Vienna. The project has been developed by an interdisciplinary consortium and its main objective is to bring together experts and residents to collectively address the issue of climate change. The project is an innovative, transferable example of the successful communication of a complex issue that requires expertise in an approachable and inclusive way from experts to non-experts. Hence, its importance lies not only in the replicability of the developed green solutions to neighbourhoods of similar characteristics to improve their microclimatic conditions, but in the transferability of its innovative methodological approach in reaching out and engaging citizens of diverse characteristics in the co-creation of solutions on urban issues that significantly affect their lives and which had been previously overlooked due to lack of awareness.

Its goal is to move beyond climate-resilient considerations and to embrace social priorities, such as improving quality of life, raising local awareness on resilience and achieving acceptance

of scientific solutions on environmental issues by non-expert communities. To this end, a Living Lab (LL) approach is employed to engage citizens, stakeholders and decision-makers in the co-creation and implementation of green solutions that collaboratively respond to local emergencies.

Tested in two neighbourhoods in Vienna, the project's roadmap is targeted on spatially and socially challenged residential areas, characterised by their lack of open public space and green areas, by the dominance of car traffic and the disadvantaged living conditions. LiLa4Green demonstrates an innovative social-scientific approach to dealing with local urban emergencies through enabling user participation facilitated in an inclusive and flexible way that adapts to the social and urban context.

Related vocabulary
Community Empowerment, Participatory Approaches, Placemaking, Social Sustainability

Alignment with project research areas
Lila4Green is particularly relevant for RE-DWELL's research on affordable and sustainable housing through a transdisciplinary approach as it brings together three areas: climate research and resilient design, community participation and innovation to address social and environmental emergencies in neighbourhoods and populations that are at risk of vulnerability. The implementation of the project in residential neighbourhoods of disadvantaged urban and social characteristics denotes the overarching focus to improve the quality of life of these neighbourhoods and instigate active citizenship to combat environmental and social issues.

In particular, this project is related to the research area on Community Participation due to its participatory methodology, as well as with the area of Design, Planning and Building, due to its scope of implementing green solutions at the neighbourhood scale to counteract the effects of climate change. In a second level, as a nationally funded project that is also part of an international network of knowledge-sharing, there is also an important relation to the area of Policy and financing (categories Governance, market and financing and Social housing policies).

Within the broader areas of research, three major categories – and further related extensions – best reflect the LiLa4Green project. The first is transient and digital societies which is concerned with to the implementation of physical and digital infrastructures and spaces for urban innovation and knowledge sharing such as the Urban Living Labs, as drivers of social and urban change. Through the Living Lab approach and the interweaving of diverse tools and methods to activate and engage the residents and stakeholders in the co-creation process, the project expands its limits to the spectrum of inclusive design, community planning and co-design.

The second main category is that of green building, that aims at implementing designs that achieve environmental sustainability. Nature-based solutions as well as green and blue infrastructure that are developed and tested during the LiLa4Green project, are successful examples of these designs. As an extension, the project relates to the categories of sustainable planning and urban regeneration. Lastly, the third category is the innovation procurement, as well as housing design education as they relate to the LL's pillars as an innovation and knowledge-sharing space.

LILAC_Low Impact Living Affordable Community_Leeds

Architect(s)
White Design Associates

Location
Leeds, England

Project (year)
2006-present

Construction (year)
2012-2013

Housing type
Mix of one and two bed flats and three and four bed houses. Private gardens, the upper flats have balconies

Urban context
Suburban context on an old school site

Construction system
Prefabricated ModCell wall system built with resident contribution, lime render, triple glazing

Status
Built

LILAC is an ecological and affordable co-housing project built on a site previously occupied by a school and purchased from the local Council in the Bramley neighbourhood of Leeds, England. LILAC's agenda towards social, economic, and environmental sustainability emphasises a change in lifestyle beyond a reduction in carbon emissions and improved energy performance. Their ethos incorporates economic justice, behavioural change, wellbeing, mutualism, land ownership, the role of capital and the state, and self-management. LILAC is a bottom-up grassroots initiative based around co-operative governance and cohousing design.

The community-led housing project holistically integrates three major principles: low impact living, affordability, and community. Low impact living is achieved by a combination of environmentally conscious attitudes, sharing of resources, and design-stage nature-based solutions. As the UKs first Mutual Home Ownership Society (MHOS), LILAC's house prices are designed to remain permanently affordable. Costs are directly linked with average wage growth as opposed to increasing market value. Community at LILAC is heavily facilitated by shared amenities accessed via a common enclosed space and shared resources such as cars, lawnmowers, and power tools. An agreed constitution named 'community agreements' guides and informs life in Lilac, covering a range of issues including individual behaviours, interactions with others, and the use and management of shared spaces.

LILAC boasts 20 energy efficient homes with approximately 50 residents, surrounded by landscaping including allotments and biodiversity planting. Construction costs were higher than the UK average. However, a return-on-investment superior to conventional housing includes

permanent affordability at 35% of net household income, reduced energy bills, superior housing quality, environmental performance, health, safety, and wellbeing.

Related vocabulary
Housing Affordability, Social Housing

Alignment with project research areas

Design, planning and building

- An innovative cohousing model in the UK that improves social, environmental, and economic sustainability.
- The homes are designed as inward facing, to increase opportunities for meeting, conversing, and opportunities to watch out, and care for, neighbours.
- The common house is designed to facilitate social interaction, conserve power and energy through sharing resources that limit fuel consumption and integrate with the wider community.

Community participation

- Community involvement is the central core of LILAC at all stages of design, construction and in use. The scheme is based on a shared ideal of the way members want to live as a community, agreed lifestyles, and ‘community agreements’ that guide and inform life at LILAC.
- All decisions are democratically taken through an agreed process, permeating and reinforcing the non-hierarchical community structure.

Policy and Financing

- A MHOS co-operative is better at facilitating finance because it is not possible to obtain a mortgage in the UK for shared spaces. It was also possible to get a better rate for repayments as a large entity, than a collection of individuals.
- The land was purchased directly from the council.

Lleialtat Santsenca civic centre

Architect(s)
(original) Josep Alemany i Juvé; (refurbishment) HArquitectes

Location
Barcelona, Spain

Project (year)
2014-2017

Construction (year)
1928

Housing type
civic centre

Urban context
neighbourhood centre

Construction system
brick and concrete (original), steel and wood (refurbishment)

Status
Building renovation

The Lleialtat Santsenca Civic Centre is a community managed municipal facility in the neighbourhood of Sants in Barcelona, the promotes culture, community and cooperation. Originally built in 1928 by architect Josep Alemany i Juvé for the Cooperativa Obrera La Lleialtat Santsenca, the building has served various roles, including a cooperative, a nougat factory, and a dance hall, before being reclaimed by neighbourhood groups in 2009. The renovation, led by H-Arquitectes, followed adaptive reuse principles and focused on preserving historical elements, maximizing reuse of materials, and incorporating sustainable features like passive climate control. The facility operates under civic management principles, supported by Barcelona's legal framework and active community networks, presenting an example of public-community collaboration that drives institutional change. Managed by the Coordinadora d'Entitats per la Lleialtat Santsenca, it offers diverse services such as event spaces, a café, art classes, and sustainable projects, fostering community engagement and support for the entire neighbourhood of Sants.

Related vocabulary

Collaborative Governance, Social Sustainability, Urban Commons

Alignment with project research areas

La Lleialtat Santsenca presents interconnections with all RE-DWELL's research areas for affordable and sustainable housing, namely Community Participation; Policy and Financing; and Design, Planning and Building. Specifically, it presents a successful case of community organisation to confront top-down urban regeneration plans, by reclaiming and recovering a public asset for the benefit of the neighbourhood. Furthermore, its management model showcases an example of public-civic (or public-community) collaboration for the governance and non-commodified use of public assets supported by local policies. Finally, its renovation followed principles of adaptive reuse, along with consideration for environmental, social and economic sustainability.

Marmalade Lane

Architect(s)
Mole Architects, TOWN, Trivselhus

Location
Cambridge, United Kingdom

Project (year)
2015 - 2017

Construction (year)
2018

Housing type
Cohousing, 42 homes (houses and apartments)

Urban context
Suburban

Construction system
Industrialised timber-framed closed panels

Status
Built

Marmalade Lane is a pioneering cohousing scheme in Cambridge, England. Completed in 2018, this award-winning project is the first of its kind built in the city and has received great coverage and attention due to its development process, design features, community involvement and management organisation. Originally outlined as part of the Orchard Park masterplan, a housing-led mixed-use development in the Cambridge northern fringe, it remained unbuilt after the developer, originally chosen by the council, pulled off due to the 2008 financial crisis aftermath. The K1 plot, as it was labelled initially in the plan, would be later on allocated to a cohousing group, favoured by the initiative of the local council to support self-build housing developments.

The community is composed of 42 homes that range from one to five-bedroom housing typologies, including terraced houses and apartments. The scheme is arranged around a pedestrianised lane that gives the name to the community and a courtyard reserved only for residents. Likewise, the common house, a fundamental piece that articulates the social and shared life of Marmalade Lane's inhabitants, is placed in one of the corners of the courtyard; a design decision that facilitates its connection with the rest of the site and interweaves the overlapping levels of privacy of the immediate urban fabric.

This project is an inspiring example of collaboration between a local authority, socially engaged developers and an empowered group of people that embarked on an unorthodox pathway to produce an energy-efficient housing scheme that fosters neighbourliness and cooperation as a key aspect of everyday life.

