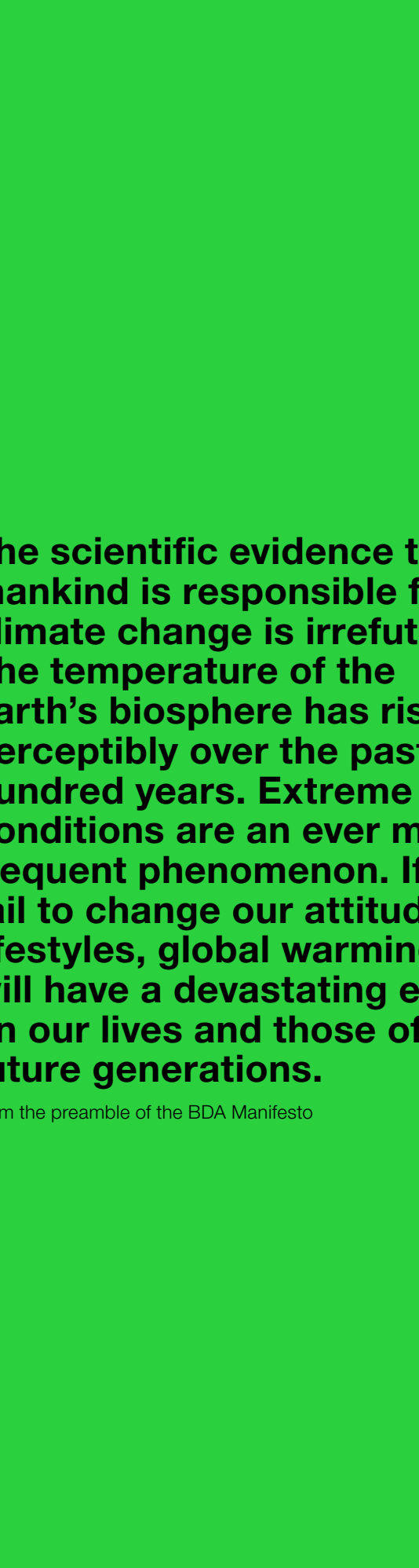


The background of the page is filled with numerous thin, green, wavy lines that create a sense of movement and depth, resembling a stylized landscape or a series of ripples.

climate
earth
sustain
innovate
ecology
effect

Reason for the world

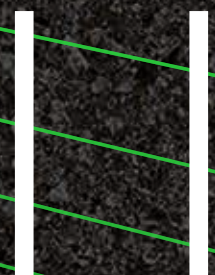


The scientific evidence that mankind is responsible for climate change is irrefutable. The temperature of the earth's biosphere has risen perceptibly over the past one hundred years. Extreme weather conditions are an ever more frequent phenomenon. If we fail to change our attitudes and lifestyles, global warming will have a devastating effect on our lives and those of future generations.

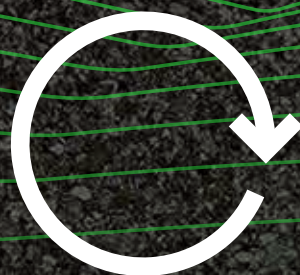
From the preamble of the BDA Manifesto



Think
future



re:think



re:use



re:duce



46 interview | Annabelle von Reutern, Head of Business Development, Concular, on resource-efficient construction



20 interview | Anh-Linh Ngo, architect, author, curator of the German Pavilion at the Venice Biennale of Architecture 2023, on his understanding of sustainable building



56 interview | Peter Heinevetter and Detlef Zielke, Deutsche Steinzeug, on the 'energy transition'



68 interview | Silvia Lederer, Agrob Buchtal, on contemporary swimming pool architecture

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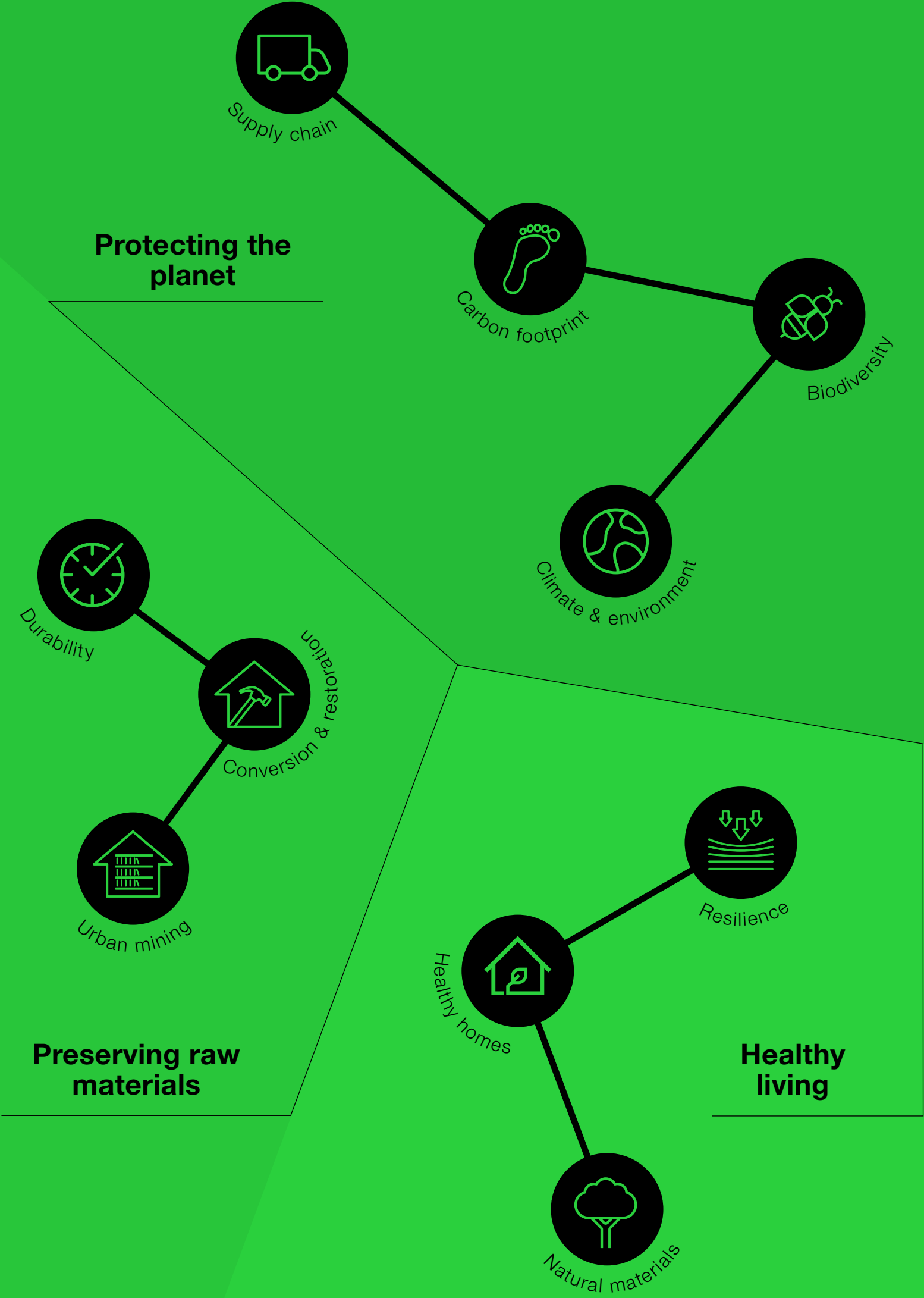
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What sustainability means for us

1. Making simplicity the principle →
to avoid the unnecessary
2. Naturally beautiful design →
for healthy homes and durable buildings
3. Offering new perspectives →
in a cycle of customer wishes and climate protection
4. Acting transparently →
because fair trade is important to us
5. Taking a position →
out of conviction
6. Providing information →
to facilitate the 'construction transition'



Simplicity as a principle

Text: Roland Pawlitschko

Clay is a material that is naturally found all over the world, and was created over the course of millions of years by the weathering of rock material. If its water content is sufficient, clay is easy to mould plastically and can then be fired to create high-strength ceramic. The famous ceramic Venus of Dolní Věstonice was created some 25,000 years ago using this very technique. This was followed by a wealth of diverse pottery objects, works of art and countless Roman brick buildings with tiled roofs and ceramic flooring.

Simple material composition and manufacturing processes

The long cultural history of ceramics in our latitudes is based not least on the fact that there is an almost unlimited supply of clay, the main raw material used, which is also easy to mine and process. It is therefore no coincidence that the roots of Agrob Buchtal and Deutsche Steinzeug and their production sites dating back to 1755 are located precisely where there still continue to be natural clay deposits today.

Contemporary ceramic products do not differ fundamentally from those of previous generations in terms of their material composition or production. Ceramic is still a product produced from very few natural ingredients, and even in this Industry 5.0 era, the firing process is still based on principles, the simplicity of which reminds us time and again of baking bread. This impression does not come about by chance as the basics of clay processing date back to a time when it would have been impossible to produce highly processed, complex (and thus potentially environmentally harmful) products. In today's world, where craftsmanship, regionality, sustainability and the responsible **use of resources** are becoming increasingly important, we are seeing an increasing demand for ceramics. This demand did not come about in spite of, but precisely because of this simplicity.

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Durable and future-proof – in existing and future buildings

Ceramic is extremely durable. The many ancient monuments as well as the intensively used buildings of our time, such as **swimming pools**, are testament to this. The vital factor: the material is not becoming exhausted. The durability of ceramic elements, based on the principle of simple archaic processes, offers massive benefits for sustainable construction. For instance, our products make a significant contribution to the seamless, functional use of buildings, while at the same time rendering costly maintenance work superfluous. Today's technical facilities enable us to reproduce almost all older or even

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historic components with comparatively little effort. This aspect is crucial when it comes to **refurbishing or extending** existing buildings. In a way, it could be said that ceramic production is “backwards compatible” – unlike, for instance, the highly complex components used in the computer industry, the reproduction of which is impossible after only a few years. Conversely, in terms of ceramic elements, building concepts developed tomorrow will be able to be adapted in future with a sustainable design approach.

