

Nettelbeckplatz Berlin, re-thinking urban renewal, cooperative values, and social cohesion, Germany

The renovation of a 1970s cooperative social housing complex with about 163 apartments became an experimental approach to combine today's challenges with intelligent building solutions, energy efficiency and affordable rents, as well as accessibility and social improvements. The project transforms and extends the existing settlement to a co-living project with a lively mixture of households and intergenerational exchange.



Submitting organisations: 1892

Type of organisation: Co-operative

Key elements of the project:

- **Low-carbon and energy saving retrofit.**
44 new homes replace a two-storey carpark. Roof, floor and windows insulation reduce heat consumption by 20% while solar panels provide part of the electricity for the commons (lightning, elevators).
- **Intergenerational and dynamized community.**
A creative team of coop members, architects and experts worked with residents to imagine the retrofit project. The settlement now includes a senior cluster apartment, eight student homes and subsidised homes.
- **A sound financial mix which maintains affordable rents.**
It includes 32% own funding from 1892, 30% of co-op member's investment in savings bonds, 30% borrowed from banks. Subsidised rents cost 7,1US\$/m²/month, the others 10,4US\$/m².

What inspires us ...

This project shows that retrofitting existing affordable housing is more than a structural solution to technical issues, an opportunity to foster participation, reinvent uses and mix populations. The cooperative non-speculative tenure and culture of democratic participation of this housing estate ensures that rents don't increase and gives confidence to members to invest savings in the retrofit process. The experimental way of the project Nettelbeckplatz could be a stimulus to develop similar multi-stakeholder strategies in aging social housing estate elsewhere.



Ground floor plan including the senior residential unit (yellow), the student apartments (red) and the existing buildings



Introduction

The renewal project of the Nettelbeckplatz settlement finished in 2019 and shows a planning and financial model to address the current challenges of climate change, energy crisis and aging populations. It does so with intelligent building solutions, energy efficiency, affordability as well as improvements to the existing housing stock.

The project is an experimental and innovative approach to the need of refurbishing ageing housing blocks whilst offering new homes and shared facilities without affecting affordability. It was led by the cooperative '1892', in collaboration with residents, cooperative members, architects and international experts. The idea was to transform and extend the existing settlement of the 1970s introducing a lively mixture of residents.

The existing building of 163 apartments was renovated and partly transformed to include additional shared spaces, common facilities for seniors as well as eight student homes and art studios. Additionally, a new compact building with 40 additional apartments was set on top of a partly demolished parking garage, without affecting the green outdoor spaces of the housing complex.

The participatory process sought to involve residents before, during and after the intervention. This, together with a robust financial management to gather and invest the total budget of €19.8M (\$ 21.4M USD), were essential to build trust in the process by all stakeholders.

Organisation Implementing the Project

The *Berliner Bau- und Wohnungsgenossenschaft von 1892 eG*, known as '[1892](#)' is the second oldest housing cooperative in Berlin. It is a non-profit enterprise based on self-help, common ownership, affordable rents, and democratic principles. Since 1892, the cooperative builds and manages homes in Berlin for its residents and is a member of numerous international institutions.

With a staff of 80 people, 1892 manages over 6,800 dwellings with more than 18,500 members who are mainly tenants and people on tenants waiting lists. Members must buy a share of €300 (\$323 USD) and when signing a rent contract, tenants must acquire an additional amount of shares proportional to the surface of the apartment they occupy. Members are the owners of the cooperative and they elect a representatives' assembly every four years, which in turn elects a supervisory board. The supervisory board is responsible for appointing the executive board which manages the cooperative and its staff. Surplus between annual incomes and expenses of the cooperative flows into the maintenance of flats and the residential environment or back to the members as dividends.

The housing stock consists of historical buildings under monument protection, social estates of the 1950s to 1980s and experimental housing projects of recent years. Two of its housing complexes are listed as UNESCO World heritage sites.

Aging buildings need intervention to extend their life cycle, solve technical issues and upgrade according to energy-efficiency, accessibility, and habitability standards. In the case of Nettelbeckplatz, the cooperative wanted to put a focus on innovation and participation of members and residents in these important changes of their built environment. In 2016, it joined an international consortium for an EU-funded monitoring project for the “EU Horizon 2020 Goals” in energy efficient building renovation strategies called DREEAM¹. Nettelbeckplatz became one of the three pilot sites to apply and analyse the DREEAM methodology (interviews to residents, measuring of energy consumption and thermal comfort before and after the retrofit).