Related vocabulary
Co-creation, Community Empowerment, Participatory Approaches, Social Value, Sustainability

Alignment with project research areas
This case study predominantly resonates with two of the research areas of the RE-DWELL project, i.e., 'Design, planning and building' and 'Community participation.' Nonetheless, the 'Policy and financing' aspect was relatively significant during the procurement and commercialisation stages:

Design, planning and building (Highly related)

- Collaboration between stakeholders permits the generation of synergies from the procurement and planning phases to the construction and management of the scheme
- Architecture and landscape design aligned with strong sustainability criteria, targeting the reduction of embodied and operational carbon emissions.
- Emphasis on the human scale experience and pedestrian flows over car-oriented urban design
- The 'Slack' spaces, adaptability and flexibility in the design allow the inhabitants to shape their environment and accommodate different uses for private and common spaces.
- Affordability is targeted through a rationalised design that privileges simple forms and the use of a prefabricated panel system to make construction less expensive.

Community participation (Highly related)

- The K1 Cohousing community participated from the inception of the project, closely collaborating with the local authority in the creation of the brief that developers would have to realise. At this point, sustainable living and community building were at the heart of the community members' ambitions, an aspect that was reflected in the design brief.
- After the appointment of the developers, the community continued involved throughout the different stages of development actively participating in design meetings with architects and developers.
- After the project was sold the ownership of land and common assets was transferred to the Cohousing group, which is responsible for managing the property.
- The community has a non-hierarchical structure, each household has a representative and a stake in decision-making. Additional funds for the management and maintenance of shared spaces and community initiatives are funded by the group that works as a membership body.

Policy and Financing (Moderately related)

- The project received seed funding from the local council and a grant from the HCA.
- The council allowed the deferral of the purchase of the land to be paid out of the sales revenue as units were handed over to the K1 Cohousing members, assuring the execution of the brief and aiding the cash flow of the operation.
- Early buyers received a discount.

Mason Place Apartments

Architect(s)
Shopworks Architecture

Location
Fort Collins, Colorado

Project (year)
2021

Construction (year)
2021

Housing type
60-unit permanent supportive housing development

Urban context
-

Construction system
-

Status
Built

Mason Place Apartments is a 60-unit permanent supportive housing development in Fort Collins, a city in the state of Colorado, USA. The building was initially constructed in 1982 and functioned as a cinema until 1999. The development was converted into permanent supportive housing by Housing Catalyst, a public housing agency and real estate developer. This affordable and supportive housing community project was developed through a collaborative effort of multiple funders (National Equity Fund; Colorado Housing and Finance Authority; Colorado Division of Housing; city of Fort Collins; Column Financial; ANB Bank; Department of Housing and Urban Development; Department of Veterans Affairs), applying the principles of trauma-informed design. It is a three-story apartment building that provides affordable housing and supportive services to people with disabilities, homeless people, and military veterans who earn less than 30% of the median income in the area. The first floor includes apartments, staff offices, and common areas for residents and staff. The remaining apartments are located on the upper two levels.

Related vocabulary
Housing Affordability, Social Housing, Social Sustainability

Alignment with project research areas
Mason Place demonstrates the connection and interrelation of the three research areas of RE-DWELL.

Community participation
Housing Catalyst is committed to developing and nurturing community resilience through participatory planning and inclusive decision-making. They recognize that a vibrant community is one that values and amplifies the voices of its residents, and they have established clear policies and procedures to promote respectful behaviour and address any conflicts that may arise. By fostering open communication and collaboration, Housing Catalyst seeks to create a community environment where people feel valued and empowered.

Design, planning and building
TID principles provide a thoughtful way to create spaces that cater to the needs of individuals who have experienced trauma. It also promotes social sustainability by creating communities that are safe, supportive, and empowering for everyone. When people feel safe and well-supported, they are more likely to thrive and contribute to their communities. Mason Place incorporates features to create a pleasant and supportive environment for residents, such as a lobby, smoking balcony, lounges, exercise rooms, counselling spaces, and property management offices to facilitate community building; enclosed spaces where residents may feel vulnerable are equipped with windows and glass doors to provide a sense of safety and openness; clear sightlines and multiple exits are strategically placed to enhance safety and alleviate feelings of claustrophobia; natural light and ventilation create a calming and restorative environment; choice and control over personal space and privacy to ensure comfort and well-being; and opportunities for social connection and community support.

All building staff, including maintenance and security workers, are trained in mental health first aid and trauma-informed care. Housing Catalyst is working with local agencies to provide strong support services for residents. It is also working with the project's investor to create a financial reserve for services and to size the debt so that it can cover higher operating costs.

Policy and financing
Mason Place benefitted from land use code provisions for affordable housing, including low-density mixed-use zone district density bonus and the height bonus in the transit-oriented development overlay zone. Affordable housing projects in the Low-density Mixed-use Neighbourhoods (LMN) are eligible for a density bonus. The maximum density in the LMN zone is typically 9 dwelling units per acre, but affordable housing projects can reach a density of 12 dwelling units per acre. Height bonus means the possibility to build one additional story of building height if 10% of total units are affordable to 80% AMI or less.

Priority processing, that is to say, expedited development review, is a relatively simple policy to implement, and it can have several positive benefits for communities. Affordable housing projects can be eligible for priority processing. In this case, priority processing was also an essential policy to reduce the time it takes for affordable housing projects to move through the development pipeline, which led to lower costs and faster delivery. It also made the project more attractive for developers to build affordable housing, as it reduced the risk and uncertainty associated with these projects, often facing tight budgets and timelines.

Mehr als wohnen – More than housing

Initiating entity
Mehr als wohnen cooperative, city of Zurich

Objectives
mixed-use neighbourhood, community-led housing, affordable housing, communal living

Educational/participatory methods
dialogical process with residents and stakeholders

Context
former industrial site

Place
Zurich, Switzerland

Period
2007-now

Duration
2008-2015

Stakeholders
city of Zurich, cooperative Mehr als wohnen

Object of study
Neihbourhood

Mehr als Wohnen (More than housing) is a housing cooperative (Baugenossenschaft) located in the Hunziker Areal, a former industrial site in the city of Zurich, Switzerland. It is an example of non-profit development, giving rise to a mixed-use neighbourhood with district services, public spaces, and commercial establishments. Initiated in 2007 through a collaboration of 35 housing cooperatives, the project now enjoys support from 60 out of the 120 cooperatives in Zurich. This project set up a new standard for cooperative housing at a neighbourhood scale and stands as potential model for other cities. Comprising 13 residential buildings and 370 housing units, Mehr als Wohnen currently accommodates 1,300 residents. There are 7,000 m2 of ground floor space hosting cafes, restaurants, kindergartens, studios and working spaces. The land is leasehold from the city council for 100 years in exchange for an annual fee. An apartment at the cooperative is on average 20% less expensive than a for-profit apartment in Zurich. The project was developed after an architectural competition, and its financing scheme included a diverse array of sources.

Related vocabulary
Community Empowerment**,** Community-led housing, Urban Commons

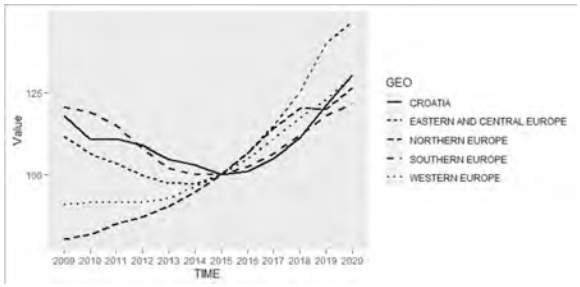
Alignment with project research areas
The case study of Mehr als wohnen aligns with the research areas of RE-DWELL:

Community participation
The project facilitated a dialogic process that engaged architects, project operators, future residents, and the broader public. By organizing regular events and discussions, the project actively incorporated stakeholders into the process of shaping the neighbourhood's future. This commitment aligns with the research area of community participation, underlining the significance of involving residents and stakeholders in decision-making processes to foster a sense of ownership and community.

Design, planning and building
Design Innovations: Mehr als Wohnen embraced design innovations through the integration of diverse housing typologies, including cluster apartments, satellites, family apartments, studios, and various room sizes. This highlights a commitment to create versatile living spaces that cater for the diverse needs of different households. The project placed a strong emphasis on adhering to high energy standards, aiming to create sustainable buildings and mitigate their impact on the environment.

Policy and financing
The project employed a diverse range of funding sources, including member equity contributions, loans from different levels of administration (city, canton, and federal), bonds, and loans from banks. This showcases innovative financing strategies to support the development of affordable housing. It aligns with the research area of policy and financing, which explores mechanisms to secure funding for sustainable and affordable housing initiatives and examines the impact of housing policies on housing outcomes.

Mortgage subsidisation policies in Croatia



Instrument
mortgage subsidy

Issued (year)
2017

Application period (years)
2017-

Scope
country (Croatia)

Target group
first-time buyers

Housing tenure
Owner

Discipline
Public policy

Object of study
Instrument

Since 2017, Croatia implemented a new housing subsidy programme (SSK) covering up to 50% of a monthly loan annuity for the first In 2017, Croatia implemented a new housing subsidy programme (SSK) which covers up to 50% of a monthly loan annuity for the first five years of mortgages up to 100,000 EUR. Recent economic evidence claims this policy has led to an increase in house prices. This case study uses a political economy lens to contextualise this subsidy within contemporary changes in the Croatian housing system and, more broadly, in the social policy of the country. Our objective is to mobilise evidence from economics, sociology and political science to address the role of housing in the reformulation of social policy in the Croatian transition. In Croatia, state intervention in mortgage markets is not limited to macroprudential and financial regulations, but has shifted towards an understanding of mortgage markets as the main locus of housing-related social policies.

**This case study draws partially from a previously published article (Fernández & Bežovan, 2023)

Related vocabulary

-

Alignment with project research areas

This case study is highly relevant to the research areas of RE-DWELL, a transdisciplinary project focused on housing affordability. This case sheds light on the implementation and effects of the housing subsidy programme (SSK) in Croatia, which provides significant insights into the dynamics of housing affordability and social policy in the country.

