

# **IDENTITY**

**New Commercial, Cultural  
and Mobility Architecture**

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# IDENTITY

New Commercial, Cultural  
and Mobility Architecture

## GRAFT

With a foreword by Kjetil Trædal Thorsen  
Founding partner, Snøhetta

**BIRKHÄUSER**  
**BASEL**

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GRAFT founding partners  
Wolfram Putz (left),  
Lars Krückeberg and Thomas  
Willemeit (both right) with  
Snøhetta founding partner Kjetil  
Trædal Thorsen and Snøhetta  
director Jette Cathrin Hopp  
(center) in Oslo, Norway, in early  
2020

# FOREWORD

by Kjetil Trædal Thorsen—Founding partner, Snøhetta

For GRAFT to make a book called **IDENTITY** in 2020 could be misinterpreted as a move back to the roots of local engagement and local solutions. This would not only run contrary to the globalized perspective of architecture and design that has developed in recent decades, but would also be an oversimplification of the message portrayed in this publication. To me, GRAFT's design philosophy is neither local nor global: It is a balancing act.

Their approach to commercial, cultural and mobility architecture represents a truly original position. It counters tendencies that see conservative design methodologies misleadingly postulated as radical. Instead, it reflects on the more innovative aspects of architecture, and so goes to the core of discussions on identity. The locations of GRAFT's first two offices, Los Angeles and Berlin, were no doubt instrumental in this, coloring their political viewpoint, their search for diversity and their belief in the freedom of human creativity.

The meaning of the term "identity" has of course evolved over time, but today I believe that identity is about differentiation. It is the distinguishing character of a person, a place or an object, which in turn leads to individual or collective identification and mutual recognition. The associative aspect of an object or design may therefore be both local and global at the same time.

In other words, identical is the opposite of identity. When something or someone consciously and honestly communicates an identity to the world around them, this object or person becomes readable and thus trustworthy. A unique physical or mental representation can therefore be an identifier of real content that leads to the cultural sensitization of clients, users or the public at large.

For this reason, taking identity lightly can be catastrophic: Architecture is a strong societal tool that influences thinking and experiences in both positive and negative ways.

When GRAFT interposes a project into an urban, cultural, historical or commercial setting, they create new realities. As such, they also define new identities. It is their extensive understanding of how architecture influences and reshapes perception that transforms their projects into cultural events. And while some people might think that this takes us closer to controversial definitions like “brand architecture,” the determining factor will always be how well these projects are conceived and realized.

The ethos that characterizes GRAFT within is one of plurality. Like Snøhetta, GRAFT chose a name inspired by its practice, one related to what they do and not merely based on the names of its founders. It is the strategy of a band. It allows for collective approaches, healthy internal discussions and for the diversity that is reflected in the changing conditions of their different projects.

This publication clearly outlines GRAFT’s vivid position on the architectural scene. It is an open, honest identifier of them as a practice—and as individuals.



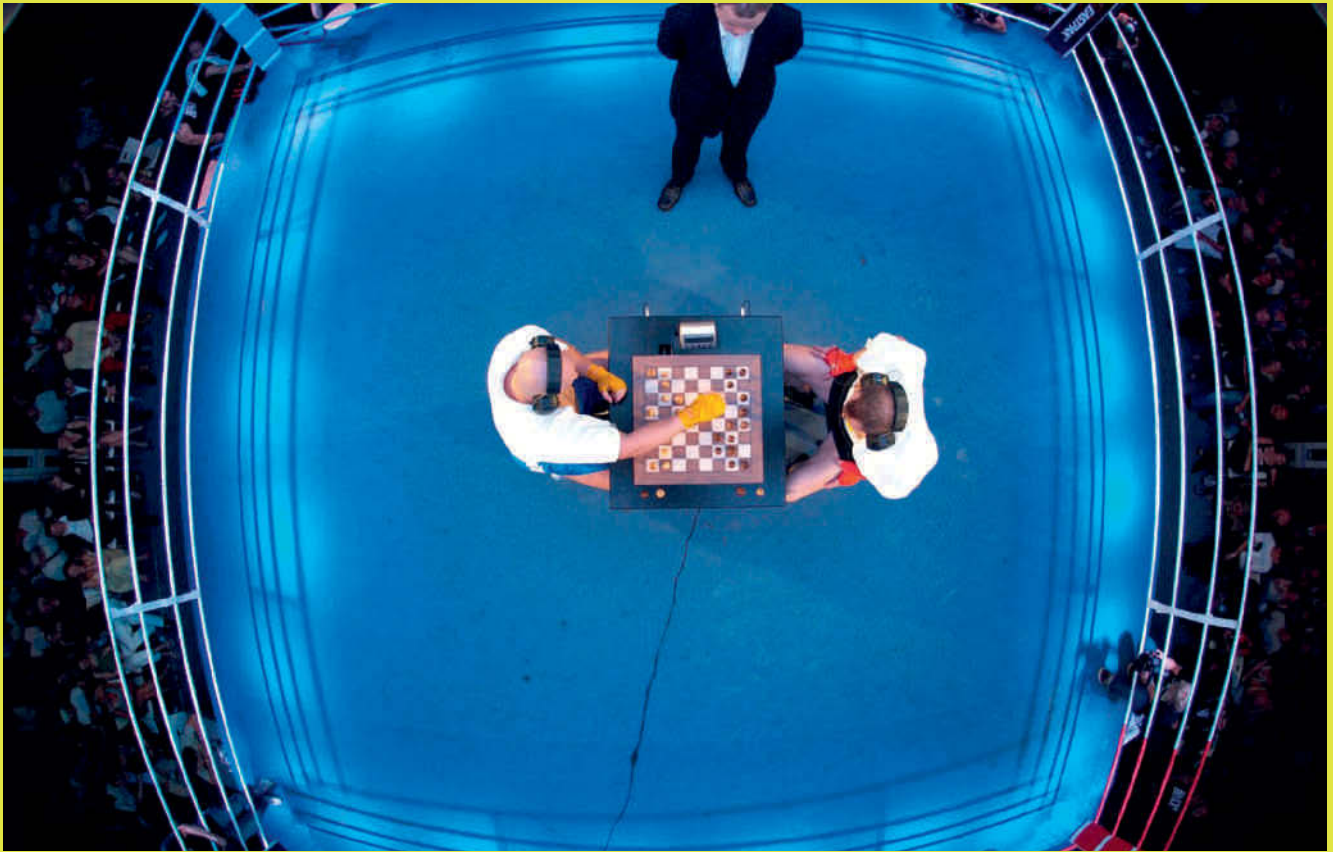
Kjetil Trædal Thorsen  
Founding Partner, Architect,  
MNAL, FAA, AIA, Int. FRIBA,  
Dr.H.C.

