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CHRISTOF DOMENIG
CEO CLAY BUILDING MATERIALS EUROPE

EDITORIAL

There are many good reasons to decide on renovation: Preservation of traditional buildings and values for generations, adaptation of space concepts for flexible use, increase in value, energy efficiency, improvement of infrastructure and quality of life, and of course the restoration of the original aesthetic appearance also plays an important role.

In the past, buildings were often demolished without much thought and high quality buildings were destroyed. This has changed over the past years. Renovation is trend. Historical buildings such as the Preußensiedlung in Germany, which was built in 1913 are not only preserved, but rather they are also perfected.

But what about the financial aspects? This factor must be taken into account if economical terms are considered. Energetic refurbishment of buildings saves considerable amounts of energy, as in the case of the housing complex in Mettmann, Germany, where energy consumption was almost halved by means of a successful renovation. The resale value of renovated building is also much higher. Thanks to successful renovation, the owners of the house in Mechelen, Belgium, were able to obtain a return of 20% - a worthwhile investment.

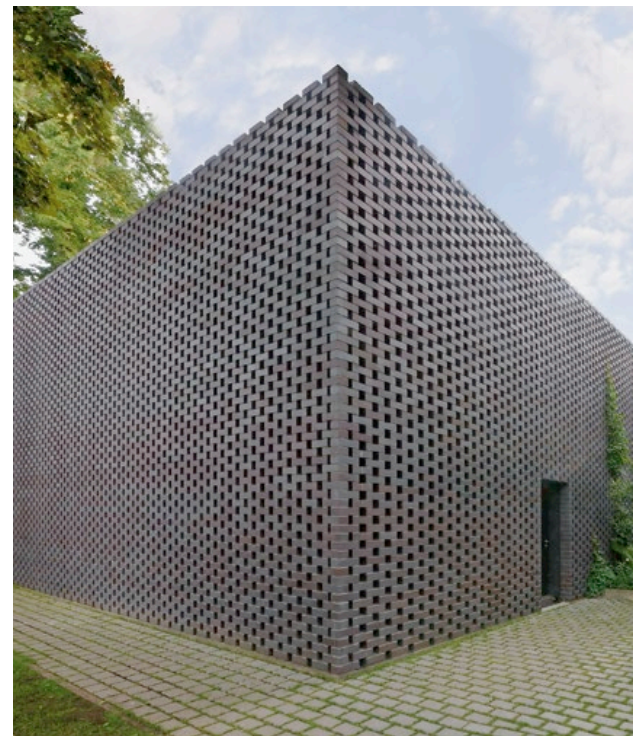
Experts are needed to successfully implement renovation projects. Architects enliven and improve old building structures with their creativity and know-how. The choice of the right building material is also decisive. Bricks are a part of our building culture; they have lasting value, economical, energy efficient and contemporary. Unique projects of this type clearly illustrate: A professional renovation in collaboration with architects is always worthwhile!

Enjoy the read

Christof Domenig

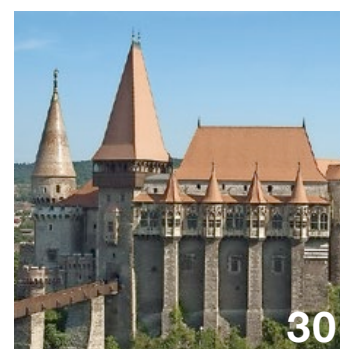
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WASSERSTRICH SPECIAL – ADDITIONAL MODELS ON THE CLAY CATWALK

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ralph.vanhoomissen@wienerberger.com



ALEGRA 15 – AN INTERLOCKING GENTLY CURVED CLAY ROOF TILE FOR RENOVATIONS AND NEW PROJECTS

Thanks to the small format of only 14pcs/m² and the overlapping system, Alegra 15 guarantees a smooth and harmonious roof covering. Due to its recommended minimum roof pitch of $\geq 20^\circ$ the tile is ideally suited for renovation projects where a less steep roof is required. In addition, Alegra 15 is easy for roofing contractors to handle because of its small width. In combination with the innovative Wienerberger Sturmfix 2.0 system, it can be secured fitted to provide storm protection on any roof and provide enhanced safety in case of severe weather conditions. Manufactured in Bogen, Germany, which is famous for elegant engobes, the range of seven different colours enables an individual appearance for every renovation project. www.wienerberger.de
christian.kriemelmeyer@wienerberger.com

IBERIA SERIES – INSPIRED BY THE SPANISH WAY OF BUILDING

Iberia bricks are hand-moulded to embody tradition and authenticity. The deep, rough grained structure gives facades a brilliant, warm, and historic appearance. Four of the five available colours (Andalucia, Asturias, Catalonia and Galicia) are sintered to give an even more characteristic look. The fifth color, Navara, features light shading to give a subtle yet striking look & feel. All of the colours were inspired by particular buildings. The Sagrada Família cathedral in Barcelona served as inspiration for Catalonia. The cathedral in Santiago de Compostella reflects the typical colours of Galicia. The colour Asturia is reminiscent of the Santa Maria de Naranco in Oviedo. Javier Castle in Pamplona embodies the shades of Navarra, and Andalucía refers to the colours of the Alhambra palace in Granada. The warm colours engender trust, giving varied vitality to façades for both contemporary and renovation projects, imbued with passion. www.wienerberger.nl
patrick.jansen@wienerberger.com





"House of Trace"



Marie-Cécile Emberton

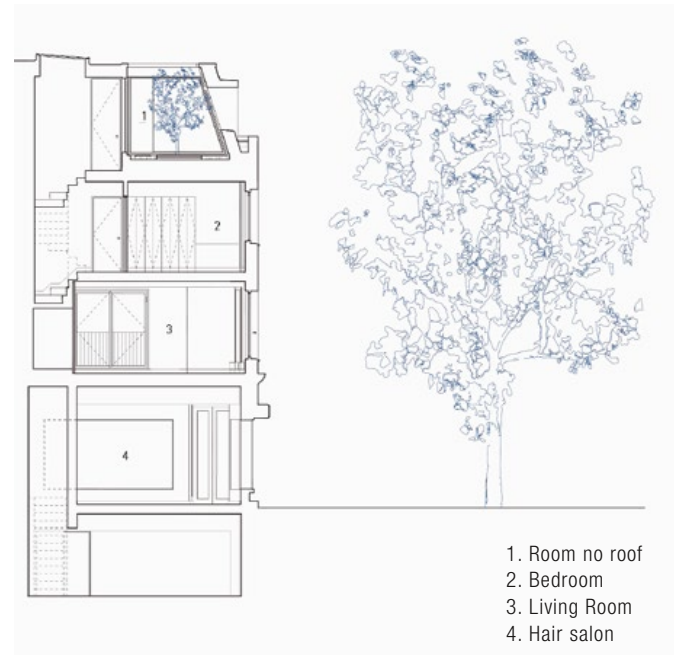
TRADITION MEETS MODERN SUSTAINABILITY

Your project "House of Trace" won several awards. Among them the RIBA National 2016 award. Located in London, it consists of a reinterpretation and the refurbishment of a domestic space. It looks strikingly elegant, simple but sophisticated. Is there a special reason to renovate buildings instead of tearing them down?

"House of Trace" is not really a conservation project, because a conservation project is normally concerned with historic or architectural value, which is related to collective memory. I'm interested in personal memories associated with spaces and places. The old extension building was typical and had a sloop roof like many others in terrace house back gardens. It doesn't really have any value, it's so banal. I wanted to keep this "banality" that can relate to ordinal every day life. It's more interesting to keep the other part, not the material value, but the memory.

