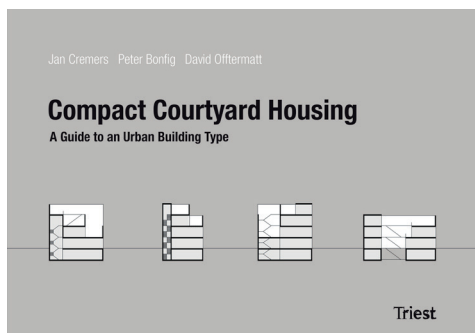


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HFT Stuttgart (eds.),
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Compact Courtyard Housing.
A Guide to an Urban Building Type

English, 158 pages, ca. 240 images and plans
25 × 17,6 cm, softcover with flaps

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Also available:
Kompakte Hofhäuser.
Anleitung zu einem urbanen Gebäudetyp
ISBN 978-3-03863-051-7

Typology: Compact Courtyard House

- Excellent living quality on a small area:
a building typology for dense urban districts
- Specifications and planning criteria –
a practical handbook
- Typology for future housing models

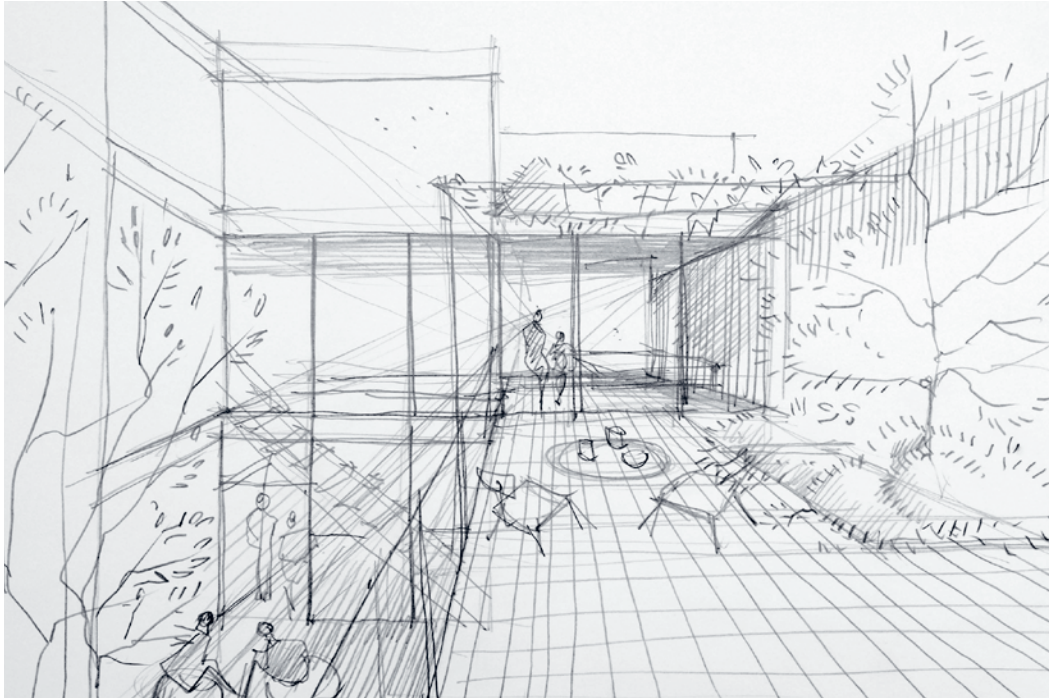
The courtyard house, a typology that harks back thousands of years, is being reinterpreted as a module for high-density, heterogeneous urban districts. The Compact Courtyard House, generally with three closed exterior walls, takes up only very little space. With three to five storeys and up to four dwelling units, it can replace detached houses and conventional residential buildings. The outside space that ordinary buildings need as spacing between each other is incorporated into Compact Courtyard Houses as high-quality courtyard space protected from outside viewing. Interior and exterior spaces can thus merge into a single spatial continuum with great utility value.

Each flat has at least one such courtyard. This resolves the dilemma of conventional types of construction in which density equals loss of privacy and stress caused by unwanted visibility.

Going into great detail, the book presents different types and variations for sites of different sizes and proportions. All can be readily combined to create urban ensembles and districts. Nevertheless, each building can remain largely autonomous on its own plot, thus ensuring a simple situation in terms of ownership.

There are many possibilities of deploying this kind of building in the urban setting while only taking up little area: redensification of existing residential areas, conversion of brownfield and leftover areas, new construction of mini-quarters and even larger urban districts.

The book demonstrates the characteristics and extensive typologies of the Compact Courtyard House, providing planners with specific information and specifications for their work.



About the authors

Jan Cremers, Prof. Dr.-Ing., architect, Professor of Building Technology and Integrated Architecture, Dean of the Faculty of Architecture and Design at HFT Hochschule für Technik Stuttgart. Specialist national and international publications and related research and development activities.

Peter Bonfig, architect with more than thirty years expertise in the development and application of innovative concepts and technologies. Activities in teaching, research and practice in Europe, USA, Australia and Japan and as an architectural photographer.

David Offtermatt has been a research associate at HFT Stuttgart since 2017. He studied Climate Engineering there and went on to acquire his master's degree in Energy and Building Systems at Biberach University of Applied Sciences.