Innovation and sustainability

Despite thousands of years of comparable material compositions and manufacturing processes, there is undoubtedly still potential for **innovation** when it comes to ceramic materials. Of course, today we have larger, more powerful and more efficient kilns. They provide for more flexible production processes, more diverse surface treatments or a faster time to market of prototypes. In addition, they often go hand in hand with considerable savings in energy, material or time. These, in turn, help to achieve reductions in **CO₂ emissions** and volumes of waste, and to establish more sustainable work processes. At the same time, however, we too are subject to the limits and constraints of the market. As a German ceramic manufacturer with around ten million square metres of tile production per year, unfortunately we have little influence on changes in production technology compared to the global players from China or Italy. It is therefore difficult for us to exert pressure on manufacturers – for instance, to accelerate the development of pioneering kilns using hydrogen as their energy source.

However, there are innovations in terms of products, including the digital “printing” of glazes. This facilitates precise surface finishes, smaller batch sizes and more tile patterns, which can result in a pleasingly irregular appearance on walls and floors. However, to a greater extent, they simplify our already simple manufacturing process and help us to make

do with even fewer raw materials. The recurring ‘Future Workshops’ with architects, which provide us with valuable external input, as well as the many collaborative partnerships with product designers – such as Sebastian Herkner and Markus Bischof – play a key role in product development.

However, despite all our commitment in this area, we always need to bear in mind that we have to maximise the capacity of our four plants. We cannot systematically align all our processes and products to **sustainability aspects** from one day to the next. We also have to face the reality that price continues to be the main criterion in many product ranges. At the same time, sustainability has increasingly become established as a purchasing criterion in recent years. In other words: a new market demand has arisen as the consumer group that can and wants to spend more on sustainable products is growing steadily – in the private sector as well as with commercial and public investors and developers. As a company that finds itself faced with these conflicting priorities, we therefore have to do one thing, without neglecting the other.

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Material and processing intelligence

We are endeavouring to reduce our use of material with newly developed formulations. Whereas standard wall tiles used to be 8 to 10.5 millimetres thick, our stoneware tiles have recently been manufactured with a thickness of just **6 millimetres** without losing strength and precision. Apart from reducing the consumption of materials, above all this leads to reduced consumption of **energy**, less packaging material and lower consumption of fossil fuel for the reduced transport of raw materials and more efficiently loaded trucks. Further potential savings come from the laying method. With a **dry-laying system**, it is now possible for us to avoid having to glue tiles permanently to the floor, and instead to “float” them on the floor. This is achieved by pressing a cork granulate compound to the rear of the tile, instead of affixing a plastic

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grid. We opted for this natural material during the product development process as it possesses ideal properties for the precise and secure laying of the tiles, but also because it fits best to ceramic material by its very nature. The specially developed cork layer (like the clay used as the base material of the tile) is a pure material that does not present any risks to health and is theoretically even suitable for contact with food. Thanks to the dry laying system, these tiles can be laid **more quickly and easily** than conventional tiles. A further key benefit of this system is the fact that the tiles can be removed again at the end of their useful life with a suction jack. There is no loss of material and the tiles can be disposed of or reused once the cork layer has been removed. If the quality and quantity of the products, which consist of only two components, are incorporated in a building plan and are linked to a corresponding BIM database, then their contribution to the carbon footprint of the building can be determined with ease. This means that even the ceramic tiles, which already carry **cradle-to-cradle certification**, provide the best guarantee for a systematic closed loop recycling system.

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Ceramic – diverse, integrated, changeable

Ceramic is natural, durable, healthy and innovative, but also incredibly diverse and versatile. Tiles can be used as floor or wall coverings in conventional rooms as well as in all types of wet rooms and **swimming pools**, and come in a wide range of sizes, glaze colours and finishes. What is more, ceramics can even be used as customised mouldings or as tubular or angled shapes in a wide range of colours and surface textures on **façades**. The many international projects completed with ceramic tiles clearly show that, despite their historic origins, they still have a permanent place in modern architecture and offer designers versatile adaptation options and great creative freedom. This freedom enables buildings to be inte-

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grated into the urban environment, facilitates transitions between indoors and outdoors, and helps to take into account users' needs. The result: **integrated architectural concepts** that are sustainable simply because they ensure the permanent optimum use of the buildings by putting **people at the centre**.

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A win for the environment

A ceramic façade with a specialist glaze

Collaborative project: Cas van der Zanden, Wittehaai Architects and Studio Christine Jetten, Netherlands, Photos: EuroParcs



Ceramic façade: breathable protection against heat loss

As a building material that has proved itself over millennia, ceramic has ideal properties for façade design. Christine Jetten hopes that her special glazes will lead to an increasing number of architects using the sustainable building material and incorporating it into their designs right from the start.



Innovative complex-format material



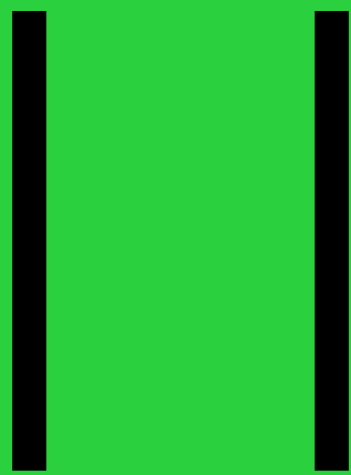
➔ If ceramic artist Christine Jetten's innovative idea were to go into series production, it would possibly be a massive coup for climate and environmental protection: she has developed a special particulate glaze for ceramic façades! The particulate matter is collected from the urban air and reused.

The special glaze celebrates its market launch with the striking façade of sharply angled ceramic triangles of architect Cas van der Zanden's Rebel House in the Dutch town of Almere.

To produce the prototype, the artist and architect relied on the expertise and material quality of Agrob Buchtal's architectural ceramics. To achieve the unconventional design, the unglazed tiles were cut under high pressure using water jet technology and finally finished with Christine Jetten's particulate matter glaze. A combination that fits perfectly into the sustainable concept of the Tiny House in all its properties. ➔

Raising awareness of sustainability

The effects of climate change and dwindling resources are serious and are heralding a rapidly changing world. Change is everywhere: in new ways of life and forms of living, working environments, and mobility solutions. New ideas are called for, as are the determination and courage to drive change forward without losing companies or industries. In the high speed of innovation that is required, we want to pause briefly and provide space for questioning, thinking and discussion: what can we discard, do better and contribute to achieving the climate targets set? “We cannot solve our problems with the same thinking we used when we created them,” Albert Einstein already knew. So let’s reset the hard drives in our minds and rethink things together.



re:think

Open for Maintenance

Rethinking called for

Interview: Ute Latzke

The German Biennale contribution of “Open for Maintenance” is dedicated to the spectrum of repair, restoration, and maintenance of the built environment. The concept acts as a kind of best-practice laboratory, thereby taking up Lesley Lokko’s guiding theme of the Biennale: The Laboratory of the Future. We spoke to curator Anh-Linh Ngo about the necessity for everyday building management, his understanding of sustainable building and, of course, about the German Pavilion and what we can expect there in the coming year.

The construction industry is very slow to change because construction takes so long. As a rule, changes generally do not appear until much later in the actual built environment. The new generation of architects is committed to sustainable building practices.

Anh-Linh Ngo

→ Mr Ngo, we are trying to get to the bottom of the many aspects and dimensions of sustainability in the series of interviews in this magazine. So I would like to ask you very directly at the outset: what has been going on in the architecture and construction industry over the last five years?

The construction industry is very slow to change because construction takes so long. As a rule, changes generally do not appear until much later in the actual built environment. The new generation of architects is committed to sustainable building practices. A start-up for the digital inventory of the materials and components used, such as Concular, is campaigning for the circular economy and is trying to combat abandoned properties and demolition. Or architects are getting involved in professional associations and politics. That gives me a sense of optimism.

→ What impact does construction have on the development of our society?

Architecture manifests and shapes social relationships. It forms the material framework for community or anonymity, integration or exclusion, public life or privacy. But the fact that the construction and maintenance of buildings accounts for about 40 % of the world's CO₂ emissions requires swift and systematic action if the construction transition is to succeed.

→ And to what extent do scarce resources affect our cities?

Contemporary developments clearly point to the value of existing building materials, such as the demolition moratorium recently called for by various climate initiatives and professional associations, including the Confederation of German Employers' Associations (BDA). The appeal, which I also supported as one of the first signatories, states: "Every demolition requires approval to serve the common good, i.e. an examination of the social and ecological environmental impact." This demonstrates once more the spatial interconnection of ecological and social issues. Admittedly, maintaining the existing

We are using the Biennale to present a wide range of interventions, positions and collective forms of organisation.

Anh-Linh Ngo



building stock cannot halt the gentrification of entire neighbourhoods, but it can at least slow down the process.

→ What opportunities do you see for architecture and urban development in the next 20 years? Sustainability and social aspects are mutually dependent. In order to achieve a sustainable future for all, the social relationships of the people involved in the creation of the space also need to be realigned. This also includes the people who look after and maintain the building stock. Users' behaviour also needs to change. Architects need to pay attention to the neglected spaces and infrastructures that enable everyone within the social fabric to get involved. The chances of a social architectural practice, such as this, could lead to new ways of us considering form, design and social interaction together in future – this is what we want to encourage with the German contribution.

→ Congratulations again for your selection to the team of curators of the Architecture Biennale 2023. How did this come about?

In 2021, Arch+ published an edition entitled "Contemporary Feminist Spatial Practice". Maintenance and care of buildings within architecture was one of the issues on which we presented our "San Riemo" project. The work group Summacumfemmer and the architectural practice Büro Juliane Greb designed the entrance foyer of the community building as a care work centre for residents. It's a place where you can wash, potter around and your children can be looked after. A flagship project! That

was the verdict of the judging panel of the DAM Architecture Prize, which awarded the prize to the “San Riemo housing project” in 2021.

My colleague Christian Hiller and I then invited the work group to apply to curate the German contribution with us.

→ We are curious: what can we expect from the pavilion and what are your objectives?

First and foremost, we are focussing on the Biennale and its sometimes unfavourable impact on Venice. Every year, resources are used on a large scale for the exhibition architecture, which are then disposed of as worthless waste. We want to contribute to an appreciation of the work of the people who look after and maintain the green spaces, pavilions, sanitary facilities or works of art. The many “Collateral Events” attract masses of tourists, which increasingly crowd out local residents. Housing and public spaces are also coming under increasing pressure.

That is our starting point: by converting the German Pavilion into a functioning infrastructure, we are creating a platform. We are therefore giving people the space and voice to fight back against this develop-

ment. A further objective is the networking of Venetian and German initiatives working on similar problems.

