

MODU



LAR



BUILD



INGS



MULTI-STOREY
BUILDING



MODULAR BUILDINGS

SERIES CONSTRUCTION CAN HELP TO ACHIEVE AFFORDABLE LIVING AND SHOULD THEREFORE BE ENCOURAGED.

Dr. Barbara Hendricks, Federal Minister for the Environment,
Nature Protection, Building and Reactor Safety



50
YEARS
ALHO

01

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ABOUT
ALHO

The future of building
Modular building expertise for over 50 years



02

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BUILDING WITH
MODULES

Series construction with room modules
Sustainability – Cradle to Cradle
Investing in safety
Low-emission building sites



03

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BUILDING
COMPO-
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Modular apartment types
Urban development
References



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DESIGN

Freedom to feel good

THE FUTURE OF BUILDING

Because of the increasing housing shortage in German urban areas, affordable accommodation is extremely scarce. Properly functioning towns offering a high quality of life are in jeopardy. Viable towns ensure a good social climate within society. On the search for solutions to the problem, politicians need to look for innovative concepts with high standards of residential building. If high-quality, individual accommodation is to be created at a lower cost and quickly, modular construction must be an obvious consideration.

But industrial building methods for creating high-quality affordable accommodation have been largely ignored for far too long. The most frequent problem: The contracts are not of a size that is commercially viable.

The Ministry for Building (BMUB) has recognised this and has set the course for the promotion of series construction. Together with partners from the housing industry, architecture and the construction industry, it has adopted new approaches aimed at speeding up the building of high-quality affordable housing.

“ If we really want to satisfy demand in the cities, we must build on an industrial, modular basis.

Klaus Freiberg, CEO, Vonovia SE



MODULAR BUILDING EXPERTISE FOR OVER 50 YEARS

For over 50 years, ALHO has been successfully producing modular buildings as a sustainable alternative to conventionally constructed buildings. It all started in 1967 with an assembly workshop for the series construction of site cabins. In 1971, ALHO started producing standardised mobile room units, proving that standardisation and the desire for comfort are not mutually exclusive.

Over time, permanent stationary solutions – today's room modules – were added to the range of products. Today, modular construction is at least the equal of conventional building methods when it comes to quality and durability.

Facts about the ALHO Group:

- Over 1,000 employees
- 5 production locations in Germany, France and Switzerland
- 72,000 m² production space
- 10 branches in Germany plus sales offices in Belgium, France, Luxembourg and Switzerland
- Manufacturing capacity of 12,000 modules each year

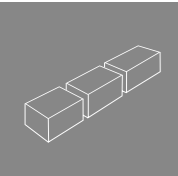


” Reliability, partnership and not least consistent customer focus make ALHO as distinctive now as it was when it was founded.

Albert Holschbach, founder of the ALHO Group



ALHO administration building and production unit at the Morsbach site

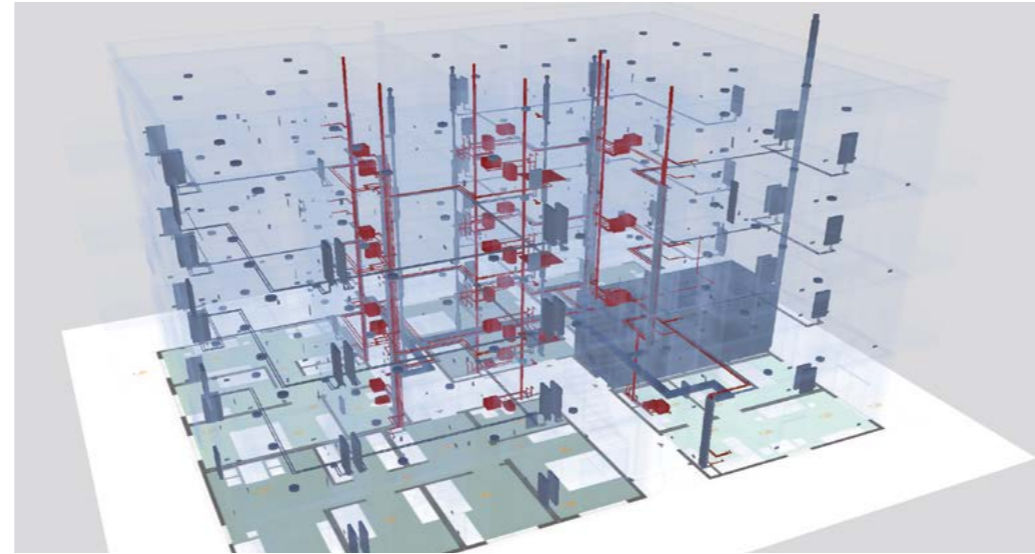


SERIES CONSTRUCTION WITH ROOM MODULES

At the ALHO "room factory," we are your partner in every phase of the work – from first consultation to completion of the building. The individual modules are already 70% industrially prefabricated using lean manufacturing processes.

