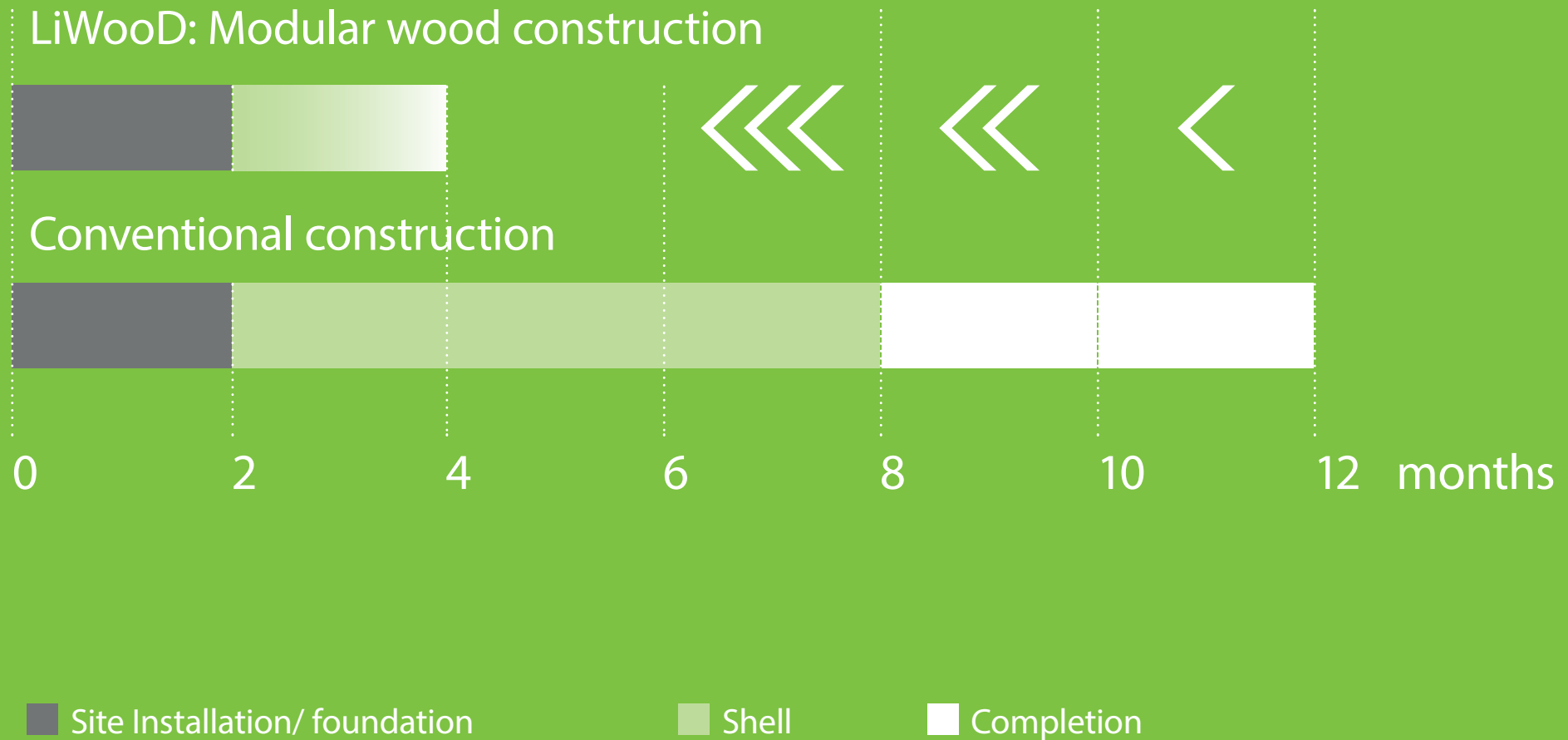


HOUSING
FOR ALL
MUNICH

LiWood
LIVING IN WOOD



Significant time-savings with LiWood



Housing for All

Up to 3,000 subsidised housing units are to be built by the end of 2019 as part of the “Wohnen für Alle” (Housing for All) housing construction programme launched by the City of Munich. These will be spread across the entire city in the interests of further redensification. Both private and municipal housing associations are responsible for this programme.

Together with GWG Munich, we have created living space for around 270 people in the Munich districts of Ramersdorf and Hasenberg by building eight point houses on the site of gaps between buildings. The programme aims to make apartments available to citizens in a cost- and time-efficient manner.

Subsequent compaction in Munich

05

Living in Wood

06

Housing for All

08

Typologies of post-compaction

24

The point house as a system

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The project in figures

34

Point house Ramersdorf



view west



view east



view north

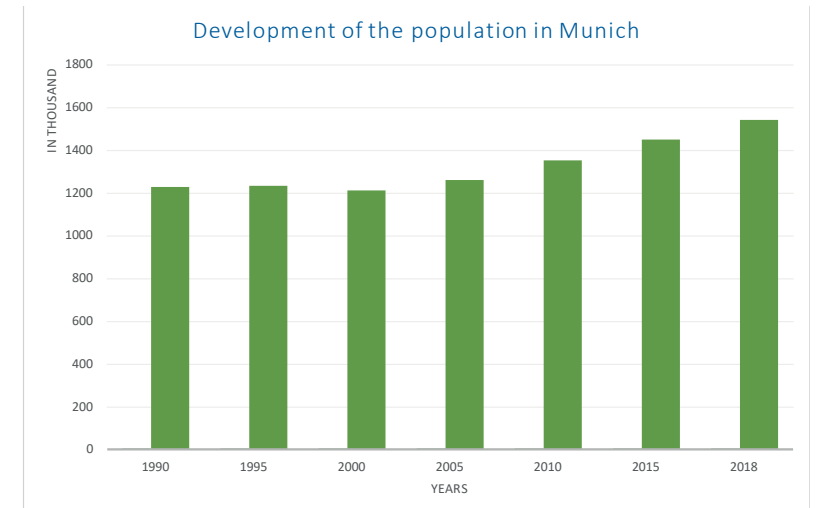


view south





The Need for Urban Densification in Munich



Source: Statistisches Landesamt Bayern

In recent years Munich has become a very attractive city in which to live due to its strong economy and its general high quality of life. Since the beginning of the 1950's the population of the city has almost doubled from about 850,000 inhabitants to 1.5 million inhabitants.