→ How does your concept support “The Laboratory of the Future”?

We are giving Venetian and German projects a platform and are bringing them together. As they deal with pressing questions of the future, such as the circular economy, water shortages, care work, the right to the city, or self-empowerment through people’s own initiative. That’s exciting! Projects are not communicated traditionally with words and photos, but rather as experiential spatial principles within a functioning infrastructure.

→ How do we make society – all of us – aware of the need to act in a more sustainable way?

We are using the Biennale to present a wide range of interventions, positions and collective forms of organisation. We are becoming increasingly accepted in the architecture and construction sectors as well as by the general public. We are drawing attention to options for action by strengthening people and initiatives, some of whom have been successfully fighting for this for decades. These are good examples of taking positive action.

But I also think of a quote from Alfred Andersch’s story “The Cherries of Freedom” as being very fitting. The first ARCH+ issue printed it back in January 1968: “I hope that I will always refuse to persuade people. You can only try to show them the options which they can then choose from.”

Architecture manifests and shapes social relationships. It forms the material framework for community or anonymity, integration or exclusion, public life or privacy. But the fact that the construction and maintenance of buildings accounts for about 40 % of the world's CO₂ emissions requires swift and systematic action if the construction transition is to succeed.



Anh-Linh Ngo on the Biennale, photo: Noshe

+++++

Anh-Linh Ngo is an architect, author and editor-in-chief of the architecture magazine ARCH+. Among other things, he was the co-curator of the bauhaus project (2015–2019) and Cohabitation (2021) projects, which were funded by the Federal Cultural Foundation. He sits on the Board of Trustees of the International Building Exhibition (IBA) 2027 Stuttgart Metropolitan Region, the Board of Trustees of the Academy Schloss Solitude foundation, and the Advisory Board of the Goethe Institute. He has been a member of the Academy of Arts since 2022. He is also part of the team of curators of the German Pavilion at the 18th Architecture Biennale in Venice 2023, which includes editorial members of ARCH+ and other architects: Anne Femmer, Franziska Gödicke, Juliane Greb, Christian Hiller, Melissa Angela Alemaz Koch, Petter Krag, Anh-Linh Ngo, Florian Summa.



The future of the city

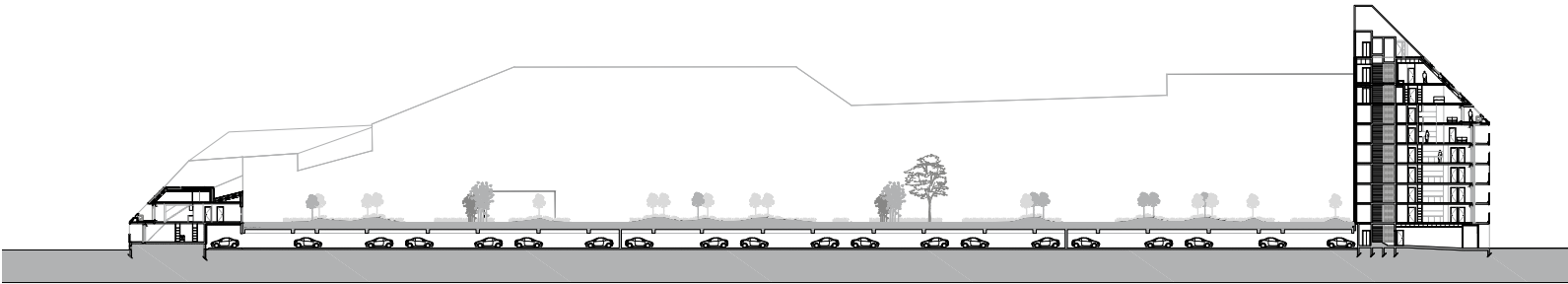
Developed as a laboratory

Architects: MVRDV, Rotterdam, Netherlands. Collaborative architect: Flint, Bordeaux, France
Photos: Ossip Architectuurfotografie, Rotterdam



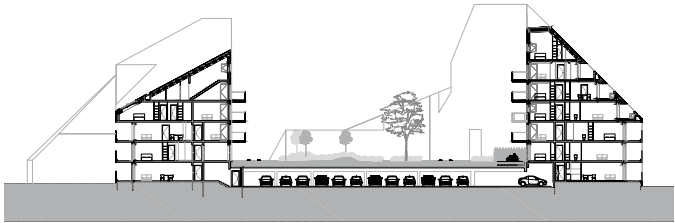
➔ MVRDV has set new standards with Ilot Queyries, a new residential complex in Bordeaux. The building sculpture located to the east of the River Garonne, directly opposite France's largest cathedral, is in many ways special – the striking ceramic outer skin is exceptional.





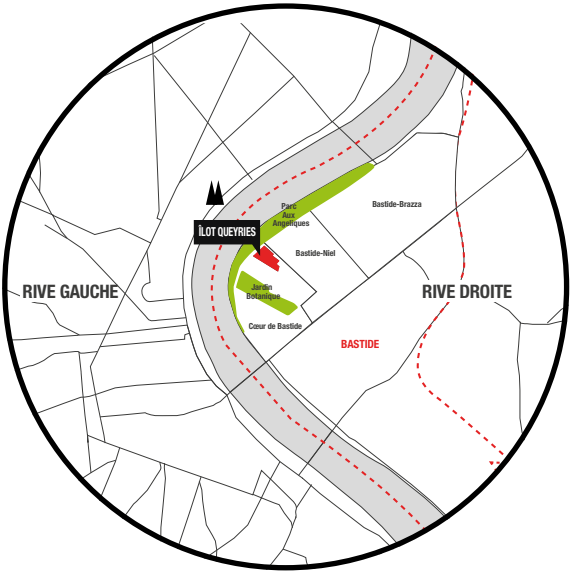
Longitudinal section ©MVRDV





Cross-section ©MVRDV

The building is a kind of laboratory for architects in which they explore urban sustainability as an interaction between intimacy and density – ecology and comfort. With an overall length of 200 metres, a building shell of 10,000 m², heights varying up to nine floors and a dynamic inclination of 14 to 45 degrees – a glance at the design makes one thing clear: the right façade material is key to the successful realisation of this project. MVRDV opts for the Agrob Buchtal KeraTwin[®] ceramic system.



Site plan ©MVRDV

Ilot Queyries is just outside the boundaries of Bastide Niel, but conforms to all the guidelines we have drawn up for the district.

Bertrand Schippan, MVRDV Partner | Director of Studio Frankophon

The ceramic façade stands out clearly from the red plaster of the inner courtyard, which contrasts as it wends its way outside through recesses, openings and passageways.



Self-confident presence with a multi-faceted design style



The architects are particularly interested in the reflectiveness of the ceramic material. Together with the ceramic specialists, they develop a bright special shade for the ceramic glaze to achieve a high albedo that counteracts the urban heat island effect. The fact that the Agrob Buchtal ceramic façade features Hytect technology, an innovative surface with a self-washing effect, is a compelling argument as

far as efficiency is concerned. However, the finish also has an antibacterial effect, defies all weathers, pollution and moss formation, and ensures that the long-lasting façade will retain its constant radiance for many years to come. Tiles with a Hytect finish even break down air pollutants, such as nitrogen oxide, and actively contribute to a healthier air quality: a gift to the inhabitants of the city of the future.

You need to explore all the ideas before you can confirm that the decisions you make are the best ones. Don't be afraid to go to extremes or even be radical to highlight the positive aspects of any idea.

Bertrand Schippan, MVRDV Partner I Director of Studio Frankophon in his role as advisor to doctoral students focussing on architecture and urban planning.



Externally, the apartment block is bright white, while the façades on the courtyard side have been painted with red textured plaster. ←



Ceramic façades

Discover the possibilities

You don't get a second chance for a first impression – this applies to both people and buildings, as the façade of a building is more than just weather protection. Its permanent public visibility shapes cities and landscapes. With regard to climate change, saving resources with façades is also extremely relevant for new buildings and renovations. This results in a high level of responsibility for planners, investors and installers, as materials need to be selected and used intelligently. Multiple factors have to be taken into account, such as the effect at different times of the year and day, its architectural relationship within its urban or rural environment, or the durability of its functional design. All challenges that have to be overcome. Ceramic offers attractive solutions for this.

“91 Leonard” on world-famous Broadway in New York, USA, was designed and completed by SOM, London + Hill West Architects, New York. Mystically darkly coloured tiles (Agrob Buchtal KeraTwin® system) combined with rectangular ceramic tubes (Agrob Buchtal KeraShape® system) create the finely structured façade of the building. Photo: Michael Staller



The mortar bed is history

The post-war years, during which tiles were applied directly to the masonry on a bed of mortar, creating a quasi-slaughterhouse look, have long since passed. Today, for structural or energy-related reasons, tiles are often attached to exterior insulation finishing systems (EIFS) or laid on rear-ventilated carrier plates. The tiles are no longer set in mortar, instead high-tech adhesive is used to attach them. The architects are not just using ceramic for the entire shell of the building. In multi-storey buildings, tiles often make particular sense in the base of the building, depending on where mechanical durability, low maintenance costs and design qualities are called for.

Circularity in building design

Rear-ventilated curtain-wall façades are growing in importance as an established construction principle with a view to building concepts being capable of being re-used. “Urban mining” is the appropriate buzz word here: towns and cities become a repository of raw materials by designing buildings and their components in such a way that they can be reused at a later date without major technical and transport expenditure. A further bonus is the fact that the material and thickness of the insulation can be selected almost freely and inserted behind the cladding. The substructures literally play a supporting role in this. One example: MVRDV has set new standards with Ilot Queyries, the residential complex in Bordeaux. The building is a kind of laboratory for architects in which they can explore urban sustainability as an interaction between intimacy and density, ecology and comfort. They opt for the Agrob Buchtal KeraTwin® ceramic system, a pioneering combination in terms of aesthetics, cost-effectiveness and sustainability. The versatile colour and profiles of the ceramic system offer the requisite creative and innovative freedom for the project. The ceramic is lightweight, can assume any horizontal and vertical inclination, ensures energy efficiency, on the one hand, and save resources on the other. “It was very important to us that the façades and roofs look the same. That is why we decided to use ceramic as the material for the façade. A high-quality material, robust and durable, which could be easily adapted to the different shapes,” explains Charlotte Kientz, MVRDV Project Manager.