But is banality something you would refer to as positive? Because in German, the word "banal" has more of a negative aspect.

Yes, I know, it is a peculiar term. The house is banal in its appearance. It's very insignificant. It reflects every day life. So in the house, I wanted to keep this insignificance and to turn it into something that is more challenging. The question was: is it better to refurbish it or to knock it down? I wanted to keep the existing crack in the house, as a reminder, to know what has happened to the house. Normally in a conservation project, one would have that crack completely repaired and put new bricks there. But we just only fixed the crack and left the trace. The every day life of a house in use has to do with age. I wanted to keep this ageing of a house. Also the new part of the house is going to be aged together with the old, to fit into new life of the habitants.



So it's like a process of life that you can demonstrate when you use a connection of old and new materials.

Yes, they live together. Another aspect, of course is wastage. If you throw things out of the site, you have a lot of rubbish, a lot of energy is consumed to transport the rubbish out and new materials into site. Throwing away is not sustainable but re-using is time-consuming because you have to sort the parts out that you can reuse. And sometimes you find something ...

So there's always a lot of "grey energy" stored in the building.

Yes, this is also challenging. The new materials are always innovative. Working with the regulations becomes harder and harder as the bars get higher and higher, for example for the heating. But we are adapting to the current regulation level as much as we can.

So the advantages of renovation are, from your point of view, very clear.

Yes, first: the wastage is minimized.

And using the materials again means also that the aspect of sustainability is strong.

The selecting of re-usable bricks is a very time-consuming labour. But since it is happening on the construction site, the transport for new materials is reduced.

Using the old materials adds to the character of the house, interpreting it in a new way. Would you agree?

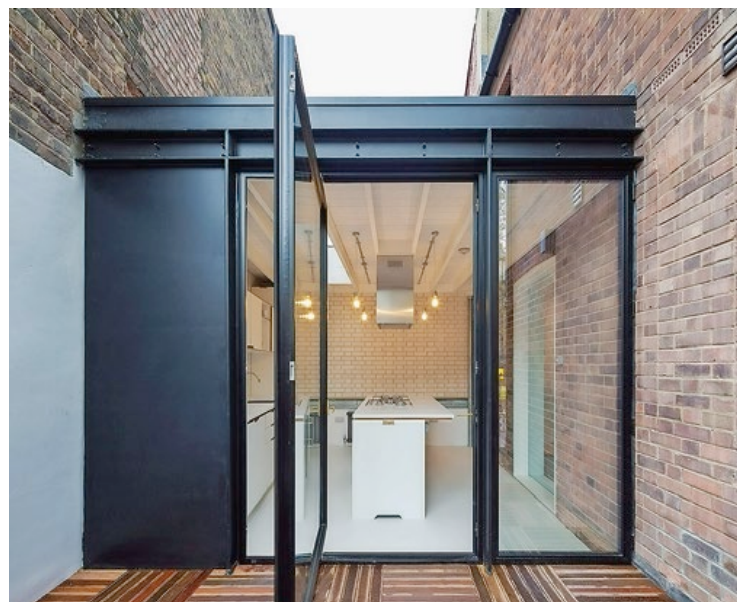
Yes. I am doing this with another project, we kept the old windows after we upgraded them to new double glazed windows. We would have to throw them away, but we kept them to reuse them, maybe for an internal partition. Because they have become symbolic. They were there for a long time, protected the house for 100 years. Now they can be used in a different manner. The character is given a different body. It is more important how you interpret it. And how we interpret old into new is the key. I feel the approach of conservation is good, but sometimes the aim of the client is that the renovated building should look like the old one. To me, the question is: how can you interpret it into something new?

So it should be discernible which parts are old and which are new?

The designing of contrasts is probably another key aspect. First it is "old- old". And now I try to make it "old-fresh". Even though you use old material and old space you have to give a new sort of life to it. You have to interpret it as different (new).

What is the most challenging aspect in approaching a storied building?

It is really difficult to foresee what is happening – you take some parts down, and then you discover something unexpected. This happens during construction. But the price of the project is fixed beforehand, and



Renovation project "Room no roof" by Tsuruta architects.

when something unexpected happens, you might have to change the price, or to change the design. So it's a kind of negotiating between the costs and adapting to the situation. Sometimes this is the opportunity to come up with new solutions. If you can overcome these challenges it always ends up in something unexpected. For example, I had a project for which I was proposing a steel staircase. But we found out it would be too difficult to fix the steel structure unto the brick wall. So eventually we ended up with unusual timber stair. If you can come up with a good solution the unexpected can have a positive effect. This is the challenge.

What role do sustainability and energy efficiency play in your renovation work?

Of course it is important to build energy efficient but the most energy efficient building is one you can use for a long time. As houses are highly energy consuming, one of the most sustainable ways of building is giving new life to already existing buildings, to re-interpret something old into something new.

Is it easier to renovate or to construct a new building?

In general it is easier to construct new buildings but new build projects have more possibilities at the start, which makes it harder. On the other hand refurbishment projects are working within the constraints. When you refurbish, you have an already given frame, so it is easier at the beginning. But work gets harder on site. So both has pros and cons

What are the bottlenecks preventing ambitious renovations of buildings in Europe and how can we overcome them?

In England, clients are quite nostalgic about brick buildings. So concerning domestic projects, there is a lot of renovation work going on. Whereas in Europe people often tend to prefer new buildings. The aspect of boosting the building trade plays a role here, too. In my hometown Osaka, people also tend to tear down and construct anew, not only due to earthquakes. Every time I go there I find a new and different city. This way you lose track of time, you lose memory of a place, you don't recognise even where you grew up. This attitude may have to do with the idea of consumption, which also refers to style. In Germany and Belgium people seem to prefer new buildings, whereas in Italy the idea of conservation plays an important role.

Do you see a connection there concerning the attitude towards history – like in England and Italy, people want to revive the glory of earlier periods, and in Belgium and Germany people prefer new interpretations and move on into the future?

Certainly it is essential to find a balance, to keep track of history but add the energy of new ideas. It is important to have a contrast and to integrate it.



A NEW LEASE OF LIFE FOR THE PREUSSENSIEDLUNG

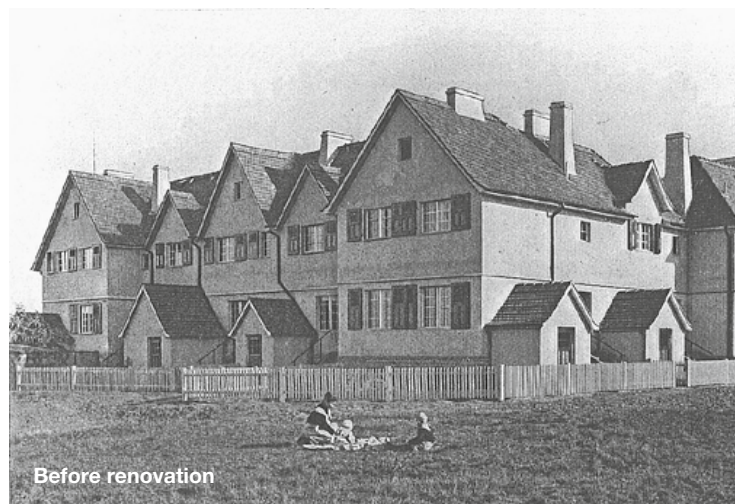
Residential, and above all living space, has always been in short supply in conurbations. More than 100 years ago, the idea of a home with its own garden emerged in Berlin. Between 1910 and 1913 the Preussensiedlung was constructed in Berlin-Altglienicke, Germany.