The older part of the population benefits from the existing infrastructure, the comprehensive local connection network and the density of health care, but young families also find the extensive job opportunities and educational opportunities offered by a large city like Munich extremely attractive. Now the cities and municipalities are faced with the challenge of creating living space in the urban area without having to designate further building areas and further urban sprawl.

Housing for All- Munich



LiWood - Living in Wood - As simple as it is ingenious

We think of buildings as modular

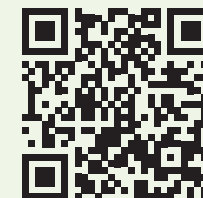
Since 2006, we have been planning and building modular, multi-storey buildings made of wood. The approach we have developed can be applied to projects as diverse as student housing, hotels or apartment buildings. In doing so, we meet the challenges of constructing sustainable buildings in both the private and the public sector, without losing sight of the quality of our buildings and the budget we have set ourselves.

Our modules are erected directly on the building site or nearby in our field factory, which has been specifically developed for this purpose. For this project it was positioned in Munich Freiham. The individual components, such as reinforced concrete floor slabs, cross laminated timber walls and prefabricated bathrooms, are assembled on a rail system in the field factory to form a finished module.

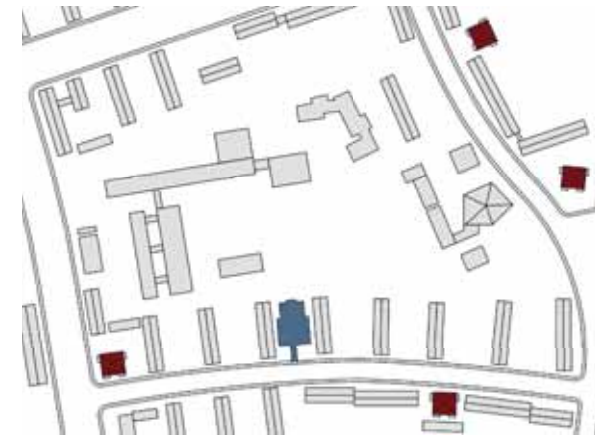
All modules are already equipped with the necessary installations during assembly in the field factory. These are then loaded onto trucks, transported to the construction sites in Ramersdorf and Hasenberg, where they are completed into eight point houses. This way up to ten modules can be produced per day.

LiWood - the video

The images were taken in the summer of 2016 as part of the realisation of four residential accommodations in the Munich urban area. From the assembly of the individual modules in our field factory, through loading and transport, to their positioning on site in Munich and the interior finishing of the buildings, an insight into the construction process is provided here. See how it all comes together on the video.



Scan QR-code
Or follow this link:
www.liwood.com/derfilm

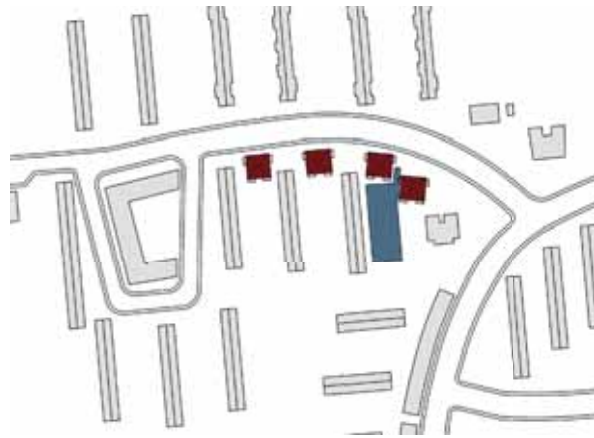


Ramersdorf

The four- and five-storey point houses were divided into three streets, and an underground car park created parking space for 21 cars. In total, the 53 apartments offer space for up to 147 residents. A special highlight of these bright, light-flooded apartments is the view of the Alpine panorama from the fourth floor of one of the houses.



Client	GWG Munich
Architect	Grassinger Emrich Architekten
Scope of project	Turnkey building car park with 21 parking spaces
Building class	IV
Construction time	4 months per house
Completion	January 2018
Gross floor area	4.560 m ²
Number of residents	147
Number of modules	190
Energy supply	district heat supply
Energy standard	Munich standard (EnEV -10)



Hasenbergl

Between September and June, four four-storey point houses with eight to 16 apartments each were built here. These apartments with a floor area of 3,840 m² create new, affordable living space for 120 people. The houses were placed in the gaps along Grohmannstrasse in Munich in order to achieve the need for re-densification.

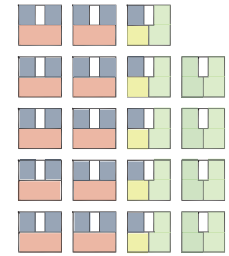


Client	GWG Munich
Architect	Grassinger Emrich Architekten
Scope of project	Turnkey building car park with 29 parking spaces
Building class	IV
Construction time	4 months per house
Completion	June 2018
Gross floor area	3.840 m ²
Number of residents	120
Number of modules	160
Energy supply	block heat and power plant
Energy standard	Munich standard (EnEV -10)

