Roots High-Rise Hamburg —
Wood-Concrete Hybrid

Former US Embassy Oslo —
A New Life for the Embassy

Turley Areal Mannheim —
Parking below the Sandstone

08

Parken³

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A cooperation between
WÖHR Autoparksysteme GmbH
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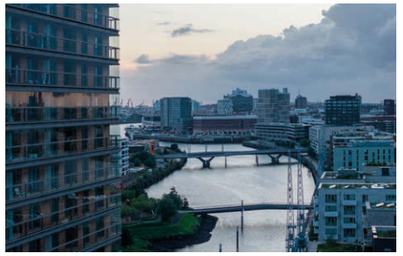
"In a number of respects, parking systems allow the urban ideal of 'less is more' to become a reality: reduced use of surface area, reduced CO_2 emissions, more green space, enhanced quality of life and more space for people."

Marco Eisenack



All Photos:
Klaus Mellenthin
All Illustrations of Parking Systems:
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Added Value in Parking Space

Through the mobility transition, in conjunction with climate change, our cities are confronted by immense challenges. How can urban space be reshaped in such a way that it does justice to the challenges of future mobility while also quality of life and sustainability? This question is central to the current and 8th issue of Parken³.

A series of exemplary projects illustrate how parking space can be reconceived in an integrated way: from the timber hybrid high-rise Roots in Hamburg's HafenCity, with its sustainable materials and future-oriented mobility concept, to the remodelling of the former US embassy in Oslo, with its fully automatic parking system, to a neighbourhood garage in the Turley-Areal in Mannheim, where conventional parking is combined with a semi-automatic parking system in order to conserve space, enhancing the amenity quality of public areas. All of these examples demonstrate that architecture, mobility and sustainability can be interconnected in productive ways.

Urban development can only succeed through an interplay between buildings, open space and traffic planning. This is also emphasized by a position paper on "triple inner development", published by the German Environment Agency and summarized in this issue. It explains how the unsealing of paved surfaces, densification and the rehabilitation of existing structures can contribute to the sustainable city of the future - while necessitating a reconceptualization of the urban space that was claimed up to now by the private automobile.

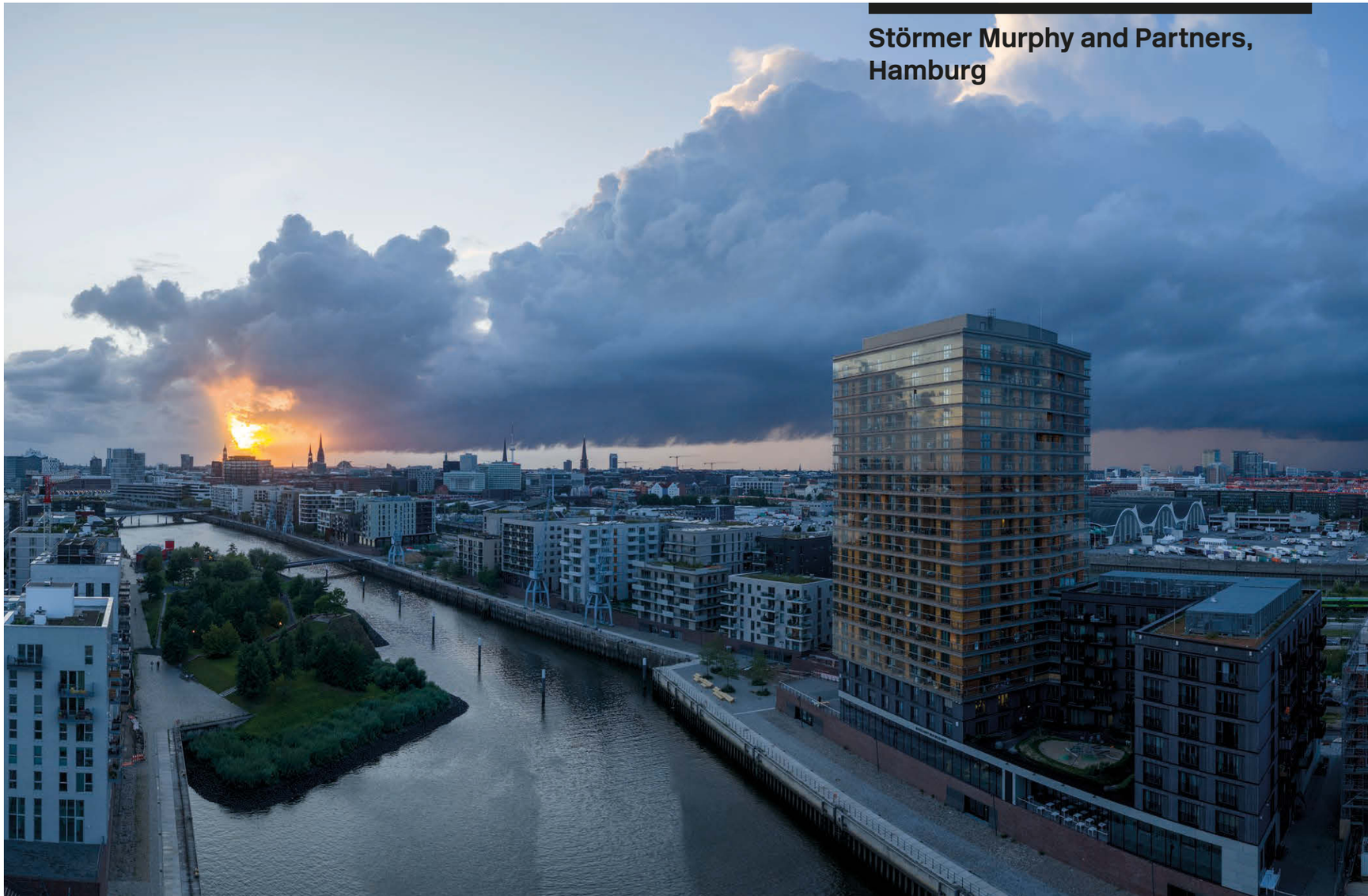
Such changes can be advanced in decisive ways through the reduction of parking areas in favour of high-quality open spaces and compact parking solutions. The potential of this strategy is beautifully illustrated by intelligent systems like those offered by WÖHR Autoparksysteme: efficient and compact parking space reduces the use of concrete as well as CO2 emissions while creating new spaces for greening and social encounter. The introduction of such functional infrastructure can make a significant contribution to making the high-quality, climate adapted cities of the future a reality.

Ruth Haller

A Wood-Concrete Hybrid: The Roots High-Rise in Hamburg's HafenCity

Text **Ruth Haller**

A new urban habitat on the water – soaring skyward in the Elbbrücken neighbourhood in Hamburg's HafenCity is the wooden Roots high-rise. An incisive component of the new district, it qualifies as a reference object for urban timber construction in Germany.



Störmer Murphy and Partners, Hamburg

With a height of 65 m, and resting on a site in Baakenhafen that measures 3200 square meters, the building functions within the Elbbrücken neighbourhood as an orientation point that is visible from afar, demarcating – in conjunction with neighbouring projects such as the planned Elbtower – the eastern edge of HafenCity. The site became buildable only through earth fill and land reclamation in Baakenhafen. In this context, the building serves as a landmark that also highlights the transition between urban terrain and the water. The combination of residence, workspaces and public utilizations in the podium structure reinforces the neighbourhood's urban character, underscoring the guiding principle of HafenCity, namely the creation of a functionally mixed, lively urban environment.

The design is the work of the local architectural practice Störmer Murphy & Partners, which had already proposed another timber hybrid structure in a competition process for a site in the vicinity. Together with the property developer Garbe Immobilien-Projekte GmbH and the Deutsche Wildtier Stiftung (German Wildlife Foundation), the project was further developed onsite and ultimately realized in 2020 – 2024. Roots has received numerous awards, and illustrates the burgeoning potential of timber construction in a metropolitan context.

