

architectum

INTERNATIONAL MAGAZINE FOR BRICK ARCHITECTURE

IN THIS ISSUE:

- Energy efficient design
- Reusable building materials
- Living in the green



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FUNCTIONAL AESTHETICS IN HARMONY WITH NATURE

The sustainability of buildings is based on three pillars: environmental, economic and social. The challenge facing architectural and construction professionals is quite literally the combination of all these essential aspects under one roof. Putting sustainability on a stable foundation requires cooperation and teamwork and is vital if we are to build in a way that enables future generations to enjoy the same opportunities as we do today.

Moreover, a holistic, interdisciplinary and integrated approach is indispensable for the purpose of green buildings expressing their distinctive functional aesthetics in harmony with nature. This approach means taking into account site characteristics and must be applied to every aspect of a project, throughout planning, execution and technical properties. Ultimately, it is also what determines the quality of a building.

This issue of architectum offers insights into selected projects that without exaggeration can be described as prime examples of successful sustainable architecture: Green roofs supporting flourishing biodiversity, reusable building materials ensuring the reduction of carbon emissions or permeable pavers created for flooding prevention. In geographic terms, the book spans our entire continent, highlighting projects ranging from owner-built homes to commercial housing and municipal facilities as well as urban landscaping.

Each of these inspiring projects shows how a solid and sustainable foundation for the future was laid through the use of high-quality building materials, while also expressing the functional aesthetics of high-quality sustainable architecture in harmony with nature.

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CEO Wienerberger AG

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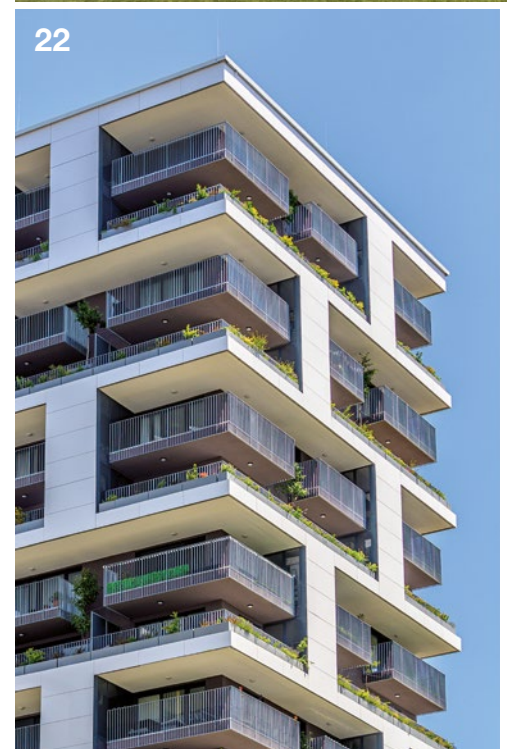
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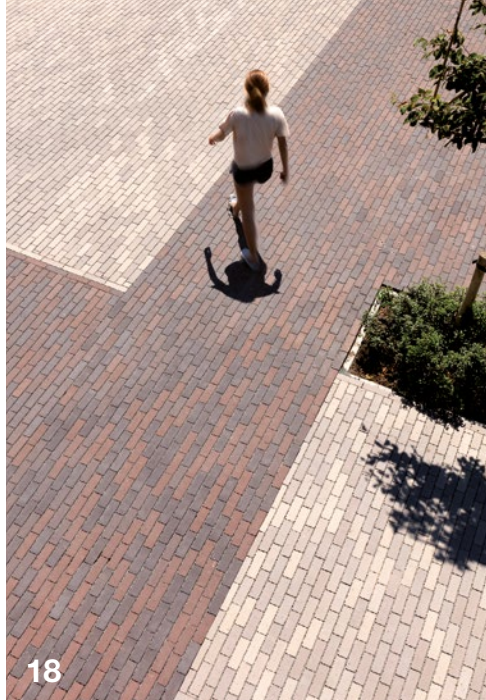
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FOR A FUTURE WORTH LIVING


Decarbonisation, circular economy and biodiversity: Wienerberger is laying foundations for the future by making these issues the focus of its Sustainability Programme 2023.

Climate change is placing new demands on construction, housing and infrastructure. Which is why Wienerberger's Sustainability Programme 2023 includes measurable goals and actions in the field of ESG (environmental, social, governance). The focus is on the three environmental pillars of decarbonisation, the circular economy and biodiversity.

1 DECARBONISATION Wienerberger shares the global vision of a CO₂-neutral economy and is committed to decarbonisation throughout the entire value chain – from product development to procurement, production and recycling. Across all the Wienerberger production sites, efforts are being made to further reduce greenhouse gas emissions in ceramic production by using technology to optimise processes and by using green electricity. In addition to improving existing processes, Wienerberger is driving forward decarbonisation with innovations and new product designs. These include, for example, climate-neutral tiles and solar panels integrated into roofing tiles. The objective: A 15 % reduction in CO₂ emissions by 2023, compared to 2020.

2 BIODIVERSITY The last 40 years have seen an unprecedented loss of biodiversity. Wienerberger is working to combat this loss by protecting nature reserves and using resources sparingly. By promoting biodiversity at its 197 production sites, Wienerberger is also improving land use and providing flora and fauna with plenty of good quality habitats. During the extraction of raw materials and in production, the impact on the environment is kept as low as possible. Wienerberger is greening abandoned mining sites and returning them to their natural state, or making them available for subsequent use. The objective: A biodiversity action plan based on the Wienerberger biodiversity programme will be implemented at all Wienerberger production and office locations by 2023.

3 CIRCULAR ECONOMY

As a manufacturer, natural raw materials are an indispensable part of Wienerberger's business. Reusing or recycling resources saves on raw materials and reduces CO₂ emissions. A key element of this pillar is to continuously increase the proportion of secondary raw materials and recycled materials being used. At the same time, the company strives to design products in such a way that they can be reused at the end of their useful life. Research and development projects are helping to improve the reusability and recyclability of products. The objective: From 2023, all new products will be developed to be 100 % recyclable or reusable. 

www.wienerberger.com/en/sustainability

The Wienerberger Sustainability Report 2020 sets out the sustainability strategy, outlines the progress made to date, and explains the updated objectives for the Sustainability Strategy 2023.





Up to a 30% reduction in CO₂ emissions per square metre: Wienerberger is contributing to decarbonisation with innovative products such as the Eco-Brick.

ONE BRICK MAKES ALL THE DIFFERENCE

Sometimes, less is more. The Wienerberger Eco-Brick is slimmer than conventional facing bricks. This saves valuable resources and permanently reduces emissions.

Some innovative solutions are very simple. The Eco-Brick is one of them. It is almost a third thinner than conventional facing bricks. This means that it both saves on materials and requires much less energy to manufacture. Which, in turn, conserves valuable resources and also reduces CO₂ emissions. And there's another advantage: because it is very slim, the Eco-Brick is also lighter, meaning that more of the bricks can be transported by lorry or ship at any one time, thereby reducing greenhouse gas emissions.

CREATING INTERNAL SPACE The Eco-Brick is available in several variants, which are based on the wide range of colours in the Terca collections. It is suitable for double-skin walls in new buildings and renovations. The slimmer dimensions also create space for additional insulation or more living space. Additional insulation can reduce the need for heating by up to 10%, which in turn increases the energy efficiency of the building envelope. The natural properties of the Eco-Brick also help create a healthy indoor climate.