Haute couture for the neighbourhood

Alongside the different colours, the façade also features formats, shapes and surfaces incorporating a wide range of architectural styles: over the decades, more than 16,000 formulations for a wide range of special glazes have been developed in the Agrob Buchtal glaze laboratory.

In Bordeaux, MVRDV commissions the Agrob Buchtal ceramic specialists to develop a bright exterior colour for Ilot Queyries to be produced to meet their precise expectations. According to Bertrand Schippan, a MVRDV partner, the façade colour is motivated by environmental considerations, as well as contextual and design considerations. The Dutch office thus gives the façade a high albedo – a high degree of reflectivity – to avoid the urban heat island effect.

Safe in every situation

Colour concepts outdoors only make sense if the carefully selected shades do not change gradually or abruptly due to weathering or solar UV radiation. Ceramic façades meet this elementary requirement permanently with absolute colour and light fastness: tiles are also unaffected by intense sunlight, and unwanted effects, such as fading or yellowing, are not an issue. And no fumes or toxic gases are emitted even when they are exposed to severe heating or even fire. Ceramics comply with the highest “non-combustible” classification and also meet the additional requirements: “no smoke generation”, “no burning droplets/debris”.

Every façade is unique

Formats are a proven means of proportioning and typing buildings. With rear-ventilated curtain-walled façades, large formats, such as 120 x 120 cm, convey spaciousness and a confident presence, while rectangular board format tiles, on the other hand, make even monumental surfaces appear delicate and rhythmic. This pattern is further extended by the way that the tiles are laid: once again here, the Agrob Buchtal KeraTwin® system wins out. It allows the tiles to be fitted horizontally, vertically or, as a special solution, even diagonally in regular or irregular patterns. This allows buildings and façades to be stretched, compressed or “grounded”, or proportions relativised, masked or accentuated. A current



The ceramic façade of the Fritz Tower, designed by Sauerbruch Hutton, marks the centre of the new Lehrter Strasse district, and is visible from afar in Berlin. The residential high-rise building consists of Agrob Buchtal plastic ceramic V-pointed profile strip tile in ochre yellow and muted white. Photo: Jochen Stüber, Hamburg

mega-trend in ceramic building shells is the development of the third dimension by the use of tiles with plastic profiles, grooves and waves. This can produce attractive changing effects depending on the time of day, the position of the sun, and the position of the observer. Light and shade become a natural means of design and offer added aesthetic value. With curtain-walled façades, the three-dimen-

sional spectrum is further expanded by the use of decorative ceramic mouldings, including baguettes, rectangular tubes, and slats. They are designed to generate defined shading, elegant semi-transparency, or lively rhythm. This is an aesthetic that has long conquered the entire spectrum of architecture, right up to museums and other cultural buildings.

Exacting material concept

Striking, elegant,
sustainable

Architect: Hadi Teherani Architects, Hamburg
Photos: Jochen Stüber, Hamburg



➔ In their design for the Mercator One office building in Duisburg, Hadi Teherani Architects almost completely forego the use of plastics and composite components, instead relying on a few sustainable materials. Ceramic tiles form the framework for the minimalist but elegant ambience.

In their choice of materials, the architects decide that the building is to be a solid, elegant building that reflects the character of Duisburg as a city of workers and the metal industry. Their concept involves only very few materials: aluminium, concrete, steel, glass and ceramic. They dispense with the use of plastics and composite components in order to be able to separate the building materials at the end of the life cycle of the building, and reuse them as a valuable resource for the circular economy.



A timeless aesthetic far from fashionable short life cycles is thus to become the guarantee for the long service life of the building as well as the durability and high quality of the materials. Hadi Teherani Architects opt to use ceramic tiles from the Nova collection on the walls and floors throughout the building and across all the floors in the public, non-privately rented areas. Even in the foyer, the tiles set the tone for the minimalist elegance that characterises the building. ←



Minimalist elegance: large-format floor tiles



The ceramic floor forms the design feature used for seamlessly beautiful room transitions

In line with our desire to use only pure, honest materials, the interior of the building has the same minimalist and elegant appearance as the façade.

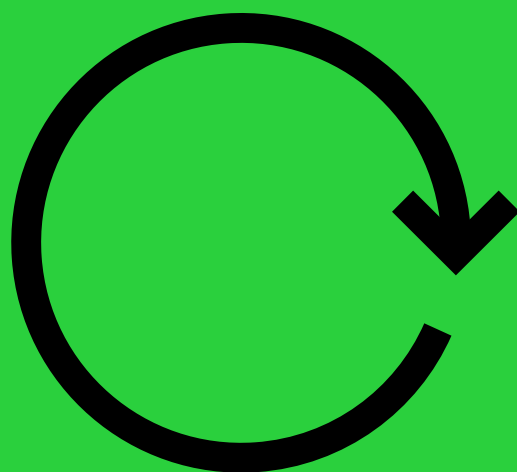
Bernd Muley, the architect responsible for the project

Optimum floor finish for the popular office kitchenette, which doubles as a sharing space



Going further than others, for a culture of values

Recycling is firmly rooted as a value in our ceramic DNA: we work with closed water cycles, rewild areas after they have been quarried, and process raw material and product waste material for production processes that use almost all material virtually without loss. In terms of circularity, we have gone a step further with our ceramic tile product and can display further strength with tiles laid dry, which can be removed and reused in the same way as our façade systems. This is an essential step in preserving the value of materials and buildings. We are staying on task and developing further innovations.



re:use



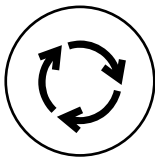
Natural raw materials

Our ceramic tiles are made from local minerals, such as clay, kaolin and feldspar. Once they have been excavated, the mines are recultivated and returned to nature.



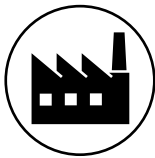
Water conservation

We do not generate waste water because we work with closed water cycles.



Resource conservation

We conserve resources. Broken tiles are recovered and returned to the production cycle. Production waste is thus avoided.



Environmental management

Our detailed process management system guarantees maximum energy efficiency. We ensure environmentally friendly production of tiles that sets international standards in conjunction with the strictest exhaust gas standards.

Source: Federal Association of Ceramic Tiles BKF

Preserving values

Closing material cycles

The construction sector accounts for one third of greenhouse gases and consumes the majority of mineral resources. Our building stock is a gigantic material storage space, but more than half of it is disposed of as debris or demolition waste. The refurbishment, renovation and use of renewable resources are the first steps toward achieving our climate targets. If the ‘construction transition’ is to succeed, we also need to enhance existing ‘gems’.

90 % of raw materials for construction. July 28 2022 was Earth Overshoot Day. That was the day on which the year's resource budget was used up. Compared to other countries, in Germany we had already consumed our share of the budget in May. The German construction industry is a major consumer. About 530 million tonnes of material per year are stored in buildings, representing 90 % of all mineral raw materials (dena). Across the EU, the construction sector consumes 40 % of energy and accounts for 36 % of CO₂ emissions. 30 % of these emissions are in Germany alone. They do not come solely from the use of buildings. The construction, production, transport and storage of raw materials, as well as their demolition and disposal, produce "grey energy". And this primary energy places a massive burden on the climate and environment.

Revitalisation instead of demolition and new build. The construction industry can play a decisive role in this, for example by using renewable energy sources and raw materials. Other levers include the conversion and addition of new floors to building stock in place of demolition and new build.

15 billion tonnes of building stock. There is also potential in the circular economy and urban mining: in 2020, according to destatis, 230 million tonnes of debris were disposed of, which equates to 55 % of total waste. It is estimated that the material incorporated in the building stock amounts to 15 billion tonnes.

Laws with a signalling effect. The prerequisite is the will to use quality-assured, recycled materials and components. Two laws with a signalling effect: at the end of 2021, the Berlin Senate introduced an administrative regulation. It makes it compulsory to recycle and reuse building materials when dismantling public buildings. A State Circular Economy Law has been in place since February 2022 in North Rhine-Westphalia. According to this law, recycled building materials are to be increasingly used in public projects. However, it is not just legal barriers that make the use of recyclable components more difficult. It is a question of to what extent and where they are available. Component exchanges and platforms already exist that specialise in their sale, including bauteilnetz, restado, madaster, opalis and Concular: the latter start-up has developed a portal that brings together demand and supply.

43 million apartments. There are a good 19 million residential buildings in Germany with 42.8 million units (destatis). In some cities there is not enough housing, while in others too many buildings lie empty. To balance this out, the federal government plans to add another 400,000 units per year. At the same time, CO₂ emissions are to be reduced by 65 % by 2030 and Germany is to become climate-neutral by 2050. These are ambitious goals that require drastic measures and rapid action.



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Annabelle von Reutern studied architecture at the RWTH Aachen University and TU Berlin and then worked in traditional design offices for several years. She has been responsible for Business Development at Concular since February 2021. Through Concular, the architect comes across the Architects for Future platform and is immediately inspired by it. “People who have a vision have come together on this platform. They do not wait for permission but get down to things right away. And that’s contagious.” Since then, Reutern has been working hard to radically change the construction industry.

Breaking with traditional rules

Strengthening personal responsibility

Interview: Ute Latzke

Concular is a digital platform for resource-efficient construction. The aim of the start-up is to promote the circular economy and support the industry in becoming CO₂-neutral.

→ Your team identifies reusable building materials. How does this work?

Inventors and project developers who are planning to convert or demolish a building get in touch with us. We usually start with a project of around 5,000 m² of gross floor area with demolition projects. We have no size limit when it comes to creating material passports for new buildings.

→ Is it possible to fit verified building materials throughout buildings?

Our platform supplies all trades – from structural elements to technical building services and interior fit-out. We want to make circular building and the reuse of materials the new standard. Change and the construction transition will only become a reality when we are no longer a niche entity.

In future, the form and design principle of buildings will follow the availability of material.

→ What happens to material that cannot be removed undamaged?

So far, our focus has been on easily removable products. In future, however, we are also thinking about moving more towards recycling. That means materials that can no longer be used as reusable products. That is what we are currently talking to companies and recycling firms about.

We want to create a place where we can change the construction industry together.

→ The Concular inventory includes glass, steel, natural stone as well as sanitary ware parts.

What about ceramic tiles?