Kjetil Trædal Thorsen was born in Haugesund, Norway, and in 1985 he graduated as Dipl. Ing. Architect from the University of Graz, Austria. The same year he was a co-founder of the first Norwegian gallery for architecture, Gallery ROM.

In 1989 he co-founded the multidisciplinary architectural practice, Snøhetta, which now includes architecture, landscape architecture, interior architecture, product design and graphic design. Since the creation of Snøhetta, Kjetil has been instrumental in the projects developed by the practice, such as the Bibliotheca Alexandrina in Alexandria, Egypt; the New National Opera and Ballet in Oslo, Norway; The SFMOMA in San Francisco; the National September 11 Memorial Pavilion in NY; the Lascaux IV Caves in France; the Busan Opera house in Busan; Under, Europe’s first underwater restaurant in Lindesnes, Norway; Shanghai Grand Opera House in Shanghai, China; and the Le Monde Group Headquarters in Paris.

He is a frequent lecturer internationally, and from 2004 to 2008 he was professor of architecture at the Institute of Experimental Architecture at the University of Innsbruck, Austria.

As founding partner, Kjetil has been instrumental in defining and developing Snøhetta’s philosophy and architectural ambition. Many of the projects created by Snøhetta have been inspired or led by Kjetil.



Chess boxing is a hybrid that combines the cerebral board game chess and the fighting sport boxing. Blending contrasting skills, competitors fight alternating rounds of chess and boxing. It combines assumed opposites into something ambiguous and new. Chess boxing inventor Iepe B.T. Rubingh was a long-time friend and partner of GRAFT. He sadly passed away on May 6, 2020.

# GRAFTING IDENTITIES

Introduction by Lars Krückeberg, Wolfram Putz,  
Thomas Willemeit—Founding partners, GRAFT



Architecture is a cultural technique. It is never self-contained, nor finite; it is part of a complex cultural cycle in the service of society as a whole. As a result, architecture is always a representation of society rather than an autonomous discipline. The importance of identity within designed space, from individual to community, from city to region, cannot be underestimated. At a time when there is a blurring of boundaries between the real and the virtual, urban and rural, local and global, our built environment plays a fundamental role in defining identity. GRAFT believes in the power of architecture as a tool, best employed not for its own sake, but to represent these ambiguous and diverse identities.

This book features designs for projects in the fields of mobility, digitization, work, branding and urban culture, all of which graft different realities into new, genetic hybrids.

GRAFT is responding to the challenges of the future with an optimistic attitude towards multiple and simultaneous identities, which enables a higher degree of complexity. There is no such thing as one single truth, and we believe that hybridization enhances the qualities of its constituent characteristics. Our design process is evidence-based and human-centered. Our approach stems from scenography and movement rather than tectonics. In this way, we are able to create dynamic, flexible architecture that allows multiple readings.

We have observed a current tendency towards curtailing debate in architectural discourse—leading to a lack of tolerance and a rejection of alternative positions and identities. This polarization robs us of the resilience and joyfulness of hybrid designs that stimulate not only academic exchange but the development of architecture in a pluralist society. A tolerant democracy ought to be reflected in the intellectual debate and our built environment. With this book we are making a case for ambiguity and concurrency, for uniqueness and diversity.

# MOBILITY

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# NEW MOBILITY

## A CONVERSATION WITH STEFAN LISKE

A city's development is inextricably linked to mobility—the movement of people and goods. Urban planning in the 20<sup>th</sup> century was based on the separation of dirty, noisy traffic from the unpolluted, human urban fabric, but global megalopolises today still suffer from the growing implications of traffic. The combination of zero-emission, low-noise mobility with deep digitization and AI will have an enormous impact on the evolution of cities and rural areas, while new mobility concepts are expected to change our understanding of communal spaces and infrastructure.

How can we rethink the mental and physical relationships between the rural and the urban? How will new mobility concepts shape our behavior? How are city planning, architecture and design going to be affected by innovations in mobility? On a societal level, there is much more to these questions, given that physical mobility is connected with social mobility. Movement has always been crucial to GRAFT's spatial configurations and their conception of space, derived from their scenographic understanding of architecture. GRAFT spoke to longtime collaborator Stefan Liske about the implications of progress in mobility and its future milestones.

**GRAFT** Stefan Liske, our shared history dates back to the time we were setting up our office in Los Angeles. We worked together on the "Moonraker" project for the Volkswagen Group of America, which was about turning societal paradigm shifts and future living scenarios into a tangible spatial experience using built "Life Settings." The fundamental question for these architectural simulations, which were aimed at different user groups, was: How do you recognize the future? This is a question that's increasingly being asked by the research departments of the major global manufacturers regarding the subject of regional and urban mobility—but in much greater depth and with different parameters. Ever since electric motors offered the promise of zero-emission mobility in our urban centers, a rise in intermodality caused focus to be shifted to transfer hubs, and the potential of autonomous driving pointed to a more effective and efficient use of space, the crossover points between real estate and mobility have become much clearer. It's no coincidence that we as an office are now working on more and more projects in the field of mobility, ranging from the branded spaces of traditional automobile companies and service providers to numerous new players in the fields of robo-fleets, drones and maglev systems. In your expert



Moonraker, GRAFT (p. 58): Life setting for four avatars to predict the future environment of the target group; a set for movable components of the interior digital interface turns into a kitchen counter and a customized vehicle within a technology driven environment.



The LOCI podcar by BigRep: The fully 3D-printed, autonomous (driving) e-car



GRAFT car with surf equipment at a Californian beach in the late 1990s: Mobility is closely linked to freedom.

opinion, which utopia will establish itself in the field of mobility: Carsharing and intermodality, the maximum expansion of public transport infrastructures or the complete relinquishment of individual control in favor of autonomous vehicles?

**STEFAN LISKE** I don't think electromobility will be the great savior. This is due in part to the unclear status regarding the recycling of batteries; another reason is that we might be on the brink of a breakthrough in the field of fusion technology, so a step closer to energy abundance. We definitely need to consider entirely new energy scenarios, ones that the major manufacturers are unfortunately reluctant to entertain. Another utopia that probably won't materialize is the idea of a completely autonomous, driverless world before 2030. This is unlikely to happen as mobility still signifies personal freedom to many people. On top of this, there's also the fact that most people want to remain masters of their own routines and continue to define their own rhythms and rituals as much as they can.