A Place on the Water

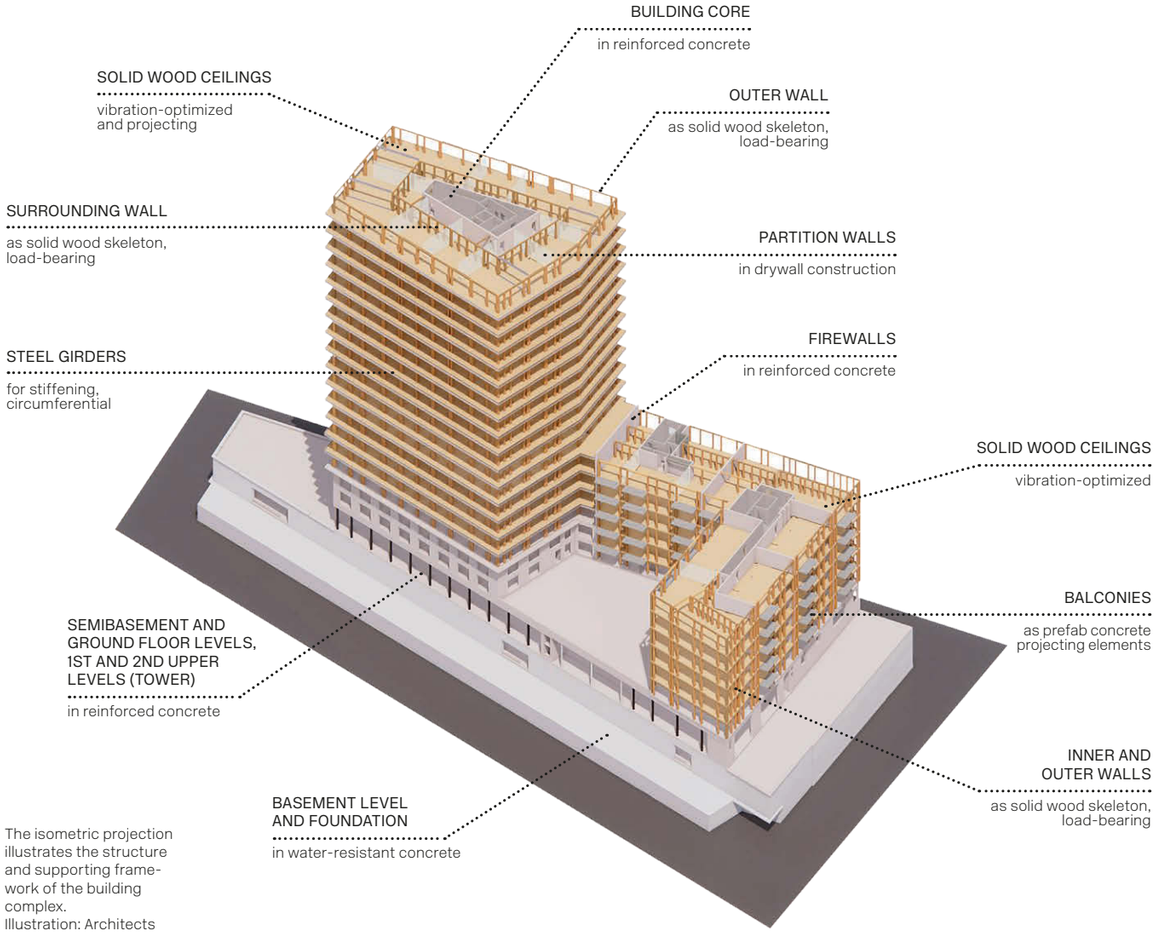
The complex consists of a nine-story residential tower and a seven-story L-shaped building adjoining it to the east. Taking the form of a loadbearing timber construction with buttressing reinforced concrete staircase cores, it rests on a shared, multilevel podium structure in reinforced concrete. This podium structure in particular is conceived in accordance with the relevant flood protection criteria, and hence fulfils the structural demands of a secure building in close proximity to the water.

The site's development conforms to the specific topographic conditions of HafenCity. Two spacious external staircases, along with a handicapped accessible ramp, provide connections between the flood-safe Liselotte-von-Rantzau-Platz and Lucy-Borchardt-Straße toward the east and the subjacent, waterfront promenade. The high-rise Roots conforms to these axes, its podium structure directly adjacent to the waterside promenade, thereby serving as a transition between the urban terrain, set on a higher elevation, and the public waterside area. It hence assumes a hinge function, taking account of flood protection, while at the same time creating a tangible connection to the waters of the Elbe.

Living, Working, and Learning under One Roof

Accommodated in the podium structure are the exhibition galleries of the Deutsche Wildtier Stiftung (German Wildlife Foundation), whose "Botschaft der Wildtiere" (An Embassy for Wild Animals) is an interactive multimedia exhibition on the protection of nature and biodiversity, whose installation was conceived by the Stuttgart scenography practice Atelier Brückner. In addition to the exhibition galleries, public utilizations in the ground floor and semi-basement levels include a learning workshop for kindergarten and school classes, a cinema for screening nature films and gastronomy.

Accommodated between the third and 18th stories are altogether 128 privately financed owner-occupied apartments. Found in the lower L-shaped building are an additional 53 publicly financed rental units. The first and second upper stories of the high-rise contain office areas; found here as well is the administrative unit of the Deutsche Wildtier Stiftung.



The isometric projection illustrates the structure and supporting framework of the building complex.
Illustration: Architects

Timber Rising into the Heights

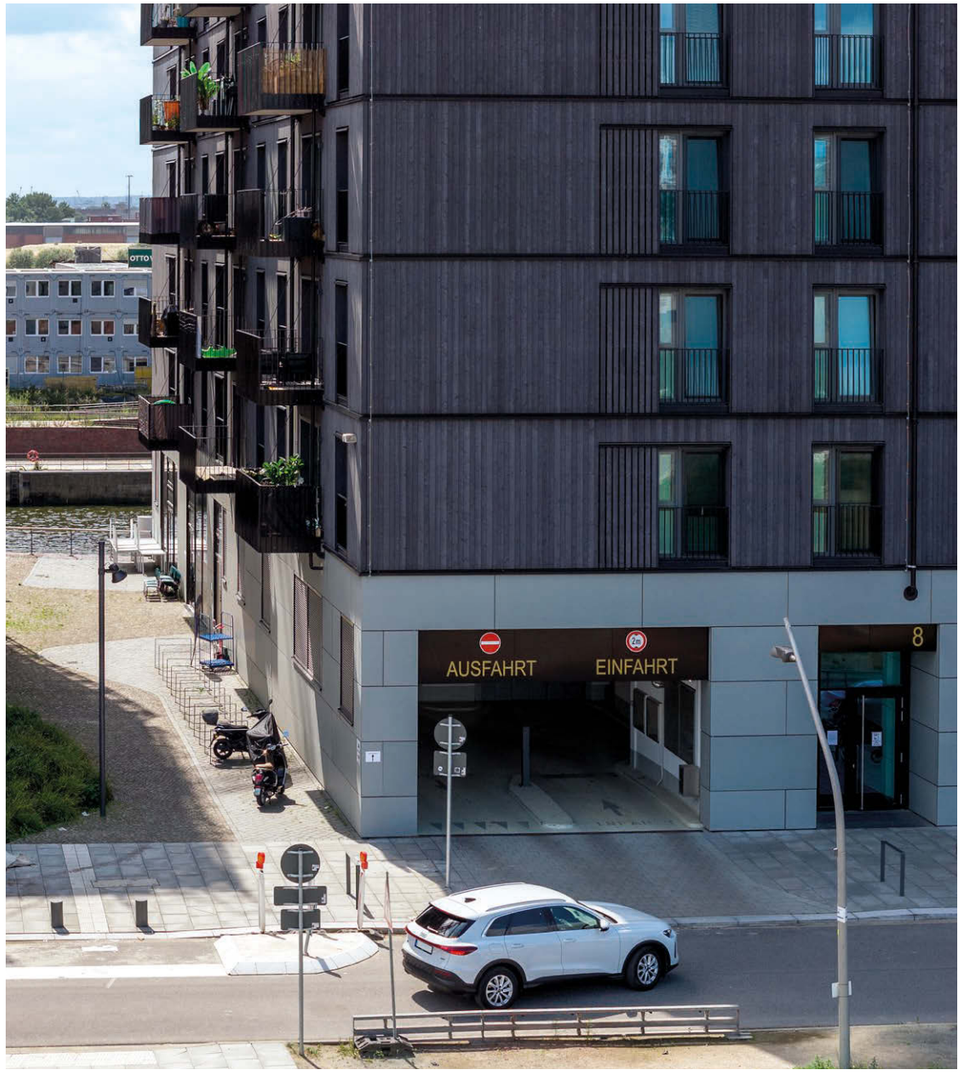
The high-rise was executed as a timber-concrete hybrid; in addition to the suspended structure of the loadbearing interior and exterior walls, the ceilings are fashioned from cross-laminated timber. Employed altogether was approximately 5500 cubic meters of construction wood, supplemented by an additional quantity of wood for the non-structural parts of the building such as the façade cladding, windows and surfacing. The prefabricated construction elements, including the ceiling elements, which measure approximately 2,5 × 8 meters, and the wall elements, which measure approximately 3 × 8 meters, facilitated a precise and efficient assembly on the building site. The use of partially exposed wood for the interiors contributes to the spatial impact, allowing the material concept to be experienced with great immediacy.