In two construction phases with 45 small residential houses, each with their own garden, the architects Max Bell and Franz Clement constructed the first phase, while the second phase was constructed by Hermann Muthesius, an architect from the German Association of Craftsmen, „Werkbund“. This resulted in the prototype for a garden city: Living in a small house, in a neighbourly atmosphere in a green area, but with direct links to the conveniences of a large city, is a wish which is still valid.

NOT A CONVENTIONAL INVESTMENT PROPERTY As a classic victim of German reunification, the well-known residential complex, parts of which are protected historic buildings, rapidly deteriorated. Se-

veral changes of ownership and unattractive returns delayed the long overdue refurbishment of the buildings. Three quarters of the country homes were no longer habitable. Finally, an investor was found who commissioned a refurbishment plan.

MAINTENANCE, NOT RESTORATION For the refurbishment, which was completed in 2012, the Berlin firm of architects Kuben-
eck Architekten who were commissioned with the planning and implementation, were guided by the concepts of Hermann Muthesius with regard to the preservation of historic buildings: The sole objective of preservation of historical buildings should be maintenance, but not restoration. The new constructions should be identifiable, but „sup-



INFO

PROJECT
Preussensiedlung, Berlin, Germany

ARCHITECT
Max Bel and Franz Clement (first construction phase), Hermann Muthesius (second construction phase)

CLIENT
terrapiplan Grundstücksentwicklungsgesellschaft

PRODUCTS USED
Koramic-Ziegel Cavus 14 naturrot
Koramic Berliner Biber Segment-schnitt naturrot

YEAR OF COMPLETION
2012

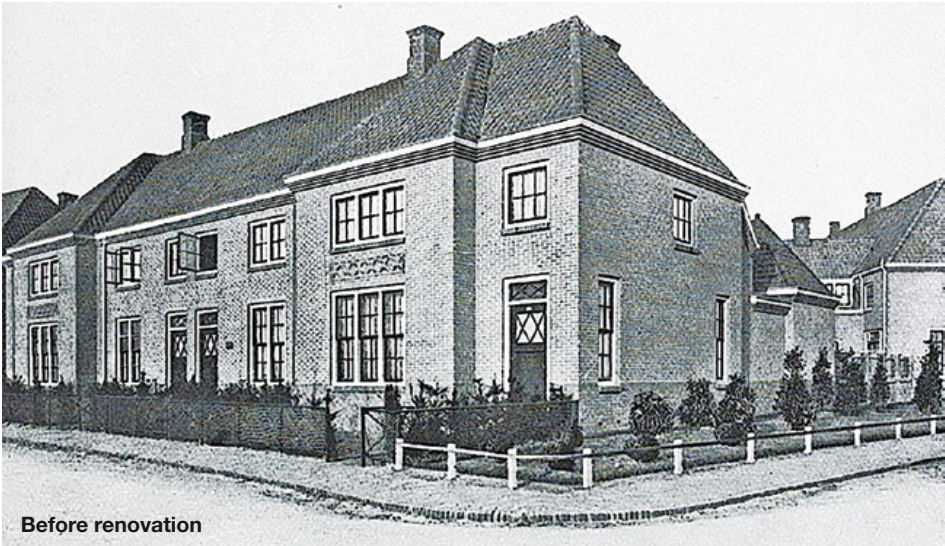
PHOTOGRAPHY
Markus Hoeft

plements in the sense of an artistic completion of derelict or missing parts are absolutely not permissible", as the architect from the German Association of Craftsmen, „Werkbund“ stated in the periodical „Kultur und Kunst“ in 1939.

ONE RESIDENTIAL ESTATE – TWO CONCEPTS Two concepts were developed although this is a single residential estate. The first construction phase by Max Bel and Franz Clement consisting of 19 apartments with 55 m² in seven semi-detached houses is of greater historical than architectural interest. Here, the existing buildings were modified to a greater extent; the floor plans were optimised and the façades were externally insulated. The second construction phase by Hermann Mu-

thesius with 26 terraced houses, which he combined to form an atrium were to be modified as little as possible. Because of this, the houses were insulated from the inside in order to preserve the character of the façades with their rough brushed rendering.

MODERN MATERIALS – TRADITIONAL ROOFING SKILLS The thing that both refurbishment concepts have in common is the renewal of the roofs. Roof tiles which precisely corresponded to the existing or historical form were used for the relevant construction phase. At the same time, the tiles which were used possessed the high quality of modern industrial products. Craft skills which continued in the tradition of high quality roofing were required on site.



HISTORIC HEART OF EINDHOVEN: RENTING FOR GOOD VALUE

At the beginning of the twentieth century housing for workers was in great demand. This was also the case in Eindhoven (Netherlands), which is why Philips bought a plot of land adjoining the old light bulb factory in order to build a factory village. Nowadays Philipsdorp is no longer a factory village, and it is difficult to find any of the original features. In order to restore the houses in this pre-war neighbourhood, the housing corporation Woonbedrijf initiated a large-scale renovation project in 2012.

“Philipsdorp is one of the largest neighbourhood regeneration projects in the municipal district of Eindhoven”, says Jorg van Waas, real estate developer at Woonbedrijf. “Initially, the idea was to replace most of the houses, however the inhabitants entirely disagreed. Because of this, the council, the inhabitants and Woonbedrijf ultimately devised a renovation plan for the houses.”

The architectural firm BouwhulpGroep was engaged in an advisory role for the renovation of Philipsdorp. This agency specialises in refurbishing existing residential buildings. Architect Roel Simons explains BouwhulpGroep’s role in the project in greater detail: “We advised on the housing which was to be tackled, and what it should eventually look like. The history of the neighbourhood was researched, to ascertain what had been there previously, which historic elements had now been removed, and which of these would have to be reinstated. This aspect was extensively discussed with the inhabitants and Woonbedrijf.”

READY FOR THE NEXT 40 YEARS Prior to the start of renovation work, Woonbedrijf and an inhabitants’ project group formulated a framework document, outlining the neighbourhood’s aims. “The basis for renovation was that the houses had, at the very least, to be around for another 40 years”, explains Van Waas. “We wanted to improve the civil engineering, structural and technical housing quality. Living comfort and functionality of the houses also had to be improved”, says Van Waas. An additional vital baseline for the renovation work was to improve the cultural-heritage value of the neighbourhood. Philipsdorp has been designated as a listed area since 2003.

CONTINUOUS DELIBERATION The most salient original architectural aspects of the houses in Philipsdorp were researched. “In this regard we didn’t merely state, ‘it will now be as it was before’. We also took present-day requirements into account”, says Simons. “For example, the old roof tiles were of such poor quality that they were all replaced. To restore authenticity as well as possible, the original type of roof tile

was selected. The facades of the houses were cleaned and repaired. “It was essential that the colour was carefully matched to the colour of the original, so that the entire surface area blended together”, explains Simons. “In addition, it is of course vitally important that the new bricks match the original ones as far as possible”, adds Van Waas.

INTENSIVE PROJECT The renovation project involves 771 houses. The majority of these houses have already been completed. This is a very intensive project for the inhabitants. They have to move to a temporary home for three months, after which they can return to their homes that in the meantime have been fully rebuilt. Fortunately we hear their delight in the end result”, says Van Waas. “The option to renovate instead of building new houses ultimately has a positive effect. “As the costs for a new building are generally higher, the rent for new buildings also often rises. We have been able to avoid this with this renovation.” says Van Waas.

