

Bremer Punkt Work Report

BREMER PUNKT (BREMEN CUBE) WORK REPORT - 2ND EDITION 2020

Range:	Serial new-builds in post-war modernist housing estates. Wood hybrid construction. Modular building. Innovative housing models. Wood construction. Combinable housing modules with 1-6-room apartments, 30 - 138m³
Project status:	Bremer Cube 1-2: completion November 2016 Bremer Cube 3: completion February 2017 Bremer Cube 3-6: completion March 2020 Bremer Cube 7-10: construction commenced in 2020
Locations:	Bremen, Gartenstadt Süd, Kattenturm, Schwachhausen, Gartenstadt-Vahr
Client:	GEWOBA Aktiengesellschaft Wohnen und Bauen
Usable area:	Prototype: Site 713 m² / Living space 427 m², Relaunch: Site 795 m² / Living space 513 m²
Planning period:	2011 Competition 1st prize, Prototype 2013-2015, Relaunch 2015 ff.
Certificates:	NaWoh certificate for sustainable housing development (a building in the relaunch)
Energy concept:	Air-to-water heat pump, photovoltaic system, central exhaust air system
Energy standard:	KfW Effizienzhaus 55 (energy standard is 45% better than the legal requirement)

German Architecture Prize 2017 – Awarded
DAM Prize 2018 – Nominated/shortlist German
Sustainability Prize 2018 TOP 3
German Building Award 2018
Bremen Housing Award 2018

 GEWOBA



Bremen Cube 1 + 2, Gartenstadt Süd

Cube House

The high degree of adaptability and serial wooden construction qualify the Bremen Cube as a pilot project for complementing urban areas.

Spot integration of four-storey wooden cubes activates urban niches and makes it possible to realise new, space-saving apartments. The neighbourhood's green character is retained. With a footprint of 14 x 14 metres, these cube houses are a prudent reaction to the existing structure. The new buildings are designed as modular prefabricated timber constructions. This gives rise to free design possibilities for creating site-specific offers and complying with individual demands in the respective neighbourhood. Depending on the site, the housing mix, development, layout, facade and building shape can be adapted.