ACTIVE CLIMATE PROTECTION As the brick uses fewer raw materials, the manufacturing process also consumes less energy – for example for drying or firing. So not only does this ecological facing brick meet new requirements in the field of façades, it also actively contributes to the decarbonisation of construction materials. Because, in the future, each and every product and solution will have to contribute to climate protection. Innovative products such as the Eco-Brick play an important role in this. ■

www.wienerberger.de/produkte/fassade/eco-brick





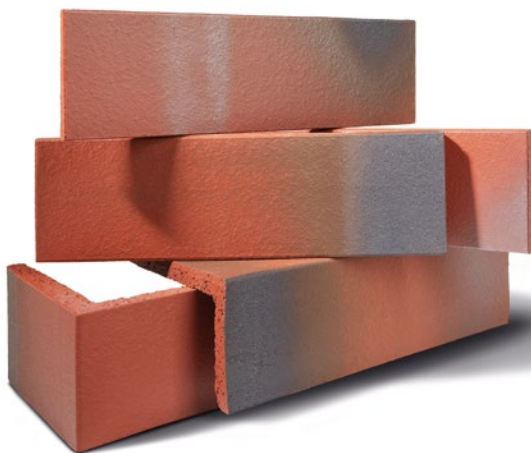
THREE HOLES FOR THE CLIMATE

What can we do to reduce CO₂ emissions in brick manufacturing? That's the question Egernsund Wienerberger asked themselves, prompting the development of the LESS range. A range of bricks with 10% less raw material which is produced with certified biogas and green electricity. This unique combination of adding three holes to the brick and using carbon-neutral biogas has resulted in a reduction in CO₂ emissions in production of 60-80% compared to conventional bricks. The new design affects neither the appearance nor the functionality of the brick, although a little more mortar is needed when laying the brick. However, the reduction in raw material comes with other benefits for the mason. As the weight is equally lowered it becomes easier to handle on the construction site and in transportation. Egernsund Wienerberger is to become carbon-neutral by 2050 – and the LESS range is a step towards reaching this target.

www.egernsund.com/less



LESS clay, LESS CO₂, LESS weight:
the LESS range demonstrates the
difference three holes can make.



As clinker brick slips are lightweight, they can be used almost anywhere and are now a popular feature of modern interior design.

SUSTAINABLE LIVING COMBINED WITH CREATIVITY AND VERSATILITY

What do planners and designers look for in a dream material? A variety of formats, colours and finishes to give them as much scope as possible for creativity in their designs. It is precisely this variety and versatility that makes clinker brick slips so appealing to use when designing facing masonry. They work harmoniously with other materials and can be used both indoors and outdoors to great effect. They are of particular interest for buildings in urban areas, where their excellent technical properties and the ability to build thinner walls maximise the use of space. Like facing bricks, clinker brick slips are breathable, non-combustible, frost-resistant, durable and recyclable. They create a great visual complement to insulation or can be applied on top of it to save on energy and heating costs. The new brick slips meet the highest quality standards and have a low level of water absorption. A number of buildings, such as schools and even entire housing developments, have been clad with brick slips to enhance both the technical performance and aesthetic appeal of their façades.

www.wienerberger.co.uk/products/facades/manufactured-extruded-brick-slips



The Passive House Plus standard includes on-site generation of enough renewable energy to make the building self-sufficient on an annual average.

HOLISTIC THINKING

Seaton Beach in Devon is the UK's first multi-residential Passivhaus Plus building. We had a conversation with architect David Gale about holistically conceived sustainability.

Mr. Gale, you are a pioneer in ecological design. What do you think architects can and should do to advance sustainable building concepts?

David Gale: Gale & Snowden Architects has been at the forefront of healthy ecological design since 1992. We are multi-disciplinary and adopt a collaborative approach. Architects can do little on their own. We all need to live, think and design in ways that regenerate our environment.

People are part of nature, and by understanding and working with nature and natural systems, we can achieve this goal.

Your stated mission is to change the world for the better. How can that be achieved through architecture or design?

Architecture on its own cannot achieve the change that is required and in fact looking at things in isolation is part of the problem. Understanding the science of how the natural world works gives us the tools to produce elegant and efficient design solutions and, by deploying rigorous physics and biology to create buildings and integrated landscapes that need little energy and enhance our health and nourish us, whilst improving the environment and supporting our communities. >

The overhanging balconies on the south façade have an undulating aesthetic that, together with the tall glazing, creates a sinuous, organic façade.

> Seaton Beach is the UK's first Passive House Plus. Why didn't you settle for the simple Passivhaus standard?

The climate and environment emergency is such that we need urgently to do whatever we can to reduce the negative impact of humans on our world. The Passivhaus Plus standard recognizes the generation of renewable energy on site to provide enough energy to operate the building on average throughout the year.

In the Seaton Beach project, you placed great emphasis on a fabric first approach. What does that mean and what are the benefits?

A fabric first approach to building design involves optimising the building envelope including its components, materials, form, and orientation before considering active mechanical or electrical systems. By adopting a fabric first approach to designing buildings it is possible to greatly reduce the need for energy use in the first place. Furthermore, capital and operational costs can be reduced, energy efficiency improved and carbon emissions minimised. It can also create a more comfortable internal environment and help to protect the fabric of the building.

What considerations did you make when choosing materials? What aspects are important to you in this regard?

Gale & Snowden follow the Building Biology Institute IBN checklist for building materials when considering materials for projects. This includes an assessment of materials and components and their composition. We also consider ethical criteria in relation to how the production of the material has affected people and communities during extraction, manufacture and transportation to site.

So why did you choose brick?

We have chosen Monolithic Porotherm blocks because they have scored highly on the checklist. Some reasons for this are, for example, the naturalness, sustainability as well as the good thermal and moisture buffering properties of the building material. In

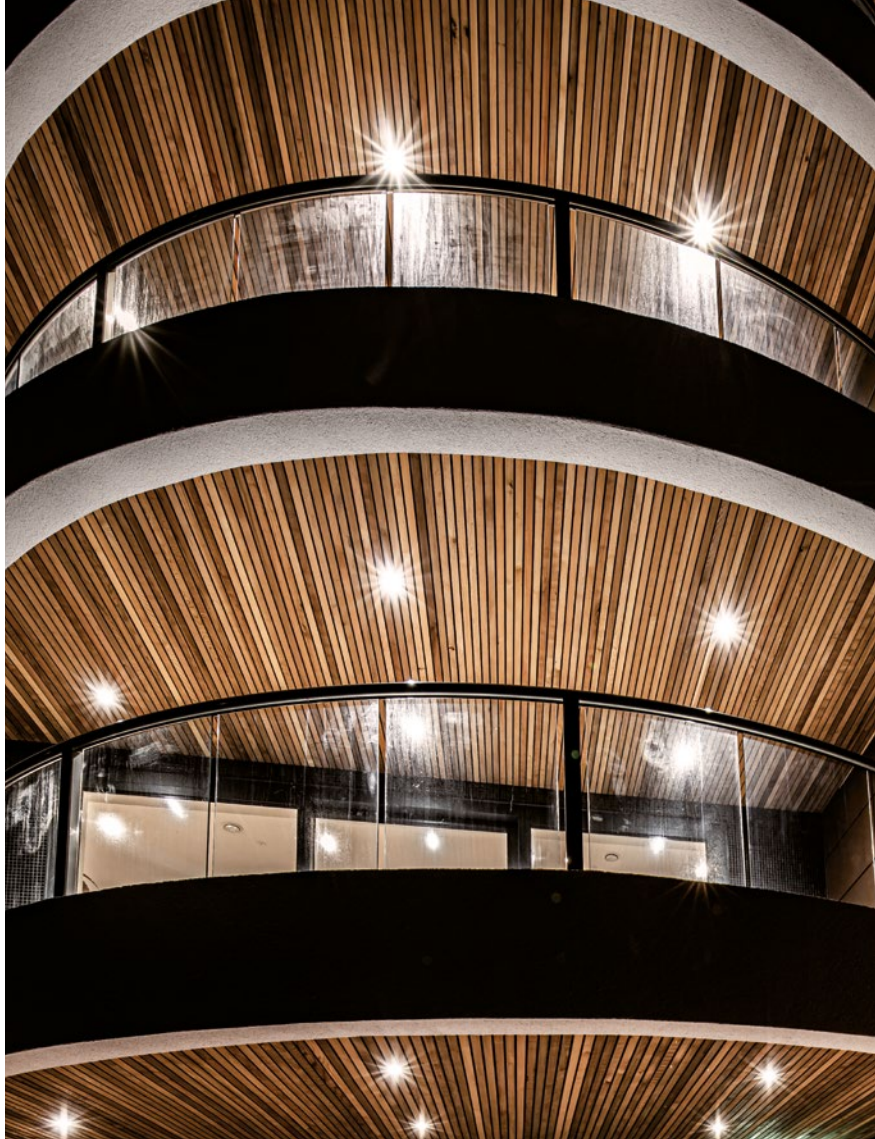
addition, it is non-toxic, odorless and non-combustible. Bricks are also sustainable in the long term, as they can be crushed into inert natural material and thus easily recycled. Finally, the price-performance ratio is reasonable.