**GRAFT** The concept of freedom in mobility is something that is currently being renegotiated in the political realm. Studying internationally, having the opportunity to travel, founding an office in Los Angeles, Berlin, then Beijing, being exposed to many different cultures and approaches to architecture—all these things have had a formative effect on our thinking and our commitment to diversity, tolerance and heterogeneity, also in terms of form and style. Today, some people want to collectivize mobility and arrange it in large, communal schemes, partly in order to help combat climate change; others, however, say that long-distance individual mobility was only first made possible to the masses with invention of the automobile, and that being able to drive on their own in a self-determined manner is a real achievement of civilization. Anyway, we are fans of all kinds of transport: Collective or individual, surface, air or underground. Do you think that this diversity will decline in the future? A central aspect in the conflict also seems to be the question of how many restrictive rules can survive the democratic process

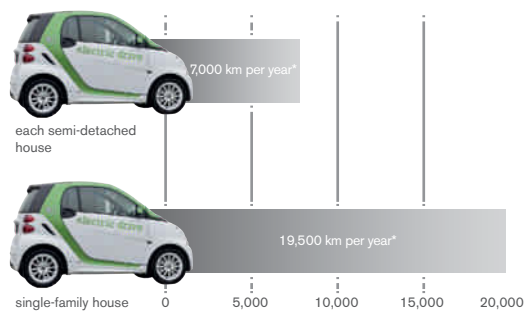
in the long term. Especially when right-wing parliamentary groups such as the Alternative for Germany campaign against such rules.

**LISKE** I stand on the side of science. And that means that we should be more strictly regulated, more than we can actually imagine—and not only in the field of mobility. Both the EU mobility commission and the Berlin Senate have had initial discussions about introducing quotas for households regarding CO<sub>2</sub>, water, waste and consumption. Such quotas wouldn't just affect which medium of transport you use on a daily basis, they would also affect your choice of vacation, the food you eat, how much your order online, etc. Standardized scientific models increasingly show that we'll no longer have a chance if we continue to insist on playing the freedom-of-choice card and allow everyone to do what they want. We might need to consider regulating how much we consume and how much waste we produce, at least to a level that's compatible with democratic values.

Still, we shouldn't undervalue having a range of mobility concepts. There will always be people who want the rugged performance of a gasoline engine, which is why I think that companies like BMW, Porsche, Mercedes, etc., who aren't investing everything in electromobility, will keep doing well. Companies like Toyota will continue to produce fuel cells and other, newer types of engines, even though their profits haven't been that healthy due to the costs of hydrogen production and other technical challenges. In the short term, I think that biofuels such as natural gas are very promising, while fusion technology—which recreates the plasma-based energy production principle found in the sun in small fusion reactors—has the most potential in the long term. These reactors could be produced in a range of different sizes, so even for in-car use, but we're probably talking more like 2050 for that.

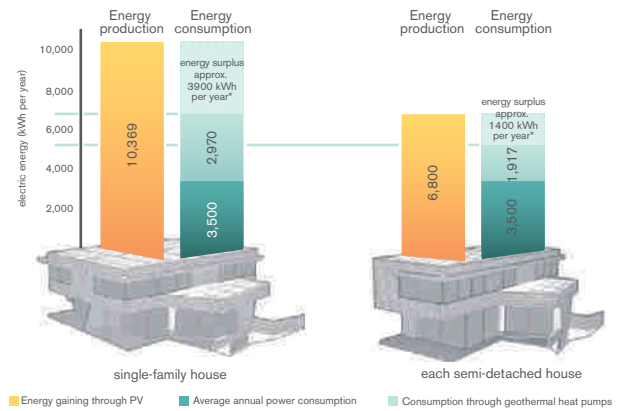
**GRAFT** So, electricity would again be the energy source used in these vehicles?

### Surplus energy for electric mobility



\*Assuming: Maximum consumption e-Smart: 20kWh per 100km and average energy consumption

### Energy required and energy gain (kWh per year)



Energy gaining through PV Average annual power consumption Consumption through geothermal heat pumps

VEHICLES WILL SOON BE ABLE TO ANTICIPATE OUR BEHAVIOR BETTER. JUST LIKE OUR SMARTPHONES, BACKGROUND APPLICATIONS AND AI COMPANIONS WILL REACT TO OUR DEMANDS FASTER, MORE SPECIFICALLY AND MORE INTUITIVELY.

**LISKE** Yes, exactly. But when it comes to electricity, there is still the problem of storage. Lithium-ion batteries aren't a very sustainable solution. The battery technology roadmaps that the big OEMs<sup>1</sup> currently use as a basis will soon be unviable. But things will look better in the next ten or 15 years if oxygen-based storage becomes possible.

<sup>1</sup> OEM: Original equipment manufacturer

**GRAFT** We are trained engineers, but we're also dreamers. We're interested in using social and technological innovation as a basis for rethinking things, also in terms of urban planning and architecture. You said there would be a number of diverse phenomena and technologies existing at the same time, i.e., different propulsion technologies and multiple modes of mobility: High-speed travel, hyperloop, even new types of air-based transport for goods and people. After a first phase around the turn of the 20<sup>th</sup> century, when overhead railways and subways enabled intersection-free transport, the use of the third dimension of urban space is becoming a widespread phenomenon again. Elevated maglev railways and drones are now starting to take advantage of vertical space, offering new opportunities for traffic systems in our hopelessly overburdened, ever-expanding metropolises. And when infrastructure doesn't keep pace with urban growth, it results in undesirable developments, such as improvised neighborhoods, slums or unending traffic jams—the opposite of efficient urban density.

Self-driving concepts, in particular, could have a long-lasting effect on our approach to urban planning. Together with intelligent parking systems, autonomous vehicles will be able to free up space that could subsequently be used by the urban community. For some cities, as traffic increases, this will become a question of survival; for others it will be about negotiating what can be done with this overall gain in spatial provision. It's a bit like valet parking, but instead we'll be dropped off at our door, hand over the key to the autonomous vehicle to park itself, which will then pick us up again as needed. This will save on the space required for parking. The more prepared we will be to make our own car available to the community, or to give it over to carsharing schemes, the fewer vehicles there will be in a given urban space. This is one of the most exciting challenges for the future: Achieving a good balance of mobility and high-quality urban spaces.





Holistic living: GRAFT designed three plus-energy houses made of sustainable and healthy materials that are completely reusable and recyclable. The houses generate their own energy and the surplus is used to power an electric vehicle integrated into the technical systems of the house.

At any rate, many of the dogmas established in the 20<sup>th</sup> century will gradually fall away. If traffic becomes zero-emission in terms of exhaust fumes and noise, and becomes safer due to the application of artificial intelligence, many of the basic conditions of the Athens Charter—which advocated the separation of transportation routes and urban spaces and which formed the basis of urban planning laws across the world—will no longer be applicable. This would mean that many questions would need to be addressed again, right down to the noise reduction standards demanded of building façades. City planning processes could then approach transportation and urban space in a much more integrated fashion.