Firstly, the case explores the economic evidence suggesting that the SSK subsidy has led to an increase in housing prices. This finding directly relates to the research area of housing affordability, as it highlights the potential unintended consequences of housing subsidies on the overall affordability of housing in Croatia. By examining the impacts of the subsidy on housing prices, the case provides valuable information for researchers and policymakers involved in the RE-DWELL project, enabling them to better understand the complexities of housing affordability and formulate evidence-based solutions.

Moreover, the case employs a political economy lens to contextualize the housing subsidy with respect to contemporary changes in the Croatian housing system and its broader social policy. This approach aligns with the transdisciplinary nature of the RE-DWELL project, which seeks to integrate multiple disciplines, including economics, sociology, and political science, to gain a comprehensive understanding of housing-related issues. By mobilizing evidence from these disciplines, the case offers a holistic perspective on the role of housing in the reformulation of social policy during the Croatian transition.

Furthermore, the case highlights that state intervention in mortgage markets in Croatia goes beyond macroprudential and financial regulations. Instead, it emphasizes the evolving understanding of mortgage markets as a primary locus for housing-related social policies. This observation has direct relevance to the research areas of RE-DWELL, which aim to explore innovative policy approaches and governance mechanisms to enhance housing affordability. Understanding the shifting role of mortgage markets and the interplay between housing subsidies and social policies is crucial for the project's objective of developing effective strategies for sustainable and affordable housing.

In conclusion, the examination of the housing subsidy programme in Croatia, its impacts on housing prices, and its contextualization within the housing system and social policy aligns closely with the research areas of RE-DWELL. By incorporating economic, sociological and political science perspectives, the case provides valuable insights into the dynamics of housing affordability and the reformulation of social policy in the Croatian transition. The findings and analysis presented in this case can inform and enrich the ongoing research and initiatives within the RE-DWELL project.

Navarinou Park

Initiating entity
Exarcheia Residents Initiative

Objectives
Bottom-up transformation of an empty plot into a self-managed community park

Educational/participatory methods
Occupation of public space; collective action; network development; activism; public campaigns; co-construction; co-creation; co-governance; commoning

Context
bottom-up reclaim of the city

Place
Exarcheia neighbourhood, Athens

Period
-

Duration
2009-

Stakeholders
Exarcheia Residents Initiative, activist groups, local residents

Object of study
Live Project

Navarinou Park is a grassroots initiative set in motion by residents in the Exarchia neighbourhood of Athens. In March 2009, they took over an abandoned plot, which had formerly been used as a parking lot, and transformed it into a communal green space for play and recreational purposes, serving as a reference point for the residents. The management of the park follows a model of social self-governance, non-profit and non-property orientation, where the assembly serves as the primary decision-making instrument.

The park exemplifies an urban commons and a space of commoning. It is a space created and governed by the community of people who came together based on values of solidarity and openness, promoting the production of social capital. Going beyond the theoretical conceptualisations of urban commons, it offers a practical and self-sustainable mechanism for managing urban spaces through collective action. Its objective is to preserve the urban asset while fomenting participation, solidarity and enhancing the quality of life. Its long and turbulent history demonstrates the importance commitment and adaptability play in sustaining urban commons initiatives over time.

Related vocabulary

Co-creation, Community Empowerment, Participatory Approaches, Placemaking, Social Sustainability, Spatial Agency, Urban Commons

Alignment with project research areas

Navarinou Park is aligned with RE-DWELL's research area of Community Participation, specifically community planning, as it showcases an example of community organisation around a space to produce social capital. Furthermore, by using methods such as public space co-design and co-construction, as well as the creation and maintenance of community gardens, it also touches upon the area of Design, Planning and Building.

This is an example of a bottom-up initiative that is based on public space occupation which pushes legal boundaries. Consequently, the relationship with the state and formalised processes can be seen as one of tolerance as opposed to confrontational. Therefore, potential alignment with the RE-DWELL's area of Policy and Financing would be irrelevant, although this case presents an alternative example of co-governance, engaging with the topic of vulnerable groups.

North Wingfield Road social housing complex

Architect(s)
DK-Architects

Location
Grassmoor, Derbyshire, East Midlands, England, United Kingdom (53°12'13.40"N, 1°23'59.64"W).

Project (year)
July-2014

Construction (year)
February, 2020

Housing type
multifamily housing (Semi-detached house)

Urban context
suburb

Construction system
Timber frame

Status
Built

The North Wingfield Road social housing complex consists of 11 similar affordable family houses developed on a rural exemption site within the Derbyshire Green Belt at the eastern edge of the village of Grassmoor, Derbyshire, England. The design of the project drew inspiration from the surrounding rural environment, especially farmsteads and crew yards – clusters of buildings around large farm buildings – which are an essential feature of the local identity. Homes, amenities and landscaping are organised around the central common space to create a friendly environment that provides a sense of containment, safety and immersion in the surrounding natural landscape.

Through its energy efficiency rating (energy performance certification rating B, with a potential to be A), responsible use of material and reduced impact on the surrounding natural environment, a maximum score of 12 green points was given to the development in its Building for Life 12 assessment. In 2021, it received the Housing Design Awards (a UK-based competition) in recognition of good practice in social housing development.

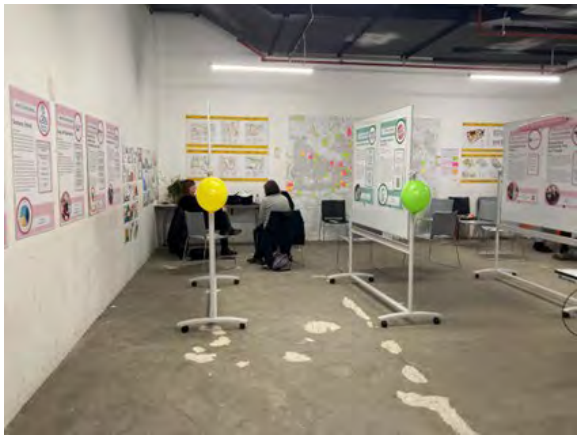
Related vocabulary
Building Decarbonisation, Social Housing, Sustainability Built Environment

Alignment with project research areas
RE-DWELL research framework is based on the interrelationship of three areas: Design, Planning and Construction, Community Participation and Policy. This case relates primarily to design, planning and building and is most evident through:

- Green Building: The analysis of this case has provided insights into the design of green buildings and their development processes, while helping the researcher to understand the principles of industrialised construction. In addition, this case is a 100 per cent social housing development that requires compliance not only with building regulations but also with higher sustainability standards such as the Building Research Establishment Environmental Assessment Method (BREEAM) and Home Quality Mark (HQM).
- Sustainable design: This case helps to understand UK sustainability policy through the applicable codes, standards and guidelines produced by planning and sustainability agencies such as the Building Research Establishment (BRE).
- Inclusive design: The results of this project are considered an example of inclusive design as tenants play an important role in maintaining the sustainability of the community and the environment.

All of the aforementioned made this project a good example for an in-depth study and helped to capture the practice of social housing design and construction in the UK.

Participatory Planning: Re-examining Community Consultation as a process that integrates the Urban Room method with a digital mapping tool



Initiating entity
CCQoL project & University of Reading, UK

Objectives
Research project on the process of community consultation for planning (participatory planning research)

Educational/participatory methods
Urban Room, digital maps, survey

Context
UK planning policy, industry-driven

Place
One month in Reading - part of a wider project taking place in 4 cities in different countries within the UK

Period
Ongoing

Duration
Daily

Stakeholders
Four UK Universities, the Quality of Life Foundation (NFP organisation), Common place (a digital platform for community consultation), Urban Symbiotics (experts on inclusion) & The UK Collaborative Centre for Housing Evidence (CaCHE)

Object of study
Building Event

The design of new forms of democratic practices in planning and the application of new technologies to support decision making are two areas of urban planning that have been gaining momentum in recent years . Within the UK planning system, the practice of Community Consultation (CC), which is currently under review, is the main statutory method for involving citizens in local planning processes. This case study analyses the UK research project Community Consultation for Quality of Life (CCQoL) which aims to improve the process of CC by exploring ways to make civic participation in CC much more meaningful, inclusive and engaging. The combination of innovation in the physical space, using an Urban Room to conduct research and the digital tools that affect the quality of participants' engagement are at the centre of the CCQoL project. This study provides an in-depth study of the potential of these two main methods to enhance participation and to expand and redefine the process within the framework of the Urban Living Lab.

At the time of writing, I am a participant and an observer in the University of Reading Urban Room named “Your Place Our Place”, which is taking place in March 2022. Therefore this case study analysis is part of an ongoing reflection. My role not only involves helping participants complete the mapping and participation survey, as other researchers are also doing in the field, but observing the research process from outside and conversing with the University of Reading researchers about their own observations.

Related vocabulary
Spatial Agency

Alignment with project research areas
The most obvious connection of the project with RE-DWELL research areas is with “Community Participation”, with community planning and vulnerable groups being the most targeted research topics. In particular, there is a focus on community planning as a process that needs to become more meaningful, inclusive and transparent.

With regard to “Design, planning and building” the CCQoL research project is involved in updating the processes leading to sustainable planning and urban regeneration by prioritising the views of under-represented groups. This becomes particularly relevant in the UK when investigating public participation in planning by the prevalent process of communication consultation.