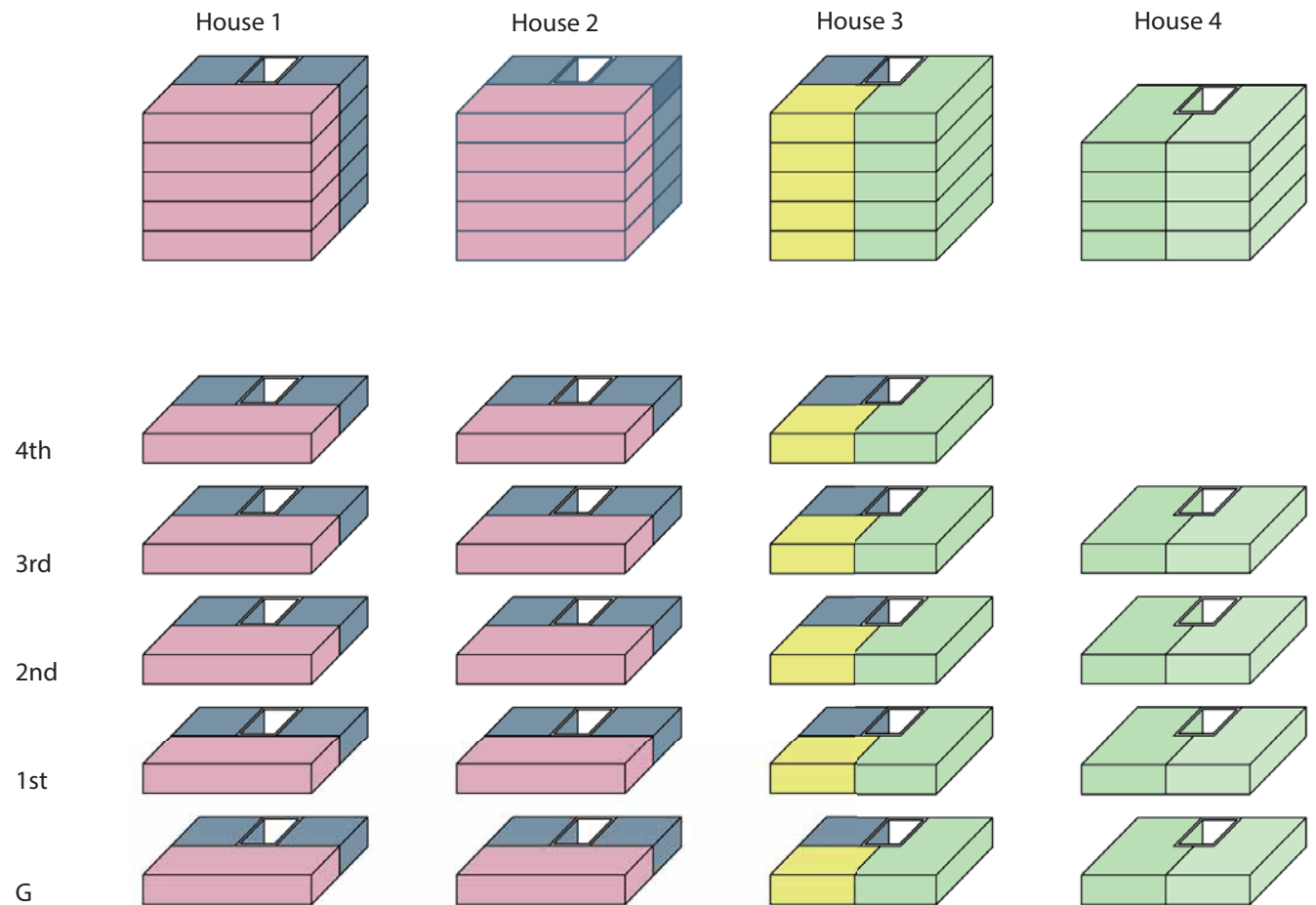


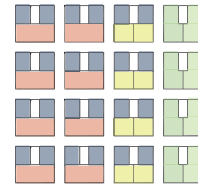
The houses

All in all, we have designed four different types of flats from the one-room to the five-room flat in the eight point houses. Some of these are mirrored, resulting in seven different floor plans. This selection of apartments and the many possible combinations allow individual house types to be configured, just as in a modular system.



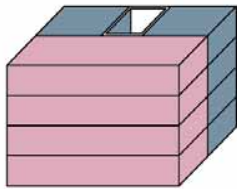
Configuration of the four point houses in Ramersdorf



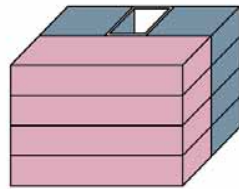


Configuration of the four point houses in Hasenbergl

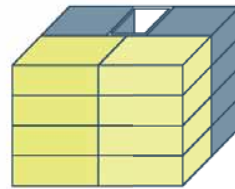
House 1



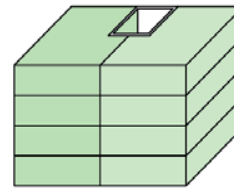
House 2



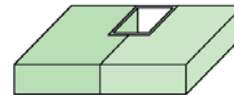
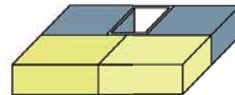
House 3



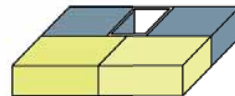
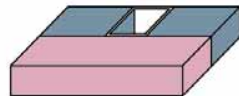
House 4



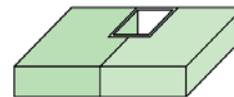
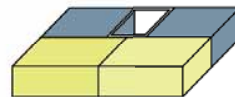
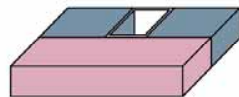
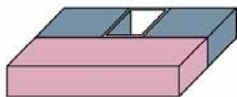
3rd



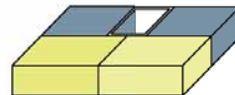
2nd



1st

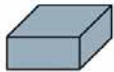

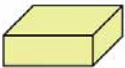

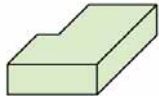
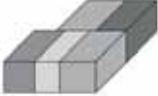




G



The apartments

The apartments are created by combining individual modules according to the required apartment keys. In this project one-, two-, four- and five-room apartments were built, the apartments consist of two to six modules and can be arranged differently on the individual floors. Due to our flexible system, a subsequent change of use is also possible.