INFO

PROJECT

Philipsdorp, Eindhoven, Netherlands

ARCHITECT

BouwhulpGroep

CLIENT

Woonbedrijf, Eindhoven

PRODUCTS USED

Terca Rood kolengestookt vormbak
Renova

Koramic Tuile du Nord 44 blauw
gesmoord and natuurrood

YEAR OF COMPLETION

in progress, to be completed 2017



A NEW ROOF: HISTORIC LOOK ACHIEVED WITH LATEST TECHNOLOGY

Mećavnik is a traditional village that the Serbian film maker Emir Kusturica built for his film “Life Is a Miracle”. It is located two hundred kilometres southwest of Belgrade, Serbia. The town was built entirely out of natural materials with traditional construction in mind, but the wood shingles which were used proved not to be the ideal choice and had to be replaced with something more durable.

To realise his concept of a traditional village, professor Kusturica had to overcome many administrative challenges and complex technical problems from the outset. However, what was clear to him from the start is that in such a location, the only settlement that can be built and survive is one which relies entirely on the traditional construction methods in this area. This also had to harmonise with its natural surroundings.

This concept, and the commitment, to build a town out of natural materials, obtained mainly by buying abandoned and derelict cottages,

barns, and other buildings in the immediate vicinity and surrounding area, resulted in a successful outcome. The Philippe Rotthier European Architecture award received in 2005 honoured the architectural solution of this original reconstruction of an ethnic settlement. After completion of the filming project, it is now used as a tourist complex.

WEAKNESSES OF WOOD SHINGLES However, the effort to build the buildings in the settlement on the hill as an authentic replica and make them a monument devoted to the national style of building, cha-



Before renovation

racteristic for that area, revealed its first weak points after only a few years. The wooden shingles on the roofs started to dry out and warp under the influence of the weather. After a time, when the substructure of bitumen sheets and coatings lost its function due to exposure to heat, the roofs started to leak.

A NEW ROOFING SOLUTION Therefore in 2012 a renovation was decided, starting with the roof of the reception building. The roof tiles had to imitate the appearance of the wooden shingles. The grey engobed roofing tiles in combination with sub-roof, rear ventilation and safety components, were an example of well performed roofing, in accordance with the technical regulations and rules of the trade. This choice also ensured that the visual harmony of the settlement was not disturbed. Instead the clay tiles perfectly blend into the concept of the original architecture while giving it a new and modern dimension.

Due to the success of this result the mountain house at the "Iver" skiing site, near Mečavnik, was also roofed with clay tiles. These have also been tested by the commission of roofing experts, to qualify for use on the roofs that will be continuously exposed to the critical eye of the public.

WORK IN PROGRESS Since 2014 ten renovated and two new buildings have been covered with 250,000 clay roofing tiles, equivalent to a surface of 8,000 m², adding to the unique appearance of the buildings. The work is still in progress and will probably be finished by the end of 2018. But this time the roof solution will last for 50 years and more!

INFO

PROJECT

Mečavnik Hill, near the city of Užice

ARCHITECT

Prof. Emir Kusturica

CLIENT

"Lotika" d.o.o., Mokra Gora

PRODUCTS USED

Tondach Biber Extra Plus flat grey engobed

YEAR OF COMPLETION

ongoing, to be completed 2018



URBAN RENOVATION WITH ADDED VALUE

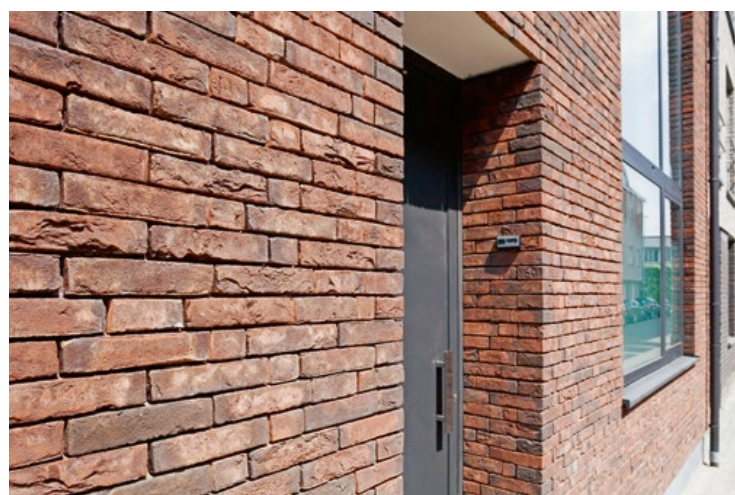
How do we make necessary updates to the ageing housing inventory in our cities – i.e. make these homes energy-efficient and enable modern living comfort without compromising their appearance or the streetscape of which they form a part? This question led to the ‘testcase’ renovation in Mechelen in Belgium.

The initial situation: The terraced house which is partially below ground level, with its small city garden dates back to the early 1950s. The roof, facades and floors were not insulated. The facades were made of solid stone, with the exception of the southern one, which had a limited cavity space. The living comfort of the home was not satisfying.

THE KEY: A WELL-INSULATED BUILDING ENVELOPE The bricks of the facade were stripped off. The vacant space was utilised to add sufficient insulation. Because the city building regulations do not permit any extra building depth onto open land, the new facade was finished with stone strips. The ceramic material respects the authentic character of the home and thanks to its irregular pattern and thin joints gives the entire building an unmistakably modern touch. The result is a robust facade with a solid appearance and long lifespan. The roof has been completely renovated to provide insulation which meets modern standards, a high-quality sub-roof and an outer finish in clay roof tiles. Insulating a sloping roof creates a space that can be quickly heated.

SUSTAINABLE DEVELOPMENT The renovation work provided the opportunity to install a rainwater tank which is connected to the renovated sloping roof. This ensures maximum capture of clean rain water, which is re-used for flushing the toilet, operating the washing machine and an outside tap.

FINANCIAL, ENERGY-RELATED AND ADDED AESTHETIC VALUE The inhabitants are justly proud of their renovated home. “We now see that people who walk down our street stop and admire our house. When we think of all the time, money and effort that we have invested in our house, we realise that we have really achieved something special. Thanks to the renovation and insulation of the outer shell of the building, our energy costs are not the only thing that has improved. We now live in a more beautiful, healthier and more comfortable home. If we ever move, we will be able to count on a considerable return on our investment. The figures show that this investment will give us a return of about 20%. But selling is the last thing we would think of right now.”



INFO

PROJECT
renovation testcase Mechelen,
Belgium

ARCHITECT
ROVE Architecten

CLIENT
Private

PRODUCTS USED
Koramic Tempest tile 44, Anthracite
Terca Blue Velvet

YEAR OF COMPLETION
2016



KEEPING OLD MEMORIES FRESH

“House of Trace” may sound like a new American TV series, but it is the name of a worthwhile result of an architectural concept: a small house, a (barely) freestanding building that completes a row of terrace houses. They crosshatch narrow parcels of land in South London, UK, forming a building-historic construct, that the architects say can be read “as a product of the circumstances, the time, the place, the people involved, even the amount of money that was available at the time”.