Ceramic is a product that is definitely worth re-using due to the high amount of energy needed to manufacture it. To date, we have not accepted and sold any tiles. One reason may be that the tile adhesive was contaminated with pollutants. Removal is very time-consuming. In new buildings, it is important to fit all materials in such a way that they can be easily removed and given material passports.

→ How did the Concular concept come about?

There is a great need for advice from all the parties involved – from demolition companies to manufacturers and general contractors. As construction workers, we have simply forgotten how to plan and build simply and in a way that can subsequently be removed with ease. But the trend back to the careful use of our resources is unstoppable. There is massive demand for our support, and everyone seems keen to change things. But long-established processes cannot be broken down in such a short time. We have the vision and provide the stimulation. However, this only works if everyone gets involved.

→ Isn't there a risk of greenwashing when it comes to sustainability?

Everyone should just do what they can. And if the path to sustainability has to go via the PR department, then that's just the way it is. As long as it doesn't just stop there or get sent to the Head of Sustainability. For us, it is important to deal with people on a level playing field. And we don't take on a project if we notice that we and our concerns are not being taken seriously.

No one is perfect. Just do it, and keep at it.

→ What change do you want from industry, planners, politicians – from all of us?

Everyone should be allowed to change within their framework. The other day, someone said to me that I can't expect everyone to be intrinsically motivated. I see that differently. Should it not be a matter of course for us all to protect this planet and thus all of us, and to preserve a place that is worth living in? As the climate catastrophe becomes increasingly rapid, we are encouraged to radically question our thinking and actions and to readjust our focus. That all sounds very abstract now, but there is a list of things that each of the above protagonists could change.

Personal responsibility: up – following traditional rules: down.

→ Are younger offices more open to concepts like Concular than established ones?

We have perceived enormous interest and openness across all generations that has been missing for some time. The urgency seems to have become greater over the last three years. There is now a great sense of anger, along with the will to change. Unfortunately, the fear of departing from the tried-and-tested path is sometimes even greater than the fear of the consequences of existing systems and structures.

→ How do you assess the potential of renewable raw materials?

I think it is wrong to believe that timber construction will save us. There is not one solution for everything. Build less and more simply, critically examine demolition and make use of what is already there. These are all just as important levers as the use of renewable raw materials and the separable re-installation of all these materials. If that does not happen, we will once again create a one-way road to landfill with our resources. Please not again.

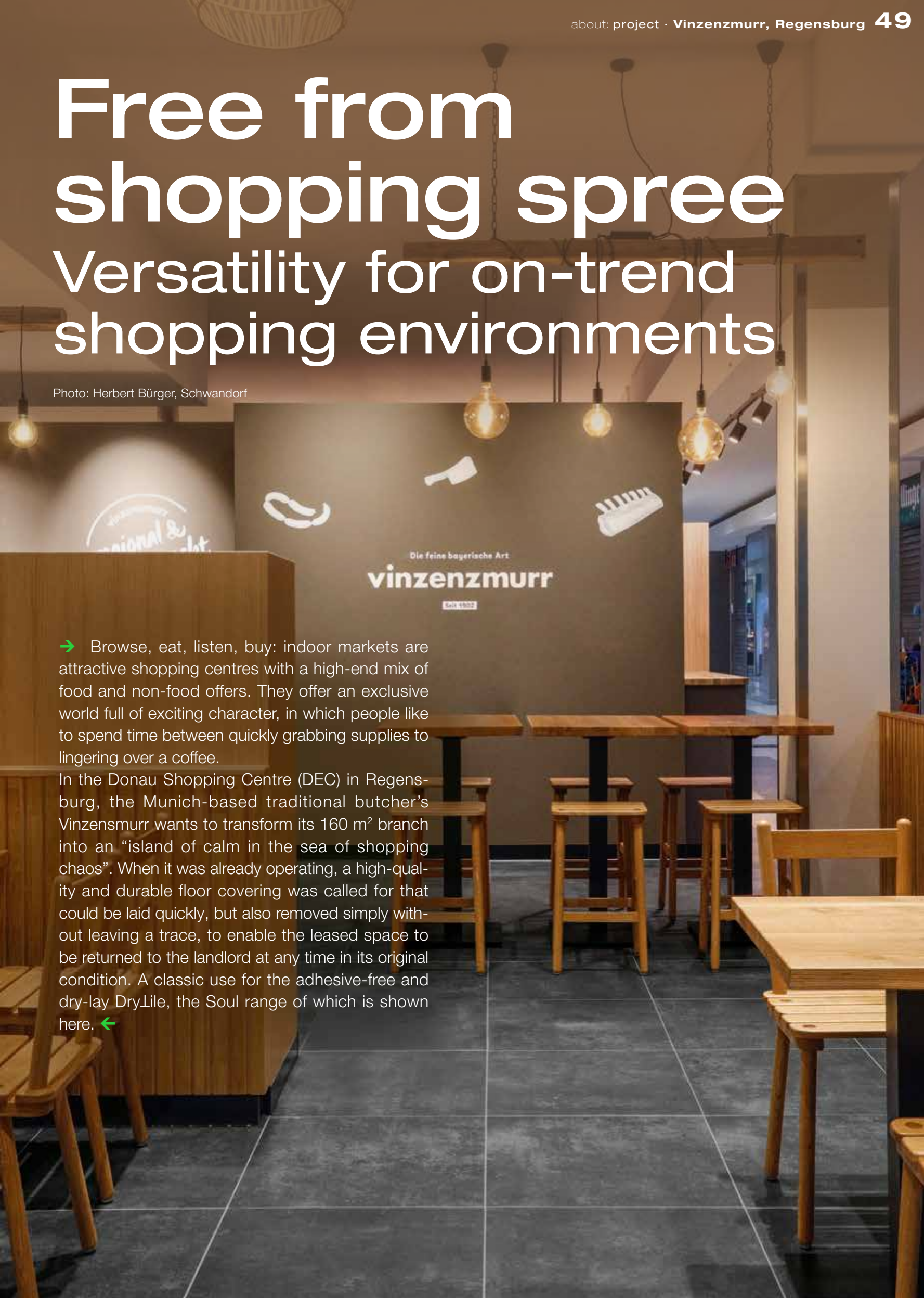
Free from shopping spree

Versatility for on-trend shopping environments

Photo: Herbert Bürger, Schwandorf

➔ Browse, eat, listen, buy: indoor markets are attractive shopping centres with a high-end mix of food and non-food offers. They offer an exclusive world full of exciting character, in which people like to spend time between quickly grabbing supplies to lingering over a coffee.

In the Donau Shopping Centre (DEC) in Regensburg, the Munich-based traditional butcher's Vinzenzmurr wants to transform its 160 m² branch into an "island of calm in the sea of shopping chaos". When it was already operating, a high-quality and durable floor covering was called for that could be laid quickly, but also removed simply without leaving a trace, to enable the leased space to be returned to the landlord at any time in its original condition. A classic use for the adhesive-free and dry-lay DryLile, the Soul range of which is shown here. ➔





Innovative, sustainable products are becoming increasingly important in accelerating change. DryLile is a floor tile that can be laid easily and quickly, and can remain in the material cycle for a very long time, as it can be removed and recycled. Perfect for sustainable building life cycles and architecture that is in a state of flux.

Daniel Schreiner, Managing Director Drytile Ceramics GmbH

Resource conservation, renovation of building stock, circular construction. Maximum design freedom is already built in with DryLile.

Ceramic tiles for the circular economy

How possibility becomes reality

Reusing products that have been used is not the romantic attitude of a younger generation. Today, the tradition of old builders is a paradigm if the climate revolution is to succeed. However, once demolished, most materials are only recycled as lower quality building materials. So far, this has also been the case with ceramic tiles. DryLile represents a big step toward circularity.

The circular economy is an old custom. Recycling and reuse are not new concepts: it was common practice among Charlemagne's builders. They had stone blocks removed from Roman buildings in the Eifel, Lorraine and the surrounding area to build Aachen Cathedral. With a great deal of effort, the stones were transported to Aachen and used for the cathedral (source: bvse). What worked 1,200 years ago should also work today. It is the only way of avoiding 200 million tonnes of building rubble each year, and conserving primary raw materials.

It's possible without adhesive. The re:use approach is simply impossible with many permanently fitted materials. This also applies to ceramic tiles. The attempt to remove the tiles often results in them breaking and then they can only be recycled. Agrob Buchtal has developed an innovative new system to lay tiles dry, without the need for adhesive. This is environmentally friendly and is eight times faster than traditional methods. And when the building is torn down, the tiles can be removed undamaged.

Clever: cork layer instead of mortar bed. A polyolefin-based cork mixture is applied to the back of the ceramic tile. Thanks to the intrinsic weight of the DryLile tiles, the layer adheres to the substrate and firmly attaches itself. The result: no mortar bed, no adhesive, no primer. The fact that the cork protrudes slightly at the edge of the tile produces a precise joint gap. A special grouting compound provides stability and a sealed surface. When the tiles are to be removed, the joints are simply cut open and the tiles are removed with a suction jack. Dry laying with DryLile can also be used in conjunction

with a cavity floor system. The entire construction is quick to install and can be fully dismantled and refitted if required.

Do ceramic tiles offer circularity? According to the German Circular Economy Act (KrWG), buildings should continuously reuse or recycle their individual components and parts. The act defines in a 5-stage waste hierarchy what needs to be considered:

1. Waste prevention by the retention and refurbishment of old buildings
2. Recovery and reuse of components
3. Recycling
4. Other uses, such as incineration, to generate heat and electricity
5. Disposal/landfill

DryLile comes off particularly well here. The ceramic tile for dry installation enables a high-quality floor to be fitted with all the benefits of ceramic. Robust and durable, DryLile will retain its radiance and colour even after decades. The heavy-duty and almost wear-free system is simple to remove and recycle. Drytile Ceramics is therefore revolutionising floors, supporting the core objectives of the re:use initiative and offering a real innovation for sustainable building designs and the will to renovate and refurbish existing building stock.

We are aware of the urgency of sustainable construction. That is why we are a member of the German Society for Sustainable Building (DGNB). At the same time, we are working hard to reduce the impact of our production on the environment and climate. This includes improving internal processes as well as the research and development of new products.

Daniel Schreiner, Head of Product Management and Design Development at Deutsche Steinzeug brands and Managing Director of Drytile Ceramics GmbH.