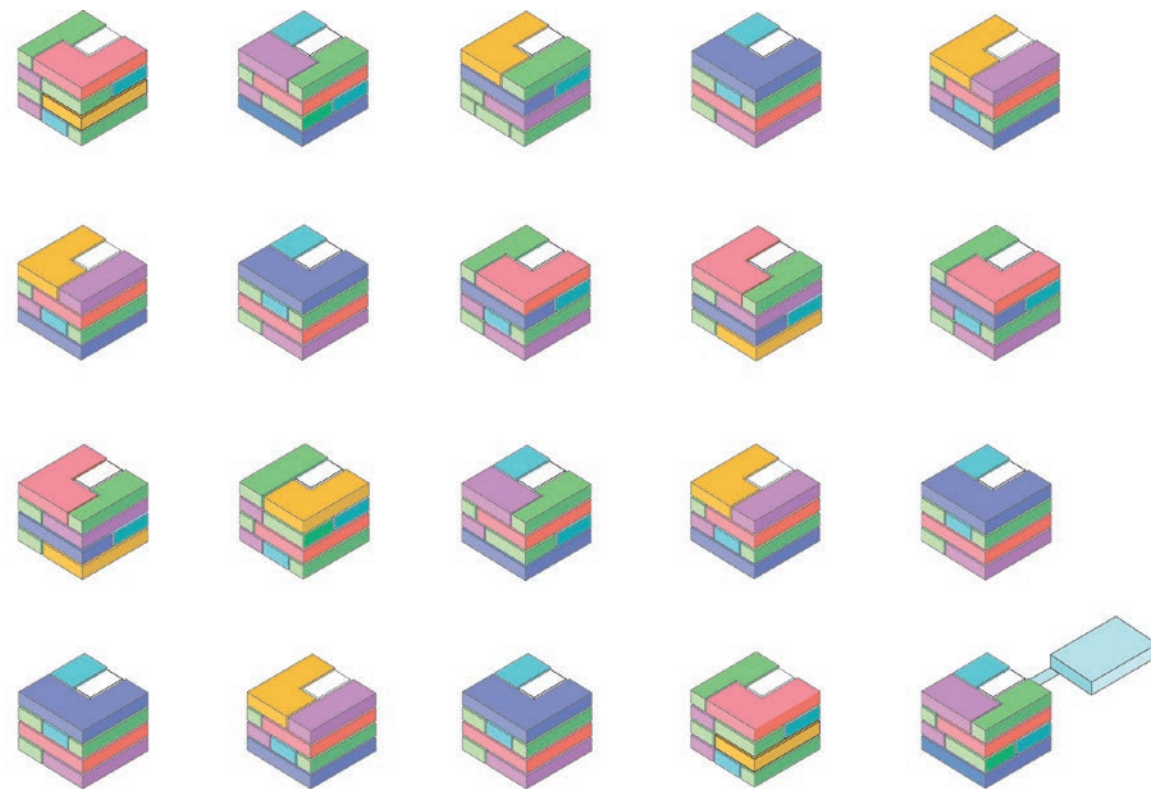


Bremen Cube 1, Oktober 2016

Prototype

The first three Bremen Cubes in Gartenstadt Süd were completed in February 2017.

Spanning 44 and 58 square metres (2- and 3-room apartments), respectively, these identical prototypes feature two types of subsidised apartments. The small apartments create affordable offers of an above-average standard. A high degree of living comfort is guaranteed by timber construction, generously-proportioned facade openings, spacious and private outdoor areas, accessibility, optimised south-west alignment as well as contemporary and sustainable building technology. In line with intergenerational justice, the housing supply in the first two new builds with barrier-free development is largely aligned towards residents already living in the area. In the third Bremen Cube, a communal living project featuring an inclusive group of residents injects new impulses into the neighbourhood.