At the same time, cars have become modern, small-scale manifestations of third places. What about that aspect? What happens in my car when I no longer want or need to drive it myself? This opens up a huge range of new discussions. In 2016, together with other partners, GRAFT and PCH Innovations carried out a feasibility study on the future use of Berlin's Tegel Airport (p. 126) and the development of an entire urban quarter. At the time, you predicted that autonomous vehicles would be funded by advertising revenues and in this way be free of charge for the end user. Such a modified mobility model would provide a considerable boost towards the transformation of our urban societies.

**LISKE** In the field of mobility, vehicles will soon be able to anticipate our behavior better. Just like our smartphones, background applications and AI companions will react to our demands faster, more specifically and more intuitively—this will be particularly noticeable in the areas of in-car work and entertainment. I think the latter will prove to be a better source of revenue than in-vehicle office or retail services. The vehicles of the future will be functional mobile spaces that will accommodate services such as kindergartens, doctors' practices or retail outlets. A concrete example of this: A European automobile company recently sold 200 self-driving "robotaxis" to a Californian coffeehouse chain to be employed as "rolling coffee shops."

I am convinced that the urban environment will profit massively from these developments. We expect to see huge reductions in noise, congestion and the number of accidents on our streets, which will lead to radical improvements in our experience of urban space and thus hopefully in our quality of life. And this is the main reason why autonomous vehicles will be introduced. It is, after all, predominantly about saving lives, not just convenience. On top of this, the cost of transport will go down by around 20 to 30% as drivers' salaries will no longer need to be factored in—which in turn can be repeatedly monetarized using the aforementioned business models. As of January 2020, in China there are 438 mobility startups waiting in the wings. These new players, however, aren't wasting time with service apps, they are primarily developing autonomous mobility concepts.

Predictions regarding app-based mobility services offered by German automobile companies, which they estimated would make up between 15 and 25% of their future revenues around six years ago, have now proved to be somewhat erroneous. In 2020, of the Volkswagen Group's predicted 220 billion dollars revenue, less than a billion will be generated by its mobility services. The turning point that we were all waiting for regarding the monetarization of services never happened. When I look out of my window onto the street today, not much has changed—everything looks pretty much the same as it did 15 years ago. It has sadly become apparent in the last few years that the established names in the automobile industry still aren't really interested in bringing new, exciting forms of mobility and innovative functions onto our streets. Some of the newer players, who are currently trying to shake up the market, are set to score points in these areas.

**GRAFT** We want to see this new aesthetic on our streets as well as in our homes, and we are constantly on the lookout for new phenotypes—for example those influenced by the need to rethink the future in terms of climate questions—that enable new forms of social behavior on which future mobility concepts can be based.

The Old Mill Hotel, Belgrade (lobby), BRICKS Berlin Schöneberg (entrance): Epigenetic landscapes as representations of people's dynamic rituals in space



Since we first proposed building concepts whose rental price included electric vehicles that could be charged using the positive energy balance of the houses themselves, we have seen that the touchpoints between property and mobility have become more evident and the boundaries of the different areas of planning more flexible. Mobility concepts are now becoming the building blocks for co-working or co-living concepts. We can now imagine having clean, quiet, zero-emission vehicles in the same spaces that we work or sleep in. On top of this, there is also the aesthetic question regarding these vehicles and the space they operate in. Nowadays, a functional space for mobility can also be high-quality environment for personal interaction—there is a more discerning aesthetic expectation relating to these spaces. Our office addresses precisely these topics, and with this book we are trying to ask questions regarding future identities and their aesthetics on a number of different scales—from charging stations and interior branding to houses, blocks and entire cities.

There have always been correlations between the aesthetics of the automobile industry and architectural innovations. For Le Corbusier, the entire formal language of classical modernism was inspired by the automobile and shipbuilding industries. In actual fact, the rounded corners of early modernism were justified by the simple necessity of providing a faster, safer way to take off corners. The opulent car

designs present for many years in the United States were a manifestation of the country's faith in its future direction. Besides function, the emphasis was very much on beauty. Individualized mobility and motorized delivery led to the rounded buildings found in the early phase of modernist architecture. Horizontal window bands that suggest horizontal movement, building silhouettes that seem to defy gravity, these things lent architecture an air of dynamism after centuries of tectonic verticality. Sometimes when you encounter modernist architecture, there is a palpable sense of the exhilaration for new technology and mobility and an optimism in creating the structures of the future. Today you can see there is growing demand for architectural quality in the field of mobility.

This is expressed in the architectural projects we have realized for automobile companies like Volkswagen and Mercedes, the e-charging stations we created for E.ON (p. 20), the VoloPort stations (p. 48) we developed for Volocopter air taxis, and the design for Max Bögl's maglev system (p. 40). And that is related to clean energy and a fascination with new forms of mobility. We hope that our commitment to a society in transition, with its new indicators, objectives and associated innovations, will be reflected in the provision of higher-quality architecture and spaces that are more tailored towards the needs of people.



E.ON UF-charging stations (p. 20) and maglev train stations (p. 40): Organic, bionic, dynamic—what will future mobility look like?







A Volocopter air taxi above the skyline of Singapore: Three-dimensional mobility is already here, but how will it change our cities?

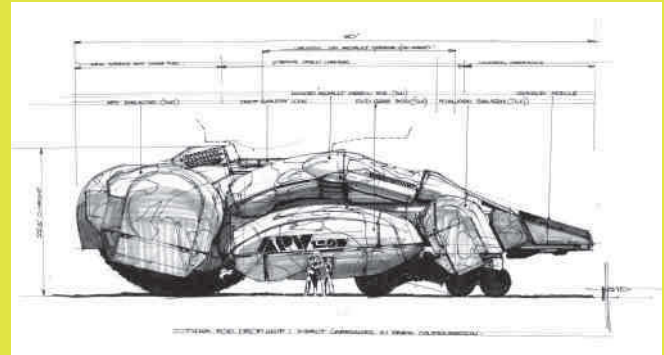
**LISKE** That's my hope, too. But to achieve this, beauty has to become valued as quality once again. Apart from some classic cars and a few sports cars, they aren't many models that can be considered beautiful—in the truest sense of the word—in the automobile industry at the moment. Cars that really elicit a "Wow!" like furniture, watches, art or architecture might. Some of the newer players plan to deliver vehicles in the future that boast completely new material or functional concepts. I predict that Chinese manufacturers in particular will soon overtake European and American companies in the delivery vehicle sector, because production costs alone are 20 to 30% lower. These manufacturers now have all the means necessary to finally express their cultural identity by applying their unique formal language, materials and country-specific functional concepts. The Chinese market is currently in the extremely exciting identity-establishment phase, which will be followed by the identity-expression phase. In Europe, on the other hand, we are in the midst of a huge wave of job losses and are witnessing how the historically nurtured loyalties

between automobile companies and consumers are being gradually eroded by environmental scandals, crude lobbying and meaningless lip service.