The deployment of the trades involved in the production process can be ideally coordinated. This provides the optimum, calculable conditions for planning: always consistent, allowing the progress of the project to be precisely predicted. As a result we can guarantee fixed prices and fixed handover dates.

On the site, the modules are assembled cleanly and quietly within few days. Thanks to the dry wall materials used, the modules can be fitted out in a few weeks so that the building can be occupied immediately. Our many years of experience in modular construction and professional project management reduce the construction time by up to 70% in comparison with conventional building methods.



01

INTEGRAL PLANNING

ALHO plans buildings on the basis of BIM guidelines, incorporating all the relevant specialist disciplines.

03

CLEAN & QUIET SITES

The construction time on site is only about 10 weeks. Noise and dirt pollution are reduced to a minimum.



02

INDUSTRIAL MANUFACTURE

The room modules are prefabricated in the lean production up to 70% independent of weather conditions. Continuous monitoring guarantees the highest quality.

04

FAST BUILDING HANDOVER

Thanks to the parallel process of module manufacture and assembly, the construction time is shortened by 70% in total.



ECOLOGICAL & ECONOMICAL PARTICULARLY SUSTAINABLE

The ALHO modular building method follows the principle of sustainability which considers the life cycle of a building "from the cradle to the cradle". Following this concept of re-usability, a product life cycle does not end with recycling or disposal; the aim is to use the product again immediately.

Modular buildings can be flexibly repurposed according to current requirements. Thanks to non-load-bearing walls, they can also be easily adapted to changing needs. ALHO modular buildings can even be relocated, as "mobile real estate". At the end of their long working life, they can be returned almost 100% to the material cycle.

In addition, the steel used for the structural frame by ALHO is an extremely sustainable building material in comparison with others. In any case, only environmentally friendly, quality-tested materials are used. In addition, production is designed to save resources, avoid composite materials and use custom-dimensioned materials.

However, the buildings are economically and ecologically attractive. The life-cycle costs are 12% lower than those of conventionally constructed buildings.



The consistent use of quality-tested materials, the avoidance of waste through the use of materials in fixed dimensions, the possibility of repurposing, moving and dismantling the buildings and of recycling the used material sorted into groups make modular construction particularly sustainable.

” Gerhard Hoffmann, Director of the AdvISE Institute – Advisory Institute for Simulation & Energy Efficiency at TÜV SÜD Advimo GmbH

BUILDING AND INVESTING SUSTAINABLY

For ALHO, security in building starts in the planning phase. Industrial construction also means: reliable calculation of costs as in the industry – based on sub-assemblies, parts lists and metres as well as square metres of material. This enables us to give a fixed price guarantee. Because construction is almost independent of weather conditions, with most of the building work taking place in manufacturing halls, we can also specify fixed deadlines.

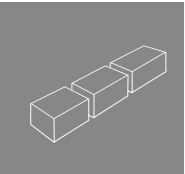
Another convincing point: Due to our constantly monitored series factory, compared to conventional building methods, a higher standard is achieved. Bearing in mind that defects are the #1 costs driver on site, this offers double security. Naturally, ALHO's modular buildings meet all building regulation requirements for durable buildings and the DIN requirements for fire prevention, sound insulation and thermal insulation.

ALHO will also keep you on the safe side in the long term. Should your needs change, modular buildings can be adapted to current conditions: by extension, additional floors, redesignation – or even relocation. Your original investment is secure, irrespective of social developments in the medium and long term.



QUALITÄTSGEMEINSCHAFT DEUTSCHER FERTIGBAU





LOW-EMISSION & QUIET MODULAR BUILDING SITES

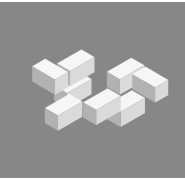
Most noisy, dusty work is carried out in the factory when the modules are produced. Emissions are reduced to a minimum with module construction, particularly when building is carried out in an existing context.

Because of the industrial manufacturing process in our production halls, the just-in-time delivery of the components to the construction site, the shortened construction time and the low noise and dirt emission levels, the disruption caused by assembly and finishing of the modular building is reduced to a minimum.

This is a particular advantage with re-densification – where building noise and dirt are a particular burden on residents living the construction sites. In commercial housing construction, especially in urban contexts and when gaps between buildings are closed, clean and quiet modular construction increases the acceptance of construction projects.



Fixed costs. Fixed deadlines. Finished fast.



