Factsheet

# Seidelsche Höfe

## From industrial heritage to new residential living

In the heart of Pfungstadt, a small town in the German state of Hesse, a new residential project is taking shape on the site of a former paper mill. The Seidelsche Höfe development combines three key challenges facing the modern construction industry in a single project: resource-efficient construction in existing buildings, the creation of urgently needed housing, and the sensitive treatment of listed historic structures.

**Cover** The two converted factory buildings can be seen in the foreground and at the top left.
© Henning Kreft



As general contractor, STRABAG subsidiary ZÜBLIN is responsible for the project and is delivering all fit-out trades from a single source. The contract comprises the timber roof structure, conservation-compliant refurbishment of the façade, and the complete interior fit-out including all building services installations. The complexity of the project calls for technical expertise as well as close coordination between everyone involved.

Seidelsche Höfe shows how historic existing buildings can be brought up to modern standards without losing their character. The development preserves the site's industrial heritage while creating modern housing within refurbished historic buildings. Of the 65 residential units in total, 26 are being created within the listed historic buildings.

> Working with existing buildings is not a compromise, but a consistent approach to making use of existing structures while preserving architectural character and reducing the need for demolition and replacement."
>
> **Hans-Georg Schmitt,**
> Technical Business Unit Manager
> Reconstruction, Conversion
> and Refurbishment,
> Ed. Züblin AG



**1** Combining the historic steel-framed windows on the outside with modern windows on the inside preserves the attractive appearance while providing effective thermal insulation. © Henning Kreft

## A clear solution for window refurbishment

The most striking and technically demanding heritage feature of Seidelsche Höfe is the original steel-framed windows with their historic glazing. They are a defining feature of the façades. At the same time, however, they provide neither adequate thermal insulation nor airtightness. In their existing form, the windows fall far short of today's energy-efficiency standards.

ZÜBLIN developed a technically sophisticated solution that reconciles the requirements of heritage conservation with modern living comfort:

- The historic steel-framed windows were carefully removed, restored, repainted and repaired.
- A second, modern layer of windows was installed behind the original layer to meet today's thermal insulation standards.
- The space between the two window layers was designed in accordance with building physics principles to prevent condensation from damaging the building fabric.

# Rendered façade subject to heritage requirements

The historic external plaster is also listed and could therefore not simply be replaced across the entire façade. ZÜBLIN carried out localised condition and durability assessments and worked with experts and the heritage authorities to determine which areas needed to be preserved, repaired or replaced. Regular on-site inspections, samples of historic building elements and close coordination with the authorities ensured that no intervention took place without approval and that the historic appearance was fully preserved.

Close cooperation with the relevant authorities was essential to ensure compliance with heritage conservation requirements. This included regular site inspections and the advance preparation of samples for design elements such as roof tiles, render colours and clinker bricks. Thermal insulation was installed on the inside so as not to affect the external façade, while the timber floors were reinforced with additional structural elements to meet acoustic and fire protection requirements.




**2** The roofs were also completely renewed as part of the project. © Henning Kreft / **3** One objective of the work was to preserve the buildings' listed façades. © Henning Kreft




# Preserving building fabric and resources

The challenges posed by a building fabric more than a hundred years old have to be taken into account in both planning and construction. At Seidelsche Höfe, some areas of masonry were badly deteriorated, timber beams were found in locations other than those shown in the documentation, and differences in floor levels between parts of the buildings emerged that had not been recorded in the existing plans.

When faced with issues of this kind, the planning and site management team follows a clear principle: intervene only where structurally or functionally necessary and preserve everything else as far as possible. This approach reduces intervention in the existing building fabric, helps keep costs under control and preserves the authenticity of the historic buildings. Walls were there-fore demolished only selectively. Exclusively those that no longer had sufficient structural capacity had to be removed.

## Keeping mould at bay

One particular challenge was posed by the old earth-contact cellars beneath the factory buildings. These spaces are naturally damp and have no waterproofing, meaning they do not comply with current technical standards for residential use. Fully waterproofing them, however, would have required major intervention in the historic structure, which would have been disproportionately expensive and resource-intensive and would have placed considerable strain on the existing building fabric.

The chosen solution was both simpler and more effective. Instead of installing extensive waterproofing, the ventilation of the basement areas was significantly improved. A smart ventilation system now ensures a balanced indoor climate and continuously regulates humidity without the need to interfere with the historic fabric. At the same time, a horizontal damp-proof barrier integrated into the walls prevents moisture from rising into the ground floor.

> We do not see heritage conservation as a restriction, but as an opportunity to preserve cultural heritage. It means looking very closely at what is there and then working with the utmost craftsmanship and care.
>
> **Nina Herth,**
> Site Manager Seidelsche Höfe,
> Ed. Züblin AG