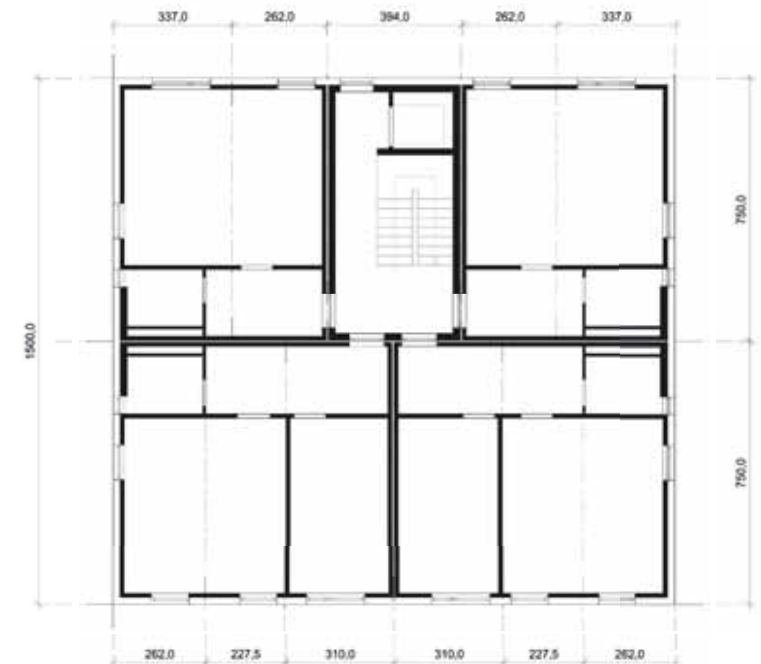
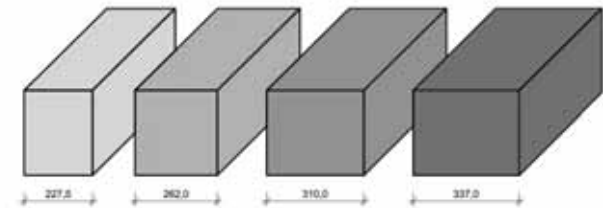
49 1 room apartments		
13 2 room apartments		
21 4 room apartments		
18 5 room apartments		





The modules

LiWood has developed four module types for the point-house system. The modules each have a length of 7.50 m and a width of 2.27 m, 2.62 m, 3.10 m and 3.37 m. The modules are available in four different widths. The various apartment layouts can be created by combining them.

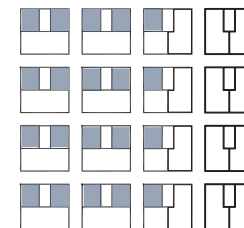




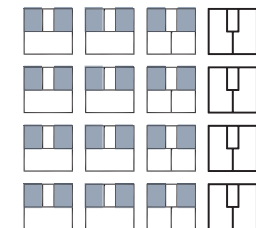
1 room apartment

two modules

Room	28,0 m ²
Corridor	6,5 m ²
Bathroom	3,5 m ²
Balcony (taking into account 25%)	1,5 m ²
Total	39,5 m²



Ramersdorf



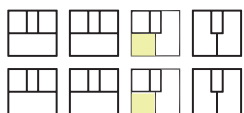
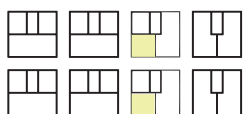
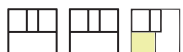
Hasenberg



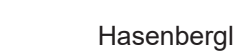
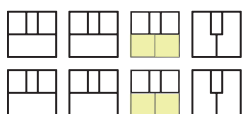
2 room apartment

three modules

Kitchen/ livingroom	22,5 m ²
Room	14,0 m ²
Corridor	10,0 m ²
Bathroom	3,5 m ²
Balcony (taking into account 25%)	1,5 m ²
Total	51,5 m²



Ramersdorf



Hasenberg





3 room apartment

four modules

Kitchen/ livingroom	30,0 m ²
Main bedroom	14,5 m ²
Other bedroom	10,0 m ²
Corridor	9,0 m ²
Bathroom	3,5 m ²
Balcony (taking into account 25%)	1,5 m ²
Total	68,5 m ²

The floor plan with 2 x 3-room apartment and 1x 1-room apartment is a variant that was not implemented in this project, but can be implemented on request according to apartment mix.





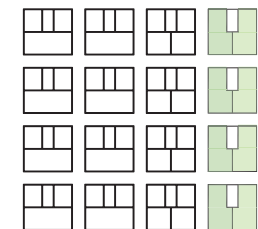
4 room apartment

five modules

Kitchen/ livingroom	23,0 m ²
Main bedroom	14,0 m ²
2 corridors	18,5 m ²
2 bathrooms	7,0 m ²
2 other bedrooms	24,5 m ²
Balcony (taking into account 25%)	3,0 m ²
Total	90,0 m²



Ramersdorf



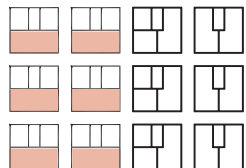
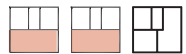
Hasenberg



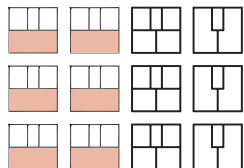
5 room apartment

six Module

Kitchen/ livingroom	23,0 m ²
Main bedroom	14,0 m ²
Corridor	20,0 m ²
Bathroom	7,0 m ²
3 other bedrooms	35,0 m ²
Balcony (taking into account 25%)	3,0 m ²
Total	102,0 m²