Patch22

Architect(s)
Frantzen et al architecten

Location
Amsterdam, The Netherlands

Project (year)
2009-2016

Construction (year)
2014-2016

Housing type
Multifamily housing

Urban context
Redevelopment of an industrial area

Construction system
Hybrid construction - timber structure and façade with prefabricated concrete core

Status
Built

Patch22, a project developed by architect Tom Frantzen and building manager Claus Oussoren, stands as an innovative response to environmental and economic challenges in urban development. Winner of the 2009 Amsterdam Buiksloterham Sustainability tender, Patch22 not only garnered recognition for its sustainability scores but also stood out for its innovative circular design and adaptability to unforeseen future uses.

Embracing Open Building principles, the project prioritizes flexibility in dwelling sizes and layouts, offering a thoughtful response to the challenges outlined in the tender. The 30-meter-tall wooden structure currently houses 33 diverse dwellings, showcasing adaptability by potentially subdividing into independent office floors or a maximum of 48 apartments. The absence of load-bearing division walls, vertical shafts inside apartments, and the adoption of horizontal services distribution contribute to versatile layouts and efficient space utilization.

Sustainability at Patch22 is a holistic endeavour, reflecting a nuanced approach to environmental, social, and economic dimensions. Resident participation in the design process not only fosters diversity but also strengthens a sense of belonging. Patch22 serves as a long-term investment, adapting to changing needs and potentially acquiring different uses over time. This adaptability aligns with the project's broader commitment to sustainability, emphasizing long-term benefits over immediate gains.

Related vocabulary

Co-creation, Design for Disassembly, Industrialised Construction, Open Building, Sustainability Built Environment

Alignment with project research areas

Patch22 addresses key aspects that are aligned with the three RE-DWELL research areas. Due to the experimental character of the Buiksloterham area in Amsterdam and their strong ambition to create and transform an industrial site into a sustainable neighbourhood, numerous innovative projects were developed. These projects proposed new processes, tools, and methods to address contemporary dwelling challenges in an integrated manner.

The design philosophy embraced in Patch22 strongly aligns with the Design, Planning and Building area, placing significant emphasis in the importance of designing for flexibility and adaptability. The subdivision of the space provided by the support structure into multiple residential units is facilitated by the absence of load-bearing division walls and vertical shafts inside the apartment, coupled with the use of horizontal services distribution. These design decisions enhance the building's flexibility in terms of use, layout, and apartment sizes.

Moreover, the utilization of industrialised construction demonstrates how this flexibility can be achieved within a sustainable framework, contributing to efficient on-site assembly, waste reduction and the incorporation of dry joints to allow for the future disassembly of some components. Lastly, the use of timber in both its structure and façade serves to absorb and store CO2. Together with PV panels and rainwater collection, these elements contribute to the creation of an energy-neutral building.

In terms of Community Participation, the project facilitates the involvement of residents in defining their dwellings. Moreover, the level of customisation could be tailored to their preferences, as residents had the option to choose from pre-designed layouts or engage closely with architects to create custom distributions. This approach fosters inclusive design and cultivates a greater sense of belonging among residents.

Finally, with regard to Policy and Financing, Patch22 underscores the importance of legal instruments in facilitating flexibility in the long-term. The innovative procurement process exemplifies the potential to divide the legal entities into smaller ones, not necessarily constrained to an apartment area, easing the changes in dwelling sizes and promoting versatility in the use of spaces. This project is unique in that the developer and architect, often having misaligned objectives, have demonstrated that is possible to agree on common targets in a resourceful way. Patch22 stands as an adaptable support, serving as a long-term investment that evolves with changing needs of the potential users, dwellers and offices the environment and the economic interests of its users. This versatility benefits both the environment and the economic interests of the developers.

Porto 15, a public experiment to foster collaborative housing

Instrument
regulation, community engagement

Issued (year)
-

Application period (years)
-

Scope
country, regional, local

Target group
young, low income group, vulnerable group

Housing tenure
tenancy, public housing, co-housing

Discipline
sociology, public policy, urbanism

Object of study
Outcomes Instrument

Porto 15 is the first Italian public rental co-housing project dedicated to people under 35. Produced by three public bodies of Bologna from the welfare sector, it was designed and subsequently managed in collaboration with the residents. Through the renovation of a vacant council-owned building in the centre of Bologna, the project attracted public attention to limiting land consumption and improving the management of public properties. In 2017, residents were able to move in, after an intense co-production period involving the residents and the public administration.

This project is the first example of public engagement to set the scene for an alternative form of housing, different to the archetype of public housing. Porto 15 sets a milestone in changing the paradigm of the public housing resident. Through this project, the public administration redefines the position of the administration as a service provider, and of the tenant as a service user. In this context, the new public housing beneficiary is expected to be an active participant, fostering both an internal community within the co-housing and an external community through social and environmental sustainability actions in the neighbourhood. The collaborative design and management of the shared spaces of the building should thus build new community competences.

Following the example set by this project, Bologna adopted its first building regulations for collaborative housing. In this regard, Porto 15 is expected to play a pivotal role in inspiring other affordable co-housing endeavours not only in the city but throughout Italy.

Related vocabulary

-

Alignment with project research areas

Design, Planning, and Building
The project encompassed the renovation of a portion of a historical building, addressing the need to reuse and revitalize the extensive, unused public estate stock. The project aims to enhance the energetic efficiency of an early twentieth century building by implementing sustainability upgrades. The interventions constituted a complete retrofit, including thermal insulation and the replacement of systems (heating, ventilation, electricity, water). Future residents participated in the design of the basements, choosing to create a shared space instead of private garages as proposed by the architect.

Community Participation
As a rental co-housing scheme, Porto 15 relies on the participation of residents to cultivate social networks within and around the housing community. Their involvement started with the co-design of the project, encouraging the future community to take ownership of the space and promote a sense of belonging. Furthermore, various communal spaces were deliberately left vacant, empowering residents to decide on their collective use, establish relationships, participate in management, initiate entertainment initiatives, collaborate on projects, and host people and events. To formalize their collective efforts, the group established an association that promotes collaborative initiatives for the neighbourhood and the city.

Policy and Financing
Porto 15 has opened up broader perspectives on existing norms, providing an opportunity for local authorities to establish new regulations that encourage future collaborative housing projects, with clear technical criteria and a strong emphasis on social utility. The initiative has sparked a reflection on financing alternatives and continuity, prompting the establishment of specific funding for affordable housing at the municipal level, including a specific fund for co-housing. In addition, European funding, particularly through initiatives like the national Recovery and Resilience Plan, is expected to play a pivotal role in supporting affordable social housing in Italy in the following years.

Pre-1919 Niddrie Road Retrofit – An Example of Care for Climate and Health

Architect(s)
John Gilbert Architects - www.johngilbert.co.uk

Location
107 Niddrie Road, Govanhill, Glasgow

Project (year)
2019-2022

Construction (year)
2021-2022

Housing type
Tenement

Urban context
City Center

Construction system
Retrofitting

Status
Building renovation

Some 73,000 dwellings, which account for one-fifth of the city housing stock in Glasgow, are pre-1919 sandstone tenements. Unfortunately, these historic buildings frequently face issues related to poor energy efficiency, primarily caused by outdated windows and air leakage from the façade to indoor spaces. These buildings' construction, design, and materials pose a significant challenge for the city in achieving its net-zero emission targets for its housing stock. Glasgow must reduce emissions resulting from energy consumption while simultaneously improving residents' comfort levels.

This case study highlights a deep retrofit project of an empty traditional Scottish tenement block in Glasgow. The retrofit adopted the Passivhaus enerPHit standard to address critical housing challenges, such as energy efficiency, inadequate insulation, poor indoor air quality, and the health implications of ageing homes. The project resulted in renovating eight one-bedroom flats within a classic tenement building on 107 Niddrie Road in Strathbungo East, on the city's south side.

Despite challenges related to building orientation and structural issues, this historic sandstone building became the first in Scotland to meet the Passivhaus enerPHit standard. As a result, it now offers energy-efficient, well-ventilated flats for eight households. This case study demonstrates that even century-old buildings can outperform new constructions regarding energy efficiency while simultaneously addressing environmental and societal concerns. Its success yields valuable lessons and sets a promising example for similar renovation projects in Scotland and regions with comparable climates.

The retrofitting project, led by the Southside Housing Association with support from the Scottish Government and Glasgow City Council, has gained international recognition. It was displayed in COP26's virtual pavilion as a prime example of "Deep-carbon refurbs for hard-to-heat and hard-to-treat tenement homes". It received the Glasgow Institute of Architects Sustainability Award for 2022.

Related vocabulary
Energy Poverty, Energy Retrofit, Housing Retrofit

Alignment with project research areas
The 107 Niddrie Road project, as an example of deep retrofitting, addresses some issues within the three primary research areas of RE-DWELL.

Design, Planning and Building
This project aimed to serve as a model for the Scottish housing system by showcasing the potential of retrofitting a 120-year-old tenement. It demonstrates the feasibility of retrofitting vacant and abandoned homes and promotes energy and carbon savings. Furthermore, it highlights the retrofit's potential to enhance health and wellbeing by reducing energy costs, ensuring year-round ventilation, mitigating dampness and mould, and avoiding toxic materials. Despite the inherent challenges in heating tenements, the project provides valuable lessons and inspires confidence for future retrofitting endeavours. It should encourage planning authorities to adopt similar healthy and low-carbon home retrofitting approaches.

Community Participation
During the retrofitting process, residents were not actively involved because the building had been vacant for two years due to safety concerns related to its structural stability. However, in the future, residents will play an active role on a personal level, contributing to using low-carbon homes and evaluating their performance. A comprehensive research project led by the UK Collaborative Centre for Housing Evidence (CaCHE) at the University of Glasgow will assess the performance and costs of two groups of flats. Planned monitoring systems will collect real-time data from one group with installed heat pumps and compare it to the group of flats with gas boilers. This extensive monitoring and tenant engagement approach aims to identify areas that require communication and determine the necessary support for tenants to optimise the use of their new energy-efficient homes.