I could easily imagine that the market shares that European and American companies will lose will shift to Africa. It's currently home to around 800 million people under the age of 30, many of whom want to work and realize their potential and are urgently seeking access to higher living standards, prosperity and free enterprise. Besides energy, water and food, mobility is a fundamental building block for achieving this, but viewed differently from how we know it. And this "thinking differently" is something that the established manufacturers will struggle with once again.

**GRAFT** After our experience with the SOLARKIOSK (p. 82), we'd agree with you 100%—everything starts with the provision of energy. The food supply, too, can only be guaranteed if the energy question is resolved. So much food is left to rot in the field because the mobility concepts aren't available to get the food to the places it's needed. The energy supply system in Africa needs to be expanded in a decentralized way: If one were to scale up the SOLARKIOSK system, which currently only produces a small amount of energy using photovoltaics, then things could get really interesting. Regarding mobility, we are really focusing on the issue of last-mile distribution. There's going to be a big breakthrough. As a continent, Africa has already seen large-scale success with its telephone network. Mobile payment is another effective model that grew from the necessity of decentralization. Maybe mobility will be the next great leap forward. It's interesting that we initially developed the SOLARKIOSK because we wanted to provide energy to rural areas, and we're now modifying them to serve as charging stations for drones and e-bikes. These small kiosks have turned into mobility recharging hubs. Such new, decentralized systems create exciting and profitable business cases that could eventually be exported to Europe and the Western world. Over the next few decades, Africa will surely teach us a lot about connected yet decentralized energy supply models based on small, autonomous hubs. And this might be the only way we'll be able to do things in the future.

THERE HAVE ALWAYS BEEN CORRELATIONS BETWEEN THE AESTHETICS OF THE AUTOMOBILE INDUSTRY AND ARCHITECTURAL INNOVATIONS.



Blade Runner (1982): Three-dimensional mobility as imagined by Syd Mead

**LISKE** Exactly. What's one of the central economic principles in Africa? Barter and exchange. There are a lot of Western economists today, like Thomas Piketty and Paul Mason, who are developing new, postcapitalist logics. They predict that alongside decentralized, digitized cash flow, bartering and exchange models and other microfinancing systems will become more established in the Western world in the next 15 to 20 years. In the future, the economy will become more community-based, especially in urban centers. To achieve this, though, we will need to establish a new sense of community with new value systems and the corresponding platforms for interaction, exchange, trade, etc.—millennia-old mechanisms and values that have been lost through the process of technological development.

**GRAFT** Are we talking about ideological tribes here? Does the past still work as a model? Will private transport increase or decrease? This is where artificial intelligence and the autonomy of mobility overlap. In the 1990s, Rem Koolhaas created a European map that depicted the continent in terms of travel time, using distance, speed and accessibility. Today we expect trains to offer an alternative to short-haul flights. Companies like Max Bögl are bringing transport systems onto the market which, based on a similar capacity to a subway, would cost a third of the price and could be built in a third of the time—and, by offering intersection-free urban mobility, would be far superior to any tram. Even the introduction of drone technology as a form of passenger transport is becoming increasingly likely. If we approached it properly, there could be such a high level of competition in urban transport that technology would advance much faster. This is especially relevant when it comes to regional accessibility and intra-city transportation.

To what extent will the relationship between rural and urban areas change in the future? Even in an urban context, people today talk about the reemergence of the rural—the yearning for the village and the neighborhood. At the same time, there's a blurring of the physical and definitional boundaries between the urban and the rural. Connections are becoming more important than boundaries. Cities are changing from destinations into transit areas within a global network of metropolises.

**LISKE** There will be an increase in individual passenger transport between urban and rural areas. We are already

witnessing the first signs of an urban exodus in Germany. Within 15 years it will be possible to carry out a highly paid, highly qualified, demanding job remotely and not have to go to the office at all. I think this will be accompanied by a development in the niche field of mobile living. There is a growing market for caravans, trailers, mobile homes and tiny houses, illustrating an increased desire to lead an off-grid life—with little to no dependence on resources, the state and large corporations. Which means we will see more and more people attempting to live in a self-sufficient manner, providing for their families and communities using independent water and energy supplies, farms and individual-centered sources of income. In the context of climate-change induced floods, droughts, heatwaves, fires and air pollution, and given the development of intelligent, sustainable off-grid solutions in the fields of water, energy, food, health, etc., this phenomenon takes on a whole new significance.

**GRAFT** Do you not think that this urban exodus might be a transitional trend? New mobility promises us that through the application of artificial intelligence and autonomous vehicles, parking spaces will be turned into green spaces and CO<sub>2</sub> and noise pollution will be reduced to zero. It's ultimately a promise that guarantees a huge improvement in the quality of life in urban areas. In our opinion, these phenomena—the desire for the local, the neighborhood within the city, for belonging, both to tribes and the community—are all clear indications of a yearning for a village character within the urban environment. Maybe if this happens, urban exodus will no longer be an issue, and everyone will be rushing to move back to the city again.

**LISKE** For many people, these prospective changes to the urban environment have been too long in the making. I also believe that we should really and truly rediscover nature and our rural regions, but without subduing them—it's about protecting, rewilding and restoring.

**GRAFT** Which would mean an enormous increase in mobility. Let's think about the question of scope and consider distances greater than those between urban and rural areas. At the moment, global travel is a relatively low-threshold activity that is accessible to a large number of people. Not everyone

can afford it, but more people than ever before. Now Greta Thunberg is showing us that we should travel to New York by sailboat. From your perspective, are there things in this field that will allow us to maintain this freedom of global movement, perhaps technological advances or innovations that will make flying less harmful for the environment, for example? Or are reducing and doing without really the order of the day, here?

**LISKE** Behavior relating to global mobility will change massively, especially in the younger generation, as they no longer want to fly because they are aware of the facts and are deeply concerned about the future. They know that they are facing a mammoth task. I can imagine that an interesting, truly innovative set of solutions will be developed, one that could even capitalize on climate change and create new jobs in the process.

**GRAFT** As for the Moonraker project that we collaborated on, some of the predictions we made in the "Sustainability Earth—Green Topography" scenario really hit the nail on the head. The hypotheses regarding the growing interconnection of IT networks and intelligent building control as well as those on fluid, dynamic interiors were quite accurate. Some of the other assumptions, however, became quickly outdated or didn't prove to be true. If you look at GRAFT's current projects, for example those for urban air taxi service developer Volocopter (p. 48), Max Bögl (p. 40), E.ON (p. 20) or the roof of the Autostadt (p. 32), what identity does our visual language convey today? We believe that our success in these competitions shows that the world of new mobility finds its expression in dynamic architectural forms. It could also be down to the fact that our way of designing is very scenographic, conceiving of spatial experiences as a continuum over time. Of course, even in times of great change, it's also essential to express a certain amount of optimism for the future—albeit with an amount of balance and caution. The starting point for this might sometimes be the future-oriented design language found in the world of sci-fi films; sometimes it might be inspired by organic forms and the language of bionics. We believe that this visual expression will be best suited for creating an awareness that human actions are responsible for changes to the basis of our existence and can no longer be separated from what we have until now understood by the term nature.