Apart from the outstanding technical features of the building, we also need to talk about the special design.

The design of Seaton Beach at RIBA Stage 0-3 was by Clifton Emery design. The design rationale seeks to take its inspiration from the surrounding landscape as well as to maximise the residents' relationship with the beach and wider sea views. Cantilevered balconies adopt a wave form aesthetic on the south façade which along with the full height glazing creates a sinuous organic elevation.

You have an inter-disciplinary, integrated approach when it comes to planning and design. How does the balance between function and aesthetics work?

As in nature, in ecological design they are one and the same. ■



FACTS & FIGURES

Project name
Seaton Beach, Devon,
United Kingdom

Architecture
Gale & Snowden Architects &
Engineers

Project Architect: Lawrence
Millyard, Project Mechanical
& Electrical Engineer: Jason
Fitzsimmons, Project Tech-
nologist: Giles Boon, Project
Director: David Gale

Client
Seaton Beach Developments

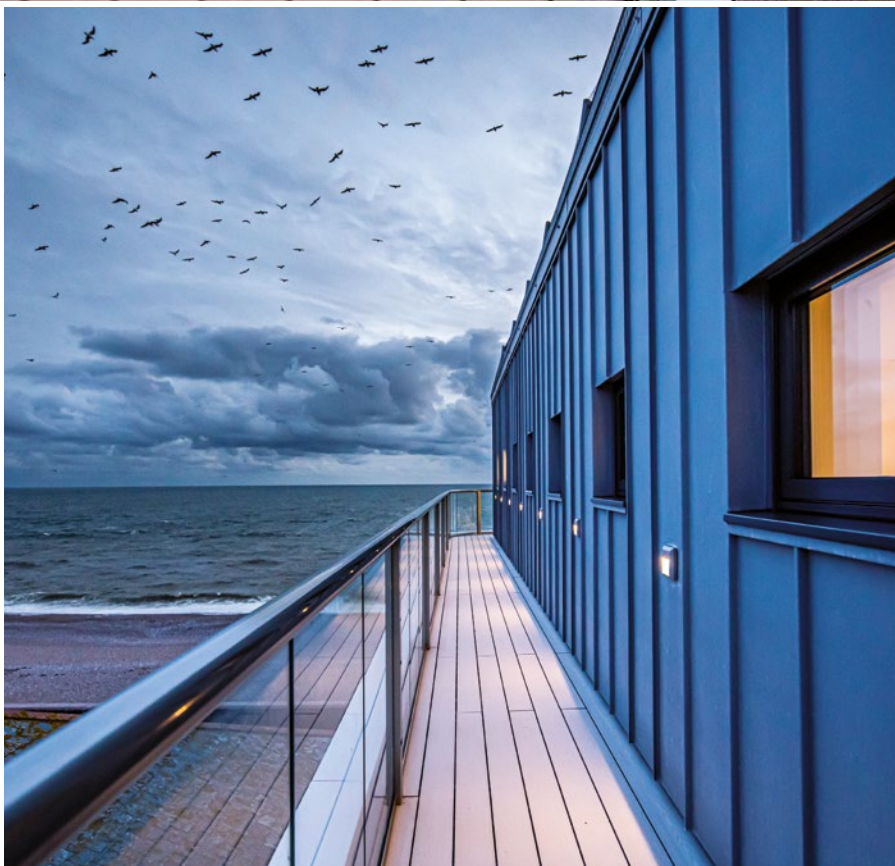
Product used
Multi-cellular Porotherm clay
blocks

Year of completion
2019

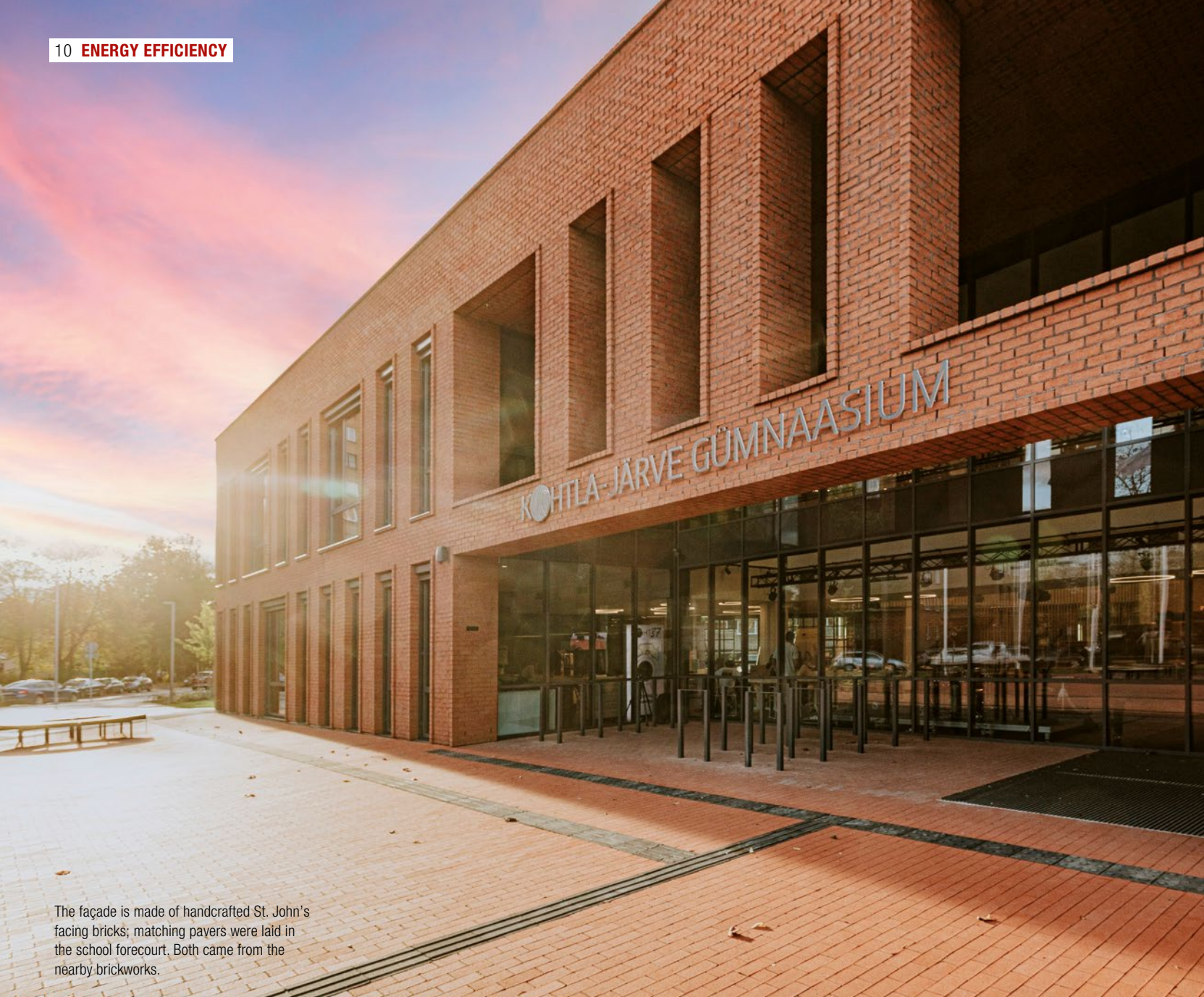


»The success of our projects does not depend on individuals, but on the entire team that contributed to their creation. Architects need to work with others to drive sustainable building concepts.«