This approach led to a sensitive intervention, but not an inconspicuous continuation of the old characteristic style. On the contrary: viewers can sense the memory of the former building, but can also recognise its confident continuation into the present day. First of all, a worthless extension was torn down. It had featured the mono-pitched roof which is typical for the area. This feature was incorporated into the new, flat-roofed extension as an imprint of the historic building. An old window had been visibly walled up; the new openings about the exposed steel profiles of the load-bearing structure. When the old building fabric was laid bare, the architects discovered further features which the building had acquired in the course of its history. For example, a thin wall had shifted, leading to cracks. These were laid bare and left visible in the hallway. In the refurbished layout, the bathroom and kitchen are now in the middle; a light well, onto which the master bedroom opens, provides light from the inside of the building.

STORIES FOR GENERATIONS With an eye to the future, the new extension was left without render wherever possible, so that it could accumulate traces of use. The house will have lots to tell later generations. Only the walls in the children's rooms and bedrooms are rendered. The house has already been imprint of the hands of the builders, but its future memory will be also characterised by the slow ageing process which will affect the bespoke copper and brass installations over the course of time.

FINDING THE RIGHT COMPONENTS All of the building materials came from the local building supplies store. The architects previously tested all of the components and details and developed the design of the conversion in 3-D. The furnishings are inexpensive. They included benches and beds with a concertina foundation, which can be used as storage spaces. The building materials used were light, contrasting



INFO

PROJECT

House of Trace, London,
United Kingdom

ARCHITECT

Tsuruta architects

CLIENT

Private

PRODUCTS USED

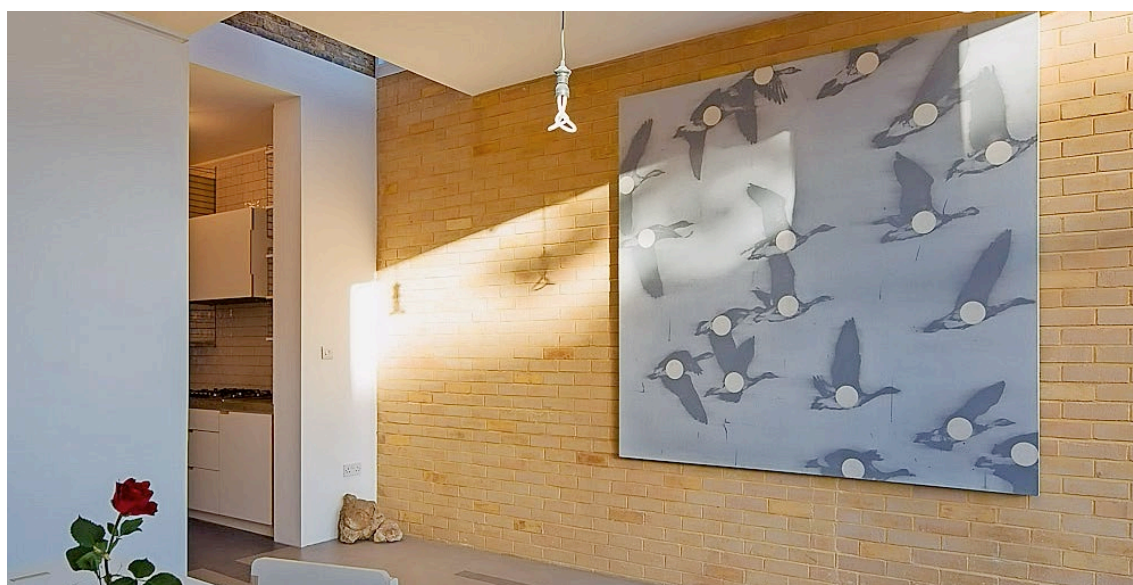
Terca Sheerwater Silver Yellow Stock

YEAR OF COMPLETION

2015

PHOTOGRAPHY

Tim Crocker



facing bricks, painted steel profiles, glazed white pine, birch plywood, Medium-density fibre boards, copper tubing and glazed 'Metro tiles'.

BRICK COMBINATION The load-bearing new walls are composed mainly of silver yellow bricks. As the manufacture of uniform bricks would have been too expensive, some of them were whitewashed with a special mortar. Both solid bricks and bricks with air chambers were used, with a phenolic foam board between them. Some of the walls were insulated on the inside and clad with timber panels or plasterboard.

“OUR INTENT WAS TO KEEP A SENSE OF MEMORY, WHILE SIMULTANEOUSLY ALLOWING THE NEW INTERVENTION TO HAVE ITS OWN IDENTITY. AS WE UNCOVERED THE ORIGINAL BUILDING FABRIC, WE DISCOVERED THE HISTORY OF THE HOUSE.” TARO TSURUTA



ENERGY DEMAND HALVED, SELLING VALUE DOUBLED

The German district city of Mettmann is located near to the Rhine metropolis Düsseldorf. In 1972 a 12,000 square metre apartment complex was constructed on a large park-like hillside plot. Two buildings of equal height, with staggered square green areas and characteristic balconies dominate its appearance. A full energetic refurbishment was completed in 2013.



INFO

PROJECT
Wohnanlage Mettmann, Germany

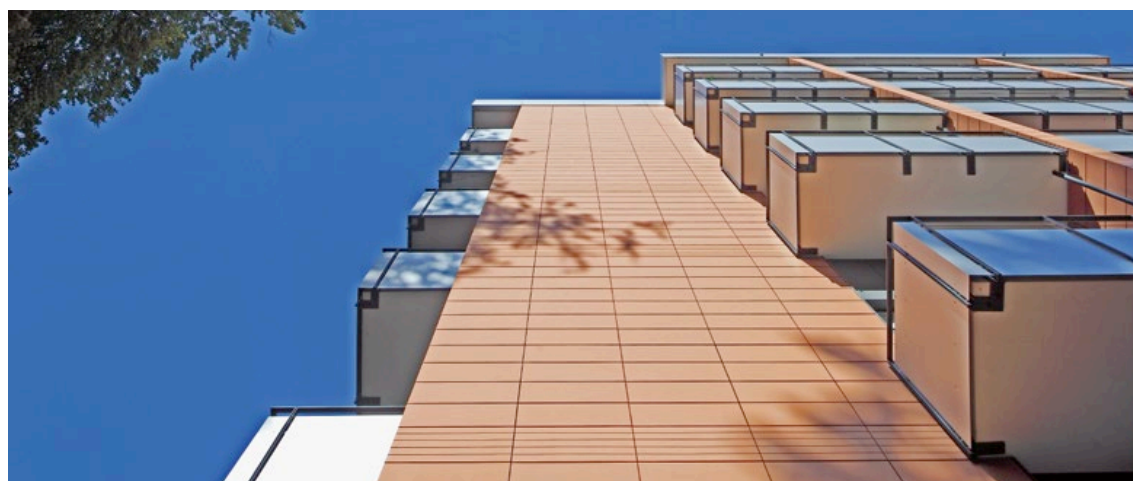
ARCHITECT
Werner Kettler

CLIENT
Private

PRODUCTS USED
Customised product – Argeton orange engobe

YEAR OF COMPLETION
2013

PHOTOGRAPHY
Rainer Rehfeld



The building complex is surrounded by high trees, and large areas of the original façade of cement-bound tiles, similar to concrete roofing tiles, were covered in moss. In consideration of the expected increase in value, the owners decided on the rear-ventilated clay brick curtain façade solution which was recommended by the architect Werner Kettler.

„In addition to the physical requirements which were prescribed for a state subsidy, the demands by the owners on the new building shell were also very high. As well as being dirt repellent, it was important to the decision-makers that this should have a long life, low susceptibility to scratches and impacts, a low risk of moss and dirt, good cleaning capability as well as a high quality appearance and sustainability“, reports architect Werner Kettler.