Ramersdorf



Hasenbergl

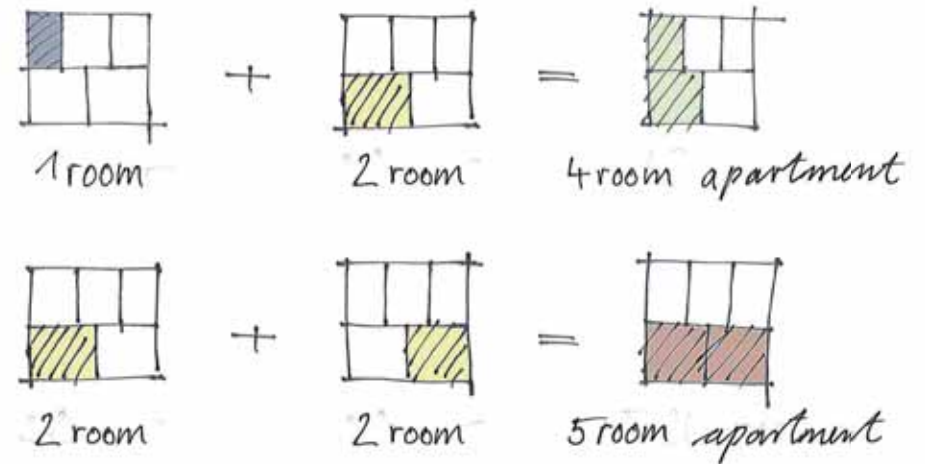




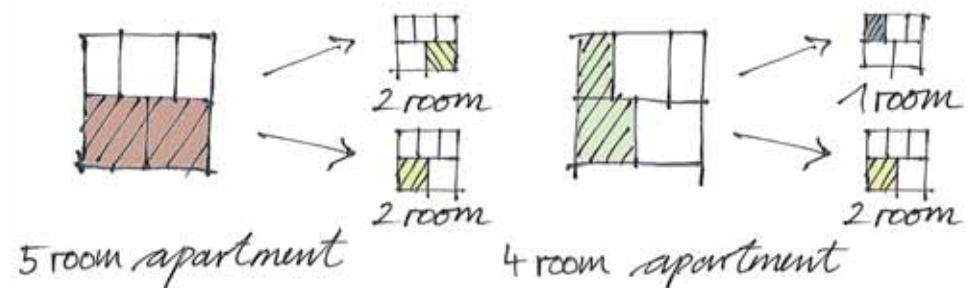
Conversion of the apartments

The flexible system enables subsequent consolidation or division of the apartment units. In this way, the building owner can respond flexibly to the needs of the housing market over the years.

Possible apartment mergers

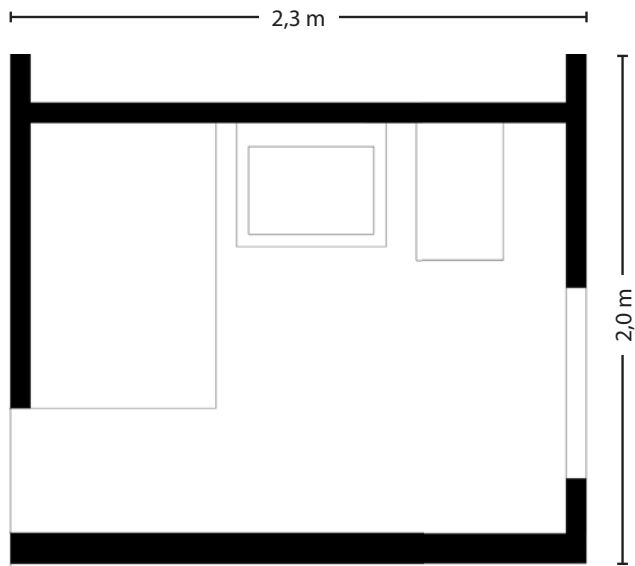


Possible apartment divisions



Bath modules

In order to respond to the wishes of our customers and to make ourselves independent of the restrictive market of ready-made bathroom producers, we developed our own bathroom production in 2017. Like our modules, the bathrooms are made of solid wood as glued laminated timber and can be flexibly implemented. Our bathrooms are manufactured and equipped at the Eningen and other plants. The bathrooms can be tiled or covered with panel materials and the client is free to choose the sanitary items. The bathrooms can be equipped with a shower or bath and built in different sizes. For the GWG project in Munich, the bathrooms were equipped with barrier-free showers.







2

4

5

6

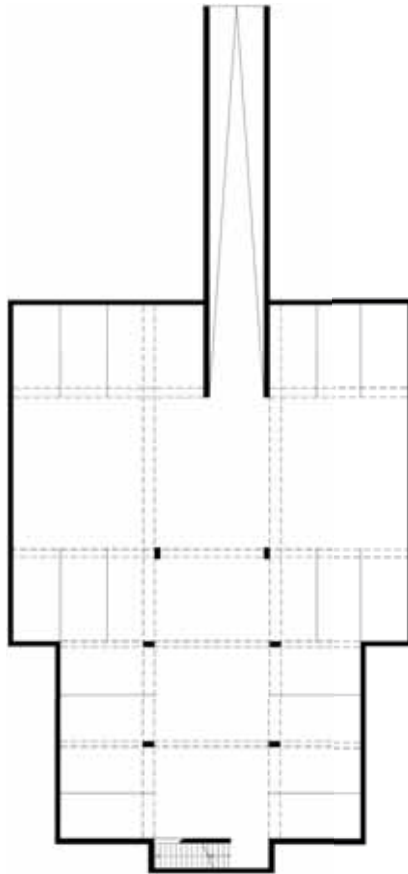
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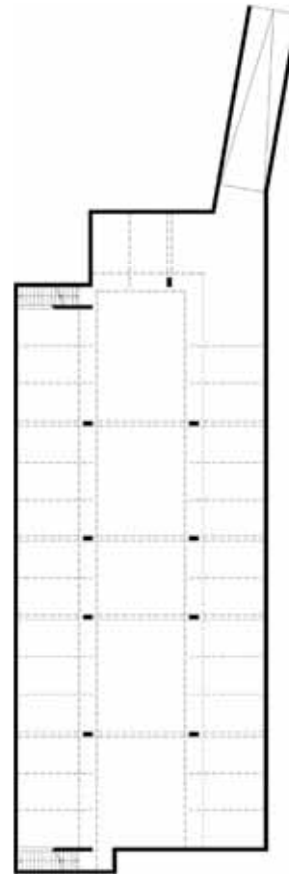
9

Underground garages

The creation of new living space in today's cities inevitably creates a demand for more car parking spaces. This demand can be met by using the open space and creating underground parking and redesigning the green areas above in a more contemporary manner. The 50 newly created parking spaces in Ramersdorf and Hasenberg are available both to residents of the existing and new buildings.



Underground garage Ramersdorf
21 parking spaces



Underground garage Hasenberg
29 parking spaces



Typologies of post-compaction

The development of urban redensification as a way of meeting the housing demands has thrown up a range of solutions as to how to make the best use of the limited space available in the inner cities and in existing buildings, such as by closing the gaps between the buildings with the use of “point houses” or by creating additional floors on existing roof areas.



Bridge buildings

Bridge buildings combine existing buildings to form an ensemble.