■ 1-room apt.
 ■ 2-room apt.
 ■ 3-room apt.
 ■ 4-room apt.
 ■ 5-room apt.
 ■ 6-room apt.



Residents

The freely-configurable living area offers possibilities for a wide variety of living patterns: living and working under the same roof or offers for various family set-ups, single households or communal types of living.

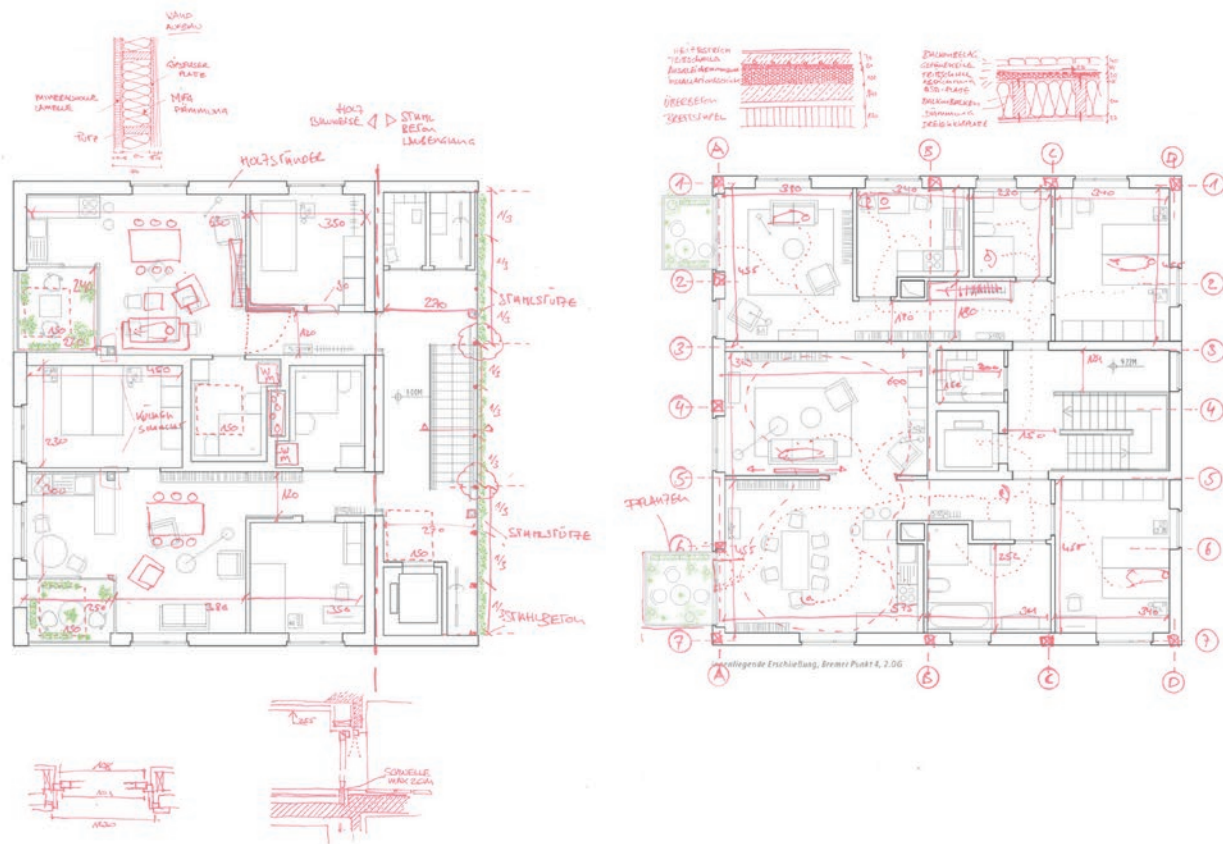
Against the backdrop of the current housing debate and the high demand for affordable living space, this creates flexible, neighbourhood-specific offers in subsidised or freely-financed housing areas. It also generates heterogeneous resident structures and a high degree of social mixing. 19 of the total of 22 apartment types meet the requirements of Bremen's housing subsidy programme. GEWOBA has compiled the diverse combination possibilities of apartment types in a "layout manual" (named Grundrissfibel).