Fig. 26: Plattenhaus am See, Ditzingen, Sweden.
Architect: John Pawson, 2006–2013.

¹⁵ Matthias Ludermann, "transparent house", in: *ARCH+*, No. 144 (1998), p. 102 ff.
Quote: "It is only through the consciously controlled change of the hull and thus of the experienced external world that the generation of reality is substantially shaped. Indeed only made possible in the long run. If one always sees the same section of the environment day in, day out, then the degree of attention in the observation of the same decreases rapidly with increasing time [...] But precisely the possibilities of retreat, of cover, of change, all of which are deeply inherent human needs, are today denied in an almost general manner in favour of an omnipresent presence of the outside."

¹⁶ See the section "Courtyard Strategy" in the next chapter.

sary, acoustic comfort, but also changes our perception and sensitivity to the space as such.
The architect Matthias Ludermann speaks of "operative" transparency, meaning that transparency does not exist a priori, but requires changing perception by means of movable and changeable spatial envelopes.¹⁵

Courtyards in Variants

The main feature of the interior outside spaces or courtyards is their privacy, since they are shielded from view and are protected as much as possible from unwanted sound sources and odours from the neighbourhood.
An effective microclimate in summer requires vegetation and / or moving water. Specific geometric parameters and surface conditions allow for good lighting and also acoustics.
If the objectives are followed, the compact courtyard house does not impose any restrictions on the shape, size, proportions, design or vegetation of the courtyard. The spectrum ranges from light well situations to courtyard gardens with trees or stepped outdoor spaces with courtyards on several levels or terraces.¹⁶

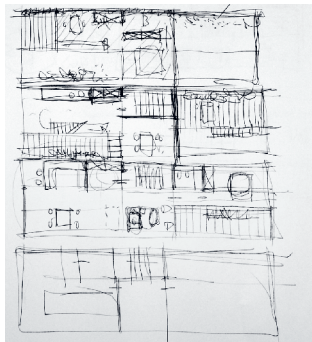
The following distinctions can be made:

- ground-level courtyards;
 - non-ground-level courtyards, for example flat roof situations with or without substrate layers for vegetation.
- Just like private interiors, courtyards can be opened and closed to public spaces and the action taking place there – by means of movable components such as shutters or adjustable louvers. Of course, this applies in the same way to the degree of opening or permeability of interior spaces to their associated private exterior spaces.



Fig. 38: Perspective sketch of concept C2. View into the central courtyard of a maisonette. Additional zenith light enters the interior via the stair opening.

Fig. 37: Development process of building types, floor plan sketches for C5.



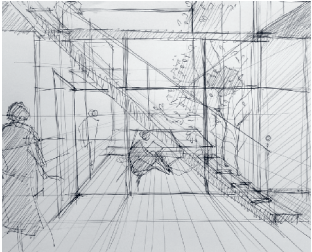
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- suitability for certain plot sizes and proportions as well as the number of possible storeys,
- achievable degree of structural use in relation to the respective property, for Germany: Building Coverage Ratio BCR (Grundflächenzahl GRZ) and Floor Area Ratio FAR (Geschossflächenzahl GFZ)
- number and size of units with a division into residential and commercial uses,
- possibility of integrating parking spaces into the building or on the property,
- balancing between basement and secondary rooms on the ground floor,
- good use of daylight in the interior spaces via the courtyards,
- functional allocation and good transition between interior and exterior spaces,
- degree of opening and transition to public space,
- access and escape route concept with mandatory and possibly non-mandatory stairs and elevators,
- universality and variety,
- combinability and suitability for neighbourhood formation and the associated degree of achievable density.

Additional concepts or basic types can, of course, also be developed. However, it has already been shown that eight concepts and their variants provide very complex and diverse neighbourhood solutions for a wide range of different urban locations with a large variety of apartment sizes.

The following scheme was used to name individual types:

Property size – concept – number of storeys – number of units – Floor Area Ratio FAR (e.g. type 115-C1-4-2-2.8)



Concept 1 (C1)

This narrow but deep building is mainly lit via a central courtyard. Stepping or fanning out of the courtyard serves to improve natural lighting and to create further outdoor spaces; roof terraces or roof courtyards are optional.

Plot proportions: approximately 1:2 to 1:5.
Enclosed on two, three or, in exceptional cases, four sides, with the narrow side(s) facing the public space.

Floors: 2 to 4.
Number of units: 1 to 2.
FAR: about 1.5 to 3.

As long as the uppermost floor level does not exceed an elevation of seven metres, the mandatory internal staircases do not require their own stairwell (requirements for building class 2 in Germany, see explanations in chapter V).
If several buildings are added, they can share mandatory stairwells and, if necessary, elevator systems for accessibility (Fig. 58). If there is no basement, the ground floor can be used for parking.

Floor Plans		Sections	Structures of Ownership and Use		Optional in Neighbourhood			
			only one user or type of use per plot, one owner		+		+	
			multiple users or types of use with predominantly horizontal separation	one or more owners	+		+	
			multiple users or types of use with predominantly vertical separation	one or more owners	+		+	
			multiple users or types of use with common use areas, e.g. on ground floor for access for parking and storage or for vertical access	one or more owners	+		+	
					+		+	
					+		+	
					+		+	

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