Context

Nettelbeckplatz is in the northwest of Berlin, in the gentrifying quarter of Wedding. At the time it was built, it was in the former West-Berlin French occupation zone. This urban neighbourhood is characterised by a mixture of traditional tenement houses of the early 1900s, social housing estates of the 1970s and new expensive residential projects for investors and high-income households.

Before the German reunification, Wedding showed a certain social decline and substandard housing with rundown “tenant’s barracks” (*Mietskaserne*), characterised by dark rear courtyards and overcrowding. The city’s refurbishment strategy of the 1970s included the total demolition of these barracks, resetting its residents into new social housing projects. In 1973, the 1892 cooperative, as a common-good-oriented housing developer, took part in that programme and developed the new “settlement” (*Siedlung*). It constructed a complex of six buildings with up to seven levels with originally 150 apartments with large balconies, grouped around a green courtyard with playgrounds and recreation areas. The cooperative legal form was the basis for generating a young and engaged local community that would dynamize the neighbourhood through self-help, solidarity, and self-organisation.

In 2014, when the renewal project was imagined, more than 40 % of residents were above 65 years old. Many of them required better accessibility conditions or assisted living alternatives. The building had lost its reference as a local landmark and the community its vitality. Besides insufficient energy standards, the entrance areas and floor plans no longer met actual accessibility requirements. Social and drug-related problems in the surrounding area created an atmosphere of insecurity and social decline.

Financialization and housing unaffordability is another important contextual element since the fall of the Berlin wall. Since the 1990s, the financialization of housing affected the non-profit rental market through selling affordable homes not to their low- and medium-income tenants, but to transnational private equity funds who used them to speculate and sell them at skyrocketing market prices².

¹ [DREEAM Demonstrating an integrated Renovation approach for Energy Efficiency at the Multi-Building Scale](#) (2016-2019). This project has received funding from the European Union’s Horizon 2020 research and innovation programme under the Grant Agreement no 680511. The project was coordinated by [Chalmers University of Technology](#) (Sweden), with 17 partners including [Places for People](#) (UK), the [European Housing Network](#), technical firms, research institutes and local authorities.

² [Anne Kockelkorn \(2022\) Financialized Berlin: The Monetary Transformation of Housing, Architecture and Polity, Architectural Theory Review, 26:1, 76-104.](#)

The current affordability crisis and gentrification which increased dramatically in the two last decades in Berlin led to mass protests and mobilisations for a rent-freezing law, with little effect on market regulation.

Project Description

As owner of Nettelbeckplatz and DREEAM consortium member, 1892 developed a participatory renewal approach. In 2014, the cooperative approached [Tafkaoo](#) architects -a firm based in Berlin, Helsinki, and Vienna- to develop a residential upgrading strategy for Nettelbeckplatz involving residents and considering local needs: 70% of tenants who moved in in 1975 when the building was constructed still live there and have new needs related with aging. A social and generational mix had to be generated between single residents, couples, families, retirees, students, artists.

Research showed that the buildings had relatively good quality façade insulation and thermal comfort inside the homes, meaning that the investment in creating a new external insulation would be very high (increasing the renovation costs by 30%) for little energy and economic savings.

The elements in which the renovation focused were:

- Insulation of the basement ceiling and roofs.
- Window replacement.
- Insulation of district heating pipes.
- Replacement of elevators by energy-saving units with energy recovery.
- LED lightning in indoor and outdoor common areas.
- Installation of a new 90-kW photovoltaic power station³ with storage device on the roof (financed by DREEAM) to cover the energy needs of common areas.

In addition, the renovation included 4,200sqm of new living space generated through the redesign of the open ground floors of the existing buildings, the construction of a new building, and the conservation of all the outdoor green areas.

Renovation of the existing building (2015-2019):

- The aforementioned energy-related improvements.
- Asbestos removal in floors and sewage pipes.
- Transformation of entrances and floors to make them accessible for people with reduced mobility.
- Upgrading of common areas with new facilities: gym, table tennis room, community room.

³ 90 kilowatts correspond to the power needed for running simultaneously more over hundred washing machines or brewing around thousand cups of coffee.

- Transformation of open ground floors into 800 sqm of indoor surface with different uses:
 - One accessible senior cluster of apartments with 10 bedrooms and shared facilities.
 - Eight one-room-apartments for students with State-subsidised rents.