David Gale



The design concept incorporates the surrounding landscape and creates a strong relationship between residents, the beach and the ocean.



The façade is made of handcrafted St. John's facing bricks; matching pavers were laid in the school forecourt. Both came from the nearby brickworks.

LEARNING IN A TRIANGLE

In the Estonian city of Kohtla-Järve, a newly-constructed urban high school has created an excellent environment for learning and recreation with a nearly zero energy design.

Kohtla-Järve is a city in north-eastern Estonia, near the Baltic coast. The handcrafted bricks that were used to build the new urban high school came from the Wienerberger factory in Aseri, around 30 kilometres away from the city. The region has a long tradition of using brick – they have been making bricks here since 1922 right up to the present day.

MODERN ARCHITECTURE FOR TOMORROW In 2017, the city announced an architectural competition to design the new high school in Kohtla-Järve. The winning design, "VINKEL" (Angle), by Estonian architec-

ture firm BOA OÜ, was selected from a total of 14 submissions and featured a two-storey building with a triangular footprint. The central public recreational spaces and flexible options for sub-dividing them were considered to best meet the requirements of the project. "Building a school is like building a house, it's never just about the building itself. Schools are at the heart of every community and play an important role in the development of the region," says Gerd Müller, CEO of the construction company Nordecon AS.

NEARLY ZERO ENERGY BUILDING WITH A GREEN ROOF The new building was opened in 2019. The 2,793 m² site



The triangular, nearly zero energy building has an extensive green roof, providing additional insulation and reducing energy costs.

The bricks also create a pleasant internal environment.

is now occupied by a simple and functional, two-storey building, which can accommodate around 300 pupils. Classrooms, recreational spaces and lecture halls have been arranged in such a way that the various uses complement each other perfectly. A large outdoor space, with areas for play and for sport, serves as the entrance to the modern school building. The visual look of the building is based on the Soviet-style architecture of its surroundings. The façades of most of the residential buildings in the immediate vicinity are built of red brick, and the intention was for the new school building to have a similar appearance. The façade was designed to be as en-

ergy-efficient as possible, with louvres built into the façade protecting against strong sunlight. Projections frame the doors and windows, lending visual appeal to the façade. Energy efficiency and choice of materials were critical factors in the technical aspects of planning – the school was to be a nearly zero energy building, meaning it is as energy and cost-efficient as possible. Photovoltaic panels and the vegetation on the roof help in achieving these goals. The vegetation improves insulation, stabilises the indoor climate and improves natural rainwater management. Using bricks manufactured in the region cut costs and reduced supply chain logistics. ■

FACTS & FIGURES

Project name

Kohtla-Järve Gymnasium,
Kohtla-Järve, Estonia

Architecture

BOA Architects (BOA OÜ):
Anto Savi, Jürgen Lepper,
Margus Soonets, Maiu
Uusmaa

Client

Republic of Estonia Ministry
of Education and Research,
Riigi Kinnisvara AS

Products used

Handcrafted St. John's facing
bricks, pavers in rough red

Year of completion

2019

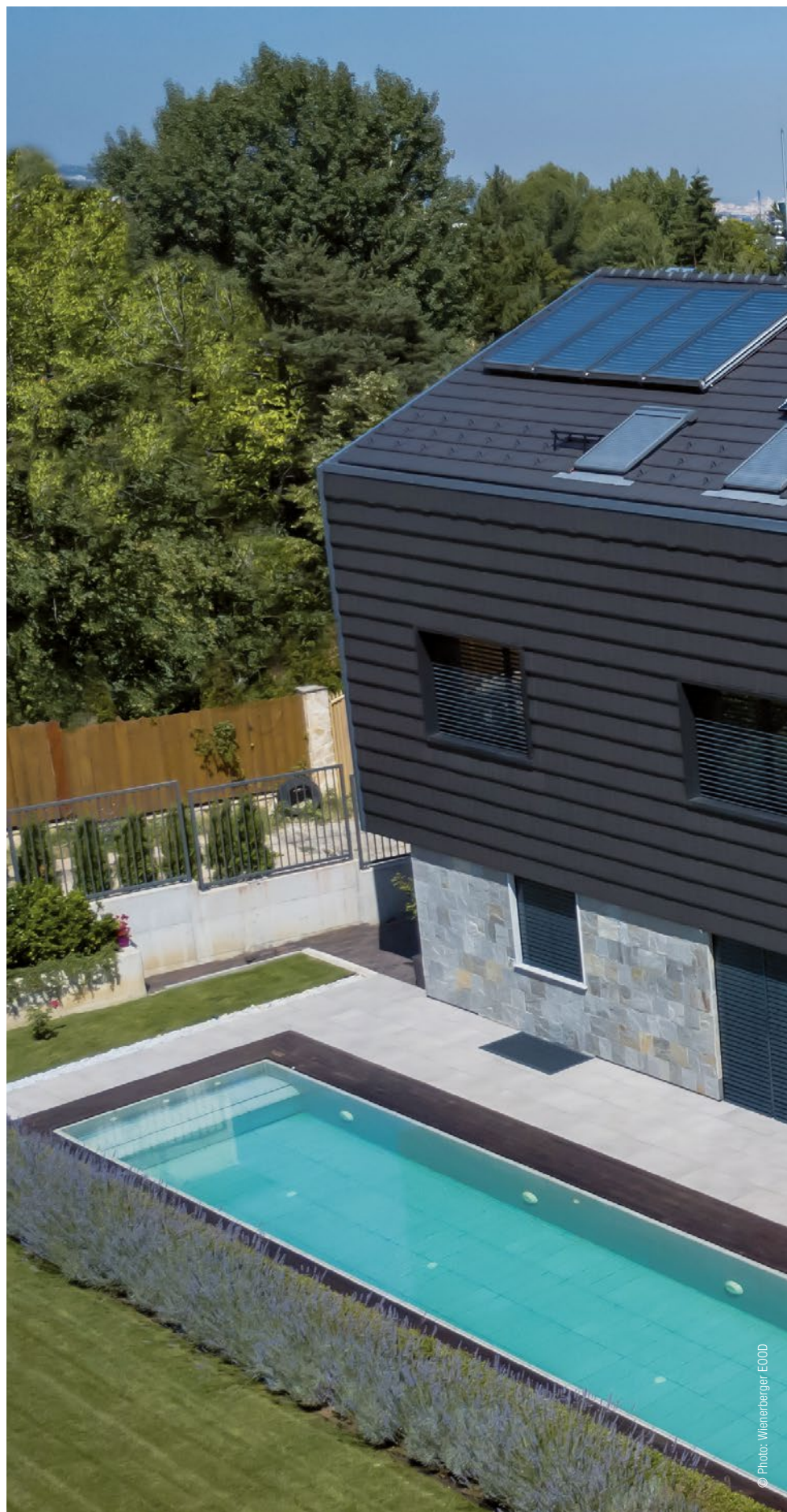
COMFORTABLE LIVING

A low-energy home in Bulgaria proves that roofing can successfully combine traditional and modern. The building is well designed for local climate conditions.