INDIVIDUALLY MANUFACTURED Due to the different heights of the floors – the ground floor is one metre higher than the other floors – two different panel heights were required. The brick formats which are used are therefore not standard formats, but rather customised productions for the particular building.

The orange colour was modified at the individual wish of the architect. „After extensive consultations, we decided on an engobe surface. Because of the engobe, the surface is smoother and less porous; the selected orange colour appears somewhat warmer. The engobe surface repels dirt and the orange colour excellently matches the grey-bronze aluminium and silver-coloured balcony panels“, says architect Kettler.

A WORTHWHILE INVESTMENT Thee Mettmann apartment complex was refurbished according to an integrated energy concept. In addition to refurbishment of the shell of the building, most of the windows, flat roofs and cellar ceilings were renewed. In comparison with 2007 consumption of primary energy reduced from 370 kWh/(m²a) to 153.5 kWh/(m²a), and the final energy demand from 123 kWh/(m²a) to 54.0 kWh/(m²a), while CO₂ emissions reduced from 84.2 kg/(m²a) to 40.5 kg/(m²a).

The refurbishment has therefore almost halved the values, emphasises architect Werner Kettler, and the increase in value for the owners can also be quantified. „Sales revenue has doubled!“





DESIGNED TO MAKE YOU SWEAT

Raua sauna is one of three public saunas which are still in use in Tallinn, Estonia. Because of its central location it has been well known and popular throughout its life. Its elegant neighbourhood is famous for its functionalist apartment buildings and is now a protected heritage site.

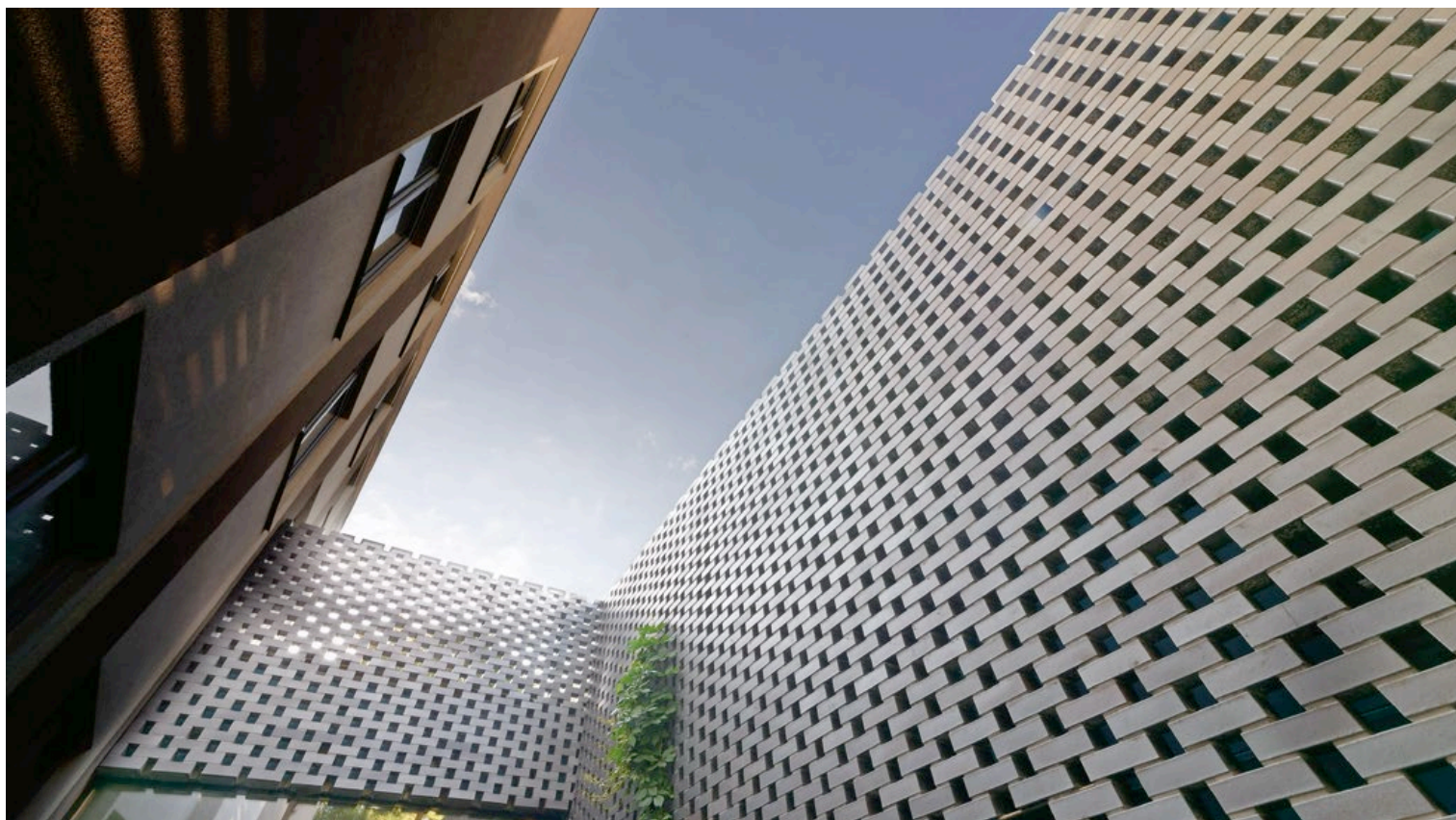


The sauna was built over a period of time: started at 1930's, it received several additions in the 50's and 60's. A further storey was added to the street side. The Pavilion-like building contained a foyer and smaller saunas. The aim of the renovation was to improve the building insulation, to make all of the areas accessible for the disabled and to rebuild the interiors. Because of heavy use and constant humidity, the entire building was in a quite poor state. The older parts were renovated in the original style – a mixture of Art Deco and Functionalism.

COMPLETE TRANSFORMATION The street side pavilion building underwent the biggest change. It was enclosed by a brick lattice structure to form a screen. This screen lets in just enough light for saunas and washing rooms, while at the same time maintaining the necessary privacy of the areas.

The new black brick facade gives the building a modest, but clearly contemporary look, which is prominent enough to underline the building's public use, but does not compete for attention in this well-established neighbourhood.

DURABLE PATHS Brick pavers were used for the entrance area and the paths around the building to ensure the longevity of the structure – the sauna is a very popular place and therefore attracts a lot of guests. Since the sauna is of course most sought-after during the cold months of the year the brick pavers also have to withstand snow and ice and winter temperature which tend to fluctuate around freezing point. Together with the black facing bricks they create a consistent overall expression for the revitalized health resort.



Before renovation



INFO

PROJECT

Raia sauna (public sauna),
Tallinn, Estonia

ARCHITECT

Kavakava OÜ – Siiri Vallner, Indrek Peil
and Ragnar Põllukivi

DEVELOPER

OÜ Nordlin Ehitus

CLIENT

Tallinna Kesklinna Valitsus

PRODUCTS USED

Terca facing bricks, Westminster
Penter pavers, Dresden

YEAR OF COMPLETION

2014

PHOTOGRAPHY

Gert Kasak, Statiiv OÜ,
Kavakava OÜ



FAMILIES LIVING IN A BALANCE BETWEEN RENOVATED AND NEW BUILD HOUSES

Soon after Rotterdam, Netherlands, entered the 21st century, many families left the city to move to other places. At the same time, Woonstad housing corporation faced the issue of how to tackle substandard housing in Crooswijk, a neighbourhood in the inner city area of Rotterdam. The solution resulted in a new urban development plan, which carefully considered demolition/new buildings and renovation.