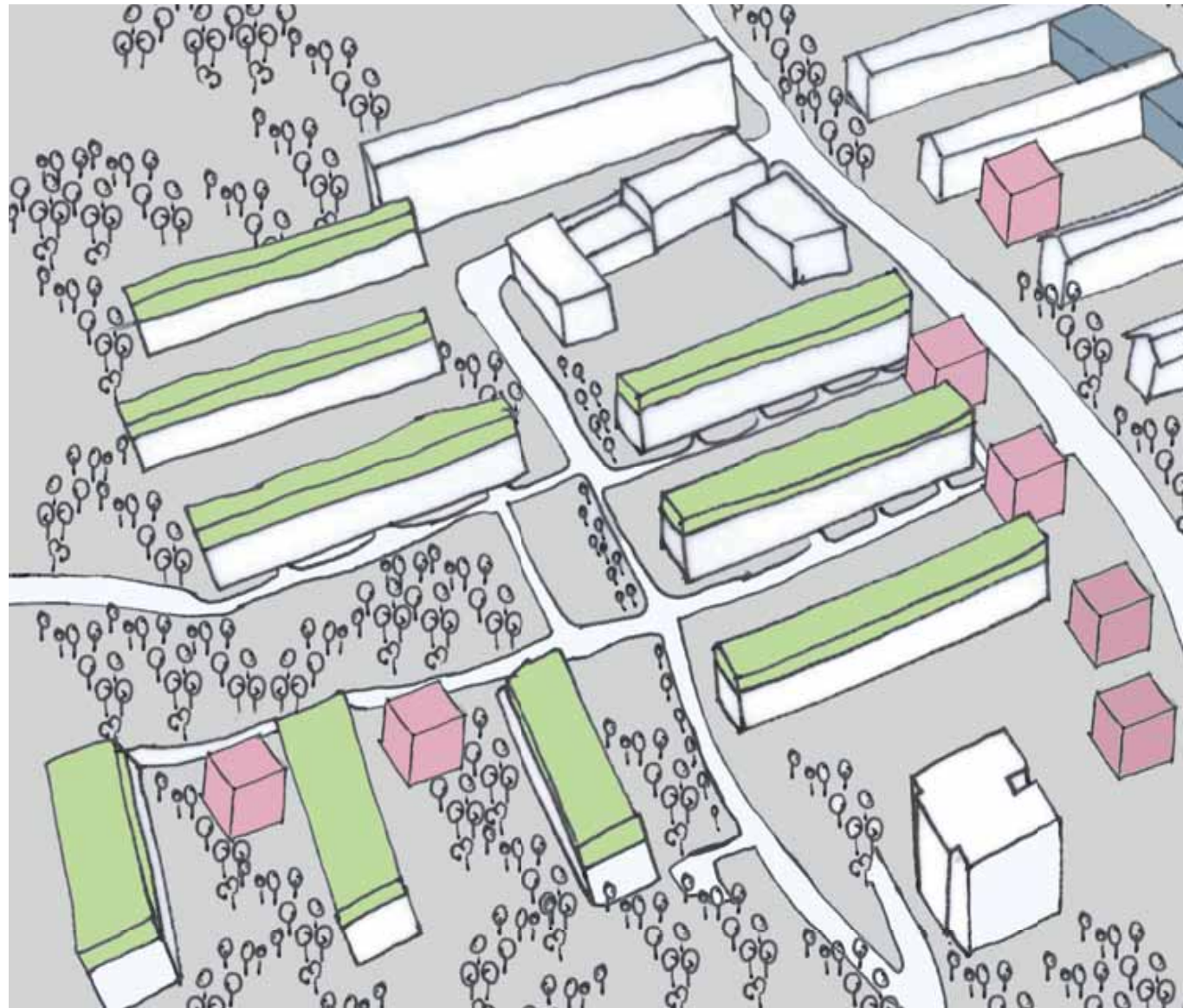
Point houses

The dimensioning of the point houses is chosen in such a way that they fit into gaps between buildings or historically conditioned spacing areas.