Policy and Financing
The retrofitted flats will be offered as social housing rentals. The project's objective is to provide affordable housing and combat fuel poverty. It surpasses government energy efficiency standards, alleviating the financial strain on tenants related to energy bills. This initiative is expected to decrease instances of rent defaults and vacant properties, making housing more affordable in terms of both rent and energy costs.
The project offers valuable insights into both policy and finance, with funding contributions from Glasgow City Council, the Southside Housing Association (property owners), and the Scottish Government. A research partnership has been established to investigate the retrofitted tenement further. CaCHE is leading the research at the University of Glasgow in collaboration with Prof Tim Sharpe from the University of Strathclyde Department of Architecture, Chris Morgan from John Gilbert Architects, Glasgow City Council, and CCG Construction Ltd.
This retrofitting project and the associated research serve as a compelling case study for policymakers as it underscores the potential of retrofitting vacant housing to reduce embodied carbon and energy consumption. Furthermore, it enables a comparison of the costs and efficiency of various heating systems, offering valuable insights for decarbonisation initiatives.

Rural Studio

Initiating entity
School of Architecture, Planning and Landscape Architecture, Auburn University

Objectives
Educating students as local architects and global citizens while researching sustainable rural living, emphasising housing and essential systems for community well-being.

Educational/participatory methods
design & build; experiential learning; Problem-and-project-based learning (PPBL); transformative learning

Context
Rural (under-served/under-resourced) areas in Hale County, Alabama with few cases in other, neighbouring areas of Alabama

Place
Newbern Town, Hale County, Alabama (the studio's physical location & main area of operations)

Period
1993 -

Duration
Throughout the academic year, in both fall & spring semesters. 2 programmes of designing & building in phases: third and fifth year programme.

Stakeholders
residents of Hale County, sponsors/donors, municipal authorities, local associations & schools, Auburn University

Object of study
Building Neihbourhood Live Project

The Rural Studio, situated in Newbern, Hale County, Alabama, is a client-driven design and build research studio affiliated with Auburn University's School of Architecture, Planning, and Landscape Architecture. Founded by Samuel "Sambo" Mockbee and D.K. Ruth, the studio emerged as a response to the perceived ethical void in architectural education and as a criticism of the disconnect between theory and practice prevalent in the early 1990s architectural landscape. Mockbee and Ruth aimed to transform architectural education by immersing students in real-world scenarios, integrating theory with hands-on experience, and fostering positive change in the underserved communities of Hale County in Western Alabama.

The studio's success in effecting incremental change is attributed to Auburn University's financial support, the diverse collaborations with local entities, and its enduring presence in

Hale County. Operating two distinct design and build programs for third and fifth-year students, the Rural Studio emphasises technical skills in the former and social aspects in the latter. Students engage in community-focused projects, negotiating with clients, managing resources, and navigating socio-political landscapes.

The curriculum's unique structure, encapsulated in annual "drumbeats," encompasses technical, theoretical, and communication skills development, fostering a team-oriented approach. Learning outcomes span over analysis and synthesis, design and construction, teamwork and management, and ethos and responsibility. Hale County's socioeconomic challenges provide a contextual backdrop, shedding light on issues of poverty and housing insecurity. The Rural Studio serves as a transformative platform, exposing students to the stark realities of the United States and instilling a sense of responsibility for sustainable and socio-politically conscious architectural practice.

Related vocabulary
Community Empowerment, Housing Affordability, Social Sustainability, Sustainability

Alignment with project research areas
This case study resonates with two of the research areas of the RE-DWELL project - ‘Design, planning and building’ and ‘Community participation-, with a special focus on housing design education and sustainable planning, in particular with regard to the following research issues:

- Housing design education: Students engage in multi-stakeholder, hands-on projects in underserved rural areas and learn through a practice-based approach.
- Sustainable planning: Students are encouraged to adhere to the principles of environmental sustainability and affordability during the design process
- Inclusive design: Most projects not only address issues of accessibility, encompassing both physical and financial aspects, but also engage in community-building activities, such as the farm/gardening project.
- Vulnerable groups: For the majority of the studio’s lifespan, the focus has been on designing, constructing and providing of living quarters to marginalised individuals who cannot afford decent homes, most of them belonging to the Black community of Hale County.

Self-Organisation in a New Dutch Suburb: Housing development in Oosterwold

Planner(s)
MVRDV , Municipality of Almere

Area
Almere, Netherlands

Project (year)
2011- To date

Construction (year)
2011

Housing type
Single-housing, multifamily housing, collective housing

Amenities
Shops, grocery stores, schools

Object of study
Urban plan Urban regulation

The greenfield site of Oosterwold in the Netherlands encompasses a development strategy spanning 43 square kilometres near the town of Almere. It is grounded in the principles of "organic area development," where there is no predetermined master plan; instead, it relies on a framework that includes land-use rules. This experimental approach, also known as “do-it-yourself urbanism,” empowers residents to develop their own site and collectively decide about the design and management of various infrastructural components, such as roads, waste and water management, energy supply, and green communal spaces. However, the experimental and self-organised planning approach has led to a proliferation of privately-owned housing, and to a notable underdevelopment in social and affordable housing.

Related vocabulary
Collaborative Governance

Alignment with project research areas

Design, planning and building:
The Oosterwold case exemplifies an alternative, sustainable planning strategy, aligned with the research area of design, planning and building. It stands out as an atypical instance of greenfield development due to its substantial size and the experimental, innovative nature. Comprising a mix of land uses, its primary components include residential buildings and sustainable agriculture. Despite being a low-density area, Oosterwold places a significant emphasis on the use of renewable energy and food resources at the neighbourhood/district level.

Community participation:
The concept of citizen self-organisation in Oosterwold stems from the paradigm of participatory/community planning. It represents one of the most extreme cases of active citizenship, as the open-ended strategy requires residents to assume planning roles traditionally held by local government. The entire Oosterwold scheme sets a distinct trajectory within the well-regarded context of Dutch, state-driven planning. It favours the sharing of knowledge among stakeholders involved, experts and non-experts, encourages private initiatives, and promotes greater flexibility in regulation, leading to an organic distribution of land uses driven by the demands of the initiators.

Policy and Financing:
This planning experiment has the potential to shape new policies addressing the interdependencies among housing, self-organisation, collaborative governance, and energy and food production in urban development.

Solar Decathlon Europe 2022

Architect(s)
16 competing universities

Location
Wuppertal, Germany

Project (year)
2021-2022

Construction (year)
2022

Housing type
multifamily housing

Urban context
City centre

Construction system
Prefabricated sustainable homes designed and built to be disassembled and relocated for reassembly

Status
Built

Solar Decathlon Europe (SDE) is a university competition where student-led teams undertake the challenge of designing and constructing highly innovative and environmentally sustainable 1:1 scale House Demonstration Units (HDU). Originally launched in the USA in 2002, the competition expanded its reach to Europe in 2010 (SDE, 2019). Competing teams typically involve research groups within universities and are sponsored by industry partners, such as contractors and product manufacturers. After the competition, the homes become accessible to the public, featuring guided tours that highlight the cutting-edge advancements in sustainable housing.

Although the competition's primary design challenge focuses on minimising operational carbon, participating teams must also address the path towards achieving a climate-neutral building stock. The construction task requires teams to create prefabricated building systems, assemble their HDU at a site in their home country, disassemble it, then transport and reassemble it within just two weeks at the competition site, known as the Solar Campus. This means design for disassembly and circularity are integral to the competition, making it a unique opportunity to demonstrate how permanent housing (as opposed to temporary or emergency housing) can be designed to reduce embodied carbon throughout the whole life cycle and discourage potential future demolition.

The SDE-2022 edition took place in Wuppertal, Germany under the theme "SDE Goes Urban!" Sixteen teams from countries including Czechia, France, Germany, Hungary, Netherlands, Romania, Spain, Sweden, Taiwan and Turkey took part in the build challenge. Teams were awarded points in ten categories, covering environmental and social sustainability aspects, as well as affordability and viability. This case study provides an overview of the SDE competition in 2022, which was attended by the author on-site. More information about the visit can be found in this blog post.

Related vocabulary
BIM, Design for Disassembly, Industrialised Construction

Alignment with project research areas
Solar Decathlon Europe is an architectural competition for sustainable housing which focuses on the quality of design and construction. Financing is integral to the realisation of the projects and is managed by the student teams. Community participation is not a requirement of the competition and the HDU's on the Solar Campus do not provide housing for the public.

Design, planning and building (Highly related)
The competition is based on the design and build challenges that focus on the architecture and engineering dimensions with consideration for urban design and potentially responding to different contexts. Detailed design criteria are assessed within the Architecture and Engineering & Construction contests and include aspects such as aesthetic design quality, structure, durability, coherence of the design, and energy performance (SDE, 2021)

Policy and Financing (Moderately related)
SDE 2022 provided financial support of €100,000 as base funding. Teams were then responsible for raising additional funds though sponsorship and donations. Regarding the concept design, affordability was taken seriously by the teams, whose proposals also included considered business cases for affordable and social housing solutions.

Community participation (Not related)
Solar Decathlon was not designed to be a participatory project. However, due to the high media coverage, the competition tends to generate a considerable amount of public interest. An additional objective of the competition is to generate social awareness and educate the general public to understand the SDE topics and the need for an energy transition in the built environment.