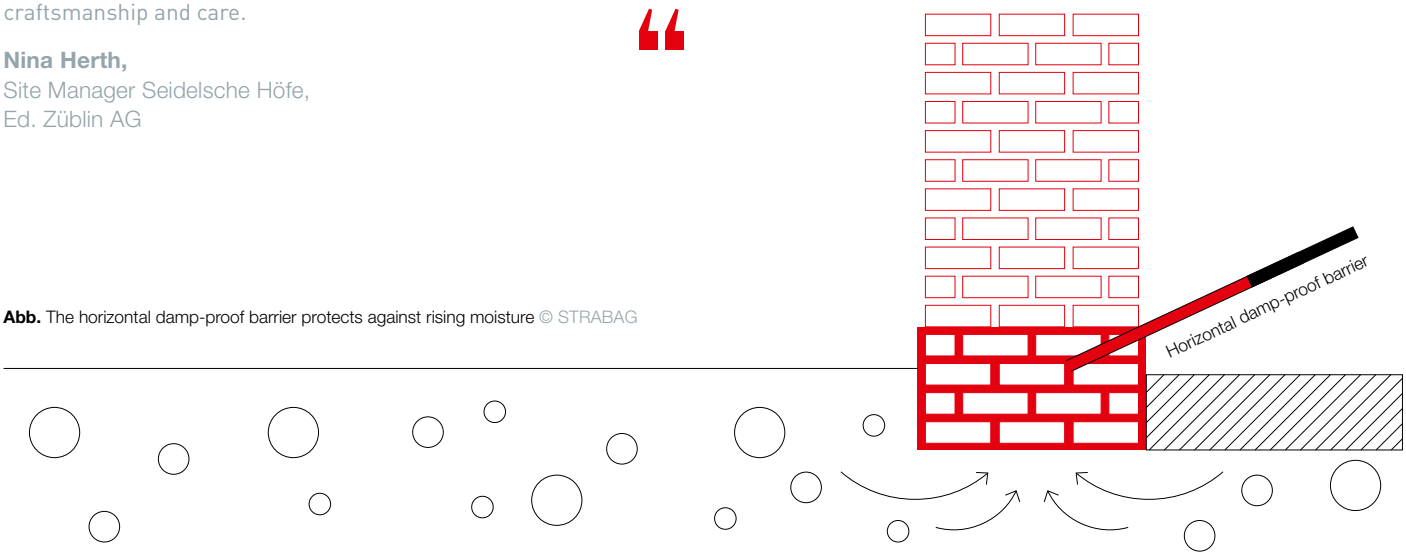



**Abb.** The horizontal damp-proof barrier protects against rising moisture © STRABAG

## Smart organisation keeps costs in check

The creation of new housing is one of the most pressing challenges not only in the Rhine-Main region. Homes are in short supply and demand is high – a situation that is ultimately reflected in the prices. For the Seidelsche Höfe project, this means that every euro saved in the right place helps make housing accessible to more people.

## General contractor instead of separate trade packages

As general contractor, ZÜBLIN took responsibility for all works apart from the structural shell – from the timber construction and façade and window works through to the complete interior fit-out, including all building services trades. Delivering these services from a single source and working with established teams reduces the number of interfaces and the coordination effort involved. The result is more reliable workflows and lower costs.

**The benefits of the general contractor model were immediately apparent:**

- Interfaces between trades are managed by the general contractor
- Significantly less project management and coordination effort
- Greater certainty of execution thanks to bundled responsibility and extensive planning and construction expertise
- More efficient and cost-effective procurement thanks to the purchasing volume of the STRABAG Group

> We are gradually transforming a site originally designed for industrial use into a modern residential development in architectural, technical and energy terms. In doing so, we are systematically making use of the existing spatial qualities while selectively adding new structures and architectural elements. As part of this urban transformation, our development and design concept deliberately seeks to establish the architectural fabric identified as being particularly worthy of protection and preservation as a historic complement to the new development. In ZÜBLIN, we have found the ideal partner to give our real estate investment a clear economic perspective and a reliable timeframe.

**Markus Braunsburger,**
Investor,
BPT Invest GmbH



**4** The confined conditions on a refurbishment site call for sophisticated construction logistics. © Henning Kreft

## Technical advice with a major impact

Creative yet efficient solutions were also found in many areas of the project. The original design envisaged running the building services – all supply and drainage lines – externally along the former factory building. While technically feasible, this solution would have been expensive to build, exposed to the weather and comparatively maintenance-intensive during operation. ZÜBLIN developed an alternative: rerouting the building services lines inside the building. This is more cost-effective, provides lasting protection for the utility lines and makes them considerably easier to maintain. The benefits are reflected not only in the construction budget but also in long-term operating costs

# Overcoming challenges, creating quality

The reconstruction, conversion or refurbishment of existing buildings is inherently more complex than new builds. At Seidelsche Höfe, additional factors made the project a particularly demanding test.

## Logistics in confined conditions

Tight existing structures, limited storage space and the simultaneous work of several trades in both existing buildings and new builds required precise construction sequencing. Digital planning methods made it possible to identify interfaces at an early stage, coordinate workflows and avoid bottlenecks before they could cause problems on site.

### Key individual measures at a glance

- Restoration and repair of the historic steel-framed windows with original glass, together with a conservation-sensitive reinterpretation where required
- Installation of a second, modern window layer to improve the energy performance of the listed building envelope
- Localised condition and durability assessments and conservation-compliant treatment of the historic rendered façade
- Selective demolition limited exclusively to masonry that was no longer structurally sound, with all other structures retained
- Intelligent ventilation solution for the historic earth-contact cellars instead of energy-intensive complete conversion
- Redesign and relocation of all building services for the townhouses to the interior of the buildings
- Complex timber roof structure executed to a high standard of carpentry
- Complete interior fit-out including all building services trades
- Professional remediation of hazardous materials with disposal in accordance with applicable environmental regulations
- Proactive design review and early prevention of critical construction defects despite this not forming part of the contractual scope

# Focus on conservation and adaptive reuse

Seidelsche Höfe is about quality rather than quantity. This is not a major international project or an urban development with hundreds of residential units. And yet the project demonstrates with impressive clarity what can be achieved through the careful refurbishment and reuse of existing buildings.

It shows that heritage conservation is not an obstacle, but a mark of quality. That conserving resources and achieving economic efficiency are not contradictory goals, but go hand in hand. And that affordable housing is created not despite, but precisely through intelligent planning, strong partnerships and technical expertise.

Contact

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