BUILDING COMPONENTS ACCOMMODATION TYPES

1, 2, 3 or 4 rooms – the flexible room module grids mean that there are no limits to architectural creativity. The grid dimension of the room cells varies in width between 2.625 and 4.00 m, in length between 7.75 and 16.75 m and in height between 3.20 and 4.00 m. On the transportability the room modules limits the maximum design size. The individual room modules can be stacked and combined in any layout, just like Lego bricks.

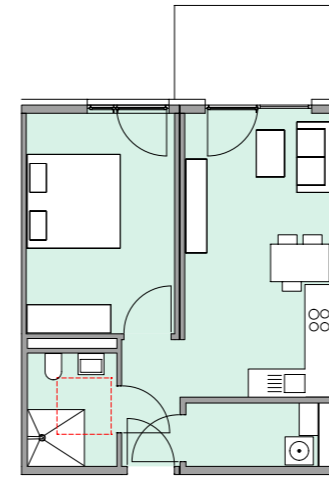
When designing the interior spaces, modular construction leaves designers free to open up large spaces without intrusive intermediate walls. The corner columns of the room modules can either be taken into account as a design

element or can “disappear” into the side walls. In comparison with structurally similar construction methods in concrete, modular buildings offer the advantage of considerably slimmer column cross-sections.

For large living areas without intrusive intermediate walls or smaller rooms for workspaces or children – the use of non-loadbearing walls means that the room situation can be easily and flexibly adapted to current requirements.

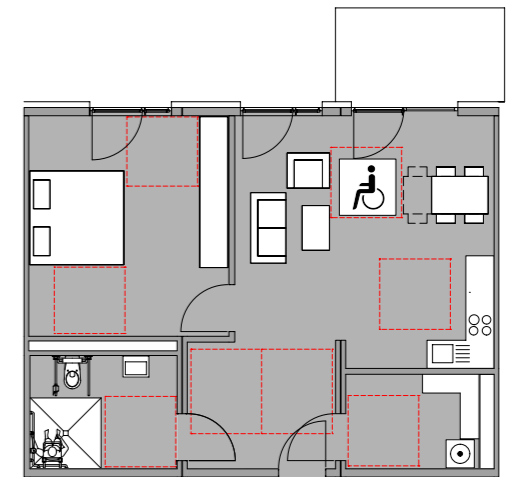
” Although many parts are standardised, buildings can still look individual. We call it “individuality in series.”