A Façade with a Double Skin

Wood not only shapes the tower's constructive aspects, but its exterior appearance as well. An additional façade layer with movable glass elements extends all the way around the building, forming protective loggias and solaria.

The façade of the angled structure is clad in a pre-greyed larch wood. On the ground floor, a combination of mullion-transom construction and fibre cement boards creates a visual contrast

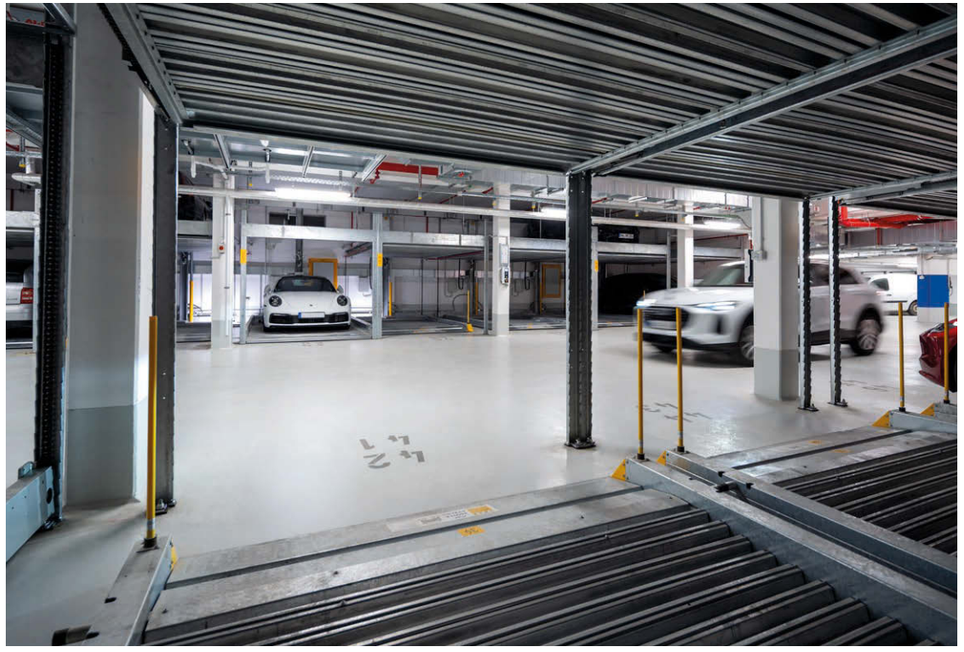
High above, there is an unobstructed view across the River Elbe towards the Elbphilharmonie concert hall. Two car lifts descend to the car park in the basement.



with the upper stories. The semi-basement level has been given a clinker brick façade, in keeping with the design guidelines for HafenCity.

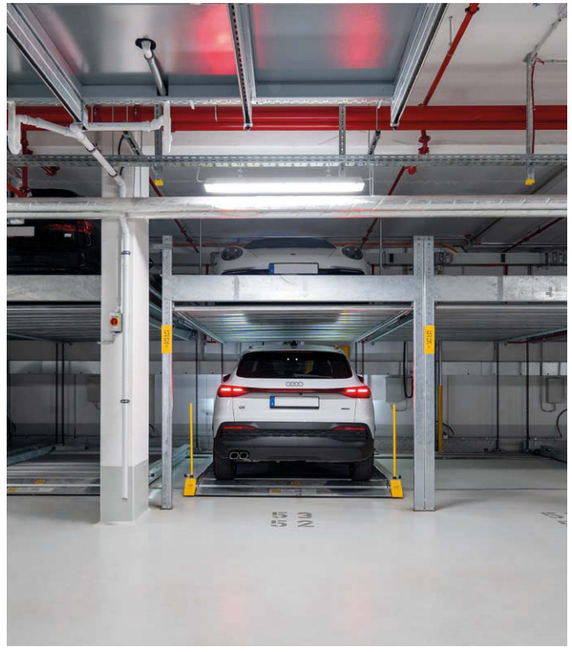
Parking in the Context of the "Mobility Turn"

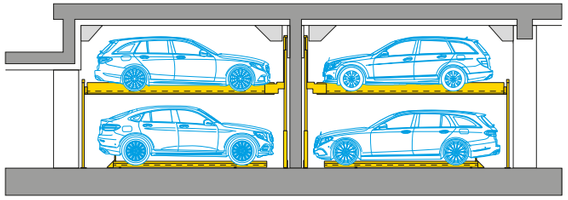
Accommodated in the basement is a shared subterranean carpark for all usage areas, which provides 100 parking spaces and is accessed via two car lifts. All parking spaces have been supplied with charging infrastructures for electro-mobility. Altogether 50 parking spaces are serviced by four semiautomatic space-saving parking WÖHR Combilift 551 systems. In keeping with the mobility concept of the Elbbrücken district, the subterranean carpark also provides areas for car sharing. The reduced parking space ratio of 0,4 per residential unit and the deployment of the compact WÖHR Combilift systems minimizes space requirements in the subterranean carpark, making it possible to reduce building costs while sustaining the district's sustainable mobility strategy.



The layout of the basement shows the space requirements of the system solution compared to conventional construction for approximately 50 parking spaces in each case.

Floor plan and cross-section of the basement.





Product Information

4x Combilift 551 with 3x 7-unit grid + 1x 6-unit grid – a total of 50 parking spaces, platform load 2.6 t, platform width upper floor 240 cm & platform ground floor 217 cm, max. vehicle length 500 cm, max. vehicle height upper level 170 cm, max. vehicle height lower level 180 cm, operation via RFID chip

A New Life for the Embassy

Text **Peter Butenschøn**

The transformation of the former US Embassy in Oslo re-establishes the building's original character and refines its architectural details while incorporating advanced technical and functional standards, notably through the installation of a multilevel underground parking system.

Eero Saarinen

Lundhagem and Atelier Oslo, both Oslo

The significance of embassy architecture as national storytelling has increasingly shaped the approach taken by Norway's Foreign Ministry to the administration of its international properties. A paradigmatic example is the Norwegian embassy in Stockholm — a masterpiece dating from 1952 based on Knut Knutsen's sensitive and thorough design — along with Norwegian delegations in the Nordic Embassies complex in Berlin, in Kathmandu and in Beijing. These buildings are expressions of national culture, designed to convey a sense of the Norway's political consensus and a reflection of the image the Norwegian people seek to present to the wider world. Ultimately, an embassy is also a political statement.