It was designed to be a modern home that would also blend in with the traditional local architecture. In the southern part of the Bulgarian capital of Sofia, at the foot of the Vitosha massif, which has peaks over 2,000 m, a private client planned his own home with a focus on superior comfort and low costs. Bulgaria's first e4 brick building was born out of a collaboration between Wienerberger and A&A Architects in Sofia.

PLANNED DESIGNS The Bulgarian architectural firm A&A Architects designs and implements projects ranging from single-family homes to commercial and office buildings and parks. A holistic approach is important to the planners, who strive for the perfect balance of aesthetic, functional, cost-effective and eco-friendly features, whatever the location. All of these considerations are in accordance with the key principles of the Wienerberger e4 brick house concept: total aesthetic freedom, while meeting the most exacting standards in relation to ecology, economy, living quality and energy. The design process for this single-family home also had the broader aim of developing a scalable residential model with a low ecological footprint.

TRADITIONAL AND FUNCTIONAL MATERIALS "The challenge with this project was to create a low-energy house with a contemporary design, using traditional materials: fired bricks, a pitched roof in a location with cold winters," say the architects. They used fired bricks with a mineral wool filling, which have both a particularly low heat transfer coefficient and a high thermal mass, whilst also being highly vapour permeable. The building is designed to maximise use >

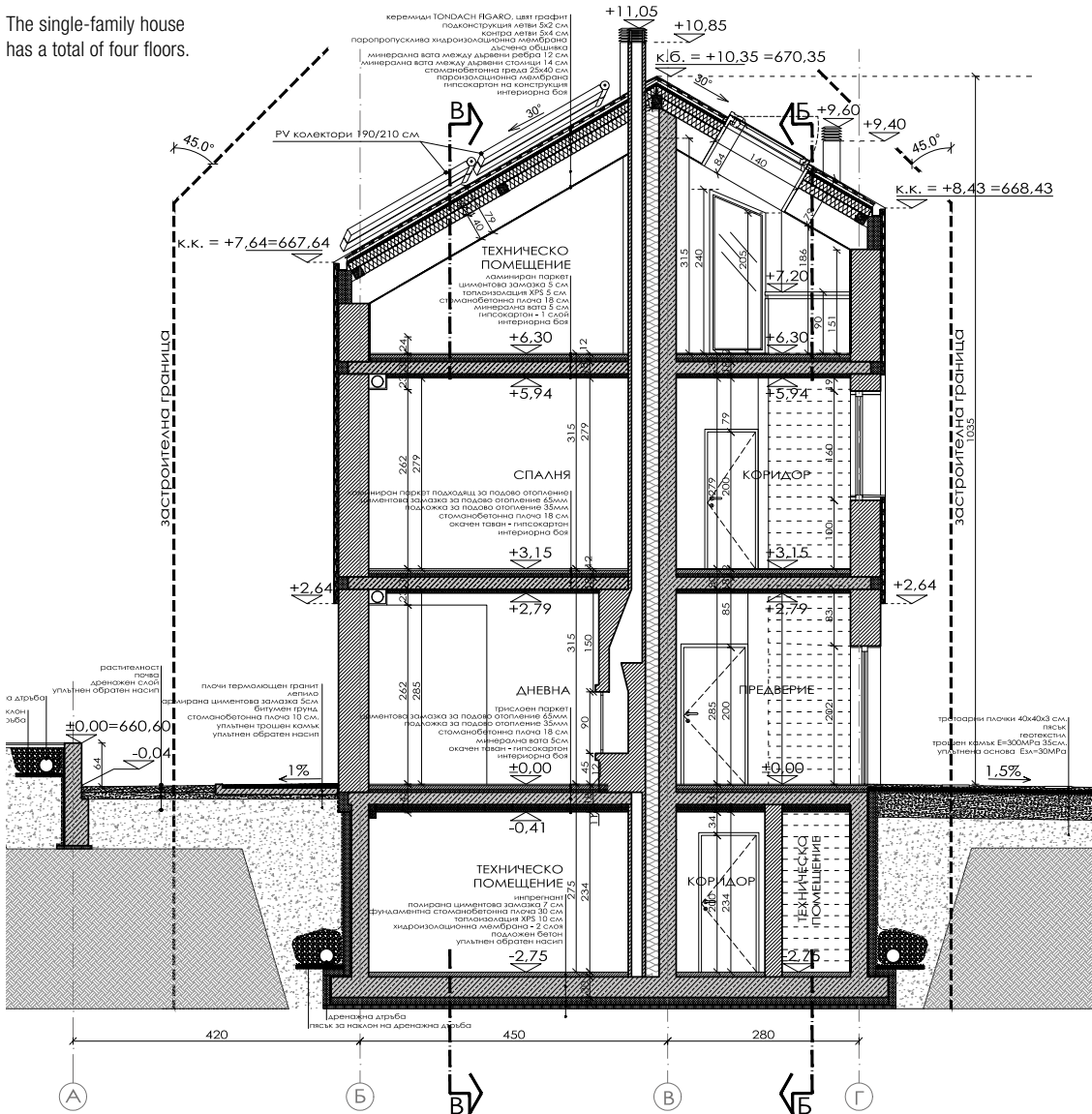


© Photo: Wienerberger EOOD



Tondach roofing tiles in anthracite extend from the roof over the north and south façades.

The single-family house has a total of four floors.



> of solar energy; it is passively heated and also incorporates photovoltaic panels and solar collectors on the roof, which have been positioned to capture as much solar power as possible. External blinds on the windows of the south façade provide shade. The gable roof reflects the traditional pitched roofs of the region; the roof tiles continue down to the façades on the north and south sides, continuing the historical finishing touch of the pitched roof to create a modern residential structure. “The process of realising this project has demonstrated that this approach is suitable for broad application, and can be an effective strategy for coping with the effects of climate change,” say the architects. ■

FACTS & FIGURES

Project name
Single-family house “e4 brick house”, Sofia, Bulgaria

Architecture
A&A Architects

Client
Private

Products used
Porotherm 44 W.i. Plan,
Porotherm 25 N+F,
Porotherm 12 N+F, Tondach Figaro Delux in anthracite

Year of completion
2020





Photovoltaic panels and solar panels reduce the running costs of the low-energy house.

The roof reflects the lines of traditional local architecture close to the Vitosha massif.

© Photo: Wienerberger EOOD



Sustainable from top to bottom: From wooden load-bearing structures to recyclable façade cladding and green roofs, there was a real desire to get everything right here.



NEW TWIST ON A HISTORICAL STYLE

The design of the Rebslagersgården residential building in the Danish city of Næstved encompasses all aspects of sustainable construction – from its green roof to its recyclable building materials.

FACTS & FIGURES

Project name

Rebslagersgården, Næstved, Denmark

Architecture

William Tolstrup Arkitekter

Client

A. Brandelev Ejendomme

Product used

URBAN cladding tile

Year of completion

2020

The façade reflects the style of existing historical buildings, yet also stands out visually.

Næstved in Denmark is a tranquil place. This industrial, port city was an important religious centre in the Middle Ages, and around 40,000 people now live and work here. Many of its buildings have survived for centuries, and the dominant aesthetic is that of typical Danish brick buildings. The Rebslagersgården residential building, completed in 2020, is based on this style.