**Green
Product Award**

Winner 2020

Should the Drytile floor need to be disposed of, then you can do so as harmless mineral construction waste. The system is the winner of the Green Product Award 2020.

Making every millimetre good for sustainable development

“Less is more” comes in many guises. Architects are concerned about more than just reducing energy and resource consumption. They are also endeavouring to achieve visually coherent results with fewer materials and simple shapes. Agrob Buchtal is developing ranges that have the right answer to the question of how aesthetic, durable and healthy neighbourhoods, homes and workplaces can be created. There are other requirements and challenges depending on the property – home, shopping centre, laboratory, airport, hospital, subway, swimming pool. And every millimetre of material counts in minimising the carbon footprint of buildings. That’s why we are now changing the majority of new wall and floor tiles and, where feasible, making them as light and thin as possible.



re:duce

Building transformation with energy

A report from the crisis

Interview: Editorial team

“Scotty, energy!”, Captain Kirk calls on the bridge as a signal to his chief engineer to power up the engines and carry the USS Enterprise at the speed of light to foreign galaxies and unknown life forms. Unfortunately, it is not that simple for manufacturers of architectural and residential ceramics. The natural, durable and economical material can play a significant role in making buildings recyclable and construction sites carbon-neutral. But throughout Europe, and thus also in Germany, the energy issue is in crisis, and prices are going through the roof. Peter Heinevetter, Head of the Technical Coordination Department, and Detlef Zielke, Energy Management Officer at Deutsche Steinzeug Cremer & Breuer AG (DSCB), report on the possibilities of achieving the urgently needed ‘energy transition’ in spite of this.

→ What impact is the energy crisis having on the German tile industry?

The rise in energy costs is dramatic. As a medium-sized company operating in one of the most energy-intensive industries and which cannot do without the use of gas and electricity in production, we find ourselves faced with a dangerous mixture of uncertainty and pressure. The incalculable increase in energy prices places an enormous burden on our production costs. If that were not enough, there are also massive cost increases on the raw material and consumables procurement side, and thus a direct increase in our manufacturing costs.

→ From where do you get your power mix?

We buy energy on the wholesale market, i.e. the stock exchange, and use the derivatives market and the spot market. From 2021 to 2022, the electricity price has risen by 3.7 times on the spot market, from €50 per MWh to €185. The price of gas has become 6 times more expensive.

→ What is a spot or derivatives market?

That is simply explained. You can buy energy at fixed prices on the futures market in the long term. That means that you can buy energy today at a fixed price for next year or the year after. The so-called spot market is used to procure energy on a daily basis, i.e. when you actually need it. We operate in both markets because we cannot say for sure how much energy we will need at the end of a year.

→ What is Deutsche Steinzeug's annual consumption of electricity and gas?

When we look at all four plants, we have a total electricity consumption of 55 million kWh, and a gas consumption of 400 million kWh. This is equivalent to the electricity and gas consumption of a small town of 30,000 inhabitants.

→ What do you use gas for?

First, in the spray towers. This is where the liquid is removed from the silt, a liquid clay material. Inside the tower the temperature is over 500°C. The water evaporates and the mass becomes spray-dried granulate, a fine granulate, which is then pressed into tile blanks. Depending on the process, the tiles are fired at up to 1,200°C.

→ Which production steps require the most energy?

The kilns and spray dryers consume the most energy. The firing operation has a total energy consumption of 55 to 57 % and the mass preparation approx. 20 %. The rest of our energy requirement is required for moulding, packaging, lighting etc.

→ Is it possible to replace gas with other alternative energy sources?

Looking forward, that will be possible at some point in time. Experiments are currently being carried out with hydrogen. Up to 20 % of the gas could theoretically already be replaced by the use of admixtures. However, this hydrogen is not yet available on the market.

→ What are you already doing to save energy?

As a company with this high energy demand, we are already very aware of our energy consumption in our own interest. We have been certified according to DIN EN ISO 50001 for our energy management system for years, and have thus committed ourselves to using the energy we need effectively in order to save energy every year. We are also putting in place various measures to this end. For instance, key parts of our production are equipped with heat recovery systems. We have also found that we can save about 60,000 kWh of electricity during the production process by what is known as "dedusting" the machines.

→ Are there any other possible steps to improve the company's environmental footprint?

DSCB has always been committed to finding advanced solutions in terms of technology and production. We are constantly working on this. Years ago we took simpler steps, such as switching to modern LED lighting in our administration offices and in the factories. Or we considered where we can operate electric drives more efficiently. It always pays to look at pumps and motors. All these measures together make an important contribution to reducing our overall energy consumption and improving our carbon footprint. We have set ourselves the goal of reducing energy consumption – i.e. electricity and gas – by another 8-10 % in 2023. The installation of photovoltaics will play a role in the next step.



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After completing his degree in the Ceramics department at the University of Applied Sciences Rhineland-Palatinate in Höhr-Grenzhausen, Peter Heinevetter started his career as a graduate engineer (FH) first in the brick industry at Wienerberger, where he laid the foundation for his expertise in strategic energy management as the plant manager of different sites. A little more than ten years later, Heinevetter took over the tile manufacturer’s energy management in various roles and positions at Deutsche Steinzeug Cremer & Breuer AG. Today he heads up the three main departments: Technical Coordination including Energy Procurement and Investment, Production Planning and Control and the Logistics Department, Central Strategic Purchasing.



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Detlef Zielke is a certified energy manager and auditor (German Chamber of Industry and Commerce) and is the Energy Management Officer at Deutsche Steinzeug Cremer & Breuer AG. He started out as a Master “Industrial Ceramic Specialist”, and over time Zielke has continued to focus on energy within the company. He now has several years in a leadership role in energy management. He successfully planned, introduced and further developed the implementation and maintenance of the energy management system at all DSCB sites.

Sustainable eye-catcher

Ecology and design become one

Architect: DPM Group, Austria · Photos: Lumina Kreativagentur
www.place-to-be.at/ueber-uns

➔ As illustrators and graphic designers, Andrea Hörndler and Hannes Wizany are at home in design, so to speak. Their “Our Place to be” project created a second home for themselves and their two dogs, skilfully combining design and sustainability. The fact that ceramic tiles look good, but also make a direct contribution to ecological building is one of the many experiences that the pair like to share with their followers in their own blog.



The “Eco-house” near Linz in Austria cannot fail to impress with its ecological materials: wood from sustainable Austrian forestry, insulation and construction panels made of straw, clay plates and clay plaster. Agrob Buchtal ceramic tiles make a cool statement in this mix of materials. The District series is inspired by the typical tile panels of the under-



ground stations in Paris or London and blends harmoniously with grey floor tiles. Their innovative, antibacterial Hytect surface with its self-cleaning effect makes these collections one of the most sustainable floor and wall coverings to guarantee a healthy indoor environment. ➔

Less is more

Let's cut down to the bare essentials

Text: Cordelia Eucker-Apsel



Many of the things that need space, resources and energy have disappeared with digital change. Climate change demands much more. Let's cut down to the bare essentials: the 6 mm tile generation leaves behind an extremely minimal carbon footprint without losing strength and precision. The right thing for uncompromising sustainable building.

6 mm is a success story for our carbon footprint

- Fewer resources:** Due to the reduced material thickness, the same formats and surfaces can be produced with a reduced raw material requirement.
- Less energy:** The thinner tile thickness reduces energy consumption and CO₂ emissions during firing.
- Lower fuel consumption:** As there is less material and lower weight for the delivery of the raw materials and transport of the tiles, fuel consumption and CO₂ emissions can be optimised.
- Less space:** Thanks to their slimmer dimensions, more square metres of tiles fit on a pallet, so that storage space can be used more efficiently.
- Less waste:** Thinner tiles, less volume – existing packaging units hold more square metres of tiles, reducing packaging material and waste.

Outstanding: success

The challenges of our time are forcing us to rethink our approach. By systematically looking for a better solution, endeavouring to identify and utilise potential improvements, and with a clear focus on what matters, we have made our ceramic tiles lighter by several millimetres. In new builds, conversions or renovations: the 2022/23 series innovations from Agrob Buchtal now sit just 6 mm proud of the wall and floor. This makes it easier to change and design flexible floor plans with tiles on tiles, without impairing the visual appearance of the space. Practical: The overall height of the tile also remains ideal for butting up to existing elements, such as door frames, windows or other floor coverings. A win for private as well as professional renovation professionals.

Ideal dimensions that are of lasting importance

Figures based on **30 x 60 cm** tiles.

Tile thickness	6 mm	9 mm
Per pack	13 tiles	9 tiles
Per pallet	112.3 m ²	77.8 m ²
	1,154 kg	1,162 kg