Modular housing

The serial construction type supplements existing housing stock to include new, flexible and accessible layout typologies.

A total of four to eleven apartments can be combined in a single Bremen Cube. The offer ranges from one-room apartments with 30 square metres to six-room apartments with 138 square metres of living space. The various types of apartments can be combined in more than 60 storey variants and can be stacked in practically any way on these four floors. Accordingly, individual offers for various user groups can be created depending on the respective location. All apartments are barrier-free and two types of apartment are even wheelchair-accessible.

As a supplementary building, the Bremen Cube also offers the possibility of creating barrier-free access to existing apartments by means of bridge links on various floors, thereby upgrading them over the long term.



Prototype

Relaunch

Bremen Cube 1, south-west view



Room quality

Variety and flexibility in terms of function and use.

The efficient utilisation of space inside the apartment is achieved by minimised traffic spaces and overlapping functions (e.g. living/dining/cooking). This is a guarantee for affordable rents. Optimised living spaces do not oppose high room qualities. Accordingly, the floor-to-ceiling glazed loggias in the prototype become an integral component of the apartments, forming a spatial unit along with the kitchen. Functions remain clearly discernible. The arcade acts as a meeting space for residents and as an interface between indoor and outdoor areas. Large sliding doors in the apartments of the relaunch ready for serial production, permit a wide variety of utilisation options as spaces can be added. Depending on requirements, these can be used as a living/dining room, living room/study or to extend a child's bedroom.

Facade

The freely-configurable, spacious and square openings reflect the differentiated interior life of the Cubes and give the neighbourhoods a facelift.

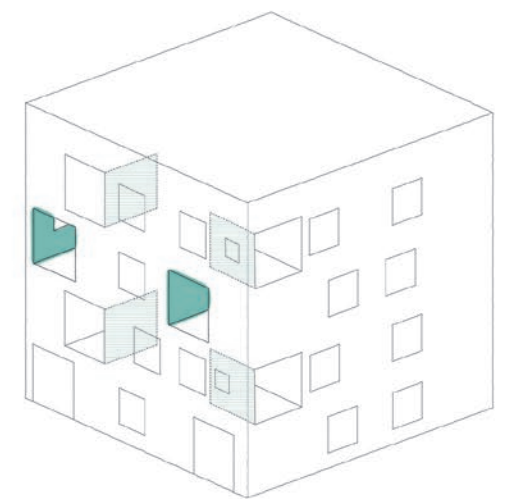
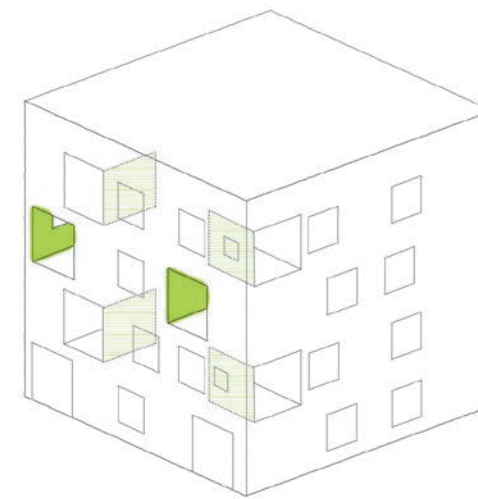
The wooden windows and wooden ceilings in the loggias make the timber construction visible from the outside. The large windows and recesses in the loggias underline the differentiated building character in an interplay of solid volume and weightlessness.