New construction (2016-2019):

- Construction of 3.400 sqm of living spaces on seven floors on top of the conserved 26 parking spaces of the underground garage.
- 44 new apartments with two to four rooms (46 to 118 sqm) and large balconies with storage space.
- Four commercial units, common spaces including a meeting room, guestroom, multifunctional space, launderette, cafe, and accessible toilets.
- Easy access with a lift to all floors and 16 accessible flats.
- High energy-efficiency with a heating consumption of 45 kWh/sqm/year covered by district heating.

Aims and Objectives

Nettelbeckplatz is home to tenants from different income groups, but mainly low- and medium-income households. In a 2022 survey, the distribution of the settlement’s tenants by monthly household income was:

under €1,500 (\$1,600 USD)	€1,500 - €3,000 (\$1,600 - \$3,200 USD)	€3,000-€5,000 (\$3,200 - \$5,326 USD)	Over €5,000 (\$5,326 USD)	No response
16%	41%	18%	10%	15%

Before starting the project, 1892 had identified that the share of Nettelbeckplatz residents over 65 years was over 40%, and people aged 80 years were above 13%. Many of them required accessible conditions or assisted living alternatives to be able to stay in Nettelbeckplatz. The adaptation of the building and dwellings to this reality was a central element to the project, to accompany this growing part of the cooperative’s members whilst bringing in younger families and students.

With a small turnover due to the good quality of the homes and the affordability of rents, the renovation was also seen as an opportunity to increase the numbers of dwellings on the plot by re-compacting and optimising the existing built surface, without affecting green areas.

The main aims of this experimental renewal project were to:

- Save resources and building costs by using compact building typologies and keeping the original courtyard space.
- Reduce energy-consumption and costs whilst keeping affordable rents.
- Adapt common spaces and some existing homes to the needs of aging tenants.

- Promote a generational and social diversity through the arrival of students and young families with subsidised and non-subsidised rents.
- Restore the recognition of Nettelbeckplatz as a local architecture and urban landmark with a visually attractive new cooperative building and new spaces open to the neighbourhood.
- Monitor the renovation and contribute to research to create evidence for future renovation projects in Europe.

Key Features

Coordinated by 1892, there was exchange of knowledge and experience of different disciplines and contexts. Strategies were coordinated with a joint approach of stakeholders and institutions at different levels:

- **Project level:** 1892 formed a project team with architects, engineers, and landscape designers. At the same time, residents and local committees were involved through plenary sessions and individual interviews. For example, surveys were conducted on the energy consumption and thermal comfort after the heating season to generate evidence about the existing and future energy performances of the retrofit. Interviews also aimed at identifying ideas and fears about the renovation process and densification, the new uses of shared spaces, etc.
- **Local and regional level:** Collaboration with Wedding district authorities, with welfare organisations and other actors in the neighbourhood ([Silent Green](#) 'culture district' and an art project), and with the government of the City of Berlin through funding.
- **European level:** Participation in the DREEM consortium through which employees and board members of 1892 had the opportunity to visit projects in other countries and share information with partners. As a result, it was decided to measure residents' perceptions about energy, humidity, air leaks, as well as to include sensors in the building to measure improvements.

This mix of scales created a learning process of iterations and feedback from different types of stakeholders to the project team.

Prospective tenants for the new apartments, including the eight one-room student apartments, could apply over the summer 2019 and were selected by the cooperative's rental management team based on rental guidelines. Demand exceeded the availability for homes and the four commercial areas.

1892 implemented specific monitoring tools developed for the DREEM project:

- A survey and interviews of tenants before and after the works.
- Monitoring of energy consumption for heating and warm water in common spaces and homes before/after renovation.
Permanent monitoring of humidity and temperature with sensors in a dozen of apartments, with generation of data accessible to their residents.

Innovation

- The intervention goes beyond the physical renovation of a housing complex, creating an integrated response to multiple crises: climate emergency, affordability, residential segregation.
- Through smart architecture, it managed to create 58 new housing units without using more ground surface, and therefore preserving the essential green areas as well as the architectural heritage.
- At a modest scale, it implements the ideal of aging in supportive communities and co-living.
- It is based on a collaboration with socially engaged architects, building technicians and experts at different levels.
- It uses process-based approaches, including new strategies of generating and saving energy (solar energy, elevators with energy recovery), sensors to monitor consumption, temperature, humidity, etc.

Funding

The total cost of the project between 2015-2019 was €19.8M (\$ 21.4M USD), used as follows:

- 11% for the student houses and senior dwellings and transformed common rooms.
- 32% for the refurbishment works and photovoltaic installation.
- 57% for the new building and courtyard.