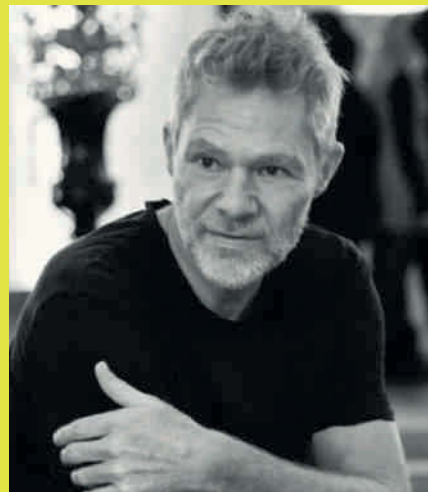
**LISKE** It might sound controversial, but I believe that the biggest and most significant change that will happen in the next one to two generations will be that of humankind.

On the one hand, we live in an age in which we have made inroads into large parts of quantum physics—we can already use quantum computers to efficiently solve complex everyday problems. This might be, for example, traffic flow analyses, AI- and neural-network based analyses that are so complicated that they can only be calculated by a quantum computer.

Looking beyond this, however, the next long-term breakthrough in quantum physics will be in making this phenomenon accessible to everyone. Simply put, quantum

logics are logics of energy exchanges between objects and people that have not yet been fully decoded. And I think that as humans, the progressive decryption of these logics will offer us a different relationship to our conceptions of energy and frequency. New, emerging fields of academic research are currently trying to verify and measure forms of energy flow between people. This will lead to a huge increase in the understanding of phenomena that exert control over us as physical beings. The measurability of these phenomena will then be followed by their practical application and the possibility of actually influencing them.

This, as well as all the developments we talked about earlier, won't just massively influence our behavior, it will also shape our entire sense of aesthetics, our sense of language and our sense of a truly functional, objective aesthetics, i.e., an object-bound aesthetics. I think this realm contains a major source of creative riches, and your curiosity and experience make you the ones predestined to unearth it.



Stefan Liske is an innovation designer with 15 years of industrial and entrepreneurial experience and a strong drive to merge the transdisciplinary forces of design, marketing and engineering. He quickly discovered his passion for detecting, and breaking with, rigid and redundant patterns. As a project member, line manager, consultant and innovator, he began questioning inflexible business models, processes and structures, and offering unusual alternatives. He continuously refines his own formula to understand consumers, learn from other industries and analogs, listen to intuition, work counterintuitively and inspire individuals and organizations to realize the highest creative non-standards.

He dedicates a crucial part of his time, passion and hands-on work to social and art-related projects—to tap into new areas and foster ideas that generate sustainable value and joy for people and communities at the "bottom of the pyramid." This teaches him how to be highly innovative in a humble way and create products that meet the very different needs of these markets.

# E.ON ULTRA-FAST CHARGING STATIONS

Project: Infrastructure, charging stations, electromobility

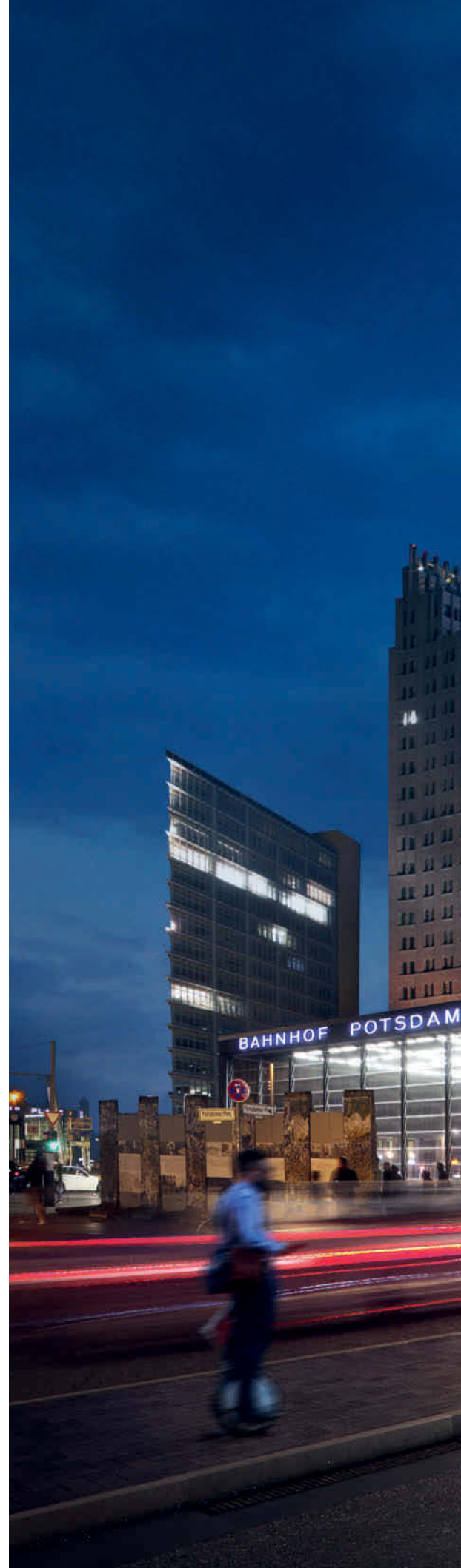
Locations: Germany, United Kingdom, Czech Republic, Slovakia, Hungary, Sweden, Denmark, Norway, France and Italy

Client: E.ON

Year: 2018 – ongoing

Status: Design guideline, first implementation

By 2022, an estimated one million customers will be driving electric vehicles in Germany alone. What will happen when electric vehicle technology matures and enters the mainstream? What implications will this have for future patterns of mobility and infrastructure requirements?











Option 1  
Solar glass roof  
Steel lamellae



Option 2  
Opaque roof  
Steel lamellae



Option 3  
Green roof  
Steel lamellae





Rendering: Ultra-fast charging station  
(module system XS)

Diagrams: Roof types of module system XS/S

As well as developing an intelligent network of fast charging stations, suppliers must also respond to changing customer expectations caused by longer stopover times. The 20 to 30 minutes it takes to charge a car battery changes the sequence of processes within motorway service areas and creates the need for new and alternative facilities. Consequently, there needs to be a fundamental rethink of public charging stations. Together with its partners, E.ON operates one of the largest electric vehicle charging networks in Europe, having installed over 36,000 charging points in customer locations in 25 countries across the world.