In 1959, when the US Embassy — based on a design by the Finnish-American architect Eero Saarinen — reached completion in Oslo, many perceived it as an incisive and distinctive image of the boldness and dynamism of American society — and at the same time, the triumph of post-war industrial aesthetics in Europe. As Saarinen put it, an embassy building should be simple in form, noble in proportions, moderate in the use of materials — quietly distinguished, like a "gentleman in a white tie and tails." Accordingly, its design was exacting, industrial, uncompromising, prefabricated — and unapologetically self-assured.

The architectural firms Lundhagem and Atelier Oslo led the transformation of the now heritage-listed building into a centre for offices, conferences and restaurants. They collaborated with Erik Langdalen and Jorge Otero-Pailos, as well as with the interior architects Paulsen & Nilsen. Their approach was grounded in the under-

standing that this was a coherent and unified work of architecture — one that could not be tampered with or given stylistically contrasting additions. At the same time, decades of wear and tear called for essential technical and functional modernization if the building was to satisfy current requirements and new usage demands. The architects had to immerse themselves intensively in the post-war modernist thinking that was so brilliantly embodied by Saarinen.

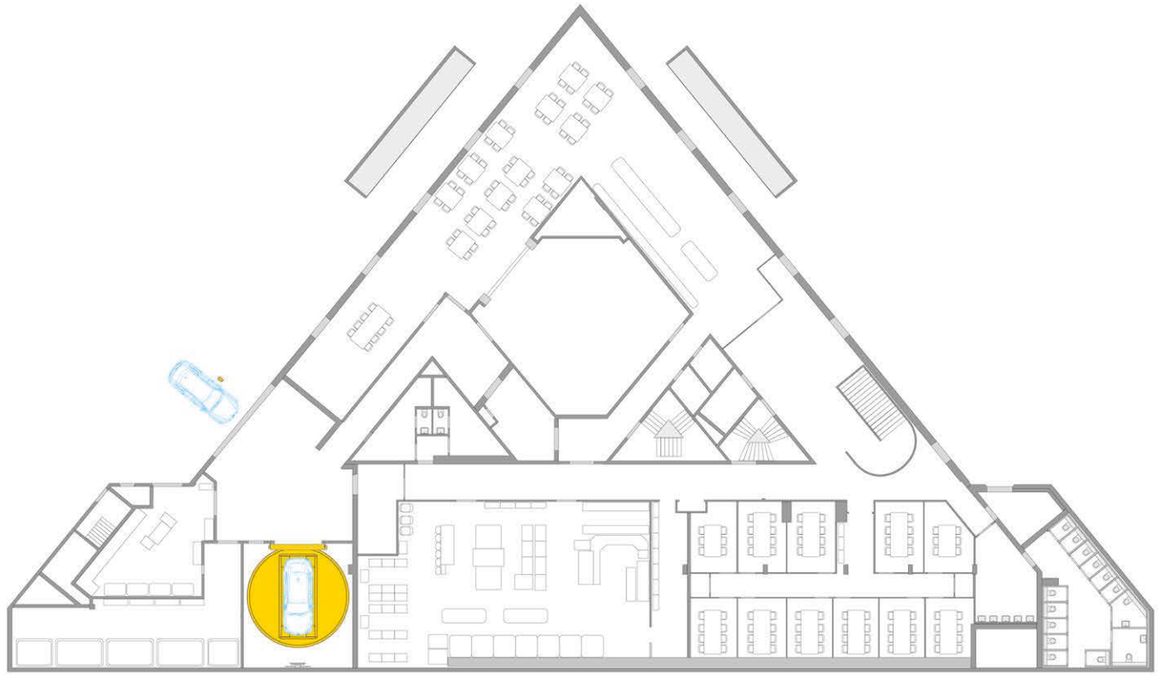
The Nordic and the American

Eero Saarinen, first in the office of his father Eliel Saarinen and later, during the 1950s in his own practice, emerged as a leading voice of the new dynamic American industrial architecture. He designed headquarters and manufacturing facilities for General Motors, IBM and Bell Telephone on the outskirts of Midwestern industrial cities, as well as office high-rises in Manhattan. His architecture featured sleek steel, thin façades and prefabricated concrete elements that were given the precision of hand-polished marble. His building rise confidently like rectangular objects in flat landscapes with well-trimmed lawns, alongside highways, oversized automobiles, and efficient shopping centres. They embodied a new social order, an image of unrestricted freedom and the highest ambitions of modernity.

By relocating the extensive building services to the basement, the top floor became freely accessible for a restaurant and roof terraces.

It was imperative that this be reflected by an American embassy — a symbol of the nation and its cultural aspirations during the Cold War in the face of looming Soviet oppression. The new embassy — a gift by the Norwegians to the Americans in the wake of the Second World War, an expression of gratitude for American assistance in the struggle against Nazi Germany — was to function as an ideological house of culture: open, innovative, and inviting. Visitors could access the building directly from the street, entering a tranquil central space with a reflecting pool and benches, or else ascend a broad staircase to the second floor, where the open library ran the entire length of the building along Drammensveien, a busy street, with large windows offering views of the trees in the Palace Park.

Over time, that open and welcoming spirit faded. The embassy became less inviting, its functions less accessible. As protest marches against the Vietnam War, the Iraq invasion, and other manifestations of capitalist neo-colonialism filled the streets outside, the building was locked down behind blast-proof barriers, biometric screening, heavy bollards, police huts on stilts and military-grade data protection. In 2017, the embassy was relocated to a more secluded complex, well outside the city centre and far from public view.

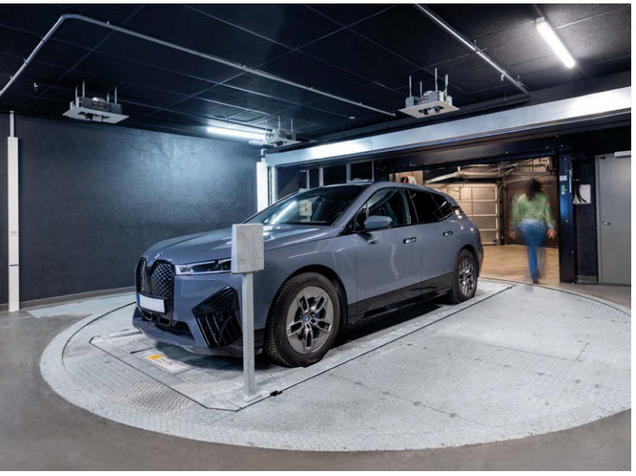


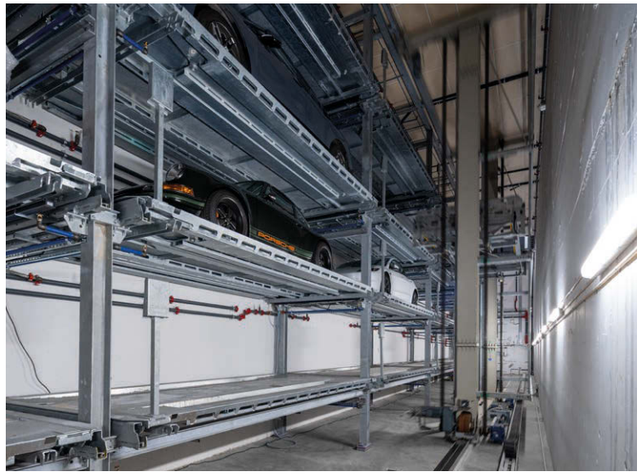
A Technical Challenge

When the building was heritage-listed as a protected historic monument in 2017, the emphasis was on the openness and accessibility that characterized it back in 1960 — and not on its later adaptation to more sheltered and restricted forms of use. This posed considerable challenges for the architects charged with the refurbishments. Rather than adding an extra storey, they expanded the usable space through 12.5-meter-deep underground excavations, increasing the floor area from 6,100 to 9,200 square meters. This created space for an auditorium, a restaurant, parking and new technical systems. Technical facilities in the uppermost story were relocated to the basement, making it possible to use the top level for a restaurant and rooftop terraces.