Most of the houses in Crooswijk were replaced. This was unavoidable, as the original houses were entirely substandard. Improving housing quality was the main reason for opting for demolition.

However, some of the houses were retained. "Put simply, those houses were of far better quality than those which were scheduled for demolition", explains Ahaloui - project developer at Heijmans Vastgoed. The houses have been visually upgraded and a better infrastructure has been created, so that they can be rented out in the coming years.

URBAN DEVELOPMENT AIMS Something also had to change in the design of the neighbourhood. "It was a very introverted area, alt-

hough it had many fantastic quality features", says Van Zomeren - director of development at ERA Contour. "For example, there are many beautiful avenues, but you didn't experience these when you arrived in the neighbourhood. The roads were largely paved, green space was lacking, and cars were everywhere. So, you see, there was great interest in changing the urban development structure, in order to experience the positive features of the neighbourhood", says Van Zomeren.

The aim of the development was therefore very clear. "We had to develop a housing-for-life neighbourhood with highly differentiated houses", says Van Zomeren. "A neighbourhood for families and those on the first rung of the property ladder." In order to preserve the city of Rotterdam in the long term, it must be ensured that families can also settle



INFO

PROJECT

Nieuw Crooswijk, Rotterdam, the Netherlands

ARCHITECTS

Brink architectuur, JSA Architecten, De Zwarte Hond, Geurst & Schulze architects, NL architects, Drost + van Veen

CLIENT/DEVELOPER

Nieuw Crooswijk Development Group (OCNC), a collaboration between Heijmans Vastgoed and ERA Contour

HOUSING CORPORATION

Woonstad, Rotterdam, the Netherlands

PRODUCTS USED

Terca Valencia hand-moulded
Terca Bologna hand-moulded
Both including custom made ball-shaped bricks in the same colour

YEAR OF COMPLETION

in progress, to be completed 2018

within the Rotterdam ring. Nieuw Crooswijk lies within the popular inner city area but is also near the Rotte River and within walking distance of the Kralingse Plas, a leisure area, making it an ideal location for family homes.

A NOD TO THE ORIGINAL ARCHITECTURE One of the development requirements, imposed upon the neighbourhood, was the brick architecture. Ahaloui explains: “Crooswijk was a pre-war neighbourhood characterised by its special brick architecture. Each house and flat is clearly identifiable by its special details, bay windows, special ball-shaped bricks and varied brickwork. These features were specified in the image quality plan right at the start.”

MORE SPACE In order to create more private areas within the neighbourhood, closed blocks of houses were used, such as the ones often seen in 19th century developments. “These create a lovely division between the exterior and the extremely pleasant, tranquil interior where children can play in a safe environment. We also managed to resolve many of the parking needs within the blocks of houses, thus freeing up the roads”, says Van Zomeren. The appearance of the street was recreated with trees and public squares, creating a rich and vibrant streetscape.



AN IMPRESSIVE CONTEMPORARY WITNESS WITH A NEW LOOK

Between 1897 and 1899 a gasworks was constructed in Simmering, a suburb of Vienna, Austria. In the course of this, a water tower with visible brickwork was also built.

The water tower with its integrated high-level tank was originally used for cooling in the former gasworks. When the production of coal gas ceased in 1996, the water tower lost its original purpose. Until 2002 it was used as a water reservoir for the industrial water network in the Simmering gasworks. Due to its historic structure, in September 2003 it became a listed building, as an important witness for the development of former technology.

RESCUE DECIDED Due to the poor state of preservation of the tower and severe frost damage to the brick façade, a general refurbishment was carried out in 2013 in order to preserve this historic building. The recommendations of the Vienna Control Office as well as the stringent requirements of the federal heritage agency were fully complied with, in

order to obtain the best possible result. The historic façade was renovated with bricks in the old Austrian format, in keeping with the building's historic status. Over 1000 damaged bricks had to be chiselled out by hand and renewed. The pillars in the tower area were completely rebuilt. In total, 25% of the bricks were renewed. At the same time, the interior was gutted in order to enable an adequate solution for the subsequent use of the interior as a location for events or as a museum.

SEVERE DAMAGE The façade was very heavily soiled. This was due to deposits associated with the previously high level of sulphur dioxide pollution (operation of steam locomotives) and the calcification of substances leached out of the rendering. These layers of deposits, sealed the surface of the brickwork and severely restricted its ability to diffuse

Before renovation



Before renovation



Before renovation



water vapour. The loss of material from the surface of the bricks also presented a great challenge, especially in exposed locations. Further damage, so called clod spalling results from a combination of frost and salt delamination, because water accumulates in the bricks (and not in the mortar), so that the material breaks up.

SENSITIVE CLEANING Reduction of the layers of dirt on the surface of the bricks was carried out with a low pressure jet method. This reduced the existing soiling and calcification, while being especially gentle on the historical surface. New rendering of the former rendered areas and sheet metal cladding. All of the originally rendered areas, as well as the subsequent changes were to be rendered after removal of the damaged areas. A lime-sand mixture was used as the mortar. Horizontal surfaces and recesses were protected from water penetration with lead sheeting.

HAPPY END After its successful rescue, the venerable water tower shines in new splendour and will be used for special event after the surrounding area has been converted.

INFO

PROJECT

Simmering Water Tower, Vienna, Austria

ARCHITECT

HOPPE architekten

CLIENT

Wiener Netze GmbH

PRODUCTS USED

historic bricks, old Austrian format „Heinrich Drasche“

YEAR OF COMPLETION

2013

PHOTOGRAPHER

HAZET Bauunternehmung GmbH

REGAINING FORGOTTEN SPLENDOUR

Corvin Castle in Romania looks as if it comes straight out of a fairy-tale. It is unique in Europe for its mixture of military architecture combined with key elements of civilian architecture, in a French-inspired Gothic style.









Before renovation



INFO

PROJECT

Corvin Castle restoration, Hunedoara, Romania

ARCHITECT

SC BASTION PROIECT SRL

CLIENT

Hunedoara City Hall

PRODUCTS USED

Tondach Cedonia Biber, natur

YEAR OF COMPLETION

2015

PHOTOGRAPHY

copyright Castelul Corvinilor

Corvin or Hunyad Castle is located in Hunedoara in Transylvania, Romania. It was built in the 15th century on the site of an old fortification, on a cliff above the Zlasti river.

Its founder Lancu de Hunedoara, did not spend much time there, although in 1480 the castle was very imposing in comparison with most castles in Western Europe. It is a defensive building with an access bridge, and has majestic colourful rooftops. The Neboisa Tower (which translates as the “do not be afraid” tower) and the gallery have remained intact since their initial construction.

In the 17th century, Prince Gabriel Bethlen modernised the castle, adding new wings, transforming the interior Gothic spaces and building military facilities such as the White Tower and the Artillery Terrace. At the same time, the glazed roofs tiles were also installed.

On 13 April 1854, lightning caused a devastating fire that extensively damaged the castle. It was subsequently restored, but the restoration was carried out in several stages and some of these were not entirely successful.

Over the past few years, Corvin Castle underwent intense rehabilitation because the roof had been damaged by rain, storms, and rainwater.