Depending on the apartment mix, the Bremen Cube depicts a site-specific character and an individual facade. The shell can be designed as a rendered facade or as a wooden facade under certain conditions.



Bremen Cube 1 + 2

Facade



Colour concept

Identity

The specific identity of the individual Bremen Cubes is underlined by a colour concept.

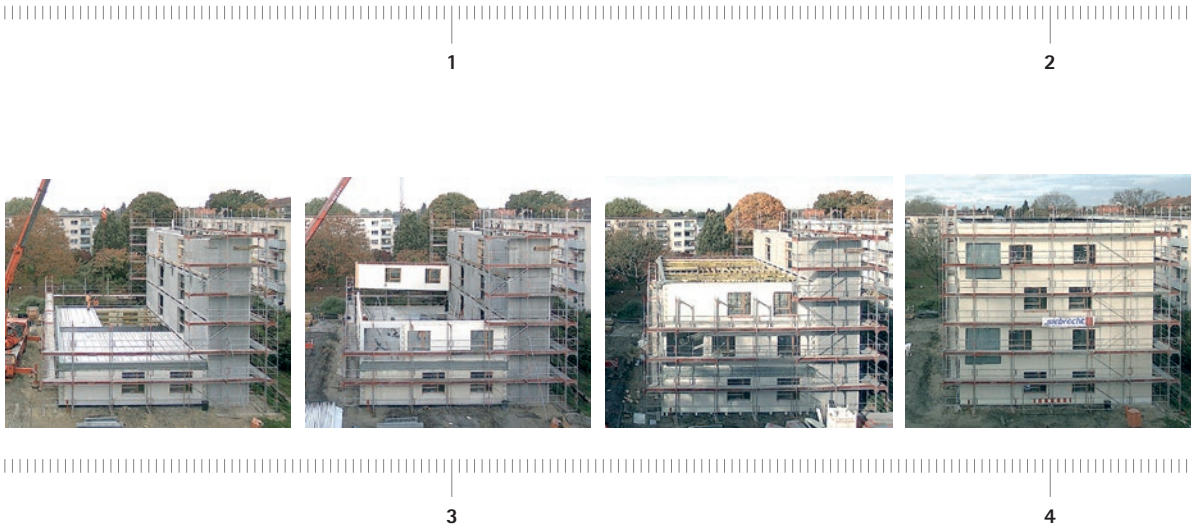
Depending on the location, the coloured highlights of the loggias and entrances in the prototype lend the individual buildings their unique identity. The principle of "series in diversity" is continued by the application of subtle design tools. The relaunch is also characterised by colour highlights and the choice of various parapet materials.



System construction made of timber

The Bremen Cube is designed as a modular construction system and largely comprises prefabricated components.

This permits the realisation of layouts of various sizes and configurations. The modular principle is suitable for constructing the building within a short period of time and with minimum site equipment. Strains on the living environment caused by construction measures are reduced to a minimum. The supporting outer wall elements are manufactured as timber frame constructions. The ceiling elements can be realised as reinforced concrete or as an optimised wood-concrete composite system. The development area in reinforced concrete design strengthens the building and forms the primary escape route.