The design of parking space represented a special challenge – where could the required parking spaces be accommodated within the fully occupied parcel? Together with its Norwegian sister firm, WÖHR Autoparksysteme GmbH has given the building a fully automatic, space-saving parking system. The WÖHR Multiparker 740 provides parking spaces for 28 vehicles on four narrow subterranean levels. An integrated rotary platform in the entry/exit zone on the ground floor makes driving in and out easy. Users park their vehicles at ground level in a bright, modern transfer area set in the building's interior, and retrieve them there as well. The storage and retrieval mechanism of the automatic parking system lowers the platform, together with the vehicle, into a subterranean four-story storage system. Storage and retrieval are initiated in the transfer area through a control unit that uses a remote control or an RFID chip.

The dark wooden wall panelling was painstakingly restored using original materials. Modern security locks and cumbersome alarm systems were removed, and door surfaces repaired with surgical precision using recycled teak from the demolition of the government office buildings. The lattice wall in the central atrium was restored, polished, and returned to its original sharpness and sheen. The façade panels, made of hard concrete mixed with crushed black labradorite, were also repaired and polished.





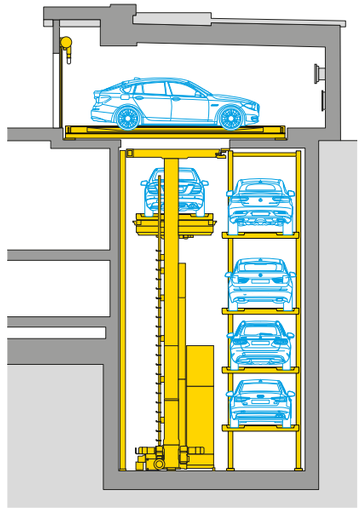
A Reinterpreted Building Agenda

In remodelling the embassy, architects and engineers were granted considerable creative scope by the client. The project required substantial financial resources and patience. Today, in addition to accommodating the headquarters of its owner, Fredensborg AS, the building also contains the offices of human rights organizations such as Save the Children and Amnesty International. There are also conference rooms, three public restaurants and a café.

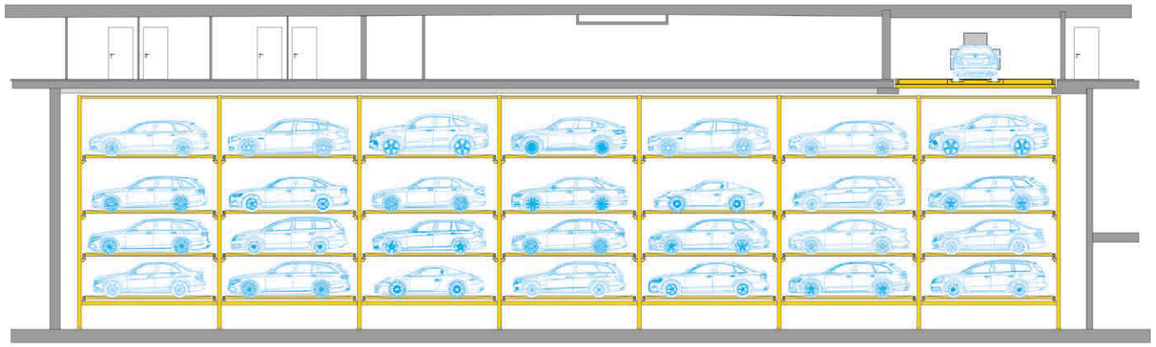
The final project convincingly demonstrates that such conversions can contribute significant added value to a building. In this instance, the original structure was not simply obscured, but rather reinterpreted and fine-tuned — an act of creative renewal. The successful makeover underscores the building's enduring urbanistic and historical significance. These are precisely the kinds of professional case studies that the architectural debate needs.

Product Information

Multiparker 740 – 28 parking spaces, 4 parking levels with 7 parking spaces per level, 180° turning device for convenient parking and unparking, parking time 90–135 seconds, e-charging at all parking spaces, operation via RFID chip, various vehicle heights: 210 cm and 160 cm, vehicle length max. 525 cm, vehicle weight max. 2.7 t



The vehicles parked in the transfer area are brought into the parking system via the central storage and retrieval machine.



Construction, Green Spaces, Mobility: Triple Inner Urban Development as the Key to Integrated Urban Planning

Building, greening, mobility – "triple inner urban development" calls for a fundamental reconceptualization. The German Environment Agency (UBA) is expanding the guiding principle of inner development to incorporate mobility, and is calling for the integrated design of buildings, open spaces and traffic/transport. The aim is densified, climate-resilient, high-quality cities where the street space, green surfaces and the existing architectural inventory become resources for the future.

German cities face growing pressure to utilize land efficiently and sustainably. The demands of densification, climate resiliency, the mobility transition and the safeguarding of green areas compete with one another for the same limited space. A study conducted by the German Environment Agency (UBA) confronts this challenge, expanding the familiar guiding principle of "double inner urban development". While the former approach strives toward a balance between building measures and the safeguarding of open spaces, "triple inner urban development" goes further, integrating the mobility transition as a third pillar on equal terms. This approach acknowledges that up to this point, traffic surfaces have rarely been taken into account – although they represent vast reserves for implementing conversion or design measures.

The aim of "triple inner development" is the systematic integration of three dimensions: **building, green spaces** and **mobility.** Cities are to develop internally without compromising environmental standards or sacrificing quality of life. The study regards the new approach as a guiding principle, not a rigid planning standard. It provides a framework that must be concretized in each instance depending upon the size of the municipality and its structural features and local particularities. Decisive here is that future urban development must be conceived as an integrative process: no longer can housing development, climate protection, open space design and mobility be addressed through separate specialist planning measures, but must instead be seen as interdependent – both spatially and strategically.

The first field of activity relates to **construction.** Rather than further expanding settlement areas, vacant lots, fallow land and underused parcels should be activated. According to the study, inner development has declined markedly in recent years – from circa 120,000 ha (2012) to circa 84,000 ha (2020). This demonstrates that although densification is indeed taking place, it is already encountering limits in many locales. At least officially, approximately 70% of all municipalities acknowledge the primacy of internal development, but in practice green open spaces are frequently sacrificed for the sake of architectural development, which con-

A study by WÖHR, using the example of a previously completely sealed courtyard in Cologne's Helenenstraße, shows that targeted redensification with a parking tower can unseal areas and create new potential for open space.

tradicts the stated goal. For this reason, the Environment Agency stresses that internal development must be qualitative: playing a role alongside density are aspects such as daylight exposure, ventilation, social mixing, greening and environmental quality. The study identifies potential in particular in the vertical extension and reutilization of existing buildings, in the use of façade and ceiling areas, as well as in mixed use, with residence, work and recreational activities becoming intertwined more meaningfully.

The second field of activity relates to **green and open spaces.** In addition to functioning as ecological buffer zones, green spaces are decisive for quality of life. Green zones regulate temperature and hydrological balance, promote biodiversity, and reduce atmospheric pollutants, as well as serving recreational purposes. In Germany's large cities, green spaces on average amount to 30% of the surface area compared with settlement and traffic surfaces, with the available recreational space in many locations amounting to less than 10 m² per person. As a reference value, the Environment Agency suggests providing 24 m² of urban green space for each resident – distributed on diverse levels, from neighbourhood pocket parks all the way to citywide green corridors. And while quantity is decisive, quality counts as well: green spaces should be readily accessible, networked and multifunctional. A special priority in particularly densely settled neighbourhoods is the greening of existing streets and squares – for example through the unsealing of paved surfaces, roadside trees, roof gardens and temporary green zones.