Targeting and Policy Efficiency: Exploring the Intended Reform of the Warm Home Discount

Instrument
Grant

Issued (year)
2021

Application period (years)
2022-2026

Scope
Country

Target group
Low-income households in energy inefficient dwellings

Housing tenure
-

Discipline
Public policy

Object of study
Instrument

With residential fuel prices on peak levels, governments are increasingly looking at targeted support for households at risk of fuel poverty. The Warm Home Discount has been in place in England and Wales since 2011 to improve affordability for specific groups. However, it received criticism for its low spending envelope, partially non-automated implementation, and lack of targeting. Therefore, government aims to reform the bill and presented a consultation document. This case study looks at the proposed changes, and places them in the context of the literature on target efficiency. It concludes that while the plans to automate the discount based on a prediction which low-income households live in inefficient dwellings are innovative, the responsible department has a narrow focus on vertical efficiency and either neglects or remains untransparent about the horizontal efficiency of the reform.

Related vocabulary
Just Transition

Alignment with project research areas
This case study is strongly connected to the Policy and Financing research area within RE-DWELL. As it encompasses the targeted support of households with low incomes in energy inefficient homes, ‘governance’ and ‘vulnerable groups’ are the two most prominent areas. As energy efficiency only predicted based on housing characteristics, this area is very relevant but slightly less compared to the former two. The WHD is not a procurement mechanism for the government, but still relates to the fuel procurement of private households. Furthermore, when more dwellings are retrofitted, the need for the WHD or other income support mechanisms would likely decrease.

While the term ‘energy poverty’ was not explicitly mentioned here, the topic lies precisely within RE-DWELL’s pillars. To illustrate this, O'Sullivan et al. (2017) describe how researching energy poverty can hardly be done from one single discipline. Appreciating the multifaceted complexity of societal problems like these requires ‘methodological pluralism’. Another illustration is the comparison between the first intended paper in this report and the attempt of Csizmady et al. (2021) to take the self-reporting of energy poverty beyond the binary divide between the energy poor and the non-poor. While these resemble two different methodologies, they aim for the same objective. The partnership with RE-DWELL academics, secondment partners and fellow doctoral candidates will thus contribute to this approach, as it aims to be a transdisciplinary research platform.

The Elwood Project, Vancouver, Washington

Architect(s)
Access Architecture

Location
Vancouver, Washington 6317 NE Fourth Plain Boulevard in Vancouver

Project (year)
2021

Construction (year)
-

Housing type
permanent supporting housing, three-storey buildings with forty-six apartments

Urban context
-

Construction system
vintage wood (fiber cement cladding), wooden/concrete/steel frame, off-site industrialised construction

Status
Built

The Elwood Project is an affordable housing community project owned by the Housing Initiative, LLC, which is a subsidiary of Council for the Homeless in Clark County, WA. It consists of four three-storey buildings with forty-six apartment homes. Half of these homes are designed for homeless people, considering their special physical and behavioural health needs (Otak, 2022). Elwood is a socially relevant example of permanent supported housing. Brendan Sanchez and his Access Architecture team used trauma informed design (TID) principles for the entire building to serve and empower the residents. Numerous partners contributed to the success of this project: Access Architecture, CDM Services, City of Vancouver Affordable Housing Fund, Clark County, Hunt Capital Partners, Otak, Inc., Se Mar – Community Services Northwest, TEAM Construction, Vancouver Housing Authority, Washington State Finance Commission (Council for the Homeless, 2022).

Related vocabulary
Affordability, Community Empowerment. Social Sustainability

Alignment with project research areas
The Elwood project as a case study represents how the three research areas of RE-DWELL are necessarily connected and interrelated whenever the aim of the development project is to provide sustainable and affordable housing.

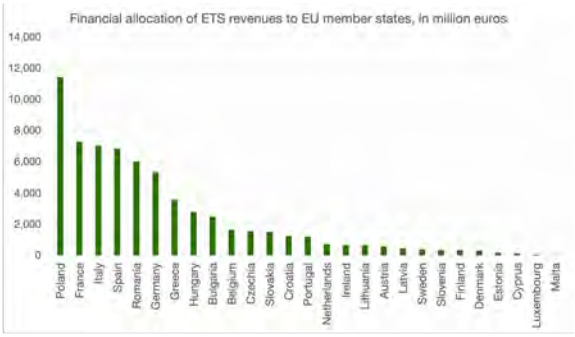
According to the architects of Access Architecture, this case is a good example of informed design and community engagement (Access Architecture, 2022a). It was crucial for the creators of the project to foster meaningful connections among participants during the planning and building processes, and to provide future residents with the chance to connect with each other and with their environment. Therefore, this project exemplifies the need to align design, planning and building and community participation.

Elwood utilized trauma-informed design, which positively influences social, environmental, and economic sustainability. In general, the use of outcome-based design helped the developers to reach vulnerable groups, listen to their needs and include their voices and wishes in the planning and design outcomes. As a result, there was an accent on dignity, independence, empowerment, environmental control, community, healing environments, privacy, safety, affordability, and security.

This case is also characterized by social and economic inclusion and demonstrates a strong alignment with policy and financing too. To respond to the need for social housing it was necessary to change the existing legal framework. The greatest challenge was to build a new financing network with the participation of authorities and stakeholders from different sectors. Policy makers and investors functioned as key actors. The Washington State Finance Commission and the City of Vancouver Affordable Housing Fund had a crucial role as well.

Future projects can learn from this community effort. Case specific solutions and ordinances can be investigated, to analyse how the rules of zoning and tax benefits could be changed or shaped. In sum, Elwood is a constant source for learning (e.g., understanding legal or financial complexities, analysing community involvement, investigating the current operation of the facility and estimate the positive impacts of TID).

The Social Climate Fund: Materialising Just Transition Principles?



Instrument
Fund

Issued (year)
2023

Application period (years)
2026-2032

Scope
European

Target group
European households at risk of energy and/or transport poverty

Housing tenure
Mixed

Discipline
Public policy

Object of study
Instrument

The EU's Social Climate Fund (SCF) is a part of the Green Deal initiative and aims to mitigate the financial impact of increased energy costs and gasoline prices resulting from extending the Emission Trading Scheme (ETS) to buildings and transport. The SCF will provide resources to assist vulnerable households, micro-enterprises, and transport users. It will operate from 2026 to 2032 and will be funded through revenues generated by the new ETS, with a maximum allocation of 65 billion euros, supplemented by national contributions. Many NGOs commend the SCF for incorporating a social dimension into EU climate policies and striving to 'materialise' the just transition. Nevertheless, concerns remain regarding the fund's size, tight timeframe, and limited stakeholder participation outlined in the proposed regulation.

Related vocabulary
Housing Affordability - Just Transition

Alignment with project research areas

The SCF is particularly relevant in RE-DWELL's research framework, as it addresses housing affordability within the energy transition, with a specific focus on vulnerable groups. The SCF aims to provide resources to finance investments in energy efficiency and the decarbonisation of heating and cooling systems. Through the fund, Member States can finance subsidies or guarantee low-interest loans to enable vulnerable households or their (social) landlords to renovate their homes and adopt energy-efficient technologies.

The SCF is primarily funded through revenues generated by the new emissions trading system, with a maximum allocation of €65 bn, which may be supplemented by national contributions. This demonstrates the interplay of governance, market mechanisms, and financing in implementing the fund. Additionally, the text mentions the importance of assessing SCPs both ex ante and ex post, indicating a focus on evaluating the effectiveness of governance structures and financing mechanisms in achieving the fund's objectives.

The Sutton State regeneration, Chelsea

Architect(s)
Original Architect: ECP Monson; Retrofit Architect: HTA Design LLP

Location
London, England

Project (year)
2014 - present

Construction (year)
1913

Housing type
15 blocks of single family flats with shared landscape

Urban context
city centre housing estate

Construction system
brick masonry, lime mortar, and plaster; double and triple glazed windows with aluminium frames and trickle vents.

Status
Built

The Sutton Estate, Chelsea was funded by philanthropist William Richard Sutton, who bequeathed his fortune to the creation of The Sutton Model Dwellings Trust (now Clarion Housing Group) in 1900. Due to the industrial revolution and mass migration into inner cities, the working classes in the UK were living in extreme slum conditions. According to The Chelsea Society, “in 1902 a quarter of Chelsea’s community officially lived in poverty, and 14% [sic] lived in overcrowded accommodation”, bringing sanitation issues and the “potential of a health related pandemic”, to an otherwise affluent area. Sutton left instructions to set up a trust that would build and lease social housing for “use and occupation by the poor…[in] populous places in England” (Booth, 2015; SaveOurSutton, 2018). The Sutton Estate was built between 1912-1914 on a previously dense urban site. It was the third of four social housing estates erected in Chelsea by philanthropic institutions: (1) Peabody Trust Estate, Lawrence Street, 1870; (2) Guinness Trust Estate, Kings Road, 1891; (3) Sutton Dwellings Trust Estate, Cale Street, 1912-1914; (4) Samuel Lewis Trust Estate, Ixworth Place, 1915, directly opposite the Sutton Estate (Best, 2014). By the 21st century, however, the Sutton Estate dwellings had fallen into disrepair and in desperate need of refurbishment.

The Royal Borough of Kensington and Chelsea (RBKC) is now the second most expensive borough in the UK, after Westminster, and as such The Sutton Estate sits in prime real estate location. In 2018, the RBKC rejected a planning application, in part due to a resident orchestrated campaign “Save our Sutton”, which proposed to demolish the estate and rebuild, with part of the site sold for private ownership to fund new social housing. Plans to refurbish, retrofit, and regenerate began in 2019 and were accepted in 2021.

Related vocabulary
Energy Retrofit, Housing Retrofit

Alignment with project research areas

Design, planning and building

- Retrofit re-designed internal layouts to meet housing needs of existing residents, including lift and larger family units.
- Energy efficiency plays a key role in both the DER and maintenance strategies, to improve comfort and lower costs of bills.

Community participation

- A Resident Steering Board was set up early in the regeneration design process to comment on plans and give feedback. All residents were invited to join via the newsletter (Clarion Housing, 2019)
- Public consultations were also utilised online (during the Coronavirus pandemic) and in person to “chat through the draft designs and give us your feedback” (Clarion Housing, 2020).