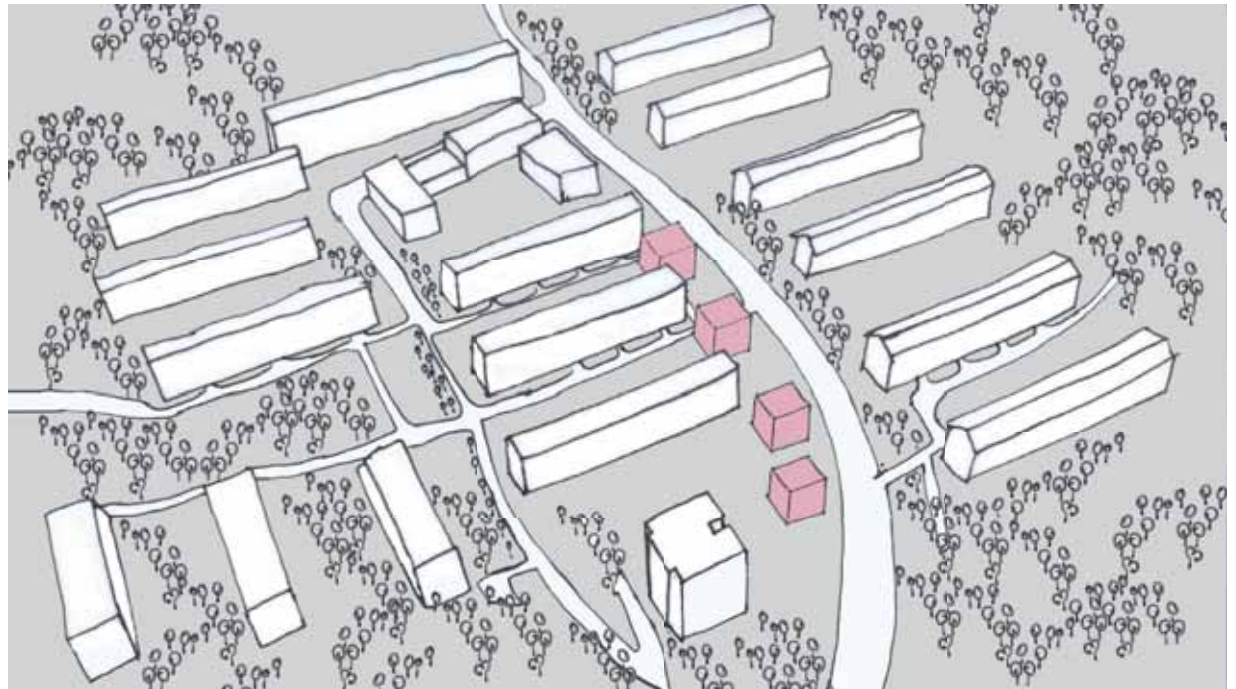
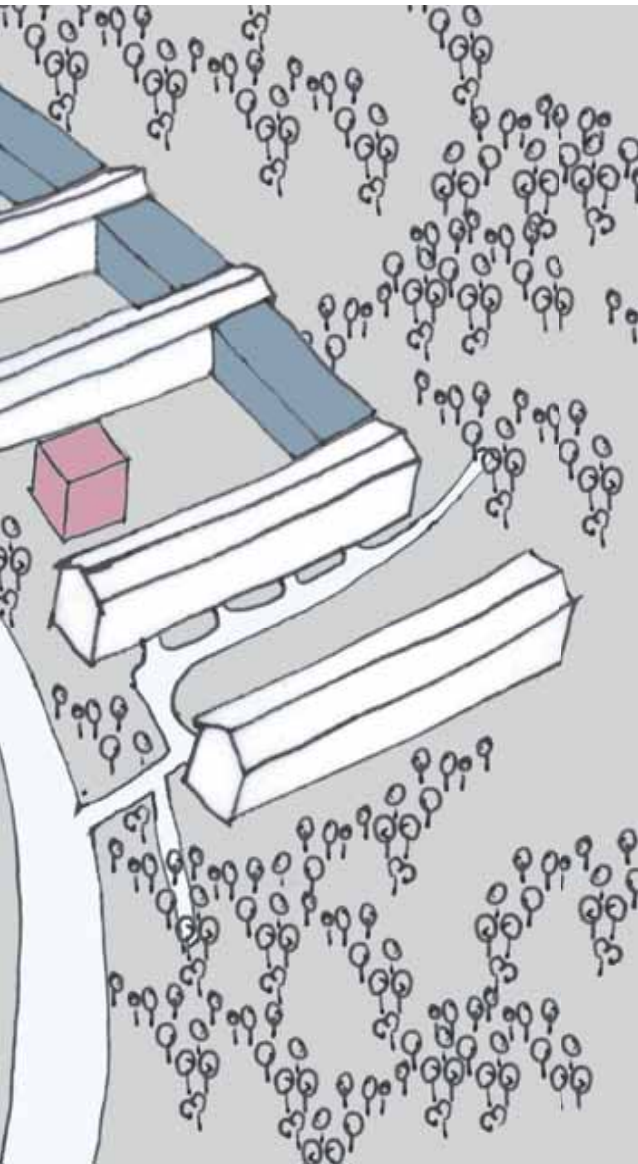


Vertical extensions

For reasons of land consumption, extensions made of wood are economical and sensible. Due to its low weight, the material is suitable as an additional load.



Exemplary post-compaction Hasenberg!



Actual post-compaction Hasenberg!

For the “Wohnen für Alle” (Housing for All) project, the GWG has made use of the potential of existing neighbourhoods to be compacted further. The idea of redensification arose from the open spaces between the existing buildings. The historical settlement structures were originally designed for about twice the number of residents. At the time of the development of the settlement, about 25 m² of living space was available to one person. Due to the social developments of the last decades, in particular the development towards the increased demand for single households, a person nowadays occupies approx. 45 m² of living space. *

The subsequent compaction thus restores the density intended for the settlement at the time of the first development. By creating underground car parks, the increased need for parking spaces can be met.

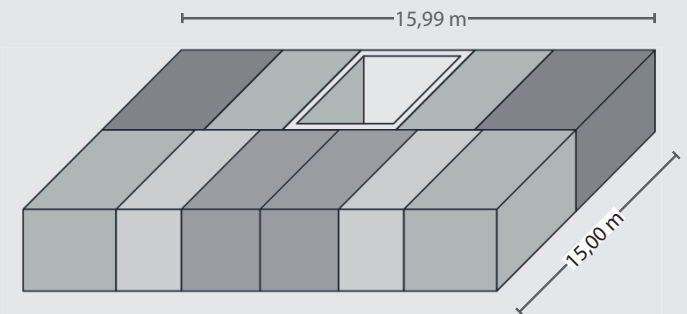
This principle of „appropriate redensification“ could also be continued in the above example.

* Federal Statistical Office



Our point house as a system

To realise the aspirations of the “Housing for All” project, we have developed, with Grassinger Emrich Architekten GmbH, the concept of a “Point House”. A house which has an almost rectangular floor area and by keeping the dimensions below 16m, the distances can be halved. Existing gaps between the rows of houses can be reduced and still meet the requirements of the existing building regulations as well as maintaining lighting and ventilation standards of the point house.



Configuration

Our modules are grouped into apartments that can be accessed by arranging them on the staircase. In the individual configuration steps, the storey, the apartment mix, the balconies and the roof shape can be selected. The facade design and the choice of materials round off the overall concept of the building.