To fund this, the cooperative created a mixed finance model. In addition to the traditional long-term bank loans and equity, it issued savings bonds among all cooperative members and tenants, calling on the spirit of solidarity that is inherent to the cooperative housing model. Due to the confidence by members in their cooperative, it managed to raise 30% of the budget (€5.9M - \$6.3M USD) by mobilising members' savings:

- 30% raised through the savings bonds from members and tenants of the cooperative with an annual interest rate of 0.75% for a four-year deposit and 1.25% for eight-year deposit.
- 30% borrowed through bank loans which were partly subsidised by the German Development Bank ([KfW](#)).
- 6% grants from the City of Berlin for the senior and student apartments, obtained through the "Special Infrastructure of the Growing City and Sustainability Fund" ([SIWA I](#)).
- 2% mandatory shares paid by new tenants for their apartment: on average €2,400 (\$2,585 USD) per dwelling.
- 1% EU-funding through the DREEAM project for the photovoltaic installation and research and exchange activities undertaken between 2016 and 2019.
- The cooperative completed the missing 32% with its own funding (equity).

In Germany there are public funding incentives for energy-efficient retrofits which manage an important reduction of CO2 emissions between before and after the intervention. The cooperative considered that a more ambitious renovation would inevitably mean an increase in rents, which goes against the objective of maintain rents affordable. This explains why there was not more public funding involved in this retrofit project.

Impact

Financial

The cooperative manages four different levels of rents which vary depending on the type, quality, services, and location of the dwellings. All prices are below the local rent index, but some of them are subsidised by the City of Berlin directly to the cooperative which charges lower rents to low-income tenant, students, and seniors. In Nettelbeckplatz there are two different rents-levels:

- €9.50/sqm/month (\$10.2 USD) in the new building (except for subsidised dwellings) which corresponds to €475/month (\$511 USD) for a 50sqm apartment; €665/month (\$716 USD) for a 70sqm one.
- €6.50/sqm/month (\$ 7 USD) in all renovated dwellings and 10 subsidised rents in the new building, which corresponds to €325/month (\$ 350 USD) for a 50sqm apartment.

Due to the renovation, there was a rent increase of €0.50/sqm (\$0.53 USD) in 2022 in the retrofitted building. The increase of subsidised dwellings is depending on the type of subsidy. In most cases it is €0.20/sqm (\$0.21 USD) every second year.

Nettelbeckplatz tenants now benefit from the “tenant electricity” price which is 10% lower than the market because it is produced through the photovoltaic installation on their roof. The improved windows, insulation of the roof and district heating pipes allowed to reduce tenants’ energy bills by around €120 (\$129 USD) per year.

Social

The variety of activities and new facilities includes ageing-in-place perspectives and co-living of more diverse households than before: elderly people, young families, students, artists, freelancers. The intergenerational exchange contributes to the revival of community cohesion and the feeling of belonging to a cooperative with social, environmental, and non-speculative values.

The accessibility-improvements benefit especially those with mobility restrictions (elderly, prams and wheelchairs, people with physical diseases or limitations, etc.). Ten elderly residents were given the possibility to move from their existing flat in the settlement to rooms in new assisted and accessible shared apartments.

Students are members of the cooperative like any other resident, and they can stay in the homes even after finishing their studies. Since 2017, there have been once three tenant changes in the eight student flats since the inner-city location is very attractive and the intergenerational co-housing concept builds social bonds within the community. Students themselves connected with other residents through urban gardening in the courtyard or using the common rooms. This intergenerational mix is a mutual gain: students experience helps and solidarity and give new life to a previously homogeneous aged community. The settlement committee which determines and manages common activities also experienced a rejuvenation, bringing in younger generations with new ideas.

At the neighbourhood scale, the project’s new architectural image and a soft densification was received positively. There was a high demand for both the new available apartments and the four commercial spaces.

Environmental

According to the interviews and measurements before the renovation, the quality of the existing insulation and thermal comfort was already good and no façade insulation was implemented, which explains why the heating savings is “only” around 20%. Not much difference in thermal comfort have been noted by residents, apart from quicker warming up and more homogeneous distribution of the warmth in the rooms of their apartments⁴.