Policy and Financing

- All dwellings remain social rental housing.
- The retrofit was financed by the building owners – Clarion Housing Group.

Wikihouse: South Yorkshire Housing Association

Architect(s)
Open Systems Lab - Alastair Parvin;
Architecture 00 – Clayton Prest, David Saxby

Location
Sheffield, UK

Project (year)
2017-2018

Construction (year)
2018

Housing type
Two semi-detached homes (2 storeys)

Urban context
Close to Sheffield city centre

Construction system
Open source prefabricated 'modular' system using a plywood timber structure

Status
Built

WikiHouse is an open-source building system developed in the UK, utilising industrialised construction and off-site methods to provide high-performance, low-carbon, circular housing. The system, which is based on standardised lightweight timber products connected using dry construction, incorporates design for disassembly to facilitate future adaptability, maintenance, and reuse. WikiHouses are composed of components designed to be digitally fabricated using a CNC machine. This makes it accessible to a wide range of users, from lay-persons all the way up to large-scale housing providers such as South Yorkshire Housing Association (SYHA), who are also a RE-DWELL partner. In 2018, SYHA was the first housing association to implement WikiHouse, aiming to take advantage of the system to address the UK's pressing housing crisis, where the government has set a target of providing 300,000 new homes each year. WikiHouse stood out as an attractive solution for SYHA, given its potential to produce high-quality homes in shorter time scales and its possibilities for residents to participate in the design process. The pilot project tested the viability of WikiHouse for SYHA's rental portfolio, focussing on cost-efficiency, environmental performance, and scalability. Despite challenges such as unexpected ground condition issues and building warranty hurdles, the project provided valuable insights. Residents praised the homes for their warmth and low energy bills, and SYHA found the WikiHouse's assembly process efficient once initial learning curves were overcome.

This case study is based on an interview with Miranda Plowden, SYHA's former Business Development Director who was involved in the delivery of the WikiHouse pilot.

Related vocabulary
Design for Disassembly, Housing Affordability, Industrialised Construction, Life Cycle Costing

Alignment with project research areas
'Design, Planning and Building' and 'Policy and Financing' research areas are highly related to the SYHA WikiHouse pilot project, yet associations with 'Community Participation' are limited. This is due to the current top-down nature of social and affordable housing provision, although there is potential to increase resident engagement in future projects.

Design, Planning and Building (Highly related)
The design and planning aspects of the SYHA WikiHouse pilot project were crucial in demonstrating the practical application of open-source, standardised construction systems in social housing. The project emphasised the use of industrialised construction, though to a modest degree, with potential for greater scalability. This innovative design facilitated rapid assembly while considering future disassembly, aligning with circular economy principles.

The pilot provided valuable insights into the scalability and adaptability of WikiHouse designs for larger social housing schemes, highlighting the benefits of streamlined construction processes and efficient use of materials. This open approach to industrialised construction can remove barriers in the design and construction processes, enabling stakeholders to effectively provide affordable housing across the UK. This could be integrated within policy and frameworks such as OSHA.

Policy and Financing (Highly related)
The SYHA WikiHouse pilot project provides an excellent research case for the areas of policy and financing, as it addresses the challenges and opportunities of adopting unconventional and circular strategies within the constraints of current financial and regulatory systems. The project navigated the complexities of obtaining warranties and financing for non-traditional building methods, demonstrating the potential for WikiHouse to meet and exceed regulatory requirements.

The use of The Buildoffsite Property Assurance Scheme (BOPAS) for warranting demonstrates a route for integrating industrialised construction into mainstream housing finance systems. Additionally, the project's findings on cost-efficiency provide a basis for policy recommendations to support wider adoption of sustainable building technologies in affordable housing initiatives, although greater research into the long-term cost benefits is needed.

Community Participation (Limited)
SYHA values resident community participation highly with a dedicated co-design lead within the organisation, co-production events, and co-evaluations of all activities with its customers. The association was interested in learning about WikiHouse, partly because it could be a key enabler for a new citizen-led way of building homes, which matches with WikiHouse's mission to democratise housing. The association did not test this in its pilot, as their main goal was to build and test the long-term building performance of pilot homes. The flexibility and accessibility of the open-source system could theoretically instigate more local involvement in the co-design of housing and neighbourhoods. Though, as Miranda highlighted, it is inherently difficult to engage with residents in the process, as SYHA only learns who is going to live in their homes a few weeks ahead of time.

York’s Duncombe Square housing: Towards affordability, sustainability, and healthier living

Architect(s)
Mikhail Riches

Location
York, UK

Project (year)
2020

Construction (year)
2022 - 2024

Housing type
Terraced housing

Urban context
City center

Construction system
Off-site timber frame construction

Status
Built

Duncombe Square, a housing project in the City of York, is a key part of the council's housing delivery programme initiated after the declaration of climate emergency in March 2019. Michael Jones, the head of housing delivery and asset management, notes that the programme addresses the high demand for homes, tackles social isolation, climate change, and supports community health.

According to the Passivhaus trust, Duncombe Square is Yorkshire's biggest affordable housing project. The residences were designed to promote healthy and low-carbon living. Providing warm and well-ventilated indoors is expected to lower risks of excess cold and mould accumulation. Those risks represent significant health hazards in British dwellings. Additionally, features like air-source heat pumps and PV panels are expected to reduce energy use and bills by approximately 70%, achieving zero-carbon in-use and affordable running costs for residents.

The project offers 60% of its 34 homes as affordable housing options, split between social rent and shared ownership. It includes a range of housing, from 1-bedroom flats to 4-bedroom family houses. The development also features well-designed outdoor spaces and a communal green area.

Duncombe Square, designed by Mikhail Riches, a Stirling Prize-winning architect, exemplifies the council's housing delivery programme. Additionally, community input via multiple consultations was vital in shaping the project brief. The project has garnered multiple accolades, including the Housing Design Awards and Planning Awards 2022, showcasing how modern design can enhance local architecture and community wellbeing. The council hopes this project will inspire other local councils and housing developers in the UK to create healthy, beautiful, and inclusive environments.

Related vocabulary

Financial Wellbeing, Housing Affordability, Measuring Housing Affordability, Participatory Approaches, Social Sustainability, Sustainability

Alignment with project research areas

Design, Planning and Building

This project serves as an exemplary integration of design, planning, and construction, with a focus on promoting the health and wellbeing of future residents as well as environmental sustainability through conscious, sustainable approaches:

Design: The design prioritises the health and wellbeing of households by incorporating Passivhaus principles and selecting sustainable materials with aesthetic appeal. Blending with the local architectural identity, it features low-rise, high-density terraced housing that incorporates traditional materials like brick alongside modern touches such as render and timber shingles.

Construction: The construction deviates from the typical Design and Build procurement approach, with the architect leading the design process and working closely with the contractor throughout execution. The focus is on airtightness, energy efficiency, and indoor air quality to meet Passivhaus standards, requiring precise installations and multiple tests. Additionally, off-site timber frame construction is used for the main building structure as a sustainable choice.

Planning: The site's planning emphasises a child-friendly, pedestrian-focused neighbourhood, prioritising walking and cycling. Vehicle parking is placed along the perimeter, with dedicated cycle parking for each home. The development's core features generous green spaces, communal growing plots, and private planters to encourage outdoor activities, community interaction, and engagement.

Community participation

The project demonstrates a commitment to community participation articulated in various forms:

Consultation on design brief: The project's development involved consultations with local residents and Clifton Green Primary School students to ensure integration with the existing community. Their active participation through drop-in events, workshops, and an online consultation during the COVID-19 lockdown in Autumn 2020. These consultations aligned the project's design brief with community needs and expectations.

Living with others: The development design aims to foster strong community ties and sustainable living. Though not yet occupied, the design aimed to create a neighbourly atmosphere by encouraging reduced car use and prioritising cycling infrastructure, including dedicated paths and cycle parking. Features like communal food-growing areas, planting spaces, and child-friendly zones are intended to encourage social interaction and support sustainable lifestyles once residents move in.

Contribution to a broader community: The project is committed to developing sustainable construction skills (Passivhaus Trust, 2022) and knowledge-sharing (Passivhaus Trust, 2023). Caddick Construction provides staff, new hires, and students with sustainable construction training. The City of York Council collaborates with local institutions like York College and Job Centre Plus to support broader workforce development and build "Green Skills" within the supply chain. Knowledge-sharing activities involve site visits, presenting the project as an open case study that allows different stakeholders to engage with ongoing development that adopts

sustainable construction techniques and Passivhaus standards. These efforts aim to create job opportunities and inspire other stakeholders to replicate similar projects across the UK, benefiting people and the environment beyond this development.

Finance and policy

The Duncombe Square project is financially structured through a collaboration with Homes England and local funding sources. Homes England's support has enabled additional funding through the Affordable Homes Programme, complementing other financial contributions, which include right-to-buy receipts and market sales. To ensure economic sustainability, 60% of the homes are allocated for affordable options, comprising 20% for social rent and 40% for shared ownership—exceeding local planning requirements—while the remaining 40% are sold on the open market. This market revenue helps subsidise the affordable housing component.

The project's total cost is 14 million GBP, with expenditures broken down as follows: land costs 2 million GBP, construction costs 10 million GBP, and additional on-costs amount to 2 million GBP. This financial model allows the City of York Council to maintain a self-sustaining development strategy despite limited government funding, ensuring the project remains feasible and continues to provide affordable housing options.

Annex 3 – Guidelines

This Annex contains the guidelines provided to users.