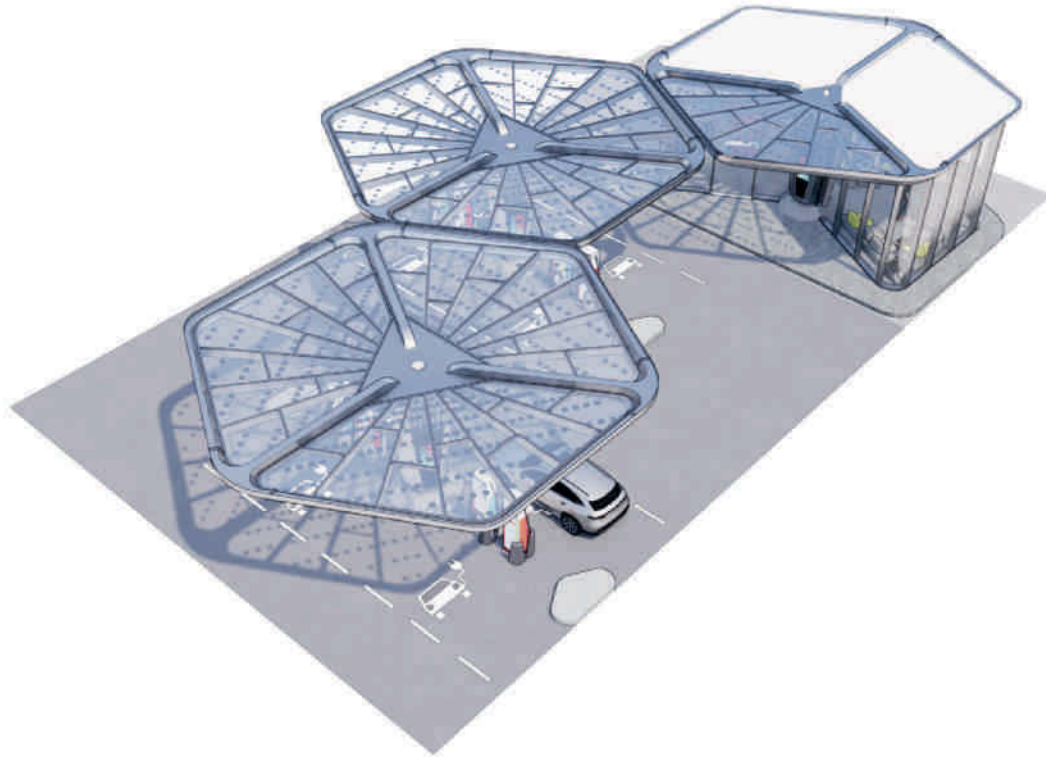
**For E.ON Drive, GRAFT developed a prototype for an ultra-fast charging station. This was further developed into an innovative, extendable system of modules capable of adapting to future requirements.**





The design creates a high-quality stopover environment that provides both customers and suppliers with a range of functions and additional services not commonly associated with filling stations. E.ON Drive and GRAFT's design for ultra-fast charging stations breaks new ground by placing emphasis on user experience, thus contributing to the technology's establishment in society.





Axonometric and perspective of module system L

With an elegant steel roof construction that extends up and over the user like a bright, airy canopy, the station's design creates a defined space that is protected from the elements, transforming the charging area into a place of rest. Lighting integrated into the frame automatically activates when the charging zone is occupied, creating a clearly specified, safe and comfortable space.

These frames can be configured in different ways: Either featuring an opaque roof with or without greenery; or a glass roof with or without integral photovoltaic panels. When implemented, the photovoltaic system supplies energy for the lounge and the integrated media technology. Slats beneath the roof act as filters, modulating and channeling sunlight into the charging bay area. The precision and dynamism of the construction underlines E.ON's brand identity and consumer experience.



Ultra-fast charging station (module system S)







XS 2B R



XS 2F R



XS 2F L

Ultra-fast charging station (module system XS)





XS 4B X



XS 4F Z



XS 4A Z



XS 4B Z

Matrix of module  
system XS

## Based on two basic modules, the system is able to cater to a wide variety of charging and parking situations.

The smaller of the two modules can be combined to form XS or S stations. With a rectangular footprint of around  $3.5 \times 5\text{m}$ , it was developed for use in existing car parks and service areas. Its clever geometry makes it possible to provide partially covered parking for one to two spaces in ten different countries. Its self-supporting steel structure allows the modules to be extended linearly to create smaller drive-through options with up to four charging points. Such stations are also suitable for urban contexts, providing covered barrier-free parking in parallel or angled configurations. With a hexagonal footprint, the larger module can be used for M and L stations. The first generation of M stations are designed as drive-through solutions equipped with four to eight charging points, while the L

stations, with six to eight charging points, incorporate a customer lounge for use during charging cycles. In the future, the modular concept can be extended to create XL hubs of varying sizes with additional amenities such as shops, food provision, leisure, spas, fitness and entertainment. Embodying similar principles in order to ensure a high-quality stopover experience, the station lounges feature fully glazed external walls that create a sheltered space open to the surroundings. Natural materials are used throughout the interior to create a restful, relaxing atmosphere. Media elements are also incorporated into the design, for example touchscreens integrated in the furniture, which enable customers to communicate directly with suppliers.





**The recognizable brand architecture of the first generation of E.ON charging stations is scalable, smart and sustainable, and perfectly embodies the company's spirit of innovation at the forefront of technological solutions for society.**

A goal of the design is that many of the featured elements, which are primarily aimed at increasing customer experience and user friendliness, will find their way into future government tenders and consequently be made accessible to as many potential users as possible.