Nina Bendler, architect, director of Koschany + Zimmer Architekten KZA



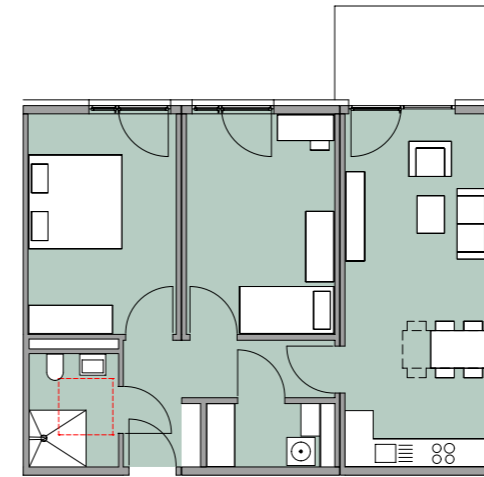
2ZW

BARRIER-FREE Living area: 49.31 m²



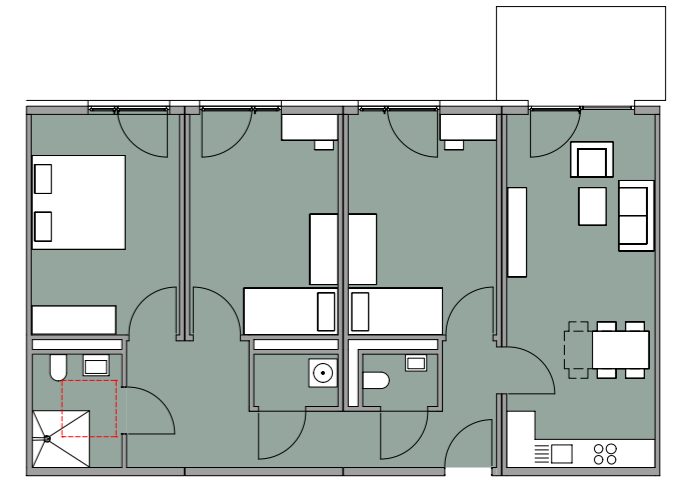
2ZW

SUITABLE FOR WHEELCHAIRS Living area: 73.72 m²



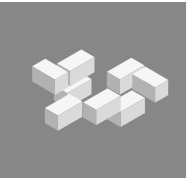
3ZW

BARRIER-FREE Living area: 72.62 m²



4ZW

BARRIER-FREE Living area: 94.94 m²








TOWN PLANNING TYPOLOGIES

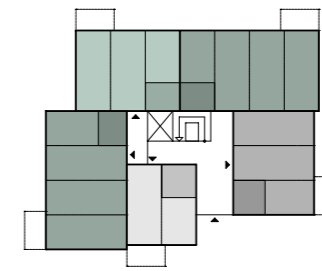
The three-dimensional room modules, based on an orthogonal grid, can be aligned and stacked to create attractive buildings using the modular principle. The possibilities offered by modular construction allow designers to create freely projecting bay windows, balconies and loggias, or stunning facades with offset modules.

ALHO has specialised in the building of houses below the tower block limit (22 m) – Therefore six or seven full storeys are possible.

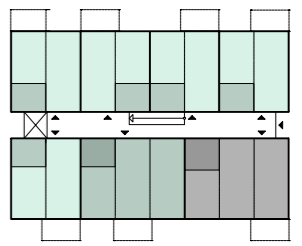
The geometry of the building can be adapted flexibly to the situation on hand especially with inner-city plots of land and gaps between buildings.

In particular, planners who value clear lines or the Bauhaus style will feel at home in the world of modular architecture. Organic building layouts, on the other hand, can only be built as special contracts or using hybrid construction methods.

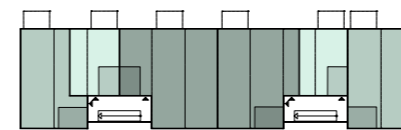
-  TYP W1-R
-  TYP W2-R
-  TYP W2-B
-  TYP W3-B
-  TYP W4-B



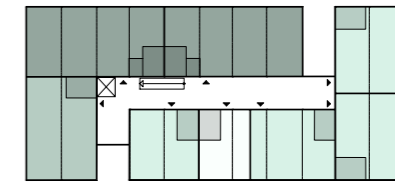
Planning.