RE-DWELL Case Library

The RE-DWELL case library is part of the collaborative construction of a repository of knowledge on affordable and sustainable housing. The library consists of documented cases (i.e. reference works, precedents, relevant examples) found in individual research projects that are deemed worthy of being shared with all researchers in the network. Cases can be designs and buildings, urban plans, regulations, financial plans and procurement, etc. related to affordable and sustainable housing.

The cases documented in the library need not (but may) coincide with the cases that ESRs use for their case study research. One case may be of interest to several ESR projects, which may approach it from different perspectives.

Cases

The proposal to document a case comes from the ESR and his/her supervisors. The case may be related to the ESRs' research project, to an publication jointly written by the researchers, to a secondment, etc. It can be created by a single researcher or by several researchers.

The documentation of the case is done with the template provided. There are four templates:

- Buildings and designs

- Urban planning and regulations

- Policy and financing

- Participatory and learning processes

A case can be related to vocabulary entries, blogposts and publications.

Case content

The templates for the cases follow the same structure:

- Icon

- Abstract

    A 250 words description of the case

- Descriptors (specific for each of the four types)

    There are two kinds: free text, taxonomy

- Description

    A concise description of the case based on the documentation you have had access to

- Alignment with RE-DWELL research

Your reflections about how the case addressed some of the challenges of RE-DWELL (e.g. holistic approach to affordable and sustainable housing, intertwining the three research areas: 1. Design, Planning and Building, 2. Community Participation and 3. Policy and Financing.

- Alignment with SDGs

Select the goals related to the case.

- References

In APA style; they can be introduced in RE-DWELL Mendeley

- Images/media

Images, recordings, videos and other multimedia.

Copyrights

Sources of images and other multimedia materials must be included. If they are already published in internet, you can refer to the online source. Otherwise, you need to ask for the permission to the authors (an email would be enough).

If it is your own material, include your name as source.

Editorial process

The documented case is peer-reviewed, first by the supervisor and, if necessary, by a second RE-DWELL supervisor/co-supervisor or secondment representative.

The peer-reviewed case is sent to the coordinator for final editorial processing. The .doc file and the associated files (images, videos, etc.) are uploaded to Teams RE-DWELL ESRs/CASE_STUDY_LIBRARY/CASES/[TITLE OF CASE]/

Once the reviewing is completed, the case is uploaded to the website by the coordinator.

Recommendations

The RE-DWELL case study library must add value to the existing body of information (in books, articles, internet, etc.) on affordable and sustainable housing. It is therefore important that the cases are selected with RE-DWELL's research approach (holistic, transdisciplinary) in mind.

The "Description" section depends largely on the information you have had access to. It is necessary to include these sources in the references. Although this is an objective description of the case, use your own judgement in selecting the information you need from the sources you have accessed, avoid copying the texts of the sources.

The cases may be well-known or lesser-known examples. In both cases, you should reflect on them and explain to what extent they are representative of RE-DWELL's research approach. This qualitative assessment is done in particular in the section "Alignment with RE-DWELL research".

Providing own visual materials (diagrams, recorded interviews, photographs and videos of the case, etc.) gives the case additional value.

The documentation of a case can be gradually improved throughout the project

Annex 4 – Templates

This Annex includes templates for the four case categories

Buildings and designs

1. Name of the case
A short name and a long name.

2. Icon
A representative image (e.g. building, drawing) of the case (image size will be setup).

3. Abstract (max. 250 words)
A short description of the case, its main features.

4. Descriptors
Free text introduced by users (examples in italics):

- Architect(s): *authors*
- Location: *city, country*
- Project (year): *YYYY-XXXX*
- Construction (year): *XXXX-XXXX*
- Housing type: *single-housing, multifamily housing, tower, block, courtyard,...*
- Urban context: *city center, suburb, housing estate,..*
- Construction system: *wooden/concrete/steel frame, off-site construction, industrialised construction,....*

Built-in taxonomy (select):

- ❑ New building
- ❑ Building renovation
- ❑ Built
- ❑ Unbuilt

5. Description (max. 1,000-1,500 words)
An elaborated description, including among other:
- innovative aspects of the housing design/building
- construction characteristics, materials and processes
- energy performance characteristics
- involvement of users and other stakeholders
- relationship to urban environment
Add subheaders in the section if necessary

6. Alignment with project research areas (max. 500 words)
Describe how the building/project is related to the 3 research areas (Design, planning and building; Community participation; Policy and Financing). This is also visualized in the radar chart.

7. Alignment with SDGs (max. 500 words)
Describe how the building/project is related to SDGs. This is also visualized in the radar chart. If necessary, Include a direct link to specific target/indicators from https://sdgs.un.org/goals

8. References (APA style)
These references might also be added to Mendeley /VOCABULARY (to the terms associated to the case).

9. Images/Media
Photographs, videos, podcasts, etc. Upload files to Teams RE-DWELL ESRs/CASE_STUDY_LIBRARY/CASES/[TITLE OF CASE]/RESOURCES

Participatory and learning processes

1. Participatory activity/ course name
A short name and a long name

2. Icon
A representative image (e.g. building, drawing, logo) of the case (image size will be setup).

3. Abstract (max. 250 words)
A short description of the case, its main features.

4. Descriptors
Free text introduced by users (examples in italics):

- Initiating entity:
- Objective/vision/agenda:
- Educational/participation methods:
- Urban context and/or policy framework/network:
- Scale/Location:
- Status/Runtime:
- Duration & pace:
- Stakeholders & Partnerships:
- Other (to be filled at will if the above do not cover the overview)

Built-in taxonomy (select):

- ❑ Building Scale
- ❑ Neighbourhood Scale
- ❑ Urban Scale
- ❑ Participatory Project
- ❑ Live Project
- ❑ Activity/Event

5. Description (max. 1,000-1,500 words)
An elaborated description, the structure of which will be decided by the ESRs.

6. Alignment with project research areas (max. 500 words)
Describe how the building/project is related to the 3 research areas (Design, planning and building; Community participation; Policy and Financing). This is also visualized in the radar chart.

7. Alignment with SDGs (max. 500 words)
Describe how the building/project is related to SDGs. This is also visualized in the radar chart. If necessary, Include a direct link to specific target/indicators from https://sdgs.un.org/goals

8. References (APA style)
These references might also be added to Mendeley /VOCABULARY (to the terms associated to the case).

9. Images/Media
Photographs, videos, podcasts, etc. Upload files to Teams RE-DWELL ESRs/CASE_STUDY_LIBRARY/CASES/[TITLE OF CASE]/RESOURCES

Policy and Financing

1. Name of the case
A short name and a long name.

2. Icon
A representative image (e.g. the cover title of the regulation, ad hoc text) of the case (image size will be setup).

3. Abstract (max. 250 words)
A short description of the case, its main features.

4. Descriptors
Free text introduced by users (examples in italics):

- Instrument: regulation, subsidy, taxation, grants, incentives, etc.
- incentives, etc.
- Issued (year): XXXX
- Application period (years): *XXXX-XXXX*
- Scope: *global, European, country, regional, local*
- Target group: *young, first time buyers, elderly, low income group, etc.*
- Housing tenure: *owner, tenancy, public housing, co-housing,….*
- Discipline: *economics, sociology, public policy, anthropology, etc.*

Built-in taxonomy (select):

- ❑ Instrument
- ❑ Outcomes
- ❑ Cross-country comparative
- ❑ Urban
- ❑ Rural

5. Description (max. 1,000-1,500 words)
An elaborated description, including among other:
- Innovation
- Governance structure
Add subheaders in the section if necessary.

6. Alignment with project research areas (max. 500 words)
Describe how the policies/regulations are related to the 3 research areas (Design, planning and building; Community participation; Policy and Financing). This is also visualized in the radar chart.

7. Alignment with SDGs (max. 500 words)
Describe how the policies/regulations are related to SDGs. This is also visualized in the radar chart. If necessary, Include a direct link to specific target/indicators from https://sdgs.un.org/goals

8. References (APA style)
These references might also be added to Mendeley /VOCABULARY (to the terms associated to the case).

9. Images/Media
Photographs, videos, podcasts, etc. Upload files to Teams RE-DWELL ESRs/CASE_STUDY_LIBRARY/CASES/[TITLE OF CASE]/RESOURCES

Urban planning and regulations

1. Name of the case
A short name and a long name.

2. Icon
A representative image (e.g. urban area, urban plan) of the case (image size will be setup).

3. Abstract (max. 250 words)
A short description of the case, its main features.

4. Descriptors
Free text introduced by users (examples in italics):

- Planner(s): *authors*
- Area: *name of district, city, country*
- Year/period: *XXXX-XXXX*
- Construction (year): *XXXX-XXXX*
- Housing type: *single-housing, multifamily housing,...*
- Amenities: *schools, health care, shops,...*

Built-in taxonomy (select):

- ❑ Re-development project
- ❑ Urban plan
- ❑ Urban regulation

5. Description (max. 1,000-1,500 words)
An elaborated description, including:
- City and district characteristics (socio-demographic, income, housing market prices, housing needs, vulnerable groups and housing unaffordability issues)
- Stakeholders involved; housing outcomes (planned or achieved)
- Housing tenures (existing and planned), housing types (existing and planned).

6. Alignment with project research areas (max. 500 words)
Describe how the building/project is related to the 3 research areas (Design, planning and building; Community participation; Policy and Financing). This is also visualized in the radar chart.

7. Alignment with SDGs (max. 500 words)
Describe how the building/project is related to SDGs. This is also visualized in the radar chart. If necessary, Include a direct link to specific target/indicators from https://sdgs.un.org/goals

8. References (APA style)
These references might also be added to Mendeley /VOCABULARY (to the terms associated to the case).

9. Images/Media
Photographs, videos, podcasts, etc. Upload files to Teams RE-DWELL ESRs/CASE_STUDY_LIBRARY/CASES/[TITLE OF CASE]/RESOURCES