REJUVENATING THE CITY CENTRE Østergade is one of the oldest streets in Næstved. It is only 350 m from the town centre along this street to the new residential building. It was originally the site of a rope store, which is where the Rebslagersgården gets its name. The local authority wanted to increase land use in-

tensity and rejuvenate the old city centre which has many buildings worth preserving. The architecture firm William Tolstrup Arkitekter took on the challenge. At street level, there is an understated façade with a few windows and a gateway. In the inner courtyard there are open spaces for the shared use of the 17 apartments. From there, you can also see the roofs of the buildings which have been extensively planted with sedum. This vegetation creates additional thermal insulation and absorbs a large proportion of rainwater.

SEAMLESS INTEGRATION Thanks to their brick façades, it is only when taking a closer look that these modern residential buildings stand out from the other adjacent brick buildings, some of which are historic. But appearances can be misleading – there is a load-bearing, CLT structure hidden beneath the brick façade. The façades are clad in various shades of robust URBAN roof and cladding tiles, which tie in with the historical building stock in the city centre. Ceramic tiles are relatively high density and have good thermal storage properties. They are mounted with stainless steel screws and hooks on support battens and it is easy to replace individual tiles if necessary. This makes the façade particularly low-maintenance and sturdy and it will acquire a patina from the weather and light over time. Should the building one day come to the end of its life cycle, the cladding tiles can be removed and reused elsewhere. Therefore – and in line with Danish building traditions – the Rebslagersgården development neatly combines both tried and tested, and innovative features. ■



Car park two-tone signage system: visual separation of pedestrians and motor vehicles.



FACTS & FIGURES I

Project name

Pharmacy car park, Dudzele, Belgium

Architecture

Wabelle tuinen & landschappen

Client

Apotheek Debruyne-Desrumaux

Products used

Passaqua Lotis, Passaqua Doris

Year of completion

2020

RETHINKING SURFACES

The sustainable design of spaces starts from the ground up. Permeable ground for drainage and natural irrigation of root-depth soil are hot topics in this area at the moment. Two projects in Belgium demonstrate what this looks like in practice.

Basic project planning is slowly incorporating new solutions to address issues around ground sealing and the prevention of urban overheating. In line with principles of sustainable urban design and the sustainable design of spaces, awareness of key themes in sustainable architecture is increasing among planners and politicians including unsealing, greening and, last but not least, recyclability.

COOLING URBAN HEAT ISLANDS Evaporation removes heat from the environment and cools the air and soil, which is why there is a legislative framework governing the provision of open surfaces in projects involving new construction. In urban areas, around 95 % of surface water goes directly into the drainage system, which can lead to flooding or pollution in the event of heavy rain. Open or partially open surfaces counteract this effect and also ensure that the root spaces below are watered. The joints of water-permeable surfaces must be at least 10% of their total area. Passaqua clay paving stones have 6 mm wide joints, allowing water to drain into the ground at a rate of 20,000 litres per second in an area of one hectare.



FACTS & FIGURES II

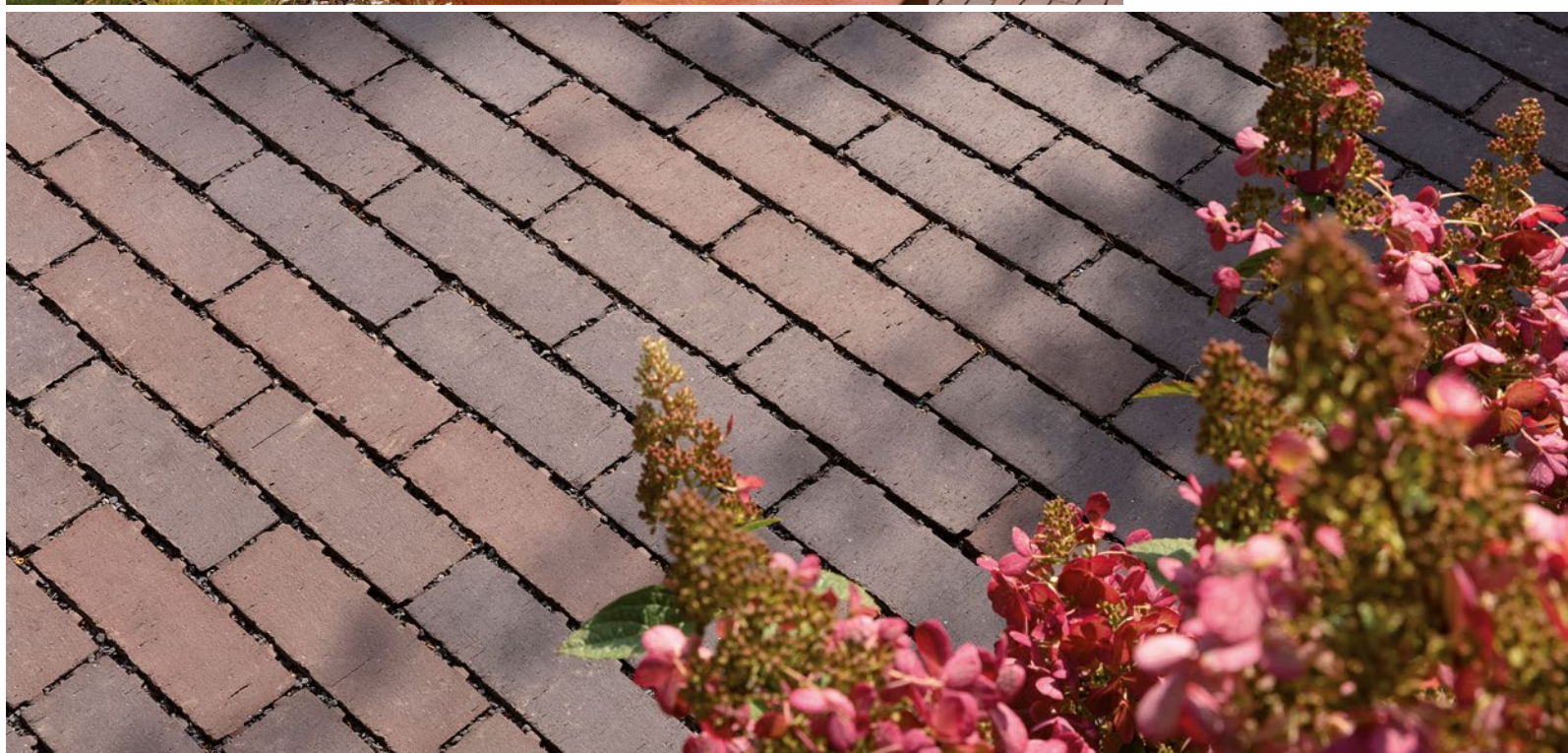
Project name
Landscaping, Maldegem, Belgium

Architecture
Tuinaanneming Trenson

Client
Bistro 't Moorcken

Product used
Passaqua Doris

Year of completion
2020



CREATING GREEN SPACE Finding a way to reconcile human comfort and user requirements with nature conservation has been a fundamental challenge since humans first began shaping nature. When planners were redesigning the outdoor area for a bistro on the edge of the “Het Maldegemveld” nature reserve in Belgium, they wanted to make sure the open landscape and, in particular, existing trees, would be preserved. Clay paving stones, which allow water to drain into the ground and Corten steel troughs were used around the restaurant to create an attractive environment in which to sit and pass the time. The area was designed with water management and the existing vegetation in mind.