Other damage was caused by biological attacks by fungi and insects due to the excessive humidity. Elimination of these problems could only start after painstaking documentation had been completed by specialists in archaeology and the restoration of historical monuments. The renovation was carried out with great care and attention to detail; the roof tiles had to be laid in layers, and for two of the towers each piece had to be cut by about 1 cm to allow them to be correctly inserted into the existing curve of the roof. The roof restoration improved safety for the visitors and made their stay more pleasant, which was also shown in the increasing number of visitors. In addition, protection of the walls and interiors was completed, to fully restore the iconic image of a fairy-tale castle.

Historical or fantasy films are currently produced in the 600 year-old castle, which is often chosen due to the integrity of this medieval monument, its unique interior and the exceptional location. A fantasy movie currently showcases the castle, while the outdoor “Opera Nights” festival is held every year in the inner courtyard, with its exceptional acoustics.



SUSTAINABILITY MEETS BAROQUE ARCHITECTURE

A puppet theatre, an orangery and a water tower are all part of the Esterházy Palace in Fertőd, Hungary. These buildings became decayed over the years; renovation not only preserved these buildings but also made them suitable for their new purpose as an event location. Sustainability played an important role during the entire renovation process.

Built in the 17th century the buildings form a unit, which is located within the palace's baroque gardens. The aim of the renovation was to reconstruct the façades, the roof structures and the interiors to make them ready for their new purpose as an event center and concert hall. The project owner, the National Office for Cultural Heritage ensured that the restoration of the baroque architecture was based on scientific and archaeological research. An entire abandoned ruin had to be transformed into a well-functioning and sustainable art complex.

LOCAL MATERIALS Apart from the historic aspect, sustainability was an important topic in the entire renovation process. During construction care was taken that only local raw materials such as clay bricks and limestone were used. The work was conducted with local manpower.

er. This was the result of a deliberate procurement process, which was strongly encouraged right from the start.

NEW ENERGY The whole building complex was redesigned to use geothermal / solar energy in order to reduce energy costs in the long-term and the necessary infrastructure has been constructed to meet this demand. A heat recovery system was integrated and already is in use. M Architects say: "Our team understands the role which contemporary architects play in designing and building more responsible and sustainable buildings with the smallest possible environmental footprint."

REBUILDING THE PAST Over the years the walls of the puppet theatre had lost a considerable part of their plaster due to several modifi-



cations; before the project started it had been used as a granary. The remaining plaster was retained on the partly exposed brick walls. The restoration was conducted using historic clay blocks from the region, reflecting the sustainable approach. The visible roof structure, based on historical descriptions, reflects the original mansard roof.

The orangery was restored with clay bricks to its original purpose: housing the orange trees and plants from the baroque garden during the winter. Therefore the original heating was reconstructed. However, in summer the space can be used to host events. Completely destroyed in the past, the water tower was completely rebuilt using clay bricks, according to the original design. If an event takes place in the location it now functions as a facility area and links the orangery and the puppet theatre. It can also be used as a small exhibition room for up to 20 visitors.

A NEW LIFE After the successful renovation and utilization of the whole complex, it is a prime example of eighteenth century splendor. The baroque feeling and the excellent acoustics of the concert hall attract many visitors. In addition, all of the buildings are now prepared to operate with geothermal energy in the future and the environmental impact has been kept to a minimum.

INFO

PROJECT

Esterházy Palace in Fertod, Hungary
– puppet theatre, orangery and water tower

ARCHITECT

M Architects Ltd., Csaba Molnár DLA,
Viktor Szentkúti, Dénes Halmai

CLIENT

National Office for Cultural Heritage
Hungary

PRODUCTS USED

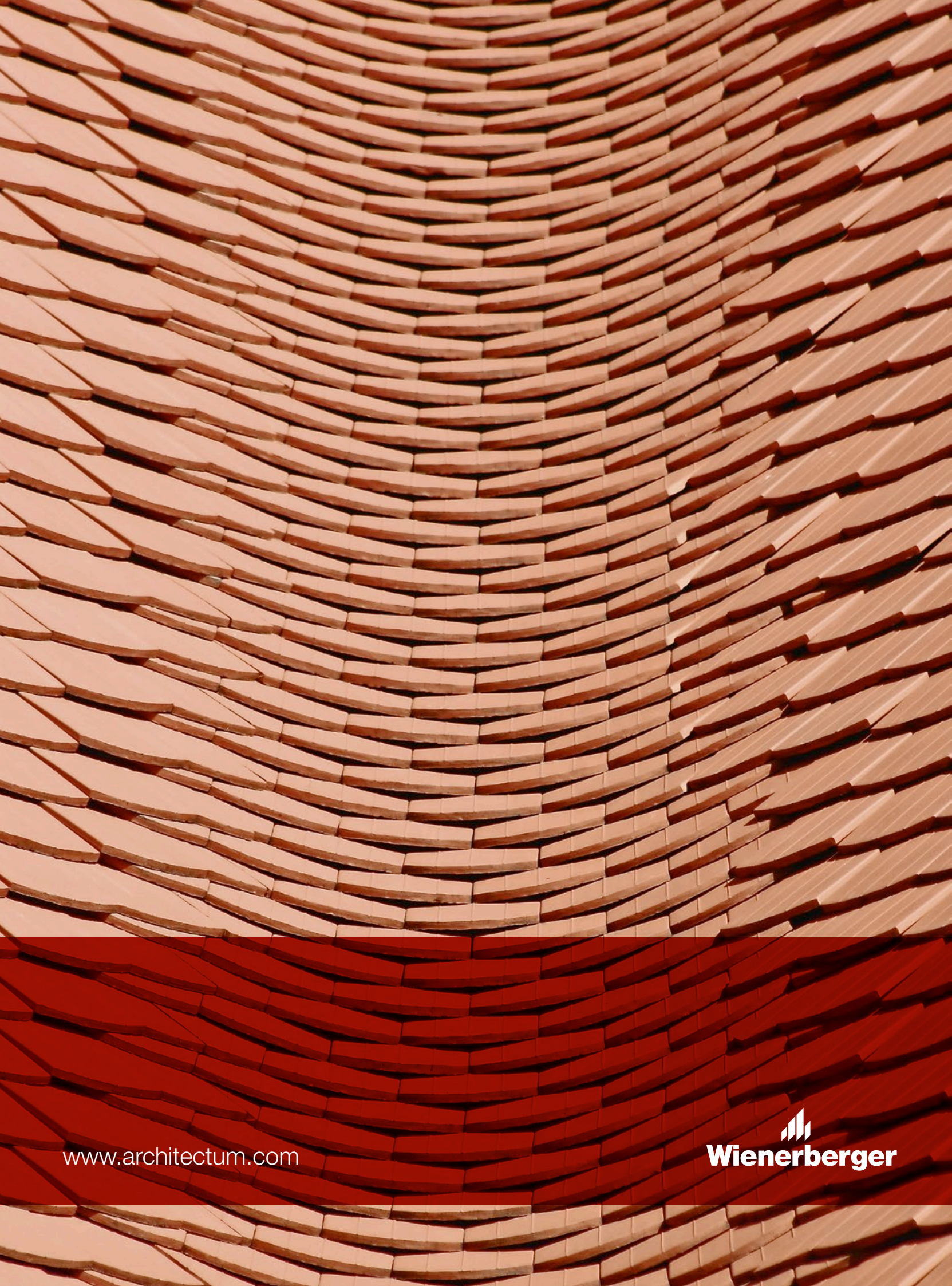
Porotherm 30 N+F
Porotherm 25-38 N+F

YEAR OF COMPLETION

March 2013

PHOTOGRAPHY

Zsolt Batár



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