# AUTOSTADT ROOF AND SERVICE PAVILION

Project: Service pavilion, infrastructure

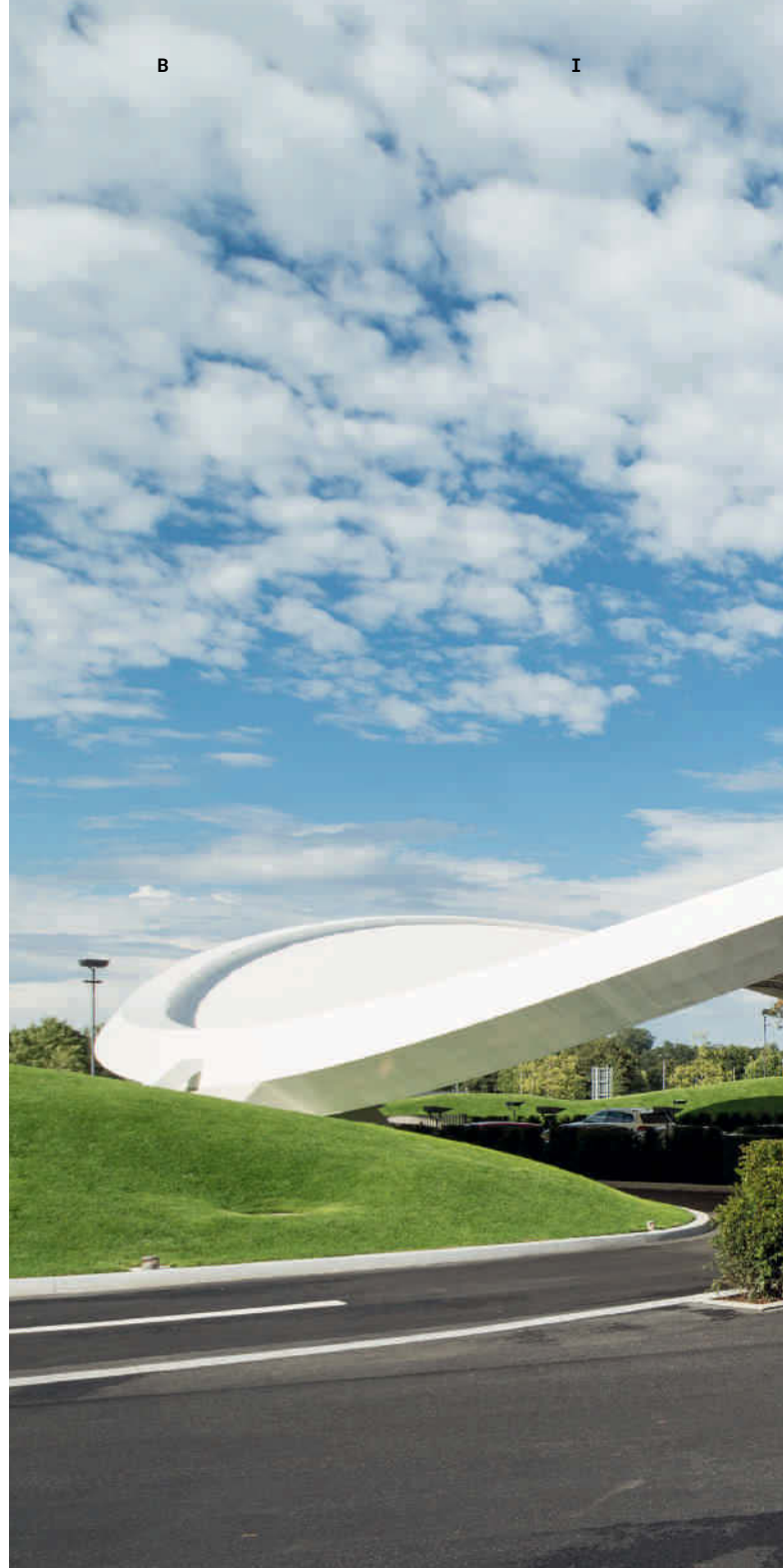
Location: Wolfsburg, Germany

Client: Autostadt Wolfsburg

Year: 2013

Status: Completed

Size: 15,000m<sup>2</sup>



The double-contoured roof construction resembles a protective leaf placed over the landscape.

Driver-assistance systems, including automatic parking, traffic-sign recognition and automatic distance control are increasingly common in cars of today. The driving experience at the Autostadt in Wolfsburg offers visitors the opportunity to try out these and other technical assistance systems designed to increase road traffic safety in models manufactured by Volkswagen. The attraction, with an area of around 15,000m<sup>2</sup>, was built in only ten months and opened in August 2013.





**GRAFT was commissioned to create an area where prospective new-car buyers could familiarize themselves with their new functions without the stress of everyday traffic.**

**The space needed to be sheltered from rain and direct sunlight, but at the same time had to let in enough daylight to prevent the need for expensive and unnecessary artificial lighting.**



Nighttime view of the roof construction



The structure accommodates 45 generously sized parking spaces and a pavilion.





GRAFT's concept is based on the idea of a leaf lying on the ground, its organic form sheltering the landscape beneath (designed by WES Landschaftsarchitektur). To adequately capture this idea, the roof construction needed to seem as light as possible. It achieves this by resting on just two points, giving the impression that it is lying on the ground, defining a sheltered space beneath it. The approximately 130-ton steel construction (designed by schlaich bergemann partner) is borne by two concrete foundations anchored 20 meters into the ground.

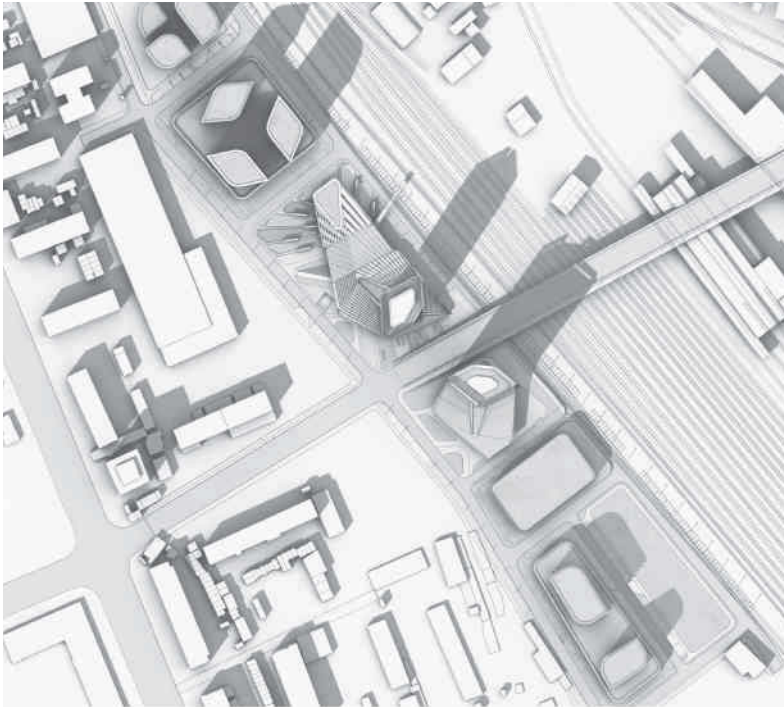
**The arching gesture of the roof and its orientation is welcoming in its nature; the elegant, graceful geometry creates a visual connection between beneath and beyond, between the surroundings and the sky.**

All ancillary functions are housed in the adjacent service pavilion: Customers can receive assistance about their new car, purchase accessories or book other attractions and activities in the Autostadt. To avoid detracting from the impression of the roof as a leaf resting on the ground, the pavilion is embedded in the landscape rather than articulated as a separate building. Its interior in turn echoes specific aspects of the roof.

Site plan



Site plan



# GEORGIAN RAILWAY HEAD OFFICES

Project: Office, high-rise, master plan, urban strategy  
 Location: Tbilisi, Georgia  
 Year: 2017  
 Status: Competition

Densely arranged vertical volumes that culminate in two distinctive towers at the main junction