AESTHETIC CONSIDERATIONS Paving stones are not just coming back into fashion for ecological reasons. In areas where different colours are used to separate traffic, paving stones can be used to create a signage solution. A good example of this is a car park in Bruges, Belgium: In order to comply with local authority regulations, the project had to use water-permeable clay paving stones. Two different colours were chosen, to visibly separate motor and pedestrian traffic. Another big plus point is that it is easy to replace individual paving stones with little wastage in the event of damage, and they can also be reused when they reach the end of their life cycle. ■

Passaqua paving stones are fitted with “smart spacers” at the sides. These ridges create a 6 mm joint through which rainwater can seep.

A good building envelope contributes significantly to reducing energy demand.



INNOVATION MEETS TRADITION

The new ClickBrick Pure dry stacking system has been used in a pilot project in the Netherlands. The eleven new apartments and a commercial space showcase how these dry stacking bricks can be used in sustainable and recycling-orientated construction.

In the construction sector, we are facing a major sustainability challenge due to the goals of the Dutch government, which are set out in the National Climate Agreement. The first principle of the Trias Energetica model is to reduce demand for energy,” says Erwin Wessels, Director of Wessels vakbouwers in Lichtenvoorde, the Netherlands. A good building envelope contributes significantly to doing just that. The ClickBrick Pure dry stacking system, for example, is a sustainable and reusable choice that has the familiar look of a traditional façade.

NEW APPROACHES TO MASONRY “The design of Opzoom Architects for this new building included a lot of features in the brickwork. It motivated us to test

FACTS & FIGURES

Project name
New apartment building,
Lichtenvoorde, Netherlands

Architecture
Opzoom Architecten

Client
Wessels vakbouwers

Products used
ClickBrick Pure Menton HV CB,
ClickBrick Pure Timm Antiek HV CB

Year of completion
2021

in practice what was and wasn't possible with the new ClickBrick façade system,” says Wessels. Pilot projects like this can generate a wealth of valuable information. “We found that traditional bricklayers and masons had to get used to this new way of working. They are used to compensating building tolerances through masonry courses and joints. ClickBrick works differently because you don't use mortar between the bricks, instead you attach them with clamps,” Wessels explains. This feature means that, if required, bricks can be replaced and recycled without wastage.

A MORE SUSTAINABLE ALTERNATIVE According to Wessels, another major advantage of this construction



Details in the façade add variety.

technology is that it is highly flexible: “You don’t need any special knowledge of bricks or mortar for construction. Staff can be trained much faster and other craftsmen apart from bricklayers can also do the work. You can also build with these bricks in all weather conditions.” And clients, too, are becoming more aware of the impact of their product choices. Wessels says that, “It goes without saying that we carry out our work with respect for people and the environment. We try to align ourselves with the government’s ambitions and implement them as much as possible in our work, for example with the ClickBrick system. This is the way we can meet the challenges of sustainability together.” ◀

The ClickBrick Pure dry stacking system combines sustainability and the look of traditional masonry.





The combination of modern architecture and an innovative living façade makes the building complex unique in Budapest.

The hanging gardens on the façades have created a new profession in Hungary: the climbing gardener. Climbing gardeners water and care for the plants all year round.



IN THE HEART OF THE CITY – SURROUNDED BY GREENERY

Hungary's tallest green building complex has been built in the Újpest district of Budapest. The idea is to make Metrodom Panoráma a new, multifunctional, local city centre.

With 632 residential units, several shops, restaurants, fitness centres and offices, residents of the new green project in Budapest have everything they need. The quiet streets around Metrodom Panoráma are lined with historic single-storey houses and more modern four or five-storey buildings from the last 20 years. But the new building complex stands head and shoulders above its surroundings – the tallest of its structures has 17 floors. It was designed by the architectural duo Zsolt Hajnal and Péter Kendelényi, in close collaboration with the Metrodom Investment and Construction team. The development is based around a concrete column structure, and the frame is filled with a variety of Porotherm bricks: Porotherm 30 Klima Profi and Porotherm 20 N+F, while the partition walls and curtain walls are built from Porotherm 10 N+F and high-strength Porotherm solid bricks.

CAREFULLY CONCEIVED DESIGN But it's not just the structure itself that impresses – there are also 170 trees, three kilometres of shrubs in boxes, and dozens of smaller plants that grow on and up the façades and around the four towers of the Metrodom Panoráma. It is the first time Hungary has seen this kind of green façade used on a building of this size and in the whole of Europe, there is only one other pioneering design where it's employed – on the multiple buildings of the Bosco Verticale in Milan. The biggest challenge for the landscaping team was maintaining the vegetation on the façade, which is constantly changing and looks different from one month to the next. An automatic, multi-circuit irrigation system supplies the living wall with water and nutrients, so residents do not have to worry about caring for the plants.

AWARD-WINNING FLAGSHIP PROJECT As well as being a versatile place to live and work, with green vistas, Metrodom Panoráma is also intended to provide recreational and social spaces and, with its multi-generational playground, also has a space where children and their parents can relax together. This holistic design has now also been showered with architectural awards: after winning a Hungarian architecture prize in the category of medium-height residential buildings last year, Metrodom Panoráma also represented Hungary at the FIABCI World Prix d'Excellence International Real Estate Development Award. The project eventually went on to win an international gold medal at the competition, which is sponsored by the Wall Street Journal. The vertical, hanging garden design was highlighted as something of a flagship project in Europe, and is having a positive impact on the international reputation of the Hungarian real estate market. ▣

Sustainability was a key focus in several aspects of the design of the building: the green vegetation has been selected for longevity, the bricks used ensure a high quality of living.

FACTS & FIGURES

Project name
Metrodom Panoráma,
Budapest, Hungary

Architecture
Zsolt Hajnal and
Péter Kendelényi

Client
Metrodom Investment and
Construction

Products used
Porotherm 30 Klíma Profi,
Porotherm 20 N+F,
Porotherm 10 N+F, high-
strength Porotherm solid
bricks

Year of completion
2020





© Photo: Titi Veermæ

The new, park-like urban development is surrounded by lush greenery in Veerenni, a modest historical district right on the edge of Tallinn city centre.

A GOOD PLACE TO LIVE

Uus-Veerenni is an Estonian residential development where new buildings are being constructed in a unique, park-like district that offers residents more than just a roof over their heads.

Despite its location in Tallinn city centre, Uus-Veerenni is surrounded by lush greenery. Over the next few years, this area will see the construction of a residential development with around 1,400 apartments in a variety of price classes, a large number of communal open spaces, a kindergarten, and business premises. The apartment buildings depicted here form the first phase of the development project. Its contemporary architecture, which blends in seamlessly with its classic surroundings, is the work of father-son architect duo Johann-Aksel Tarbe and Tõnis Tarbe of Arhitekt Tarbe OÜ.

GREEN ENVIRONMENT FOR ALL At the heart of the project is a large park, which was designed by Kino Landscape Architects OÜ. The clear structuring of private and communal open spaces gives the residents the desired sense of homeliness while at the same time creating the opportunity for social gatherings in the courtyard of the development. The park itself is divided into an active zone with a children's playground and a recreational area with seating and rest areas. These two areas are connected by a central covered square with a communal outdoor >



The buildings are characterised by a balanced, site-specific architecture.

FACTS & FIGURES

Project name

Uus-Veerenni, Tallinn, Estonia

Architecture

Arhitekt Tarbe OÜ

Landscaping

Kino Landscape Architects OÜ

Client

AS Merko Ehitus Eesti

Products used

Terca ceramic brick slips in Grafiitti, Pellava, Tuohi, Flame, Punainen, Terrakota and Kaakao; Penter paving bricks in Terrakota; Koramic Datura Antracite ceramic roof tiles

Year of completion

Phase I 2019

Phase II 2020

Phase III 2022





In the courtyard, some rainwater flows into modern, cobblestone-lined gutters which provide children with water features and insects, birds and other animals with drinking water.