Outstanding bathing experience

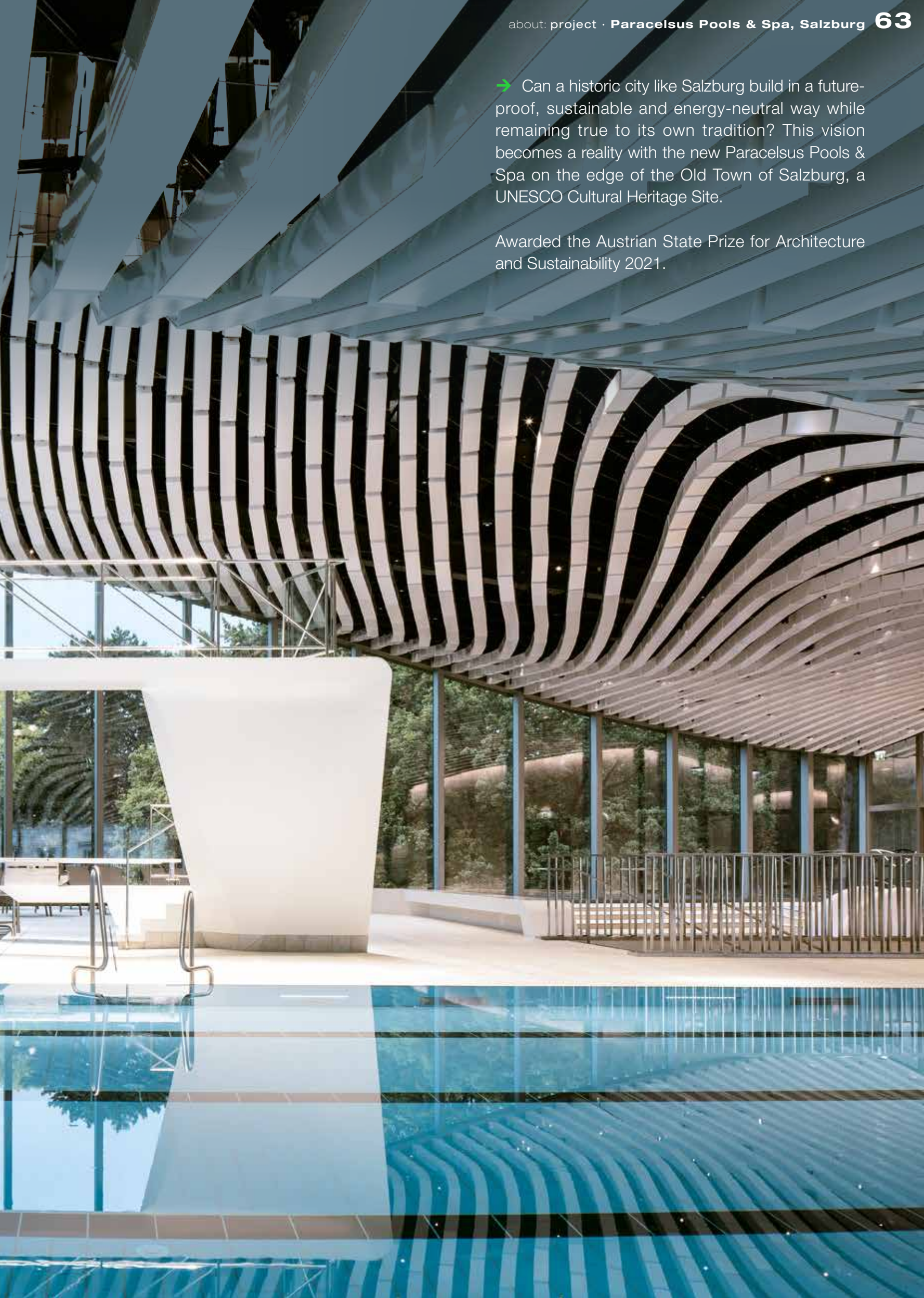
The building block of an urban sustainability strategy

Architect: Berger+Parkkinen, Vienna, Austria · Photos: Fotodesign Peters, Amerang



→ Can a historic city like Salzburg build in a future-proof, sustainable and energy-neutral way while remaining true to its own tradition? This vision becomes a reality with the new Paracelsus Pools & Spa on the edge of the Old Town of Salzburg, a UNESCO Cultural Heritage Site.

Awarded the Austrian State Prize for Architecture and Sustainability 2021.





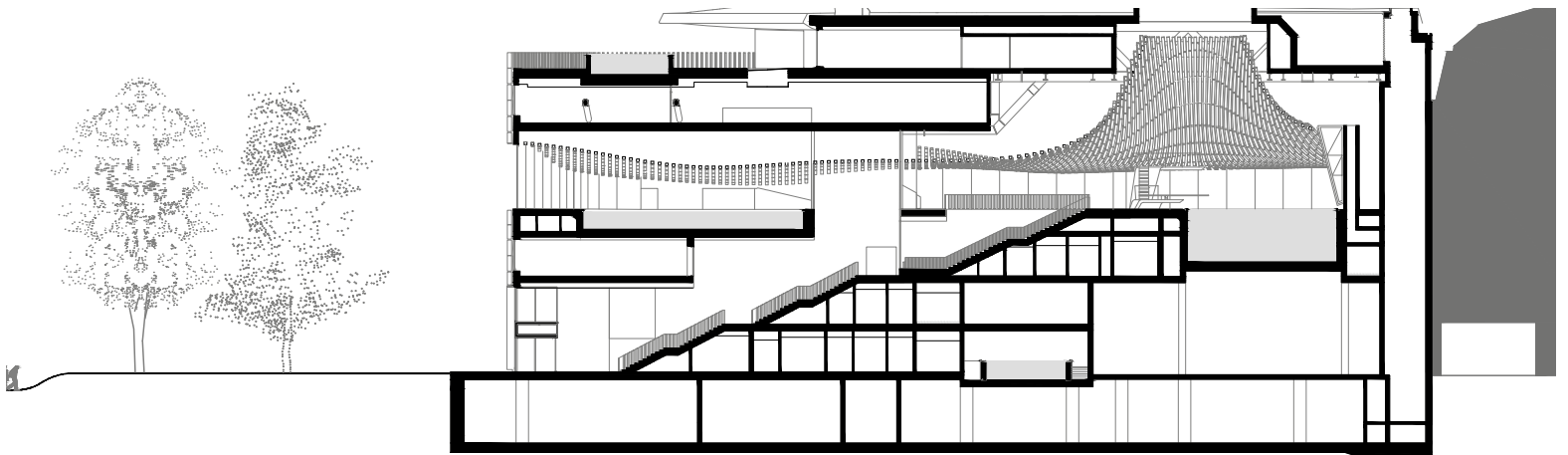
Elegantly curved building with a view of Salzburg's Old Town and the Kurgarten park

In the immediate vicinity of the Kurgarten park and the Mirabell Palace, the old building dating back to the 1950s gave way to a striking urban building, which does more than fulfil its function, and deliver cost-effectiveness and technically state-of-the-art energy management: the cutting-edge, five-storey new building by Berger+Parkkinen with its four different swimming pools, sauna zone and infinity roof-top pool with panoramic views over the city is revitalising the history of the site where people have been bathing and taking the waters for over 150 years.

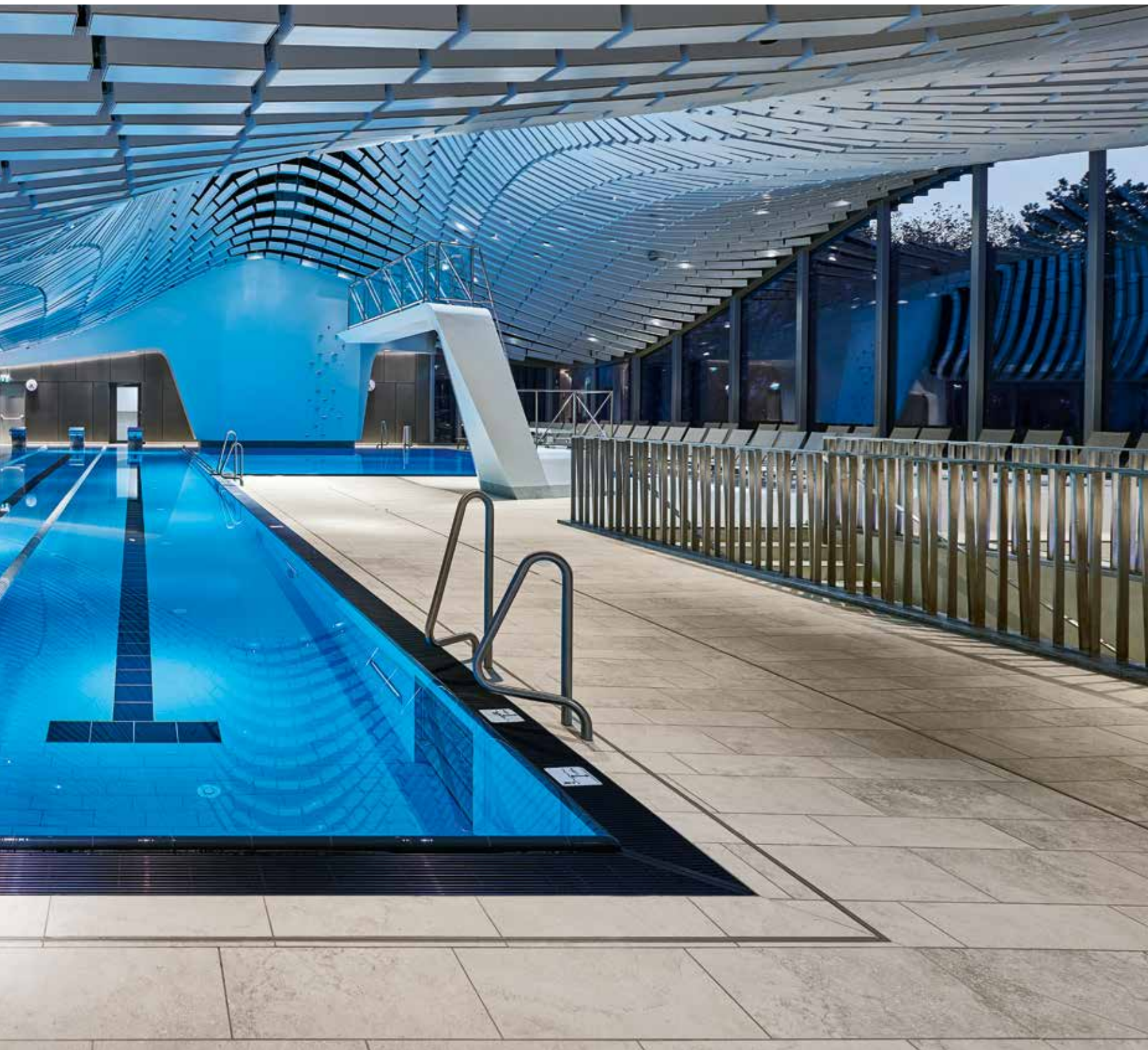
Agrob Buchtal's pool edge systems are impressive in terms of their technology and energy consumption. The Bamberg system ensures that 45 % less water evaporates in the family pool than with conventional systems, thanks to its sophisticated shape. This reduces heat losses and power consumption by the ventilation systems. In the sports pool, the tiled notch of the Wiesbaden channel underpins the overall design concept with an elevated high water level. The Finland system in the children's pool makes possible a visually seamless transition between the pool and pool surroundings.

Water right to the edge with the Wiesbaden channel





Longitudinal section ©Berger+Parkkinen






Sauna with a view of the Mönchsberg

Awarded Klimaaktive GOLD for its energy efficiency, ecological quality, comfort and outstanding quality assurance of installation – this is the highest level of certification by the Austrian Federal Ministry for Sustainability and Tourism (BMNT).

