



Bicycle Parking in Dense Housing Areas

Requirements for bicycle parking at the place of residence

The provision of secure, well located bicycle parking at the place of residence is essential if people are to be encouraged to use a bicycle as a means of transport. The inconvenience of carrying the bicycle from the basement or the flat onto the street might put people off cycling and prompt them to use the car or bus instead. In a survey conducted by the Vienna-based research project 'Meine Fahrradgarage' ('My Bicycle Garage'), 25 % of the interviewees said that the lack of adequate cycle-parking facilities would prevent them from using their bicycle (more frequently).

If bicycles cannot be stored securely, owing to the fear of theft or damage, people often use low-quality bicycles, thus depriving themselves of cycling comfort and the joy of riding a bike. Furthermore, in places where bicycles are parked along the pavement or get locked to fences/railings and posts, they cause an obstruction to pedestrian flow and to visually impaired pedestrians in particular. Therefore, along with secure bicycle parking at a destination, e.g. the place of work, city centre or railway station, it is essential to provide practical parking solutions also at the start point.

The provision of attractive and useful bicycle parking can be realised very easily in new housing developments, where plans for appropriate facilities must already be included in the design of the building. While

most single-family houses with tool sheds and garages also offer enough space for storing a bicycle, parking space is more of an issue in dense housing areas with multi-storey buildings. The conversion of existing locations is often challenging, as their functionality and design have to be adapted. The following criteria must be considered to ensure that the bicycle parking, both within and outside of the building, is accepted and used by the residents:

- Sufficient amount and size of bicycle parking/storage: A minimum of two bicycle parking spaces per flat must be provided along with sufficient storage space for accessories and trailers. Special bikes, such as tandems, recumbent or cargo bicycles, require more parking space. Installing mechanical lifting devices that save space by bringing bicycles into a vertical parking position can help use available space more efficiently, and a

*Cover image: Bike racks in front of a block of flats in Tübingen.
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charger for electric bikes and a fixed tyre pump may further increase the attractiveness of the cycle-parking facility.

- Easy access at street level or via flat ramps: Stair cases often constitute an insurmountable obstacle for people with heavy bicycles. Electric and cargo bikes in particular often weigh more than 20 kg. The parking facility should be located as close as possible to the entrance of the building; the door to access it should be broad and easy-to-open. Adequate lighting is also important; ideally a motion sensor should be installed to switch the light on. This increases the users' sense of security.

- Protection from theft, vandalism and weather conditions: In order to ensure that secure parking is also provided for high-value bicycles, a room with lockable doors and at least a covered area is needed. For communal bicycle parking for residents, electronic locks with a swipe card system can be used; they are more flexible and easier-to-manage than conventional key systems. Inside the parking facility, bike racks must give adequate support for the bicycle. Particularly valuable bicycles may be stored in separate boxes for protection.

Dense housing areas with old buildings – little space and lots of bicycles

The provision of attractive bicycle parking is urgently needed, but it is also particularly difficult to realise in dense neighbourhoods close to the city centre, where younger people, more inclined to use bikes, have to cope with limited space and a high density of use. The 'classic' bicycle parking in basements accessible via a steep staircase is often only used to store bicycles in winter because it is too tedious to carry them up and down every day. The demand for parking space is high: A typical residential building with five to six storeys and a side and rear wing often comprises more than 20 housing units. A minimum amount of 40 bicycle parking spaces would have to be provided at a new building of the same size, as specified in the building regulations. Only few old buildings can accommodate this amount of bicycle parking. There are, however, solutions addressing the problem of limited space.

Before planning construction work, it is essential to determine the actual demand for secure parking space. In doing so, it is likely to be more successful to involve the



A bicycle railing fixed to the building provides more security and keeps bicycles off the pavement. © Sebastian Korn

entire neighbourhood rather than focusing on individual streets or blocks of flats. Counts of the numbers of parked bicycles in the public street space by day and night will provide an estimate of the demand. Subsequently, surveying all residents, but also analysing the local bicycle theft rates, will help determine areas where the demand would be very high. Based on the gathered information, as many bicycle parking spaces as possible must be provided and located within walking distance (no more than 150 metres) to the identified 'hot spots'.