The third field of activity is **mobility.** Found here is a decisive and innovative impulse embodied in the guiding principle: the reconfiguration of the streetscape is simultaneously the engine and precondition for sustainable urban development. In German cities, motorized individual transport accounts for up to 60% of circulation areas. These surfaces are understood as "grey potential" which could be utilized differently in the course of the mobility transition. Emerging through the reduction of automobile traffic and the conversion of parking space are new surfaces devoted to cycling, footpaths, green areas or new public spaces. Such changes not only transform mobility, but also a neighbourhood's amenity quality and social life. As an orientation value, the UBA study proposes a maximum of 150 private automobiles per 1000 residents in large cities – a functional target that aims to substantially reduce motorized individual traffic, although no concrete temporal horizon is specified.

At the same time, an increasing number of automobile registrations suggest that the mobility transition has not yet taken effect. Industry voices are therefore calling for decisive rethinking when it comes to parking space. The **WÖHR Autoparksysteme** firm emphasizes:

Our objective must be to remove the private automobile from the streetscape while initiating a restructuring – whether through the use of existing garages or through condensed parking towers or other compact solutions. Public parking should be relocated to private surfaces. Where resident parking becomes more expensive, private parking spaces become more attractive, and vacant existing garages will be better utilized. Only when street parking is no longer economical or taken for granted does it become possible for cities to reclaim public space.

Daniela Wöhr

This challenge involves an often overlooked element of the mobility transition: the spatial dissociation of traffic and amenities: once automobiles are no longer parked in public spaces on such a large scale, streets regain something they have sacrificed for decades – space for movement, encounter, greening and urban quality. Constructive parking infrastructure can play a role here, provided it is organized in an integrated, compact and space-saving way. This not only means reconceptualising mobility, but also reconfiguring it spatially – for the sake of a city that keeps moving without generating crowding or congestion.

The implementation of triple inner development proceeds on multiple **spatial levels:** on the regional level, it requires strategic coordination between housing development and traffic and open space planning. On the urban level, it involves the integration of expert planning measures and coherent land use policy. Relevant in particular, however, is the level of the **neighbourhood,** for it is here that concrete conflicts between competing utilizations become perceptible and hence resolvable. Neighbourhoods are laboratories where the balance between density, open space and mobility can be investigated in the context of everyday life.

But such an investigation encounters significant **obstacles.** Specialist planning often proceeds in isolation, while institutional and legal framework conditions complicate the redistribution of traffic surfaces. Planning and building codes continue to promote new development and densification to the neglect of the unsealing of paved surfaces and conversion measures. In most municipalities, financial and private resources are scarce, and the constellation of actors is complex. The German Environment Agency hence recommends the introduction of tools like integrated urban land use planning, compulsory standards for green areas, mobility concepts and monitoring systems. Pilot projects and living labs – the Cologne-Bonn region is one example – serve to highlight the ways in which coordinated inner development functions in practical terms.

For **architecture and urban planning,** the guiding principle opens up new design leeway. It shifts the focus from pure densification toward the qualitative transformation of the existing architectural inventory. Traffic surfaces are conceived as raw material for new urban spaces, while green infrastructure is regarded as an integral component of every building assignment. Architects and urban planners are called upon to think in interdisciplinary ways, and to collaborate from the earliest stages with mobility and environmental planners. Triple inner development requires not more space, but instead the more intelligent use of space – cities must become compact, green and networked systems. This guiding principle hence represents a future-oriented paradigm for reconciling ecological resiliency, social participation and spatial quality – for redefining urban space as a resource that is amenable to purposeful design.

Source: Triple Inner Development: Definition, Tasks and Opportunities for an Environmentally Oriented Urban Development

This article summarizes a publication that was published by the German Environment Agency **(UBA)** in a 2nd edition in May of 2023. The publication feature strategies, case studies and recommendations for action for municipalities, planners and political decision-makers. The complete version can be downloaded free of charge at *www.umweltbundesamt.de*.

Parking Space below the Sandstone

Text **Caroline Kraft**

Rising currently on the Turley Areal in Mannheim is a new urban quarter with circa 800 apartments. For the most part already complete, the project links landmarks-protected military barracks, new buildings and mobility solutions within urban space, with an emphasis on amenity quality and reduced congestion.

In formation north of Mannheim's city centre is a remarkable piece of urbanism. The area of the former Turley Barracks enjoys good connections, with streetcars and access roads in the immediate vicinity, and is at the same time relatively sheltered acoustically, set amidst locally typical sandstone buildings and the municipal Herzogenried Park.

Altogether eight US-American barracks complexes, distributed throughout Mannheim, were repurposed following the departure of the troops, becoming residential neighbourhoods, sports facilities, a commercial park or green spaces. Available for development were more than 500 hectares, most of which has already been converted. An opportunity for Mannheim – and an enormous challenge.

The Turley Areal was the first of these conversion areas to have been taken up by the municipal development agency MWSP. The area, covering approximately 13 ha, is among the city's smallest and oldest former military sites. Constructed in the 1890s as the Kaiser Wilhelm Barracks, it was German army a base before serving as a training and deployment facility for the National Socialists during the military build-up prior to World War II, and later functioned as a support centre for the US military as the Turley Barracks until 2007. Some of the barracks still stand, meanwhile classified as protected landmarks. They formed the urbanistic, sandstone-red edge of the new district, still architectural bulwarks, albeit now with continuous balconies, sunshades and potted plants. For the most part, the quarter has already been developed; when completed, it will feature 800 residential units. At the centre, on Turleyplatz, the Dutch architectural practice MVRDV is converting the former casino of the US-American troops into a community building.

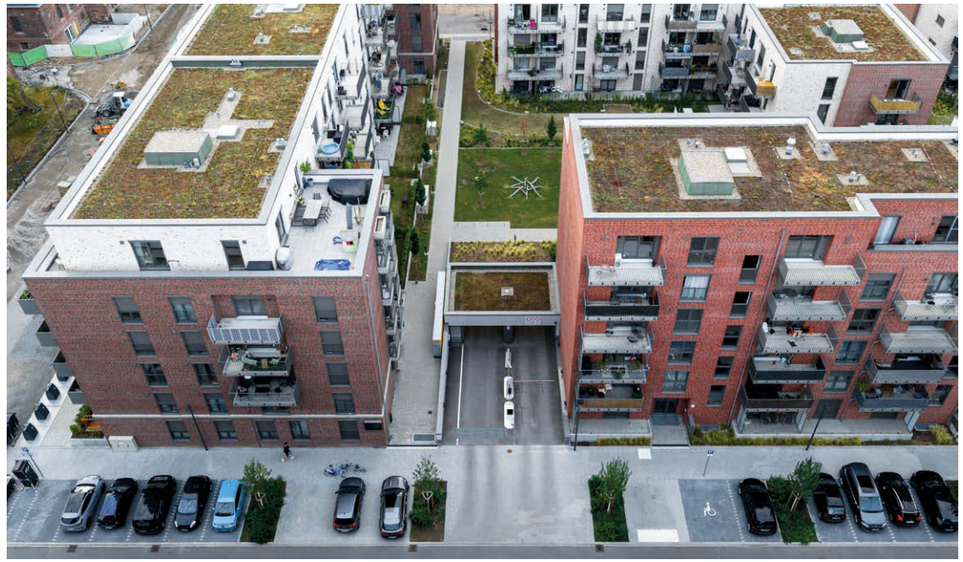
A Plateau with Lanes

The eastern edge of the areal, set on Grenadierstraße at the corner of Fritz-Salm-Straße, is under development by Max Dudler's team. Oriented stringently toward the axes of the existing buildings, three rectangular new structures – two residential buildings and a day care centre – stand on a plateau made from the same red sandstone found in the pre-existing buildings in the vicinity of the small settlement. This areas serves as a square for the neighbourhood; facing one another on the ground floor is a day care centre and a number of commercial utilizations.