The Savona range of ceramic wall and floor tiles lends character to the interior atmosphere of the facility. The chalk-coloured vibrant, emotive surfaces, combined with the irregularity of the latticing, create a sense of earthy and warm comfort in the circulation and rest areas as well as in showers and saunas. The ceramic used also meets the most exacting requirements in terms of hygiene and slip resistance, and is also robust and durable.

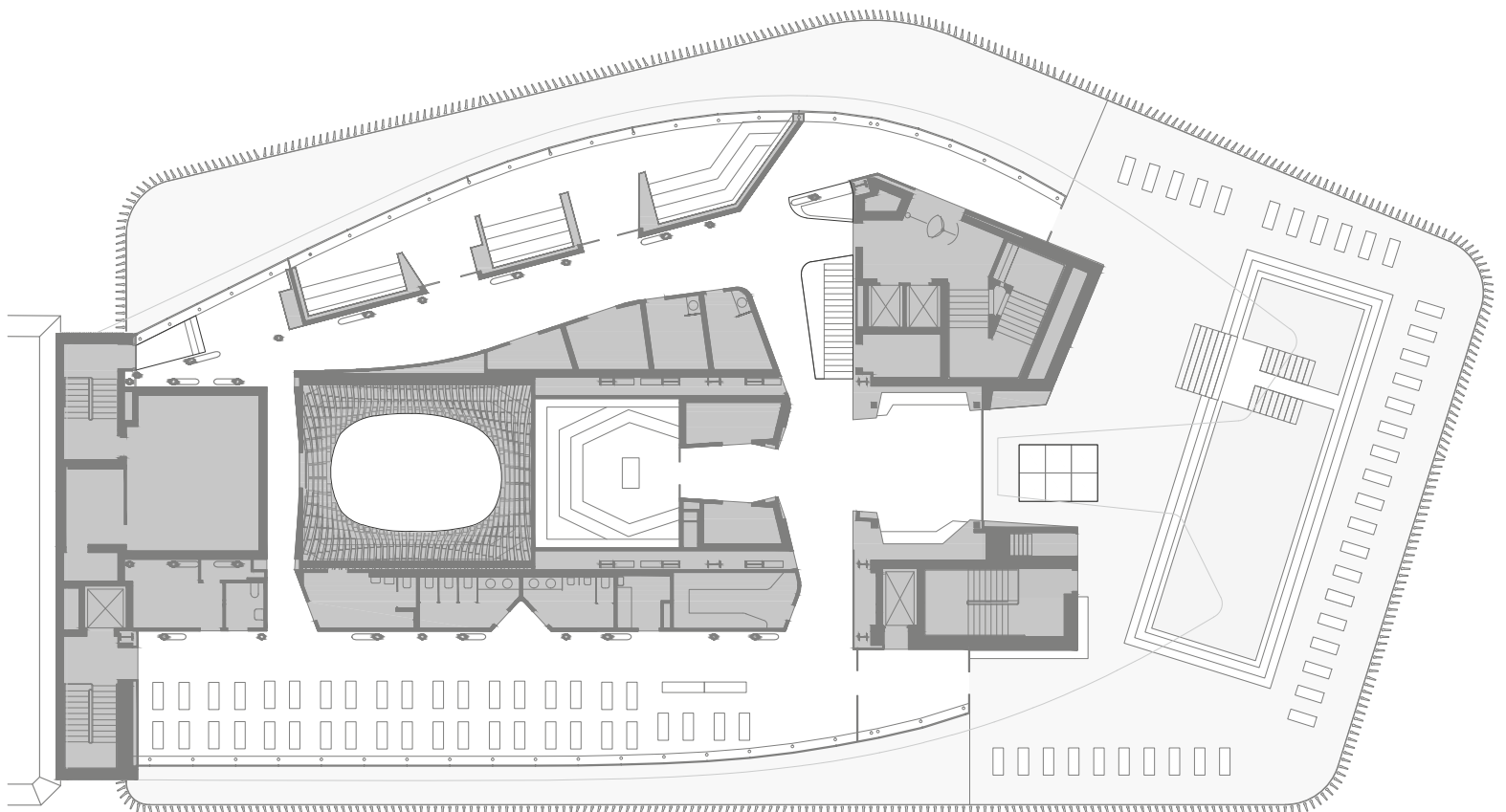
The continuous ceramic floor covering allows the different areas of use to flow into each other as a room continuum. This literally reaches its peak in the sauna zone with a spectacular infinity pool in a darker shade of anthracite, consciously referencing the nearby Mönchsberg cliffs, a Salzburg landmark.

The architecture atmospherically reflects the many crystal-clear mountain lakes near Salzburg with Chroma series wall and floor tiles in Medium Turquoise, which were selected for all pools. The ceramic makes the water naturally appear as if it were shimmering by itself. 



The relationship of a building to its built environment, its surrounding natural space and the social situation are very important in our projects.

Tiina Parkkinen



Floor plan of the 5th floor ©Berger+Parkkinen

The charm of the discerning

Complex swimming pool construction simply explained

Interview: Editorial team

Contemporary pool architecture needs to fulfil exacting requirements. The sports pool, spa and private pool should be comfortable and safe, sustainable to maintain, easy to clean, and permanently hygienic. No less demanding is the design. Dipl. Ing. Architect Silvia Lederer, swimming pool expert and project consultant at Agrob Buchtal, talks to us about the trends, pitfalls and temperaments that make swimming pool design so exciting and challenging. The former elite swimmer is surprisingly open in the interview.

→ Ms Lederer, how should someone plan and design a swimming pool?

As simple as it sounds: the first question is what the project needs to do, that is how the building will be used and what it is designed for. The type of pool also makes a difference. Not every swimming pool is alike.

→ Can you explain that?

Integrated solutions are needed to avoid using a patchwork of materials in complex spatial planning, connecting multiple pools and areas, such as the therapy pool, spa, foyer and circulation areas. Ceramic tiles are a gift here, thanks to their variety of shapes, formats and slip resistance.

→ What role can and should colour play?

Ceramic tiles can be used to create any mood in a pool or space. A specific advantage of ceramic tiles is that unwanted colour changes, such as fading or darkening, are not an issue even in intense sunlight or lighting, thanks to their absolute colour and light fastness.

→ Are metal pools a comparable but cheaper alternative?

Quite the opposite. Metal pools are visually monotonous. A tiled pool conveys clarity, purity, transparency and depth. People enjoy immersing themselves in the colour because a body of water like this conveys safety. Metal pools, on the other hand, can act like a mirror, which must first be “broken through”. This leads to performance athletes jumping less cleanly. And when considering the price, if you look at the acquisition cost as well as the main-

I cannot imagine a more sustainable combination than swimming pools and ceramic tiles in terms of aesthetics, functionality and cost-effectiveness.

Silvia Lederer



tenance cost, a metal pool most certainly comes off worse. My Norwegian colleague told me about a swimming pool project that set a costing time frame of 60 years. The operator opted for a tiled pool for economic, technical and visually conceptual reasons.

➔ Energy efficiency has become a survival issue for swimming pools. Are there solutions?

Take the “Bamberg channel”, a pool overflow channel that was used for the first time at the “Bambados” leisure pool complex in Bamberg, Germany. Thanks to its sophisticated design, this solution saves energy by reducing the evaporating flow of water. The channel provides for a particularly gentle and quiet water inflow. Its acoustic effect is also very welcome in public swimming pools or in school and therapy pools.

Healthy living. It is said that this is also part of the DNA of the natural ceramic tile...

It is the buzz word for our “Hytect” technology. This factory finish reduces air pollutants or troubling odours in changing rooms, showers or toilets etc. Ceramic tiles with Hytect are extremely easy to look after and have an antibacterial effect without the need for any chemicals. These are all benefits that come into play in swimming pools, saunas, and wellness oases.

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After completing her degree in Architecture at the University of Applied Sciences in Coburg, Silvia Lederer initially worked as a project developer before moving over to architecture and playing a major role in the reconstruction of the Austrian National Bank in the office of Prof. Appel in Vienna. The passion for designing swimming pools, which she discovered early on, led her directly to the market leader Agrob Buchtal, where the architectural engineer Lederer has been working since 1983 as a commercial consultant specialising in swimming pool design at all levels.

FAQ

Good to know

→ What is the carbon footprint of a tile?

In short: 16.3 kg CO₂ equivalent per square metre over its entire life cycle. That is 50 years with a ceramic tile. Other floor coverings, such as carpet, laminate, PVC or even parquet, usually have to be replaced several times over the same period or need to undergo time-consuming refurbishment. They therefore have a much higher figure over 50 years. According to a study by the German Natural Stone Association (DNV), carpet pollutes the environment with 223.2 kg CO₂ equivalent, followed by laminate (122.7) and PVC (114.3).

→ Does sustainability equate to environmental protection?

Environmental protection is an essential component of sustainable products. At Agrob Buchtal, the life cycle of a tile is as follows:

- 80 % of the tiles produced by Agrob Buchtal are made from native natural raw materials, such as clay, feldspar, quartz, and kaolin.
- The environment is protected during the extraction of the raw materials. The landscape of clay pits is re-cultivated. Nature conservation zones with great biodiversity are created.
- We recycle water. Around 90 % of our production generates no waste water. One of our plants even has its own waste water treatment plant.
- Production waste is systematically collected, processed and returned to the production cycle.
- We use cardboard boxes made of recycled material as packaging material. As far as logistically possible, we rely on reusable pallets.

→ How much energy is there in a tile?

Currently, we can only use natural gas to heat the kilns to 1,200°C. Every year, our four plants consume around 400 GWh of gas and 55 GWh of electricity. This is roughly equivalent to the energy consumption of a small town of 30,000 inhabitants. The energy consumption of the individual tiles depends on the size, tile thickness and weight, so it cannot be given as a general figure.

At Agrob Buchtal, we operate a kind of energy recycling system and return the waste heat from the kilns to different production stages.

→ Are renewable energy sources used in production?

We use 40 % renewable energy in our electricity mix. Next, we will go down the photovoltaic route and reduce a further 8 to 10 % of electricity per year.

→ Can tiles be recycled or reused?

Yes, our products are sorted and then re-processed. The dry-lay DryLile tile and KeraTwin® tile for rear-ventilated curtain-wall façades are two tile systems designed to be removed and reused.

Sources, pages 44 - 45:

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For the benefit of our future
En route to the circular economy

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www.agrob-buchtal.de

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Gabriele Busse
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Cordelia Eucker-Apsel, Ute
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not
easy

but
possible