The façades are clad in different combinations of natural colours to make it easier for residents to find their way around, and to visually separate the individual buildings.

A GOOD REASON FOR BRICK The aim was to create residential buildings constructed from high-quality, durable building materials to provide lasting value for several generations of residents. “We chose factory-produced materials for the structure itself, to shorten the construction time and ensure the quality of the final product. That’s why we opted for concrete elements with an additional outer layer of ceramic brick slips,” says architect Johann-Aksel Tarbe, describing the planning process. The choice of colours was another reason why the architects opted for this material: “The balanced variety of colours does justice to clay as a material. Clay has a natural colour palette – from shades of white to red tones to dark grey. All the colours are harmonious and easy to combine with each other, which can be seen to full effect on the façades.” Plus, brick is a material with history. It gains a patina over time not only maintaining but increasing in attractiveness. ■

> kitchen. Rainwater is used to water the plants in the park. Cars are kept out of sight in an underground car park, but there are cycle parking spaces located throughout the development, so that every resident can park their bike near their home.



There is plenty of space here to play, relax and hold informal gatherings. The many communal spaces flow naturally into the private areas of the building, creating an open neighbourhood.

WHERE PRIVATE AND COMMUNITY BECOME ONE

Skibet (meaning “the ship”) is an exciting new residential development in Køge Kyst, Denmark, which encourages the interplay of private and community life. Carefully conceived solutions, sustainability and quality of life lie at the heart of this diverse neighbourhood.

FACTS & FIGURES

Project name
Skibet, Køge Kyst, Denmark

Architektur
Tegnestuen Vandkunsten

Client
PensionDanmark

Product used
EW3373 Safari

Year of completion
2020

Construction of the Skibet residential building in Køge Kyst, Denmark, was delayed when a 500-year-old shipwreck was discovered on the site – a sensational find, which ultimately inspired the name of the development. Occupying 9,600 m², this innovative building complex contains a mix of rental apartments for families and apartments within a residential community for the over 50s.

ROOM FOR DIVERSITY The project has its roots in a vision to create a housing development that caters for different sections of the population, promoting socio-cultural and socially sustainable development. In practice, that meant developing an excellent

architectural design with carefully thought-out details, which takes into consideration long term ecological, economic and socially responsible factors. A third of the development is taken up by Lifestyle Housing 50+, devised by Pensiondenmark in collaboration with Realdania. The accommodation for the over 50s includes a number of facilities providing communal activities for the residents, such as a communal kitchen, workshop and outdoor space, an orangery, laundry and library. There is room to play, relax and enjoy social gatherings – for a picnic, a book or fun at the playground in the green courtyard. The many communal spaces merge naturally with the private areas of the building, creating an open neighbourhood.



Hand-painted yellow bricks in a variety of bright shades by Egernsund Wienerberger have helped an exciting new residential building successfully blend in with the surrounding coastline.

SUSTAINABLE CONSTRUCTION AND BOLD ARCHITECTURE

Both the natural landscape around the project and the story of the shipwreck have informed and influenced its design and the choice of materials. Responsibility for planning and construction lay with architectural firm Tegnestuen Vandkunsten and, according to architect Susanne Schelde, who designed the configuration of this exciting building complex, the choice of EW3373 Safari hand-moulded yellow bricks by Egernsund Wienerberger was a very conscious one. The yellow bricks were chosen for their bright and varied shades, and their rustic, sandy surface. They blend in with the large, bright beach meadow surrounding the development, creating a harmonious façade that contributes to visual cohesion in the city. Designed with great attention to detail and arranged in such a way that they benefit from optimum, gentle light, all the buildings that make up Skibet have been constructed in bright, high-quality materials, which have been certified sustainable. This has earned the building DGNB Gold certificate, awarded by the German Sustainable Building Council (DGNB e.V.), for economic, social, ecological, technical and process-related sustainability. ■



SUSTAINABLE BUILDINGS – FAIR RENTS

The municipal enterprise, Wohnungsbau Ludwigsburg GmbH, have built five apartment buildings in Ludwigsburg, Germany with the aim to create sustainable and cost-effective housing that is also affordable.

The developer wanted the five new apartment buildings – comprising 42 rental apartments, 18 owner-occupied apartments and two underground car parks – to fit harmoniously into the Sonnenberg district of Ludwigsburg and was impressed by a design by ARP ArchitektenPartnerschaft Stuttgart GbR. Their design positioned the five-storey buildings in such a way that the single-family housing development in the north of the district would have views of the open spaces to the south. Wohnungsbau Ludwigsburg GmbH (WBL) had a well thought out plan to create a mix of owner-occupied and subsidised private rental apartments, thereby giving them the financial freedom to focus on architectural design, sustainable construction and good quality fixtures and fittings.

AN EXAMPLE OF SOCIAL COMMITMENT WBL defined clear criteria which the construction project had to fulfil. One such criterion was to meet the KfW55 standard, another was to avoid a typical solid construction of polystyrene ETICS. Ecology and durability were key considerations for the client when choosing the building materials. “As a municipal housing association, we see ourselves here in the role of social pioneer,” says Achim Eckstein, Head of Project Management at WBL.

A COMPARISON OF CONSTRUCTION METHODS The first step for the architects at ArchitektenPartnerschaft Stuttgart GbR was therefore to evaluate a variety of potential construction systems. “We looked at timber construction, lightweight construction and thermal insulation bricks, and it was clear that brick was the most economical construction method,” says architect Julia Diez. The perlite-filled, Poroton S9-P brick was chosen to build 42.5 cm-thick walls, allowing the client to achieve the structural requirements for the five-storey buildings and simultaneously ensure that the masonry had good thermal insulation. The

FACTS & FIGURES

Project name
Residential complex
Caerphillystraße,
Ludwigsburg, Germany

Architecture
ARP ArchitektenPartnerschaft
Stuttgart GbR

Client
Wohnungsbau Ludwigsburg
GmbH

Products used
Poroton S9-Perlit, Poroton
Plan-T 17,5-1,4 EB, Poroton
Accessories

Year of completion
2019

client was particularly impressed by the insulating filling of perlite, a naturally occurring volcanic rock, for which the product has received the German “Blue Angel”’s ecolabel. A healthy indoor climate was another requirement for the project, and this brick has been certified free from pollutants and emissions by the German eco-INSTITUT.

A SOCIAL CHARTER FOR AFFORDABLE, HIGH-QUALITY HOMES WBL’s main aim with this construction project was to create affordable rental accommodation

Thanks to their clever architectural design, these multi-apartment buildings create both an individual and community address.





Five residential buildings with a total of 60 apartments create affordable housing in line with the “fair housing” model. The well thought out concept of mixing rental and owner-occupied apartments enables both social and environmental responsibility.

those on middle to low incomes, in accordance with WBL's own ‘fair housing’ model. The model makes provision for owner-occupied apartments and for both standard and subsidised rentals. Income from the privately-owned apartments is reinvested in the subsidised rental apartments, which are for tenants with a certificate of eligibility to live in apartments at reduced rent. If such tenants get a pay rise, their rent protection is reduced accordingly. The “fair housing” model thereby creates a better social mix and stable communities. By taking all these factors into account, those involved in the project have achieved their goal of building a forward-looking, sustainable and social residential district. This achievement is underscored by the award to the project of the NaWoh [Sustainable Housing] Seal of Quality 2020 and the Stuttgart metropolitan region ImmobilienAward [Real Estate Award] 2019 in the housing category. ■



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