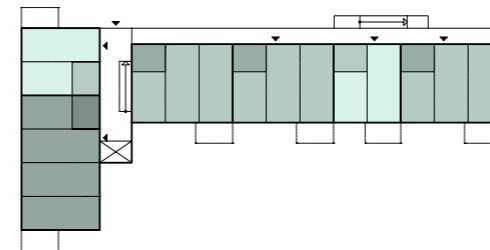
Dortmund



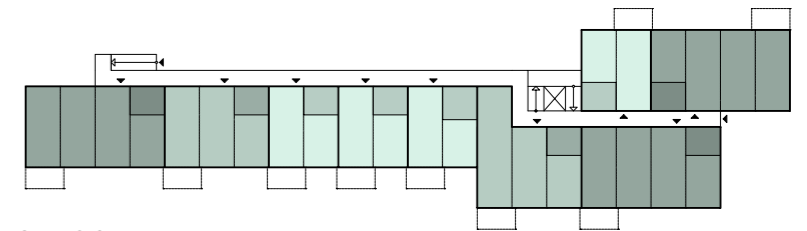
Dreieich House 1



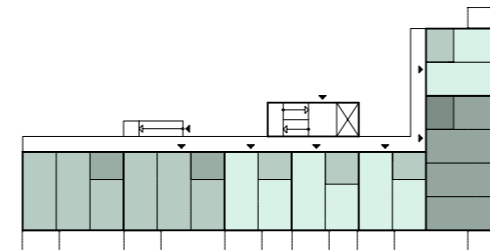
Dreieich House 2



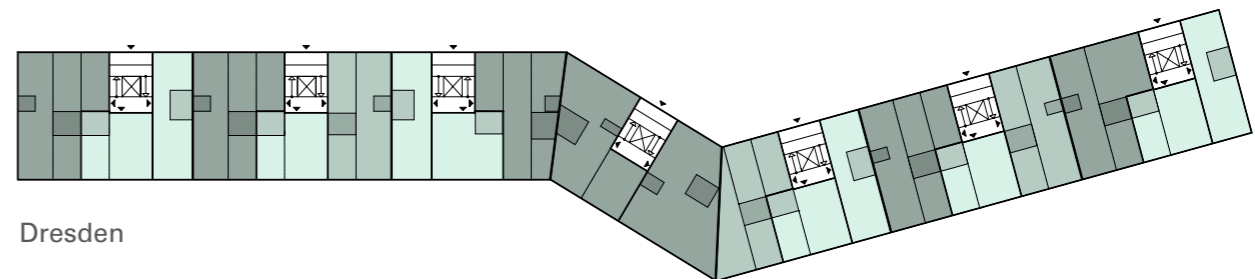
Wiesbaden



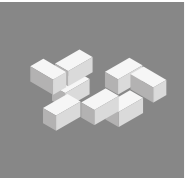
Landsberg



Leverkusen



Dresden



REFERENCE APARTMENTS POINT BLOCKS

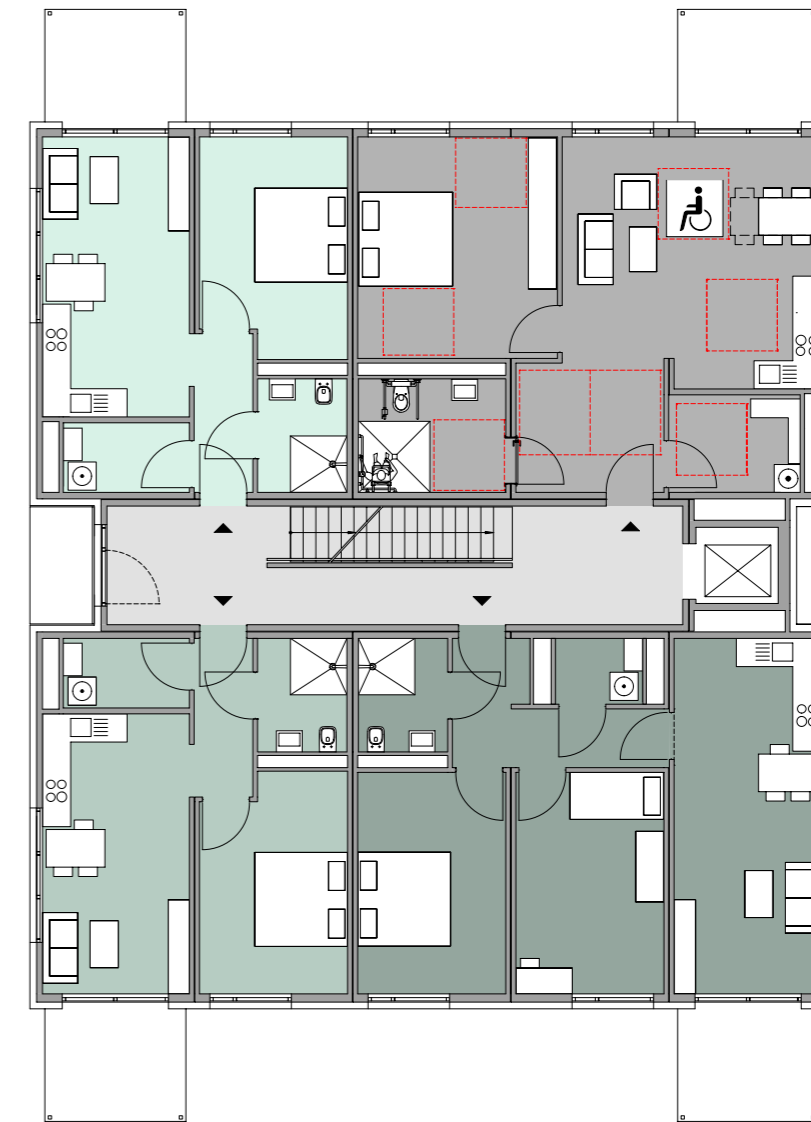


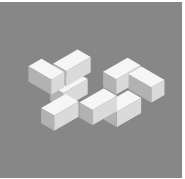
Project data:

Location: Kaulbachstraße, Bochum
Year built: 2018
Storeys: 4 in each case
Gross floor area: 1,378 m² each
Living area: 969 m² each
Factor: 0.7

Residential mixture:

3 blocks of 14 apartments each, total 42 apartments
7 x 2-room flats
2 x 3-room flats
2 x 4-room flats
3 x 2-room flats for wheelchair users
All apartments have barrier-free circulating areas.