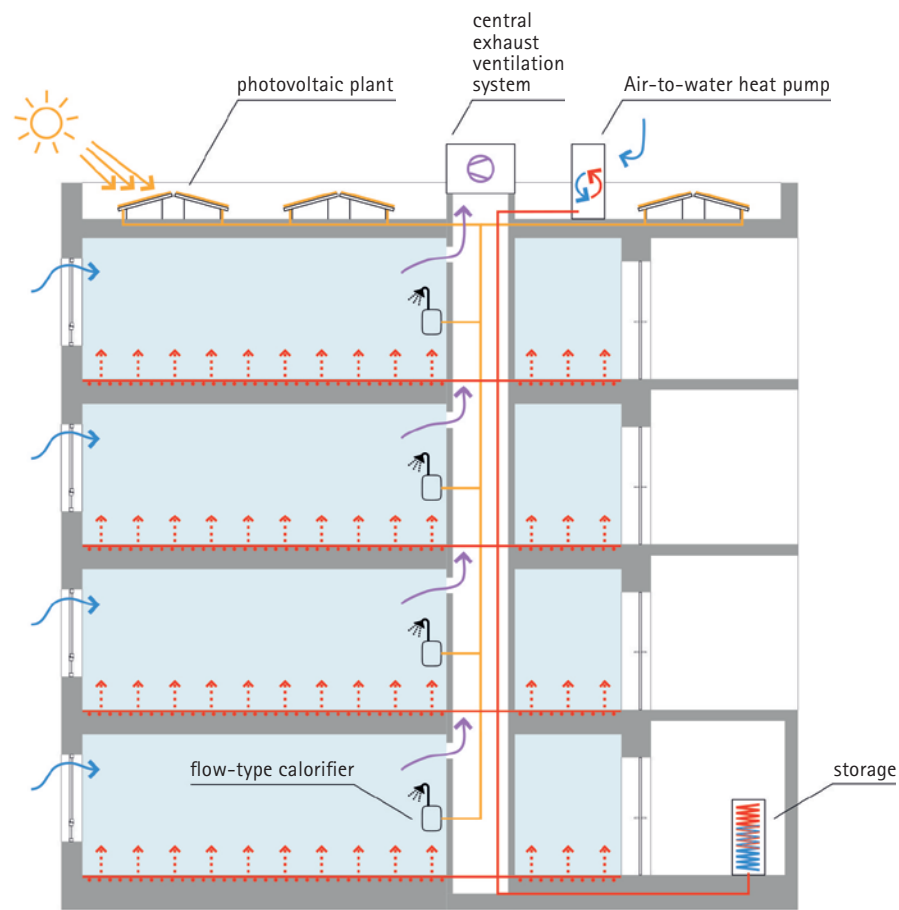


Construction within only a few weeks

Sustainability

The constructive timber design features a renewable, climate-friendly building material. Unlike solid construction, significantly less embodied energy is used from the provision of raw materials to disposal.

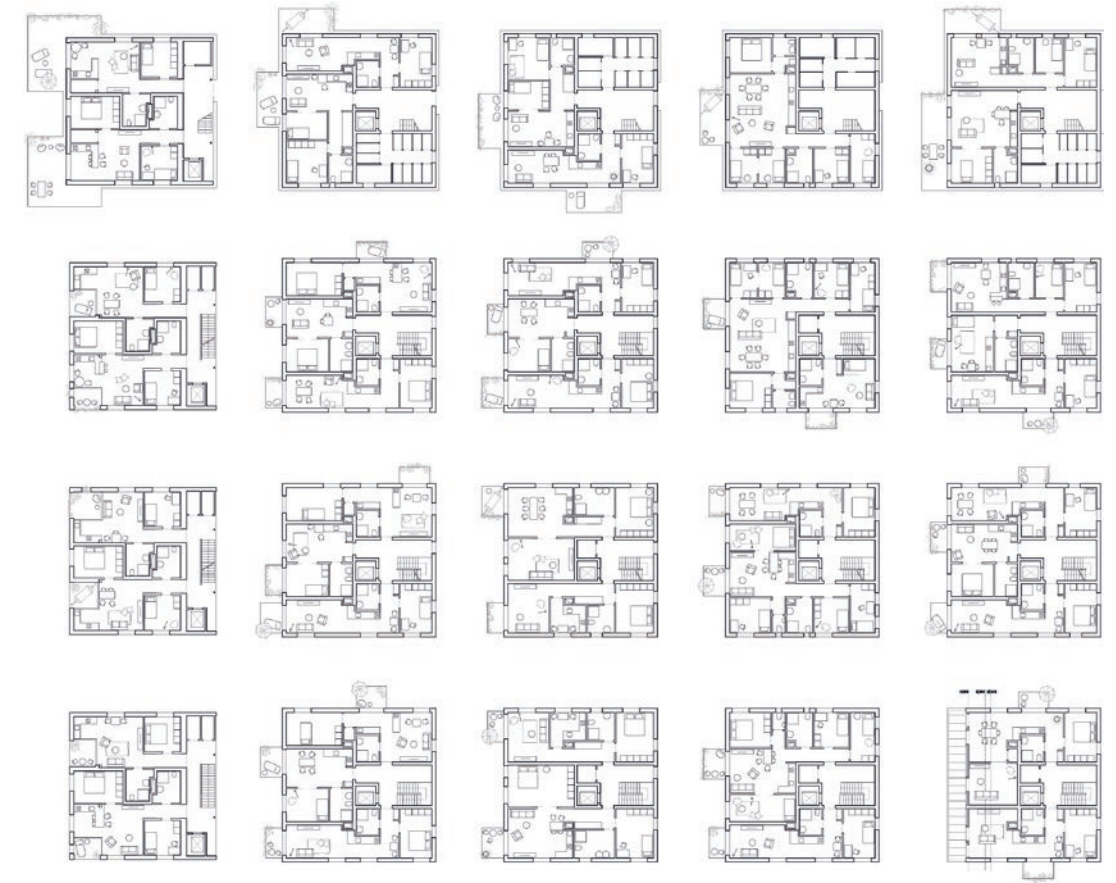
A concrete-timber composite floor displays 50 per cent less weight and CO₂ emissions are reduced by 90 per cent. The Bremen Cube is certified in accordance with the evaluation system of the Verein zur Förderung der Nachhaltigkeit im Wohnungsbau e.V. "NaWoh" (Association for the Promotion of Sustainability in Housing). The evaluation criteria for this label take account of sociocultural, practical and technical factors. But life cycle costs, value stability and environmental and health compatibility are also taken into consideration.