Larger cycle-parking facilities for the neighbourhood are useful, as they can accommodate larger numbers of bicycles in a confined space. Potential locations include, along with small, disused spaces, in particular vacant shops, and even ground-floor flats that are difficult to let. The provision of cycle-parking facilities for the neighbourhood may also appeal to private landlords because, by collecting user contributions, they can at least offset the utility costs of the rooms that would otherwise be vacant. In very attractive neighbourhoods in the city centre, however, it is difficult to find suitable spaces or sites.

Where residential buildings have large entrances, inner courtyards provide a suitable option for bicycle parking. In such cases protection from theft and weather conditions, as well as access control and the attractiveness of the bicycle parking, must be considered. Tenants are called upon to encourage owners to set up such communal cycle-parking facilities. Other options include the conversion of garages or renting of space in underground car parks. Improved accessibility of the

Further readings:

Danish Cyclists Federation (Ed.) (2008): Bicycle Parking Manual, Copenhagen.

AGFS (Ed.) (2004): Und wo steht Ihr Fahrrad? (German) www.nrvp.de/neuigkeiten/news.php?id=1013

Velokonferenz Schweiz (Ed.) (2008): Handbuch Veloparkierung. (German, French, Italian) www.nrvp.de/neuigkeiten/news.php?id=2414

CERTU (Ed.) (2010): Stationnement collectif de vélos. Fiche Nr. 22. (French) www.certu.fr

parking can be provided by installing shallow ramps. Bike racks embedded into the ground will provide adequate support for the bicycle, and storage capacity can be increased by using mechanical devices to facilitate parking.

The overall monthly rent paid by the users of the cycle-parking facilities usually amounts to much less than 50 Euros. In a survey conducted by the project 'Meine Fahrradgarage' in Vienna, the majority of the interviewees were very reluctant when it comes to paying for bike parking, and would be willing to spend a maximum amount of ten Euros per month.

Where car and cycle-parking facilities are operated by the same owner, cross subsidisation can often help achieve attractive prices for cyclists. In Bremen and Münster, the city has provided bicycle parking spaces in some of the car parks located in the city centre. In Bremen every car park provides between 50 and 100 secure and free cycle-parking spaces that are under video surveillance. In Münster secure bicycle parking is available for a maximum charge of 7 Euros per month in a combined car and cycle-parking facility located in the city centre.

In cases where there is a lack of space or demand for larger cycle-parking facilities, smaller units known as 'Fahrradtrommeln' (bicycle sheds) or 'Fahrradboxen' (bicycle lockers) should be considered. They accommodate five to eight bicycles and often only require the floor space of a car-parking space. While they are more expensive in comparison with large parking facilities and, at the same time, offer a smaller amount of bicycle parking, they often provide the only option for secure bicycle storage in dense, sought-after neighbourhoods. In Germany cities such as Hamburg and Dortmund have had positive experiences with small communal cycle-parking facilities.

Small cycle-parking facilities for the neighbourhood, mainly located on public property, have been in use in Hamburg since 1993. Now the city has over 300 Fahrradhäuschen ('little bicycle houses') in place, each accommodating up to twelve bicycles. The circular design (approx. 6 square metres of floor space) is made of wood, plastic and steel. They have broad, and most of them double-winged, doors; the bicycles are stored by hanging them on a rotating device. This type of storage saves valuable space but makes it difficult to park cargo

bikes and trailers. It is also hard to lift heavier bicycles, such as electric bikes, to hang them by the front wheel. In this case semi-automatic lifting systems can be useful. The city of Hamburg subsidises the installation of these parking facilities and issues special-use permits for public street space that may be needed. There are two options for using the facilities: Either future users form an interest group and apply for funding and installation with the district authorities, or a landlord or building owner submits the funding application and rents out the spaces to the tenants once the parking has been set up. It is of course also possible to buy a 'little bicycle house' at one's own expense and set it up on private property. In Hamburg a 'little bicycle house' costs at least EUR 5,000, and up to 50 % of the costs are subsidised. Thus users have to pay 250 Euros each out of their own pocket. The high acquisition costs, however, do not diminish the success of the project. Instead, the main problem is the lack of space in some housing areas.