REFERENCE APARTMENTS BLOCK DEVELOPMENT

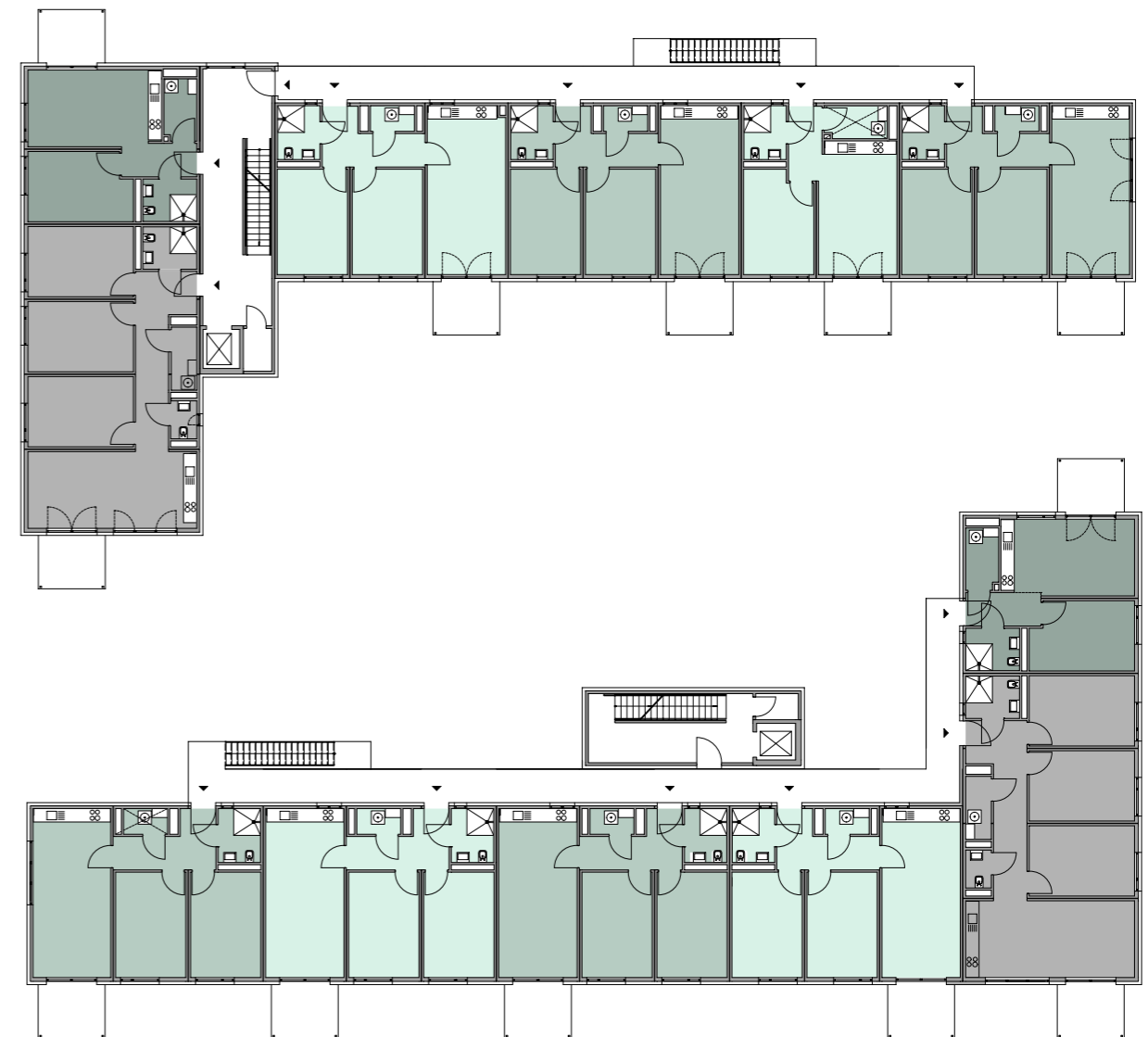


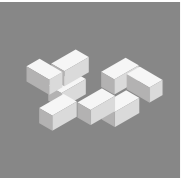
Project data:

Location: Spiekerooger Straße, Wiesbaden
Year built: 2018
Storeys: 2, 3 and 4 storeys
Gross floor area: 3,820 m²
Living area: 2,727 m²
Factor: 0.71

Residential mixture:

38 apartments
11 x 2-room flats
22 x 3-room flats
5 x 4-room flats
All apartments have barrier-free
circulating areas.





REFERENCE APARTMENTS TERRACED CONSTRUCTION



Project data:

Location: Reicker Straße, Dresden
Year built: 2018/2019
Storeys: 3 and 4 storeys
Living area: 6,480 m²

Residential mixture:

74 apartments
10 x 2-room flats
25 x 3-room flats
37 x 4-room flats
2 x 5-room flats
Some of the residential units have
Barrier-free circulating areas