The project measured the following results in terms of energy savings of some of the six original buildings of the settlement in 2019 compared to the four years before the renovation⁵:

Energy use in common spaces	Measures implemented	Energy savings depending on the building in 2019	Economic savings in comparison with 2017
Electricity	LED indoor and outdoor lightning, new elevators with energy recovery	69%; 80%; 47%; 54%; 49%	€13,863 - \$14,925 USD
District heating (heat)	Improvement of pipework insulation and improved efficient heating. Energetic renovation of the building envelope (roof, terrace, basement).	17%; 42%	€20,944 - \$22,549 USD

In addition to this, there are individual heating savings in each home, plus production of solar energy sold by the cooperative to the electricity distribution company which allows for cheaper “tenant electricity”. The result of the project was not only energy-savings but also the involvement and awareness-raising of tenants about their actual and future energy consumption, helped by sensors and instantaneous data availability. Even though some residents were already considered as “energy champions” before the intervention, more residents were interested in becoming ‘Green Neighbours’ by changing or making a better use of domestic appliances and by giving each other tips on environmental-friendly ways of living.

⁴ Page 70 of DREEAM (2019). *Final analysis on the tenants’ engagement and communication strategies*. Available [here](#) under documents and reports.

⁵ DREEAM (2019). *Analysis of the Energy performance of pilot sites after*. Available [here](#) under documents and reports.

Learning, evaluation, and recognition

Learning

This cooperative housing renewal project was a learning process for all stakeholders involved. It serves as a blueprint for 1892 and potentially other community-oriented investors. Learnings applicable to future renovations of 1892's building stock include:

- The financial set-up with a contribution of members' savings.
- The positive impact of involving residents and target groups before, during and after the renovation, focusing mainly on social aspects and energy-saving opportunities.
- The development of new concepts for inclusive and lifelong co-living in a cooperative building.

Evaluation

Due to its sustainability declaration, 1892 is obliged to survey their strategy, investments, and assumptions at least every second year. In Nettelbeckplatz, the impact is measured and can be compared with others of 1892's developments on the following elements:

- Periodic resident satisfaction survey
- Social, demographic data
- Age, share of seniors.
- Amount/ development of rents
- Fluctuation/ changes of tenants
- Activities of the community/ settlement committee/ neighbourhood fund
- Acceptance of common rooms/ facilities
- Living environment/ neighbourhood
- Monitoring energy consumption

Research and evaluation were conducted by the EU-funded project DREEAM for the EU Horizon 2020 Goals in energy efficient building renovation strategies (see results and links above).

Recognition

The project was selected for the City of Berlin's Award for Experimental Housing Innovation (SIWA) with a grant of €1.2M (\$1.3 M USD) from the German Senate and won Housing Europe's European Responsible Housing Initiative (ERHIN) Award 2019 in the category 'More than a roof'.

Transfer and future plans

1892 has around 7,000 homes in Berlin in buildings which will need renovation. Even though 1892 considers there is no recipe and answers should be holistic, future renovations of affordable housing estate in Europe can certainly build on the learnings and methodology from Nettelbeckplatz.

In 2018, in the final conference of the DREEAM project consortium members brought to the attention of the audience of project partners, policy makers and tenants' representatives (including Housing Europe, European Federation for Living, International Union of Tenants) that "large energy refurbishment programmes at district level are one of the best and most viable political option to future-proof our societies". The consortium concludes that there is an important opportunity for replication of efficient deep renovations through applying a constellation of different holistic technical solutions rather than repeating one innovative solution.⁶

Future plans:

In Nettelbeckplatz, 1892 will monitor the solar electricity production and storing, and energy savings and wider work with tenants who commit to become 'Green Neighbours'.

The cooperative will evaluate how to implement the idea of ecological oriented re-densification to the remaining cooperative housing stock, with a focus on the sustainable life cycle of buildings and users. It is currently planning a project with a roof extension to add 20 dwellings and a 150-kW photovoltaic powerplant to an existing settlement in the south of Berlin.

Nevertheless, in the last two years there were fundamental changes in the economic context. The COVID-19 crisis, the war in Ukraine and consequent increase of energy and raw material prices, as well as the tripling of the interest rates for bank loans in Germany make it difficult to invest in projects like Nettelbeckplatz at present.

World Habitat Reflections

"Nettelbeckplatz" represents a successful approach to meet the urgent needs of re-densification of cities and energy-saving improvements of the housing stock without demolishing heritage, reducing urban green-areas, or inducing gentrification. With a multilevel partnership and involvement of residents, monitoring and financing through saving bonds, the project managed to create a holistic response to several problems at once: energy efficiency, adaptation to ageing and restoring of a lively intergenerational community.

⁶ DREEAM (2018). *Final DREEAM Conference*. Available [here](#) under documents and reports.