Storey

Apartment mix

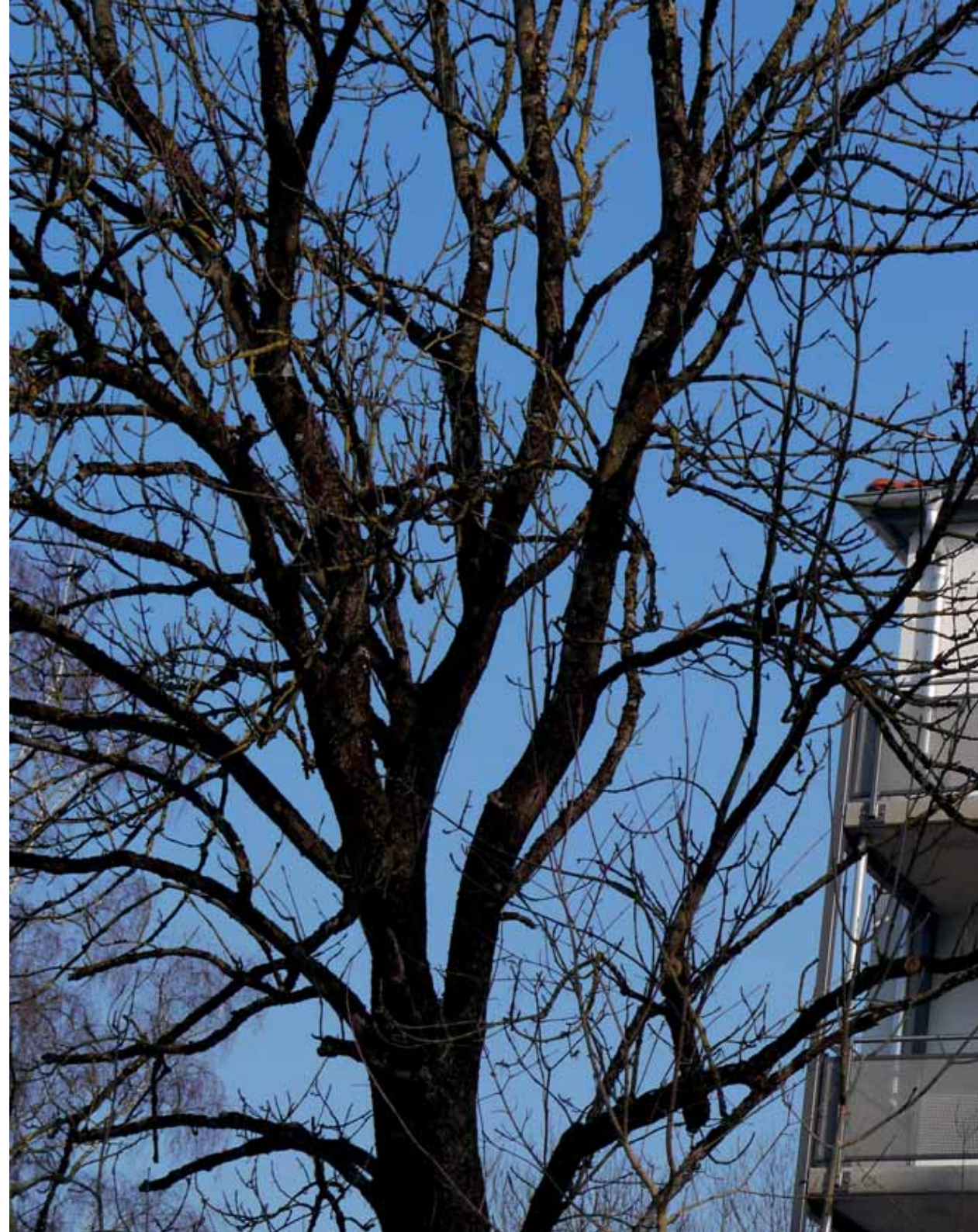
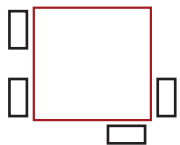
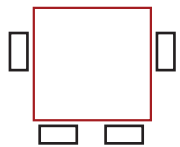
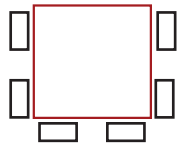
Additive balconies

Roof shape



Optional balconies

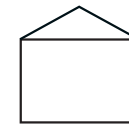
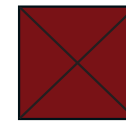
Self-supporting balconies can be installed on each facade side of the point houses. These optional balconies are positioned according to the floor plan composition and usage requirements and can be organised according to the point of the compass and the special features of the site.



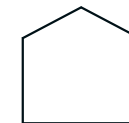


Roof shapes

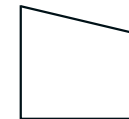
Even allowing for a range of different roof forms, it is possible to meet all the existing building regulations as well as any specific technical requirements associated with needs of use.



Hipped roof



Saddleback roof



Monopitch roof



Flat roof





Facade design

There are almost no limits to the design possibilities of the facades of the point house. We can create curtain-type, rear-ventilated façade concepts with, for example, fibre cement panels or wood cladding. Also attractive plaster facades with different colour designs are possible and are used especially in subsidised housing construction.

Design and choice of materials

An attractive, aesthetic effect can also be achieved in social housing. This is achieved by a clever interplay of material, shape and colour selection, which is made according to ecological, economic and design requirements.





The project
in numbers...

FANTASTIC ALPINE PANORAMA

ONE
NESTING
CHIFF
CHAFF



1.171.009 kg
BOUND

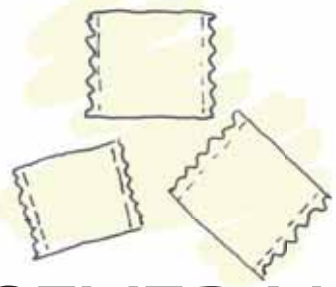
CO₂
IN ALL WALLS

453

PRETZELS

EATEN
DURING THE
WEEKLY
CONSTRUCTION SITE
MEETINGS





SEVERAL
SWABIAN
MAULTASCHEN
ON THE PLANNER
MEETINGS
IN ENINGEN



8 HOUSES 2 UNDERGROUND
CAR PARKS



COUNTLESS GUMMI BEARS



ALL
10
WORKING DAYS
ONE
HOUSE BUILT

1.277 m³
CROSS LAMINATED
TIMBER



350
MODULES

101
APARTMENTS



We are your partner

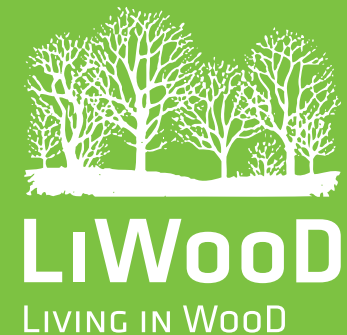
You explain your building project to us and we show you how it is ecological, price-conscious and elegant. Benefit from our experience and find with us the best way to realize it, no matter whether in your environment or with us in the Munich office.

LiWood Management AG
Rückertstraße 5
80336 München

E-Mail: kontakt@liwood.com
Tel: +49 (0) 89 41 11 841 - 0

Büro Eningen
Reutlinger Straße 21
72800 Eningen unter Achalm

E-Mail: kontakt@liwood.com
Tel: +49 (0) 7121 98 78 - 0



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LiWood
Management AG
Rückertstraße 5
80336 München
Tel: +49 (0) 89 41 11 841 -0
kontakt@liwood.com

www.liwood.com