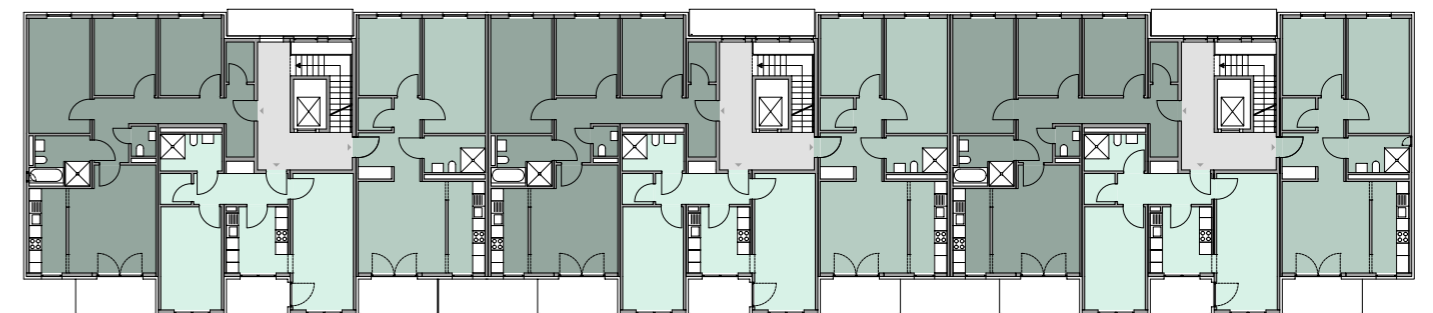
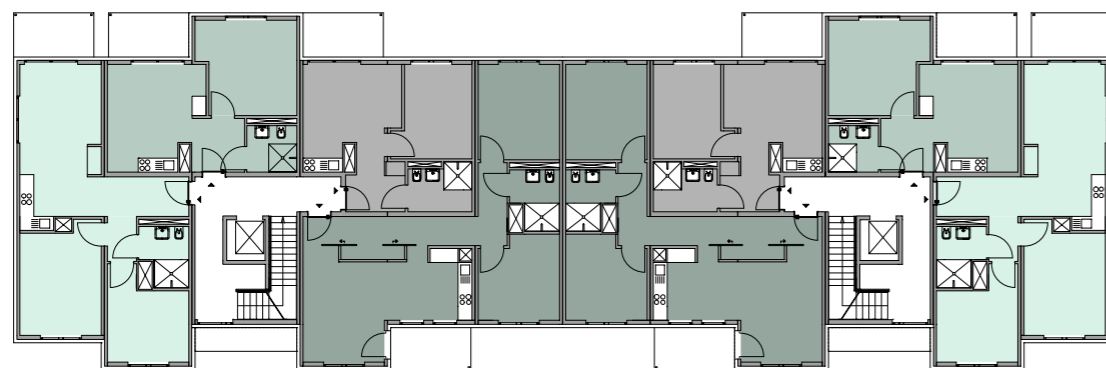
REFERENCE APARTMENTS TERRACED CONSTRUCTION

Project data:

Location: Unstrutstraße 47–49 / 72–74, Leverkusen
Year built: 2019
Storeys: 4 in each case
Gross floor area: 2,404 m² each excl. full cellars
Living area: 1,833 m² each
Factor: 0.76

Residential mixture:

2 blocks of 32 apartments each, total 64 apartments
16 x 2-room flats
16 x 3-room flats
All apartments have barrier-free
circulating areas.



Project data:

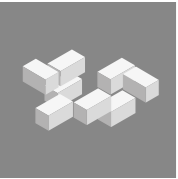
Location: Zschopastraße 25–29, Leverkusen
Year built: 2018/2019
Storeys: 4 storeys
Gross floor area: 3.724 m² without partial cellar
Living area: 2,808 m²
Factor: 0.75

Residential mixture:

36 apartments
12 x 2-room flats
12 x 3-room flats
12 x 4-room flats
All apartments have barrier-free circulating areas.



Fixed costs. Fixed deadlines. Finished fast.



WINNING DESIGN GDW COMPETITION MODULAR, SERIES CONSTRUCTION

The "Alliance for Affordable Living and Building", led by the Federal Ministry, set out to explore ways of dealing with the housing shortage, especially in major conurbations. Together with the GdW (German Housing and Property Companies Association) and the Federal Chamber of Architects (BAK), the Ministry therefore organised a competition of suppliers of various serial construction methods.

The object of the competition was to develop a variable, modular system for the building of new multi-storey apartment blocks using series construction methods. The concept papers for the winning designs include a specific performance catalogue with fixed prices and sample buildings or model buildings which the companies in the housing sector can use for their new-build projects.