Energy concept

The energy concept is based on a highly-insulated building shell which is nearly compliant with the standard for passive houses.

Electricity and heating requirements are almost entirely covered by the building's own photovoltaic system and an air-to-water heat pump with buffer storage. Ventilation is via a central exhaust air system on the roof with downstream openings in the window rebates. Service water heating is via electronic instantaneous water heaters in the respective residential units. Underfloor heating with low flow temperatures helps to save energy and ensures comfort. The Bremen Cube complies with the KfW Effizienzhaus 55 standard, i.e. annual primary energy requirements correspond with maximum 55% of the reference building in accordance with EnEV 2013 (the legal requirement).



Bremen Cube 1-7 floor plans

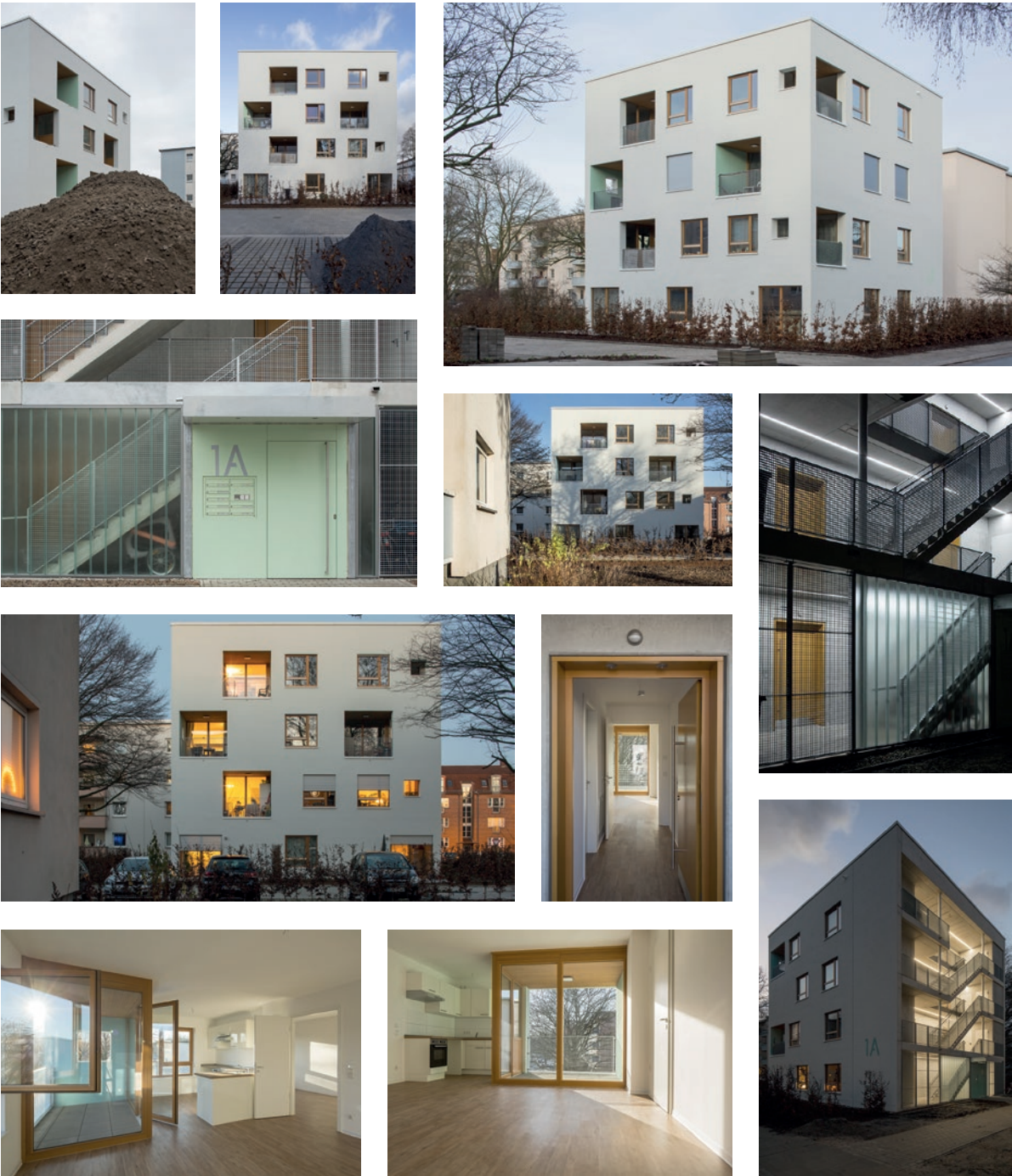
Economy

Intensive development phase from the idea through to the project ready for serial production.

The desire to generate the positive effects of the series, while designing perfectly-fitting modules for various locations and requirements, is very complex in terms of development. Experience gleaned from the first prototypes realised helps in further development to series production. Once this step has been taken, the number of "unknowns" is reduced. The authorities are familiar with the construction types, planning entails extensive repetition and the construction process involves fewer disturbances than in individual projects. A survey of results of the series is only possible once these synergy effects can also be factored in.



Prototype photos





Gartenstadt-Süd



Kattenturm



Schwachhausen



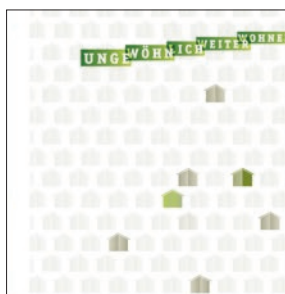
Locations



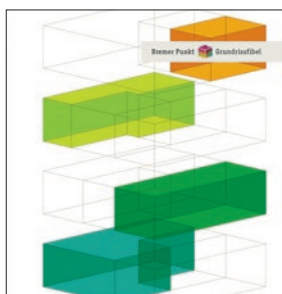
Series type



Photos of series type



Documentation of
"Ungewöhnlich weiter wohnen"



Documentation
Bremen Cube layout manual



Documentation
Bremen Cube Report 2015

PLANNING TEAM

Project management: GEWOBA, Architektin Dipl.-Ing. Corinna Bühring

Design planning: LIN Architekten Urbanisten, Berlin
Giulia Andi, Finn Geipel

Realisation planning:
BP 1-3, partially BP 4-6 Kahrs Architekten, Bremen
BP 4-10 Architekten FSB, Bremen

Structural engineering: PIRMIN JUNG Ingenieure für Holzbau, Sinzig

Services engineering:
BP 1-3, partially BP 4-6 Kahrs Architekten/EKM Partner, Bremen
BP 4-10 AG PLB Holland, Bremen/STG Schmidt TGA, Delmenhorst

Landscape architecture: Atelier Schreckenbergh, Bremen

Fire safety:
BP 1-7 Dehne, Kruse Brandschutzingenieure, Gifhorn
BP 8-10 Brain Brandschutz-Ingenieurgesellschaft, Bremen