The arrangement of the windows, entrances, and terrace doors, with their balconies in front, result in a legible albeit richly detailed and articulated façade. Rising above the red sandstone base, the ensemble is clad in a reddish-brown mineral sgraffito. This porous material endows the otherwise systematic façade with a natural, irregular structure. Hung in front of the wooden windows are steel folding shutters, which are perforated in front of the common rooms, which are hence easily recognizable from the outside. The sizes of the balconies also signal the dimensions of the apartments – students are accommodated here, while there are also penthouse rental units with roof terraces. The staggered heights of the cubes are adapted to the eaves of the pre-existing buildings. The skilful positioning of the buildings produces narrow lanes between the buildings, creating visual connections in the vicinity and within the larger quarter. The planners opted for a reinforced concrete structure with Poroton bricks – ensuring that the interiors of the residential units and the nursery are pleasantly cool in August. Set below the residential buildings is a shared basement level with storage rooms, bicycle storage, technical facilities and a conventional subterranean garage with bicycle parking spaces.

Urban Space and Density

In direct comparison with the Dudler buildings, the ensemble designed by Schenk-Fleischhaker Architekten, set to the west, is more urban, denser and more uniform – the area, meanwhile, is



also more than twice as large. The three-to-five story development with its perforated façade closes the corner facing Friedrich-Ebert-Straße, while an underground carpark offers altogether 80 parking places for residents. Located below Baufeld IV, and accessible via an entrance on Heinrich-Wittkamp-Straße, is the “Turley Parking” underground public carpark, featuring more than 200 additional parking spaces.

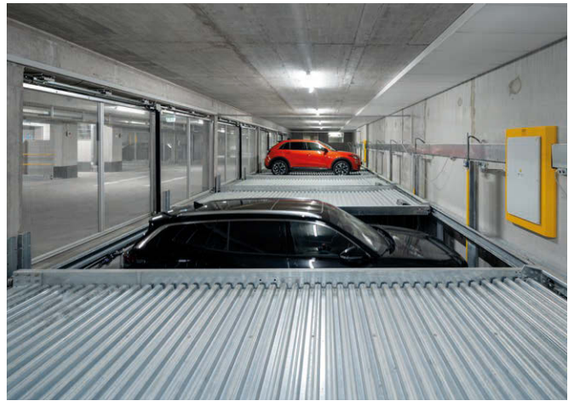
Turley is located in a densely developed section of the urban district of Neckarstadt-Ost; the street profile is narrow, the demand for parking spaces intense. Coming into play for this reason alongside conventional underground carpark solutions is advanced technology designed to increase capacity within a restricted space – as in the neighbourhood garage known as “Turley Parking”. Here, parking space must be compressed into reduced

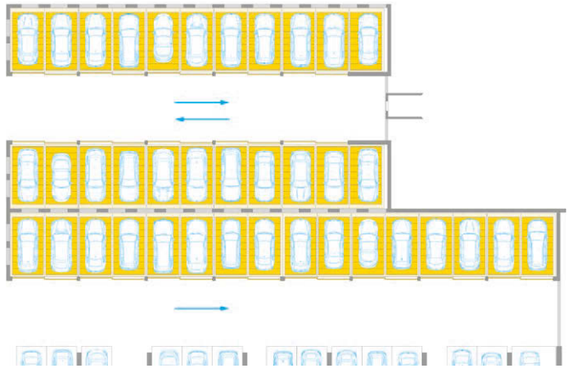
dimensions – and the WÖHR Combilift offers just the right solution. With eleven installations of the WÖHR Combilift 542, it proved possible to create altogether 137 parking spaces in addition to the 78 ordinary parking spaces. While Dudler opted for a conventional parking solution, elsewhere, the WÖHR semiautomatic system makes it possible to accommodate twice the number of parking spaces within the same area.

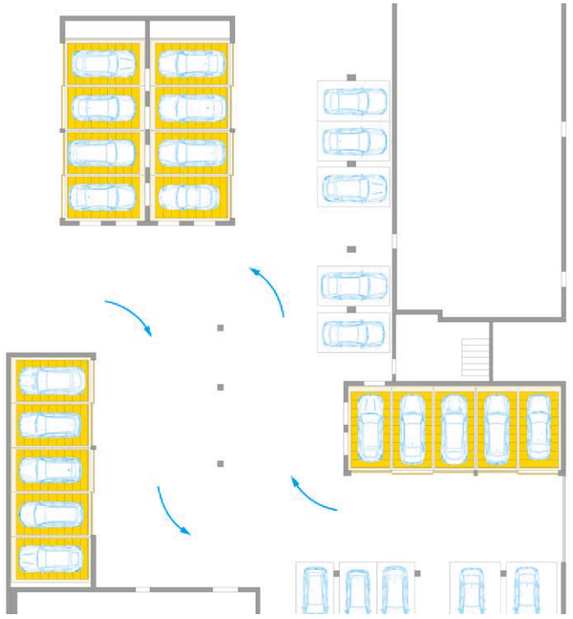
For downtown districts, this means less stationary traffic aboveground, and hence enhanced amenity quality. The technical aspect recedes, while the positive impact on urban space remains decisive. Mobility demands are accommodated without interfering with the amenity quality of the neighbourhood’s architectural and open spaces – exemplifying the way in which urbanistic density, a variety of residential formats, and innovative parking systems complement one another.

Product Information

11x Combilift 542 – total of 137 storage spaces, 1x 3-unit grid + 4x 4-unit grid + 1x 5-unit grid + 2x 8-unit grids + 2x 10-unit grids + 1x 12-unit grid, platform load 2.0 t, platform width 270 cm, max. vehicle length 520 cm, operation via RFID chip, special system with external empty space on the entrance level







Less is More – How Parking Systems Help Owners to Meet ESG Goals

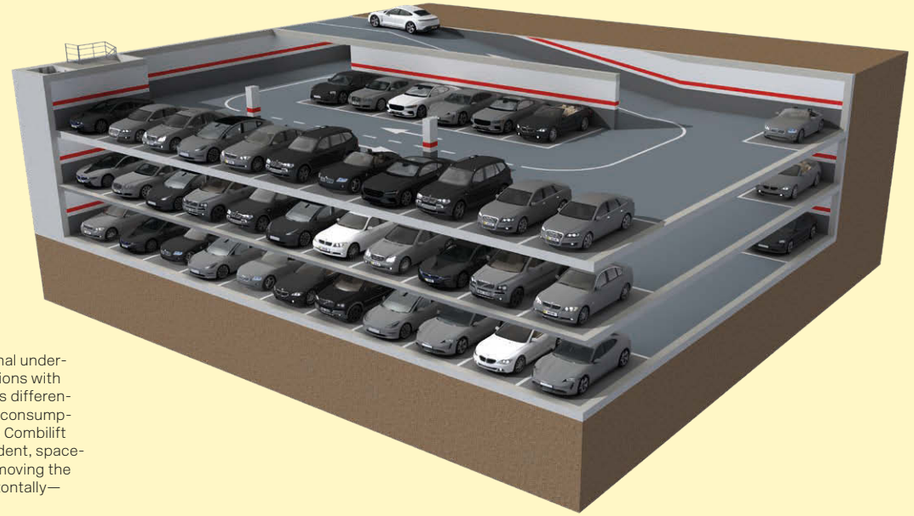
Text **Marco Eisenack**

Climate change is putting intense pressure on the real estate industry. The extensive regulatory system entailed by the EU Taxonomy makes sustainable building unavoidable. And the reorganization of parking space is among the essential tasks facing municipalities and building owners. Parking space on paved surfaces and in public areas is being scaled back in the spirit of the "sponge city".

Where, then, are all of the automobiles to go? Conventional underground car parks are unpopular with many users, as well as with climate protectors – they involve too much belowground concrete, are crowded and have too many dark corners. With their comfort and convenience and a resource-conserving approach to construction, automatic parking systems have emerged as the hidden champion of the sustainable city. And the reduction in CO_2 emissions is playing a decisive role.

What is found underground? A critical question in the era of ESG

Given their ability to consolidate parking space into the smallest possible dimensions, compact parking systems are making a decisive contribution to the city of the future. When a minimal surface area is required for each individual parking space, the ecological footprint is reduced substantially – a significant added value in the era of ESG. The effectiveness of this principle was demonstrated by a study conducted by the WÖHR Autoparksysteme with reference to the Combiparker 560.