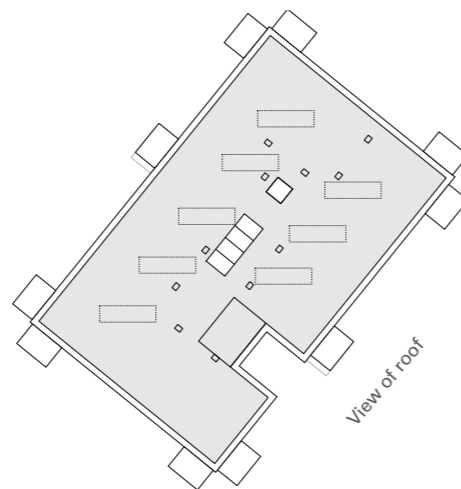
From over 50 bidding syndicates applied to take part in the competition, only 15 were invited to submit their concepts. Nine of the concepts have now been awarded a contract. One of these is the joint submission from ALHO and Koschany + Zimmer Architekten KZA from Essen.



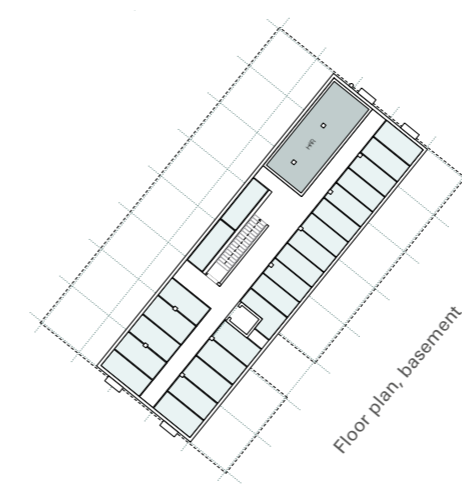
Floor plan, ground floor



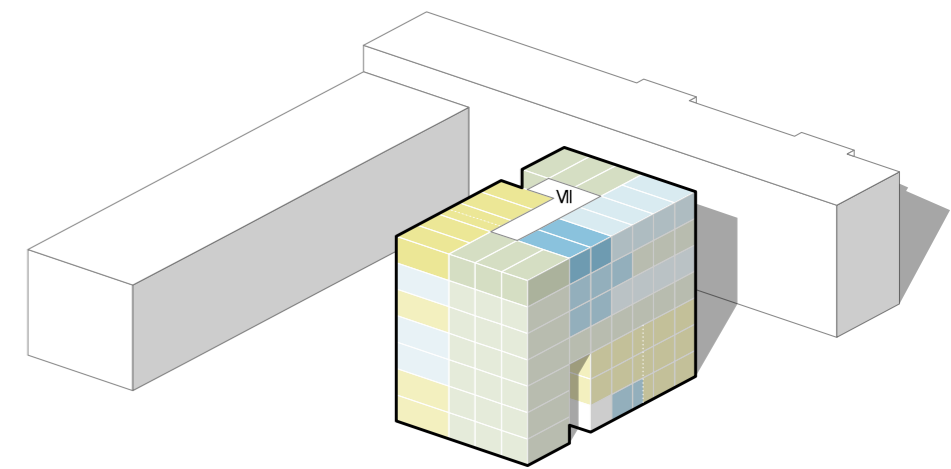
Floor plan, standard floor



View of roof



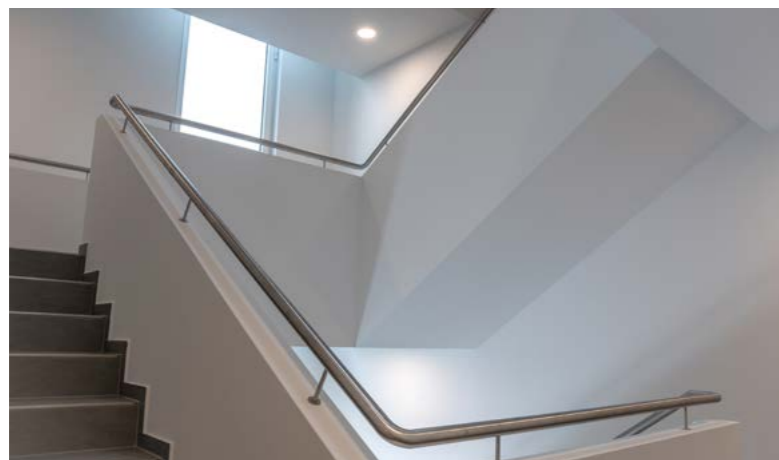
Floor plan, basement





FREEDOM TO FEEL GOOD

Whether it's a living room, playroom, bedroom, study or bathroom – our room solutions are customized to your needs and provide all the facilities that contemporary living space must have today. The most important thing is that the residents feel good. We therefore attach great importance to the use of high-quality materials promoting healthy living and branded products made by German manufacturers.



06

STAIR-
CASE

01

LIVING
ROOM



05

CHILDREN'S
ROOM



04

BED-
ROOM



02

BATHROOM



03

KITCHEN



□ Production site
● Office

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MODULAR BUILDINGS