The city of Dortmund has a different approach. It commissioned the German Sustainable Transport Association VCD (Verkehrsclub Deutschland) to manage the use



A good combination in the center of Berlin: Weatherproof bicycle storage and the entrance to a basement car park. © Sebastian Korn

of the 'little bicycle houses'. The VCD is responsible for the project, including permits, installation and user contracts. In Dortmund the district authorities subsidise 'little bicycle houses' with EUR 5,500. Users have to pay 180 Euros once and a 15-Euro insurance premium annually. So far 9 'little bicycle houses' have been installed in Dortmund.

FGSV (Ed.) (2005): Hinweise zum Fahrradparken.
Köln. (German)

Gemeente Utrecht (Ed.) (2010): Inspiratieboek fietsparkeren.
(Dutch)
www.fietsberaad.nl/library/repository/bestanden/dolte_Utrecht_fietsP_inspiratieboekje_lr.pdf

Many municipalities are reluctant when it comes to 'little bicycle house'-type parking facilities due to concerns about the cityscape and street furniture. Therefore, innovative design and multifunctional solutions are needed. A number of new ideas and concepts have been collected in the French design contest 'Abrite mon vélo' (which translates roughly to 'park my bike'). The concept submitted by Franck Dardé won the contest.

Parking space is of special concern for people with three-wheeled vehicles, such as cargo or delivery trikes. A first experiment is being conducted in Copenhagen using a car-shaped design that accommodates four cargo bikes in a car-parking space. This is another example of an attractive design that also addresses the use of public space.

The legal framework in Germany

The building regulations of most German states do not address the provision of cycle-parking facilities separately. However, special criteria for their design and construction can be found in the municipal statutes and regional regulations. The Swiss canton of Bern, for instance, has building regulations that specify the minimum amount of bicycle parking/storage to be provided at new residential developments (two to three parking spaces per flat, depending on the floor space). Fifty per cent of them must be covered, and the entire area must be easily and safely accessible. In general, the requirements specified in the building laws should be as detailed as possible to ensure high-quality facilities.

In Germany the building regulations of the city of Berlin and the state of North Rhine-Westphalia are good examples. The building regulations of the city of Berlin specify very clearly the amount and design of the bicycle parking. What is also special about the city's building regulations is the fact that they waive the usual obligation to provide car-parking spaces at new residential developments. Similarly, the building regulations of North Rhine-Westphalia also clearly specify the amount of bicycle parking to be provided. Determining the amount of parking needed should be done not only based on the standards, but also taking into account the local conditions, such as the access to local public transport or



An experimental box in Copenhagen accommodating four cargo bikes. © Jörg Thiemann-Linden

the local age structure. Municipal building regulations can also include provisions for the retrofitting of existing buildings "where this is required to ensure the safety or order of public transport or in order to correct shortcomings in the area of city planning".

Some state building regulations allow compensations if bicycle parking is not provided. The municipalities then use these resources to install cycle-parking/storage facilities in the public space. The city of New York chose a different approach entirely. Car park operators in New York have been legally obliged to convert 10 % of their car-parking spaces into bicycle-parking spaces.

Conclusion

Bicycle parking in residential buildings is a key concern not only for the builders and landlords. There is a substantial public interest in making cycling both from and to the place of residence attractive and convenient, and also in making sure that that valuable bicycles will be kept secure and dry at home. For this purpose, there are a number of regulations in place as part of the building law, and there are also encouraging projects for multi-storey housing areas, as well as financing models for communal cycle-parking facilities for residents on public street space and private property.



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More Information on Bicycle Parking can be found in the following editions

Cycling Expertise I-6 Bicycle Parking at Train Stations
Cycling Expertise I-5 Bicycle Parking in the City Centre

"Cycling Expertise" is available online:
www.nrvp.de/en/transferstelle

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