A comparison between conventional underground garages and parking solutions with WÖHR car parking systems reveals differences in terms of space and volume consumption as well as material usage. The Combilift 543 MR example enables independent, space-saving parking on three levels by moving the parking pallets vertically and horizontally—with only one shared aisle.

The WÖHR Combilift 543 MR compared to conventional parking with 60 parking spaces:
- approx. 36% volume savings in m³
- approx. 38% CO2 savings in kg
- approx. 42% material savings in kg
- approx. 26% cost savings in €

Compared to a conventional underground car park, the Combiparker 560 uses a system of lifting, lowering and transverse movements of the parking pallets, enabling extremely compact vehicle storage – on up to five levels with only one entry level.

The WÖHR Combiparker 560 compared to conventional parking with 60 parking spaces:
- approx. 45% volume savings in m³
- approx. 42% CO2 savings in kg
- approx. 45% material savings in kg
- approx. 21% cost savings in €

Even professionals were astonished by the reduction in greenhouse gases involved. With this system, the construction pit for 40 parking spaces is less than half the size compared with conventional underground carparks. And the construction process entails the excavation and removal of only circa 4700 tons of earth rather than 10,000 tons – which also reduces the emissions for the heavy transport equipment required for this task.
Most importantly, the quantity of cement required is reduced dramatically. A parking system such as the Combiparker 560 reduces the use of this building material – which has meanwhile fallen into disrepute as a climate killer – by more than three quarters. The renunciation of roadways, walkways and ramps, as well as the substantial reduction of walls and sub-ceilings, means that only circa 1700 tons of concrete are used rather than circa 7800 tons – a savings of approximately 78%.
If we assume that the production of 1 ton of concrete produces an average 0,15 tons of CO_2, then the construction of such an underground carpark eliminates circa 1170 tons of CO_2. This corresponds to the CO_2 burden of 731 long-distance flights between Munich and New York. Put differently: to compensate for this quantity of CO_2, 117,000 mature trees must engage in photosynthesis for an entire year. This corresponds to the total number of trees found in the city of Munich.
Moreover, the quantity of materials and energy for the construction of a conventional underground carpark is approximately twice as high compared with the Combiparker 560.

Budgets are reduced as well

And the financial sustainability involved is convincing too. The deployment of a compact parking system leads to a significant reduction in financial investment and time. The case study showed that, when compared with conventional solutions, the Combilift 543 MR saved circa 26% in costs and circa 12% in time. When it comes to operation as well, the parking system showed a clear advantage.

The installation of an Autoparksystem contributes to positive DGNB, LEED, and BREEAM ratings. But such parking systems are not just a game changer when it comes to new buildings: the same is true for refurbished structures as well. At the centre of Madrid, a fully automatic WÖHR Multiparker 740 is reducing the ecological footprint of the historic building at Montalbán 11. And elsewhere in Madrid, the installation of a WÖHR parking system has allowed a refurbished building to receive a LEED platinum certification in Europe for the first time.
Also contributing to the fulfilment of ESG criteria is the impact of such attractive parking systems on quality of life. Altogether 30–40% of inner-city traffic results from searches for parking spaces. Such searches lasts on average 10 minutes and cover 4,5 km. Statistically, this amounts to 41 hours annually for the average driver.
In order to equip customers to deal with the EU taxonomy and reporting obligations, WÖHR was the first firm worldwide to supply an Environmental Product Declaration (EPD) for a parking system. The Parklift 450 is the first such system to carry the certification, which also authenticates the system's longevity and reusability in relation to the circular economy – covering fully 95% of the materials employed.
In a number of respects, parking systems allow the urban ideal of "less is more" to become a reality: reduced use of surface area, reduced CO_2 emissions, more green space, enhanced quality of life and more space for people.

The author Marco Eisenack

is editor of MUCBOOK magazine, founder of Munich Innovation Crew GmbH, presenter at industry events, and host of the "Munich Next Level" podcast.

Atelier Oslo is a young architecture firm that designs environmentally friendly public buildings and transformation projects. Its portfolio ranges from larger urban development projects to single-family homes, cabins, and installations. Through its in-depth analysis of space, people, and the environment, Atelier Oslo develops rich and multi-faceted projects. Its approach is based on curiosity and interdisciplinary collaboration, leading to innovative, sustainable solutions. Founded in 2006 by Nils Ole Bae Brandtzæg, Thomas Liu, Marius Mowe, and Jonas Norsted, the firm now employs 15 architects with diverse and international backgrounds.

Photo: Atelier Oslo

Lundhagem is an architecture and urban planning firm based in Oslo. The practice creates architecture, landscapes, and interiors in the spirit of Nordic design tradition – inspired by minimalism and functionality, in dialogue between nature and the built environment. Founded in 1990 by Svein Lund and Einar Hagem, today consists of over 60 employees and is managed by five partners. Whether designing a small house or an urban master plan, their work reflects their conviction to combine the latest advances in technology and sustainability while utilizing local materials and handcraft traditions.

Photo: Lundhagem

Störmer Murphy and Partners, based on Hamburg's Fleet Island, was founded in 1990 as Jan Störmer Architekten and has been operating under its current name since 2009. The architectural firm plans and implements buildings for cultural, administrative, hotel and residential purposes. The project portfolio ranges from the renovation of listed buildings to new planning, from interior design to urban development, from studies to general planning activities. All projects are linked by their commitment to technical innovation, quality craftsmanship and an approach that understands architecture as a collective process.

Picture from left to right: Martin Murphy, Uta Meins, Kasimír Altzweig
Photo: Christian Schoppe

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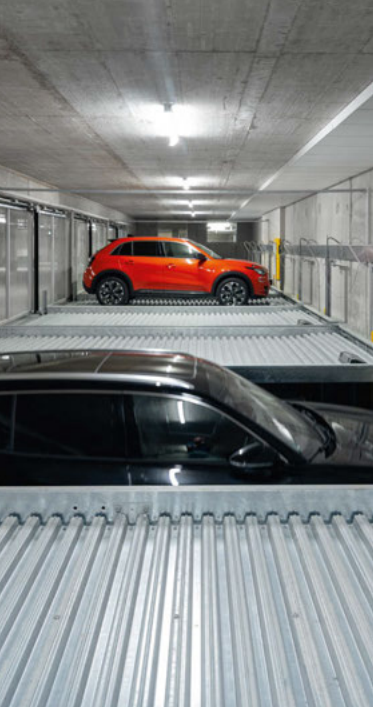
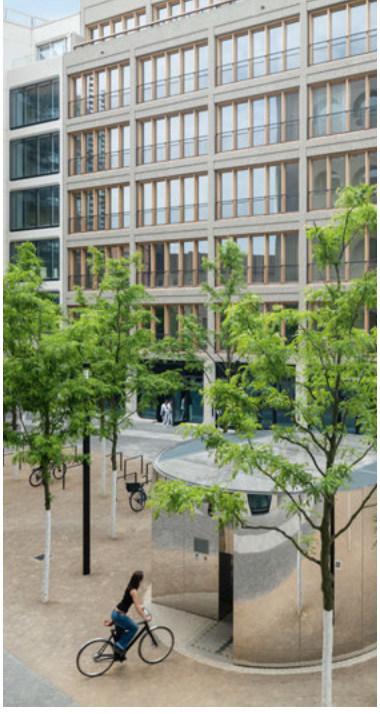

PARKING REIMAGINED – FOR A LIVEABLE CITY

Our vision is to redefine urban mobility – through the intelligent combination of compact parking and sustainable thinking.

Modern parking systems reduce land consumption and create new spaces for encounters, community and quality of life. This creates places that are more than just parking spaces – they become living components of a sustainable city.

Because we don't just park cars – we create visions.

Discover WÖHR

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WE COMPACT PARKING SPACES.
WE ENABLE LIVING SPACES.